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## Technical Report for

**AECOM, INC.**

**N6274223F0104 RH Fire Suppression System**

**60697810**

**SGS Job Number: FC11715**

**Sampling Date: 12/05/23**



### Report to:

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**Total number of pages in report: 642**



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable unless noted in the narrative, comments or footnotes.

**Norm Farmer**  
**Technical Director**

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Certifications: FL(E83510), LA(03051), KS(E-10327), NC(573), NJ(FL002), NY(12022), SC(96038001)  
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# Table of Contents

-1-

|  |           |
|--|-----------|
| <b>Section 1: Sample Summary .....</b>                         | <b>3</b>  |
| <b>Section 2: Case Narrative/Conformance Summary .....</b>     | <b>4</b>  |
| <b>Section 3: Summary of Hits .....</b>                        | <b>5</b>  |
| <b>Section 4: Sample Results .....</b>                         | <b>6</b>  |
| <b>4.1:</b> FC11715-1: AF-RHMW225401-WGN01B-2312 .....         | 7         |
| <b>4.2:</b> FC11715-2: AF-RHMW04-WGN01LF-2312 .....            | 10        |
| <b>4.3:</b> FC11715-3: AF-RHMW06-WGN01LF-2312 .....            | 13        |
| <b>4.4:</b> FC11715-4: AF-RHMW10-WGN01LF-2312 .....            | 16        |
| <b>Section 5: Misc. Forms .....</b>                            | <b>19</b> |
| <b>5.1:</b> Chain of Custody .....                             | 20        |
| <b>5.2:</b> QC Evaluation: DOD QSM5.x Limits .....             | 25        |
| <b>Section 6: MS Semi-volatiles - QC Data Summaries .....</b>  | <b>26</b> |
| <b>6.1:</b> Method Blank Summary .....                         | 27        |
| <b>6.2:</b> Blank Spike Summary .....                          | 33        |
| <b>6.3:</b> Matrix Spike Summary .....                         | 37        |
| <b>6.4:</b> Duplicate Summary .....                            | 39        |
| <b>6.5:</b> Injection Standard Area Summaries .....            | 41        |
| <b>6.6:</b> TDCA Retention Time Checks .....                   | 43        |
| <b>6.7:</b> Ion Ratio Summaries .....                          | 46        |
| <b>6.8:</b> Isotope Dilution Standard Recovery Summaries ..... | 47        |
| <b>6.9:</b> Initial and Continuing Calibration Summaries ..... | 50        |
| <b>6.10:</b> Run Sequence Reports .....                        | 67        |
| <b>Section 7: MS Semi-volatiles - Raw Data .....</b>           | <b>69</b> |
| <b>7.1:</b> Samples .....                                      | 70        |
| <b>7.2:</b> Method Blanks .....                                | 116       |
| <b>7.3:</b> Blank Spikes .....                                 | 152       |
| <b>7.4:</b> Matrix Spikes .....                                | 196       |
| <b>7.5:</b> Duplicates .....                                   | 218       |
| <b>7.6:</b> Retention Time Markers .....                       | 229       |
| <b>7.7:</b> Initial and Continuing Calibrations .....          | 255       |
| <b>7.8:</b> Instrument Run Logs .....                          | 588       |
| <b>7.9:</b> Standard Prep Logs .....                           | 591       |
| <b>7.10:</b> Sample Prep Logs .....                            | 642       |



### Sample Summary

AECOM, INC.

Job No: FC11715

N6274223F0104 RH Fire Suppression System  
Project No: 60697810

| Sample Number | Collected Date | Time By | Received      | Matrix Code | Type         | Client Sample ID          |
|---------------|----------------|---------|---------------|-------------|--------------|---------------------------|
| FC11715-1     | 12/05/23       | 13:00   | AYMY12/06/23  | AQ          | Ground Water | AF-RHMW225401-WGN01B-2312 |
| FC11715-2     | 12/05/23       | 09:30   | CL 12/06/23   | AQ          | Ground Water | AF-RHMW04-WGN01LF-2312    |
| FC11715-3     | 12/05/23       | 13:55   | CLJVL12/06/23 | AQ          | Ground Water | AF-RHMW06-WGN01LF-2312    |
| FC11715-4     | 12/05/23       | 12:55   | MN 12/06/23   | AQ          | Ground Water | AF-RHMW10-WGN01LF-2312    |

## SAMPLE DELIVERY GROUP CASE NARRATIVE

**Client:** AECOM, INC.

**Job No:** FC11715

**Site:** N6274223F0104 RH Fire Suppression System

**Report Date:** 12/11/2023 4:58:17

On 12/06/2023, 4 Sample(s), 0 Trip Blank(s), 0 Equip. Blank(s) and 0 Field Blank(s) were received at SGS North America Inc - Orlando. at a maximum corrected temperature of 3 C. Samples were intact and chemically preserved, unless noted below. A SGS North America Inc. - Orlando Job Number of FC11715 was assigned to the project.

Laboratory sample ID, client sample ID and dates of sample collection are detailed in the report's Results Summary Section. Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

### MS Semi-volatiles By Method EPA DRAFT 1633

**Matrix:** AQ

**Batch ID:** OP495

All samples were extracted within the recommended method holding time.

All samples were analyzed within the recommended method holding time.

All method blanks for this batch meet method specific criteria.

Sample(s) FC11715-2MS, FC11715-3DUP were used as the QC samples indicated.

SGS North America Inc. - Orlando certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting the Quality System precision, accuracy and completeness objectives except as noted. Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria. SGS North America Inc.- Orlando is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety.

Narrative prepared by:

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Kim Benham, Client Services (*Signature on File*)



## Summary of Hits

**Job Number:** FC11715  
**Account:** AECOM, INC.  
**Project:** N6274223F0104 RH Fire Suppression System  
**Collected:** 12/05/23



| Lab Sample ID | Client Sample ID | Result/<br>Qual | LOQ | LOD | Units | Method |
|---------------|------------------|-----------------|-----|-----|-------|--------|
|---------------|------------------|-----------------|-----|-----|-------|--------|

FC11715-1      AF-RHMW225401-WGN01B-2312

|                              |        |     |      |      |                |
|------------------------------|--------|-----|------|------|----------------|
| Perfluoropentanoic acid      | 1.0 J  | 7.3 | 1.8  | ng/l | EPA DRAFT 1633 |
| Perfluorohexanoic acid       | 0.70 J | 3.6 | 1.8  | ng/l | EPA DRAFT 1633 |
| Perfluoroheptanoic acid      | 0.59 J | 3.6 | 1.8  | ng/l | EPA DRAFT 1633 |
| Perfluorooctanoic acid       | 1.0 J  | 3.6 | 0.91 | ng/l | EPA DRAFT 1633 |
| Perfluorobutanesulfonic acid | 0.63 J | 3.6 | 1.8  | ng/l | EPA DRAFT 1633 |
| Perfluorohexanesulfonic acid | 1.2 J  | 3.6 | 1.8  | ng/l | EPA DRAFT 1633 |

FC11715-2      AF-RHMW04-WGN01LF-2312

No hits reported in this sample.

FC11715-3      AF-RHMW06-WGN01LF-2312

No hits reported in this sample.

FC11715-4      AF-RHMW10-WGN01LF-2312

|                             |       |    |     |      |                |
|-----------------------------|-------|----|-----|------|----------------|
| 6:2 Fluorotelomer sulfonate | 4.0 J | 18 | 7.1 | ng/l | EPA DRAFT 1633 |
|-----------------------------|-------|----|-----|------|----------------|

**Sample Results**

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**Report of Analysis**

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SGS North America Inc.

## Report of Analysis

Page 1 of 3

|                   |  |                 |          |
|-------------------|--|-----------------|----------|
| Client Sample ID: | AF-RHMW225401-WGN01B-2312                |                 |          |
| Lab Sample ID:    | FC11715-1                                | Date Sampled:   | 12/05/23 |
| Matrix:           | AQ - Ground Water                        | Date Received:  | 12/06/23 |
| Method:           | EPA DRAFT 1633 EPA 1633 DRAFT            | Percent Solids: | n/a      |
| Project:          | N6274223F0104 RH Fire Suppression System |                 |          |

| Run #  | File ID   | DF | Analyzed       | By | Prep Date      | Prep Batch | Analytical Batch |
|--------|-----------|----|----------------|----|----------------|------------|------------------|
| Run #1 | 4Q54887.D | 1  | 12/08/23 20:20 | AL | 12/07/23 08:00 | OP495      | S4Q804           |
| Run #2 |           |    |                |    |                |            |                  |

| Run #  | Initial Volume | Final Volume |
|--------|----------------|--------------|
| Run #1 | 550 ml         | 5.0 ml       |
| Run #2 |                |              |

| CAS No.                                | Compound                      | Result | LOQ | LOD  | DL   | Units | Q |
|--|-------------------------------|--------|-----|------|------|-------|---|
| <b>PERFLUOROALKYL CARBOXYLIC ACIDS</b> |                               |        |     |      |      |       |   |
| 375-22-4                               | Perfluorobutanoic acid        | 3.6 U  | 15  | 3.6  | 1.7  | ng/l  |   |
| 2706-90-3                              | Perfluoropentanoic acid       | 1.0    | 7.3 | 1.8  | 0.85 | ng/l  | J |
| 307-24-4                               | Perfluorohexanoic acid        | 0.70   | 3.6 | 1.8  | 0.45 | ng/l  | J |
| 375-85-9                               | Perfluoroheptanoic acid       | 0.59   | 3.6 | 1.8  | 0.45 | ng/l  | J |
| 335-67-1                               | Perfluorooctanoic acid        | 1.0    | 3.6 | 0.91 | 0.45 | ng/l  | J |
| 375-95-1                               | Perfluorononanoic acid        | 1.8 U  | 3.6 | 1.8  | 0.55 | ng/l  |   |
| 335-76-2                               | Perfluorodecanoic acid        | 1.8 U  | 3.6 | 1.8  | 0.45 | ng/l  |   |
| 2058-94-8                              | Perfluoroundecanoic acid      | 1.8 U  | 3.6 | 1.8  | 0.55 | ng/l  |   |
| 307-55-1                               | Perfluorododecanoic acid      | 1.8 U  | 3.6 | 1.8  | 0.55 | ng/l  |   |
| 72629-94-8                             | Perfluorotridecanoic acid     | 1.8 U  | 3.6 | 1.8  | 0.76 | ng/l  |   |
| 376-06-7                               | Perfluorotetradecanoic acid   | 1.8 U  | 3.6 | 1.8  | 0.45 | ng/l  |   |
| <b>PERFLUOROALKYL SULFONIC ACIDS</b>   |                               |        |     |      |      |       |   |
| 375-73-5                               | Perfluorobutanesulfonic acid  | 0.63   | 3.6 | 1.8  | 0.45 | ng/l  | J |
| 2706-91-4                              | Perfluoropentanesulfonic acid | 3.6 U  | 4.5 | 3.6  | 1.0  | ng/l  |   |
| 355-46-4                               | Perfluorohexanesulfonic acid  | 1.2    | 3.6 | 1.8  | 0.64 | ng/l  | J |
| 375-92-8                               | Perfluoroheptanesulfonic acid | 1.8 U  | 3.6 | 1.8  | 0.45 | ng/l  |   |
| 1763-23-1                              | Perfluorooctanesulfonic acid  | 1.8 U  | 3.6 | 1.8  | 0.49 | ng/l  |   |
| 68259-12-1                             | Perfluorononanesulfonic acid  | 1.8 U  | 3.6 | 1.8  | 0.52 | ng/l  |   |
| 335-77-3                               | Perfluorodecanesulfonic acid  | 1.8 U  | 3.6 | 1.8  | 0.58 | ng/l  |   |
| 79780-39-5                             | Perfluorododecanesulfonic aci | 3.6 U  | 4.5 | 3.6  | 1.0  | ng/l  |   |
| <b>FLUOROTELOMER SULFONIC ACIDS</b>    |                               |        |     |      |      |       |   |
| 757124-72-4                            | 4:2 Fluorotelomer sulfonate   | 7.3 U  | 18  | 7.3  | 2.9  | ng/l  |   |
| 27619-97-2                             | 6:2 Fluorotelomer sulfonate   | 7.3 U  | 18  | 7.3  | 3.2  | ng/l  |   |
| 39108-34-4                             | 8:2 Fluorotelomer sulfonate   | 7.3 U  | 18  | 7.3  | 3.7  | ng/l  |   |
| <b>PERFLUOROOCCTANE SULFONAMIDES</b>   |                               |        |     |      |      |       |   |
| 754-91-6                               | PFOSA                         | 1.8 U  | 3.6 | 1.8  | 0.61 | ng/l  |   |
| 31506-32-8                             | MeFOSA                        | 3.6 U  | 7.3 | 3.6  | 0.91 | ng/l  |   |
| 4151-50-2                              | EtFOSA                        | 3.6 U  | 7.3 | 3.6  | 0.91 | ng/l  |   |

U = Not detected

LOD = Limit of Detection

J = Indicates an estimated value

LOQ = Limit of Quantitation

DL = Detection Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

# Report of Analysis

|                   |  |                 |          |
|-------------------|--|-----------------|----------|
| Client Sample ID: | AF-RHMW225401-WGN01B-2312                |                 |          |
| Lab Sample ID:    | FC11715-1                                | Date Sampled:   | 12/05/23 |
| Matrix:           | AQ - Ground Water                        | Date Received:  | 12/06/23 |
| Method:           | EPA DRAFT 1633 EPA 1633 DRAFT            | Percent Solids: | n/a      |
| Project:          | N6274223F0104 RH Fire Suppression System |                 |          |

CAS No. Compound Result LOQ LOD DL Units Q

**PERFLUOROOCCTANE SULFONAMIDOACETIC ACIDS**

|           |         |       |     |     |      |      |
|-----------|---------|-------|-----|-----|------|------|
| 2355-31-9 | MeFOSAA | 3.6 U | 4.5 | 3.6 | 0.91 | ng/l |
| 2991-50-6 | EtFOSAA | 3.6 U | 4.5 | 3.6 | 1.2  | ng/l |

**PERFLUOROOCCTANE SULFONAMIDO ETHANOLS**

|            |        |      |    |    |     |      |
|------------|--------|------|----|----|-----|------|
| 24448-09-7 | MeFOSE | 18 U | 36 | 18 | 4.0 | ng/l |
| 1691-99-2  | EtFOSE | 18 U | 36 | 18 | 6.7 | ng/l |

**PER and POLYFLUOROETHER CARBOXYLIC ACIDS**

|             |                |       |     |     |      |      |
|-------------|----------------|-------|-----|-----|------|------|
| 13252-13-6  | HFPO-DA (GenX) | 1.8 U | 3.6 | 1.8 | 0.91 | ng/l |
| 919005-14-4 | ADONA          | 3.6 U | 7.3 | 3.6 | 1.7  | ng/l |
| 377-73-1    | PFMPA          | 1.8 U | 7.3 | 1.8 | 0.91 | ng/l |
| 863090-89-5 | PFMBA          | 3.6 U | 7.3 | 3.6 | 1.0  | ng/l |
| 151772-58-6 | NFDHA          | 3.6 U | 7.3 | 3.6 | 1.1  | ng/l |

**PER and POLYFLUOROETHER SULFONIC ACIDS**

|             |                            |       |     |     |      |      |
|-------------|----------------------------|-------|-----|-----|------|------|
| 756426-58-1 | 9Cl-PF3ONS (F-53B Major)   | 3.6 U | 7.3 | 3.6 | 1.3  | ng/l |
| 763051-92-9 | 11Cl-PF3OUdS (F-53B Minor) | 3.6 U | 7.3 | 3.6 | 1.6  | ng/l |
| 113507-82-7 | PFEESA                     | 1.8 U | 7.3 | 1.8 | 0.71 | ng/l |

**FLUOROTELOMER CARBOXYLIC ACIDS**

|             |                               |       |    |     |     |      |
|-------------|-------------------------------|-------|----|-----|-----|------|
| 356-02-5    | 3:3 Fluorotelomer carboxylate | 9.1 U | 18 | 9.1 | 4.1 | ng/l |
| 914637-49-3 | 5:3 Fluorotelomer carboxylate | 18 U  | 91 | 18  | 7.9 | ng/l |
| 812-70-4    | 7:3 Fluorotelomer carboxylate | 18 U  | 91 | 18  | 7.1 | ng/l |

CAS No. ID Standard Recoveries Run# 1 Run# 2 Limits

|             |      |         |
|-------------|------|---------|
| 13C4-PFBA   | 113% | 20-150% |
| 13C5-PFPeA  | 116% | 20-150% |
| 13C5-PFHxA  | 111% | 20-150% |
| 13C4-PFHpA  | 111% | 20-150% |
| 13C8-PFOA   | 112% | 20-150% |
| 13C9-PFNA   | 106% | 20-150% |
| 13C6-PFDA   | 104% | 20-150% |
| 13C7-PFUnDA | 103% | 20-150% |
| 13C2-PFDoDA | 89%  | 20-150% |
| 13C2-PFTeDA | 86%  | 20-150% |
| 13C3-PFBS   | 117% | 20-150% |
| 13C3-PFHxS  | 124% | 20-150% |

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

4.1  
4

## Report of Analysis

|                          |  |                                |
|--------------------------|--|--------------------------------|
| <b>Client Sample ID:</b> | AF-RHMW225401-WGN01B-2312                |                                |
| <b>Lab Sample ID:</b>    | FC11715-1                                | <b>Date Sampled:</b> 12/05/23  |
| <b>Matrix:</b>           | AQ - Ground Water                        | <b>Date Received:</b> 12/06/23 |
| <b>Method:</b>           | EPA DRAFT 1633 EPA 1633 DRAFT            | <b>Percent Solids:</b> n/a     |
| <b>Project:</b>          | N6274223F0104 RH Fire Suppression System |                                |

| CAS No. | ID Standard Recoveries | Run# 1 | Run# 2 | Limits  |
|---------|------------------------|--------|--------|---------|
|         | 13C8-PFOS              | 98%    |        | 20-150% |
|         | 13C8-FOSA              | 71%    |        | 20-150% |
|         | d3-MeFOSA              | 74%    |        | 20-150% |
|         | d5-EtFOSA              | 84%    |        | 20-150% |
|         | d3-MeFOSAA             | 100%   |        | 20-150% |
|         | d5-EtFOSAA             | 94%    |        | 20-150% |
|         | d7-MeFOSE              | 59%    |        | 20-150% |
|         | d9-EtFOSE              | 77%    |        | 20-150% |
|         | 13C2-4:2FTS            | 102%   |        | 20-180% |
|         | 13C2-6:2FTS            | 112%   |        | 20-180% |
|         | 13C2-8:2FTS            | 118%   |        | 20-180% |
|         | 13C3-HFPO-DA           | 106%   |        | 20-150% |

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B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

SGS North America Inc.

## Report of Analysis

Page 1 of 3

|                   |  |                 |          |
|-------------------|--|-----------------|----------|
| Client Sample ID: | AF-RHMW04-WGN01LF-2312                   |                 |          |
| Lab Sample ID:    | FC11715-2                                | Date Sampled:   | 12/05/23 |
| Matrix:           | AQ - Ground Water                        | Date Received:  | 12/06/23 |
| Method:           | EPA DRAFT 1633 EPA 1633 DRAFT            | Percent Solids: | n/a      |
| Project:          | N6274223F0104 RH Fire Suppression System |                 |          |

| Run #  | File ID   | DF | Analyzed       | By | Prep Date      | Prep Batch | Analytical Batch |
|--------|-----------|----|----------------|----|----------------|------------|------------------|
| Run #1 | 4Q54888.D | 1  | 12/08/23 20:35 | AL | 12/07/23 08:00 | OP495      | S4Q804           |
| Run #2 |           |    |                |    |                |            |                  |

| Run #  | Initial Volume | Final Volume |
|--------|----------------|--------------|
| Run #1 | 520 ml         | 5.0 ml       |
| Run #2 |                |              |

| CAS No. | Compound | Result | LOQ | LOD | DL | Units | Q |
|---------|----------|--------|-----|-----|----|-------|---|
|---------|----------|--------|-----|-----|----|-------|---|

## PERFLUOROALKYL CARBOXYLIC ACIDS

|            |                             |        |     |      |      |      |  |
|------------|-----------------------------|--------|-----|------|------|------|--|
| 375-22-4   | Perfluorobutanoic acid      | 3.8 U  | 15  | 3.8  | 1.8  | ng/l |  |
| 2706-90-3  | Perfluoropentanoic acid     | 1.9 U  | 7.7 | 1.9  | 0.90 | ng/l |  |
| 307-24-4   | Perfluorohexanoic acid      | 1.9 U  | 3.8 | 1.9  | 0.48 | ng/l |  |
| 375-85-9   | Perfluoroheptanoic acid     | 1.9 U  | 3.8 | 1.9  | 0.48 | ng/l |  |
| 335-67-1   | Perfluorooctanoic acid      | 0.96 U | 3.8 | 0.96 | 0.48 | ng/l |  |
| 375-95-1   | Perfluorononanoic acid      | 1.9 U  | 3.8 | 1.9  | 0.59 | ng/l |  |
| 335-76-2   | Perfluorodecanoic acid      | 1.9 U  | 3.8 | 1.9  | 0.48 | ng/l |  |
| 2058-94-8  | Perfluoroundecanoic acid    | 1.9 U  | 3.8 | 1.9  | 0.58 | ng/l |  |
| 307-55-1   | Perfluorododecanoic acid    | 1.9 U  | 3.8 | 1.9  | 0.58 | ng/l |  |
| 72629-94-8 | Perfluorotridecanoic acid   | 1.9 U  | 3.8 | 1.9  | 0.81 | ng/l |  |
| 376-06-7   | Perfluorotetradecanoic acid | 1.9 U  | 3.8 | 1.9  | 0.48 | ng/l |  |

## PERFLUOROALKYL SULFONIC ACIDS

|            |                               |       |     |     |      |      |  |
|------------|-------------------------------|-------|-----|-----|------|------|--|
| 375-73-5   | Perfluorobutanesulfonic acid  | 1.9 U | 3.8 | 1.9 | 0.48 | ng/l |  |
| 2706-91-4  | Perfluoropentanesulfonic acid | 3.8 U | 4.8 | 3.8 | 1.1  | ng/l |  |
| 355-46-4   | Perfluorohexanesulfonic acid  | 1.9 U | 3.8 | 1.9 | 0.67 | ng/l |  |
| 375-92-8   | Perfluoroheptanesulfonic acid | 1.9 U | 3.8 | 1.9 | 0.48 | ng/l |  |
| 1763-23-1  | Perfluorooctanesulfonic acid  | 1.9 U | 3.8 | 1.9 | 0.52 | ng/l |  |
| 68259-12-1 | Perfluorononanesulfonic acid  | 1.9 U | 3.8 | 1.9 | 0.55 | ng/l |  |
| 335-77-3   | Perfluorodecanesulfonic acid  | 1.9 U | 3.8 | 1.9 | 0.62 | ng/l |  |
| 79780-39-5 | Perfluorododecanesulfonic aci | 3.8 U | 4.8 | 3.8 | 1.1  | ng/l |  |

## FLUOROTELOMER SULFONIC ACIDS

|             |                             |       |    |     |     |      |  |
|-------------|-----------------------------|-------|----|-----|-----|------|--|
| 757124-72-4 | 4:2 Fluorotelomer sulfonate | 7.7 U | 19 | 7.7 | 3.1 | ng/l |  |
| 27619-97-2  | 6:2 Fluorotelomer sulfonate | 7.7 U | 19 | 7.7 | 3.3 | ng/l |  |
| 39108-34-4  | 8:2 Fluorotelomer sulfonate | 7.7 U | 19 | 7.7 | 4.0 | ng/l |  |

## PERFLUOROOCCTANE SULFONAMIDES

|            |        |       |     |     |      |      |  |
|------------|--------|-------|-----|-----|------|------|--|
| 754-91-6   | PFOSA  | 1.9 U | 3.8 | 1.9 | 0.64 | ng/l |  |
| 31506-32-8 | MeFOSA | 3.8 U | 7.7 | 3.8 | 0.96 | ng/l |  |
| 4151-50-2  | EtFOSA | 3.8 U | 7.7 | 3.8 | 0.96 | ng/l |  |

U = Not detected

LOD = Limit of Detection

J = Indicates an estimated value

LOQ = Limit of Quantitation

DL = Detection Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

# Report of Analysis

|                   |  |                 |          |
|-------------------|--|-----------------|----------|
| Client Sample ID: | AF-RHMW04-WGN01LF-2312                   |                 |          |
| Lab Sample ID:    | FC11715-2                                | Date Sampled:   | 12/05/23 |
| Matrix:           | AQ - Ground Water                        | Date Received:  | 12/06/23 |
| Method:           | EPA DRAFT 1633 EPA 1633 DRAFT            | Percent Solids: | n/a      |
| Project:          | N6274223F0104 RH Fire Suppression System |                 |          |

| CAS No. | Compound | Result | LOQ | LOD | DL | Units | Q |
|---------|----------|--------|-----|-----|----|-------|---|
|---------|----------|--------|-----|-----|----|-------|---|

**PERFLUOROOCCTANE SULFONAMIDOACETIC ACIDS**

|           |         |       |     |     |      |      |  |
|-----------|---------|-------|-----|-----|------|------|--|
| 2355-31-9 | MeFOSAA | 3.8 U | 4.8 | 3.8 | 0.96 | ng/l |  |
| 2991-50-6 | EtFOSAA | 3.8 U | 4.8 | 3.8 | 1.3  | ng/l |  |

**PERFLUOROOCCTANE SULFONAMIDO ETHANOLS**

|            |        |      |    |    |     |      |  |
|------------|--------|------|----|----|-----|------|--|
| 24448-09-7 | MeFOSE | 19 U | 38 | 19 | 4.2 | ng/l |  |
| 1691-99-2  | EtFOSE | 19 U | 38 | 19 | 7.1 | ng/l |  |

**PER and POLYFLUOROETHER CARBOXYLIC ACIDS**

|             |                |       |     |     |      |      |  |
|-------------|----------------|-------|-----|-----|------|------|--|
| 13252-13-6  | HFPO-DA (GenX) | 1.9 U | 3.8 | 1.9 | 0.96 | ng/l |  |
| 919005-14-4 | ADONA          | 3.8 U | 7.7 | 3.8 | 1.8  | ng/l |  |
| 377-73-1    | PFMPA          | 1.9 U | 7.7 | 1.9 | 0.96 | ng/l |  |
| 863090-89-5 | PFMBA          | 3.8 U | 7.7 | 3.8 | 1.1  | ng/l |  |
| 151772-58-6 | NFDHA          | 3.8 U | 7.7 | 3.8 | 1.2  | ng/l |  |

**PER and POLYFLUOROETHER SULFONIC ACIDS**

|             |                            |       |     |     |      |      |  |
|-------------|----------------------------|-------|-----|-----|------|------|--|
| 756426-58-1 | 9Cl-PF3ONS (F-53B Major)   | 3.8 U | 7.7 | 3.8 | 1.3  | ng/l |  |
| 763051-92-9 | 11Cl-PF3OUdS (F-53B Minor) | 3.8 U | 7.7 | 3.8 | 1.7  | ng/l |  |
| 113507-82-7 | PFEESA                     | 1.9 U | 7.7 | 1.9 | 0.75 | ng/l |  |

**FLUOROTELOMER CARBOXYLIC ACIDS**

|             |                               |       |    |     |     |      |  |
|-------------|-------------------------------|-------|----|-----|-----|------|--|
| 356-02-5    | 3:3 Fluorotelomer carboxylate | 9.6 U | 19 | 9.6 | 4.3 | ng/l |  |
| 914637-49-3 | 5:3 Fluorotelomer carboxylate | 19 U  | 96 | 19  | 8.4 | ng/l |  |
| 812-70-4    | 7:3 Fluorotelomer carboxylate | 19 U  | 96 | 19  | 7.5 | ng/l |  |

| CAS No. | ID Standard Recoveries | Run# 1 | Run# 2 | Limits |
|---------|------------------------|--------|--------|--------|
|---------|------------------------|--------|--------|--------|

|  |             |      |  |         |
|--|-------------|------|--|---------|
|  | 13C4-PFBA   | 105% |  | 20-150% |
|  | 13C5-PFPeA  | 104% |  | 20-150% |
|  | 13C5-PFHxA  | 103% |  | 20-150% |
|  | 13C4-PFHpA  | 106% |  | 20-150% |
|  | 13C8-PFOA   | 101% |  | 20-150% |
|  | 13C9-PFNA   | 96%  |  | 20-150% |
|  | 13C6-PFDA   | 106% |  | 20-150% |
|  | 13C7-PFUnDA | 98%  |  | 20-150% |
|  | 13C2-PFDoDA | 91%  |  | 20-150% |
|  | 13C2-PFTeDA | 86%  |  | 20-150% |
|  | 13C3-PFBS   | 99%  |  | 20-150% |
|  | 13C3-PFHxS  | 101% |  | 20-150% |

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

4.2  
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## Report of Analysis

|                          |  |                                |
|--------------------------|--|--------------------------------|
| <b>Client Sample ID:</b> | AF-RHMW04-WGN01LF-2312                   |                                |
| <b>Lab Sample ID:</b>    | FC11715-2                                | <b>Date Sampled:</b> 12/05/23  |
| <b>Matrix:</b>           | AQ - Ground Water                        | <b>Date Received:</b> 12/06/23 |
| <b>Method:</b>           | EPA DRAFT 1633 EPA 1633 DRAFT            | <b>Percent Solids:</b> n/a     |
| <b>Project:</b>          | N6274223F0104 RH Fire Suppression System |                                |

| CAS No. | ID Standard Recoveries | Run# 1 | Run# 2 | Limits  |
|---------|------------------------|--------|--------|---------|
|         | 13C8-PFOS              | 92%    |        | 20-150% |
|         | 13C8-FOSA              | 76%    |        | 20-150% |
|         | d3-MeFOSA              | 76%    |        | 20-150% |
|         | d5-EtFOSA              | 89%    |        | 20-150% |
|         | d3-MeFOSAA             | 100%   |        | 20-150% |
|         | d5-EtFOSAA             | 96%    |        | 20-150% |
|         | d7-MeFOSE              | 63%    |        | 20-150% |
|         | d9-EtFOSE              | 84%    |        | 20-150% |
|         | 13C2-4:2FTS            | 95%    |        | 20-180% |
|         | 13C2-6:2FTS            | 101%   |        | 20-180% |
|         | 13C2-8:2FTS            | 102%   |        | 20-180% |
|         | 13C3-HFPO-DA           | 96%    |        | 20-150% |

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound



SGS North America Inc.

## Report of Analysis

Page 1 of 3

|                   |  |                 |          |
|-------------------|--|-----------------|----------|
| Client Sample ID: | AF-RHMW06-WGN01LF-2312                   |                 |          |
| Lab Sample ID:    | FC11715-3                                | Date Sampled:   | 12/05/23 |
| Matrix:           | AQ - Ground Water                        | Date Received:  | 12/06/23 |
| Method:           | EPA DRAFT 1633 EPA 1633 DRAFT            | Percent Solids: | n/a      |
| Project:          | N6274223F0104 RH Fire Suppression System |                 |          |

| Run #  | File ID   | DF | Analyzed       | By | Prep Date      | Prep Batch | Analytical Batch |
|--------|-----------|----|----------------|----|----------------|------------|------------------|
| Run #1 | 4Q54890.D | 1  | 12/08/23 21:04 | AL | 12/07/23 08:00 | OP495      | S4Q804           |
| Run #2 |           |    |                |    |                |            |                  |

| Run #  | Initial Volume | Final Volume |
|--------|----------------|--------------|
| Run #1 | 510 ml         | 5.0 ml       |
| Run #2 |                |              |

| CAS No. | Compound | Result | LOQ | LOD | DL | Units | Q |
|---------|----------|--------|-----|-----|----|-------|---|
|---------|----------|--------|-----|-----|----|-------|---|

## PERFLUOROALKYL CARBOXYLIC ACIDS

|            |                             |        |     |      |      |      |  |
|------------|-----------------------------|--------|-----|------|------|------|--|
| 375-22-4   | Perfluorobutanoic acid      | 3.9 U  | 16  | 3.9  | 1.9  | ng/l |  |
| 2706-90-3  | Perfluoropentanoic acid     | 2.0 U  | 7.8 | 2.0  | 0.92 | ng/l |  |
| 307-24-4   | Perfluorohexanoic acid      | 2.0 U  | 3.9 | 2.0  | 0.49 | ng/l |  |
| 375-85-9   | Perfluoroheptanoic acid     | 2.0 U  | 3.9 | 2.0  | 0.49 | ng/l |  |
| 335-67-1   | Perfluorooctanoic acid      | 0.98 U | 3.9 | 0.98 | 0.49 | ng/l |  |
| 375-95-1   | Perfluorononanoic acid      | 2.0 U  | 3.9 | 2.0  | 0.60 | ng/l |  |
| 335-76-2   | Perfluorodecanoic acid      | 2.0 U  | 3.9 | 2.0  | 0.49 | ng/l |  |
| 2058-94-8  | Perfluoroundecanoic acid    | 2.0 U  | 3.9 | 2.0  | 0.59 | ng/l |  |
| 307-55-1   | Perfluorododecanoic acid    | 2.0 U  | 3.9 | 2.0  | 0.59 | ng/l |  |
| 72629-94-8 | Perfluorotridecanoic acid   | 2.0 U  | 3.9 | 2.0  | 0.82 | ng/l |  |
| 376-06-7   | Perfluorotetradecanoic acid | 2.0 U  | 3.9 | 2.0  | 0.49 | ng/l |  |

## PERFLUOROALKYL SULFONIC ACIDS

|            |                               |       |     |     |      |      |  |
|------------|-------------------------------|-------|-----|-----|------|------|--|
| 375-73-5   | Perfluorobutanesulfonic acid  | 2.0 U | 3.9 | 2.0 | 0.49 | ng/l |  |
| 2706-91-4  | Perfluoropentanesulfonic acid | 3.9 U | 4.9 | 3.9 | 1.1  | ng/l |  |
| 355-46-4   | Perfluorohexanesulfonic acid  | 2.0 U | 3.9 | 2.0 | 0.69 | ng/l |  |
| 375-92-8   | Perfluoroheptanesulfonic acid | 2.0 U | 3.9 | 2.0 | 0.49 | ng/l |  |
| 1763-23-1  | Perfluorooctanesulfonic acid  | 2.0 U | 3.9 | 2.0 | 0.53 | ng/l |  |
| 68259-12-1 | Perfluorononanesulfonic acid  | 2.0 U | 3.9 | 2.0 | 0.56 | ng/l |  |
| 335-77-3   | Perfluorodecanesulfonic acid  | 2.0 U | 3.9 | 2.0 | 0.63 | ng/l |  |
| 79780-39-5 | Perfluorododecanesulfonic aci | 3.9 U | 4.9 | 3.9 | 1.1  | ng/l |  |

## FLUOROTELOMER SULFONIC ACIDS

|             |                             |       |    |     |     |      |  |
|-------------|-----------------------------|-------|----|-----|-----|------|--|
| 757124-72-4 | 4:2 Fluorotelomer sulfonate | 7.8 U | 20 | 7.8 | 3.2 | ng/l |  |
| 27619-97-2  | 6:2 Fluorotelomer sulfonate | 7.8 U | 20 | 7.8 | 3.4 | ng/l |  |
| 39108-34-4  | 8:2 Fluorotelomer sulfonate | 7.8 U | 20 | 7.8 | 4.0 | ng/l |  |

## PERFLUOROOCCTANE SULFONAMIDES

|            |        |       |     |     |      |      |  |
|------------|--------|-------|-----|-----|------|------|--|
| 754-91-6   | PFOSA  | 2.0 U | 3.9 | 2.0 | 0.66 | ng/l |  |
| 31506-32-8 | MeFOSA | 3.9 U | 7.8 | 3.9 | 0.98 | ng/l |  |
| 4151-50-2  | EtFOSA | 3.9 U | 7.8 | 3.9 | 0.98 | ng/l |  |

U = Not detected

LOD = Limit of Detection

J = Indicates an estimated value

LOQ = Limit of Quantitation

DL = Detection Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

# Report of Analysis

|                   |  |                         |
|-------------------|--|-------------------------|
| Client Sample ID: | AF-RHMW06-WGN01LF-2312                   |                         |
| Lab Sample ID:    | FC11715-3                                | Date Sampled: 12/05/23  |
| Matrix:           | AQ - Ground Water                        | Date Received: 12/06/23 |
| Method:           | EPA DRAFT 1633 EPA 1633 DRAFT            | Percent Solids: n/a     |
| Project:          | N6274223F0104 RH Fire Suppression System |                         |

| CAS No. | Compound | Result | LOQ | LOD | DL | Units | Q |
|---------|----------|--------|-----|-----|----|-------|---|
|---------|----------|--------|-----|-----|----|-------|---|

**PERFLUOROOCCTANE SULFONAMIDOACETIC ACIDS**

|           |         |       |     |     |      |      |  |
|-----------|---------|-------|-----|-----|------|------|--|
| 2355-31-9 | MeFOSAA | 3.9 U | 4.9 | 3.9 | 0.98 | ng/l |  |
| 2991-50-6 | EtFOSAA | 3.9 U | 4.9 | 3.9 | 1.3  | ng/l |  |

**PERFLUOROOCCTANE SULFONAMIDO ETHANOLS**

|            |        |      |    |    |     |      |  |
|------------|--------|------|----|----|-----|------|--|
| 24448-09-7 | MeFOSE | 20 U | 39 | 20 | 4.3 | ng/l |  |
| 1691-99-2  | EtFOSE | 20 U | 39 | 20 | 7.3 | ng/l |  |

**PER and POLYFLUOROETHER CARBOXYLIC ACIDS**

|             |                |       |     |     |      |      |  |
|-------------|----------------|-------|-----|-----|------|------|--|
| 13252-13-6  | HFPO-DA (GenX) | 2.0 U | 3.9 | 2.0 | 0.98 | ng/l |  |
| 919005-14-4 | ADONA          | 3.9 U | 7.8 | 3.9 | 1.8  | ng/l |  |
| 377-73-1    | PFMPA          | 2.0 U | 7.8 | 2.0 | 0.98 | ng/l |  |
| 863090-89-5 | PFMBA          | 3.9 U | 7.8 | 3.9 | 1.1  | ng/l |  |
| 151772-58-6 | NFDHA          | 3.9 U | 7.8 | 3.9 | 1.2  | ng/l |  |

**PER and POLYFLUOROETHER SULFONIC ACIDS**

|             |                            |       |     |     |      |      |  |
|-------------|----------------------------|-------|-----|-----|------|------|--|
| 756426-58-1 | 9Cl-PF3ONS (F-53B Major)   | 3.9 U | 7.8 | 3.9 | 1.4  | ng/l |  |
| 763051-92-9 | 11Cl-PF3OUdS (F-53B Minor) | 3.9 U | 7.8 | 3.9 | 1.7  | ng/l |  |
| 113507-82-7 | PFEESA                     | 2.0 U | 7.8 | 2.0 | 0.76 | ng/l |  |

**FLUOROTELOMER CARBOXYLIC ACIDS**

|             |                               |       |    |     |     |      |  |
|-------------|-------------------------------|-------|----|-----|-----|------|--|
| 356-02-5    | 3:3 Fluorotelomer carboxylate | 9.8 U | 20 | 9.8 | 4.4 | ng/l |  |
| 914637-49-3 | 5:3 Fluorotelomer carboxylate | 20 U  | 98 | 20  | 8.6 | ng/l |  |
| 812-70-4    | 7:3 Fluorotelomer carboxylate | 20 U  | 98 | 20  | 7.7 | ng/l |  |

| CAS No. | ID Standard Recoveries | Run# 1 | Run# 2 | Limits  |
|---------|------------------------|--------|--------|---------|
|         | 13C4-PFBA              | 111%   |        | 20-150% |
|         | 13C5-PFPeA             | 109%   |        | 20-150% |
|         | 13C5-PFHxA             | 107%   |        | 20-150% |
|         | 13C4-PFHpA             | 110%   |        | 20-150% |
|         | 13C8-PFOA              | 106%   |        | 20-150% |
|         | 13C9-PFNA              | 103%   |        | 20-150% |
|         | 13C6-PFDA              | 99%    |        | 20-150% |
|         | 13C7-PFUnDA            | 100%   |        | 20-150% |
|         | 13C2-PFDoDA            | 86%    |        | 20-150% |
|         | 13C2-PFTeDA            | 85%    |        | 20-150% |
|         | 13C3-PFBS              | 104%   |        | 20-150% |
|         | 13C3-PFHxS             | 107%   |        | 20-150% |

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

## Report of Analysis

|                          |  |                        |          |
|--------------------------|--|------------------------|----------|
| <b>Client Sample ID:</b> | AF-RHMW06-WGN01LF-2312                   |                        |          |
| <b>Lab Sample ID:</b>    | FC11715-3                                | <b>Date Sampled:</b>   | 12/05/23 |
| <b>Matrix:</b>           | AQ - Ground Water                        | <b>Date Received:</b>  | 12/06/23 |
| <b>Method:</b>           | EPA DRAFT 1633 EPA 1633 DRAFT            | <b>Percent Solids:</b> | n/a      |
| <b>Project:</b>          | N6274223F0104 RH Fire Suppression System |                        |          |

| CAS No. | ID Standard Recoveries | Run# 1 | Run# 2 | Limits  |
|---------|------------------------|--------|--------|---------|
|         | 13C8-PFOS              | 94%    |        | 20-150% |
|         | 13C8-FOSA              | 79%    |        | 20-150% |
|         | d3-MeFOSA              | 82%    |        | 20-150% |
|         | d5-EtFOSA              | 90%    |        | 20-150% |
|         | d3-MeFOSAA             | 95%    |        | 20-150% |
|         | d5-EtFOSAA             | 90%    |        | 20-150% |
|         | d7-MeFOSE              | 65%    |        | 20-150% |
|         | d9-EtFOSE              | 85%    |        | 20-150% |
|         | 13C2-4:2FTS            | 86%    |        | 20-180% |
|         | 13C2-6:2FTS            | 111%   |        | 20-180% |
|         | 13C2-8:2FTS            | 109%   |        | 20-180% |
|         | 13C3-HFPO-DA           | 106%   |        | 20-150% |

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

SGS North America Inc.

## Report of Analysis

Page 1 of 3

|                   |  |                 |          |
|-------------------|--|-----------------|----------|
| Client Sample ID: | AF-RHMW10-WGN01LF-2312                   |                 |          |
| Lab Sample ID:    | FC11715-4                                | Date Sampled:   | 12/05/23 |
| Matrix:           | AQ - Ground Water                        | Date Received:  | 12/06/23 |
| Method:           | EPA DRAFT 1633 EPA 1633 DRAFT            | Percent Solids: | n/a      |
| Project:          | N6274223F0104 RH Fire Suppression System |                 |          |

| Run #  | File ID   | DF | Analyzed       | By | Prep Date      | Prep Batch | Analytical Batch |
|--------|-----------|----|----------------|----|----------------|------------|------------------|
| Run #1 | 4Q54892.D | 1  | 12/08/23 21:34 | AL | 12/07/23 08:00 | OP495      | S4Q804           |
| Run #2 |           |    |                |    |                |            |                  |

| Run #  | Initial Volume | Final Volume |
|--------|----------------|--------------|
| Run #1 | 560 ml         | 5.0 ml       |
| Run #2 |                |              |

| CAS No. | Compound | Result | LOQ | LOD | DL | Units | Q |
|---------|----------|--------|-----|-----|----|-------|---|
|---------|----------|--------|-----|-----|----|-------|---|

## PERFLUOROALKYL CARBOXYLIC ACIDS

|            |                             |        |     |      |      |      |  |
|------------|-----------------------------|--------|-----|------|------|------|--|
| 375-22-4   | Perfluorobutanoic acid      | 3.6 U  | 14  | 3.6  | 1.7  | ng/l |  |
| 2706-90-3  | Perfluoropentanoic acid     | 1.8 U  | 7.1 | 1.8  | 0.84 | ng/l |  |
| 307-24-4   | Perfluorohexanoic acid      | 1.8 U  | 3.6 | 1.8  | 0.45 | ng/l |  |
| 375-85-9   | Perfluoroheptanoic acid     | 1.8 U  | 3.6 | 1.8  | 0.45 | ng/l |  |
| 335-67-1   | Perfluorooctanoic acid      | 0.89 U | 3.6 | 0.89 | 0.45 | ng/l |  |
| 375-95-1   | Perfluorononanoic acid      | 1.8 U  | 3.6 | 1.8  | 0.54 | ng/l |  |
| 335-76-2   | Perfluorodecanoic acid      | 1.8 U  | 3.6 | 1.8  | 0.45 | ng/l |  |
| 2058-94-8  | Perfluoroundecanoic acid    | 1.8 U  | 3.6 | 1.8  | 0.54 | ng/l |  |
| 307-55-1   | Perfluorododecanoic acid    | 1.8 U  | 3.6 | 1.8  | 0.54 | ng/l |  |
| 72629-94-8 | Perfluorotridecanoic acid   | 1.8 U  | 3.6 | 1.8  | 0.75 | ng/l |  |
| 376-06-7   | Perfluorotetradecanoic acid | 1.8 U  | 3.6 | 1.8  | 0.45 | ng/l |  |

## PERFLUOROALKYL SULFONIC ACIDS

|            |                               |       |     |     |      |      |  |
|------------|-------------------------------|-------|-----|-----|------|------|--|
| 375-73-5   | Perfluorobutanesulfonic acid  | 1.8 U | 3.6 | 1.8 | 0.45 | ng/l |  |
| 2706-91-4  | Perfluoropentanesulfonic acid | 3.6 U | 4.5 | 3.6 | 1.0  | ng/l |  |
| 355-46-4   | Perfluorohexanesulfonic acid  | 1.8 U | 3.6 | 1.8 | 0.62 | ng/l |  |
| 375-92-8   | Perfluoroheptanesulfonic acid | 1.8 U | 3.6 | 1.8 | 0.45 | ng/l |  |
| 1763-23-1  | Perfluorooctanesulfonic acid  | 1.8 U | 3.6 | 1.8 | 0.48 | ng/l |  |
| 68259-12-1 | Perfluorononanesulfonic acid  | 1.8 U | 3.6 | 1.8 | 0.51 | ng/l |  |
| 335-77-3   | Perfluorodecanesulfonic acid  | 1.8 U | 3.6 | 1.8 | 0.57 | ng/l |  |
| 79780-39-5 | Perfluorododecanesulfonic aci | 3.6 U | 4.5 | 3.6 | 1.0  | ng/l |  |

## FLUOROTELOMER SULFONIC ACIDS

|             |                             |       |    |     |     |      |   |
|-------------|-----------------------------|-------|----|-----|-----|------|---|
| 757124-72-4 | 4:2 Fluorotelomer sulfonate | 7.1 U | 18 | 7.1 | 2.9 | ng/l |   |
| 27619-97-2  | 6:2 Fluorotelomer sulfonate | 4.0   | 18 | 7.1 | 3.1 | ng/l | J |
| 39108-34-4  | 8:2 Fluorotelomer sulfonate | 7.1 U | 18 | 7.1 | 3.7 | ng/l |   |

## PERFLUOROOCCTANE SULFONAMIDES

|            |        |       |     |     |      |      |  |
|------------|--------|-------|-----|-----|------|------|--|
| 754-91-6   | PFOSA  | 1.8 U | 3.6 | 1.8 | 0.60 | ng/l |  |
| 31506-32-8 | MeFOSA | 3.6 U | 7.1 | 3.6 | 0.89 | ng/l |  |
| 4151-50-2  | EtFOSA | 3.6 U | 7.1 | 3.6 | 0.89 | ng/l |  |

U = Not detected

LOD = Limit of Detection

J = Indicates an estimated value

LOQ = Limit of Quantitation

DL = Detection Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

# Report of Analysis

|                   |  |                         |
|-------------------|--|-------------------------|
| Client Sample ID: | AF-RHMW10-WGN01LF-2312                   |                         |
| Lab Sample ID:    | FC11715-4                                | Date Sampled: 12/05/23  |
| Matrix:           | AQ - Ground Water                        | Date Received: 12/06/23 |
| Method:           | EPA DRAFT 1633 EPA 1633 DRAFT            | Percent Solids: n/a     |
| Project:          | N6274223F0104 RH Fire Suppression System |                         |

| CAS No. | Compound | Result | LOQ | LOD | DL | Units | Q |
|---------|----------|--------|-----|-----|----|-------|---|
|---------|----------|--------|-----|-----|----|-------|---|

**PERFLUOROOCCTANE SULFONAMIDOACETIC ACIDS**

|           |         |       |     |     |      |      |  |
|-----------|---------|-------|-----|-----|------|------|--|
| 2355-31-9 | MeFOSAA | 3.6 U | 4.5 | 3.6 | 0.89 | ng/l |  |
| 2991-50-6 | EtFOSAA | 3.6 U | 4.5 | 3.6 | 1.2  | ng/l |  |

**PERFLUOROOCCTANE SULFONAMIDO ETHANOLS**

|            |        |      |    |    |     |      |  |
|------------|--------|------|----|----|-----|------|--|
| 24448-09-7 | MeFOSE | 18 U | 36 | 18 | 3.9 | ng/l |  |
| 1691-99-2  | EtFOSE | 18 U | 36 | 18 | 6.6 | ng/l |  |

**PER and POLYFLUOROETHER CARBOXYLIC ACIDS**

|             |                |       |     |     |      |      |  |
|-------------|----------------|-------|-----|-----|------|------|--|
| 13252-13-6  | HFPO-DA (GenX) | 1.8 U | 3.6 | 1.8 | 0.89 | ng/l |  |
| 919005-14-4 | ADONA          | 3.6 U | 7.1 | 3.6 | 1.7  | ng/l |  |
| 377-73-1    | PFMPA          | 1.8 U | 7.1 | 1.8 | 0.89 | ng/l |  |
| 863090-89-5 | PFMBA          | 3.6 U | 7.1 | 3.6 | 1.0  | ng/l |  |
| 151772-58-6 | NFDHA          | 3.6 U | 7.1 | 3.6 | 1.1  | ng/l |  |

**PER and POLYFLUOROETHER SULFONIC ACIDS**

|             |                            |       |     |     |      |      |  |
|-------------|----------------------------|-------|-----|-----|------|------|--|
| 756426-58-1 | 9Cl-PF3ONS (F-53B Major)   | 3.6 U | 7.1 | 3.6 | 1.2  | ng/l |  |
| 763051-92-9 | 11Cl-PF3OUdS (F-53B Minor) | 3.6 U | 7.1 | 3.6 | 1.6  | ng/l |  |
| 113507-82-7 | PFEESA                     | 1.8 U | 7.1 | 1.8 | 0.70 | ng/l |  |

**FLUOROTELOMER CARBOXYLIC ACIDS**

|             |                               |       |    |     |     |      |  |
|-------------|-------------------------------|-------|----|-----|-----|------|--|
| 356-02-5    | 3:3 Fluorotelomer carboxylate | 8.9 U | 18 | 8.9 | 4.0 | ng/l |  |
| 914637-49-3 | 5:3 Fluorotelomer carboxylate | 18 U  | 89 | 18  | 7.8 | ng/l |  |
| 812-70-4    | 7:3 Fluorotelomer carboxylate | 18 U  | 89 | 18  | 7.0 | ng/l |  |

| CAS No. | ID Standard Recoveries | Run# 1 | Run# 2 | Limits |
|---------|------------------------|--------|--------|--------|
|---------|------------------------|--------|--------|--------|

|  |             |      |  |         |
|--|-------------|------|--|---------|
|  | 13C4-PFBA   | 113% |  | 20-150% |
|  | 13C5-PFPeA  | 115% |  | 20-150% |
|  | 13C5-PFHxA  | 113% |  | 20-150% |
|  | 13C4-PFHpA  | 111% |  | 20-150% |
|  | 13C8-PFOA   | 109% |  | 20-150% |
|  | 13C9-PFNA   | 112% |  | 20-150% |
|  | 13C6-PFDA   | 111% |  | 20-150% |
|  | 13C7-PFUnDA | 97%  |  | 20-150% |
|  | 13C2-PFDoDA | 89%  |  | 20-150% |
|  | 13C2-PFTeDA | 86%  |  | 20-150% |
|  | 13C3-PFBS   | 114% |  | 20-150% |
|  | 13C3-PFHxS  | 118% |  | 20-150% |

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

## Report of Analysis

|                          |  |                                |
|--------------------------|--|--------------------------------|
| <b>Client Sample ID:</b> | AF-RHMW10-WGN01LF-2312                   |                                |
| <b>Lab Sample ID:</b>    | FC11715-4                                | <b>Date Sampled:</b> 12/05/23  |
| <b>Matrix:</b>           | AQ - Ground Water                        | <b>Date Received:</b> 12/06/23 |
| <b>Method:</b>           | EPA DRAFT 1633 EPA 1633 DRAFT            | <b>Percent Solids:</b> n/a     |
| <b>Project:</b>          | N6274223F0104 RH Fire Suppression System |                                |

| CAS No. | ID Standard Recoveries | Run# 1 | Run# 2 | Limits  |
|---------|------------------------|--------|--------|---------|
|         | 13C8-PFOS              | 91%    |        | 20-150% |
|         | 13C8-FOSA              | 86%    |        | 20-150% |
|         | d3-MeFOSA              | 84%    |        | 20-150% |
|         | d5-EtFOSA              | 91%    |        | 20-150% |
|         | d3-MeFOSAA             | 109%   |        | 20-150% |
|         | d5-EtFOSAA             | 103%   |        | 20-150% |
|         | d7-MeFOSE              | 66%    |        | 20-150% |
|         | d9-EtFOSE              | 85%    |        | 20-150% |
|         | 13C2-4:2FTS            | 109%   |        | 20-180% |
|         | 13C2-6:2FTS            | 120%   |        | 20-180% |
|         | 13C2-8:2FTS            | 112%   |        | 20-180% |
|         | 13C3-HFPO-DA           | 107%   |        | 20-150% |

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

## Misc. Forms

### Custody Documents and Other Forms

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#### Includes the following where applicable:

- Chain of Custody
- QC Evaluation: DOD QSM5.x Limits



SGS North America Inc - Orlando

Chain of Custody

4405 Vineland Road, Suite C-15 Orlando, FL 32811  
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COC #: 2312AFSG07

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PAGE 1 OF 1

SGS - ORLANDO Quote #

SKIFF #

FC11715

| Client / Reporting Information  |                                | Project Information  |   |                            |   | Analytical Information  |       |      |     |  |      |                    |             |      |              | Matrix Codes  |      |      |      |      |      |      |      |      |  |
|---|--------------------------------|--|---|----------------------------|---|---|-------|------|-----|--|------|--------------------|-------------|------|--------------|---|------|------|------|------|------|------|------|------|--|
| Company Name: AECOM   |                                | Project Name: N6274223F0104 RH Fire Suppression System   |   |                            |   | <div style="text-align: center;"> </div>  |       |      |     |  |      |                    |             |      |              | DW - Drinking Water<br>GW - Ground Water<br>WW - Water<br>SW - Surface Water<br>SO - Soil<br>SL - Sludge<br>OL - Oil<br>LIQ - Other Liquid<br>AIR - Air<br>SOL - Other Solid<br>WP - Wipe |      |      |      |      |      |      |      |      |  |
| Address: 1001 Bishop St. ste 1600   |                                | Street   |   |                            |   |   |       |      |     |  |      |                    |             |      |              |   |      |      |      |      |      |      |      |      |  |
| City: Honolulu State: HI Zip: 96813   |                                | City Honolulu State Hawaii   |   |                            |   |   |       |      |     |  |      |                    |             |      |              |   |      |      |      |      |      |      |      |      |  |
| Project Contact: Katie Abbott Email: katie.abbott@aecom.com   |                                | Project # 23F0104 - 60697810   |   |                            |   |   |       |      |     |  |      |                    |             |      |              |   |      |      |      |      |      |      |      |      |  |
| Project Manager: Watson Tanji Email: watson.tanji@aecom.com   |                                | Fax #  |   |                            |   | PFAS EPA Draft 1683   |       |      |     |  |      |                    |             |      |              |   |      |      |      |      |      |      |      |      |  |
| Phone #: 303-796-4624 / 808-954-4512  |                                | Client Purchase Order # 151253   |   |                            |   |   |       |      |     |  |      |                    |             |      |              |   |      |      |      |      |      |      |      |      |  |
| Sampler(s) Name(s) (Printed)<br>Sampler 1: Andy Young Sampler 2: Matt Yum   |                                |  |   |                            |   |   |       |      |     |  |      |                    |             |      |              |   |      |      |      |      |      |      |      |      |  |
| SGS Orlando Sample #  | Field ID / Point of Collection | COLLECTION   |   |                            | CONTAINER INFORMATION                           |   |       |      |     |  |      |                    |             |      | LAB USE ONLY |   |      |      |      |      |      |      |      |      |  |
|   |                                | DATE   | TIME  | SAMPLED BY:                | MATRIX  | TOTAL # OF BOTTLES  | OTHER | NONE | ICI | MECH                                       | PHOS | PHOS               | PHOS        | PHOS |              | PHOS  | PHOS | PHOS | PHOS | PHOS | PHOS | PHOS | PHOS | PHOS |  |
| 1   | AF-RHMMW225401-WGN01B-2312     | 12/5/23  | 1300  | AT,MY                      | GW  | 3   |       | X    |     |  |      |                    |             |      |              |   |      |      |      |      |      |      |      |      |  |
|   |                                |  |   |                            |   |   |       |      |     |  |      |                    |             |      |              |   |      |      |      |      |      |      |      |      |  |
|   |                                |  |   |                            |   |   |       |      |     |  |      | INITIAL ASSESSMENT | ZB          |      |              |   |      |      |      |      |      |      |      |      |  |
|   |                                |  |   |                            |   |   |       |      |     |  |      | LABEL VERIFICATION | [Signature] |      |              |   |      |      |      |      |      |      |      |      |  |
| Turnaround Time ( Business days)  |                                | Data Deliverable Information   |   |                            |   | Comments / Remarks  |       |      |     |  |      |                    |             |      |              |   |      |      |      |      |      |      |      |      |  |
| 10 Day (Business) Approved By: / Date:<br>7 Day<br><input checked="" type="checkbox"/> 5 Day<br>3 Day RUSH<br>2 Day RUSH<br>1 Day RUSH<br>Other |                                | <input type="checkbox"/> COMMERCIAL "A" (RESULTS ONLY)<br><input type="checkbox"/> COMMERCIAL "B" (RESULTS PLUS QC)<br><input type="checkbox"/> REDT1 (EPA LEVEL 3)<br><input checked="" type="checkbox"/> FULLT1 (EPA LEVEL 4)<br><input checked="" type="checkbox"/> EDD'S |   |                            |   | EDMS upload database: JBPHE<br>EDMS Coverage: AFFF Assessment Sampling GW<br>United AFB: 012-97503974 |       |      |     |  |      |                    |             |      |              |   |      |      |      |      |      |      |      |      |  |
| Rush T/A Data Available VIA Email or Lablink  |                                |  |   |                            |   |   |       |      |     |  |      |                    |             |      |              |   |      |      |      |      |      |      |      |      |  |
| Sample Custody must be documented below each time samples change possession, including courier delivery.  |                                |  |   |                            |   |   |       |      |     |  |      |                    |             |      |              |   |      |      |      |      |      |      |      |      |  |
| Relinquished by Sampler/Affiliation<br>1 Andy Young / AECOM   | Date Time:<br>12/5/23 1520     | Received By/Affiliation<br>2 Brittany Tomez / AECOM  | Relinquished By/Affiliation<br>3 Brittany Tomez / AECOM | Date Time:<br>12/5/23 1530 | Received By/Affiliation<br>4 [Signature] / 1715 |   |       |      |     |  |      | 12/6/23            |             |      |              |   |      |      |      |      |      |      |      |      |  |
| Relinquished by/Affiliation   | Date Time:                     | Received By/Affiliation  | Relinquished By/Affiliation                             | Date Time:                 | Received By/Affiliation                         |   |       |      |     |  |      |                    |             |      |              |   |      |      |      |      |      |      |      |      |  |
| 5   |                                | 6  | 7   |                            | 8   |   |       |      |     |  |      |                    |             |      |              |   |      |      |      |      |      |      |      |      |  |
| Lab Use Only: Cooler Temperature (s) Celsius (corrected): 2.6 IRI   |                                |  |   |                            |   |   |       |      |     | http://www.sgs.com/en/terms-and-conditions |      |                    |             |      |              |   |      |      |      |      |      |      |      |      |  |

PFAS\_COCS\_ALL\_12042023.xls Rev 031318

FC11715: Chain of Custody

Page 1 of 5







SGS North America Inc - Orlando

Chain of Custody

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PAGE 1 OF 1

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FC11715

| Client / Reporting Information  |                                | Project Information  |      | Analytical Information   |                       |                    |       |                                   |    |              |      |  |          | Matrix Codes  |              |      |  |
|---|--------------------------------|--|------|--|-----------------------|--------------------|-------|-----------------------------------|----|--------------|------|--|----------|---|--------------|------|--|
| Company Name: AECOM   |                                | Project Name: N6274223F0104 RH Fire Suppression System   |      | <div style="display: flex; justify-content: space-between;"> <span>PPFAS EPA Draft 1653</span> <span>W 12/5/23</span> </div> |                       |                    |       |                                   |    |              |      |  |          | DW - Drinking Water<br>GW - Ground Water<br>WW - Water<br>SW - Surface Water<br>SO - Soil<br>SL - Sludge<br>OI - Oil<br>LIQ - Other Liquid<br>AIR - Air<br>SOL - Other Solid<br>WP - Wipe |              |      |  |
| Address: 1001 Bishop St. ste 1600   |                                | Street   |      |  |                       |                    |       |                                   |    |              |      |  |          |   |              |      |  |
| City: Honolulu State: HI Zip: 96813   |                                | City Honolulu State Hawaii   |      |  |                       |                    |       |                                   |    |              |      |  |          |   |              |      |  |
| Project Contact: Katie Abbott Email: katie.abbott@aecom.com   |                                | Project # 23F0104 - 60697810   |      |  |                       |                    |       |                                   |    |              |      |  |          |   |              |      |  |
| Project Manager: Watson Tanji Email: watson.tanji@aecom.com   |                                | Fax #  |      |  |                       |                    |       |                                   |    |              |      |  |          |   |              |      |  |
| Phone #: 303-796-4624 / 808-954-4512  |                                | Client Purchase Order # 151253   |      |  |                       |                    |       |                                   |    |              |      |  |          |   |              |      |  |
| Sampler(s) Name(s) (Printed)  |                                | Sampler 1: <i>Clarissa Watson</i> Sampler 2: <i>Clarissa Watson</i>  |      |  |                       |                    |       |                                   |    |              |      |  |          |   |              |      |  |
| SGS Orlando Sample #  | Field ID / Point of Collection | COLLECTION   |      |  | CONTAINER INFORMATION |                    |       |                                   |    |              |      |  |          |   | LAB USE ONLY |      |  |
|   |                                | DATE   | TIME | SAMPLED BY   | MATRIX                | TOTAL # OF BOTTLES | OTHER | NONE                              | FO | NOH          | PNGB | HSC04  | NOH2Z/MS | DI WATER  |              | MICH |  |
| 2   | AF-RHMW04-WGN01LF-2312         | 12/9/23  | 0930 | CL   | GW                    | 3                  | X     |                                   |    |              |      |  |          |   |              |      |  |
| Turnaround Time ( Business days)  |                                | Data Deliverable Information   |      | Comments / Remarks   |                       |                    |       |                                   |    |              |      |  |          |   |              |      |  |
| 10 Day (Business) Approved By: / Date:<br>7 Day<br><input checked="" type="checkbox"/> 5 Day<br>3 Day RUSH<br>2 Day RUSH<br>1 Day RUSH<br>Other |                                | <input type="checkbox"/> COMMERCIAL "A" (RESULTS ONLY)<br><input type="checkbox"/> COMMERCIAL "B" (RESULTS PLUS QC)<br><input type="checkbox"/> REDT1 (EPA LEVEL 3)<br><input checked="" type="checkbox"/> FULLT1 (EPA LEVEL 4)<br><input checked="" type="checkbox"/> EDD'S |      | EDMS upload database: JBPHE<br>EDMS Coverage: AFFF Assessment Sampling GW<br>Unltd AWW: 916 - 91503976                       |                       |                    |       |                                   |    |              |      |  |          |   |              |      |  |
| Rush T/A Data Available VIA Email or Lablink  |                                |  |      |  |                       |                    |       |                                   |    |              |      | Sample Custody must be documented below each time samples change possession, including courier delivery. |          |   |              |      |  |
| Relinquished by/Affiliation   |                                | Date Time  |      | Received By/Affiliation  |                       | Date Time          |       | Relinquished By/Affiliation       |    | Date Time    |      | Received By/Affiliation  |          |   |              |      |  |
| 1 <i>Clarissa Watson / AECOM</i>  |                                | 12/5/23 1435   |      | 2 <i>Brittany Tominez / AECOM</i>  |                       | 12/5/23 1451       |       | 3 <i>Brittany Tominez / AECOM</i> |    | 12/5/23 1451 |      | 4 <i>Clarissa Watson / AECOM</i> 1715  |          |   |              |      |  |
| 5   |                                |  |      | 6  |                       | 7                  |       | 8                                 |    | 9            |      | 10   |          |   |              |      |  |

Lab Use Only: Cooler Temperature (s) Celsius (corrected):

<http://www.sgs.com/en/terms-and-conditions>

PFAS\_COCs\_ALL\_12042023.xls Rev 031318

5.1  
5

FC11715: Chain of Custody

Page 2 of 5







### SGS - Orlando Sample Receipt Summary

Job Number: fc11715

Client: AECOM

Project: N6274223F0104 RH FIRE SUPPRESSION

Date / Time Received: 12/6/2023 5:15:00 PM

Delivery Method: UNITED CARGO

Airbill #'s: UNITED AWB: 016-97503976

Cooler Temps (Raw Measured) °C: Cooler 1: (2.6);

Cooler Temps (Corrected) °C: Cooler 1: (3.0);

**Cooler Information**

Y or N

- 1. Custody Seals Present:
- 2. Custody Seals Intact:
- 3. Temp criteria achieved:
- 4. Cooler temp verification: IR Gun
- 5. Cooler media: Ice (Bag)

**Trip Blank Information**

Y or N N/A

- 1. Trip Blank present / cooler:
- 2. Trip Blank listed on COC:

W or S N/A

- 3. Type of TB Received

**Sample Information**

Y or N N/A

- 1. Sample labels present on bottles:
- 2. Samples presented properly:
- 3. Sufficient volume/containers recv'd for analysis:
- 4. Condition of sample: Intact
- 5. Sample recv'd within HT:
- 6. Dates/Times/IDs on COC match sample label:
- 7. VOCs have headspace:
- 8. Bottles received for unspecified tests:
- 9. Compositing instructions clear:
- 10. Voa Soil Kits/Jars received past 48hrs?:
- 11. % Solids Jar Received?:
- 12. Residual Chlorine Present?:

**Misc Information**

Number of Encores: 25 Gram 5 Gram

Number of Lab Filtered Metals:

Test Strip Lot #s: pH 0-3: 226422

pH 10-12: \_\_\_\_\_ Other: (Specify) pH 1.0 - 12.0 222221

Residual Chlorine Test Strip Lot # \_\_\_\_\_

Comments

Sample Receipt Summary 112723 EK Technician: ZANEB

Date: 12/6/2023 6:26:19 PM

Reviewer: \_\_\_\_\_ Date: \_\_\_\_\_

**FC11715: Chain of Custody**

Page 5 of 5

5.1  
5

# QC Evaluation: DOD QSM5.x Limits

**Job Number:** FC11715  
**Account:** AECOM, INC.  
**Project:** N6274223F0104 RH Fire Suppression System  
**Collected:** 12/05/23

| QC Sample ID | CAS# | Analyte | Sample Result Type | Result Type | Units | Limits |
|--------------|------|---------|--------------------|-------------|-------|--------|
|--------------|------|---------|--------------------|-------------|-------|--------|

No DOD QSM5.x Limits found for methods in this job.

---

\* Sample used for QC is not from job FC11715

5.2  
5

## MS Semi-volatiles

---

### QC Data Summaries

---

#### Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries
- Injection Standard Area Summaries
- TDCA Retention Time Checks
- Ion Ratio Summaries
- Isotope Dilution Standard Recovery Summaries
- Initial and Continuing Calibration Summaries
- Run Sequence Reports

**Instrument Blank**

Job Number: FC11715  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

| Sample      | File ID   | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|-------------|-----------|----|----------|----|-----------|------------|------------------|
| S4Q804-IBLK | 4Q54860.D | 1  | 12/08/23 | AL | n/a       | n/a        | S4Q804           |

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC11715-1, FC11715-2, FC11715-3, FC11715-4

| CAS No.        | Compound                      | Result | RL     | MDL     | Units | Q |
|----------------|-------------------------------|--------|--------|---------|-------|---|
| 375-22-4       | Perfluorobutanoic acid        | ND     | 0.016  | 0.0019  | ug/l  |   |
| 2706-90-3      | Perfluoropentanoic acid       | ND     | 0.0080 | 0.00094 | ug/l  |   |
| 307-24-4       | Perfluorohexanoic acid        | ND     | 0.0040 | 0.00050 | ug/l  |   |
| 375-85-9       | Perfluoroheptanoic acid       | ND     | 0.0040 | 0.00050 | ug/l  |   |
| 335-67-1       | Perfluorooctanoic acid        | ND     | 0.0040 | 0.00050 | ug/l  |   |
| 375-95-1       | Perfluorononanoic acid        | ND     | 0.0040 | 0.00061 | ug/l  |   |
| 335-76-2       | Perfluorodecanoic acid        | ND     | 0.0040 | 0.00050 | ug/l  |   |
| 2058-94-8      | Perfluoroundecanoic acid      | ND     | 0.0040 | 0.00060 | ug/l  |   |
| 307-55-1       | Perfluorododecanoic acid      | ND     | 0.0040 | 0.00060 | ug/l  |   |
| 72629-94-8     | Perfluorotridecanoic acid     | ND     | 0.0040 | 0.00084 | ug/l  |   |
| 376-06-7       | Perfluorotetradecanoic acid   | ND     | 0.0040 | 0.00050 | ug/l  |   |
| 375-73-5       | Perfluorobutanesulfonic acid  | ND     | 0.0040 | 0.00050 | ug/l  |   |
| 2706-91-4      | Perfluoropentanesulfonic acid | ND     | 0.0050 | 0.0011  | ug/l  |   |
| 355-46-4       | Perfluorohexanesulfonic acid  | ND     | 0.0040 | 0.00070 | ug/l  |   |
| 375-92-8       | Perfluoroheptanesulfonic acid | ND     | 0.0040 | 0.00050 | ug/l  |   |
| 1763-23-1      | Perfluorooctanesulfonic acid  | ND     | 0.0040 | 0.00054 | ug/l  |   |
| 68259-12-1     | Perfluorononanesulfonic acid  | ND     | 0.0040 | 0.00057 | ug/l  |   |
| 335-77-3       | Perfluorodecanesulfonic acid  | ND     | 0.0040 | 0.00064 | ug/l  |   |
| 79780-39-5     | Perfluorododecanesulfonic aci | ND     | 0.0050 | 0.0011  | ug/l  |   |
| 757124-72-44:2 | Fluorotelomer sulfonate       | ND     | 0.020  | 0.0032  | ug/l  |   |
| 27619-97-2     | 6:2 Fluorotelomer sulfonate   | ND     | 0.020  | 0.0035  | ug/l  |   |
| 39108-34-4     | 8:2 Fluorotelomer sulfonate   | ND     | 0.020  | 0.0041  | ug/l  |   |
| 754-91-6       | PFOSA                         | ND     | 0.0040 | 0.00067 | ug/l  |   |
| 31506-32-8     | MeFOSA                        | 0.0022 | 0.0080 | 0.0010  | ug/l  | J |
| 4151-50-2      | EtFOSA                        | 0.0028 | 0.0080 | 0.0010  | ug/l  | J |
| 2355-31-9      | MeFOSAA                       | ND     | 0.0050 | 0.0010  | ug/l  |   |
| 2991-50-6      | EtFOSAA                       | ND     | 0.0050 | 0.0013  | ug/l  |   |
| 24448-09-7     | MeFOSE                        | ND     | 0.040  | 0.0044  | ug/l  |   |
| 1691-99-2      | EtFOSE                        | 0.0075 | 0.040  | 0.0074  | ug/l  | J |
| 13252-13-6     | HFPO-DA (GenX)                | ND     | 0.0040 | 0.0010  | ug/l  |   |
| 919005-14-4    | ADONA                         | ND     | 0.0080 | 0.0019  | ug/l  |   |
| 377-73-1       | PFMPA                         | ND     | 0.0080 | 0.0010  | ug/l  |   |
| 863090-89-5    | PFMBA                         | ND     | 0.0080 | 0.0011  | ug/l  |   |
| 151772-58-6    | NFDHA                         | ND     | 0.0080 | 0.0012  | ug/l  |   |
| 756426-58-19   | Cl-PF3ONS (F-53B Major)       | ND     | 0.0080 | 0.0014  | ug/l  |   |
| 763051-92-91   | Cl-PF3OUdS (F-53B Minor)      | ND     | 0.0080 | 0.0018  | ug/l  |   |

# Instrument Blank

Job Number: FC11715  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

| Sample      | File ID   | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|-------------|-----------|----|----------|----|-----------|------------|------------------|
| S4Q804-IBLK | 4Q54860.D | 1  | 12/08/23 | AL | n/a       | n/a        | S4Q804           |

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC11715-1, FC11715-2, FC11715-3, FC11715-4

| CAS No.        | Compound                      | Result | RL     | MDL     | Units | Q |
|----------------|-------------------------------|--------|--------|---------|-------|---|
| 113507-82-7    | PFEESA                        | ND     | 0.0080 | 0.00078 | ug/l  |   |
| 356-02-5       | 3:3 Fluorotelomer carboxylate | ND     | 0.020  | 0.0045  | ug/l  |   |
| 914637-49-35:3 | Fluorotelomer carboxylate     | ND     | 0.10   | 0.0087  | ug/l  |   |
| 812-70-4       | 7:3 Fluorotelomer carboxylate | ND     | 0.10   | 0.0079  | ug/l  |   |

| CAS No. | ID Standard Recoveries | Limits       |
|---------|------------------------|--------------|
|         | 13C4-PFBA              | 100% 20-150% |
|         | 13C5-PFPeA             | 101% 20-150% |
|         | 13C5-PFHxA             | 96% 20-150%  |
|         | 13C4-PFHpA             | 102% 20-150% |
|         | 13C8-PFOA              | 98% 20-150%  |
|         | 13C9-PFNA              | 100% 20-150% |
|         | 13C6-PFDA              | 105% 20-150% |
|         | 13C7-PFUnDA            | 108% 20-150% |
|         | 13C2-PFDoDA            | 102% 20-150% |
|         | 13C2-PFTeDA            | 101% 20-150% |
|         | 13C3-PFBS              | 99% 20-150%  |
|         | 13C3-PFHxS             | 100% 20-150% |
|         | 13C8-PFOS              | 92% 20-150%  |
|         | 13C8-FOSA              | 97% 20-150%  |
|         | d3-MeFOSAA             | 100% 20-150% |
|         | d5-EtFOSAA             | 100% 20-150% |
|         | 13C2-4:2FTS            | 102% 20-180% |
|         | 13C2-6:2FTS            | 105% 20-180% |
|         | 13C2-8:2FTS            | 102% 20-180% |

6.1.1  
6



## Continuing Calibration Blank

Job Number: FC11715  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

| Sample      | File ID   | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|-------------|-----------|----|----------|----|-----------|------------|------------------|
| S4Q804-ICCB | 4Q54882.D | 1  | 12/08/23 | AL | n/a       | n/a        | S4Q804           |

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC11715-1, FC11715-2, FC11715-3, FC11715-4

| CAS No.        | Compound                      | Result | RL     | MDL     | Units | Q |
|----------------|-------------------------------|--------|--------|---------|-------|---|
| 375-22-4       | Perfluorobutanoic acid        | ND     | 0.016  | 0.0019  | ug/l  |   |
| 2706-90-3      | Perfluoropentanoic acid       | ND     | 0.0080 | 0.00094 | ug/l  |   |
| 307-24-4       | Perfluorohexanoic acid        | ND     | 0.0040 | 0.00050 | ug/l  |   |
| 375-85-9       | Perfluoroheptanoic acid       | ND     | 0.0040 | 0.00050 | ug/l  |   |
| 335-67-1       | Perfluorooctanoic acid        | ND     | 0.0040 | 0.00050 | ug/l  |   |
| 375-95-1       | Perfluorononanoic acid        | ND     | 0.0040 | 0.00061 | ug/l  |   |
| 335-76-2       | Perfluorodecanoic acid        | ND     | 0.0040 | 0.00050 | ug/l  |   |
| 2058-94-8      | Perfluoroundecanoic acid      | ND     | 0.0040 | 0.00060 | ug/l  |   |
| 307-55-1       | Perfluorododecanoic acid      | ND     | 0.0040 | 0.00060 | ug/l  |   |
| 72629-94-8     | Perfluorotridecanoic acid     | ND     | 0.0040 | 0.00084 | ug/l  |   |
| 376-06-7       | Perfluorotetradecanoic acid   | ND     | 0.0040 | 0.00050 | ug/l  |   |
| 375-73-5       | Perfluorobutanesulfonic acid  | ND     | 0.0040 | 0.00050 | ug/l  |   |
| 2706-91-4      | Perfluoropentanesulfonic acid | ND     | 0.0050 | 0.0011  | ug/l  |   |
| 355-46-4       | Perfluorohexanesulfonic acid  | ND     | 0.0040 | 0.00070 | ug/l  |   |
| 375-92-8       | Perfluoroheptanesulfonic acid | ND     | 0.0040 | 0.00050 | ug/l  |   |
| 1763-23-1      | Perfluorooctanesulfonic acid  | ND     | 0.0040 | 0.00054 | ug/l  |   |
| 68259-12-1     | Perfluorononanesulfonic acid  | ND     | 0.0040 | 0.00057 | ug/l  |   |
| 335-77-3       | Perfluorodecanesulfonic acid  | ND     | 0.0040 | 0.00064 | ug/l  |   |
| 79780-39-5     | Perfluorododecanesulfonic aci | ND     | 0.0050 | 0.0011  | ug/l  |   |
| 757124-72-44:2 | Fluorotelomer sulfonate       | ND     | 0.020  | 0.0032  | ug/l  |   |
| 27619-97-2     | 6:2 Fluorotelomer sulfonate   | ND     | 0.020  | 0.0035  | ug/l  |   |
| 39108-34-4     | 8:2 Fluorotelomer sulfonate   | ND     | 0.020  | 0.0041  | ug/l  |   |
| 754-91-6       | PFOSA                         | ND     | 0.0040 | 0.00067 | ug/l  |   |
| 31506-32-8     | MeFOSA                        | ND     | 0.0080 | 0.0010  | ug/l  |   |
| 4151-50-2      | EtFOSA                        | ND     | 0.0080 | 0.0010  | ug/l  |   |
| 2355-31-9      | MeFOSAA                       | ND     | 0.0050 | 0.0010  | ug/l  |   |
| 2991-50-6      | EtFOSAA                       | ND     | 0.0050 | 0.0013  | ug/l  |   |
| 24448-09-7     | MeFOSE                        | ND     | 0.040  | 0.0044  | ug/l  |   |
| 1691-99-2      | EtFOSE                        | ND     | 0.040  | 0.0074  | ug/l  |   |
| 13252-13-6     | HFPO-DA (GenX)                | ND     | 0.0040 | 0.0010  | ug/l  |   |
| 919005-14-4    | ADONA                         | ND     | 0.0080 | 0.0019  | ug/l  |   |
| 377-73-1       | PFMPA                         | ND     | 0.0080 | 0.0010  | ug/l  |   |
| 863090-89-5    | PFMBA                         | ND     | 0.0080 | 0.0011  | ug/l  |   |
| 151772-58-6    | NFDHA                         | ND     | 0.0080 | 0.0012  | ug/l  |   |
| 756426-58-19   | Cl-PF3ONS (F-53B Major)       | ND     | 0.0080 | 0.0014  | ug/l  |   |
| 763051-92-91   | Cl-PF3OUdS (F-53B Minor)      | ND     | 0.0080 | 0.0018  | ug/l  |   |

# Continuing Calibration Blank

Job Number: FC11715  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

| Sample      | File ID   | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|-------------|-----------|----|----------|----|-----------|------------|------------------|
| S4Q804-ICCB | 4Q54882.D | 1  | 12/08/23 | AL | n/a       | n/a        | S4Q804           |

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC11715-1, FC11715-2, FC11715-3, FC11715-4

| CAS No.        | Compound                      | Result | RL     | MDL     | Units | Q |
|----------------|-------------------------------|--------|--------|---------|-------|---|
| 113507-82-7    | PFEESA                        | ND     | 0.0080 | 0.00078 | ug/l  |   |
| 356-02-5       | 3:3 Fluorotelomer carboxylate | ND     | 0.020  | 0.0045  | ug/l  |   |
| 914637-49-35:3 | Fluorotelomer carboxylate     | ND     | 0.10   | 0.0087  | ug/l  |   |
| 812-70-4       | 7:3 Fluorotelomer carboxylate | ND     | 0.10   | 0.0079  | ug/l  |   |

| CAS No. | ID Standard Recoveries | Limits       |
|---------|------------------------|--------------|
|         | 13C4-PFBA              | 101% 20-150% |
|         | 13C5-PFPeA             | 102% 20-150% |
|         | 13C5-PFHxA             | 102% 20-150% |
|         | 13C4-PFHpA             | 106% 20-150% |
|         | 13C8-PFOA              | 100% 20-150% |
|         | 13C9-PFNA              | 101% 20-150% |
|         | 13C6-PFDA              | 102% 20-150% |
|         | 13C7-PFUnDA            | 105% 20-150% |
|         | 13C2-PFDoDA            | 96% 20-150%  |
|         | 13C2-PFTeDA            | 97% 20-150%  |
|         | 13C3-PFBS              | 100% 20-150% |
|         | 13C3-PFHxS             | 102% 20-150% |
|         | 13C8-PFOS              | 95% 20-150%  |
|         | 13C8-FOSA              | 102% 20-150% |
|         | d3-MeFOSAA             | 97% 20-150%  |
|         | d5-EtFOSAA             | 98% 20-150%  |
|         | 13C2-4:2FTS            | 108% 20-180% |
|         | 13C2-6:2FTS            | 102% 20-180% |
|         | 13C2-8:2FTS            | 98% 20-180%  |

## Method Blank Summary

Job Number: FC11715  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

| Sample   | File ID   | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|----------|-----------|----|----------|----|-----------|------------|------------------|
| OP495-MB | 4Q54885.D | 1  | 12/08/23 | AL | 12/07/23  | OP495      | S4Q804           |

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC11715-1, FC11715-2, FC11715-3, FC11715-4

| CAS No.        | Compound                      | Result | RL     | MDL     | Units | Q |
|----------------|-------------------------------|--------|--------|---------|-------|---|
| 375-22-4       | Perfluorobutanoic acid        | ND     | 0.016  | 0.0019  | ug/l  |   |
| 2706-90-3      | Perfluoropentanoic acid       | ND     | 0.0080 | 0.00094 | ug/l  |   |
| 307-24-4       | Perfluorohexanoic acid        | ND     | 0.0040 | 0.00050 | ug/l  |   |
| 375-85-9       | Perfluoroheptanoic acid       | ND     | 0.0040 | 0.00050 | ug/l  |   |
| 335-67-1       | Perfluorooctanoic acid        | ND     | 0.0040 | 0.00050 | ug/l  |   |
| 375-95-1       | Perfluorononanoic acid        | ND     | 0.0040 | 0.00061 | ug/l  |   |
| 335-76-2       | Perfluorodecanoic acid        | ND     | 0.0040 | 0.00050 | ug/l  |   |
| 2058-94-8      | Perfluoroundecanoic acid      | ND     | 0.0040 | 0.00060 | ug/l  |   |
| 307-55-1       | Perfluorododecanoic acid      | ND     | 0.0040 | 0.00060 | ug/l  |   |
| 72629-94-8     | Perfluorotridecanoic acid     | ND     | 0.0040 | 0.00084 | ug/l  |   |
| 376-06-7       | Perfluorotetradecanoic acid   | ND     | 0.0040 | 0.00050 | ug/l  |   |
| 375-73-5       | Perfluorobutanesulfonic acid  | ND     | 0.0040 | 0.00050 | ug/l  |   |
| 2706-91-4      | Perfluoropentanesulfonic acid | ND     | 0.0050 | 0.0011  | ug/l  |   |
| 355-46-4       | Perfluorohexanesulfonic acid  | ND     | 0.0040 | 0.00070 | ug/l  |   |
| 375-92-8       | Perfluoroheptanesulfonic acid | ND     | 0.0040 | 0.00050 | ug/l  |   |
| 1763-23-1      | Perfluorooctanesulfonic acid  | ND     | 0.0040 | 0.00054 | ug/l  |   |
| 68259-12-1     | Perfluorononanesulfonic acid  | ND     | 0.0040 | 0.00057 | ug/l  |   |
| 335-77-3       | Perfluorodecanesulfonic acid  | ND     | 0.0040 | 0.00064 | ug/l  |   |
| 79780-39-5     | Perfluorododecanesulfonic aci | ND     | 0.0050 | 0.0011  | ug/l  |   |
| 757124-72-44:2 | Fluorotelomer sulfonate       | ND     | 0.020  | 0.0032  | ug/l  |   |
| 27619-97-2     | 6:2 Fluorotelomer sulfonate   | ND     | 0.020  | 0.0035  | ug/l  |   |
| 39108-34-4     | 8:2 Fluorotelomer sulfonate   | ND     | 0.020  | 0.0041  | ug/l  |   |
| 754-91-6       | PFOSA                         | ND     | 0.0040 | 0.00067 | ug/l  |   |
| 31506-32-8     | MeFOSA                        | ND     | 0.0080 | 0.0010  | ug/l  |   |
| 4151-50-2      | EtFOSA                        | ND     | 0.0080 | 0.0010  | ug/l  |   |
| 2355-31-9      | MeFOSAA                       | ND     | 0.0050 | 0.0010  | ug/l  |   |
| 2991-50-6      | EtFOSAA                       | ND     | 0.0050 | 0.0013  | ug/l  |   |
| 24448-09-7     | MeFOSE                        | ND     | 0.040  | 0.0044  | ug/l  |   |
| 1691-99-2      | EtFOSE                        | ND     | 0.040  | 0.0074  | ug/l  |   |
| 13252-13-6     | HFPO-DA (GenX)                | ND     | 0.0040 | 0.0010  | ug/l  |   |
| 919005-14-4    | ADONA                         | ND     | 0.0080 | 0.0019  | ug/l  |   |
| 377-73-1       | PFMPA                         | ND     | 0.0080 | 0.0010  | ug/l  |   |
| 863090-89-5    | PFMBA                         | ND     | 0.0080 | 0.0011  | ug/l  |   |
| 151772-58-6    | NFDHA                         | ND     | 0.0080 | 0.0012  | ug/l  |   |
| 756426-58-19   | Cl-PF3ONS (F-53B Major)       | ND     | 0.0080 | 0.0014  | ug/l  |   |
| 763051-92-91   | Cl-PF3OUdS (F-53B Minor)      | ND     | 0.0080 | 0.0018  | ug/l  |   |

# Method Blank Summary

Job Number: FC11715  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

| Sample   | File ID   | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|----------|-----------|----|----------|----|-----------|------------|------------------|
| OP495-MB | 4Q54885.D | 1  | 12/08/23 | AL | 12/07/23  | OP495      | S4Q804           |

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC11715-1, FC11715-2, FC11715-3, FC11715-4

| CAS No.        | Compound                      | Result | RL     | MDL     | Units | Q |
|----------------|-------------------------------|--------|--------|---------|-------|---|
| 113507-82-7    | PFEESA                        | ND     | 0.0080 | 0.00078 | ug/l  |   |
| 356-02-5       | 3:3 Fluorotelomer carboxylate | ND     | 0.020  | 0.0045  | ug/l  |   |
| 914637-49-35:3 | Fluorotelomer carboxylate     | ND     | 0.10   | 0.0087  | ug/l  |   |
| 812-70-4       | 7:3 Fluorotelomer carboxylate | ND     | 0.10   | 0.0079  | ug/l  |   |

| CAS No. | ID Standard Recoveries | Limits       |
|---------|------------------------|--------------|
|         | 13C4-PFBA              | 119% 20-150% |
|         | 13C5-PFPeA             | 122% 20-150% |
|         | 13C5-PFHxA             | 120% 20-150% |
|         | 13C4-PFHpA             | 126% 20-150% |
|         | 13C8-PFOA              | 112% 20-150% |
|         | 13C9-PFNA              | 112% 20-150% |
|         | 13C6-PFDA              | 118% 20-150% |
|         | 13C7-PFUnDA            | 109% 20-150% |
|         | 13C2-PFDoDA            | 103% 20-150% |
|         | 13C2-PFTeDA            | 94% 20-150%  |
|         | 13C3-PFBS              | 106% 20-150% |
|         | 13C3-PFHxS             | 110% 20-150% |
|         | 13C8-PFOS              | 115% 20-150% |
|         | 13C8-FOSA              | 73% 20-150%  |
|         | d3-MeFOSA              | 79% 20-150%  |
|         | d5-EtFOSA              | 88% 20-150%  |
|         | d3-MeFOSAA             | 114% 20-150% |
|         | d5-EtFOSAA             | 109% 20-150% |
|         | d7-MeFOSE              | 57% 20-150%  |
|         | d9-EtFOSE              | 76% 20-150%  |
|         | 13C2-4:2FTS            | 112% 20-180% |
|         | 13C2-6:2FTS            | 106% 20-180% |
|         | 13C2-8:2FTS            | 105% 20-180% |
|         | 13C3-HFPO-DA           | 117% 20-150% |

**Blank Spike Summary**

Job Number: FC11715  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

| Sample     | File ID   | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|------------|-----------|----|----------|----|-----------|------------|------------------|
| OP495-LLBS | 4Q54884.D | 1  | 12/08/23 | AL | 12/07/23  | OP495      | S4Q804           |

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC11715-1, FC11715-2, FC11715-3, FC11715-4

| CAS No.        | Compound                      | Spike<br>ug/l | BSP<br>ug/l | BSP<br>% | Limits |
|----------------|-------------------------------|---------------|-------------|----------|--------|
| 375-22-4       | Perfluorobutanoic acid        | 0.03          | 0.0304      | 101      | 40-150 |
| 2706-90-3      | Perfluoropentanoic acid       | 0.015         | 0.0148      | 99       | 40-150 |
| 307-24-4       | Perfluorohexanoic acid        | 0.0075        | 0.0073      | 97       | 40-150 |
| 375-85-9       | Perfluoroheptanoic acid       | 0.0075        | 0.0076      | 101      | 40-150 |
| 335-67-1       | Perfluorooctanoic acid        | 0.0075        | 0.0073      | 97       | 40-150 |
| 375-95-1       | Perfluorononanoic acid        | 0.0075        | 0.0073      | 97       | 40-150 |
| 335-76-2       | Perfluorodecanoic acid        | 0.0075        | 0.0078      | 104      | 40-150 |
| 2058-94-8      | Perfluoroundecanoic acid      | 0.0075        | 0.0081      | 108      | 40-150 |
| 307-55-1       | Perfluorododecanoic acid      | 0.0075        | 0.0081      | 108      | 40-150 |
| 72629-94-8     | Perfluorotridecanoic acid     | 0.0075        | 0.0081      | 108      | 40-150 |
| 376-06-7       | Perfluorotetradecanoic acid   | 0.0075        | 0.0074      | 99       | 40-150 |
| 375-73-5       | Perfluorobutanesulfonic acid  | 0.00665       | 0.0068      | 102      | 40-150 |
| 2706-91-4      | Perfluoropentanesulfonic acid | 0.00706       | 0.0068      | 96       | 40-150 |
| 355-46-4       | Perfluorohexanesulfonic acid  | 0.00686       | 0.0073      | 106      | 40-150 |
| 375-92-8       | Perfluoroheptanesulfonic acid | 0.00715       | 0.0080      | 112      | 40-150 |
| 1763-23-1      | Perfluorooctanesulfonic acid  | 0.00696       | 0.0076      | 109      | 40-150 |
| 68259-12-1     | Perfluorononanesulfonic acid  | 0.00722       | 0.0083      | 115      | 40-150 |
| 335-77-3       | Perfluorodecanesulfonic acid  | 0.00724       | 0.0075      | 104      | 40-150 |
| 79780-39-5     | Perfluorododecanesulfonic aci | 0.00728       | 0.0067      | 92       | 40-150 |
| 757124-72-44:2 | Fluorotelomer sulfonate       | 0.0281        | 0.0295      | 105      | 40-150 |
| 27619-97-2     | 6:2 Fluorotelomer sulfonate   | 0.0285        | 0.0294      | 103      | 40-150 |
| 39108-34-4     | 8:2 Fluorotelomer sulfonate   | 0.0288        | 0.0328      | 114      | 40-150 |
| 754-91-6       | PFOSA                         | 0.0075        | 0.0075      | 100      | 40-150 |
| 31506-32-8     | MeFOSA                        | 0.015         | 0.0135      | 90       | 40-150 |
| 4151-50-2      | EtFOSA                        | 0.015         | 0.0152      | 101      | 40-150 |
| 2355-31-9      | MeFOSAA                       | 0.0075        | 0.0085      | 113      | 40-150 |
| 2991-50-6      | EtFOSAA                       | 0.0075        | 0.0076      | 101      | 40-150 |
| 24448-09-7     | MeFOSE                        | 0.0375        | 0.0373      | 99       | 40-150 |
| 1691-99-2      | EtFOSE                        | 0.0375        | 0.0391      | 104      | 40-150 |
| 13252-13-6     | HFPO-DA (GenX)                | 0.015         | 0.0157      | 105      | 40-150 |
| 919005-14-4    | ADONA                         | 0.0142        | 0.0157      | 111      | 40-150 |
| 377-73-1       | PFMPA                         | 0.015         | 0.0162      | 108      | 40-150 |
| 863090-89-5    | PFMBA                         | 0.015         | 0.0156      | 104      | 40-150 |
| 151772-58-6    | NFDHA                         | 0.015         | 0.0155      | 103      | 40-150 |
| 756426-58-19   | Cl-PF3ONS (F-53B Major)       | 0.014         | 0.0150      | 107      | 40-150 |
| 763051-92-91   | Cl-PF3OUdS (F-53B Minor)      | 0.0142        | 0.0152      | 107      | 40-150 |

\* = Outside of Control Limits.

# Blank Spike Summary

Job Number: FC11715  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

| Sample     | File ID   | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|------------|-----------|----|----------|----|-----------|------------|------------------|
| OP495-LLBS | 4Q54884.D | 1  | 12/08/23 | AL | 12/07/23  | OP495      | S4Q804           |

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC11715-1, FC11715-2, FC11715-3, FC11715-4

| CAS No.        | Compound                      | Spike ug/l | BSP ug/l | BSP % | Limits |
|----------------|-------------------------------|------------|----------|-------|--------|
| 113507-82-7    | PFEESA                        | 0.0134     | 0.0140   | 105   | 40-150 |
| 356-02-5       | 3:3 Fluorotelomer carboxylate | 0.0375     | 0.0323   | 86    | 40-150 |
| 914637-49-35:3 | Fluorotelomer carboxylate     | 0.188      | 0.190    | 101   | 40-150 |
| 812-70-4       | 7:3 Fluorotelomer carboxylate | 0.188      | 0.205    | 109   | 40-150 |

| CAS No. | ID Standard Recoveries | BSP  | Limits  |
|---------|------------------------|------|---------|
|         | 13C4-PFBA              | 111% | 20-150% |
|         | 13C5-PFPeA             | 111% | 20-150% |
|         | 13C5-PFHxA             | 108% | 20-150% |
|         | 13C4-PFHpA             | 113% | 20-150% |
|         | 13C8-PFOA              | 107% | 20-150% |
|         | 13C9-PFNA              | 105% | 20-150% |
|         | 13C6-PFDA              | 106% | 20-150% |
|         | 13C7-PFUnDA            | 111% | 20-150% |
|         | 13C2-PFDoDA            | 96%  | 20-150% |
|         | 13C2-PFTeDA            | 90%  | 20-150% |
|         | 13C3-PFBS              | 111% | 20-150% |
|         | 13C3-PFHxS             | 118% | 20-150% |
|         | 13C8-PFOS              | 98%  | 20-150% |
|         | 13C8-FOSA              | 80%  | 20-150% |
|         | d3-MeFOSA              | 76%  | 20-150% |
|         | d5-EtFOSA              | 78%  | 20-150% |
|         | d3-MeFOSAA             | 103% | 20-150% |
|         | d5-EtFOSAA             | 101% | 20-150% |
|         | d7-MeFOSE              | 56%  | 20-150% |
|         | d9-EtFOSE              | 69%  | 20-150% |
|         | 13C2-4:2FTS            | 103% | 20-180% |
|         | 13C2-6:2FTS            | 107% | 20-180% |
|         | 13C2-8:2FTS            | 114% | 20-180% |
|         | 13C3-HFPO-DA           | 108% | 20-150% |

\* = Outside of Control Limits.

**Blank Spike Summary**

Job Number: FC11715  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

|          |           |    |          |    |           |            |                  |
|----------|-----------|----|----------|----|-----------|------------|------------------|
| Sample   | File ID   | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
| OP495-B5 | 4Q54883.D | 1  | 12/08/23 | AL | 12/07/23  | OP495      | S4Q804           |

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC11715-1, FC11715-2, FC11715-3, FC11715-4

| CAS No.        | Compound                      | Spike<br>ug/l | BSP<br>ug/l | BSP<br>% | Limits |
|----------------|-------------------------------|---------------|-------------|----------|--------|
| 375-22-4       | Perfluorobutanoic acid        | 0.1           | 0.101       | 101      | 40-150 |
| 2706-90-3      | Perfluoropentanoic acid       | 0.05          | 0.0492      | 98       | 40-150 |
| 307-24-4       | Perfluorohexanoic acid        | 0.025         | 0.0243      | 97       | 40-150 |
| 375-85-9       | Perfluoroheptanoic acid       | 0.025         | 0.0242      | 97       | 40-150 |
| 335-67-1       | Perfluorooctanoic acid        | 0.025         | 0.0245      | 98       | 40-150 |
| 375-95-1       | Perfluorononanoic acid        | 0.025         | 0.0248      | 99       | 40-150 |
| 335-76-2       | Perfluorodecanoic acid        | 0.025         | 0.0233      | 93       | 40-150 |
| 2058-94-8      | Perfluoroundecanoic acid      | 0.025         | 0.0247      | 99       | 40-150 |
| 307-55-1       | Perfluorododecanoic acid      | 0.025         | 0.0262      | 105      | 40-150 |
| 72629-94-8     | Perfluorotridecanoic acid     | 0.025         | 0.0260      | 104      | 40-150 |
| 376-06-7       | Perfluorotetradecanoic acid   | 0.025         | 0.0242      | 97       | 40-150 |
| 375-73-5       | Perfluorobutanesulfonic acid  | 0.0222        | 0.0214      | 97       | 40-150 |
| 2706-91-4      | Perfluoropentanesulfonic acid | 0.0235        | 0.0238      | 101      | 40-150 |
| 355-46-4       | Perfluorohexanesulfonic acid  | 0.0229        | 0.0231      | 101      | 40-150 |
| 375-92-8       | Perfluoroheptanesulfonic acid | 0.0238        | 0.0238      | 100      | 40-150 |
| 1763-23-1      | Perfluorooctanesulfonic acid  | 0.0232        | 0.0231      | 100      | 40-150 |
| 68259-12-1     | Perfluorononanesulfonic acid  | 0.0241        | 0.0282      | 117      | 40-150 |
| 335-77-3       | Perfluorodecanesulfonic acid  | 0.0241        | 0.0248      | 103      | 40-150 |
| 79780-39-5     | Perfluorododecanesulfonic aci | 0.0243        | 0.0226      | 93       | 40-150 |
| 757124-72-44:2 | Fluorotelomer sulfonate       | 0.0938        | 0.104       | 111      | 40-150 |
| 27619-97-2     | 6:2 Fluorotelomer sulfonate   | 0.095         | 0.0974      | 103      | 40-150 |
| 39108-34-4     | 8:2 Fluorotelomer sulfonate   | 0.096         | 0.0948      | 99       | 40-150 |
| 754-91-6       | PFOSA                         | 0.025         | 0.0247      | 99       | 40-150 |
| 31506-32-8     | MeFOSA                        | 0.05          | 0.0463      | 93       | 40-150 |
| 4151-50-2      | EtFOSA                        | 0.05          | 0.0523      | 105      | 40-150 |
| 2355-31-9      | MeFOSAA                       | 0.025         | 0.0282      | 113      | 40-150 |
| 2991-50-6      | EtFOSAA                       | 0.025         | 0.0229      | 92       | 40-150 |
| 24448-09-7     | MeFOSE                        | 0.125         | 0.117       | 94       | 40-150 |
| 1691-99-2      | EtFOSE                        | 0.125         | 0.117       | 94       | 40-150 |
| 13252-13-6     | HFPO-DA (GenX)                | 0.05          | 0.0515      | 103      | 40-150 |
| 919005-14-4    | ADONA                         | 0.0473        | 0.0531      | 112      | 40-150 |
| 377-73-1       | PFMPA                         | 0.05          | 0.0501      | 100      | 40-150 |
| 863090-89-5    | PFMBA                         | 0.05          | 0.0510      | 102      | 40-150 |
| 151772-58-6    | NFDHA                         | 0.05          | 0.0492      | 98       | 40-150 |
| 756426-58-19   | Cl-PF3ONS (F-53B Major)       | 0.0468        | 0.0512      | 110      | 40-150 |
| 763051-92-91   | Cl-PF3OUdS (F-53B Minor)      | 0.0473        | 0.0505      | 107      | 40-150 |

\* = Outside of Control Limits.

# Blank Spike Summary

Job Number: FC11715  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

| Sample   | File ID   | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|----------|-----------|----|----------|----|-----------|------------|------------------|
| OP495-BS | 4Q54883.D | 1  | 12/08/23 | AL | 12/07/23  | OP495      | S4Q804           |

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC11715-1, FC11715-2, FC11715-3, FC11715-4

| CAS No.        | Compound                      | Spike ug/l | BSP ug/l | BSP % | Limits |
|----------------|-------------------------------|------------|----------|-------|--------|
| 113507-82-7    | PFEESA                        | 0.0445     | 0.0459   | 103   | 40-150 |
| 356-02-5       | 3:3 Fluorotelomer carboxylate | 0.125      | 0.123    | 98    | 40-150 |
| 914637-49-35:3 | Fluorotelomer carboxylate     | 0.625      | 0.634    | 101   | 40-150 |
| 812-70-4       | 7:3 Fluorotelomer carboxylate | 0.625      | 0.641    | 103   | 40-150 |

| CAS No. | ID Standard Recoveries | BSP  | Limits  |
|---------|------------------------|------|---------|
|         | 13C4-PFBA              | 76%  | 20-150% |
|         | 13C5-PFPeA             | 113% | 20-150% |
|         | 13C5-PFHxA             | 110% | 20-150% |
|         | 13C4-PFHpA             | 116% | 20-150% |
|         | 13C8-PFOA              | 111% | 20-150% |
|         | 13C9-PFNA              | 108% | 20-150% |
|         | 13C6-PFDA              | 105% | 20-150% |
|         | 13C7-PFUnDA            | 109% | 20-150% |
|         | 13C2-PFDoDA            | 96%  | 20-150% |
|         | 13C2-PFTeDA            | 90%  | 20-150% |
|         | 13C3-PFBS              | 112% | 20-150% |
|         | 13C3-PFHxS             | 117% | 20-150% |
|         | 13C8-PFOS              | 98%  | 20-150% |
|         | 13C8-FOSA              | 75%  | 20-150% |
|         | d3-MeFOSA              | 80%  | 20-150% |
|         | d5-EtFOSA              | 78%  | 20-150% |
|         | d3-MeFOSAA             | 96%  | 20-150% |
|         | d5-EtFOSAA             | 99%  | 20-150% |
|         | d7-MeFOSE              | 54%  | 20-150% |
|         | d9-EtFOSE              | 69%  | 20-150% |
|         | 13C2-4:2FTS            | 91%  | 20-180% |
|         | 13C2-6:2FTS            | 108% | 20-180% |
|         | 13C2-8:2FTS            | 119% | 20-180% |
|         | 13C3-HFPO-DA           | 107% | 20-150% |

\* = Outside of Control Limits.



## Matrix Spike Summary

Job Number: FC11715  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

| Sample    | File ID   | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|-----------|-----------|----|----------|----|-----------|------------|------------------|
| OP495-MS  | 4Q54889.D | 1  | 12/08/23 | AL | 12/07/23  | OP495      | S4Q804           |
| FC11715-2 | 4Q54888.D | 1  | 12/08/23 | AL | 12/07/23  | OP495      | S4Q804           |

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC11715-1, FC11715-2, FC11715-3, FC11715-4

| CAS No.        | Compound                      | FC11715-2<br>ug/l | Spike<br>Q | MS<br>ug/l | MS<br>% | Limits |
|----------------|-------------------------------|-------------------|------------|------------|---------|--------|
| 375-22-4       | Perfluorobutanoic acid        | 0.015 U           | 0.0909     | 0.0908     | 100     | 40-150 |
| 2706-90-3      | Perfluoropentanoic acid       | 0.0077 U          | 0.0455     | 0.0437     | 96      | 40-150 |
| 307-24-4       | Perfluorohexanoic acid        | 0.0038 U          | 0.0227     | 0.0220     | 97      | 40-150 |
| 375-85-9       | Perfluoroheptanoic acid       | 0.0038 U          | 0.0227     | 0.0223     | 98      | 40-150 |
| 335-67-1       | Perfluorooctanoic acid        | 0.0038 U          | 0.0227     | 0.0214     | 94      | 40-150 |
| 375-95-1       | Perfluorononanoic acid        | 0.0038 U          | 0.0227     | 0.0226     | 99      | 40-150 |
| 335-76-2       | Perfluorodecanoic acid        | 0.0038 U          | 0.0227     | 0.0222     | 98      | 40-150 |
| 2058-94-8      | Perfluoroundecanoic acid      | 0.0038 U          | 0.0227     | 0.0237     | 104     | 40-150 |
| 307-55-1       | Perfluorododecanoic acid      | 0.0038 U          | 0.0227     | 0.0234     | 103     | 40-150 |
| 72629-94-8     | Perfluorotridecanoic acid     | 0.0038 U          | 0.0227     | 0.0243     | 107     | 40-150 |
| 376-06-7       | Perfluorotetradecanoic acid   | 0.0038 U          | 0.0227     | 0.0224     | 99      | 40-150 |
| 375-73-5       | Perfluorobutanesulfonic acid  | 0.0038 U          | 0.0202     | 0.0207     | 103     | 40-150 |
| 2706-91-4      | Perfluoropentanesulfonic acid | 0.0048 U          | 0.0214     | 0.0214     | 100     | 40-150 |
| 355-46-4       | Perfluorohexanesulfonic acid  | 0.0038 U          | 0.0208     | 0.0206     | 99      | 40-150 |
| 375-92-8       | Perfluoroheptanesulfonic acid | 0.0038 U          | 0.0217     | 0.0239     | 110     | 40-150 |
| 1763-23-1      | Perfluorooctanesulfonic acid  | 0.0038 U          | 0.0211     | 0.0214     | 101     | 40-150 |
| 68259-12-1     | Perfluorononanesulfonic acid  | 0.0038 U          | 0.0219     | 0.0257     | 118     | 40-150 |
| 335-77-3       | Perfluorodecanesulfonic acid  | 0.0038 U          | 0.0219     | 0.0212     | 97      | 40-150 |
| 79780-39-5     | Perfluorododecanesulfonic aci | 0.0048 U          | 0.022      | 0.0217     | 98      | 40-150 |
| 757124-72-44:2 | Fluorotelomer sulfonate       | 0.019 U           | 0.0852     | 0.0906     | 106     | 40-150 |
| 27619-97-2     | 6:2 Fluorotelomer sulfonate   | 0.019 U           | 0.0864     | 0.0876     | 101     | 40-150 |
| 39108-34-4     | 8:2 Fluorotelomer sulfonate   | 0.019 U           | 0.0873     | 0.0951     | 109     | 40-150 |
| 754-91-6       | PFOSA                         | 0.0038 U          | 0.0227     | 0.0227     | 100     | 40-150 |
| 31506-32-8     | MeFOSA                        | 0.0077 U          | 0.0455     | 0.0403     | 89      | 40-150 |
| 4151-50-2      | EtFOSA                        | 0.0077 U          | 0.0455     | 0.0461     | 101     | 40-150 |
| 2355-31-9      | MeFOSAA                       | 0.0048 U          | 0.0227     | 0.0235     | 103     | 40-150 |
| 2991-50-6      | EtFOSAA                       | 0.0048 U          | 0.0227     | 0.0207     | 91      | 40-150 |
| 24448-09-7     | MeFOSE                        | 0.038 U           | 0.114      | 0.0906     | 80      | 40-150 |
| 1691-99-2      | EtFOSE                        | 0.038 U           | 0.114      | 0.106      | 93      | 40-150 |
| 13252-13-6     | HFPO-DA (GenX)                | 0.0038 U          | 0.0455     | 0.0456     | 100     | 40-150 |
| 919005-14-4    | ADONA                         | 0.0077 U          | 0.043      | 0.0481     | 112     | 40-150 |
| 377-73-1       | PFMPA                         | 0.0077 U          | 0.0455     | 0.0472     | 104     | 40-150 |
| 863090-89-5    | PFMBA                         | 0.0077 U          | 0.0455     | 0.0463     | 102     | 40-150 |
| 151772-58-6    | NFDHA                         | 0.0077 U          | 0.0455     | 0.0453     | 100     | 40-150 |
| 756426-58-19   | Cl-PF3ONS (F-53B Major)       | 0.0077 U          | 0.0425     | 0.0436     | 103     | 40-150 |
| 763051-92-91   | Cl-PF3OUdS (F-53B Minor)      | 0.0077 U          | 0.043      | 0.0404     | 94      | 40-150 |

\* = Outside of Control Limits.

# Matrix Spike Summary

Job Number: FC11715  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

| Sample    | File ID   | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|-----------|-----------|----|----------|----|-----------|------------|------------------|
| OP495-MS  | 4Q54889.D | 1  | 12/08/23 | AL | 12/07/23  | OP495      | S4Q804           |
| FC11715-2 | 4Q54888.D | 1  | 12/08/23 | AL | 12/07/23  | OP495      | S4Q804           |

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC11715-1, FC11715-2, FC11715-3, FC11715-4

| CAS No.        | Compound                      | FC11715-2<br>ug/l | Spike<br>Q | ug/l   | MS<br>ug/l | MS<br>% | Limits |
|----------------|-------------------------------|-------------------|------------|--------|------------|---------|--------|
| 113507-82-7    | PFEESA                        | 0.0077 U          | 0.0405     | 0.0430 | 106        |         | 40-150 |
| 356-02-5       | 3:3 Fluorotelomer carboxylate | 0.019 U           | 0.114      | 0.0975 | 86         |         | 40-150 |
| 914637-49-35:3 | Fluorotelomer carboxylate     | 0.096 U           | 0.568      | 0.578  | 102        |         | 40-150 |
| 812-70-4       | 7:3 Fluorotelomer carboxylate | 0.096 U           | 0.568      | 0.582  | 102        |         | 40-150 |

| CAS No. | ID Standard Recoveries | MS   | FC11715-2 | Limits  |
|---------|------------------------|------|-----------|---------|
|         | 13C4-PFBA              | 106% | 105%      | 20-150% |
|         | 13C5-PFPeA             | 107% | 104%      | 20-150% |
|         | 13C5-PFHxA             | 103% | 103%      | 20-150% |
|         | 13C4-PFHpA             | 105% | 106%      | 20-150% |
|         | 13C8-PFOA              | 108% | 101%      | 20-150% |
|         | 13C9-PFNA              | 101% | 96%       | 20-150% |
|         | 13C6-PFDA              | 102% | 106%      | 20-150% |
|         | 13C7-PFUnDA            | 101% | 98%       | 20-150% |
|         | 13C2-PFDoDA            | 90%  | 91%       | 20-150% |
|         | 13C2-PFTeDA            | 89%  | 86%       | 20-150% |
|         | 13C3-PFBS              | 105% | 99%       | 20-150% |
|         | 13C3-PFHxS             | 104% | 101%      | 20-150% |
|         | 13C8-PFOS              | 94%  | 92%       | 20-150% |
|         | 13C8-FOSA              | 86%  | 76%       | 20-150% |
|         | d3-MeFOSA              | 93%  | 76%       | 20-150% |
|         | d5-EtFOSA              | 91%  | 89%       | 20-150% |
|         | d3-MeFOSAA             | 103% | 100%      | 20-150% |
|         | d5-EtFOSAA             | 104% | 96%       | 20-150% |
|         | d7-MeFOSE              | 73%  | 63%       | 20-150% |
|         | d9-EtFOSE              | 92%  | 84%       | 20-150% |
|         | 13C2-4:2FTS            | 97%  | 95%       | 20-180% |
|         | 13C2-6:2FTS            | 108% | 101%      | 20-180% |
|         | 13C2-8:2FTS            | 103% | 102%      | 20-180% |
|         | 13C3-HFPO-DA           | 102% | 96%       | 20-150% |

\* = Outside of Control Limits.

**Duplicate Summary**

Job Number: FC11715  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

| Sample    | File ID   | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|-----------|-----------|----|----------|----|-----------|------------|------------------|
| OP495-DUP | 4Q54891.D | 1  | 12/08/23 | AL | 12/07/23  | OP495      | S4Q804           |
| FC11715-3 | 4Q54890.D | 1  | 12/08/23 | AL | 12/07/23  | OP495      | S4Q804           |

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC11715-1, FC11715-2, FC11715-3, FC11715-4

| CAS No.        | Compound                      | FC11715-3<br>ug/l | DUP<br>Q | ug/l | Q  | RPD | Limits |
|----------------|-------------------------------|-------------------|----------|------|----|-----|--------|
| 375-22-4       | Perfluorobutanoic acid        | 0.016 U           | ND       |      | nc |     | 30     |
| 2706-90-3      | Perfluoropentanoic acid       | 0.0078 U          | ND       |      | nc |     | 30     |
| 307-24-4       | Perfluorohexanoic acid        | 0.0039 U          | ND       |      | nc |     | 30     |
| 375-85-9       | Perfluoroheptanoic acid       | 0.0039 U          | ND       |      | nc |     | 30     |
| 335-67-1       | Perfluorooctanoic acid        | 0.0039 U          | ND       |      | nc |     | 30     |
| 375-95-1       | Perfluorononanoic acid        | 0.0039 U          | ND       |      | nc |     | 30     |
| 335-76-2       | Perfluorodecanoic acid        | 0.0039 U          | ND       |      | nc |     | 30     |
| 2058-94-8      | Perfluoroundecanoic acid      | 0.0039 U          | ND       |      | nc |     | 30     |
| 307-55-1       | Perfluorododecanoic acid      | 0.0039 U          | ND       |      | nc |     | 30     |
| 72629-94-8     | Perfluorotridecanoic acid     | 0.0039 U          | ND       |      | nc |     | 30     |
| 376-06-7       | Perfluorotetradecanoic acid   | 0.0039 U          | ND       |      | nc |     | 30     |
| 375-73-5       | Perfluorobutanesulfonic acid  | 0.0039 U          | ND       |      | nc |     | 30     |
| 2706-91-4      | Perfluoropentanesulfonic acid | 0.0049 U          | ND       |      | nc |     | 30     |
| 355-46-4       | Perfluorohexanesulfonic acid  | 0.0039 U          | ND       |      | nc |     | 30     |
| 375-92-8       | Perfluoroheptanesulfonic acid | 0.0039 U          | ND       |      | nc |     | 30     |
| 1763-23-1      | Perfluorooctanesulfonic acid  | 0.0039 U          | ND       |      | nc |     | 30     |
| 68259-12-1     | Perfluorononanesulfonic acid  | 0.0039 U          | ND       |      | nc |     | 30     |
| 335-77-3       | Perfluorodecanesulfonic acid  | 0.0039 U          | ND       |      | nc |     | 30     |
| 79780-39-5     | Perfluorododecanesulfonic aci | 0.0049 U          | ND       |      | nc |     | 30     |
| 757124-72-44:2 | Fluorotelomer sulfonate       | 0.020 U           | ND       |      | nc |     | 30     |
| 27619-97-2     | 6:2 Fluorotelomer sulfonate   | 0.020 U           | ND       |      | nc |     | 30     |
| 39108-34-4     | 8:2 Fluorotelomer sulfonate   | 0.020 U           | ND       |      | nc |     | 30     |
| 754-91-6       | PFOSA                         | 0.0039 U          | ND       |      | nc |     | 30     |
| 31506-32-8     | MeFOSA                        | 0.0078 U          | ND       |      | nc |     | 30     |
| 4151-50-2      | EtFOSA                        | 0.0078 U          | ND       |      | nc |     | 30     |
| 2355-31-9      | MeFOSAA                       | 0.0049 U          | ND       |      | nc |     | 30     |
| 2991-50-6      | EtFOSAA                       | 0.0049 U          | ND       |      | nc |     | 30     |
| 24448-09-7     | MeFOSE                        | 0.039 U           | ND       |      | nc |     | 30     |
| 1691-99-2      | EtFOSE                        | 0.039 U           | ND       |      | nc |     | 30     |
| 13252-13-6     | HFPO-DA (GenX)                | 0.0039 U          | ND       |      | nc |     | 30     |
| 919005-14-4    | ADONA                         | 0.0078 U          | ND       |      | nc |     | 30     |
| 377-73-1       | PFMPA                         | 0.0078 U          | ND       |      | nc |     | 30     |
| 863090-89-5    | PFMBA                         | 0.0078 U          | ND       |      | nc |     | 30     |
| 151772-58-6    | NFDHA                         | 0.0078 U          | ND       |      | nc |     | 30     |
| 756426-58-19   | Cl-PF3ONS (F-53B Major)       | 0.0078 U          | ND       |      | nc |     | 30     |
| 763051-92-91   | Cl-PF3OUdS (F-53B Minor)      | 0.0078 U          | ND       |      | nc |     | 30     |

\* = Outside of Control Limits.

# Duplicate Summary

Job Number: FC11715  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

| Sample    | File ID   | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|-----------|-----------|----|----------|----|-----------|------------|------------------|
| OP495-DUP | 4Q54891.D | 1  | 12/08/23 | AL | 12/07/23  | OP495      | S4Q804           |
| FC11715-3 | 4Q54890.D | 1  | 12/08/23 | AL | 12/07/23  | OP495      | S4Q804           |

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC11715-1, FC11715-2, FC11715-3, FC11715-4

| CAS No.        | Compound                      | FC11715-3<br>ug/l | DUP<br>Q | ug/l | Q | RPD | Limits |
|----------------|-------------------------------|-------------------|----------|------|---|-----|--------|
| 113507-82-7    | PFEESA                        | 0.0078 U          | ND       |      |   | nc  | 30     |
| 356-02-5       | 3:3 Fluorotelomer carboxylate | 0.020 U           | ND       |      |   | nc  | 30     |
| 914637-49-35:3 | Fluorotelomer carboxylate     | 0.098 U           | ND       |      |   | nc  | 30     |
| 812-70-4       | 7:3 Fluorotelomer carboxylate | 0.098 U           | ND       |      |   | nc  | 30     |

| CAS No. | ID Standard Recoveries | DUP  | FC11715-3 | Limits  |
|---------|------------------------|------|-----------|---------|
|         | 13C4-PFBA              | 110% | 111%      | 20-150% |
|         | 13C5-PFPeA             | 106% | 109%      | 20-150% |
|         | 13C5-PFHxA             | 108% | 107%      | 20-150% |
|         | 13C4-PFHpA             | 107% | 110%      | 20-150% |
|         | 13C8-PFOA              | 106% | 106%      | 20-150% |
|         | 13C9-PFNA              | 102% | 103%      | 20-150% |
|         | 13C6-PFDA              | 97%  | 99%       | 20-150% |
|         | 13C7-PFUnDA            | 99%  | 100%      | 20-150% |
|         | 13C2-PFDoDA            | 84%  | 86%       | 20-150% |
|         | 13C2-PFTeDA            | 83%  | 85%       | 20-150% |
|         | 13C3-PFBS              | 107% | 104%      | 20-150% |
|         | 13C3-PFHxS             | 114% | 107%      | 20-150% |
|         | 13C8-PFOS              | 108% | 94%       | 20-150% |
|         | 13C8-FOSA              | 75%  | 79%       | 20-150% |
|         | d3-MeFOSA              | 83%  | 82%       | 20-150% |
|         | d5-EtFOSA              | 91%  | 90%       | 20-150% |
|         | d3-MeFOSAA             | 100% | 95%       | 20-150% |
|         | d5-EtFOSAA             | 97%  | 90%       | 20-150% |
|         | d7-MeFOSE              | 62%  | 65%       | 20-150% |
|         | d9-EtFOSE              | 83%  | 85%       | 20-150% |
|         | 13C2-4:2FTS            | 100% | 86%       | 20-180% |
|         | 13C2-6:2FTS            | 111% | 111%      | 20-180% |
|         | 13C2-8:2FTS            | 106% | 109%      | 20-180% |
|         | 13C3-HFPO-DA           | 101% | 106%      | 20-150% |

\* = Outside of Control Limits.

# Injection Standard Area Summary

Job Number: FC11715  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

|                |              |                 |                |
|----------------|--------------|-----------------|----------------|
| Check Std:     | S4Q804-CC804 | Injection Date: | 12/08/23       |
| Lab File ID:   | 4Q54881.D    | Injection Time: | 18:52          |
| Instrument ID: | GCMS4Q       | Method:         | EPA DRAFT 1633 |

|                          | IS 1<br>AREA | RT   | IS 2<br>AREA | RT   | IS 3<br>AREA | RT   | IS 4<br>AREA | RT   | IS 5<br>AREA | RT   |
|--------------------------|--------------|------|--------------|------|--------------|------|--------------|------|--------------|------|
| Initial Cal <sup>b</sup> | 47098        | 2.68 | 36865        | 5.33 | 56101        | 6.98 | 20343        | 7.51 | 15577        | 8.00 |
| Check Std <sup>c</sup>   | 51927        | 2.70 | 38647        | 5.36 | 62892        | 6.99 | 22009        | 7.53 | 16901        | 8.02 |
| Upper Limit <sup>d</sup> | 94196        | 3.10 | 73730        | 5.76 | 112202       | 7.39 | 40686        | 7.93 | 31154        | 8.42 |
| Lower Limit <sup>e</sup> | 18839        | 2.30 | 14746        | 4.96 | 22440        | 6.59 | 8137         | 7.13 | 6231         | 7.62 |

| Lab<br>Sample ID | IS 1<br>AREA | RT   | IS 2<br>AREA | RT   | IS 3<br>AREA | RT   | IS 4<br>AREA | RT   | IS 5<br>AREA | RT   | DF <sup>a</sup> |
|------------------|--------------|------|--------------|------|--------------|------|--------------|------|--------------|------|-----------------|
| S4Q804-ICCB      | 49202        | 2.69 | 36175        | 5.36 | 58077        | 7.00 | 21237        | 7.53 | 16085        | 8.02 | 1               |
| S4Q804-ICCB      | 49202        | 2.69 | 36175        | 5.36 | 58077        | 7.00 | 21237        | 7.53 | 16085        | 8.02 | 1               |
| OP495-BS         | 42736        | 2.75 | 30135        | 5.37 | 47916        | 7.00 | 17467        | 7.53 | 13871        | 8.02 | 1               |
| OP495-LLBS       | 42899        | 2.75 | 30138        | 5.37 | 48276        | 6.99 | 17289        | 7.53 | 13411        | 8.02 | 1               |
| OP495-MB         | 40730        | 2.75 | 28002        | 5.37 | 46712        | 7.00 | 16250        | 7.53 | 12477        | 8.02 | 1               |
| ZZZZZZ           | 41742        | 2.75 | 29916        | 5.37 | 47066        | 7.00 | 17321        | 7.53 | 13489        | 8.02 | 1               |
| FC11715-1        | 39842        | 2.75 | 28597        | 5.37 | 44215        | 7.00 | 16307        | 7.53 | 12502        | 8.03 | 1               |
| FC11715-2        | 41030        | 2.75 | 29693        | 5.37 | 47106        | 7.00 | 17744        | 7.53 | 12789        | 8.03 | 1               |
| OP495-MS         | 42293        | 2.75 | 30989        | 5.37 | 47845        | 7.00 | 17500        | 7.53 | 13011        | 8.03 | 1               |
| FC11715-3        | 39669        | 2.75 | 29172        | 5.37 | 46614        | 7.00 | 16700        | 7.53 | 12493        | 8.03 | 1               |
| OP495-DUP        | 41483        | 2.77 | 30685        | 5.37 | 48975        | 7.00 | 17583        | 7.55 | 13061        | 8.03 | 1               |
| FC11715-4        | 40043        | 2.75 | 28910        | 5.37 | 45350        | 7.00 | 15958        | 7.53 | 12168        | 8.03 | 1               |

- IS 1 = 13C3-PFBA
- IS 2 = 13C2-PFHxA
- IS 3 = 13C4-PFOA
- IS 4 = 13C5-PFNA
- IS 5 = 13C2-PFDA

- (a) Sample areas corrected for dilution where applicable.
- (b) Initial Cal is: S4Q804-ICCB 4Q54855.D 12/08/23 12:22. Area is AVERAGE of initial cal points.
- (c) Check Std Limit = -60 to +100% of initial cal area.
- (d) Upper Limit = +100% of initial standard area; Retention time +0.4 minutes of check standard.
- (e) Lower Limit = -60% of initial standard area; Retention time -0.4 minutes of check standard.

6.5.1  
6

# Injection Standard Area Summary

Job Number: FC11715  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

|                |              |                 |                |
|----------------|--------------|-----------------|----------------|
| Check Std:     | S4Q804-CC804 | Injection Date: | 12/08/23       |
| Lab File ID:   | 4Q54881.D    | Injection Time: | 18:52          |
| Instrument ID: | GCMS4Q       | Method:         | EPA DRAFT 1633 |

|                          | IS 6<br>AREA | RT   | IS 7<br>AREA | RT   |
|--------------------------|--------------|------|--------------|------|
| Initial Cal <sup>b</sup> | 4896         | 7.04 | 6822         | 8.12 |
| Check Std <sup>c</sup>   | 5018         | 7.05 | 7540         | 8.14 |
| Upper Limit <sup>d</sup> | 9792         | 7.45 | 13644        | 8.54 |
| Lower Limit <sup>e</sup> | 1958         | 6.65 | 2729         | 7.74 |

| Lab<br>Sample ID | IS 6<br>AREA | RT   | IS 7<br>AREA | RT   | DF <sup>a</sup> |
|------------------|--------------|------|--------------|------|-----------------|
| S4Q804-ICCB      | 5080         | 7.05 | 7232         | 8.14 | 1               |
| S4Q804-ICCB      | 5080         | 7.05 | 7232         | 8.14 | 1               |
| OP495-BS         | 3949         | 7.05 | 6267         | 8.14 | 1               |
| OP495-LLBS       | 3935         | 7.05 | 6020         | 8.14 | 1               |
| OP495-MB         | 4137         | 7.05 | 5453         | 8.14 | 1               |
| ZZZZZZ           | 4145         | 7.07 | 5986         | 8.14 | 1               |
| FC11715-1        | 3650         | 7.07 | 5674         | 8.14 | 1               |
| FC11715-2        | 4082         | 7.05 | 5826         | 8.14 | 1               |
| OP495-MS         | 4074         | 7.05 | 5794         | 8.14 | 1               |
| FC11715-3        | 3986         | 7.07 | 5600         | 8.14 | 1               |
| OP495-DUP        | 3983         | 7.05 | 5731         | 8.14 | 1               |
| FC11715-4        | 3715         | 7.07 | 5705         | 8.14 | 1               |

IS 6 = 18O2-PFHXS  
 IS 7 = 13C4-PFOS

- (a) Sample areas corrected for dilution where applicable.
- (b) Initial Cal is: S4Q804-ICC804 4Q54855.D 12/08/23 12:22. Area is AVERAGE of initial cal points.
- (c) Check Std Limit = -60 to + 100% of initial cal area.
- (d) Upper Limit = + 100% of initial standard area; Retention time + 0.4 minutes of check standard.
- (e) Lower Limit = -60% of initial standard area; Retention time -0.4 minutes of check standard.

6.5.1  
6

**TDCA Retention Time Check**

Job Number: FC11715  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

|                |           |                 |          |
|----------------|-----------|-----------------|----------|
| Sample:        | S4Q804-RT | Injection Date: | 12/08/23 |
| Lab File ID:   | 4Q54849.D | Injection Time: | 10:54    |
| Instrument ID: | GCMS4Q    |                 |          |

| Compound | RT<br>(min) | RT<br>Difference | Low<br>Limit |
|----------|-------------|------------------|--------------|
| PFOS     | 8.106       | --               | --           |
| TDCA     | 6.759       | 1.347            | 1.000        |
| TCDCA    | 6.610       | 1.496            | 1.000        |
| TUDCA    | 5.766       | 2.340            | 1.000        |

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

| Lab<br>Sample ID | Lab<br>File ID | Date<br>Analyzed | Time<br>Analyzed | Hours<br>Lapsed | Client<br>Sample ID           |
|------------------|----------------|------------------|------------------|-----------------|-------------------------------|
| S4Q804-IC804     | 4Q54851.D      | 12/08/23         | 11:23            | 00:29           | Mass Calibration Verification |
| S4Q804-IC804     | 4Q54852.D      | 12/08/23         | 11:38            | 00:44           | Initial cal 1                 |
| S4Q804-IC804     | 4Q54853.D      | 12/08/23         | 11:53            | 00:59           | Initial cal 2                 |
| S4Q804-IC804     | 4Q54854.D      | 12/08/23         | 12:07            | 01:13           | Initial cal 3                 |
| S4Q804-ICC804    | 4Q54855.D      | 12/08/23         | 12:22            | 01:28           | Initial cal 4                 |
| S4Q804-IC804     | 4Q54856.D      | 12/08/23         | 12:37            | 01:43           | Initial cal 5                 |
| S4Q804-IC804     | 4Q54857.D      | 12/08/23         | 12:52            | 01:58           | Initial cal 6                 |
| S4Q804-IC804     | 4Q54858.D      | 12/08/23         | 13:06            | 02:12           | Initial cal 7                 |
| S4Q804-IC804     | 4Q54859.D      | 12/08/23         | 13:21            | 02:27           | Initial cal 8                 |
| S4Q804-IBLK      | 4Q54860.D      | 12/08/23         | 13:36            | 02:42           | Instrument Blank              |
| S4Q804-IBLK      | 4Q54860.D      | 12/08/23         | 13:36            | 02:42           | Instrument Blank              |
| S4Q804-ICV804    | 4Q54861.D      | 12/08/23         | 13:51            | 02:57           | Initial cal verification 4    |
| S4Q804-ICV804    | 4Q54862.D      | 12/08/23         | 14:05            | 03:11           | Initial cal verification 20   |
| S4Q804-CC804     | 4Q54863.D      | 12/08/23         | 14:20            | 03:26           | Continuing cal 4              |
| S4Q804-CC804     | 4Q54864.D      | 12/08/23         | 14:40            | 03:46           | Continuing cal 1.0LL          |
| OP471-BS         | 4Q54865.D      | 12/08/23         | 14:55            | 04:01           | Blank Spike                   |
| OP471-LLBS       | 4Q54866.D      | 12/08/23         | 15:10            | 04:16           | Blank Spike                   |
| OP471-MB         | 4Q54867.D      | 12/08/23         | 15:24            | 04:30           | Method Blank                  |
| ZZZZZZ           | 4Q54868.D      | 12/08/23         | 15:39            | 04:45           | (unrelated sample)            |
| ZZZZZZ           | 4Q54869.D      | 12/08/23         | 15:54            | 05:00           | (unrelated sample)            |
| ZZZZZZ           | 4Q54870.D      | 12/08/23         | 16:09            | 05:15           | (unrelated sample)            |
| ZZZZZZ           | 4Q54871.D      | 12/08/23         | 16:24            | 05:30           | (unrelated sample)            |
| S4Q804-CC804     | 4Q54872.D      | 12/08/23         | 16:39            | 05:45           | Continuing cal 4              |
| S4Q804-ICCB      | 4Q54873.D      | 12/08/23         | 16:53            | 05:59           | Continuing Calibration Blank  |
| S4Q804-ICCB      | 4Q54873.D      | 12/08/23         | 16:53            | 05:59           | Continuing Calibration Blank  |
| S4Q804-CC804     | 4Q54881.D      | 12/08/23         | 18:52            | 07:58           | Continuing cal 4              |
| S4Q804-ICCB      | 4Q54882.D      | 12/08/23         | 19:06            | 08:12           | Continuing Calibration Blank  |
| S4Q804-ICCB      | 4Q54882.D      | 12/08/23         | 19:06            | 08:12           | Continuing Calibration Blank  |
| OP495-BS         | 4Q54883.D      | 12/08/23         | 19:21            | 08:27           | Blank Spike                   |
| OP495-LLBS       | 4Q54884.D      | 12/08/23         | 19:36            | 08:42           | Blank Spike                   |
| OP495-MB         | 4Q54885.D      | 12/08/23         | 19:51            | 08:57           | Method Blank                  |
| ZZZZZZ           | 4Q54886.D      | 12/08/23         | 20:05            | 09:11           | (unrelated sample)            |
| FC11715-1        | 4Q54887.D      | 12/08/23         | 20:20            | 09:26           | AF-RHMW225401-WGN01B-2312     |
| FC11715-2        | 4Q54888.D      | 12/08/23         | 20:35            | 09:41           | AF-RHMW04-WGN01LF-2312        |



# TDCA Retention Time Check

Job Number: FC11715  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

|                |           |                 |          |
|----------------|-----------|-----------------|----------|
| Sample:        | S4Q804-RT | Injection Date: | 12/08/23 |
| Lab File ID:   | 4Q54849.D | Injection Time: | 10:54    |
| Instrument ID: | GCMS4Q    |                 |          |

| Lab Sample ID | Lab File ID | Date Analyzed | Time Analyzed | Hours Lapsed | Client Sample ID                            |
|---------------|-------------|---------------|---------------|--------------|---|
| OP495-MS      | 4Q54889.D   | 12/08/23      | 20:50         | 09:56        | Matrix Spike                                |
| FC11715-3     | 4Q54890.D   | 12/08/23      | 21:04         | 10:10        | AF-RHMW06-WGN01LF-2312                      |
| OP495-DUP     | 4Q54891.D   | 12/08/23      | 21:19         | 10:25        | Duplicate                                   |
| FC11715-4     | 4Q54892.D   | 12/08/23      | 21:34         | 10:40        | AF-RHMW10-WGN01LF-2312                      |
| S4Q804-CC804  | 4Q54893.D   | 12/08/23      | 21:49         | 10:55        | Continuing cal 4                            |
| S4Q804-ICCB   | 4Q54894.D   | 12/08/23      | 22:03         | 11:09        | Continuing Calibration Blank                |
| OP496-BS      | 4Q54895.D   | 12/08/23      | 22:18         | 11:24        | Blank Spike                                 |
| OP496-LLBS    | 4Q54896.D   | 12/08/23      | 22:33         | 11:39        | Blank Spike                                 |
| OP496-MB      | 4Q54897.D   | 12/08/23      | 22:48         | 11:54        | Method Blank                                |
| ZZZZZZ        | 4Q54898.D   | 12/08/23      | 23:02         | 12:08        | (unrelated sample)                          |
| ZZZZZZ        | 4Q54899.D   | 12/08/23      | 23:17         | 12:23        | (unrelated sample)                          |
| ZZZZZZ        | 4Q54900.D   | 12/08/23      | 23:32         | 12:38        | (unrelated sample)                          |
| ZZZZZZ        | 4Q54901.D   | 12/08/23      | 23:47         | 12:53        | (unrelated sample)                          |
| ZZZZZZ        | 4Q54902.D   | 12/09/23      | 00:01         | 13:07        | (unrelated sample)                          |
| FC11673-1     | 4Q54903.D   | 12/09/23      | 00:16         | 13:22        | (used for QC only; not part of job FC11715) |
| OP496-MS      | 4Q54904.D   | 12/09/23      | 00:31         | 13:37        | Matrix Spike                                |
| S4Q804-CC804  | 4Q54905.D   | 12/09/23      | 00:46         | 13:52        | Continuing cal 4                            |
| S4Q804-ICCB   | 4Q54906.D   | 12/09/23      | 01:00         | 14:06        | Continuing Calibration Blank                |
| FC11673-2     | 4Q54907.D   | 12/09/23      | 01:15         | 14:21        | (used for QC only; not part of job FC11715) |
| OP496-DUP     | 4Q54908.D   | 12/09/23      | 01:30         | 14:36        | Duplicate                                   |
| ZZZZZZ        | 4Q54909.D   | 12/09/23      | 01:45         | 14:51        | (unrelated sample)                          |
| ZZZZZZ        | 4Q54910.D   | 12/09/23      | 01:59         | 15:05        | (unrelated sample)                          |
| ZZZZZZ        | 4Q54911.D   | 12/09/23      | 02:14         | 15:20        | (unrelated sample)                          |
| OP519-BS      | 4Q54912.D   | 12/09/23      | 02:29         | 15:35        | Blank Spike                                 |
| OP519-LLBS    | 4Q54913.D   | 12/09/23      | 02:44         | 15:50        | Blank Spike                                 |
| OP519-MB      | 4Q54914.D   | 12/09/23      | 02:59         | 16:05        | Method Blank                                |
| ZZZZZZ        | 4Q54915.D   | 12/09/23      | 03:13         | 16:19        | (unrelated sample)                          |
| ZZZZZZ        | 4Q54916.D   | 12/09/23      | 03:28         | 16:34        | (unrelated sample)                          |
| S4Q804-CC804  | 4Q54917.D   | 12/09/23      | 03:43         | 16:49        | Continuing cal 4                            |
| S4Q804-ICCB   | 4Q54918.D   | 12/09/23      | 03:58         | 17:04        | Continuing Calibration Blank                |
| ZZZZZZ        | 4Q54919.D   | 12/09/23      | 04:12         | 17:18        | (unrelated sample)                          |
| ZZZZZZ        | 4Q54920.D   | 12/09/23      | 04:27         | 17:33        | (unrelated sample)                          |
| ZZZZZZ        | 4Q54921.D   | 12/09/23      | 04:42         | 17:48        | (unrelated sample)                          |
| ZZZZZZ        | 4Q54922.D   | 12/09/23      | 04:57         | 18:03        | (unrelated sample)                          |
| ZZZZZZ        | 4Q54923.D   | 12/09/23      | 05:11         | 18:17        | (unrelated sample)                          |
| ZZZZZZ        | 4Q54924.D   | 12/09/23      | 05:26         | 18:32        | (unrelated sample)                          |
| ZZZZZZ        | 4Q54925.D   | 12/09/23      | 05:41         | 18:47        | (unrelated sample)                          |
| ZZZZZZ        | 4Q54926.D   | 12/09/23      | 05:56         | 19:02        | (unrelated sample)                          |
| ZZZZZZ        | 4Q54927.D   | 12/09/23      | 06:10         | 19:16        | (unrelated sample)                          |
| FC11645-12    | 4Q54928.D   | 12/09/23      | 06:25         | 19:31        | (used for QC only; not part of job FC11715) |
| S4Q804-CC804  | 4Q54929.D   | 12/09/23      | 06:40         | 19:46        | Continuing cal 4                            |
| S4Q804-ICCB   | 4Q54930.D   | 12/09/23      | 06:55         | 20:01        | Continuing Calibration Blank                |
| OP519-MS      | 4Q54931.D   | 12/09/23      | 07:10         | 20:16        | Matrix Spike                                |
| ZZZZZZ        | 4Q54932.D   | 12/09/23      | 07:24         | 20:30        | (unrelated sample)                          |



# TDCA Retention Time Check

**Job Number:** FC11715  
**Account:** AECOMCOD AECOM, INC.  
**Project:** N6274223F0104 RH Fire Suppression System

|                               |                                 |
|-------------------------------|---------------------------------|
| <b>Sample:</b> S4Q804-RT      | <b>Injection Date:</b> 12/08/23 |
| <b>Lab File ID:</b> 4Q54849.D | <b>Injection Time:</b> 10:54    |
| <b>Instrument ID:</b> GCMS4Q  |                                 |

| Lab Sample ID | Lab File ID | Date Analyzed | Time Analyzed | Hours Lapsed | Client Sample ID                            |
|---------------|-------------|---------------|---------------|--------------|---|
| FC11645-14    | 4Q54933.D   | 12/09/23      | 07:39         | 20:45        | (used for QC only; not part of job FC11715) |
| OP519-DUP     | 4Q54934.D   | 12/09/23      | 07:54         | 21:00        | Duplicate                                   |
| ZZZZZZ        | 4Q54935.D   | 12/09/23      | 08:09         | 21:15        | (unrelated sample)                          |
| ZZZZZZ        | 4Q54936.D   | 12/09/23      | 08:23         | 21:29        | (unrelated sample)                          |
| ZZZZZZ        | 4Q54937.D   | 12/09/23      | 08:38         | 21:44        | (unrelated sample)                          |
| ZZZZZZ        | 4Q54938.D   | 12/09/23      | 08:53         | 21:59        | (unrelated sample)                          |
| S4Q804-ECC804 | 4Q54940.D   | 12/09/23      | 09:22         | 22:28        | Ending cal 4                                |
| S4Q804-ICCB   | 4Q54941.D   | 12/09/23      | 09:37         | 22:43        | Continuing Calibration Blank                |

6.6.1  
6

# Ion Ratio Summary

Job Number: FC11715  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Run ID: S4Q804 Method: EPA DRAFT 1633

| Lab Sample ID | Lab File ID | Ion Ratios |       |       |      |      |       |        |
|---------------|-------------|------------|-------|-------|------|------|-------|--------|
|               |             | PFPeA      | PFHxA | PFHpA | PFOA | PFBS | PFHxS | 6:2FTS |
| S4Q804-ICC804 | 4Q54855.D   | 0          | 2.8   | 18.4  | 22.4 | 40.6 | 44.8  | 36.6   |
| FC11715-1     | 4Q54887.D   | 0          | 2.8   | 14    | 20.9 | 41.3 | 71.2  |        |
| FC11715-2     | 4Q54888.D   |            |       |       |      |      |       |        |
| FC11715-3     | 4Q54890.D   |            |       |       |      |      |       |        |
| FC11715-4     | 4Q54892.D   |            |       |       |      |      |       | 29.2   |

6.7.1

6

# Isotope Dilution Standard Recovery Summary

Job Number: FC11715  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

|                        |            |
|------------------------|------------|
| Method: EPA DRAFT 1633 | Matrix: AQ |
|------------------------|------------|

Samples and QC shown here apply to the above method

| Lab Sample ID | Lab File ID | S1  | S2  | S3  | S4  | S5  | S6  | S7  | S8  |
|---------------|-------------|-----|-----|-----|-----|-----|-----|-----|-----|
| FC11715-1     | 4Q54887.D   | 113 | 116 | 111 | 111 | 112 | 106 | 104 | 103 |
| FC11715-2     | 4Q54888.D   | 105 | 104 | 103 | 106 | 101 | 96  | 106 | 98  |
| FC11715-3     | 4Q54890.D   | 111 | 109 | 107 | 110 | 106 | 103 | 99  | 100 |
| FC11715-4     | 4Q54892.D   | 113 | 115 | 113 | 111 | 109 | 112 | 111 | 97  |
| OP495-BS      | 4Q54883.D   | 76  | 113 | 110 | 116 | 111 | 108 | 105 | 109 |
| OP495-DUP     | 4Q54891.D   | 110 | 106 | 108 | 107 | 106 | 102 | 97  | 99  |
| OP495-LLBS    | 4Q54884.D   | 111 | 111 | 108 | 113 | 107 | 105 | 106 | 111 |
| OP495-MB      | 4Q54885.D   | 119 | 122 | 120 | 126 | 112 | 112 | 118 | 109 |
| OP495-MS      | 4Q54889.D   | 106 | 107 | 103 | 105 | 108 | 101 | 102 | 101 |
| S4Q804-IBLK   | 4Q54860.D   | 100 | 101 | 96  | 102 | 98  | 100 | 105 | 108 |
| S4Q804-ICCB   | 4Q54882.D   | 101 | 102 | 102 | 106 | 100 | 101 | 102 | 105 |

**Isotope Dilution Standards**

**Recovery Limits**

|                  |         |
|------------------|---------|
| S1 = 13C4-PFBA   | 20-150% |
| S2 = 13C5-PFPeA  | 20-150% |
| S3 = 13C5-PFHxA  | 20-150% |
| S4 = 13C4-PFHpA  | 20-150% |
| S5 = 13C8-PFOA   | 20-150% |
| S6 = 13C9-PFNA   | 20-150% |
| S7 = 13C6-PFDA   | 20-150% |
| S8 = 13C7-PFUnDA | 20-150% |

6.8.1

6

# Isotope Dilution Standard Recovery Summary

Job Number: FC11715  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

|                        |            |
|------------------------|------------|
| Method: EPA DRAFT 1633 | Matrix: AQ |
|------------------------|------------|

Samples and QC shown here apply to the above method

| Lab Sample ID | Lab File ID | S9  | S10 | S11 | S12 | S13 | S14 | S15 | S16 |
|---------------|-------------|-----|-----|-----|-----|-----|-----|-----|-----|
| FC11715-1     | 4Q54887.D   | 89  | 86  | 117 | 124 | 98  | 71  | 74  | 84  |
| FC11715-2     | 4Q54888.D   | 91  | 86  | 99  | 101 | 92  | 76  | 76  | 89  |
| FC11715-3     | 4Q54890.D   | 86  | 85  | 104 | 107 | 94  | 79  | 82  | 90  |
| FC11715-4     | 4Q54892.D   | 89  | 86  | 114 | 118 | 91  | 86  | 84  | 91  |
| OP495-BS      | 4Q54883.D   | 96  | 90  | 112 | 117 | 98  | 75  | 80  | 78  |
| OP495-DUP     | 4Q54891.D   | 84  | 83  | 107 | 114 | 108 | 75  | 83  | 91  |
| OP495-LLBS    | 4Q54884.D   | 96  | 90  | 111 | 118 | 98  | 80  | 76  | 78  |
| OP495-MB      | 4Q54885.D   | 103 | 94  | 106 | 110 | 115 | 73  | 79  | 88  |
| OP495-MS      | 4Q54889.D   | 90  | 89  | 105 | 104 | 94  | 86  | 93  | 91  |
| S4Q804-IBLK   | 4Q54860.D   | 102 | 101 | 99  | 100 | 92  | 97  |     |     |
| S4Q804-ICCB   | 4Q54882.D   | 96  | 97  | 100 | 102 | 95  | 102 |     |     |

**Isotope Dilution Standards**

**Recovery Limits**

|                   |         |
|-------------------|---------|
| S9 = 13C2-PFDoDA  | 20-150% |
| S10 = 13C2-PFTeDA | 20-150% |
| S11 = 13C3-PFBS   | 20-150% |
| S12 = 13C3-PFHxS  | 20-150% |
| S13 = 13C8-PFOS   | 20-150% |
| S14 = 13C8-FOSA   | 20-150% |
| S15 = d3-MeFOSA   | 20-150% |
| S16 = d5-EtFOSA   | 20-150% |

# Isotope Dilution Standard Recovery Summary

Job Number: FC11715  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

|                        |            |
|------------------------|------------|
| Method: EPA DRAFT 1633 | Matrix: AQ |
|------------------------|------------|

Samples and QC shown here apply to the above method

| Lab Sample ID | Lab File ID | S17 | S18 | S19 | S20 | S21 | S22 | S23 | S24 |
|---------------|-------------|-----|-----|-----|-----|-----|-----|-----|-----|
| FC11715-1     | 4Q54887.D   | 100 | 94  | 59  | 77  | 102 | 112 | 118 | 106 |
| FC11715-2     | 4Q54888.D   | 100 | 96  | 63  | 84  | 95  | 101 | 102 | 96  |
| FC11715-3     | 4Q54890.D   | 95  | 90  | 65  | 85  | 86  | 111 | 109 | 106 |
| FC11715-4     | 4Q54892.D   | 109 | 103 | 66  | 85  | 109 | 120 | 112 | 107 |
| OP495-BS      | 4Q54883.D   | 96  | 99  | 54  | 69  | 91  | 108 | 119 | 107 |
| OP495-DUP     | 4Q54891.D   | 100 | 97  | 62  | 83  | 100 | 111 | 106 | 101 |
| OP495-LLBS    | 4Q54884.D   | 103 | 101 | 56  | 69  | 103 | 107 | 114 | 108 |
| OP495-MB      | 4Q54885.D   | 114 | 109 | 57  | 76  | 112 | 106 | 105 | 117 |
| OP495-MS      | 4Q54889.D   | 103 | 104 | 73  | 92  | 97  | 108 | 103 | 102 |
| S4Q804-IBLK   | 4Q54860.D   | 100 | 100 |     |     | 102 | 105 | 102 |     |
| S4Q804-ICCB   | 4Q54882.D   | 97  | 98  |     |     | 108 | 102 | 98  |     |

**Isotope Dilution Standards**

**Recovery Limits**

|                    |         |
|--------------------|---------|
| S17 = d3-MeFOSAA   | 20-150% |
| S18 = d5-EtFOSAA   | 20-150% |
| S19 = d7-MeFOSE    | 20-150% |
| S20 = d9-EtFOSE    | 20-150% |
| S21 = 13C2-4:2FTS  | 20-180% |
| S22 = 13C2-6:2FTS  | 20-180% |
| S23 = 13C2-8:2FTS  | 20-180% |
| S24 = 13C3-HFPO-DA | 20-150% |



# Initial Calibration Summary

Job Number: FC11715  
 Account: AECOM AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q804-ICC804  
 Lab FileID: 4Q54855.D

## Initial Calibration Report

| Compound     | Curve Fit | 1      | 2      | 3      | 4      | 5      | 6      | 7      | 8      | Avg RF | %RSD   |
|--------------|-----------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| T PFDoDA     | Avg RF    | 0.7822 | 0.8066 | 0.8860 | 0.8526 | 0.9452 | 0.9770 | 0.9580 | 0.9444 | 0.9002 | 8.936  |
| T PFTfDA     | Avg RF    | 0.8840 | 0.8423 | 1.0192 | 0.9424 | 1.0483 | 1.0843 | 1.0239 | 0.9813 | 0.9782 | 8.517  |
| I M2-PFTeDA  | Avg RF    | 0.8889 | 0.7933 | 0.8442 | 0.8228 | 0.8868 | 0.8790 | 0.9284 | 0.9166 | 0.8700 | 5.334  |
| T PFTeDA     | Avg RF    | 1.0846 | 1.0594 | 1.1081 | 1.0362 | 1.1089 | 1.1291 | 1.1850 | 1.2786 | 1.1237 | 6.857  |
| I M8-FOSA    | Avg RF    | 0.8212 | 0.7025 | 0.7440 | 0.6879 | 0.7491 | 0.8097 | 0.8264 | 0.8638 | 0.7756 | 8.201  |
| T PFBs       | Avg RF    | 0.6462 | 0.6394 | 0.7694 | 0.7032 | 0.7896 | 0.8087 | 0.8031 | 0.9159 | 0.7594 | 12.214 |
| I M3-PFBs    | Avg RF    | 0.8207 | 0.7405 | 0.7614 | 0.7747 | 0.8256 | 0.8360 | 0.8057 | 0.8860 | 0.8063 | 5.773  |
| I M3-PFHxS   | Avg RF    | 0.9965 | 0.7918 | 0.9927 | 0.8838 | 1.0560 | 0.9737 | 1.0728 | 1.1687 | 0.9920 | 11.681 |
| T PFHs       | Avg RF    | 1.3344 | 0.9831 | 1.0162 | 0.8171 | 1.0254 | 0.9794 | 1.0542 | 1.1143 | 1.0405 | 14.058 |
| T PFOS       | Avg RF    | 0.4194 | 0.4062 | 0.5205 | 0.4491 | 0.5055 | 0.4707 | 0.4888 | 0.4682 | 0.4682 | 8.637  |
| T PFNS       | Avg RF    | 0.6881 | 0.5153 | 0.6644 | 0.6076 | 0.6981 | 0.6636 | 0.7002 | 0.7851 | 0.6653 | 11.782 |
| T PFDS       | Avg RF    | 0.4797 | 0.4338 | 0.5055 | 0.4542 | 0.5308 | 0.5160 | 0.5509 | 0.5886 | 0.5074 | 10.031 |
| T PFDoDs     | Avg RF    | 8.2861 | 6.9217 | 9.3603 | 7.8661 | 9.1663 | 8.9966 | 9.1446 | 9.1491 | 8.6113 | 9.919  |
| I M2-4:2FTS  | Avg RF    | 5.2673 | 4.2599 | 5.3220 | 4.6911 | 5.3419 | 5.7144 | 6.1540 | 5.2940 | 5.2556 | 11.004 |
| T 4:2FTS     | Avg RF    | 2.5839 | 2.6253 | 2.8865 | 2.6058 | 2.9980 | 2.7664 | 2.8184 | 2.6911 | 2.7469 | 5.371  |
| I M2-8:2FTS  | Avg RF    | 0.7128 | 0.6906 | 0.7952 | 0.6882 | 0.8090 | 0.8118 | 0.8635 | 0.8864 | 0.7822 | 9.818  |
| T 8:2FTS     | Avg RF    | 0.8843 | 0.7931 | 0.9794 | 0.9086 | 0.9802 | 1.0122 | 1.0122 | 1.0847 | 0.9569 | 9.506  |
| I M3-MeFOSAA | Avg RF    | 6.8601 | 6.3259 | 7.4904 | 7.0857 | 7.6908 | 7.9395 | 7.7679 | 8.2399 | 7.4250 | 8.462  |
| T MeFOSAA    | Avg RF    | 2.6270 | 2.5577 | 2.9241 | 2.8189 | 2.9961 | 2.9736 | 2.7780 | 2.5892 | 2.7831 | 6.306  |
| I M3-HFO-DA  | Avg RF    | 2.5355 | 2.2934 | 2.8066 | 2.6559 | 2.8863 | 3.0222 | 2.8897 | 2.9378 | 2.7534 | 8.832  |
| T HFO-DA     | Avg RF    | 0.8896 | 0.7816 | 0.9373 | 0.8988 | 0.8813 | 0.9150 | 0.9808 | 1.0130 | 0.9122 | 7.665  |
| I M5-EFOsAA  | Avg RF    | 1.0315 | 0.8251 | 0.9563 | 0.9324 | 0.9635 | 1.0239 | 1.0619 | 1.1410 | 0.9919 | 9.577  |
| T EFOsAA     | Avg RF    | 0.8987 | 0.7512 | 0.8839 | 0.8453 | 0.8649 | 0.9067 | 0.9353 | 0.9920 | 0.8848 | 7.937  |
| I M7-MeFOSE  | Avg RF    | 0.8839 | 0.8453 | 0.8649 | 0.9067 | 0.9353 | 0.9920 | 0.8848 | 7.937  |        |        |
| T MeFOSE     | Avg RF    | 0.8839 | 0.8453 | 0.8649 | 0.9067 | 0.9353 | 0.9920 | 0.8848 | 7.937  |        |        |
| I M9-EFOSE   | Avg RF    | 0.8839 | 0.8453 | 0.8649 | 0.9067 | 0.9353 | 0.9920 | 0.8848 | 7.937  |        |        |
| T EFOSE      | Avg RF    | 0.8839 | 0.8453 | 0.8649 | 0.9067 | 0.9353 | 0.9920 | 0.8848 | 7.937  |        |        |

Generated at 9:56 AM on 12/10/2023

Page 2 of 3

# Initial Calibration Summary

Job Number: FC11715  
 Account: AECOM AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q804-ICC804  
 Lab FileID: 4Q54855.D

## Initial Calibration Report

| Compound       | Curve Fit | 1      | 2      | 3      | 4      | 5      | 6      | 7      | 8      | Avg RF | %RSD   |
|----------------|-----------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| I M5-EFOSA     |           | 1.0696 | 0.9403 | 1.0893 | 1.0088 | 1.0409 | 1.0911 | 1.0498 | 1.2250 | 1.0644 | 7.650  |
| T EFOSA        |           |        |        |        |        | ISTD   |        |        |        |        |        |
| I M3-MeFOSA    |           | 0.8408 | 0.8206 | 0.9137 | 0.8425 | 0.9604 | 0.9087 | 0.8867 | 0.9478 | 0.8901 | 5.810  |
| T MeFOSA       |           |        |        |        |        | ISTD   |        |        |        |        |        |
| I 13C4-PFOS    |           | 1.4126 | 1.5182 | 1.4011 | 1.4483 | 1.2800 | 1.3483 | 1.3725 | 1.3217 | 1.3878 | 5.394  |
| S d3-MeFOSAA   |           | 1.2466 | 1.3166 | 1.2468 | 1.3234 | 1.1286 | 1.2828 | 1.2913 | 1.3115 | 1.2660 | 5.139  |
| S 13C8-PFOS    |           | 1.1442 | 1.2596 | 1.1560 | 1.2088 | 1.1009 | 1.1868 | 1.1561 | 1.1793 | 1.1740 | 4.022  |
| S d5-EFOSAA    |           | 1.6548 | 1.6307 | 1.6536 | 1.6624 | 1.5098 | 1.6077 | 1.6165 | 1.6269 | 1.6203 | 3.007  |
| S 13C8-FOSA    |           | 0.7730 | 0.8675 | 0.8184 | 0.7736 | 0.7786 | 0.8043 | 0.8033 | 0.7757 | 0.7993 | 4.066  |
| S d7-MeFOSE    |           | 0.9230 | 0.9524 | 0.9249 | 0.9356 | 0.8531 | 0.9361 | 1.0715 | 1.1355 | 0.9665 | 9.430  |
| S d3-MeFOSA    |           | 0.8960 | 0.9460 | 0.8963 | 0.8898 | 0.8744 | 0.8708 | 0.8887 | 0.8991 | 0.8951 | 2.567  |
| S d9-EFOSE     |           | 1.0250 | 1.0731 | 1.0236 | 1.0255 | 1.0008 | 1.0465 | 1.1537 | 1.1295 | 1.0597 | 5.197  |
| S d5-EFOSA     |           |        |        |        |        | ISTD   |        |        |        |        |        |
| I 13C3-PFBA    |           | 1.0465 | 1.0639 | 1.0577 | 1.0371 | 1.0609 | 1.0528 | 1.0432 | 1.0369 | 1.0499 | 1.003  |
| S 13C4-PFBA    |           |        |        |        |        | ISTD   |        |        |        |        |        |
| I 1802-PFHxS   |           | 0.1276 | 0.1370 | 0.1220 | 0.1303 | 0.1164 | 0.1122 | 0.1057 | 0.0982 | 0.1187 | 11.020 |
| S 13C2-4:2FTS  |           | 1.8131 | 1.9229 | 1.8594 | 1.9060 | 1.9700 | 1.9128 | 1.9485 | 1.9976 | 1.9163 | 3.093  |
| S 13C3-PFBS    |           | 0.2640 | 0.2873 | 0.2764 | 0.2858 | 0.2730 | 0.2411 | 0.2118 | 0.2198 | 0.2574 | 11.470 |
| S 13C2-6:2FTS  |           | 1.5385 | 1.5100 | 1.5928 | 1.5711 | 1.5716 | 1.5475 | 1.6229 | 1.5864 | 1.5676 | 2.241  |
| S 13C3-PFHxS   |           | 0.3451 | 0.3547 | 0.3570 | 0.3726 | 0.3446 | 0.3414 | 0.3232 | 0.3185 | 0.3447 | 5.134  |
| S 13C2-8:2FTS  |           |        |        |        |        | ISTD   |        |        |        |        |        |
| I 13C4-PFOA    |           | 0.9331 | 0.9424 | 0.9246 | 0.9343 | 0.9235 | 0.9144 | 0.9018 | 0.9170 | 0.9239 | 1.395  |
| S 13C8-PFOA    |           |        |        |        |        | ISTD   |        |        |        |        |        |
| I 13C2-PFDA    |           | 0.8353 | 0.9384 | 0.9084 | 0.9152 | 0.8933 | 0.9202 | 0.9111 | 0.9541 | 0.9095 | 3.888  |
| S 13C6-PFDA    |           | 1.1268 | 1.1553 | 1.1989 | 1.1360 | 1.0618 | 1.0859 | 0.9602 | 0.8538 | 1.0723 | 10.606 |
| S 13C7-PFUnDA  |           | 1.1845 | 1.2539 | 1.2555 | 1.2116 | 1.2065 | 1.2397 | 1.2386 | 1.4039 | 1.2493 | 5.381  |
| S 13C2-PFDODA  |           | 1.1634 | 1.1705 | 1.2155 | 1.1490 | 1.2378 | 1.3194 | 1.2237 | 1.4483 | 1.2410 | 8.030  |
| S 13C2-PFTeDA  |           |        |        |        |        | ISTD   |        |        |        |        |        |
| I 13C5-PFNA    |           | 1.0237 | 0.9403 | 0.9946 | 1.0295 | 1.0403 | 1.0512 | 0.9467 | 0.9858 | 1.0015 | 4.182  |
| S 13C9-PFNA    |           |        |        |        |        | ISTD   |        |        |        |        |        |
| I 13C2-PFHxA   |           | 0.5828 | 0.5642 | 0.5835 | 0.5670 | 0.5890 | 0.5815 | 0.5754 | 0.5470 | 0.5738 | 2.399  |
| S 13C5-PPFA    |           | 0.9450 | 0.9031 | 0.9111 | 0.9074 | 0.9401 | 0.9282 | 0.9508 | 0.8835 | 0.9211 | 2.561  |
| S 13C5-PFHxA   |           | 0.2393 | 0.2286 | 0.2283 | 0.2228 | 0.2338 | 0.2258 | 0.2364 | 0.2264 | 0.2302 | 2.488  |
| S 13C3-HFPO-DA |           | 0.9002 | 0.8934 | 0.8862 | 0.8817 | 0.9044 | 0.8674 | 0.8765 | 0.8390 | 0.8811 | 2.375  |
| S 13C4-PFHxA   |           |        |        |        |        | ISTD   |        |        |        |        |        |

(RedFont and #) = Outlier Flag; (I) = Internal Standard; (T) = Target; (S) = Surrogate; (M) = Matrix Spike



**Initial Calibration Verification**

Job Number: FC11715  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q804-ICV804  
 Lab FileID: 4Q54861.D

## Continuing Calibration Report

Batch: D:\MassHunter\Data\120823\_1633\_S4Q804\s4q804.batch.bin

## Level ID: Calibration File

1:D:\MassHunter\Data\120823\_1633\_S4Q804\4Q54852.d  
 2:D:\MassHunter\Data\120823\_1633\_S4Q804\4Q54853.d  
 3:D:\MassHunter\Data\120823\_1633\_S4Q804\4Q54854.d  
 4:D:\MassHunter\Data\120823\_1633\_S4Q804\4Q54855.d  
 5:D:\MassHunter\Data\120823\_1633\_S4Q804\4Q54856.d  
 6:D:\MassHunter\Data\120823\_1633\_S4Q804\4Q54857.d  
 7:D:\MassHunter\Data\120823\_1633\_S4Q804\4Q54858.d  
 8:D:\MassHunter\Data\120823\_1633\_S4Q804\4Q54859.d

Data File: 4Q54861  
 Type : QC  
 Level : 4

| Cpnd Name   | Exp. Conc | Final Conc | Dev % | Area % |
|-------------|-----------|------------|-------|--------|
| 13C2-4:2FTS | 5.000     | 4.926      | -1.5  | 98.5   |
| 13C2-6:2FTS | 5.000     | 5.039      | 0.8   | 100.8  |
| 13C2-8:2FTS | 5.000     | 4.888      | -2.2  | 97.8   |
| 13C2-PFDoDA | 1.250     | 1.185      | -5.2  | 94.8   |
| 13C2-PFTeDA | 1.250     | 1.200      | -4.0  | 96.0   |
| 13C3-PFBS   | 2.500     | 2.479      | -0.8  | 99.2   |
| 13C3-PFHxS  | 2.500     | 2.549      | 2.0   | 102.0  |
| 13C4-PFBA   | 10.000    | 10.031     | 0.3   | 100.3  |
| 13C4-PFHpA  | 2.500     | 2.518      | 0.7   | 100.7  |
| 13C5-PFHxA  | 2.500     | 2.411      | -3.5  | 96.5   |
| 13C5-PFPeA  | 5.000     | 5.052      | 1.0   | 101.0  |
| 13C6-PFDA   | 1.250     | 1.210      | -3.2  | 96.8   |
| 13C7-PFUnDA | 1.250     | 1.282      | 2.5   | 102.5  |
| 13C8-FOSA   | 2.500     | 2.500      | 0.0   | 100.0  |
| 13C8-PFOA   | 2.500     | 2.449      | -2.0  | 98.0   |
| 13C8-PFOS   | 2.500     | 2.320      | -7.2  | 92.8   |
| 13C9-PFNA   | 1.250     | 1.225      | -2.0  | 98.0   |
| 4:2FTS      | 9.375     | 8.909      | -5.0  | 95.0   |
| 6:2FTS      | 9.500     | 9.182      | -3.3  | 96.7   |
| 8:2FTS      | 9.600     | 9.853      | 2.6   | 102.6  |
| d3-MeFOSAA  | 5.000     | 4.736      | -5.3  | 94.7   |
| EtFOSAA     | 2.500     | 2.371      | -5.2  | 94.8   |
| FOSA        | 2.500     | 2.384      | -4.6  | 95.4   |
| MeFOSAA     | 2.500     | 2.832      | 13.3  | 113.3  |
| PFBA        | 10.000    | 9.519      | -4.8  | 95.2   |
| PFBS        | 2.218     | 2.065      | -6.9  | 93.1   |
| PFDA        | 2.500     | 2.335      | -6.6  | 93.4   |
| PFDoDA      | 2.500     | 2.476      | -1.0  | 99.0   |
| PFDS        | 2.413     | 2.404      | -0.4  | 99.6   |
| PFHpA       | 2.500     | 2.366      | -5.4  | 94.6   |
| PFHpS       | 2.383     | 2.256      | -5.3  | 94.7   |
| PFHxA       | 2.500     | 2.374      | -5.1  | 94.9   |
| PFHxS       | 2.285     | 1.932      | -15.5 | 84.5   |
| PFNA        | 2.500     | 2.296      | -8.2  | 91.8   |
| PFNS        | 2.405     | 2.551      | 6.1   | 106.1  |
| PFOA        | 2.500     | 2.321      | -7.2  | 92.8   |
| PFOS        | 2.320     | 2.237      | -3.6  | 96.4   |

# Initial Calibration Verification

Job Number: FC11715  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q804-ICV804  
 Lab FileID: 4Q54861.D

|              |        |          |      |       |
|--------------|--------|----------|------|-------|
| PFPeA        | 5.000  | 4.576    | -8.5 | 91.5  |
| PFPeS        | 2.353  | 2.204    | -6.3 | 93.7  |
| PFTeDA       | 2.500  | 2.431    | -2.7 | 97.3  |
| PFTTrDA      | 2.500  | 2.611    | 4.4  | 104.4 |
| PFUnDA       | 2.500  | 2.446    | -2.2 | 97.8  |
| M4-PFBA      | ---    | --ISTD-- |      |       |
| M5-PFPeA     | ---    | --ISTD-- |      |       |
| M5-PFHxA     | ---    | --ISTD-- |      |       |
| M4-PFHpA     | ---    | --ISTD-- |      |       |
| M8-PFOA      | ---    | --ISTD-- |      |       |
| M9-PFNA      | ---    | --ISTD-- |      |       |
| M6-PFDA      | ---    | --ISTD-- |      |       |
| M7-PFUnDA    | ---    | --ISTD-- |      |       |
| M2-PFDoDA    | ---    | --ISTD-- |      |       |
| M2-PFTeDA    | ---    | --ISTD-- |      |       |
| M8-FOSA      | ---    | --ISTD-- |      |       |
| M3-PFBS      | ---    | --ISTD-- |      |       |
| M3-PFHxS     | ---    | --ISTD-- |      |       |
| M8-PFOS      | ---    | --ISTD-- |      |       |
| M2-4:2FTS    | ---    | --ISTD-- |      |       |
| M2-6:2FTS    | ---    | --ISTD-- |      |       |
| M2-8:2FTS    | ---    | --ISTD-- |      |       |
| M3-MeFOSAA   | ---    | --ISTD-- |      |       |
| 11C1-PF3OUdS | 4.725  | 4.836    | 2.3  | 102.3 |
| 13C3-HFPO-DA | 10.000 | 9.732    | -2.7 | 97.3  |
| 9C1-PF3ONS   | 4.675  | 4.723    | 1.0  | 101.0 |
| ADONA        | 4.725  | 5.112    | 8.2  | 108.2 |
| HFPO-DA      | 5.000  | 4.814    | -3.7 | 96.3  |
| M3-HFPO-DA   | ---    | --ISTD-- |      |       |
| 3:3FTCA      | 12.480 | 11.548   | -7.5 | 92.5  |
| 5:3FTCA      | 62.400 | 61.374   | -1.6 | 98.4  |
| 7:3FTCA      | 62.400 | 61.084   | -2.1 | 97.9  |
| d3-MeFOSA    | 2.500  | 2.473    | -1.1 | 98.9  |
| M5-EtFOSAA   | ---    | --ISTD-- |      |       |
| M7-MeFOSE    | ---    | --ISTD-- |      |       |
| M9-EtFOSE    | ---    | --ISTD-- |      |       |
| M5-EtFOSA    | ---    | --ISTD-- |      |       |
| EtFOSA       | 5.000  | 4.673    | -6.5 | 93.5  |
| EtFOSE       | 12.500 | 11.744   | -6.0 | 94.0  |
| MeFOSA       | 5.000  | 4.533    | -9.3 | 90.7  |
| MeFOSE       | 12.500 | 11.867   | -5.1 | 94.9  |
| PFDoDS       | 2.425  | 2.474    | 2.0  | 102.0 |
| M3-MeFOSA    | ---    | --ISTD-- |      |       |
| d5-EtFOSAA   | 5.000  | 4.787    | -4.3 | 95.7  |
| d7-MeFOSE    | 25.000 | 23.968   | -4.1 | 95.9  |
| d9-EtFOSE    | 25.000 | 24.996   | 0.0  | 100.0 |
| d5-EtFOSA    | 2.500  | 2.419    | -3.2 | 96.8  |
| NFDHA        | 5.000  | 5.047    | 0.9  | 100.9 |
| PFMBA        | 5.000  | 4.745    | -5.1 | 94.9  |
| PFMPA        | 5.000  | 4.674    | -6.5 | 93.5  |
| 13C4-PFOS    | ---    | --ISTD-- |      |       |
| 13C3-PFBA    | ---    | --ISTD-- |      |       |
| 18O2-PFHxS   | ---    | --ISTD-- |      |       |
| 13C4-PFOA    | ---    | --ISTD-- |      |       |
| 13C2-PFDA    | ---    | --ISTD-- |      |       |
| 13C5-PFNA    | ---    | --ISTD-- |      |       |
| 13C2-PFHxA   | ---    | --ISTD-- |      |       |
| PFEEESA      | 4.450  | 4.463    | 0.3  | 100.3 |

CC Criteria: +/- 30%

**Initial Calibration Verification**

Job Number: FC11715  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q804-ICV804  
 Lab FileID: 4Q54862.D

## Continuing Calibration Report

Batch: D:\MassHunter\Data\120823\_1633\_S4Q804\s4q804.batch.bin

## Level ID: Calibration File

1:D:\MassHunter\Data\120823\_1633\_S4Q804\4Q54852.d  
 2:D:\MassHunter\Data\120823\_1633\_S4Q804\4Q54853.d  
 3:D:\MassHunter\Data\120823\_1633\_S4Q804\4Q54854.d  
 4:D:\MassHunter\Data\120823\_1633\_S4Q804\4Q54855.d  
 5:D:\MassHunter\Data\120823\_1633\_S4Q804\4Q54856.d  
 6:D:\MassHunter\Data\120823\_1633\_S4Q804\4Q54857.d  
 7:D:\MassHunter\Data\120823\_1633\_S4Q804\4Q54858.d  
 8:D:\MassHunter\Data\120823\_1633\_S4Q804\4Q54859.d

Data File: 4Q54862  
 Type : QC  
 Level : 20

| Cpnd Name   | Exp. Conc | Final Conc | Dev % | Area % |
|-------------|-----------|------------|-------|--------|
| 13C2-4:2FTS | 5.000     | 4.870      | -2.6  | 97.4   |
| 13C2-6:2FTS | 5.000     | 5.005      | 0.1   | 100.1  |
| 13C2-8:2FTS | 5.000     | 4.978      | -0.4  | 99.6   |
| 13C2-PFDoDA | 1.250     | 1.231      | -1.5  | 98.5   |
| 13C2-PFTeDA | 1.250     | 1.235      | -1.2  | 98.8   |
| 13C3-PFBS   | 2.500     | 2.507      | 0.3   | 100.3  |
| 13C3-PFHxS  | 2.500     | 2.576      | 3.0   | 103.0  |
| 13C4-PFBA   | 10.000    | 10.025     | 0.3   | 100.3  |
| 13C4-PFHpA  | 2.500     | 2.423      | -3.1  | 96.9   |
| 13C5-PFHxA  | 2.500     | 2.387      | -4.5  | 95.5   |
| 13C5-PFPeA  | 5.000     | 4.972      | -0.6  | 99.4   |
| 13C6-PFDA   | 1.250     | 1.286      | 2.9   | 102.9  |
| 13C7-PFUnDA | 1.250     | 1.195      | -4.4  | 95.6   |
| 13C8-FOSA   | 2.500     | 2.351      | -6.0  | 94.0   |
| 13C8-PFOA   | 2.500     | 2.471      | -1.2  | 98.8   |
| 13C8-PFOS   | 2.500     | 2.598      | 3.9   | 103.9  |
| 13C9-PFNA   | 1.250     | 1.280      | 2.4   | 102.4  |
| 4:2FTS      | 20.000    | 19.764     | -1.2  | 98.8   |
| 6:2FTS      | 20.000    | 20.220     | 1.1   | 101.1  |
| 8:2FTS      | 20.000    | 18.837     | -5.8  | 94.2   |
| d3-MeFOSAA  | 5.000     | 4.940      | -1.2  | 98.8   |
| EtFOSAA     | 20.000    | 18.868     | -5.7  | 94.3   |
| FOSA        | 20.000    | 18.537     | -7.3  | 92.7   |
| MeFOSAA     | 20.000    | 20.454     | 2.3   | 102.3  |
| PFBA        | 20.000    | 18.106     | -9.5  | 90.5   |
| PFBS        | 20.000    | 18.997     | -5.0  | 95.0   |
| PFDA        | 20.000    | 18.331     | -8.3  | 91.7   |
| PFDoDA      | 20.000    | 17.537     | -12.3 | 87.7   |
| PFDS        | 20.000    | 18.270     | -8.6  | 91.4   |
| PFHpA       | 20.000    | 19.264     | -3.7  | 96.3   |
| PFHpS       | 20.000    | 17.835     | -10.8 | 89.2   |
| PFHxA       | 20.000    | 20.784     | 3.9   | 103.9  |
| PFHxS       | 20.000    | 19.687     | -1.6  | 98.4   |
| PFNA        | 20.000    | 19.869     | -0.7  | 99.3   |
| PFNS        | 20.000    | 19.096     | -4.5  | 95.5   |
| PFOA        | 20.000    | 19.084     | -4.6  | 95.4   |
| PFOS        | 20.000    | 15.948     | -20.3 | 79.7   |

# Initial Calibration Verification

Job Number: FC11715  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q804-ICV804  
 Lab FileID: 4Q54862.D

|              |         |          |       |       |
|--------------|---------|----------|-------|-------|
| PFPeA        | 20.000  | 18.734   | -6.3  | 93.7  |
| PFPeS        | 20.000  | 20.118   | 0.6   | 100.6 |
| PFTeDA       | 20.000  | 20.701   | 3.5   | 103.5 |
| PFTTrDA      | 20.000  | 18.556   | -7.2  | 92.8  |
| PFUnDA       | 20.000  | 19.442   | -2.8  | 97.2  |
| M4-PFBA      | ---     | --ISTD-- |       |       |
| M5-PFPeA     | ---     | --ISTD-- |       |       |
| M5-PFHxA     | ---     | --ISTD-- |       |       |
| M4-PFHpA     | ---     | --ISTD-- |       |       |
| M8-PFOA      | ---     | --ISTD-- |       |       |
| M9-PFNA      | ---     | --ISTD-- |       |       |
| M6-PFDA      | ---     | --ISTD-- |       |       |
| M7-PFUnDA    | ---     | --ISTD-- |       |       |
| M2-PFDoDA    | ---     | --ISTD-- |       |       |
| M2-PFTeDA    | ---     | --ISTD-- |       |       |
| M8-FOSA      | ---     | --ISTD-- |       |       |
| M3-PFBS      | ---     | --ISTD-- |       |       |
| M3-PFHxS     | ---     | --ISTD-- |       |       |
| M8-PFOS      | ---     | --ISTD-- |       |       |
| M2-4:2FTS    | ---     | --ISTD-- |       |       |
| M2-6:2FTS    | ---     | --ISTD-- |       |       |
| M2-8:2FTS    | ---     | --ISTD-- |       |       |
| M3-MeFOSAA   | ---     | --ISTD-- |       |       |
| 11C1-PF3OUdS | 20.000  | 19.287   | -3.6  | 96.4  |
| 13C3-HFPO-DA | 10.000  | 10.008   | 0.1   | 100.1 |
| 9C1-PF3ONS   | 20.000  | 18.678   | -6.6  | 93.4  |
| ADONA        | 20.000  | 21.036   | 5.2   | 105.2 |
| HFPO-DA      | 20.000  | 18.433   | -7.8  | 92.2  |
| M3-HFPO-DA   | ---     | --ISTD-- |       |       |
| 3:3FTCA      | 20.000  | 18.323   | -8.4  | 91.6  |
| 5:3FTCA      | 20.000  | 20.793   | 4.0   | 104.0 |
| 7:3FTCA      | 20.000  | 19.323   | -3.4  | 96.6  |
| d3-MeFOSA    | 2.500   | 2.626    | 5.0   | 105.0 |
| M5-EtFOSAA   | ---     | --ISTD-- |       |       |
| M7-MeFOSE    | ---     | --ISTD-- |       |       |
| M9-EtFOSE    | ---     | --ISTD-- |       |       |
| M5-EtFOSA    | ---     | --ISTD-- |       |       |
| EtFOSA       | 20.000  | 17.593   | -12.0 | 88.0  |
| EtFOSE       | 100.000 | 98.043   | -2.0  | 98.0  |
| MeFOSA       | 20.000  | 17.902   | -10.5 | 89.5  |
| MeFOSE       | 100.000 | 103.457  | 3.5   | 103.5 |
| PFDoDS       | 20.000  | 17.621   | -11.9 | 88.1  |
| M3-MeFOSA    | ---     | --ISTD-- |       |       |
| d5-EtFOSAA   | 5.000   | 4.848    | -3.0  | 97.0  |
| d7-MeFOSE    | 25.000  | 24.738   | -1.0  | 99.0  |
| d9-EtFOSE    | 25.000  | 24.568   | -1.7  | 98.3  |
| d5-EtFOSA    | 2.500   | 2.447    | -2.1  | 97.9  |
| NFDHA        | 20.000  | 18.485   | -7.6  | 92.4  |
| PFMBA        | 20.000  | 19.037   | -4.8  | 95.2  |
| PFMPA        | 20.000  | 19.191   | -4.0  | 96.0  |
| 13C4-PFOS    | ---     | --ISTD-- |       |       |
| 13C3-PFBA    | ---     | --ISTD-- |       |       |
| 18O2-PFHxS   | ---     | --ISTD-- |       |       |
| 13C4-PFOA    | ---     | --ISTD-- |       |       |
| 13C2-PFDA    | ---     | --ISTD-- |       |       |
| 13C5-PFNA    | ---     | --ISTD-- |       |       |
| 13C2-PFHxA   | ---     | --ISTD-- |       |       |
| PFEESA       | 20.000  | 17.680   | -11.6 | 88.4  |

CC Criteria: +/- 30%

**Continuing Calibration Summary**

Job Number: FC11715  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q804-CC804  
 Lab FileID: 4Q54863.D

## Continuing Calibration Report

Batch: D:\MassHunter\Data\120823\_1633\_S4Q804\s4q804.batch.bin

## Level ID: Calibration File

1:D:\MassHunter\Data\120823\_1633\_S4Q804\4Q54852.d  
 2:D:\MassHunter\Data\120823\_1633\_S4Q804\4Q54853.d  
 3:D:\MassHunter\Data\120823\_1633\_S4Q804\4Q54854.d  
 4:D:\MassHunter\Data\120823\_1633\_S4Q804\4Q54855.d  
 5:D:\MassHunter\Data\120823\_1633\_S4Q804\4Q54856.d  
 6:D:\MassHunter\Data\120823\_1633\_S4Q804\4Q54857.d  
 7:D:\MassHunter\Data\120823\_1633\_S4Q804\4Q54858.d  
 8:D:\MassHunter\Data\120823\_1633\_S4Q804\4Q54859.d

Data File: 4Q54863  
 Type : QC  
 Level : 4

| Cpnd Name   | Exp. Conc | Final Conc | Dev % | Area % |
|-------------|-----------|------------|-------|--------|
| 13C2-4:2FTS | 5.000     | 4.504      | -9.9  | 90.1   |
| 13C2-6:2FTS | 5.000     | 4.910      | -1.8  | 98.2   |
| 13C2-8:2FTS | 5.000     | 4.826      | -3.5  | 96.5   |
| 13C2-PFDoDA | 1.250     | 1.251      | 0.1   | 100.1  |
| 13C2-PFTeDA | 1.250     | 1.273      | 1.9   | 101.9  |
| 13C3-PFBS   | 2.500     | 2.448      | -2.1  | 97.9   |
| 13C3-PFHxS  | 2.500     | 2.513      | 0.5   | 100.5  |
| 13C4-PFBA   | 10.000    | 9.893      | -1.1  | 98.9   |
| 13C4-PFHpA  | 2.500     | 2.473      | -1.1  | 98.9   |
| 13C5-PFHxA  | 2.500     | 2.487      | -0.5  | 99.5   |
| 13C5-PFPeA  | 5.000     | 4.936      | -1.3  | 98.7   |
| 13C6-PFDA   | 1.250     | 1.268      | 1.5   | 101.5  |
| 13C7-PFUnDA | 1.250     | 1.286      | 2.9   | 102.9  |
| 13C8-FOSA   | 2.500     | 2.524      | 1.0   | 101.0  |
| 13C8-PFOA   | 2.500     | 2.453      | -1.9  | 98.1   |
| 13C8-PFOS   | 2.500     | 2.390      | -4.4  | 95.6   |
| 13C9-PFNA   | 1.250     | 1.215      | -2.8  | 97.2   |
| 4:2FTS      | 9.375     | 9.746      | 4.0   | 104.0  |
| 6:2FTS      | 9.500     | 9.107      | -4.1  | 95.9   |
| 8:2FTS      | 9.600     | 9.614      | 0.1   | 100.1  |
| d3-MeFOSAA  | 5.000     | 5.112      | 2.2   | 102.2  |
| EtFOSAA     | 2.500     | 2.168      | -13.3 | 86.7   |
| FOSA        | 2.500     | 2.308      | -7.7  | 92.3   |
| MeFOSAA     | 2.500     | 2.460      | -1.6  | 98.4   |
| PFBA        | 10.000    | 9.376      | -6.2  | 93.8   |
| PFBS        | 2.218     | 2.091      | -5.7  | 94.3   |
| PFDA        | 2.500     | 2.275      | -9.0  | 91.0   |
| PFDoDA      | 2.500     | 2.451      | -1.9  | 98.1   |
| PFDS        | 2.413     | 2.361      | -2.2  | 97.8   |
| PFHpA       | 2.500     | 2.311      | -7.6  | 92.4   |
| PFHpS       | 2.383     | 2.437      | 2.2   | 102.2  |
| PFHxA       | 2.500     | 2.182      | -12.7 | 87.3   |
| PFHxS       | 2.285     | 2.152      | -5.8  | 94.2   |
| PFNA        | 2.500     | 2.271      | -9.2  | 90.8   |
| PFNS        | 2.405     | 2.592      | 7.8   | 107.8  |
| PFOA        | 2.500     | 2.314      | -7.4  | 92.6   |
| PFOS        | 2.320     | 2.171      | -6.4  | 93.6   |

# Continuing Calibration Summary

Job Number: FC11715  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q804-CC804  
 Lab FileID: 4Q54863.D

|              |        |          |       |       |
|--------------|--------|----------|-------|-------|
| PFPeA        | 5.000  | 4.591    | -8.2  | 91.8  |
| PFPeS        | 2.353  | 2.229    | -5.3  | 94.7  |
| PFTeDA       | 2.500  | 2.237    | -10.5 | 89.5  |
| PFTrDA       | 2.500  | 2.450    | -2.0  | 98.0  |
| PFUnDA       | 2.500  | 2.402    | -3.9  | 96.1  |
| M4-PFBA      | ---    | --ISTD-- |       |       |
| M5-PFPeA     | ---    | --ISTD-- |       |       |
| M5-PFHxA     | ---    | --ISTD-- |       |       |
| M4-PFHpA     | ---    | --ISTD-- |       |       |
| M8-PFOA      | ---    | --ISTD-- |       |       |
| M9-PFNA      | ---    | --ISTD-- |       |       |
| M6-PFDA      | ---    | --ISTD-- |       |       |
| M7-PFUnDA    | ---    | --ISTD-- |       |       |
| M2-PFDoDA    | ---    | --ISTD-- |       |       |
| M2-PFTeDA    | ---    | --ISTD-- |       |       |
| M8-FOSA      | ---    | --ISTD-- |       |       |
| M3-PFBS      | ---    | --ISTD-- |       |       |
| M3-PFHxS     | ---    | --ISTD-- |       |       |
| M8-PFOS      | ---    | --ISTD-- |       |       |
| M2-4:2FTS    | ---    | --ISTD-- |       |       |
| M2-6:2FTS    | ---    | --ISTD-- |       |       |
| M2-8:2FTS    | ---    | --ISTD-- |       |       |
| M3-MeFOSAA   | ---    | --ISTD-- |       |       |
| 11C1-PF3OUdS | 4.725  | 4.471    | -5.4  | 94.6  |
| 13C3-HFPO-DA | 10.000 | 9.625    | -3.7  | 96.3  |
| 9C1-PF3ONS   | 4.675  | 4.794    | 2.5   | 102.5 |
| ADONA        | 4.725  | 4.830    | 2.2   | 102.2 |
| HFPO-DA      | 5.000  | 4.720    | -5.6  | 94.4  |
| M3-HFPO-DA   | ---    | --ISTD-- |       |       |
| 3:3FTCA      | 12.480 | 11.180   | -10.4 | 89.6  |
| 5:3FTCA      | 62.400 | 57.493   | -7.9  | 92.1  |
| 7:3FTCA      | 62.400 | 57.776   | -7.4  | 92.6  |
| d3-MeFOSA    | 2.500  | 2.399    | -4.0  | 96.0  |
| M5-EtFOSAA   | ---    | --ISTD-- |       |       |
| M7-MeFOSE    | ---    | --ISTD-- |       |       |
| M9-EtFOSE    | ---    | --ISTD-- |       |       |
| M5-EtFOSA    | ---    | --ISTD-- |       |       |
| EtFOSA       | 5.000  | 4.875    | -2.5  | 97.5  |
| EtFOSE       | 12.500 | 11.650   | -6.8  | 93.2  |
| MeFOSA       | 5.000  | 4.743    | -5.1  | 94.9  |
| MeFOSE       | 12.500 | 11.974   | -4.2  | 95.8  |
| PFDoDS       | 2.425  | 2.383    | -1.7  | 98.3  |
| M3-MeFOSA    | ---    | --ISTD-- |       |       |
| d5-EtFOSAA   | 5.000  | 5.004    | 0.1   | 100.1 |
| d7-MeFOSE    | 25.000 | 23.740   | -5.0  | 95.0  |
| d9-EtFOSE    | 25.000 | 24.009   | -4.0  | 96.0  |
| d5-EtFOSA    | 2.500  | 2.316    | -7.3  | 92.7  |
| NFDHA        | 5.000  | 4.663    | -6.7  | 93.3  |
| PFMBA        | 5.000  | 4.667    | -6.7  | 93.3  |
| PFMPA        | 5.000  | 4.597    | -8.1  | 91.9  |
| 13C4-PFOS    | ---    | --ISTD-- |       |       |
| 13C3-PFBA    | ---    | --ISTD-- |       |       |
| 18O2-PFHxS   | ---    | --ISTD-- |       |       |
| 13C4-PFOA    | ---    | --ISTD-- |       |       |
| 13C2-PFDA    | ---    | --ISTD-- |       |       |
| 13C5-PFNA    | ---    | --ISTD-- |       |       |
| 13C2-PFHxA   | ---    | --ISTD-- |       |       |
| PFEEESA      | 4.450  | 4.144    | -6.9  | 93.1  |

CC Criteria: +/- 30%

**Continuing Calibration Summary**

Job Number: FC11715  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q804-CC804  
 Lab FileID: 4Q54864.D

## Continuing Calibration Report

Batch: D:\MassHunter\Data\120823\_1633\_S4Q804\s4q804.batch.bin

## Level ID: Calibration File

1:D:\MassHunter\Data\120823\_1633\_S4Q804\4Q54852.d  
 2:D:\MassHunter\Data\120823\_1633\_S4Q804\4Q54853.d  
 3:D:\MassHunter\Data\120823\_1633\_S4Q804\4Q54854.d  
 4:D:\MassHunter\Data\120823\_1633\_S4Q804\4Q54855.d  
 5:D:\MassHunter\Data\120823\_1633\_S4Q804\4Q54856.d  
 6:D:\MassHunter\Data\120823\_1633\_S4Q804\4Q54857.d  
 7:D:\MassHunter\Data\120823\_1633\_S4Q804\4Q54858.d  
 8:D:\MassHunter\Data\120823\_1633\_S4Q804\4Q54859.d

Data File: 4Q54864  
 Type : QC  
 Level : 1

| Cpnd Name   | Exp. Conc | Final Conc | Dev % | Area % |
|-------------|-----------|------------|-------|--------|
| 13C2-4:2FTS | 5.000     | 4.156      | -16.9 | 83.1   |
| 13C2-6:2FTS | 5.000     | 4.812      | -3.8  | 96.2   |
| 13C2-8:2FTS | 5.000     | 4.401      | -12.0 | 88.0   |
| 13C2-PFDoDA | 1.250     | 1.209      | -3.3  | 96.7   |
| 13C2-PFTeDA | 1.250     | 1.234      | -1.3  | 98.7   |
| 13C3-PFBS   | 2.500     | 2.439      | -2.4  | 97.6   |
| 13C3-PFHxS  | 2.500     | 2.393      | -4.3  | 95.7   |
| 13C4-PFBA   | 10.000    | 10.199     | 2.0   | 102.0  |
| 13C4-PFHpA  | 2.500     | 2.453      | -1.9  | 98.1   |
| 13C5-PFHxA  | 2.500     | 2.454      | -1.8  | 98.2   |
| 13C5-PFPeA  | 5.000     | 5.096      | 1.9   | 101.9  |
| 13C6-PFDA   | 1.250     | 1.199      | -4.1  | 95.9   |
| 13C7-PFUnDA | 1.250     | 1.354      | 8.3   | 108.3  |
| 13C8-FOSA   | 2.500     | 2.837      | 13.5  | 113.5  |
| 13C8-PFOA   | 2.500     | 2.471      | -1.2  | 98.8   |
| 13C8-PFOS   | 2.500     | 2.679      | 7.2   | 107.2  |
| 13C9-PFNA   | 1.250     | 1.182      | -5.5  | 94.5   |
| 4:2FTS      | 0.750     | 0.758      | 1.0   | 101.0  |
| 6:2FTS      | 0.760     | 0.674      | -11.4 | 88.6   |
| 8:2FTS      | 0.768     | 0.769      | 0.1   | 100.1  |
| d3-MeFOSAA  | 5.000     | 5.145      | 2.9   | 102.9  |
| EtFOSAA     | 0.200     | 0.151      | -24.7 | 75.3   |
| FOSA        | 0.200     | 0.194      | -3.0  | 97.0   |
| MeFOSAA     | 0.200     | 0.168      | -15.8 | 84.2   |
| PFBA        | 0.800     | 0.759      | -5.1  | 94.9   |
| PFBS        | 0.177     | 0.174      | -1.6  | 98.4   |
| PFDA        | 0.200     | 0.233      | 16.4  | 116.4  |
| PFDoDA      | 0.200     | 0.190      | -5.0  | 95.0   |
| PFDS        | 0.193     | 0.186      | -3.4  | 96.6   |
| PFHpA       | 0.200     | 0.200      | 0.1   | 100.1  |
| PFHpS       | 0.191     | 0.175      | -8.1  | 91.9   |
| PFHxA       | 0.200     | 0.187      | -6.3  | 93.7   |
| PFHxS       | 0.183     | 0.216      | 18.1  | 118.1  |
| PFNA        | 0.200     | 0.193      | -3.7  | 96.3   |
| PFNS        | 0.192     | 0.201      | 4.8   | 104.8  |
| PFOA        | 0.200     | 0.186      | -6.8  | 93.2   |
| PFOS        | 0.186     | 0.169      | -9.2  | 90.8   |

# Continuing Calibration Summary

Job Number: FC11715  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q804-CC804  
 Lab FileID: 4Q54864.D

|              |        |          |       |       |
|--------------|--------|----------|-------|-------|
| PFPeA        | 0.400  | 0.394    | -1.4  | 98.6  |
| PFPeS        | 0.188  | 0.158    | -16.0 | 84.0  |
| PFTeDA       | 0.200  | 0.173    | -13.6 | 86.4  |
| PFTTrDA      | 0.200  | 0.193    | -3.3  | 96.7  |
| PFUnDA       | 0.200  | 0.173    | -13.3 | 86.7  |
| M4-PFBA      | ---    | --ISTD-- |       |       |
| M5-PFPeA     | ---    | --ISTD-- |       |       |
| M5-PFHxA     | ---    | --ISTD-- |       |       |
| M4-PFHpA     | ---    | --ISTD-- |       |       |
| M8-PFOA      | ---    | --ISTD-- |       |       |
| M9-PFNA      | ---    | --ISTD-- |       |       |
| M6-PFDA      | ---    | --ISTD-- |       |       |
| M7-PFUnDA    | ---    | --ISTD-- |       |       |
| M2-PFDoDA    | ---    | --ISTD-- |       |       |
| M2-PFTeDA    | ---    | --ISTD-- |       |       |
| M8-FOSA      | ---    | --ISTD-- |       |       |
| M3-PFBS      | ---    | --ISTD-- |       |       |
| M3-PFHxS     | ---    | --ISTD-- |       |       |
| M8-PFOS      | ---    | --ISTD-- |       |       |
| M2-4:2FTS    | ---    | --ISTD-- |       |       |
| M2-6:2FTS    | ---    | --ISTD-- |       |       |
| M2-8:2FTS    | ---    | --ISTD-- |       |       |
| M3-MeFOSAA   | ---    | --ISTD-- |       |       |
| 11C1-PF3OUdS | 0.378  | 0.359    | -5.0  | 95.0  |
| 13C3-HFPO-DA | 10.000 | 9.747    | -2.5  | 97.5  |
| 9C1-PF3ONS   | 0.374  | 0.361    | -3.4  | 96.6  |
| ADONA        | 0.378  | 0.385    | 1.9   | 101.9 |
| HFPO-DA      | 0.400  | 0.370    | -7.6  | 92.4  |
| M3-HFPO-DA   | ---    | --ISTD-- |       |       |
| 3:3FTCA      | 0.998  | 0.958    | -4.1  | 95.9  |
| 5:3FTCA      | 4.992  | 4.661    | -6.6  | 93.4  |
| 7:3FTCA      | 4.992  | 4.917    | -1.5  | 98.5  |
| d3-MeFOSA    | 2.500  | 2.545    | 1.8   | 101.8 |
| M5-EtFOSAA   | ---    | --ISTD-- |       |       |
| M7-MeFOSE    | ---    | --ISTD-- |       |       |
| M9-EtFOSE    | ---    | --ISTD-- |       |       |
| M5-EtFOSA    | ---    | --ISTD-- |       |       |
| EtFOSA       | 0.400  | 0.360    | -10.1 | 89.9  |
| EtFOSE       | 1.000  | 1.147    | 14.7  | 114.7 |
| MeFOSA       | 0.400  | 0.375    | -6.3  | 93.7  |
| MeFOSE       | 1.000  | 1.035    | 3.5   | 103.5 |
| PFDoDS       | 0.194  | 0.193    | -0.4  | 99.6  |
| M3-MeFOSA    | ---    | --ISTD-- |       |       |
| d5-EtFOSAA   | 5.000  | 5.124    | 2.5   | 102.5 |
| d7-MeFOSE    | 25.000 | 26.418   | 5.7   | 105.7 |
| d9-EtFOSE    | 25.000 | 26.062   | 4.2   | 104.2 |
| d5-EtFOSA    | 2.500  | 2.502    | 0.1   | 100.1 |
| NFDHA        | 0.400  | 0.364    | -9.0  | 91.0  |
| PFMBA        | 0.400  | 0.392    | -1.9  | 98.1  |
| PFMPA        | 0.400  | 0.390    | -2.5  | 97.5  |
| 13C4-PFOS    | ---    | --ISTD-- |       |       |
| 13C3-PFBA    | ---    | --ISTD-- |       |       |
| 18O2-PFHxS   | ---    | --ISTD-- |       |       |
| 13C4-PFOA    | ---    | --ISTD-- |       |       |
| 13C2-PFDA    | ---    | --ISTD-- |       |       |
| 13C5-PFNA    | ---    | --ISTD-- |       |       |
| 13C2-PFHxA   | ---    | --ISTD-- |       |       |
| PFEEESA      | 0.356  | 0.357    | 0.2   | 100.2 |

CC Criteria: +/- 30%



**Continuing Calibration Summary**

Job Number: FC11715  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q804-CC804  
 Lab FileID: 4Q54872.D

## Continuing Calibration Report

Batch: D:\MassHunter\Data\120823\_1633\_S4Q804\s4q804.batch.bin

## Level ID: Calibration File

1:D:\MassHunter\Data\120823\_1633\_S4Q804\4Q54852.d  
 2:D:\MassHunter\Data\120823\_1633\_S4Q804\4Q54853.d  
 3:D:\MassHunter\Data\120823\_1633\_S4Q804\4Q54854.d  
 4:D:\MassHunter\Data\120823\_1633\_S4Q804\4Q54855.d  
 5:D:\MassHunter\Data\120823\_1633\_S4Q804\4Q54856.d  
 6:D:\MassHunter\Data\120823\_1633\_S4Q804\4Q54857.d  
 7:D:\MassHunter\Data\120823\_1633\_S4Q804\4Q54858.d  
 8:D:\MassHunter\Data\120823\_1633\_S4Q804\4Q54859.d

Data File: 4Q54872  
 Type : QC  
 Level : 4

| Cpnd Name   | Exp. Conc | Final Conc | Dev % | Area % |
|-------------|-----------|------------|-------|--------|
| 13C2-4:2FTS | 5.000     | 4.454      | -10.9 | 89.1   |
| 13C2-6:2FTS | 5.000     | 4.201      | -16.0 | 84.0   |
| 13C2-8:2FTS | 5.000     | 3.846      | -23.1 | 76.9   |
| 13C2-PFDoDA | 1.250     | 1.205      | -3.6  | 96.4   |
| 13C2-PFTeDA | 1.250     | 1.178      | -5.8  | 94.2   |
| 13C3-PFBS   | 2.500     | 2.391      | -4.3  | 95.7   |
| 13C3-PFHxS  | 2.500     | 2.524      | 1.0   | 101.0  |
| 13C4-PFBA   | 10.000    | 9.906      | -0.9  | 99.1   |
| 13C4-PFHpA  | 2.500     | 2.462      | -1.5  | 98.5   |
| 13C5-PFHxA  | 2.500     | 2.460      | -1.6  | 98.4   |
| 13C5-PFPeA  | 5.000     | 4.917      | -1.7  | 98.3   |
| 13C6-PFDA   | 1.250     | 1.291      | 3.2   | 103.2  |
| 13C7-PFUnDA | 1.250     | 1.296      | 3.7   | 103.7  |
| 13C8-FOSA   | 2.500     | 2.220      | -11.2 | 88.8   |
| 13C8-PFOA   | 2.500     | 2.519      | 0.8   | 100.8  |
| 13C8-PFOS   | 2.500     | 2.317      | -7.3  | 92.7   |
| 13C9-PFNA   | 1.250     | 1.250      | 0.0   | 100.0  |
| 4:2FTS      | 9.375     | 9.087      | -3.1  | 96.9   |
| 6:2FTS      | 9.500     | 9.927      | 4.5   | 104.5  |
| 8:2FTS      | 9.600     | 11.086     | 15.5  | 115.5  |
| d3-MeFOSAA  | 5.000     | 4.738      | -5.2  | 94.8   |
| EtFOSAA     | 2.500     | 2.222      | -11.1 | 88.9   |
| FOSA        | 2.500     | 2.461      | -1.6  | 98.4   |
| MeFOSAA     | 2.500     | 2.477      | -0.9  | 99.1   |
| PFBA        | 10.000    | 9.438      | -5.6  | 94.4   |
| PFBS        | 2.218     | 2.035      | -8.2  | 91.8   |
| PFDA        | 2.500     | 2.285      | -8.6  | 91.4   |
| PFDoDA      | 2.500     | 2.390      | -4.4  | 95.6   |
| PFDS        | 2.413     | 2.334      | -3.3  | 96.7   |
| PFHpA       | 2.500     | 2.272      | -9.1  | 90.9   |
| PFHpS       | 2.383     | 2.067      | -13.3 | 86.7   |
| PFHxA       | 2.500     | 2.164      | -13.4 | 86.6   |
| PFHxS       | 2.285     | 2.052      | -10.2 | 89.8   |
| PFNA        | 2.500     | 2.321      | -7.2  | 92.8   |
| PFNS        | 2.405     | 2.648      | 10.1  | 110.1  |
| PFOA        | 2.500     | 2.340      | -6.4  | 93.6   |
| PFOS        | 2.320     | 2.155      | -7.1  | 92.9   |

# Continuing Calibration Summary

Job Number: FC11715  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q804-CC804  
 Lab FileID: 4Q54872.D

|              |        |          |       |       |
|--------------|--------|----------|-------|-------|
| PFPeA        | 5.000  | 4.558    | -8.8  | 91.2  |
| PFPeS        | 2.353  | 2.144    | -8.9  | 91.1  |
| PFTeDA       | 2.500  | 2.388    | -4.5  | 95.5  |
| PFTTrDA      | 2.500  | 2.401    | -4.0  | 96.0  |
| PFUnDA       | 2.500  | 2.339    | -6.4  | 93.6  |
| M4-PFBA      | ---    | --ISTD-- |       |       |
| M5-PFPeA     | ---    | --ISTD-- |       |       |
| M5-PFHxA     | ---    | --ISTD-- |       |       |
| M4-PFHpA     | ---    | --ISTD-- |       |       |
| M8-PFOA      | ---    | --ISTD-- |       |       |
| M9-PFNA      | ---    | --ISTD-- |       |       |
| M6-PFDA      | ---    | --ISTD-- |       |       |
| M7-PFUnDA    | ---    | --ISTD-- |       |       |
| M2-PFDoDA    | ---    | --ISTD-- |       |       |
| M2-PFTeDA    | ---    | --ISTD-- |       |       |
| M8-FOSA      | ---    | --ISTD-- |       |       |
| M3-PFBS      | ---    | --ISTD-- |       |       |
| M3-PFHxS     | ---    | --ISTD-- |       |       |
| M8-PFOS      | ---    | --ISTD-- |       |       |
| M2-4:2FTS    | ---    | --ISTD-- |       |       |
| M2-6:2FTS    | ---    | --ISTD-- |       |       |
| M2-8:2FTS    | ---    | --ISTD-- |       |       |
| M3-MeFOSAA   | ---    | --ISTD-- |       |       |
| 11C1-PF3OUdS | 4.725  | 4.605    | -2.5  | 97.5  |
| 13C3-HFPO-DA | 10.000 | 9.684    | -3.2  | 96.8  |
| 9C1-PF3ONS   | 4.675  | 4.486    | -4.0  | 96.0  |
| ADONA        | 4.725  | 4.946    | 4.7   | 104.7 |
| HFPO-DA      | 5.000  | 4.711    | -5.8  | 94.2  |
| M3-HFPO-DA   | ---    | --ISTD-- |       |       |
| 3:3FTCA      | 12.480 | 10.808   | -13.4 | 86.6  |
| 5:3FTCA      | 62.400 | 57.948   | -7.1  | 92.9  |
| 7:3FTCA      | 62.400 | 58.934   | -5.6  | 94.4  |
| d3-MeFOSA    | 2.500  | 2.287    | -8.5  | 91.5  |
| M5-EtFOSAA   | ---    | --ISTD-- |       |       |
| M7-MeFOSE    | ---    | --ISTD-- |       |       |
| M9-EtFOSE    | ---    | --ISTD-- |       |       |
| M5-EtFOSA    | ---    | --ISTD-- |       |       |
| EtFOSA       | 5.000  | 4.799    | -4.0  | 96.0  |
| EtFOSE       | 12.500 | 11.930   | -4.6  | 95.4  |
| MeFOSA       | 5.000  | 4.746    | -5.1  | 94.9  |
| MeFOSE       | 12.500 | 11.295   | -9.6  | 90.4  |
| PFDoDS       | 2.425  | 2.322    | -4.3  | 95.7  |
| M3-MeFOSA    | ---    | --ISTD-- |       |       |
| d5-EtFOSAA   | 5.000  | 4.531    | -9.4  | 90.6  |
| d7-MeFOSE    | 25.000 | 22.524   | -9.9  | 90.1  |
| d9-EtFOSE    | 25.000 | 22.752   | -9.0  | 91.0  |
| d5-EtFOSA    | 2.500  | 2.259    | -9.6  | 90.4  |
| NFDHA        | 5.000  | 4.372    | -12.6 | 87.4  |
| PFMBA        | 5.000  | 4.691    | -6.2  | 93.8  |
| PFMPA        | 5.000  | 4.663    | -6.7  | 93.3  |
| 13C4-PFOS    | ---    | --ISTD-- |       |       |
| 13C3-PFBA    | ---    | --ISTD-- |       |       |
| 18O2-PFHxS   | ---    | --ISTD-- |       |       |
| 13C4-PFOA    | ---    | --ISTD-- |       |       |
| 13C2-PFDA    | ---    | --ISTD-- |       |       |
| 13C5-PFNA    | ---    | --ISTD-- |       |       |
| 13C2-PFHxA   | ---    | --ISTD-- |       |       |
| PFEEESA      | 4.450  | 4.279    | -3.8  | 96.2  |

CC Criteria: +/- 30%

**Continuing Calibration Summary**

Job Number: FC11715  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q804-CC804  
 Lab FileID: 4Q54881.D

## Continuing Calibration Report

Batch: D:\MassHunter\Data\120823\_1633\_S4Q804\s4q804.batch.bin

## Level ID: Calibration File

1:D:\MassHunter\Data\120823\_1633\_S4Q804\4Q54852.d  
 2:D:\MassHunter\Data\120823\_1633\_S4Q804\4Q54853.d  
 3:D:\MassHunter\Data\120823\_1633\_S4Q804\4Q54854.d  
 4:D:\MassHunter\Data\120823\_1633\_S4Q804\4Q54855.d  
 5:D:\MassHunter\Data\120823\_1633\_S4Q804\4Q54856.d  
 6:D:\MassHunter\Data\120823\_1633\_S4Q804\4Q54857.d  
 7:D:\MassHunter\Data\120823\_1633\_S4Q804\4Q54858.d  
 8:D:\MassHunter\Data\120823\_1633\_S4Q804\4Q54859.d

Data File: 4Q54881  
 Type : QC  
 Level : 4

| Cpnd Name   | Exp. Conc | Final Conc | Dev % | Area % |
|-------------|-----------|------------|-------|--------|
| 13C2-4:2FTS | 5.000     | 4.516      | -9.7  | 90.3   |
| 13C2-6:2FTS | 5.000     | 4.579      | -8.4  | 91.6   |
| 13C2-8:2FTS | 5.000     | 5.028      | 0.6   | 100.6  |
| 13C2-PFDoDA | 1.250     | 1.214      | -2.9  | 97.1   |
| 13C2-PFTeDA | 1.250     | 1.234      | -1.3  | 98.7   |
| 13C3-PFBS   | 2.500     | 2.671      | 6.8   | 106.8  |
| 13C3-PFHxS  | 2.500     | 2.729      | 9.2   | 109.2  |
| 13C4-PFBA   | 10.000    | 9.965      | -0.4  | 99.6   |
| 13C4-PFHpA  | 2.500     | 2.543      | 1.7   | 101.7  |
| 13C5-PFHxA  | 2.500     | 2.557      | 2.3   | 102.3  |
| 13C5-PFPeA  | 5.000     | 5.011      | 0.2   | 100.2  |
| 13C6-PFDA   | 1.250     | 1.249      | -0.1  | 99.9   |
| 13C7-PFUnDA | 1.250     | 1.334      | 6.7   | 106.7  |
| 13C8-FOSA   | 2.500     | 2.605      | 4.2   | 104.2  |
| 13C8-PFOA   | 2.500     | 2.369      | -5.2  | 94.8   |
| 13C8-PFOS   | 2.500     | 2.299      | -8.0  | 92.0   |
| 13C9-PFNA   | 1.250     | 1.217      | -2.7  | 97.3   |
| 4:2FTS      | 9.375     | 9.754      | 4.0   | 104.0  |
| 6:2FTS      | 9.500     | 9.550      | 0.5   | 100.5  |
| 8:2FTS      | 9.600     | 9.547      | -0.6  | 99.4   |
| d3-MeFOSAA  | 5.000     | 4.711      | -5.8  | 94.2   |
| EtFOSAA     | 2.500     | 2.322      | -7.1  | 92.9   |
| FOSA        | 2.500     | 2.258      | -9.7  | 90.3   |
| MeFOSAA     | 2.500     | 2.578      | 3.1   | 103.1  |
| PFBA        | 10.000    | 9.392      | -6.1  | 93.9   |
| PFBS        | 2.218     | 1.966      | -11.4 | 88.6   |
| PFDA        | 2.500     | 2.279      | -8.8  | 91.2   |
| PFDoDA      | 2.500     | 2.450      | -2.0  | 98.0   |
| PFDS        | 2.413     | 2.362      | -2.1  | 97.9   |
| PFHpA       | 2.500     | 2.286      | -8.5  | 91.5   |
| PFHpS       | 2.383     | 2.371      | -0.5  | 99.5   |
| PFHxA       | 2.500     | 2.222      | -11.1 | 88.9   |
| PFHxS       | 2.285     | 1.992      | -12.8 | 87.2   |
| PFNA        | 2.500     | 2.304      | -7.9  | 92.1   |
| PFNS        | 2.405     | 2.536      | 5.5   | 105.5  |
| PFOA        | 2.500     | 2.377      | -4.9  | 95.1   |
| PFOS        | 2.320     | 2.303      | -0.7  | 99.3   |

# Continuing Calibration Summary

Job Number: FC11715  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q804-CC804  
 Lab FileID: 4Q54881.D

|              |        |          |       |       |
|--------------|--------|----------|-------|-------|
| PFPeA        | 5.000  | 4.685    | -6.3  | 93.7  |
| PFPeS        | 2.353  | 2.061    | -12.4 | 87.6  |
| PFTeDA       | 2.500  | 2.289    | -8.4  | 91.6  |
| PFTTrDA      | 2.500  | 2.440    | -2.4  | 97.6  |
| PFUnDA       | 2.500  | 2.305    | -7.8  | 92.2  |
| M4-PFBA      | ---    | --ISTD-- |       |       |
| M5-PFPeA     | ---    | --ISTD-- |       |       |
| M5-PFHxA     | ---    | --ISTD-- |       |       |
| M4-PFHpA     | ---    | --ISTD-- |       |       |
| M8-PFOA      | ---    | --ISTD-- |       |       |
| M9-PFNA      | ---    | --ISTD-- |       |       |
| M6-PFDA      | ---    | --ISTD-- |       |       |
| M7-PFUnDA    | ---    | --ISTD-- |       |       |
| M2-PFDoDA    | ---    | --ISTD-- |       |       |
| M2-PFTeDA    | ---    | --ISTD-- |       |       |
| M8-FOSA      | ---    | --ISTD-- |       |       |
| M3-PFBS      | ---    | --ISTD-- |       |       |
| M3-PFHxS     | ---    | --ISTD-- |       |       |
| M8-PFOS      | ---    | --ISTD-- |       |       |
| M2-4:2FTS    | ---    | --ISTD-- |       |       |
| M2-6:2FTS    | ---    | --ISTD-- |       |       |
| M2-8:2FTS    | ---    | --ISTD-- |       |       |
| M3-MeFOSAA   | ---    | --ISTD-- |       |       |
| 11C1-PF3OUdS | 4.725  | 4.554    | -3.6  | 96.4  |
| 13C3-HFPO-DA | 10.000 | 9.986    | -0.1  | 99.9  |
| 9C1-PF3ONS   | 4.675  | 4.570    | -2.2  | 97.8  |
| ADONA        | 4.725  | 4.896    | 3.6   | 103.6 |
| HFPO-DA      | 5.000  | 4.541    | -9.2  | 90.8  |
| M3-HFPO-DA   | ---    | --ISTD-- |       |       |
| 3:3FTCA      | 12.480 | 11.236   | -10.0 | 90.0  |
| 5:3FTCA      | 62.400 | 57.637   | -7.6  | 92.4  |
| 7:3FTCA      | 62.400 | 58.626   | -6.0  | 94.0  |
| d3-MeFOSA    | 2.500  | 2.276    | -9.0  | 91.0  |
| M5-EtFOSAA   | ---    | --ISTD-- |       |       |
| M7-MeFOSE    | ---    | --ISTD-- |       |       |
| M9-EtFOSE    | ---    | --ISTD-- |       |       |
| M5-EtFOSA    | ---    | --ISTD-- |       |       |
| EtFOSA       | 5.000  | 4.852    | -3.0  | 97.0  |
| EtFOSE       | 12.500 | 11.536   | -7.7  | 92.3  |
| MeFOSA       | 5.000  | 5.010    | 0.2   | 100.2 |
| MeFOSE       | 12.500 | 11.740   | -6.1  | 93.9  |
| PFDoDS       | 2.425  | 2.306    | -4.9  | 95.1  |
| M3-MeFOSA    | ---    | --ISTD-- |       |       |
| d5-EtFOSAA   | 5.000  | 4.959    | -0.8  | 99.2  |
| d7-MeFOSE    | 25.000 | 24.505   | -2.0  | 98.0  |
| d9-EtFOSE    | 25.000 | 25.323   | 1.3   | 101.3 |
| d5-EtFOSA    | 2.500  | 2.202    | -11.9 | 88.1  |
| NFDHA        | 5.000  | 4.420    | -11.6 | 88.4  |
| PFMBA        | 5.000  | 4.672    | -6.6  | 93.4  |
| PFMPA        | 5.000  | 4.621    | -7.6  | 92.4  |
| 13C4-PFOS    | ---    | --ISTD-- |       |       |
| 13C3-PFBA    | ---    | --ISTD-- |       |       |
| 18O2-PFHxS   | ---    | --ISTD-- |       |       |
| 13C4-PFOA    | ---    | --ISTD-- |       |       |
| 13C2-PFDA    | ---    | --ISTD-- |       |       |
| 13C5-PFNA    | ---    | --ISTD-- |       |       |
| 13C2-PFHxA   | ---    | --ISTD-- |       |       |
| PFEEESA      | 4.450  | 4.176    | -6.2  | 93.8  |

CC Criteria: +/- 30%

**Continuing Calibration Summary**

Job Number: FC11715  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q804-CC804  
 Lab FileID: 4Q54893.D

## Continuing Calibration Report

Batch: D:\MassHunter\Data\120823\_1633\_S4Q804\s4q804.batch.bin

## Level ID: Calibration File

1:D:\MassHunter\Data\120823\_1633\_S4Q804\4Q54852.d  
 2:D:\MassHunter\Data\120823\_1633\_S4Q804\4Q54853.d  
 3:D:\MassHunter\Data\120823\_1633\_S4Q804\4Q54854.d  
 4:D:\MassHunter\Data\120823\_1633\_S4Q804\4Q54855.d  
 5:D:\MassHunter\Data\120823\_1633\_S4Q804\4Q54856.d  
 6:D:\MassHunter\Data\120823\_1633\_S4Q804\4Q54857.d  
 7:D:\MassHunter\Data\120823\_1633\_S4Q804\4Q54858.d  
 8:D:\MassHunter\Data\120823\_1633\_S4Q804\4Q54859.d

Data File: 4Q54893  
 Type : QC  
 Level : 4

| Cpnd Name   | Exp. Conc | Final Conc | Dev % | Area % |
|-------------|-----------|------------|-------|--------|
| 13C2-4:2FTS | 5.000     | 5.211      | 4.2   | 104.2  |
| 13C2-6:2FTS | 5.000     | 5.291      | 5.8   | 105.8  |
| 13C2-8:2FTS | 5.000     | 5.311      | 6.2   | 106.2  |
| 13C2-PFDoDA | 1.250     | 1.222      | -2.2  | 97.8   |
| 13C2-PFTeDA | 1.250     | 1.236      | -1.1  | 98.9   |
| 13C3-PFBS   | 2.500     | 2.589      | 3.6   | 103.6  |
| 13C3-PFHxS  | 2.500     | 2.437      | -2.5  | 97.5   |
| 13C4-PFBA   | 10.000    | 10.020     | 0.2   | 100.2  |
| 13C4-PFHpA  | 2.500     | 2.459      | -1.6  | 98.4   |
| 13C5-PFHxA  | 2.500     | 2.524      | 1.0   | 101.0  |
| 13C5-PFPeA  | 5.000     | 5.013      | 0.3   | 100.3  |
| 13C6-PFDA   | 1.250     | 1.254      | 0.4   | 100.4  |
| 13C7-PFUnDA | 1.250     | 1.318      | 5.5   | 105.5  |
| 13C8-FOSA   | 2.500     | 2.481      | -0.8  | 99.2   |
| 13C8-PFOA   | 2.500     | 2.419      | -3.3  | 96.7   |
| 13C8-PFOS   | 2.500     | 2.382      | -4.7  | 95.3   |
| 13C9-PFNA   | 1.250     | 1.255      | 0.4   | 100.4  |
| 4:2FTS      | 9.375     | 8.951      | -4.5  | 95.5   |
| 6:2FTS      | 9.500     | 9.110      | -4.1  | 95.9   |
| 8:2FTS      | 9.600     | 9.610      | 0.1   | 100.1  |
| d3-MeFOSAA  | 5.000     | 5.203      | 4.1   | 104.1  |
| EtFOSAA     | 2.500     | 2.147      | -14.1 | 85.9   |
| FOSA        | 2.500     | 2.236      | -10.6 | 89.4   |
| MeFOSAA     | 2.500     | 2.485      | -0.6  | 99.4   |
| PFBA        | 10.000    | 9.227      | -7.7  | 92.3   |
| PFBS        | 2.218     | 1.926      | -13.2 | 86.8   |
| PFDA        | 2.500     | 2.179      | -12.8 | 87.2   |
| PFDoDA      | 2.500     | 2.500      | 0.0   | 100.0  |
| PFDS        | 2.413     | 2.303      | -4.5  | 95.5   |
| PFHpA       | 2.500     | 2.370      | -5.2  | 94.8   |
| PFHpS       | 2.383     | 2.213      | -7.1  | 92.9   |
| PFHxA       | 2.500     | 2.234      | -10.6 | 89.4   |
| PFHxS       | 2.285     | 2.226      | -2.6  | 97.4   |
| PFNA        | 2.500     | 2.418      | -3.3  | 96.7   |
| PFNS        | 2.405     | 2.664      | 10.8  | 110.8  |
| PFOA        | 2.500     | 2.335      | -6.6  | 93.4   |
| PFOS        | 2.320     | 2.106      | -9.2  | 90.8   |

# Continuing Calibration Summary

Job Number: FC11715  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q804-CC804  
 Lab FileID: 4Q54893.D

|              |        |          |      |       |
|--------------|--------|----------|------|-------|
| PFPeA        | 5.000  | 4.555    | -8.9 | 91.1  |
| PFPeS        | 2.353  | 2.375    | 0.9  | 100.9 |
| PFTeDA       | 2.500  | 2.309    | -7.6 | 92.4  |
| PFTTrDA      | 2.500  | 2.412    | -3.5 | 96.5  |
| PFUnDA       | 2.500  | 2.288    | -8.5 | 91.5  |
| M4-PFBA      | ---    | --ISTD-- |      |       |
| M5-PFPeA     | ---    | --ISTD-- |      |       |
| M5-PFHxA     | ---    | --ISTD-- |      |       |
| M4-PFHpA     | ---    | --ISTD-- |      |       |
| M8-PFOA      | ---    | --ISTD-- |      |       |
| M9-PFNA      | ---    | --ISTD-- |      |       |
| M6-PFDA      | ---    | --ISTD-- |      |       |
| M7-PFUnDA    | ---    | --ISTD-- |      |       |
| M2-PFDoDA    | ---    | --ISTD-- |      |       |
| M2-PFTeDA    | ---    | --ISTD-- |      |       |
| M8-FOSA      | ---    | --ISTD-- |      |       |
| M3-PFBS      | ---    | --ISTD-- |      |       |
| M3-PFHxS     | ---    | --ISTD-- |      |       |
| M8-PFOS      | ---    | --ISTD-- |      |       |
| M2-4:2FTS    | ---    | --ISTD-- |      |       |
| M2-6:2FTS    | ---    | --ISTD-- |      |       |
| M2-8:2FTS    | ---    | --ISTD-- |      |       |
| M3-MeFOSAA   | ---    | --ISTD-- |      |       |
| 11C1-PF3OUdS | 4.725  | 4.826    | 2.1  | 102.1 |
| 13C3-HFPO-DA | 10.000 | 9.334    | -6.7 | 93.3  |
| 9C1-PF3ONS   | 4.675  | 4.786    | 2.4  | 102.4 |
| ADONA        | 4.725  | 5.146    | 8.9  | 108.9 |
| HFPO-DA      | 5.000  | 4.686    | -6.3 | 93.7  |
| M3-HFPO-DA   | ---    | --ISTD-- |      |       |
| 3:3FTCA      | 12.480 | 11.523   | -7.7 | 92.3  |
| 5:3FTCA      | 62.400 | 57.920   | -7.2 | 92.8  |
| 7:3FTCA      | 62.400 | 57.630   | -7.6 | 92.4  |
| d3-MeFOSA    | 2.500  | 2.334    | -6.6 | 93.4  |
| M5-EtFOSAA   | ---    | --ISTD-- |      |       |
| M7-MeFOSE    | ---    | --ISTD-- |      |       |
| M9-EtFOSE    | ---    | --ISTD-- |      |       |
| M5-EtFOSA    | ---    | --ISTD-- |      |       |
| EtFOSA       | 5.000  | 4.602    | -8.0 | 92.0  |
| EtFOSE       | 12.500 | 11.795   | -5.6 | 94.4  |
| MeFOSA       | 5.000  | 4.672    | -6.6 | 93.4  |
| MeFOSE       | 12.500 | 11.317   | -9.5 | 90.5  |
| PFDoDS       | 2.425  | 2.253    | -7.1 | 92.9  |
| M3-MeFOSA    | ---    | --ISTD-- |      |       |
| d5-EtFOSAA   | 5.000  | 4.891    | -2.2 | 97.8  |
| d7-MeFOSE    | 25.000 | 23.293   | -6.8 | 93.2  |
| d9-EtFOSE    | 25.000 | 23.726   | -5.1 | 94.9  |
| d5-EtFOSA    | 2.500  | 2.410    | -3.6 | 96.4  |
| NFDHA        | 5.000  | 4.824    | -3.5 | 96.5  |
| PFMBA        | 5.000  | 4.587    | -8.3 | 91.7  |
| PFMPA        | 5.000  | 4.623    | -7.5 | 92.5  |
| 13C4-PFOS    | ---    | --ISTD-- |      |       |
| 13C3-PFBA    | ---    | --ISTD-- |      |       |
| 18O2-PFHxS   | ---    | --ISTD-- |      |       |
| 13C4-PFOA    | ---    | --ISTD-- |      |       |
| 13C2-PFDA    | ---    | --ISTD-- |      |       |
| 13C5-PFNA    | ---    | --ISTD-- |      |       |
| 13C2-PFHxA   | ---    | --ISTD-- |      |       |
| PFEEESA      | 4.450  | 4.110    | -7.6 | 92.4  |

CC Criteria: +/- 30%

## Run Sequence Report

Job Number: FC11715  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

| Run ID: S4Q804 | Method: EPA DRAFT 1633 | Instrument ID: GCMS4Q |               |                               |
|----------------|------------------------|-----------------------|---------------|-------------------------------|
| Lab Sample ID  | Lab File ID            | Date/Time Analyzed    | Prep QC Batch | Client Sample ID              |
| S4Q804-RT      | 4Q54849.D              | 12/08/23 10:54        | n/a           | Retention Time Marker         |
| S4Q804-RT      | 4Q54850.D              | 12/08/23 11:08        | n/a           | Retention Time Marker         |
| S4Q804-IC804   | 4Q54851.D              | 12/08/23 11:23        | n/a           | Mass Calibration Verification |
| S4Q804-IC804   | 4Q54852.D              | 12/08/23 11:38        | n/a           | Initial cal 1                 |
| S4Q804-IC804   | 4Q54853.D              | 12/08/23 11:53        | n/a           | Initial cal 2                 |
| S4Q804-IC804   | 4Q54854.D              | 12/08/23 12:07        | n/a           | Initial cal 3                 |
| S4Q804-ICC804  | 4Q54855.D              | 12/08/23 12:22        | n/a           | Initial cal 4                 |
| S4Q804-IC804   | 4Q54856.D              | 12/08/23 12:37        | n/a           | Initial cal 5                 |
| S4Q804-IC804   | 4Q54857.D              | 12/08/23 12:52        | n/a           | Initial cal 6                 |
| S4Q804-IC804   | 4Q54858.D              | 12/08/23 13:06        | n/a           | Initial cal 7                 |
| S4Q804-IC804   | 4Q54859.D              | 12/08/23 13:21        | n/a           | Initial cal 8                 |
| S4Q804-IBLK    | 4Q54860.D              | 12/08/23 13:36        | n/a           | Instrument Blank              |
| S4Q804-IBLK    | 4Q54860.D              | 12/08/23 13:36        | n/a           | Instrument Blank              |
| S4Q804-ICV804  | 4Q54861.D              | 12/08/23 13:51        | n/a           | Initial cal verification 4    |
| S4Q804-ICV804  | 4Q54862.D              | 12/08/23 14:05        | n/a           | Initial cal verification 20   |
| S4Q804-CC804   | 4Q54863.D              | 12/08/23 14:20        | n/a           | Continuing cal 4              |
| S4Q804-CC804   | 4Q54864.D              | 12/08/23 14:40        | n/a           | Continuing cal 1.0LL          |
| OP471-BS       | 4Q54865.D              | 12/08/23 14:55        | OP471         | Blank Spike                   |
| OP471-LLBS     | 4Q54866.D              | 12/08/23 15:10        | OP471         | Blank Spike                   |
| OP471-MB       | 4Q54867.D              | 12/08/23 15:24        | OP471         | Method Blank                  |
| ZZZZZZ         | 4Q54868.D              | 12/08/23 15:39        | OP471         | (unrelated sample)            |
| ZZZZZZ         | 4Q54869.D              | 12/08/23 15:54        | OP471         | (unrelated sample)            |
| ZZZZZZ         | 4Q54870.D              | 12/08/23 16:09        | OP471         | (unrelated sample)            |
| ZZZZZZ         | 4Q54871.D              | 12/08/23 16:24        | OP471         | (unrelated sample)            |
| S4Q804-CC804   | 4Q54872.D              | 12/08/23 16:39        | n/a           | Continuing cal 4              |
| S4Q804-ICCB    | 4Q54873.D              | 12/08/23 16:53        | n/a           | Continuing Calibration Blank  |
| S4Q804-ICCB    | 4Q54873.D              | 12/08/23 16:53        | n/a           | Continuing Calibration Blank  |
| S4Q804-CC804   | 4Q54881.D              | 12/08/23 18:52        | n/a           | Continuing cal 4              |
| S4Q804-ICCB    | 4Q54882.D              | 12/08/23 19:06        | n/a           | Continuing Calibration Blank  |
| S4Q804-ICCB    | 4Q54882.D              | 12/08/23 19:06        | n/a           | Continuing Calibration Blank  |
| OP495-BS       | 4Q54883.D              | 12/08/23 19:21        | OP495         | Blank Spike                   |
| OP495-LLBS     | 4Q54884.D              | 12/08/23 19:36        | OP495         | Blank Spike                   |
| OP495-MB       | 4Q54885.D              | 12/08/23 19:51        | OP495         | Method Blank                  |
| ZZZZZZ         | 4Q54886.D              | 12/08/23 20:05        | OP495         | (unrelated sample)            |
| FC11715-1      | 4Q54887.D              | 12/08/23 20:20        | OP495         | AF-RHMW225401-WGN01B-2312     |
| FC11715-2      | 4Q54888.D              | 12/08/23 20:35        | OP495         | AF-RHMW04-WGN01LF-2312        |
| OP495-MS       | 4Q54889.D              | 12/08/23 20:50        | OP495         | Matrix Spike                  |
| FC11715-3      | 4Q54890.D              | 12/08/23 21:04        | OP495         | AF-RHMW06-WGN01LF-2312        |
| OP495-DUP      | 4Q54891.D              | 12/08/23 21:19        | OP495         | Duplicate                     |
| FC11715-4      | 4Q54892.D              | 12/08/23 21:34        | OP495         | AF-RHMW10-WGN01LF-2312        |
| S4Q804-CC804   | 4Q54893.D              | 12/08/23 21:49        | n/a           | Continuing cal 4              |
| S4Q804-ICCB    | 4Q54894.D              | 12/08/23 22:03        | n/a           | Continuing Calibration Blank  |
| OP496-BS       | 4Q54895.D              | 12/08/23 22:18        | OP496         | Blank Spike                   |
| OP496-LLBS     | 4Q54896.D              | 12/08/23 22:33        | OP496         | Blank Spike                   |
| OP496-MB       | 4Q54897.D              | 12/08/23 22:48        | OP496         | Method Blank                  |
| ZZZZZZ         | 4Q54898.D              | 12/08/23 23:02        | OP496         | (unrelated sample)            |



# Run Sequence Report

Job Number: FC11715  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

|                |                        |                       |
|----------------|------------------------|-----------------------|
| Run ID: S4Q804 | Method: EPA DRAFT 1633 | Instrument ID: GCMS4Q |
|----------------|------------------------|-----------------------|

| Lab Sample ID | Lab File ID | Date/Time Analyzed | Prep QC Batch | Client Sample ID                            |
|---------------|-------------|--------------------|---------------|---|
| ZZZZZZ        | 4Q54899.D   | 12/08/23 23:17     | OP496         | (unrelated sample)                          |
| ZZZZZZ        | 4Q54900.D   | 12/08/23 23:32     | OP496         | (unrelated sample)                          |
| ZZZZZZ        | 4Q54901.D   | 12/08/23 23:47     | OP496         | (unrelated sample)                          |
| ZZZZZZ        | 4Q54902.D   | 12/09/23 00:01     | OP496         | (unrelated sample)                          |
| FC11673-1     | 4Q54903.D   | 12/09/23 00:16     | OP496         | (used for QC only; not part of job FC11715) |
| OP496-MS      | 4Q54904.D   | 12/09/23 00:31     | OP496         | Matrix Spike                                |
| S4Q804-CC804  | 4Q54905.D   | 12/09/23 00:46     | n/a           | Continuing cal 4                            |
| S4Q804-ICCB   | 4Q54906.D   | 12/09/23 01:00     | n/a           | Continuing Calibration Blank                |
| FC11673-2     | 4Q54907.D   | 12/09/23 01:15     | OP496         | (used for QC only; not part of job FC11715) |
| OP496-DUP     | 4Q54908.D   | 12/09/23 01:30     | OP496         | Duplicate                                   |
| ZZZZZZ        | 4Q54909.D   | 12/09/23 01:45     | OP496         | (unrelated sample)                          |
| ZZZZZZ        | 4Q54910.D   | 12/09/23 01:59     | OP496         | (unrelated sample)                          |
| ZZZZZZ        | 4Q54911.D   | 12/09/23 02:14     | OP496         | (unrelated sample)                          |
| OP519-BS      | 4Q54912.D   | 12/09/23 02:29     | OP519         | Blank Spike                                 |
| OP519-LLBS    | 4Q54913.D   | 12/09/23 02:44     | OP519         | Blank Spike                                 |
| OP519-MB      | 4Q54914.D   | 12/09/23 02:59     | OP519         | Method Blank                                |
| ZZZZZZ        | 4Q54915.D   | 12/09/23 03:13     | OP519         | (unrelated sample)                          |
| ZZZZZZ        | 4Q54916.D   | 12/09/23 03:28     | OP519         | (unrelated sample)                          |
| S4Q804-CC804  | 4Q54917.D   | 12/09/23 03:43     | n/a           | Continuing cal 4                            |
| S4Q804-ICCB   | 4Q54918.D   | 12/09/23 03:58     | n/a           | Continuing Calibration Blank                |
| ZZZZZZ        | 4Q54919.D   | 12/09/23 04:12     | OP519         | (unrelated sample)                          |
| ZZZZZZ        | 4Q54920.D   | 12/09/23 04:27     | OP519         | (unrelated sample)                          |
| ZZZZZZ        | 4Q54921.D   | 12/09/23 04:42     | OP519         | (unrelated sample)                          |
| ZZZZZZ        | 4Q54922.D   | 12/09/23 04:57     | OP519         | (unrelated sample)                          |
| ZZZZZZ        | 4Q54923.D   | 12/09/23 05:11     | OP519         | (unrelated sample)                          |
| ZZZZZZ        | 4Q54924.D   | 12/09/23 05:26     | OP519         | (unrelated sample)                          |
| ZZZZZZ        | 4Q54925.D   | 12/09/23 05:41     | OP519         | (unrelated sample)                          |
| ZZZZZZ        | 4Q54926.D   | 12/09/23 05:56     | OP519         | (unrelated sample)                          |
| ZZZZZZ        | 4Q54927.D   | 12/09/23 06:10     | OP519         | (unrelated sample)                          |
| FC11645-12    | 4Q54928.D   | 12/09/23 06:25     | OP519         | (used for QC only; not part of job FC11715) |
| S4Q804-CC804  | 4Q54929.D   | 12/09/23 06:40     | n/a           | Continuing cal 4                            |
| S4Q804-ICCB   | 4Q54930.D   | 12/09/23 06:55     | n/a           | Continuing Calibration Blank                |
| OP519-MS      | 4Q54931.D   | 12/09/23 07:10     | OP519         | Matrix Spike                                |
| ZZZZZZ        | 4Q54932.D   | 12/09/23 07:24     | OP519         | (unrelated sample)                          |
| FC11645-14    | 4Q54933.D   | 12/09/23 07:39     | OP519         | (used for QC only; not part of job FC11715) |
| OP519-DUP     | 4Q54934.D   | 12/09/23 07:54     | OP519         | Duplicate                                   |
| ZZZZZZ        | 4Q54935.D   | 12/09/23 08:09     | OP519         | (unrelated sample)                          |
| ZZZZZZ        | 4Q54936.D   | 12/09/23 08:23     | OP519         | (unrelated sample)                          |
| ZZZZZZ        | 4Q54937.D   | 12/09/23 08:38     | OP519         | (unrelated sample)                          |
| ZZZZZZ        | 4Q54938.D   | 12/09/23 08:53     | OP519         | (unrelated sample)                          |
| S4Q804-ECC804 | 4Q54940.D   | 12/09/23 09:22     | n/a           | Ending cal 4                                |
| S4Q804-ICCB   | 4Q54941.D   | 12/09/23 09:37     | n/a           | Continuing Calibration Blank                |

6-10-1  
6



**MS Semi-volatiles**

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**Raw Data**

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### Perfluorinated Compounds by LC/MS/MS

Data File : 4Q54887.d  
Operator : annal  
Acq. Method : 1633full\_4Q.m  
Acq. Date-Time : 12/8/2023 8:20:40 PM  
Sample Name : fc11715-1  
Vial : P2-C9  
DA Method File : 1633\_120823\_S4Q804.quantmethod.xml  
Batch Name : s4q804.batch.bin  
Sample Information : OP495,S4Q804,550,,,5.0,1,water

| Compound                  | RT     | Transition     | Response | Conc. Units | Dev(Min) |
|---------------------------|--------|----------------|----------|-------------|----------|
| <b>Internal Standards</b> |        |                |          |             |          |
| M4-PFBA                   | 2.752  | 216.8 -> 171.9 | 94687    | 10.00 µg/L  | 0.078    |
| M5-PFPeA                  | 4.200  | 268.3 -> 223.0 | 37942    | 5.00 µg/L   | 0.037    |
| M5-PFHxA                  | 5.372  | 318.0 -> 273.0 | 29216    | 2.50 µg/L   | 0.037    |
| M4-PFHpA                  | 6.317  | 367.1 -> 322.0 | 28013    | 2.50 µg/L   | 0.025    |
| M8-PFOA                   | 7.001  | 421.1 -> 376.0 | 45556    | 2.50 µg/L   | 0.025    |
| M9-PFNA                   | 7.534  | 472.1 -> 427.0 | 17362    | 1.25 µg/L   | 0.012    |
| M6-PFDA                   | 8.029  | 519.1 -> 474.1 | 11822    | 1.25 µg/L   | 0.025    |
| M7-PFUnDA                 | 8.473  | 570.0 -> 525.1 | 13773    | 1.25 µg/L   | 0.025    |
| M2-PFDoDA                 | 8.905  | 615.1 -> 570.0 | 13857    | 1.25 µg/L   | 0.025    |
| M2-PFTeDA                 | 9.662  | 715.2 -> 670.0 | 13268    | 1.25 µg/L   | 0.025    |
| M8-FOSA                   | 9.818  | 506.1 -> 77.8  | 6512     | 2.50 µg/L   | 0.025    |
| M3-PFBS                   | 5.227  | 302.1 -> 79.9  | 8219     | 2.50 µg/L   | 0.038    |
| M3-PFHxS                  | 7.054  | 402.1 -> 79.9  | 7113     | 2.50 µg/L   | 0.025    |
| M8-PFOS                   | 8.143  | 507.1 -> 79.9  | 7070     | 2.50 µg/L   | 0.026    |
| M2-4:2FTS                 | 5.071  | 329.1 -> 80.9  | 882      | 5.00 µg/L   | 0.025    |
| M2-6:2FTS                 | 6.786  | 429.1 -> 80.9  | 2113     | 5.00 µg/L   | 0.037    |
| M2-8:2FTS                 | 7.828  | 529.1 -> 80.9  | 2969     | 5.00 µg/L   | 0.025    |
| M3-MeFOSAA                | 8.111  | 573.2 -> 419.0 | 15807    | 5.00 µg/L   | 0.025    |
| M3-HFPO-DA                | 5.714  | 286.9 -> 168.9 | 27859    | 10.00 µg/L  | 0.025    |
| M5-EtFOSAA                | 8.309  | 589.2 -> 419.0 | 12530    | 5.00 µg/L   | 0.026    |
| M7-MeFOSE                 | 11.047 | 623.2 -> 58.9  | 26798    | 25.00 µg/L  | 0.025    |
| M9-EtFOSE                 | 11.331 | 639.2 -> 58.9  | 39047    | 25.00 µg/L  | 0.012    |
| M5-EtFOSA                 | 11.410 | 531.1 -> 219.0 | 5071     | 2.50 µg/L   | 0.012    |
| M3-MeFOSA                 | 11.139 | 515.0 -> 219.0 | 4044     | 2.50 µg/L   | 0.012    |
| 13C4-PFOS                 | 8.144  | 502.8 -> 79.9  | 5674     | 2.50 µg/L   | 0.026    |
| 13C3-PFBA                 | 2.755  | 216.0 -> 172.0 | 39842    | 5.00 µg/L   | 0.077    |
| 18O2-PFHxS                | 7.066  | 403.0 -> 83.9  | 3650     | 2.50 µg/L   | 0.025    |
| 13C4-PFOA                 | 7.002  | 417.1 -> 372.0 | 44215    | 2.50 µg/L   | 0.025    |
| 13C2-PFDA                 | 8.029  | 515.1 -> 470.1 | 12502    | 1.25 µg/L   | 0.025    |
| 13C5-PFNA                 | 7.534  | 468.0 -> 423.0 | 16307    | 1.25 µg/L   | 0.025    |
| 13C2-PFHxA                | 5.373  | 315.1 -> 270.0 | 28597    | 2.50 µg/L   | 0.037    |

**System Monitoring Compounds**

|                     |                      |                |                   |           |       |
|---------------------|----------------------|----------------|-------------------|-----------|-------|
| 13C2-4:2FTS         | 5.071                | 329.1 -> 80.9  | 882               | 5.09 µg/L | 0.025 |
| Spiked Amount: 5.00 | Range: 50.0 - 150.0% |                | Recovery = 101.8% |           |       |
| 13C2-6:2FTS         | 6.786                | 429.1 -> 80.9  | 2113              | 5.62 µg/L | 0.037 |
| Spiked Amount: 5.00 | Range: 50.0 - 150.0% |                | Recovery = 112.4% |           |       |
| 13C2-8:2FTS         | 7.828                | 529.1 -> 80.9  | 2969              | 5.90 µg/L | 0.025 |
| Spiked Amount: 5.00 | Range: 50.0 - 150.0% |                | Recovery = 118.0% |           |       |
| 13C2-PFDoDA         | 8.905                | 615.1 -> 570.0 | 13857             | 1.11 µg/L | 0.025 |
| Spiked Amount: 1.25 | Range: 50.0 - 150.0% |                | Recovery = 88.7%  |           |       |
| 13C2-PFTeDA         | 9.662                | 715.2 -> 670.0 | 13268             | 1.07 µg/L | 0.025 |
| Spiked Amount: 1.25 | Range: 50.0 - 150.0% |                | Recovery = 85.5%  |           |       |
| 13C3-PFBS           | 5.227                | 302.1 -> 79.9  | 8219              | 2.94 µg/L | 0.038 |
| Spiked Amount: 2.50 | Range: 50.0 - 150.0% |                | Recovery = 117.5% |           |       |
| 13C3-PFHxS          | 7.054                | 402.1 -> 79.9  | 7113              | 3.11 µg/L | 0.025 |

7.1.1  
7

Perfluorinated Compounds by LC/MS/MS

| Compound             | RT                   | Transition     | Response          | Conc. Units | Dev(Min) |
|----------------------|----------------------|----------------|-------------------|-------------|----------|
| Spiked Amount: 2.50  | Range: 50.0 - 150.0% |                | Recovery = 124.3% |             |          |
| 13C4-PFBA            | 2.752                | 216.8 -> 171.9 | 94687             | 11.32 µg/L  | 0.078    |
| Spiked Amount: 10.00 | Range: 50.0 - 150.0% |                | Recovery = 113.2% |             |          |
| 13C4-PFHpA           | 6.317                | 367.1 -> 322.0 | 28013             | 2.78 µg/L   | 0.025    |
| Spiked Amount: 2.50  | Range: 50.0 - 150.0% |                | Recovery = 111.2% |             |          |
| 13C5-PFHxA           | 5.372                | 318.0 -> 273.0 | 29216             | 2.77 µg/L   | 0.037    |
| Spiked Amount: 2.50  | Range: 50.0 - 150.0% |                | Recovery = 110.9% |             |          |
| 13C5-PFPeA           | 4.200                | 268.3 -> 223.0 | 37942             | 5.78 µg/L   | 0.037    |
| Spiked Amount: 5.00  | Range: 50.0 - 150.0% |                | Recovery = 115.6% |             |          |
| 13C6-PFDA            | 8.029                | 519.1 -> 474.1 | 11822             | 1.30 µg/L   | 0.025    |
| Spiked Amount: 1.25  | Range: 50.0 - 150.0% |                | Recovery = 104.0% |             |          |
| 13C7-PFUnDA          | 8.473                | 570.0 -> 525.1 | 13773             | 1.28 µg/L   | 0.025    |
| Spiked Amount: 1.25  | Range: 50.0 - 150.0% |                | Recovery = 102.7% |             |          |
| 13C8-FOSA            | 9.818                | 506.1 -> 77.8  | 6512              | 1.77 µg/L   | 0.025    |
| Spiked Amount: 2.50  | Range: 50.0 - 150.0% |                | Recovery = 70.8%  |             |          |
| 13C8-PFOA            | 7.001                | 421.1 -> 376.0 | 45556             | 2.79 µg/L   | 0.025    |
| Spiked Amount: 2.50  | Range: 50.0 - 150.0% |                | Recovery = 111.5% |             |          |
| 13C8-PFOS            | 8.143                | 507.1 -> 79.9  | 7070              | 2.46 µg/L   | 0.026    |
| Spiked Amount: 2.50  | Range: 50.0 - 150.0% |                | Recovery = 98.4%  |             |          |
| 13C9-PFNA            | 7.534                | 472.1 -> 427.0 | 17362             | 1.33 µg/L   | 0.012    |
| Spiked Amount: 1.25  | Range: 50.0 - 150.0% |                | Recovery = 106.3% |             |          |
| d3-MeFOSAA           | 8.111                | 573.2 -> 419.0 | 15807             | 5.02 µg/L   | 0.025    |
| Spiked Amount: 5.00  | Range: 50.0 - 150.0% |                | Recovery = 100.4% |             |          |
| 13C3-HFPO-DA         | 5.714                | 286.9 -> 168.9 | 27859             | 10.58 µg/L  | 0.025    |
| Spiked Amount: 10.00 | Range: 50.0 - 150.0% |                | Recovery = 105.8% |             |          |
| d3-MeFOSA            | 11.139               | 515.0 -> 219.0 | 4044              | 1.84 µg/L   | 0.012    |
| Spiked Amount: 2.50  | Range: 50.0 - 150.0% |                | Recovery = 73.7%  |             |          |
| d5-EtFOSAA           | 8.309                | 589.2 -> 419.0 | 12530             | 4.70 µg/L   | 0.026    |
| Spiked Amount: 5.00  | Range: 50.0 - 150.0% |                | Recovery = 94.0%  |             |          |
| d7-MeFOSE            | 11.047               | 623.2 -> 58.9  | 26798             | 14.77 µg/L  | 0.025    |
| Spiked Amount: 25.00 | Range: 50.0 - 150.0% |                | Recovery = 59.1%  |             |          |
| d9-EtFOSE            | 11.331               | 639.2 -> 58.9  | 39047             | 19.22 µg/L  | 0.012    |
| Spiked Amount: 25.00 | Range: 50.0 - 150.0% |                | Recovery = 76.9%  |             |          |
| d5-EtFOSA            | 11.410               | 531.1 -> 219.0 | 5071              | 2.11 µg/L   | 0.012    |
| Spiked Amount: 2.50  | Range: 50.0 - 150.0% |                | Recovery = 84.3%  |             |          |

| Target Compounds | RT    | Transition     | Response | Conc. Units | QValue |
|------------------|-------|----------------|----------|-------------|--------|
| 4:2FTS           | -     | 327.1 -> 307.0 | -        | N.D.        |        |
|                  |       | 327.1 -> 80.9  |          |             |        |
| 6:2FTS           | -     | 427.1 -> 407.0 | -        | N.D.        |        |
|                  |       | 427.1 -> 80.9  |          |             |        |
| 8:2FTS           | -     | 527.1 -> 507.0 | -        | N.D.        |        |
|                  |       | 527.1 -> 80.8  |          |             |        |
| EtFOSAA          | -     | 584.2 -> 419.1 | -        | N.D.        |        |
|                  |       | 584.2 -> 526.0 |          |             |        |
| FOSA             | -     | 498.1 -> 77.9  | -        | N.D.        |        |
|                  |       | 498.1 -> 478.0 |          |             |        |
| MeFOSAA          | -     | 570.1 -> 419.0 | -        | N.D.        |        |
|                  |       | 570.1 -> 483.0 |          |             |        |
| PFBA             | -     | 212.8 -> 168.9 | -        | N.D.        |        |
| PFBS             | 5.216 | 298.7 -> 79.9  | 177      | 0.07 µg/L   | m 99   |
|                  |       | 298.7 -> 98.8  | 73       |             |        |
| PFDA             | 8.391 | 512.9 -> 469.0 | 0        | µg/L        | m 1    |
|                  |       | 512.9 -> 219.0 | 0        |             |        |
| PFDODA           | -     | 613.1 -> 569.0 | -        | N.D.        |        |
|                  |       | 613.1 -> 319.0 |          |             |        |
| PFDS             | -     | 599.0 -> 79.9  | -        | N.D.        |        |

Perfluorinated Compounds by LC/MS/MS

| Compound     | RT    | Transition     | Response | Conc. | Units | Dev(Min) |
|--------------|-------|----------------|----------|-------|-------|----------|
| PFHpA        | 6.317 | 599.0 -> 98.8  |          |       |       |          |
|              |       | 363.1 -> 319.0 | 1022     | 0.06  | µg/L  | 90       |
| PFHpS        | -     | 363.1 -> 169.0 | 143      |       |       |          |
|              |       | 449.0 -> 79.9  | -        | N.D.  |       |          |
| PFHxA        | 5.362 | 449.0 -> 98.9  |          |       |       |          |
|              |       | 313.0 -> 269.0 | 716      | 0.08  | µg/L  | 100      |
| PFHxS        | 7.055 | 313.0 -> 118.9 | 20       |       |       |          |
|              |       | 398.7 -> 79.9  | 292      | 0.13  | µg/L  | m 65     |
| PFNA         | -     | 398.7 -> 98.9  | 208      |       |       |          |
|              |       | 463.0 -> 419.0 | -        | N.D.  |       |          |
| PFNS         | -     | 463.0 -> 219.0 |          |       |       |          |
|              |       | 548.8 -> 79.9  | -        | N.D.  |       |          |
| PFOA         | 7.003 | 548.8 -> 98.9  |          |       |       |          |
|              |       | 413.0 -> 369.0 | 2161     | 0.12  | µg/L  | m 97     |
| PFOS         | -     | 413.0 -> 169.0 | 452      |       |       |          |
|              |       | 498.9 -> 79.9  | -        | N.D.  |       |          |
| PFPeA        | 4.189 | 498.9 -> 98.8  |          |       |       |          |
|              |       | 263.0 -> 219.0 | 819      | 0.11  | µg/L  | 100      |
| PFPeS        | -     | 349.1 -> 79.9  | -        | N.D.  |       |          |
|              |       | 349.1 -> 98.9  |          |       |       |          |
| PFTeDA       | -     | 713.1 -> 669.0 | -        | N.D.  |       |          |
|              |       | 713.1 -> 168.9 |          |       |       |          |
| PFTrDA       | -     | 663.0 -> 619.0 | -        | N.D.  |       |          |
|              |       | 663.0 -> 168.9 |          |       |       |          |
| PFUnDA       | -     | 563.1 -> 519.0 | -        | N.D.  |       |          |
|              |       | 563.1 -> 269.1 |          |       |       |          |
| 11Cl-PF3OUdS | -     | 630.9 -> 450.9 | -        | N.D.  |       |          |
|              |       | 632.9 -> 452.9 |          |       |       |          |
| 9Cl-PF3ONS   | -     | 530.8 -> 351.0 | -        | N.D.  |       |          |
|              |       | 532.8 -> 353.0 |          |       |       |          |
| ADONA        | -     | 376.9 -> 250.9 | -        | N.D.  |       |          |
|              |       | 376.9 -> 84.8  |          |       |       |          |
| HFPO-DA      | -     | 284.9 -> 168.9 | -        | N.D.  |       |          |
|              |       | 284.9 -> 184.9 |          |       |       |          |
| 3:3FTCA      | -     | 241.0 -> 177.0 | -        | N.D.  |       |          |
|              |       | 241.0 -> 117.0 |          |       |       |          |
| 5:3FTCA      | -     | 341.0 -> 237.1 | -        | N.D.  |       |          |
|              |       | 341.0 -> 217.0 |          |       |       |          |
| 7:3FTCA      | -     | 441.0 -> 316.9 | -        | N.D.  |       |          |
|              |       | 441.0 -> 336.9 |          |       |       |          |
| EtFOSA       | -     | 526.0 -> 219.0 | -        | N.D.  |       |          |
|              |       | 526.0 -> 169.0 |          |       |       |          |
| EtFOSE       | -     | 630.0 -> 58.9  | -        | N.D.  |       |          |
|              |       | 511.9 -> 219.0 | -        | N.D.  |       |          |
| MeFOSA       | -     | 511.9 -> 169.0 |          |       |       |          |
|              |       | 616.1 -> 58.9  | -        | N.D.  |       |          |
| MeFOSE       | -     | 699.1 -> 79.9  | -        | N.D.  |       |          |
|              |       | 699.1 -> 98.8  |          |       |       |          |
| PFDoDS       | -     | 295.0 -> 201.0 | -        | N.D.  |       |          |
|              |       | 295.0 -> 84.9  |          |       |       |          |
| NFDHA        | -     | 279.0 -> 85.1  | -        | N.D.  |       |          |
|              |       | 229.0 -> 84.9  | -        | N.D.  |       |          |
| PFMBA        | -     | 314.8 -> 134.9 | -        | N.D.  |       |          |
|              |       | 314.8 -> 82.9  |          |       |       |          |
| PFEESA       | -     |                |          |       |       |          |
|              |       |                |          |       |       |          |

# = Qualifier out of range, m = manually integrated, + = Area summed

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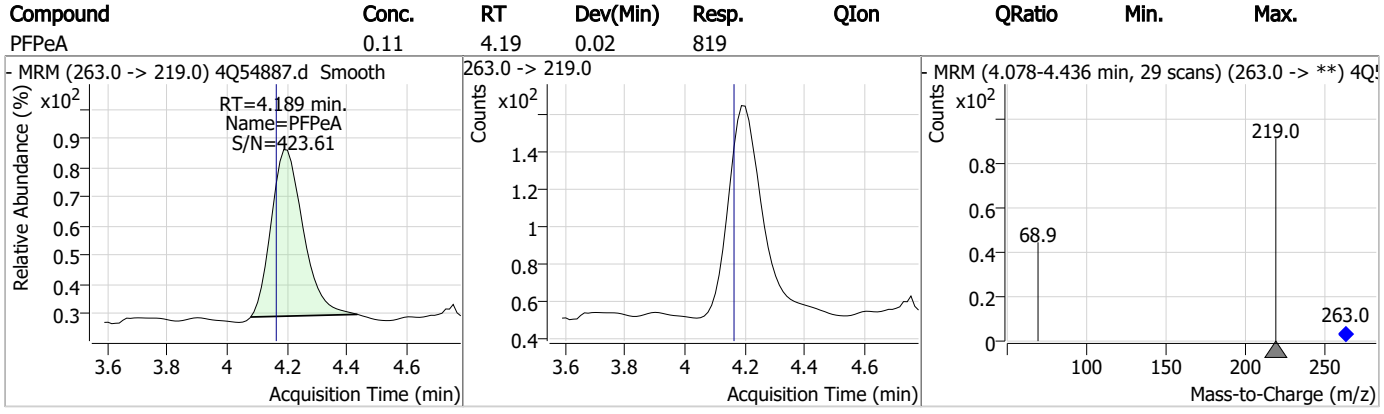
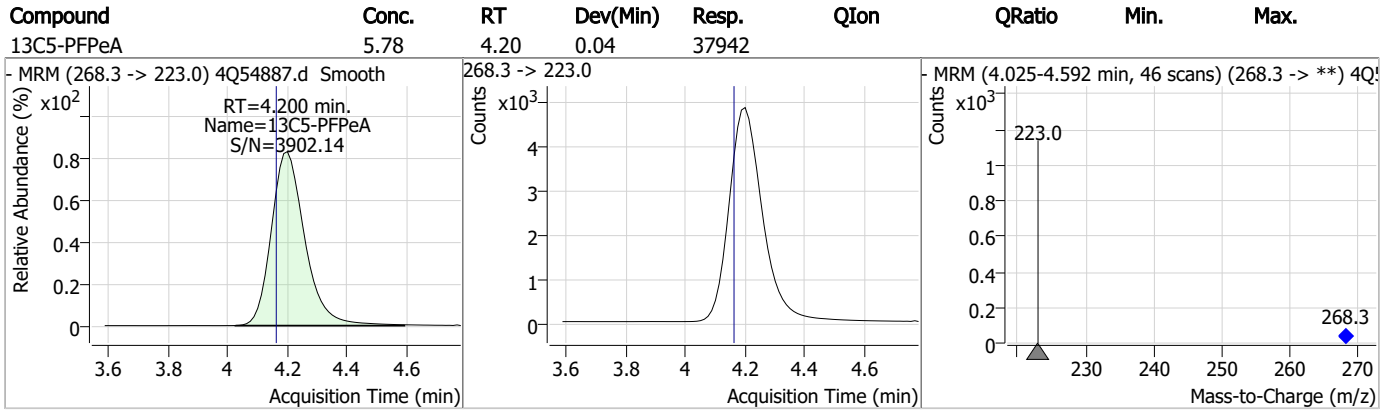
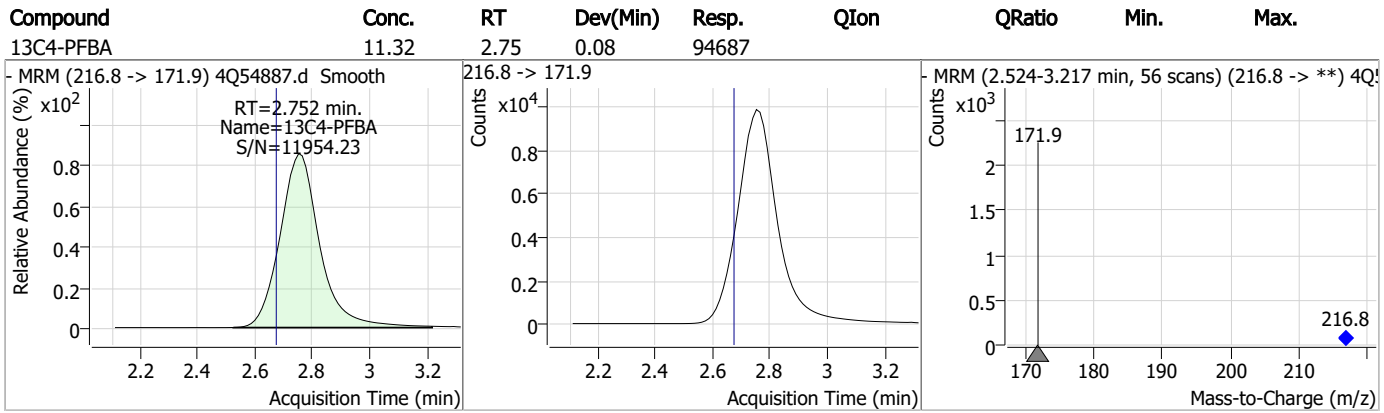
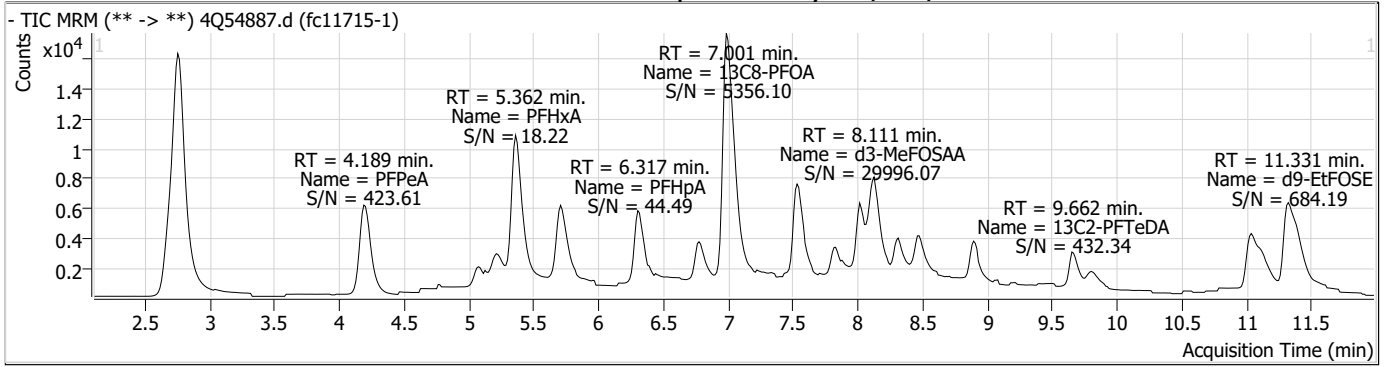
### Perfluorinated Compounds by LC/MS/MS

| Compound | RT | Transition | Response | Conc. Units | Dev(Min) |
|----------|----|------------|----------|-------------|----------|
|----------|----|------------|----------|-------------|----------|

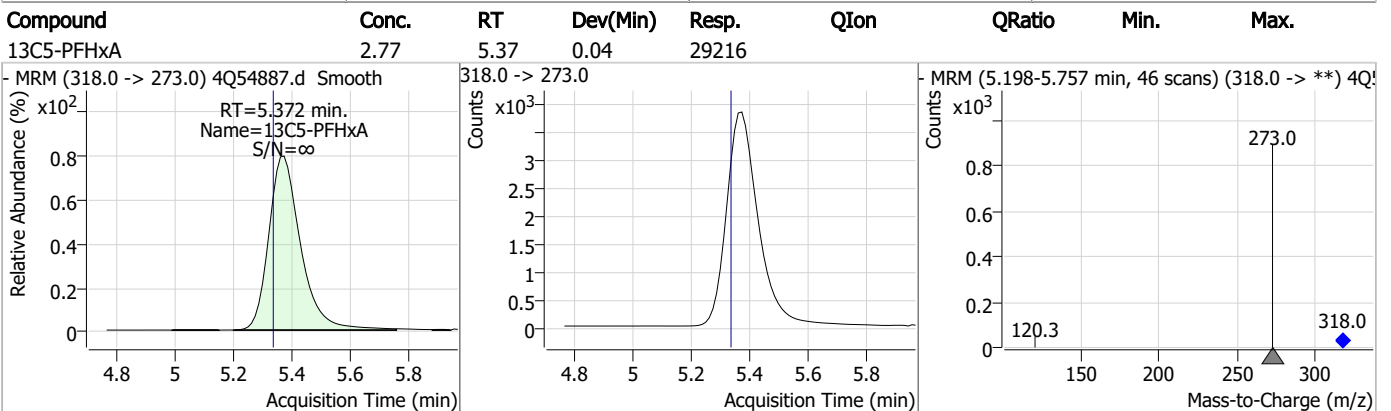
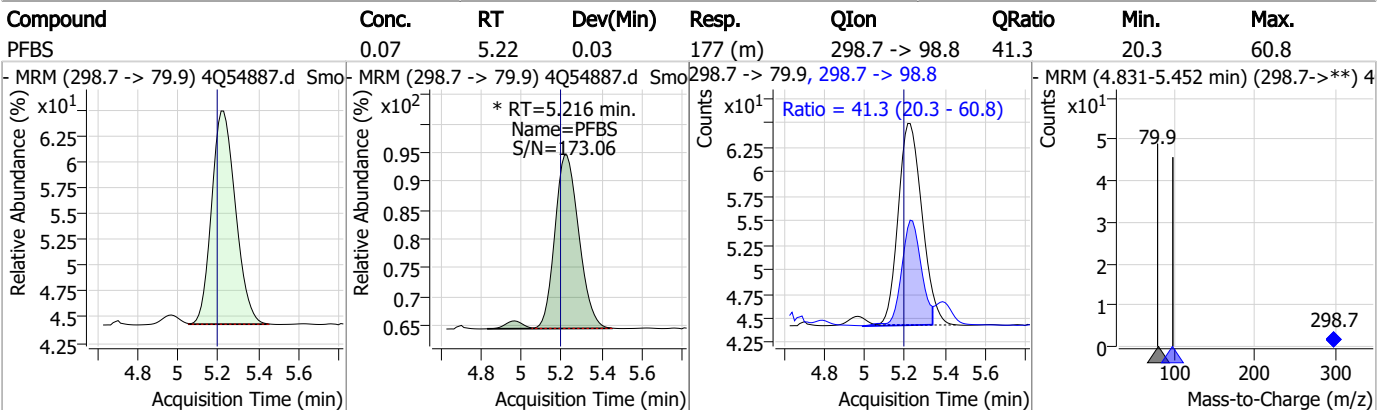
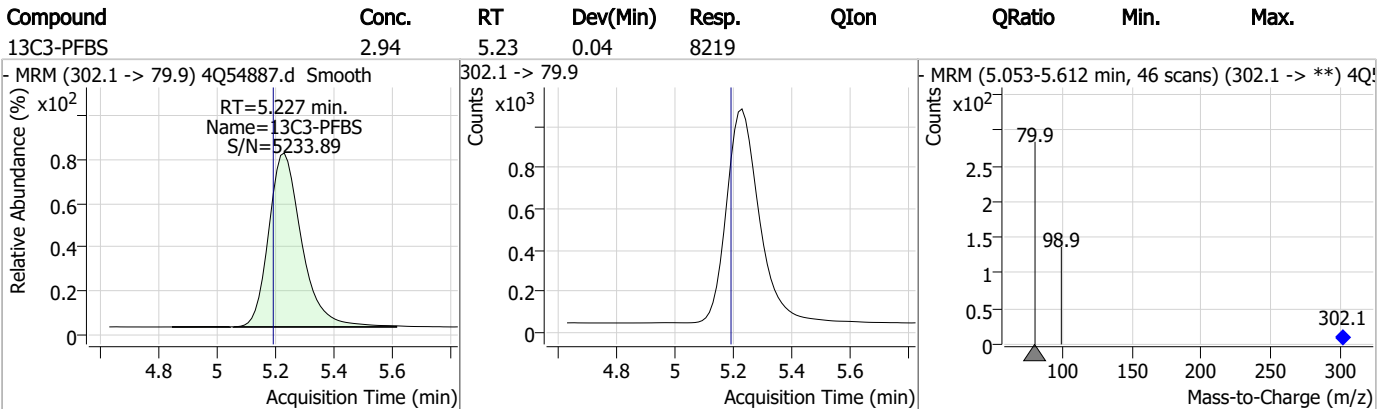
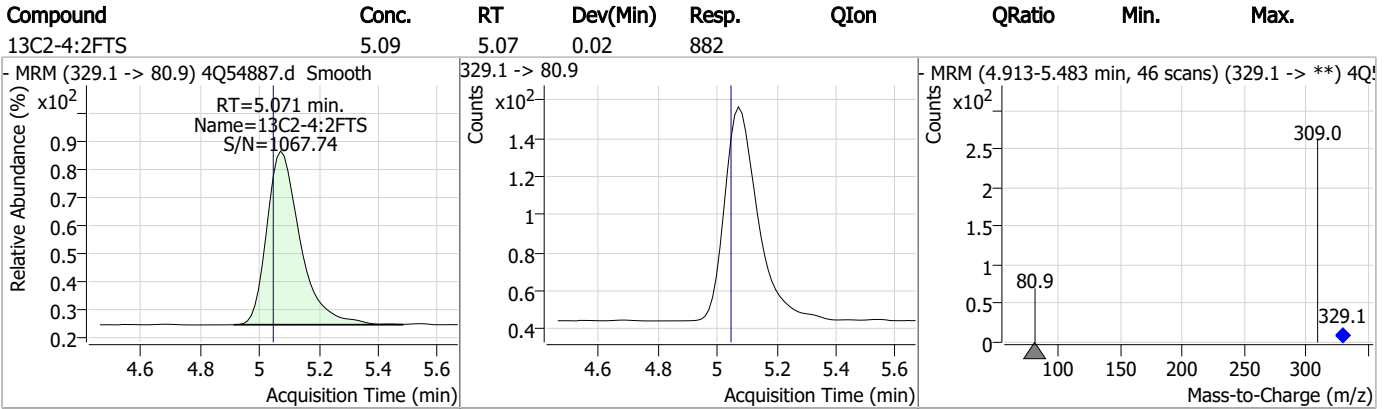
7.1.1  
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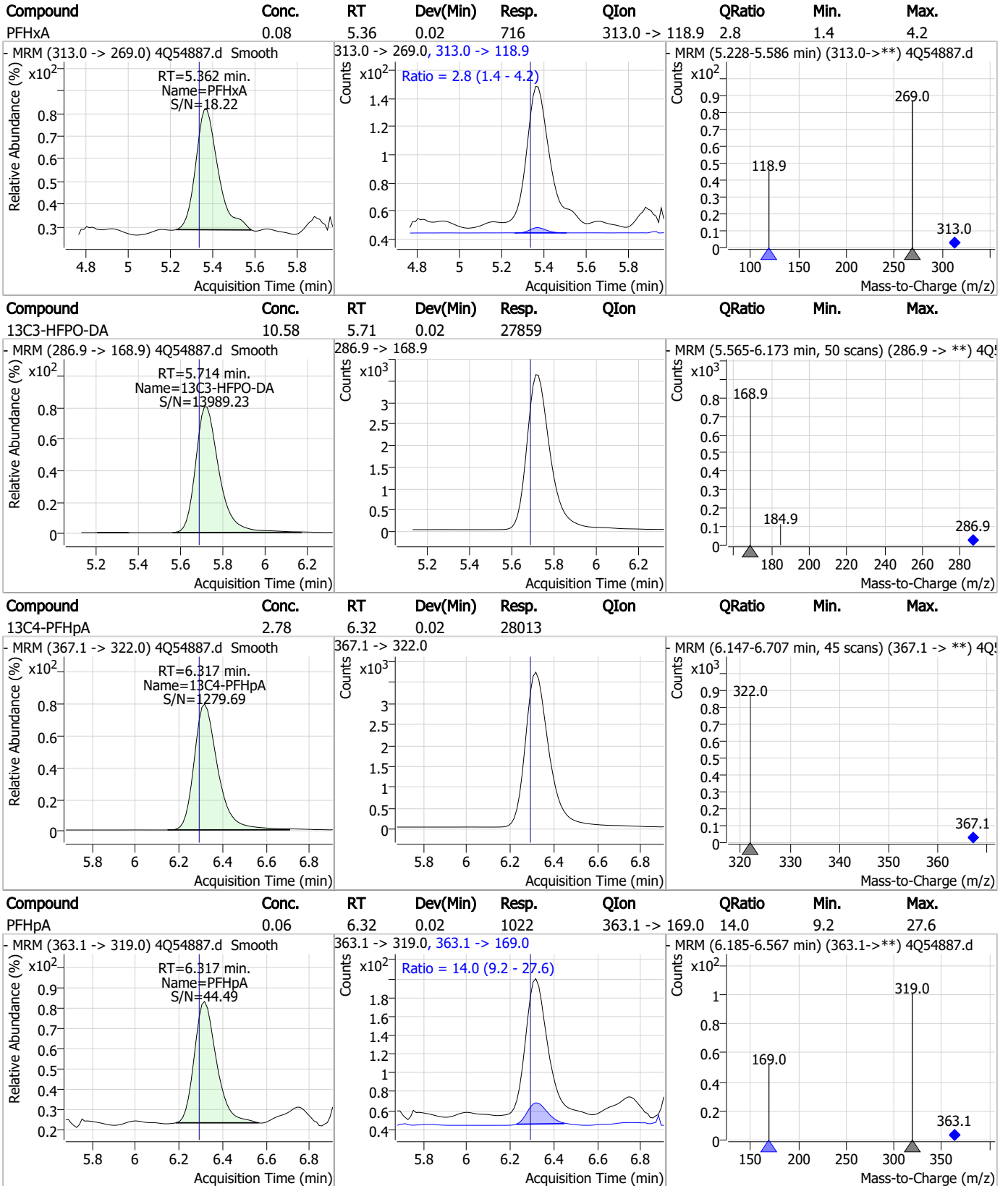
### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS



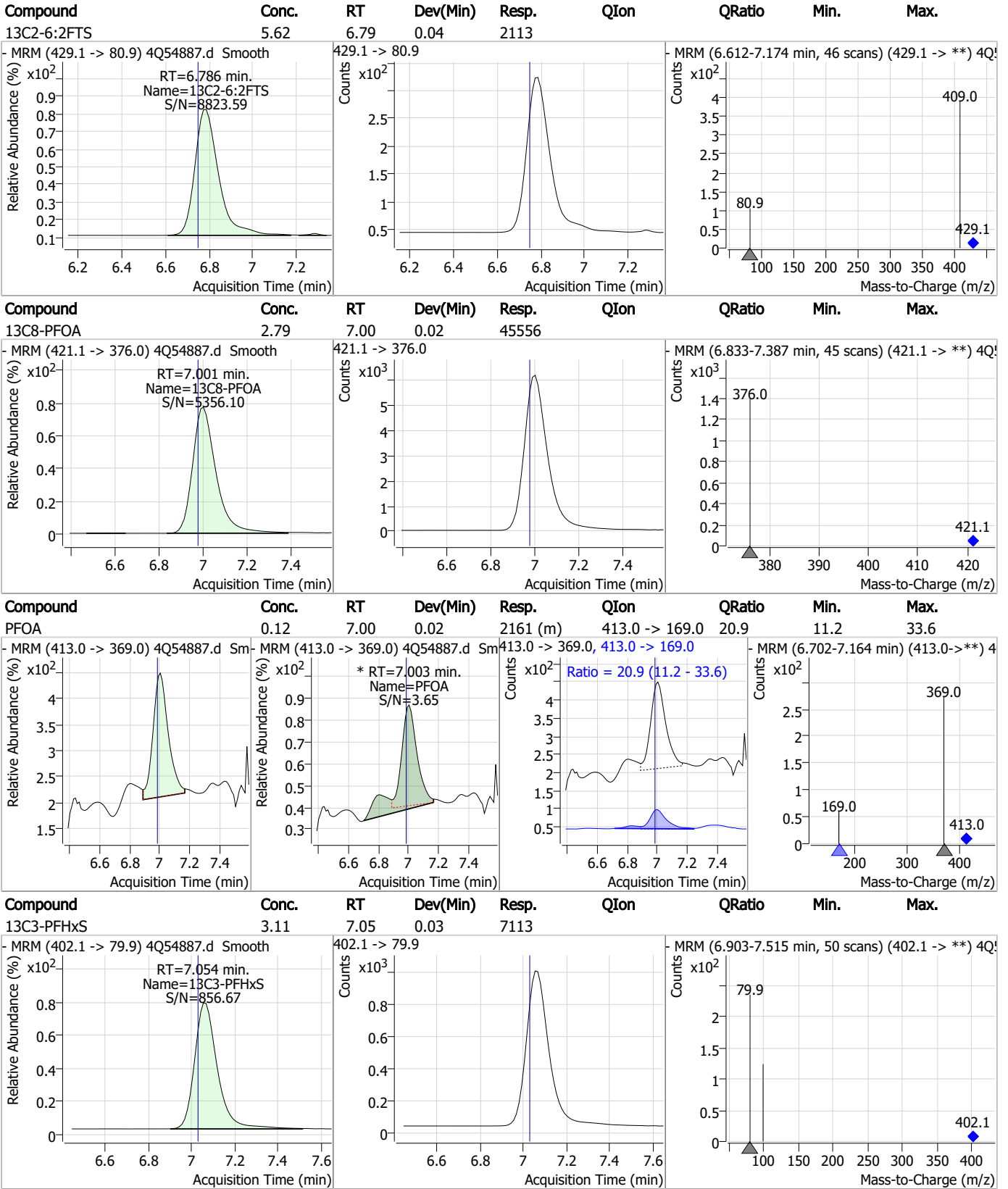
### Perfluorinated Compounds by LC/MS/MS



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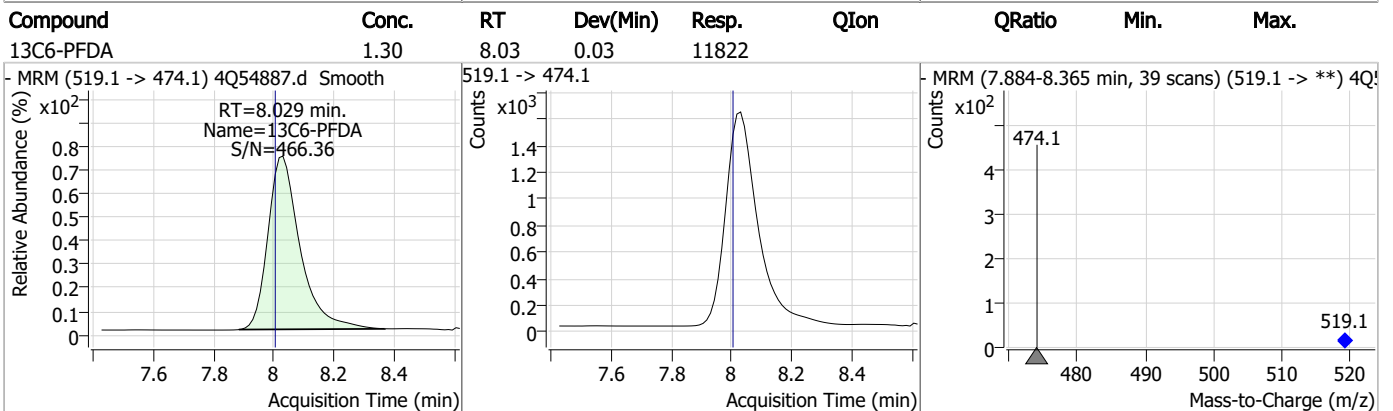
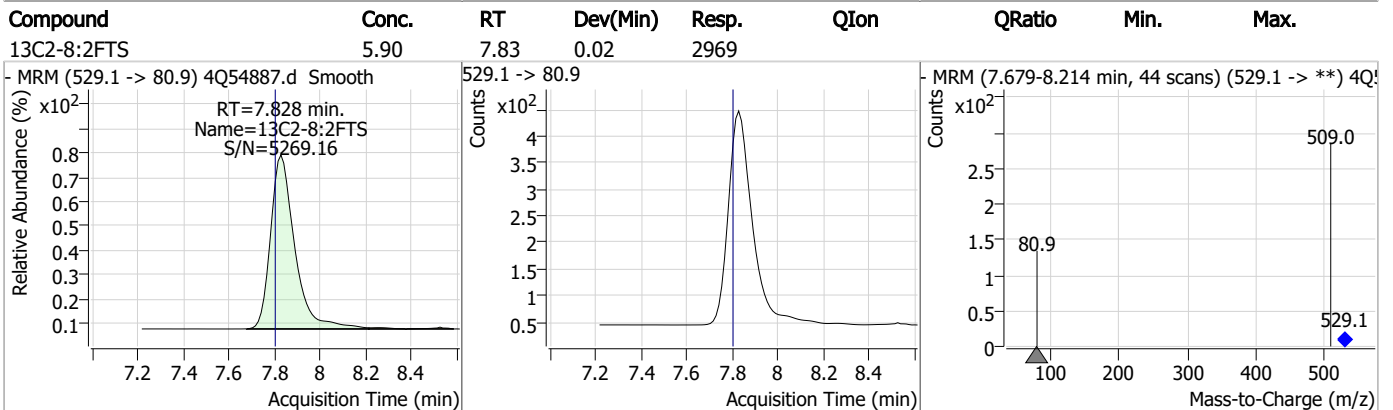
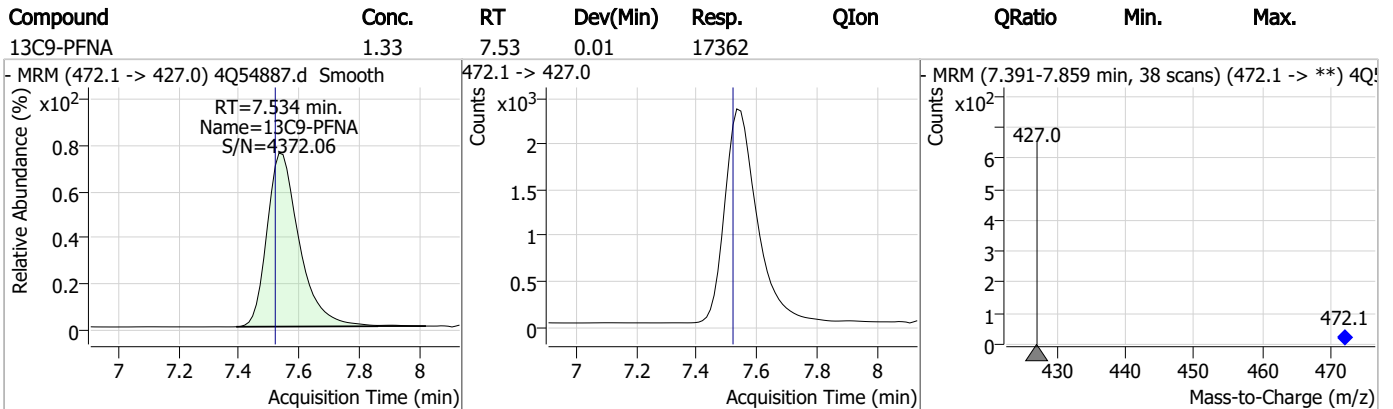
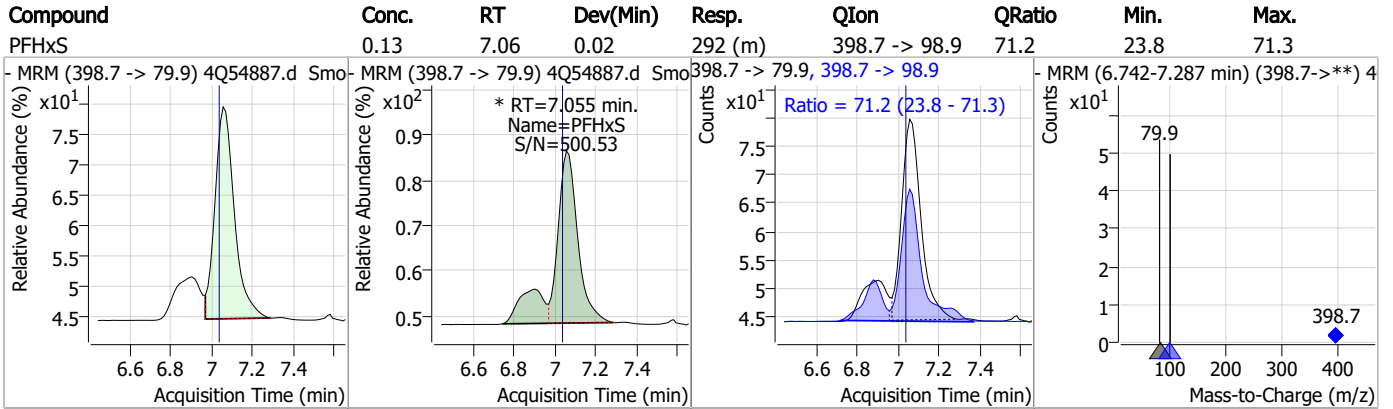
### Perfluorinated Compounds by LC/MS/MS



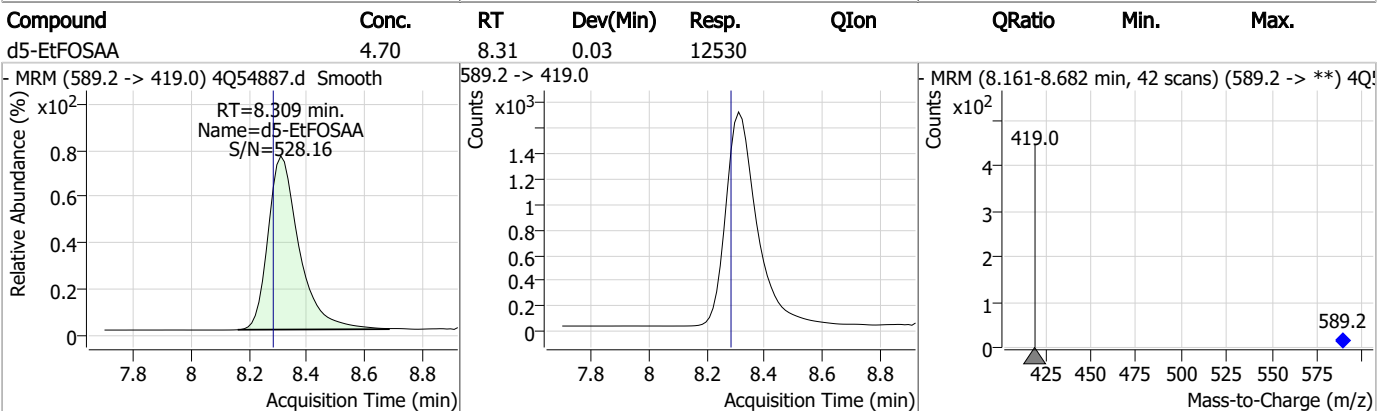
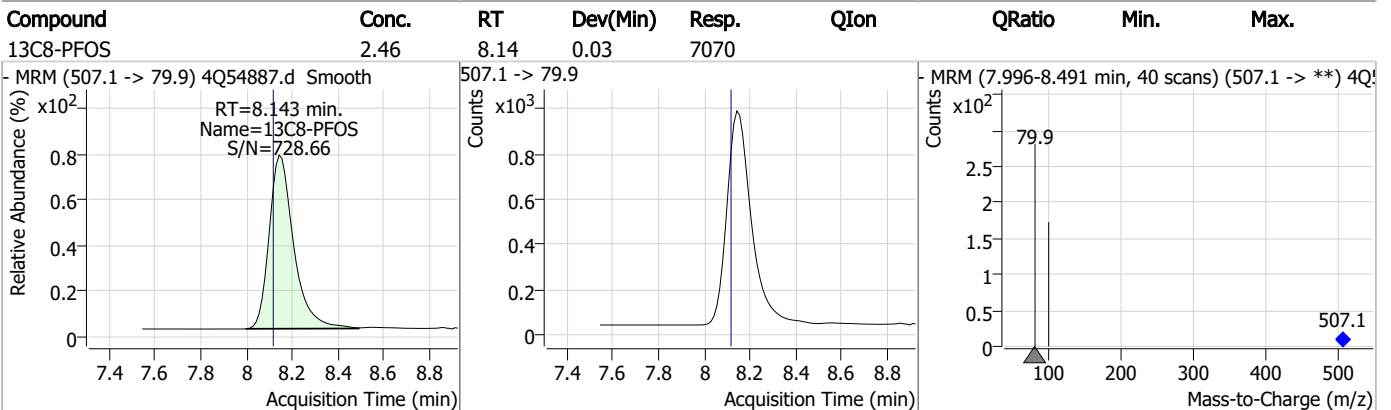
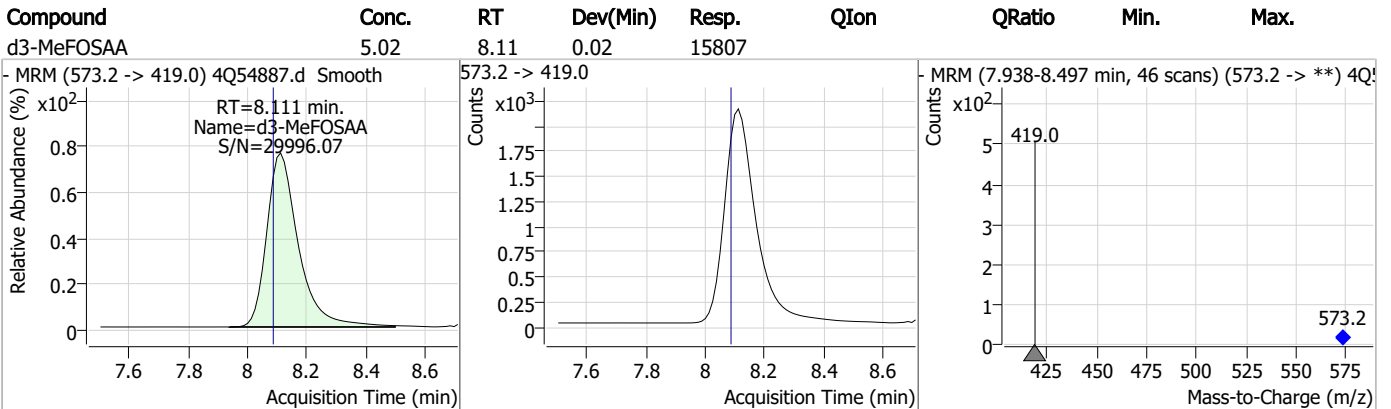
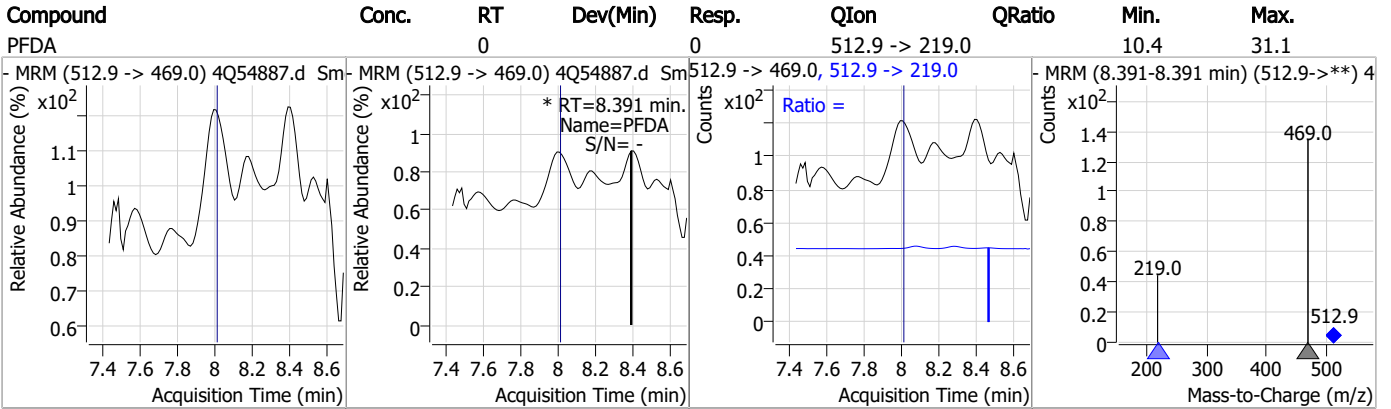
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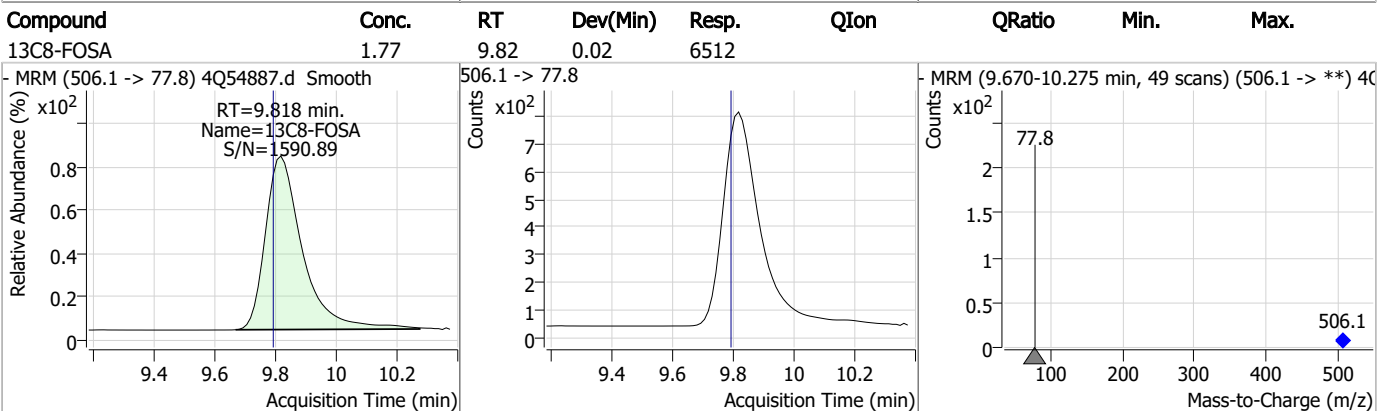
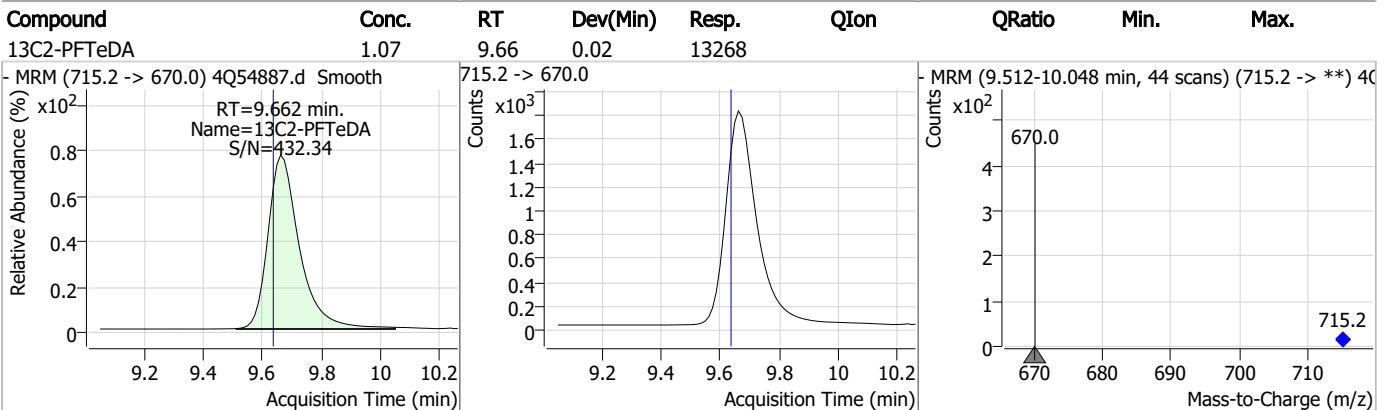
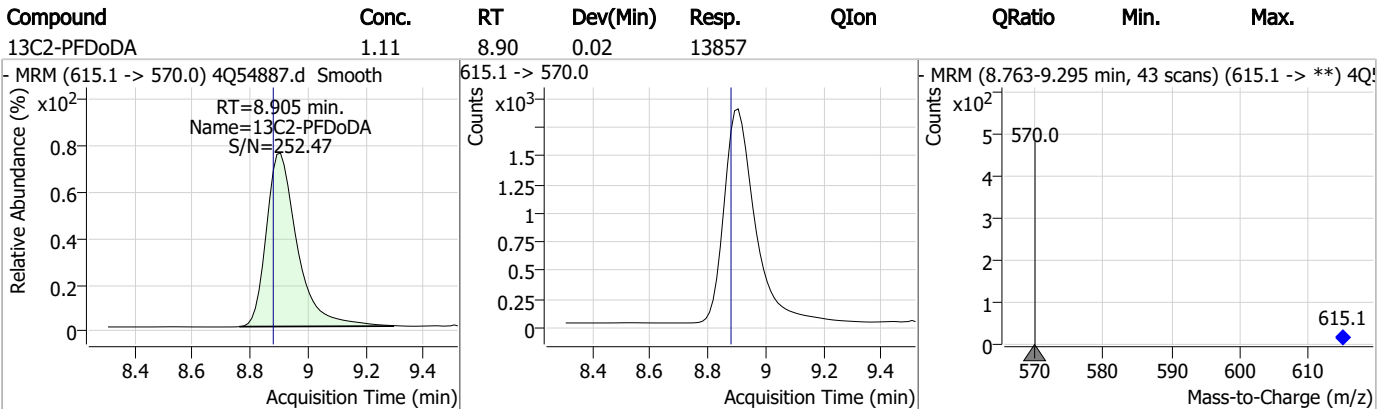
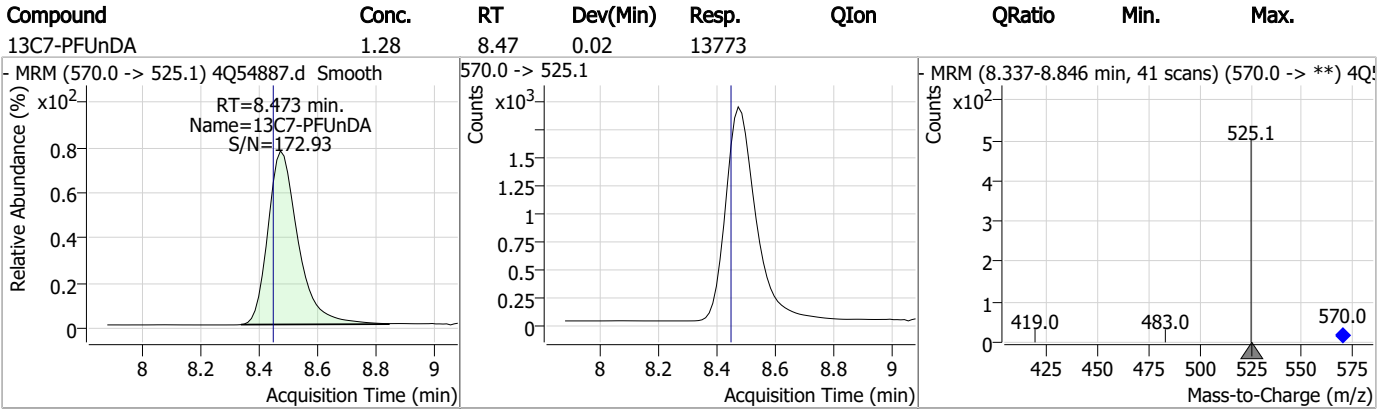
### Perfluorinated Compounds by LC/MS/MS



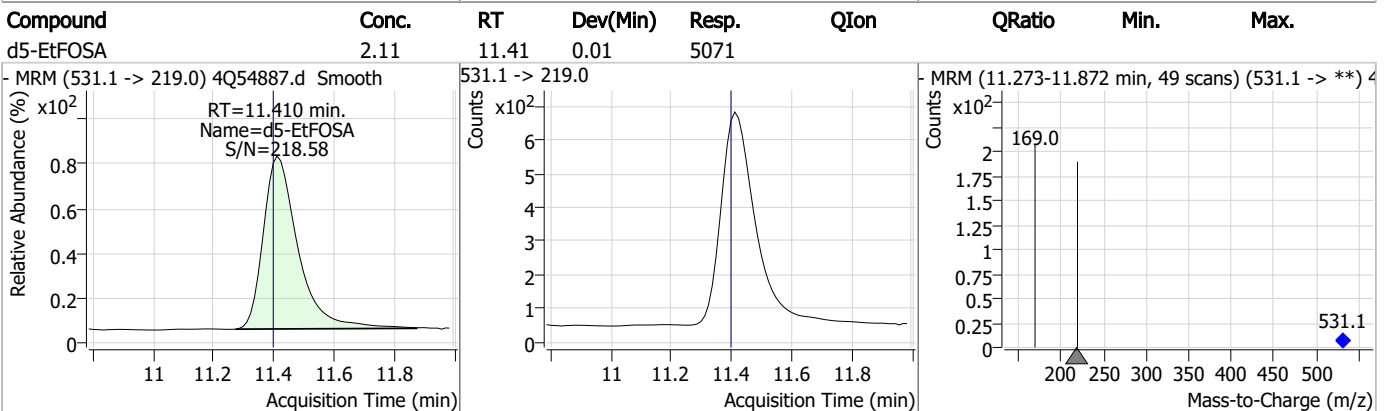
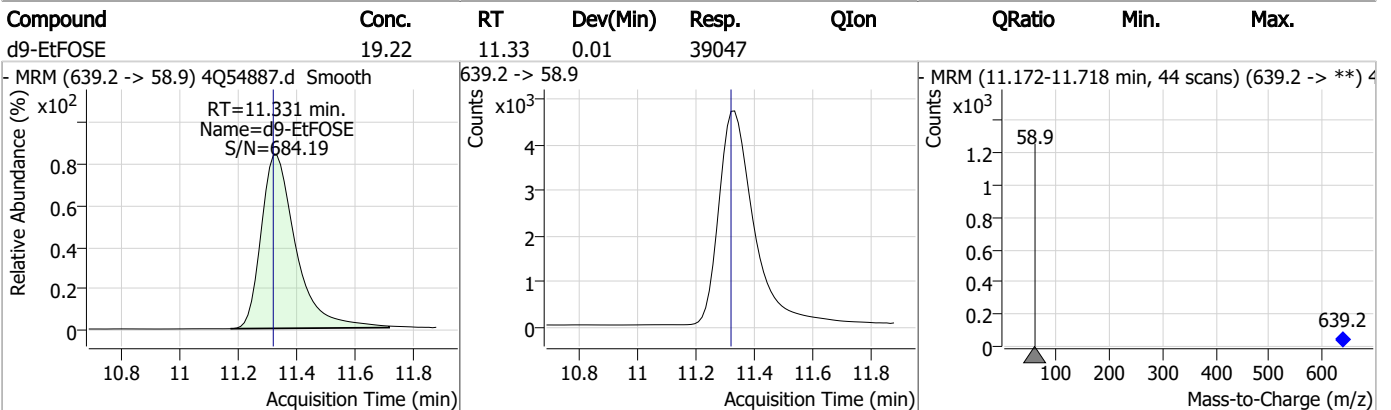
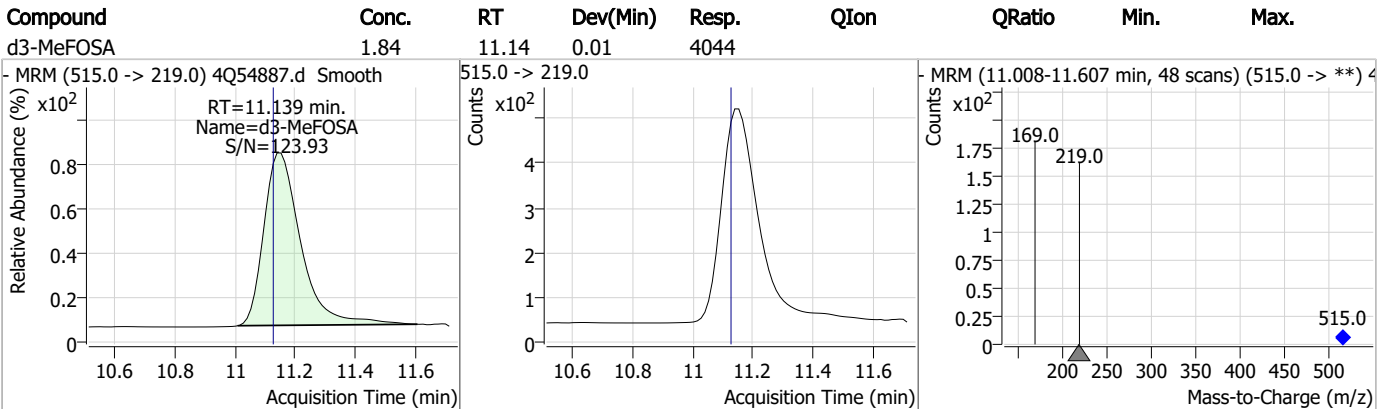
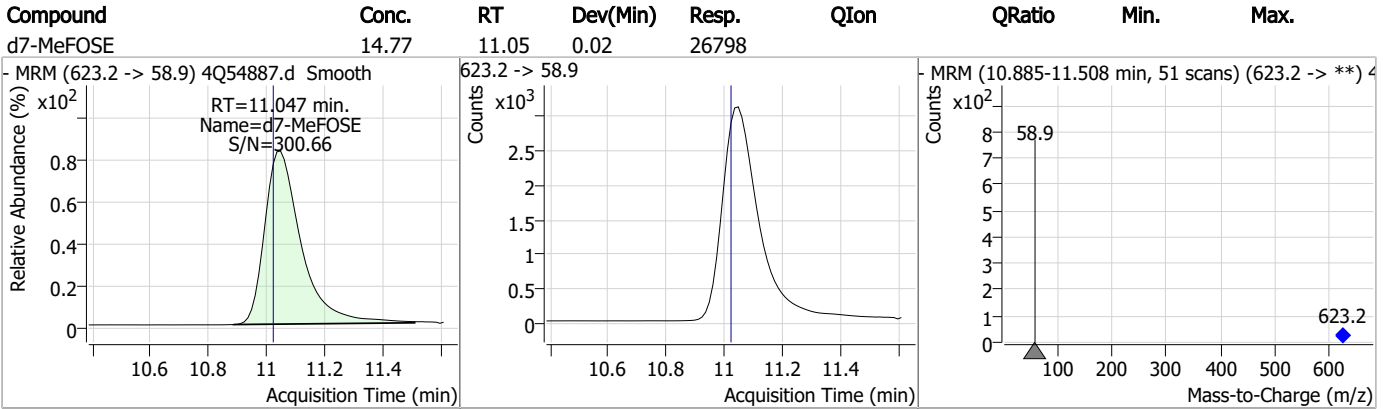
### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS



# Manual Integration Approval Summary

Sample Number: FC11715-1                      Method: EPA DRAFT 1633  
Lab FileID: 4Q54887.D                      Analyst approved: 12/10/23 12:57 Anna Ludwig  
Injection Time: 12/08/23 20:20                      Supervisor approved: 12/11/23 16:36 Norman Farmer

| Parameter                    | CAS      | Sig# | R.T.<br>(min.) | Reason     |
|------------------------------|----------|------|----------------|------------|
| Perfluorobutanesulfonic acid | 375-73-5 |      | 5.22           | Split peak |
| Perfluorooctanoic acid       | 335-67-1 |      | 7.00           | Split peak |
| Perfluorohexanesulfonic acid | 355-46-4 |      | 7.05           | Split peak |

7.1.1.1

7

## Perfluorinated Compounds by LC/MS/MS

Data File : 4Q54888.d  
 Operator : annal  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 12/8/2023 8:35:26 PM  
 Sample Name : fc11715-2  
 Vial : P2-D1  
 DA Method File : 1633\_120823\_S4Q804.quantmethod.xml  
 Batch Name : s4q804.batch.bin  
 Sample Information : OP495,S4Q804,520,,,5.0,1,water

| Compound                           | RT                   | Transition     | Response          | Conc. Units | Dev(Min) |
|------------------------------------|----------------------|----------------|-------------------|-------------|----------|
| <b>Internal Standards</b>          |                      |                |                   |             |          |
| M4-PFBA                            | 2.752                | 216.8 -> 171.9 | 90889             | 10.00 µg/L  | 0.078    |
| M5-PFPeA                           | 4.200                | 268.3 -> 223.0 | 35599             | 5.00 µg/L   | 0.037    |
| M5-PFHxA                           | 5.372                | 318.0 -> 273.0 | 28103             | 2.50 µg/L   | 0.037    |
| M4-PFHpA                           | 6.317                | 367.1 -> 322.0 | 27795             | 2.50 µg/L   | 0.025    |
| M8-PFOA                            | 7.001                | 421.1 -> 376.0 | 44014             | 2.50 µg/L   | 0.025    |
| M9-PFNA                            | 7.534                | 472.1 -> 427.0 | 16978             | 1.25 µg/L   | 0.012    |
| M6-PFDA                            | 8.017                | 519.1 -> 474.1 | 12274             | 1.25 µg/L   | 0.013    |
| M7-PFUnDA                          | 8.473                | 570.0 -> 525.1 | 13463             | 1.25 µg/L   | 0.025    |
| M2-PFDoDA                          | 8.905                | 615.1 -> 570.0 | 14503             | 1.25 µg/L   | 0.025    |
| M2-PFTeDA                          | 9.662                | 715.2 -> 670.0 | 13627             | 1.25 µg/L   | 0.025    |
| M8-FOSA                            | 9.818                | 506.1 -> 77.8  | 7180              | 2.50 µg/L   | 0.025    |
| M3-PFBS                            | 5.227                | 302.1 -> 79.9  | 7735              | 2.50 µg/L   | 0.038    |
| M3-PFHxS                           | 7.054                | 402.1 -> 79.9  | 6454              | 2.50 µg/L   | 0.025    |
| M8-PFOS                            | 8.143                | 507.1 -> 79.9  | 6787              | 2.50 µg/L   | 0.026    |
| M2-4:2FTS                          | 5.071                | 329.1 -> 80.9  | 919               | 5.00 µg/L   | 0.025    |
| M2-6:2FTS                          | 6.773                | 429.1 -> 80.9  | 2133              | 5.00 µg/L   | 0.025    |
| M2-8:2FTS                          | 7.828                | 529.1 -> 80.9  | 2860              | 5.00 µg/L   | 0.025    |
| M3-MeFOSAA                         | 8.111                | 573.2 -> 419.0 | 16093             | 5.00 µg/L   | 0.025    |
| M3-HFPO-DA                         | 5.727                | 286.9 -> 168.9 | 26281             | 10.00 µg/L  | 0.037    |
| M5-EtFOSAA                         | 8.309                | 589.2 -> 419.0 | 13157             | 5.00 µg/L   | 0.026    |
| M7-MeFOSE                          | 11.047               | 623.2 -> 58.9  | 29538             | 25.00 µg/L  | 0.025    |
| M9-EtFOSE                          | 11.331               | 639.2 -> 58.9  | 43602             | 25.00 µg/L  | 0.012    |
| M5-EtFOSA                          | 11.422               | 531.1 -> 219.0 | 5506              | 2.50 µg/L   | 0.025    |
| M3-MeFOSA                          | 11.152               | 515.0 -> 219.0 | 4261              | 2.50 µg/L   | 0.026    |
| 13C4-PFOS                          | 8.144                | 502.8 -> 79.9  | 5826              | 2.50 µg/L   | 0.026    |
| 13C3-PFBA                          | 2.755                | 216.0 -> 172.0 | 41030             | 5.00 µg/L   | 0.077    |
| 18O2-PFHxS                         | 7.054                | 403.0 -> 83.9  | 4082              | 2.50 µg/L   | 0.013    |
| 13C4-PFOA                          | 7.002                | 417.1 -> 372.0 | 47106             | 2.50 µg/L   | 0.025    |
| 13C2-PFDA                          | 8.029                | 515.1 -> 470.1 | 12789             | 1.25 µg/L   | 0.025    |
| 13C5-PFNA                          | 7.534                | 468.0 -> 423.0 | 17744             | 1.25 µg/L   | 0.025    |
| 13C2-PFHxA                         | 5.373                | 315.1 -> 270.0 | 29693             | 2.50 µg/L   | 0.037    |
| <b>System Monitoring Compounds</b> |                      |                |                   |             |          |
| 13C2-4:2FTS                        | 5.071                | 329.1 -> 80.9  | 919               | 4.74 µg/L   | 0.025    |
| Spiked Amount: 5.00                | Range: 50.0 - 150.0% |                | Recovery = 94.9%  |             |          |
| 13C2-6:2FTS                        | 6.773                | 429.1 -> 80.9  | 2133              | 5.07 µg/L   | 0.025    |
| Spiked Amount: 5.00                | Range: 50.0 - 150.0% |                | Recovery = 101.5% |             |          |
| 13C2-8:2FTS                        | 7.828                | 529.1 -> 80.9  | 2860              | 5.08 µg/L   | 0.025    |
| Spiked Amount: 5.00                | Range: 50.0 - 150.0% |                | Recovery = 101.6% |             |          |
| 13C2-PFDoDA                        | 8.905                | 615.1 -> 570.0 | 14503             | 1.13 µg/L   | 0.025    |
| Spiked Amount: 1.25                | Range: 50.0 - 150.0% |                | Recovery = 90.8%  |             |          |
| 13C2-PFTeDA                        | 9.662                | 715.2 -> 670.0 | 13627             | 1.07 µg/L   | 0.025    |
| Spiked Amount: 1.25                | Range: 50.0 - 150.0% |                | Recovery = 85.9%  |             |          |
| 13C3-PFBS                          | 5.227                | 302.1 -> 79.9  | 7735              | 2.47 µg/L   | 0.038    |
| Spiked Amount: 2.50                | Range: 50.0 - 150.0% |                | Recovery = 98.9%  |             |          |
| 13C3-PFHxS                         | 7.054                | 402.1 -> 79.9  | 6454              | 2.52 µg/L   | 0.025    |

7.12  
7



Perfluorinated Compounds by LC/MS/MS

| Compound             | RT                   | Transition     | Response | Conc. Units       | Dev(Min) |
|----------------------|----------------------|----------------|----------|-------------------|----------|
| Spiked Amount: 2.50  | Range: 50.0 - 150.0% |                |          | Recovery = 100.8% |          |
| 13C4-PFBA            | 2.752                | 216.8 -> 171.9 | 90889    | 10.55 µg/L        | 0.078    |
| Spiked Amount: 10.00 | Range: 50.0 - 150.0% |                |          | Recovery = 105.5% |          |
| 13C4-PFHpA           | 6.317                | 367.1 -> 322.0 | 27795    | 2.66 µg/L         | 0.025    |
| Spiked Amount: 2.50  | Range: 50.0 - 150.0% |                |          | Recovery = 106.2% |          |
| 13C5-PFHxA           | 5.372                | 318.0 -> 273.0 | 28103    | 2.57 µg/L         | 0.037    |
| Spiked Amount: 2.50  | Range: 50.0 - 150.0% |                |          | Recovery = 102.7% |          |
| 13C5-PFPeA           | 4.200                | 268.3 -> 223.0 | 35599    | 5.22 µg/L         | 0.037    |
| Spiked Amount: 5.00  | Range: 50.0 - 150.0% |                |          | Recovery = 104.5% |          |
| 13C6-PFDA            | 8.017                | 519.1 -> 474.1 | 12274    | 1.32 µg/L         | 0.013    |
| Spiked Amount: 1.25  | Range: 50.0 - 150.0% |                |          | Recovery = 105.5% |          |
| 13C7-PFUnDA          | 8.473                | 570.0 -> 525.1 | 13463    | 1.23 µg/L         | 0.025    |
| Spiked Amount: 1.25  | Range: 50.0 - 150.0% |                |          | Recovery = 98.2%  |          |
| 13C8-FOSA            | 9.818                | 506.1 -> 77.8  | 7180     | 1.90 µg/L         | 0.025    |
| Spiked Amount: 2.50  | Range: 50.0 - 150.0% |                |          | Recovery = 76.1%  |          |
| 13C8-PFOA            | 7.001                | 421.1 -> 376.0 | 44014    | 2.53 µg/L         | 0.025    |
| Spiked Amount: 2.50  | Range: 50.0 - 150.0% |                |          | Recovery = 101.1% |          |
| 13C8-PFOS            | 8.143                | 507.1 -> 79.9  | 6787     | 2.30 µg/L         | 0.026    |
| Spiked Amount: 2.50  | Range: 50.0 - 150.0% |                |          | Recovery = 92.0%  |          |
| 13C9-PFNA            | 7.534                | 472.1 -> 427.0 | 16978    | 1.19 µg/L         | 0.012    |
| Spiked Amount: 1.25  | Range: 50.0 - 150.0% |                |          | Recovery = 95.5%  |          |
| d3-MeFOSAA           | 8.111                | 573.2 -> 419.0 | 16093    | 4.98 µg/L         | 0.025    |
| Spiked Amount: 5.00  | Range: 50.0 - 150.0% |                |          | Recovery = 99.5%  |          |
| 13C3-HFPO-DA         | 5.727                | 286.9 -> 168.9 | 26281    | 9.61 µg/L         | 0.037    |
| Spiked Amount: 10.00 | Range: 50.0 - 150.0% |                |          | Recovery = 96.1%  |          |
| d3-MeFOSA            | 11.152               | 515.0 -> 219.0 | 4261     | 1.89 µg/L         | 0.026    |
| Spiked Amount: 2.50  | Range: 50.0 - 150.0% |                |          | Recovery = 75.7%  |          |
| d5-EtFOSAA           | 8.309                | 589.2 -> 419.0 | 13157    | 4.81 µg/L         | 0.026    |
| Spiked Amount: 5.00  | Range: 50.0 - 150.0% |                |          | Recovery = 96.2%  |          |
| d7-MeFOSE            | 11.047               | 623.2 -> 58.9  | 29538    | 15.86 µg/L        | 0.025    |
| Spiked Amount: 25.00 | Range: 50.0 - 150.0% |                |          | Recovery = 63.4%  |          |
| d9-EtFOSE            | 11.331               | 639.2 -> 58.9  | 43602    | 20.90 µg/L        | 0.012    |
| Spiked Amount: 25.00 | Range: 50.0 - 150.0% |                |          | Recovery = 83.6%  |          |
| d5-EtFOSA            | 11.422               | 531.1 -> 219.0 | 5506     | 2.23 µg/L         | 0.025    |
| Spiked Amount: 2.50  | Range: 50.0 - 150.0% |                |          | Recovery = 89.2%  |          |

| Target Compounds | RT    | Transition     | Response | Conc. Units | QValue |
|------------------|-------|----------------|----------|-------------|--------|
| 4:2FTS           | -     | 327.1 -> 307.0 | -        | N.D.        |        |
|                  |       | 327.1 -> 80.9  |          |             |        |
| 6:2FTS           | 6.774 | 427.1 -> 407.0 | 633      | 0.28 µg/L   | 94     |
|                  |       | 427.1 -> 80.9  | 208      |             |        |
| 8:2FTS           | -     | 527.1 -> 507.0 | -        | N.D.        |        |
|                  |       | 527.1 -> 80.8  |          |             |        |
| EtFOSAA          | -     | 584.2 -> 419.1 | -        | N.D.        |        |
|                  |       | 584.2 -> 526.0 |          |             |        |
| FOSA             | -     | 498.1 -> 77.9  | -        | N.D.        |        |
|                  |       | 498.1 -> 478.0 |          |             |        |
| MeFOSAA          | -     | 570.1 -> 419.0 | -        | N.D.        |        |
|                  |       | 570.1 -> 483.0 |          |             |        |
| PFBA             | -     | 212.8 -> 168.9 | -        | N.D.        |        |
| PFBS             | -     | 298.7 -> 79.9  | -        | N.D.        |        |
|                  |       | 298.7 -> 98.8  |          |             |        |
| PFDA             | -     | 512.9 -> 469.0 | -        | N.D.        |        |
|                  |       | 512.9 -> 219.0 |          |             |        |
| PFDODA           | -     | 613.1 -> 569.0 | -        | N.D.        |        |
|                  |       | 613.1 -> 319.0 |          |             |        |
| PFDS             | -     | 599.0 -> 79.9  | -        | N.D.        |        |



7.12  
7



Perfluorinated Compounds by LC/MS/MS

| Compound     | RT | Transition     | Response | Conc. Units | Dev(Min) |
|--------------|----|----------------|----------|-------------|----------|
| PFHpA        | -  | 599.0 -> 98.8  | -        | N.D.        |          |
|              |    | 363.1 -> 319.0 |          |             |          |
| PFHpS        | -  | 363.1 -> 169.0 | -        | N.D.        |          |
|              |    | 449.0 -> 79.9  |          |             |          |
| PFHxA        | -  | 449.0 -> 98.9  | -        | N.D.        |          |
|              |    | 313.0 -> 269.0 |          |             |          |
| PFHxS        | -  | 313.0 -> 118.9 | -        | N.D.        |          |
|              |    | 398.7 -> 79.9  |          |             |          |
| PFNA         | -  | 398.7 -> 98.9  | -        | N.D.        |          |
|              |    | 463.0 -> 419.0 |          |             |          |
| PFNS         | -  | 463.0 -> 219.0 | -        | N.D.        |          |
|              |    | 548.8 -> 79.9  |          |             |          |
| PFOA         | -  | 548.8 -> 98.9  | -        | N.D.        |          |
|              |    | 413.0 -> 369.0 |          |             |          |
| PFOS         | -  | 413.0 -> 169.0 | -        | N.D.        |          |
|              |    | 498.9 -> 79.9  |          |             |          |
| PFPeA        | -  | 498.9 -> 98.8  | -        | N.D.        |          |
|              |    | 263.0 -> 219.0 |          |             |          |
| PFPeS        | -  | 349.1 -> 79.9  | -        | N.D.        |          |
|              |    | 349.1 -> 98.9  |          |             |          |
| PFTeDA       | -  | 713.1 -> 669.0 | -        | N.D.        |          |
|              |    | 713.1 -> 168.9 |          |             |          |
| PFTrDA       | -  | 663.0 -> 619.0 | -        | N.D.        |          |
|              |    | 663.0 -> 168.9 |          |             |          |
| PFUnDA       | -  | 563.1 -> 519.0 | -        | N.D.        |          |
|              |    | 563.1 -> 269.1 |          |             |          |
| 11Cl-PF3OUdS | -  | 630.9 -> 450.9 | -        | N.D.        |          |
|              |    | 632.9 -> 452.9 |          |             |          |
| 9Cl-PF3ONS   | -  | 530.8 -> 351.0 | -        | N.D.        |          |
|              |    | 532.8 -> 353.0 |          |             |          |
| ADONA        | -  | 376.9 -> 250.9 | -        | N.D.        |          |
|              |    | 376.9 -> 84.8  |          |             |          |
| HFPO-DA      | -  | 284.9 -> 168.9 | -        | N.D.        |          |
|              |    | 284.9 -> 184.9 |          |             |          |
| 3:3FTCA      | -  | 241.0 -> 177.0 | -        | N.D.        |          |
|              |    | 241.0 -> 117.0 |          |             |          |
| 5:3FTCA      | -  | 341.0 -> 237.1 | -        | N.D.        |          |
|              |    | 341.0 -> 217.0 |          |             |          |
| 7:3FTCA      | -  | 441.0 -> 316.9 | -        | N.D.        |          |
|              |    | 441.0 -> 336.9 |          |             |          |
| EtFOSA       | -  | 526.0 -> 219.0 | -        | N.D.        |          |
|              |    | 526.0 -> 169.0 |          |             |          |
| EtFOSE       | -  | 630.0 -> 58.9  | -        | N.D.        |          |
|              |    | 511.9 -> 219.0 |          |             |          |
| MeFOSA       | -  | 511.9 -> 169.0 | -        | N.D.        |          |
|              |    | 616.1 -> 58.9  |          |             |          |
| MeFOSE       | -  | 699.1 -> 79.9  | -        | N.D.        |          |
|              |    | 699.1 -> 98.8  |          |             |          |
| PFDoDS       | -  | 295.0 -> 201.0 | -        | N.D.        |          |
|              |    | 295.0 -> 84.9  |          |             |          |
| NFDHA        | -  | 279.0 -> 85.1  | -        | N.D.        |          |
|              |    | 229.0 -> 84.9  |          |             |          |
| PFMBA        | -  | 314.8 -> 134.9 | -        | N.D.        |          |
|              |    | 314.8 -> 82.9  |          |             |          |

# = Qualifier out of range, m = manually integrated, + = Area summed



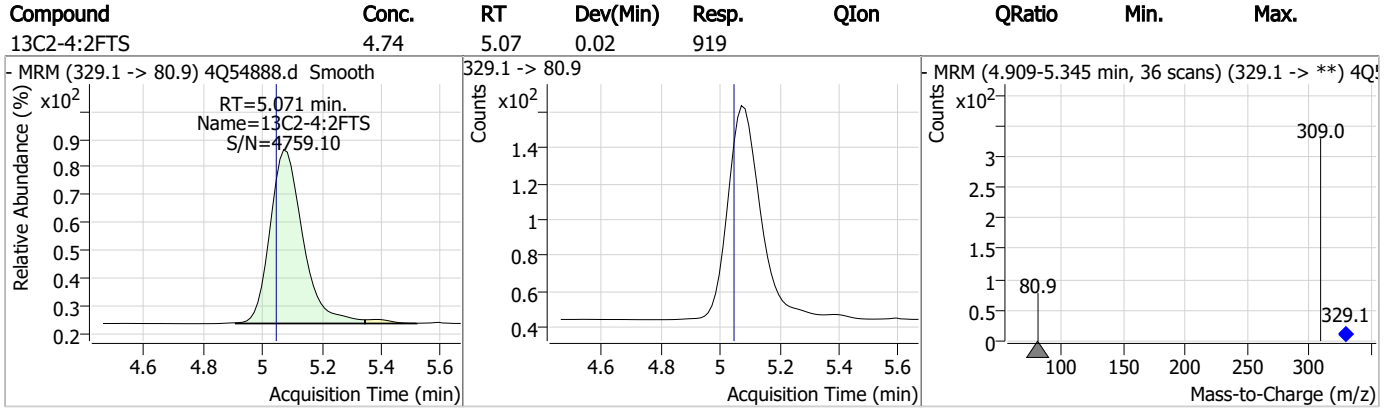
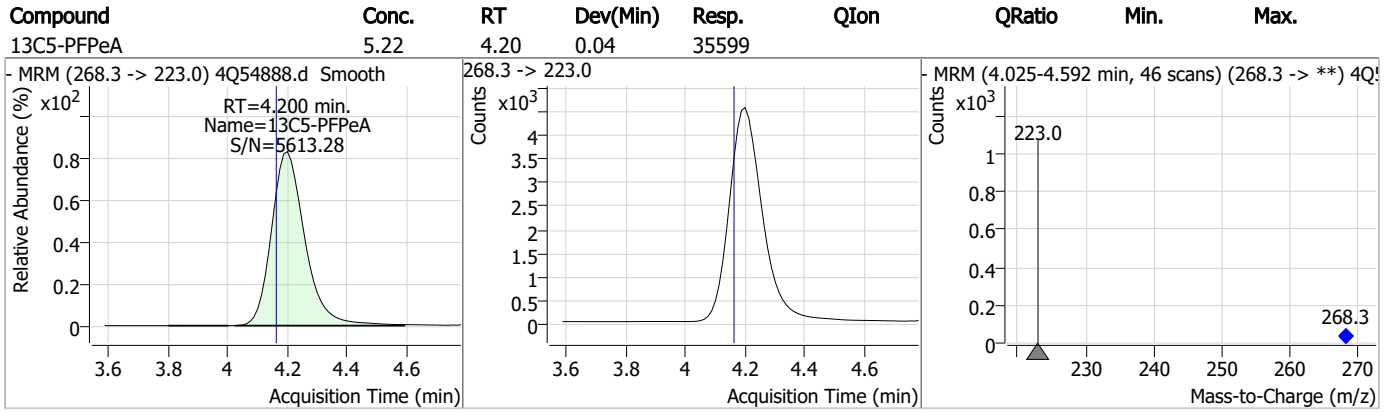
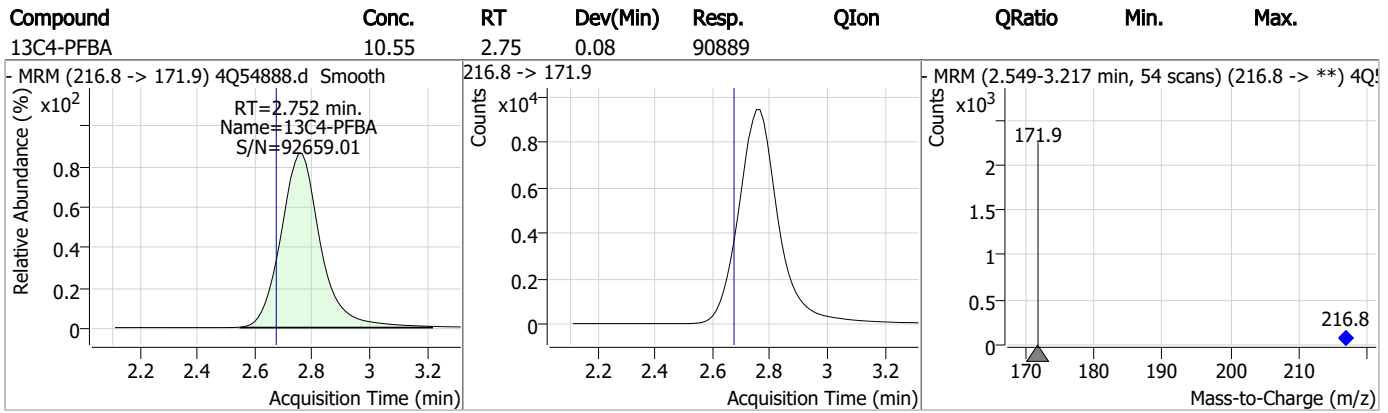
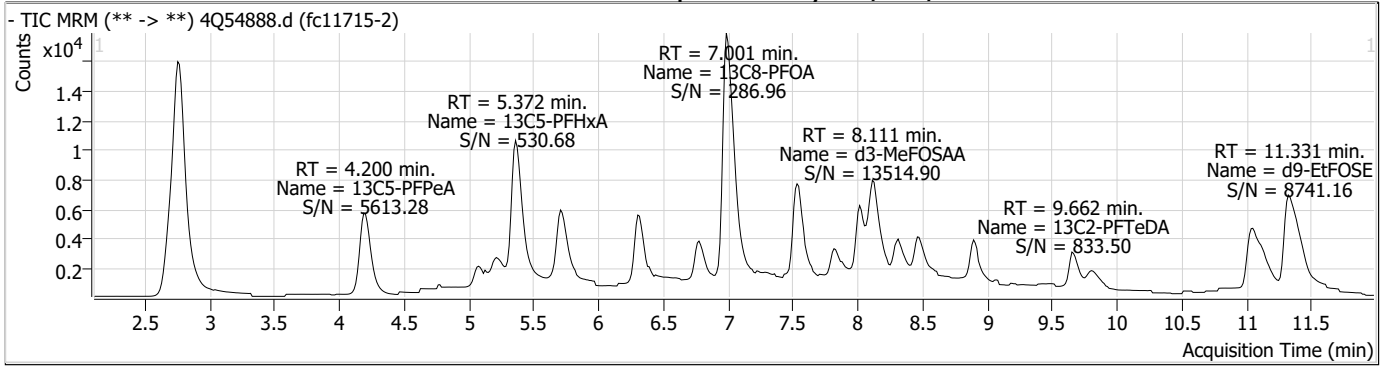
7.1.2  
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### Perfluorinated Compounds by LC/MS/MS

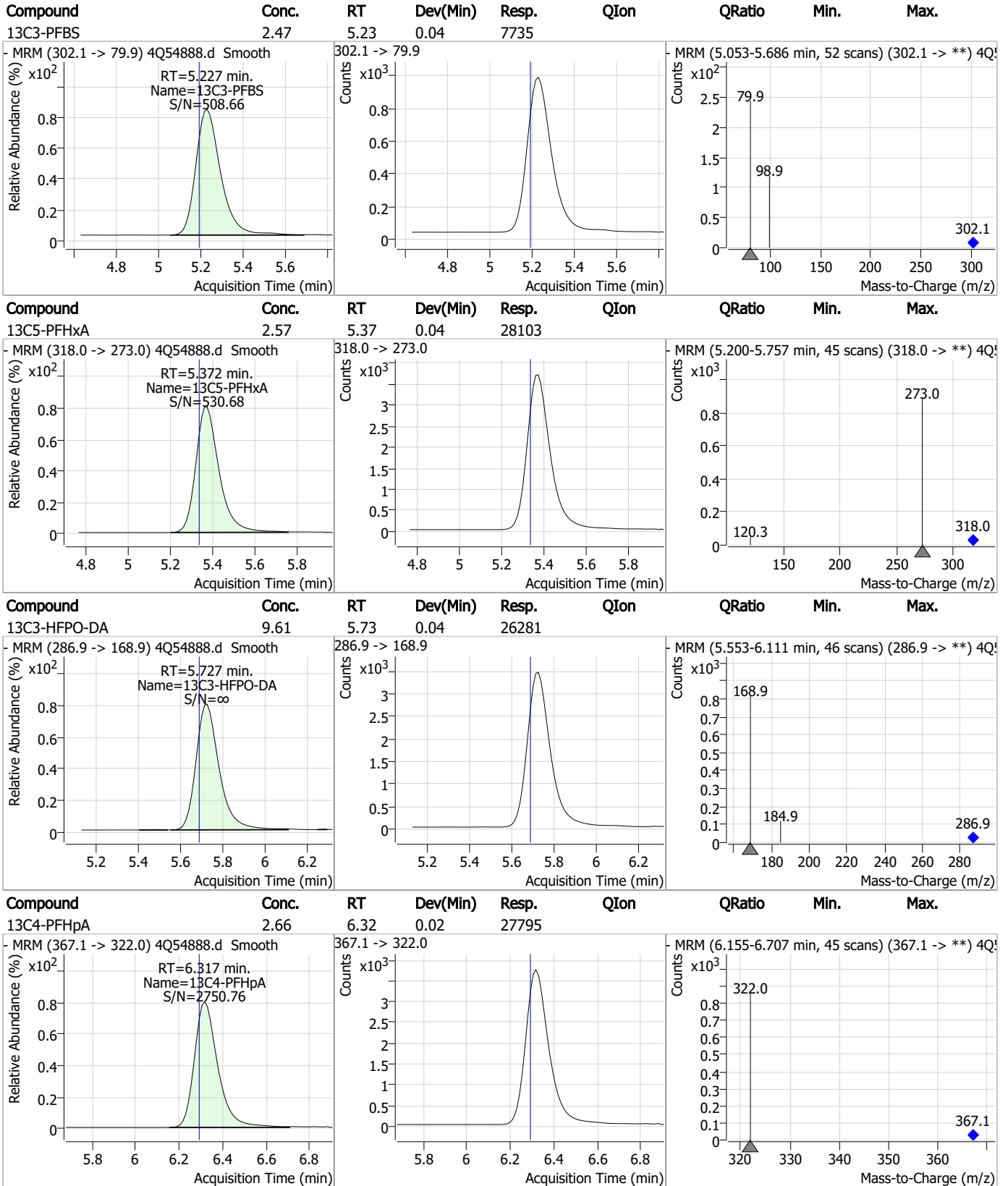
| Compound | RT | Transition | Response | Conc. Units | Dev(Min) |
|----------|----|------------|----------|-------------|----------|
|----------|----|------------|----------|-------------|----------|

7.1.2  
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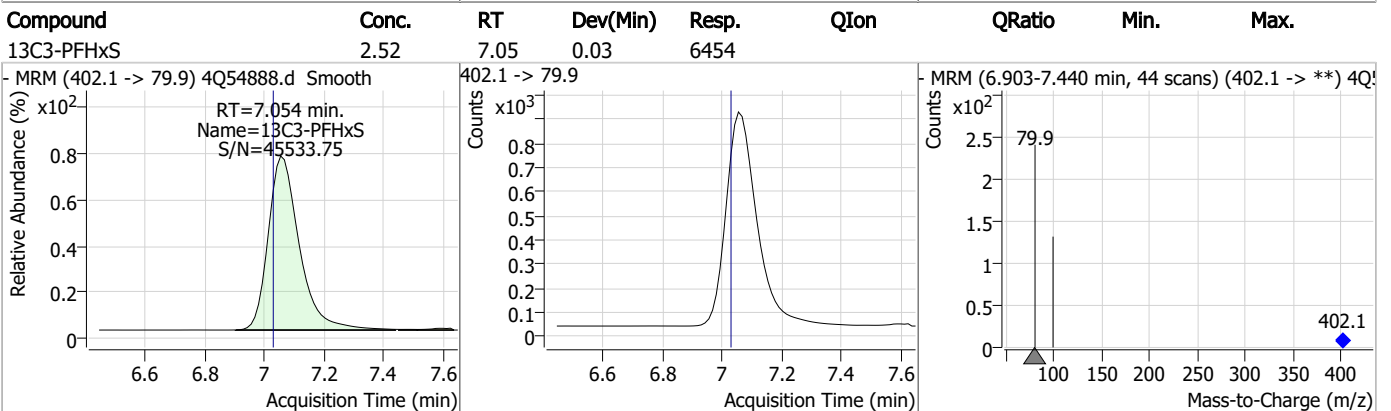
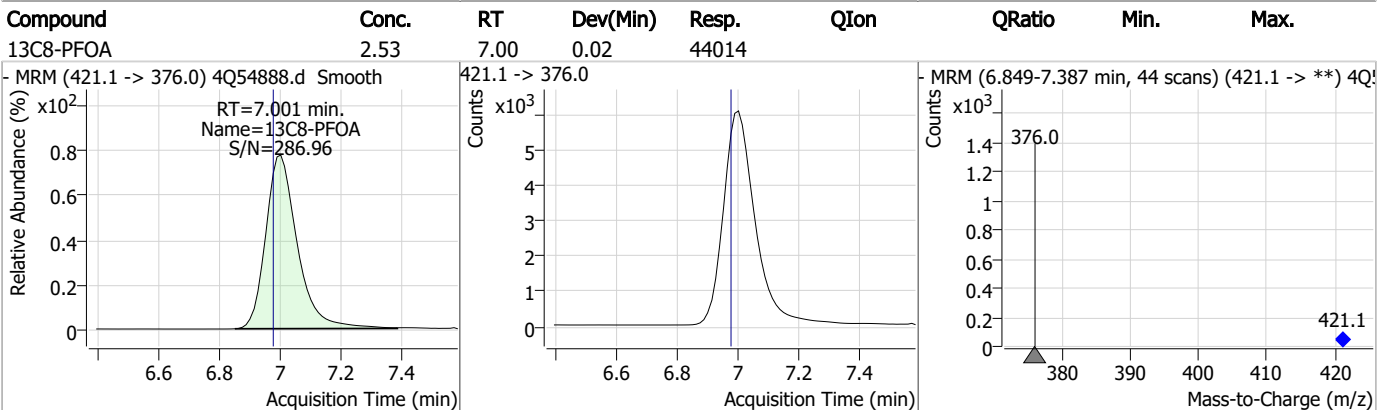
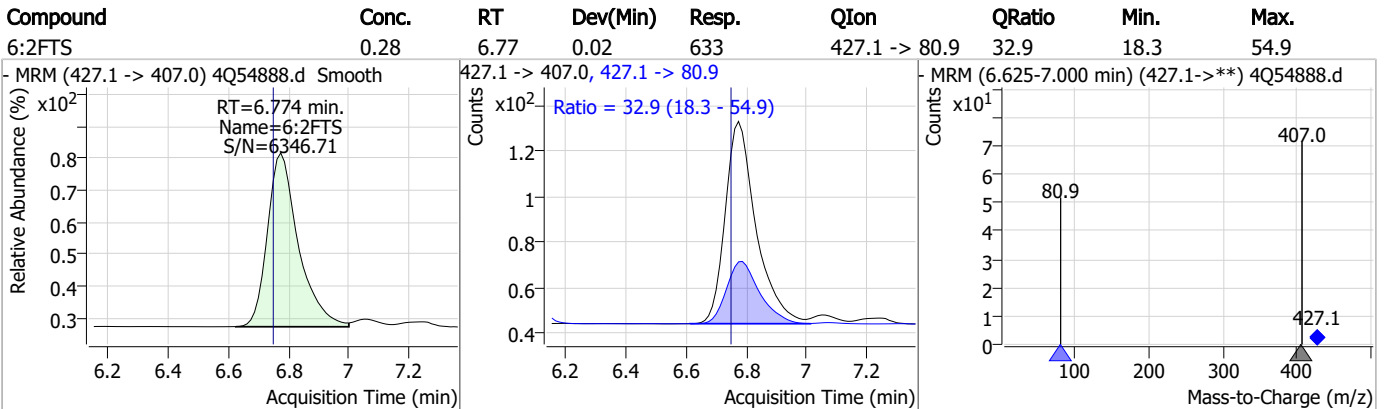
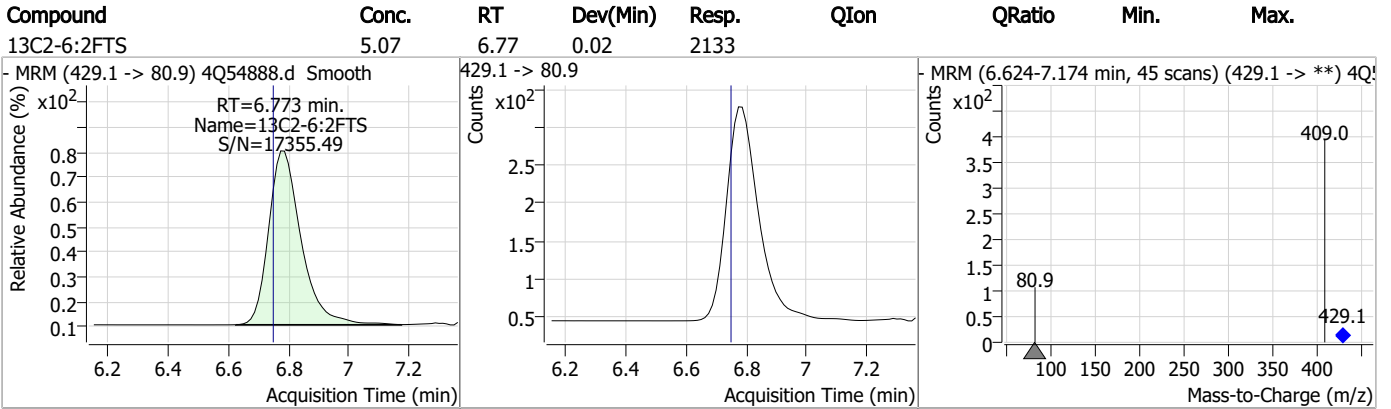
### Perfluorinated Compounds by LC/MS/MS



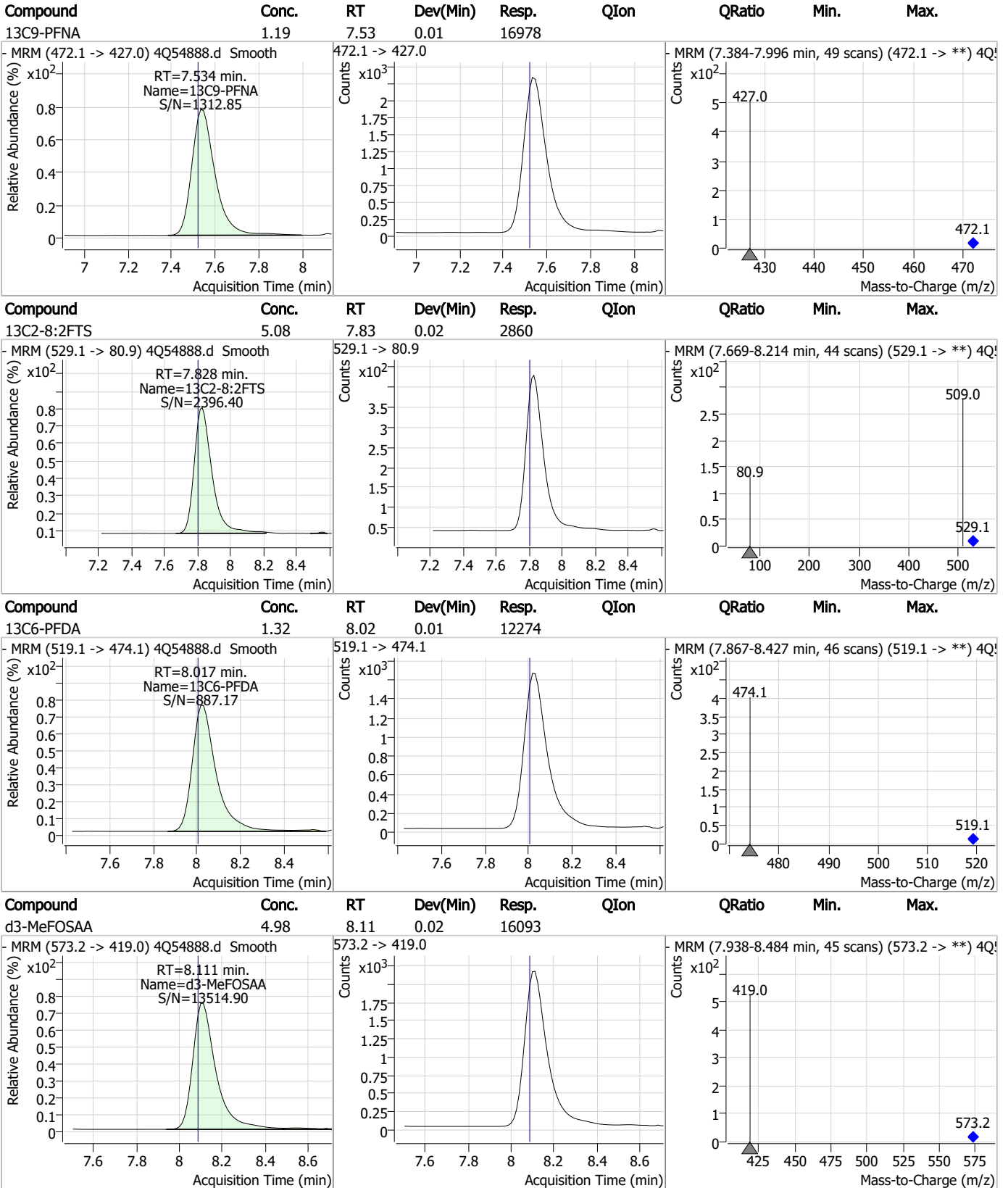
### Perfluorinated Compounds by LC/MS/MS



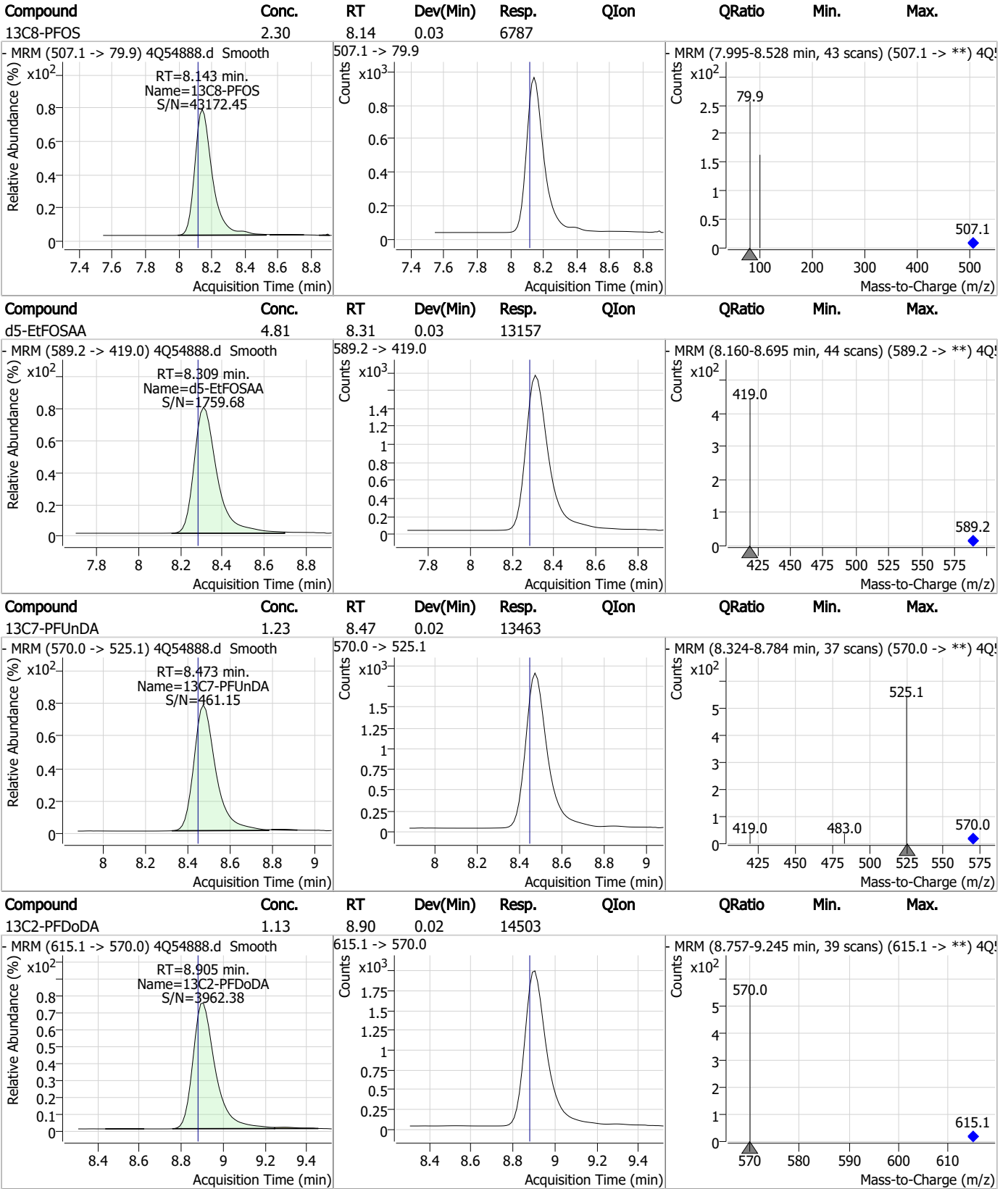
### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS



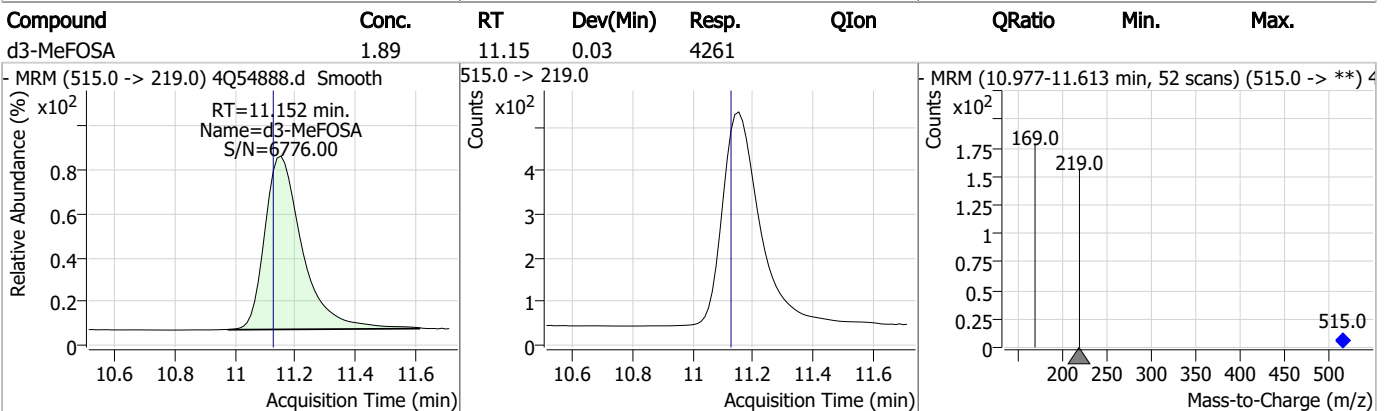
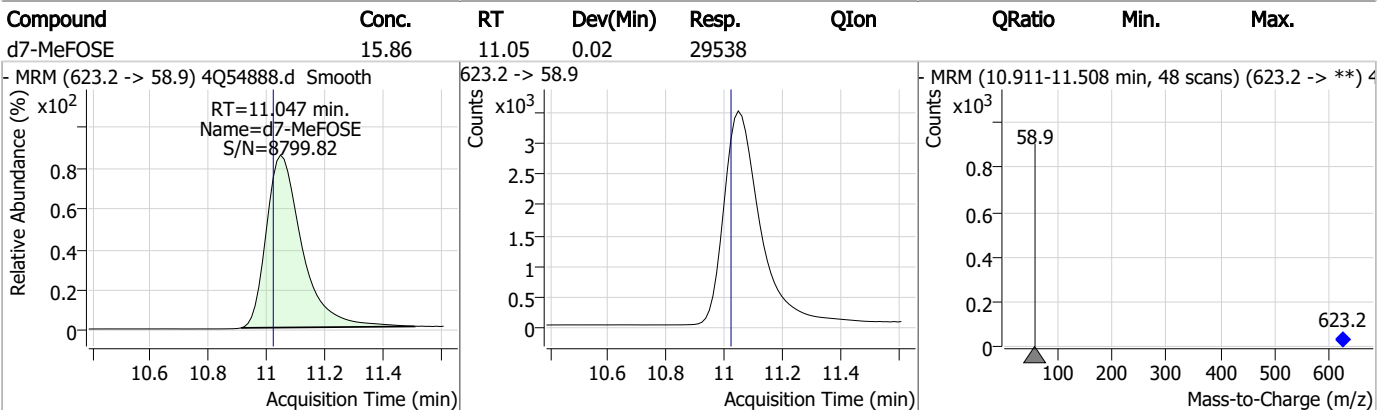
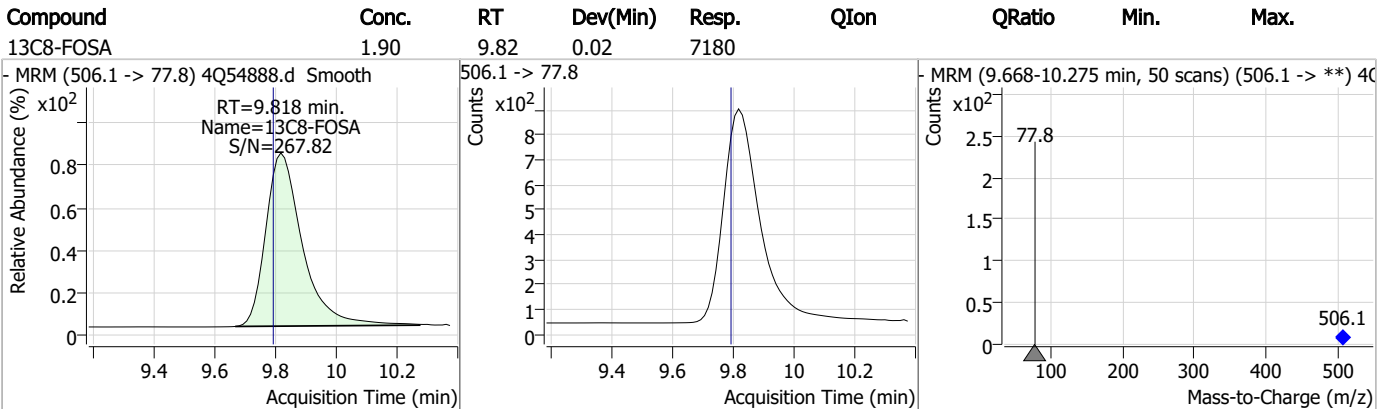
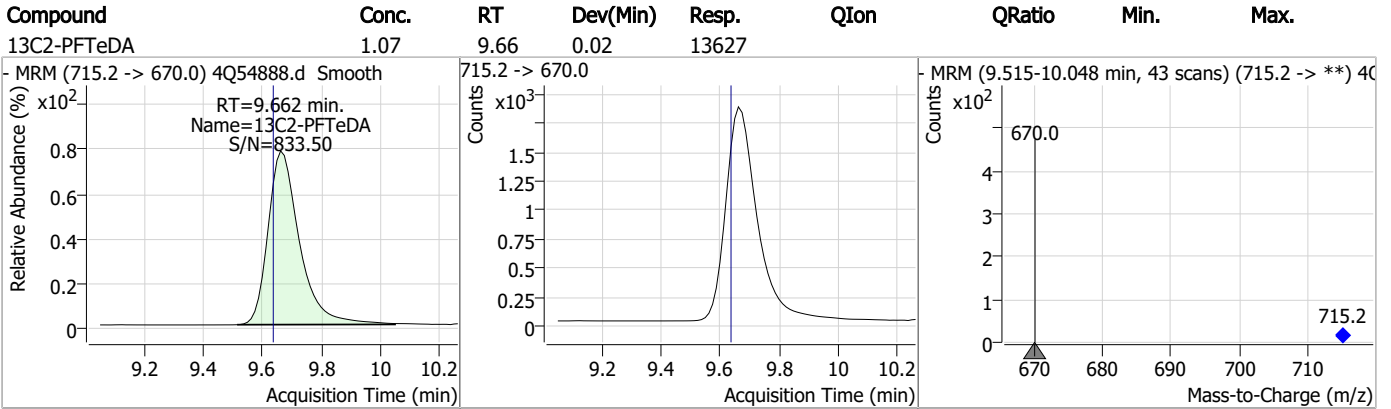
### Perfluorinated Compounds by LC/MS/MS



7.1.2

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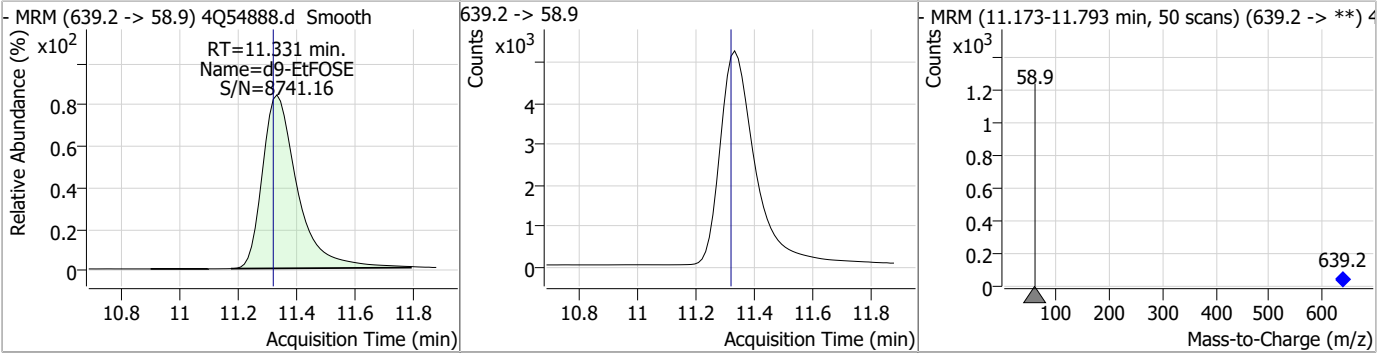
### Perfluorinated Compounds by LC/MS/MS



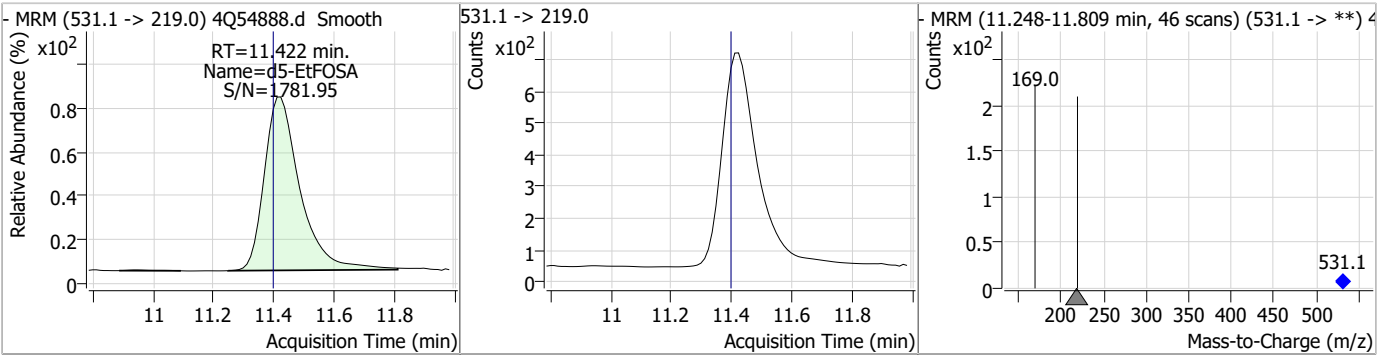


Perfluorinated Compounds by LC/MS/MS

| Compound  | Conc. | RT    | Dev(Min) | Resp. | QIon | QRatio | Min. | Max. |
|-----------|-------|-------|----------|-------|------|--------|------|------|
| d9-EtFOSE | 20.90 | 11.33 | 0.01     | 43602 |      |        |      |      |



| Compound  | Conc. | RT    | Dev(Min) | Resp. | QIon | QRatio | Min. | Max. |
|-----------|-------|-------|----------|-------|------|--------|------|------|
| d5-EtFOFA | 2.23  | 11.42 | 0.02     | 5506  |      |        |      |      |



7.1.2

7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q54890.d  
 Operator : annal  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 12/8/2023 9:04:55 PM  
 Sample Name : fc11715-3  
 Vial : P2-D3  
 DA Method File : 1633\_120823\_S4Q804.quantmethod.xml  
 Batch Name : s4q804.batch.bin  
 Sample Information : OP495,S4Q804,510,,,5.0,1,water

| Compound                           | RT                   | Transition     | Response          | Conc. Units | Dev(Min) |
|------------------------------------|----------------------|----------------|-------------------|-------------|----------|
| <b>Internal Standards</b>          |                      |                |                   |             |          |
| M4-PFBA                            | 2.765                | 216.8 -> 171.9 | 92708             | 10.00 µg/L  | 0.091    |
| M5-PFPeA                           | 4.200                | 268.3 -> 223.0 | 36490             | 5.00 µg/L   | 0.037    |
| M5-PFHxA                           | 5.372                | 318.0 -> 273.0 | 28623             | 2.50 µg/L   | 0.037    |
| M4-PFHpA                           | 6.317                | 367.1 -> 322.0 | 28152             | 2.50 µg/L   | 0.025    |
| M8-PFOA                            | 7.001                | 421.1 -> 376.0 | 45655             | 2.50 µg/L   | 0.025    |
| M9-PFNA                            | 7.534                | 472.1 -> 427.0 | 17236             | 1.25 µg/L   | 0.012    |
| M6-PFDA                            | 8.029                | 519.1 -> 474.1 | 11226             | 1.25 µg/L   | 0.025    |
| M7-PFUnDA                          | 8.473                | 570.0 -> 525.1 | 13388             | 1.25 µg/L   | 0.025    |
| M2-PFDoDA                          | 8.892                | 615.1 -> 570.0 | 13348             | 1.25 µg/L   | 0.012    |
| M2-PFTeDA                          | 9.662                | 715.2 -> 670.0 | 13170             | 1.25 µg/L   | 0.025    |
| M8-FOSA                            | 9.818                | 506.1 -> 77.8  | 7204              | 2.50 µg/L   | 0.025    |
| M3-PFBS                            | 5.227                | 302.1 -> 79.9  | 7948              | 2.50 µg/L   | 0.038    |
| M3-PFHxS                           | 7.054                | 402.1 -> 79.9  | 6696              | 2.50 µg/L   | 0.025    |
| M8-PFOS                            | 8.143                | 507.1 -> 79.9  | 6659              | 2.50 µg/L   | 0.026    |
| M2-4:2FTS                          | 5.071                | 329.1 -> 80.9  | 816               | 5.00 µg/L   | 0.025    |
| M2-6:2FTS                          | 6.773                | 429.1 -> 80.9  | 2288              | 5.00 µg/L   | 0.025    |
| M2-8:2FTS                          | 7.828                | 529.1 -> 80.9  | 3005              | 5.00 µg/L   | 0.025    |
| M3-MeFOSAA                         | 8.111                | 573.2 -> 419.0 | 14693             | 5.00 µg/L   | 0.025    |
| M3-HFPO-DA                         | 5.727                | 286.9 -> 168.9 | 28389             | 10.00 µg/L  | 0.037    |
| M5-EtFOSAA                         | 8.309                | 589.2 -> 419.0 | 11794             | 5.00 µg/L   | 0.026    |
| M7-MeFOSE                          | 11.047               | 623.2 -> 58.9  | 29093             | 25.00 µg/L  | 0.025    |
| M9-EtFOSE                          | 11.331               | 639.2 -> 58.9  | 42392             | 25.00 µg/L  | 0.012    |
| M5-EtFOSA                          | 11.410               | 531.1 -> 219.0 | 5315              | 2.50 µg/L   | 0.012    |
| M3-MeFOSA                          | 11.152               | 515.0 -> 219.0 | 4456              | 2.50 µg/L   | 0.026    |
| 13C4-PFOS                          | 8.144                | 502.8 -> 79.9  | 5600              | 2.50 µg/L   | 0.026    |
| 13C3-PFBA                          | 2.755                | 216.0 -> 172.0 | 39669             | 5.00 µg/L   | 0.077    |
| 18O2-PFHxS                         | 7.066                | 403.0 -> 83.9  | 3986              | 2.50 µg/L   | 0.025    |
| 13C4-PFOA                          | 7.002                | 417.1 -> 372.0 | 46614             | 2.50 µg/L   | 0.025    |
| 13C2-PFDA                          | 8.029                | 515.1 -> 470.1 | 12493             | 1.25 µg/L   | 0.025    |
| 13C5-PFNA                          | 7.534                | 468.0 -> 423.0 | 16700             | 1.25 µg/L   | 0.025    |
| 13C2-PFHxA                         | 5.373                | 315.1 -> 270.0 | 29172             | 2.50 µg/L   | 0.037    |
| <b>System Monitoring Compounds</b> |                      |                |                   |             |          |
| 13C2-4:2FTS                        | 5.071                | 329.1 -> 80.9  | 816               | 4.31 µg/L   | 0.025    |
| Spiked Amount: 5.00                | Range: 50.0 - 150.0% |                | Recovery = 86.3%  |             |          |
| 13C2-6:2FTS                        | 6.773                | 429.1 -> 80.9  | 2288              | 5.57 µg/L   | 0.025    |
| Spiked Amount: 5.00                | Range: 50.0 - 150.0% |                | Recovery = 111.5% |             |          |
| 13C2-8:2FTS                        | 7.828                | 529.1 -> 80.9  | 3005              | 5.47 µg/L   | 0.025    |
| Spiked Amount: 5.00                | Range: 50.0 - 150.0% |                | Recovery = 109.4% |             |          |
| 13C2-PFDoDA                        | 8.892                | 615.1 -> 570.0 | 13348             | 1.07 µg/L   | 0.012    |
| Spiked Amount: 1.25                | Range: 50.0 - 150.0% |                | Recovery = 85.5%  |             |          |
| 13C2-PFTeDA                        | 9.662                | 715.2 -> 670.0 | 13170             | 1.06 µg/L   | 0.025    |
| Spiked Amount: 1.25                | Range: 50.0 - 150.0% |                | Recovery = 85.0%  |             |          |
| 13C3-PFBS                          | 5.227                | 302.1 -> 79.9  | 7948              | 2.60 µg/L   | 0.038    |
| Spiked Amount: 2.50                | Range: 50.0 - 150.0% |                | Recovery = 104.1% |             |          |
| 13C3-PFHxS                         | 7.054                | 402.1 -> 79.9  | 6696              | 2.68 µg/L   | 0.025    |



7.1.3  
7

Perfluorinated Compounds by LC/MS/MS

| Compound             | RT                   | Transition     | Response | Conc. Units       | Dev(Min) |
|----------------------|----------------------|----------------|----------|-------------------|----------|
| Spiked Amount: 2.50  | Range: 50.0 - 150.0% |                |          | Recovery = 107.2% |          |
| 13C4-PFBA            | 2.765                | 216.8 -> 171.9 | 92708    | 11.13 µg/L        | 0.091    |
| Spiked Amount: 10.00 | Range: 50.0 - 150.0% |                |          | Recovery = 111.3% |          |
| 13C4-PFHpA           | 6.317                | 367.1 -> 322.0 | 28152    | 2.74 µg/L         | 0.025    |
| Spiked Amount: 2.50  | Range: 50.0 - 150.0% |                |          | Recovery = 109.5% |          |
| 13C5-PFHxA           | 5.372                | 318.0 -> 273.0 | 28623    | 2.66 µg/L         | 0.037    |
| Spiked Amount: 2.50  | Range: 50.0 - 150.0% |                |          | Recovery = 106.5% |          |
| 13C5-PFPeA           | 4.200                | 268.3 -> 223.0 | 36490    | 5.45 µg/L         | 0.037    |
| Spiked Amount: 5.00  | Range: 50.0 - 150.0% |                |          | Recovery = 109.0% |          |
| 13C6-PFDA            | 8.029                | 519.1 -> 474.1 | 11226    | 1.24 µg/L         | 0.025    |
| Spiked Amount: 1.25  | Range: 50.0 - 150.0% |                |          | Recovery = 98.8%  |          |
| 13C7-PFUnDA          | 8.473                | 570.0 -> 525.1 | 13388    | 1.25 µg/L         | 0.025    |
| Spiked Amount: 1.25  | Range: 50.0 - 150.0% |                |          | Recovery = 99.9%  |          |
| 13C8-FOSA            | 9.818                | 506.1 -> 77.8  | 7204     | 1.98 µg/L         | 0.025    |
| Spiked Amount: 2.50  | Range: 50.0 - 150.0% |                |          | Recovery = 79.4%  |          |
| 13C8-PFOA            | 7.001                | 421.1 -> 376.0 | 45655    | 2.65 µg/L         | 0.025    |
| Spiked Amount: 2.50  | Range: 50.0 - 150.0% |                |          | Recovery = 106.0% |          |
| 13C8-PFOS            | 8.143                | 507.1 -> 79.9  | 6659     | 2.35 µg/L         | 0.026    |
| Spiked Amount: 2.50  | Range: 50.0 - 150.0% |                |          | Recovery = 93.9%  |          |
| 13C9-PFNA            | 7.534                | 472.1 -> 427.0 | 17236    | 1.29 µg/L         | 0.012    |
| Spiked Amount: 1.25  | Range: 50.0 - 150.0% |                |          | Recovery = 103.1% |          |
| d3-MeFOSAA           | 8.111                | 573.2 -> 419.0 | 14693    | 4.73 µg/L         | 0.025    |
| Spiked Amount: 5.00  | Range: 50.0 - 150.0% |                |          | Recovery = 94.5%  |          |
| 13C3-HFPO-DA         | 5.727                | 286.9 -> 168.9 | 28389    | 10.57 µg/L        | 0.037    |
| Spiked Amount: 10.00 | Range: 50.0 - 150.0% |                |          | Recovery = 105.7% |          |
| d3-MeFOSA            | 11.152               | 515.0 -> 219.0 | 4456     | 2.06 µg/L         | 0.026    |
| Spiked Amount: 2.50  | Range: 50.0 - 150.0% |                |          | Recovery = 82.3%  |          |
| d5-EtFOSAA           | 8.309                | 589.2 -> 419.0 | 11794    | 4.48 µg/L         | 0.026    |
| Spiked Amount: 5.00  | Range: 50.0 - 150.0% |                |          | Recovery = 89.7%  |          |
| d7-MeFOSE            | 11.047               | 623.2 -> 58.9  | 29093    | 16.25 µg/L        | 0.025    |
| Spiked Amount: 25.00 | Range: 50.0 - 150.0% |                |          | Recovery = 65.0%  |          |
| d9-EtFOSE            | 11.331               | 639.2 -> 58.9  | 42392    | 21.14 µg/L        | 0.012    |
| Spiked Amount: 25.00 | Range: 50.0 - 150.0% |                |          | Recovery = 84.6%  |          |
| d5-EtFOSA            | 11.410               | 531.1 -> 219.0 | 5315     | 2.24 µg/L         | 0.012    |
| Spiked Amount: 2.50  | Range: 50.0 - 150.0% |                |          | Recovery = 89.6%  |          |

7.1.3  
7

| Target Compounds | RT | Transition     | Response | Conc. Units | QValue |
|------------------|----|----------------|----------|-------------|--------|
| 4:2FTS           | -  | 327.1 -> 307.0 | -        | N.D.        |        |
|                  |    | 327.1 -> 80.9  |          |             |        |
| 6:2FTS           | -  | 427.1 -> 407.0 | -        | N.D.        |        |
|                  |    | 427.1 -> 80.9  |          |             |        |
| 8:2FTS           | -  | 527.1 -> 507.0 | -        | N.D.        |        |
|                  |    | 527.1 -> 80.8  |          |             |        |
| EtFOSAA          | -  | 584.2 -> 419.1 | -        | N.D.        |        |
|                  |    | 584.2 -> 526.0 |          |             |        |
| FOSA             | -  | 498.1 -> 77.9  | -        | N.D.        |        |
|                  |    | 498.1 -> 478.0 |          |             |        |
| MeFOSAA          | -  | 570.1 -> 419.0 | -        | N.D.        |        |
|                  |    | 570.1 -> 483.0 |          |             |        |
| PFBA             | -  | 212.8 -> 168.9 | -        | N.D.        |        |
| PFBS             | -  | 298.7 -> 79.9  | -        | N.D.        |        |
|                  |    | 298.7 -> 98.8  |          |             |        |
| PFDA             | -  | 512.9 -> 469.0 | -        | N.D.        |        |
|                  |    | 512.9 -> 219.0 |          |             |        |
| PFDODA           | -  | 613.1 -> 569.0 | -        | N.D.        |        |
|                  |    | 613.1 -> 319.0 |          |             |        |
| PFDS             | -  | 599.0 -> 79.9  | -        | N.D.        |        |



Perfluorinated Compounds by LC/MS/MS

| Compound     | RT | Transition     | Response | Conc. Units | Dev(Min) |
|--------------|----|----------------|----------|-------------|----------|
| PFHpA        | -  | 599.0 -> 98.8  | -        | N.D.        |          |
|              |    | 363.1 -> 319.0 |          |             |          |
| PFHpS        | -  | 363.1 -> 169.0 | -        | N.D.        |          |
|              |    | 449.0 -> 79.9  |          |             |          |
| PFHxA        | -  | 449.0 -> 98.9  | -        | N.D.        |          |
|              |    | 313.0 -> 269.0 |          |             |          |
| PFHxS        | -  | 313.0 -> 118.9 | -        | N.D.        |          |
|              |    | 398.7 -> 79.9  |          |             |          |
| PFNA         | -  | 398.7 -> 98.9  | -        | N.D.        |          |
|              |    | 463.0 -> 419.0 |          |             |          |
| PFNS         | -  | 463.0 -> 219.0 | -        | N.D.        |          |
|              |    | 548.8 -> 79.9  |          |             |          |
| PFOA         | -  | 548.8 -> 98.9  | -        | N.D.        |          |
|              |    | 413.0 -> 369.0 |          |             |          |
| PFOS         | -  | 413.0 -> 169.0 | -        | N.D.        |          |
|              |    | 498.9 -> 79.9  |          |             |          |
| PFPeA        | -  | 498.9 -> 98.8  | -        | N.D.        |          |
|              |    | 263.0 -> 219.0 |          |             |          |
| PFPeS        | -  | 349.1 -> 79.9  | -        | N.D.        |          |
|              |    | 349.1 -> 98.9  |          |             |          |
| PFTeDA       | -  | 713.1 -> 669.0 | -        | N.D.        |          |
|              |    | 713.1 -> 168.9 |          |             |          |
| PFTrDA       | -  | 663.0 -> 619.0 | -        | N.D.        |          |
|              |    | 663.0 -> 168.9 |          |             |          |
| PFUnDA       | -  | 563.1 -> 519.0 | -        | N.D.        |          |
|              |    | 563.1 -> 269.1 |          |             |          |
| 11Cl-PF3OUdS | -  | 630.9 -> 450.9 | -        | N.D.        |          |
|              |    | 632.9 -> 452.9 |          |             |          |
| 9Cl-PF3ONS   | -  | 530.8 -> 351.0 | -        | N.D.        |          |
|              |    | 532.8 -> 353.0 |          |             |          |
| ADONA        | -  | 376.9 -> 250.9 | -        | N.D.        |          |
|              |    | 376.9 -> 84.8  |          |             |          |
| HFPO-DA      | -  | 284.9 -> 168.9 | -        | N.D.        |          |
|              |    | 284.9 -> 184.9 |          |             |          |
| 3:3FTCA      | -  | 241.0 -> 177.0 | -        | N.D.        |          |
|              |    | 241.0 -> 117.0 |          |             |          |
| 5:3FTCA      | -  | 341.0 -> 237.1 | -        | N.D.        |          |
|              |    | 341.0 -> 217.0 |          |             |          |
| 7:3FTCA      | -  | 441.0 -> 316.9 | -        | N.D.        |          |
|              |    | 441.0 -> 336.9 |          |             |          |
| EtFOSA       | -  | 526.0 -> 219.0 | -        | N.D.        |          |
|              |    | 526.0 -> 169.0 |          |             |          |
| EtFOSE       | -  | 630.0 -> 58.9  | -        | N.D.        |          |
|              |    | 511.9 -> 219.0 |          |             |          |
| MeFOSA       | -  | 511.9 -> 169.0 | -        | N.D.        |          |
|              |    | 616.1 -> 58.9  |          |             |          |
| MeFOSE       | -  | 699.1 -> 79.9  | -        | N.D.        |          |
|              |    | 699.1 -> 98.8  |          |             |          |
| PFDoDS       | -  | 295.0 -> 201.0 | -        | N.D.        |          |
|              |    | 295.0 -> 84.9  |          |             |          |
| NFDHA        | -  | 279.0 -> 85.1  | -        | N.D.        |          |
|              |    | 229.0 -> 84.9  |          |             |          |
| PFMBA        | -  | 314.8 -> 134.9 | -        | N.D.        |          |
|              |    | 314.8 -> 82.9  |          |             |          |

# = Qualifier out of range, m = manually integrated, + = Area summed

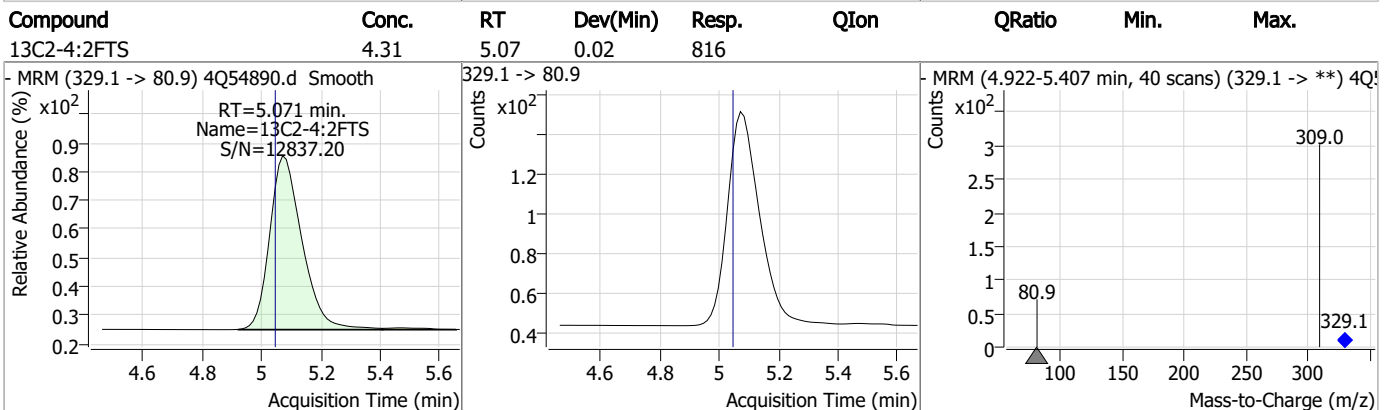
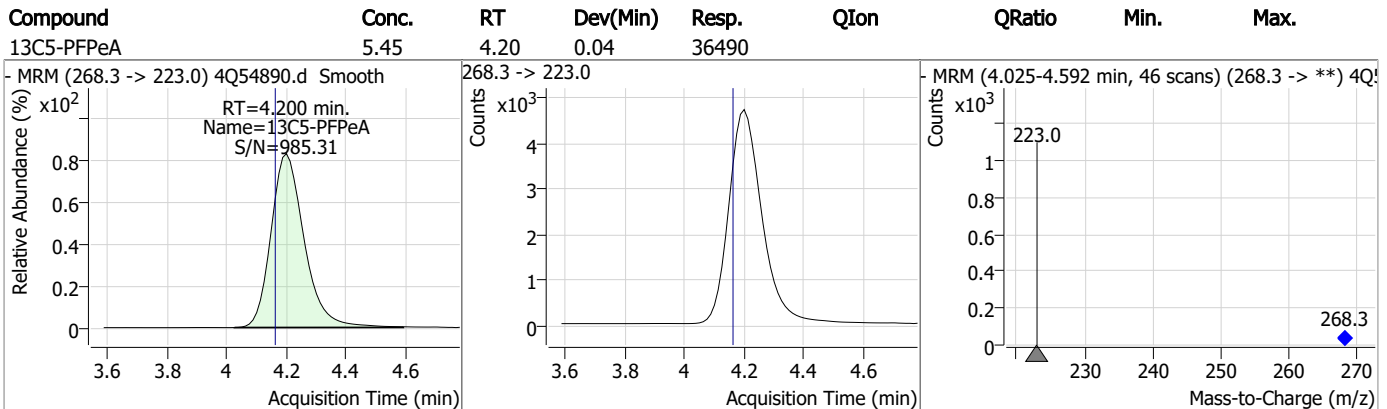
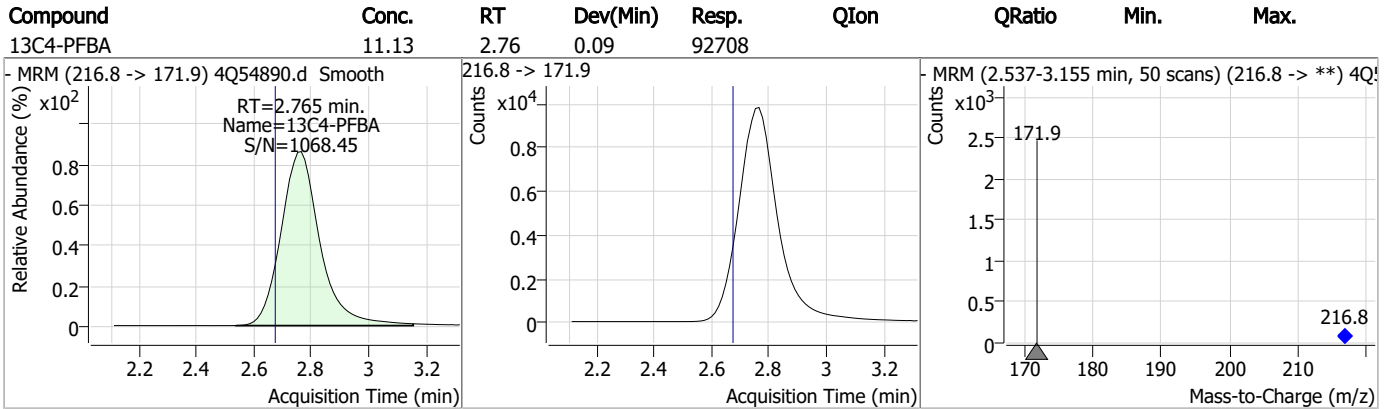
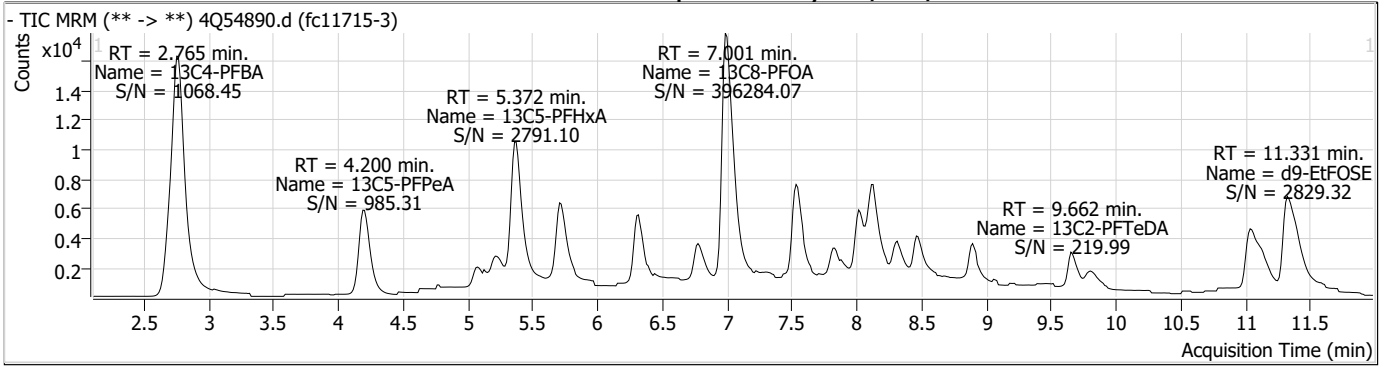
### Perfluorinated Compounds by LC/MS/MS

| Compound | RT | Transition | Response | Conc. Units | Dev(Min) |
|----------|----|------------|----------|-------------|----------|
|----------|----|------------|----------|-------------|----------|

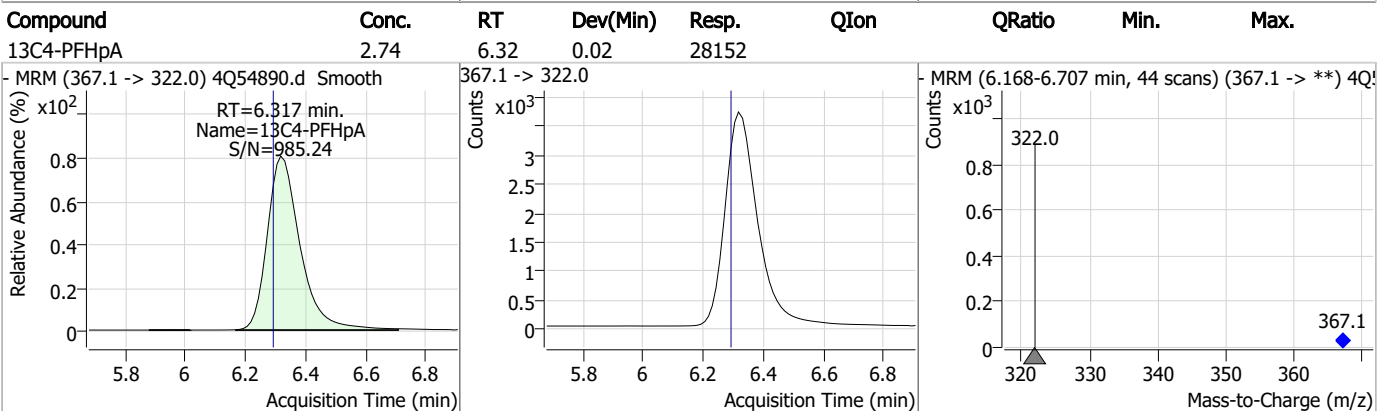
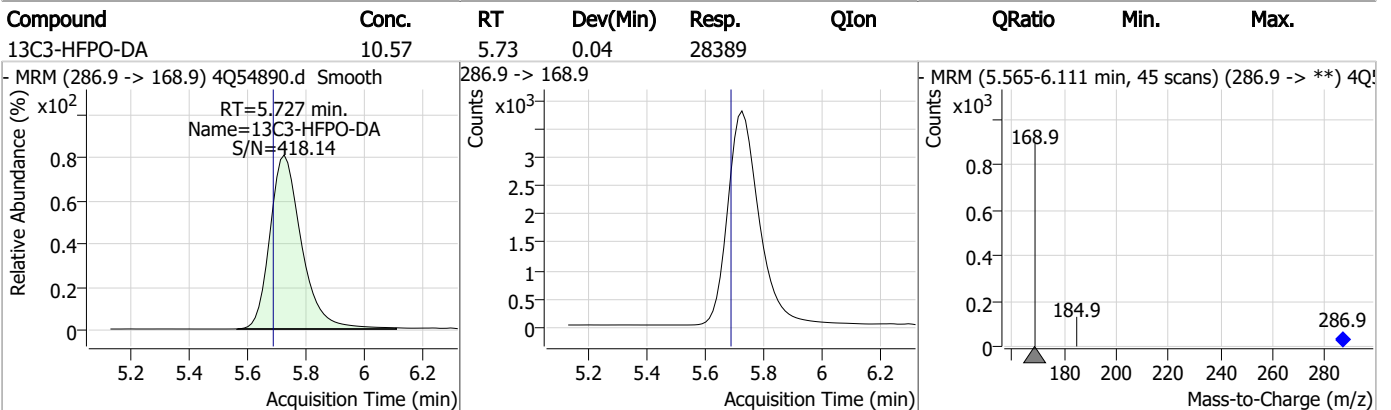
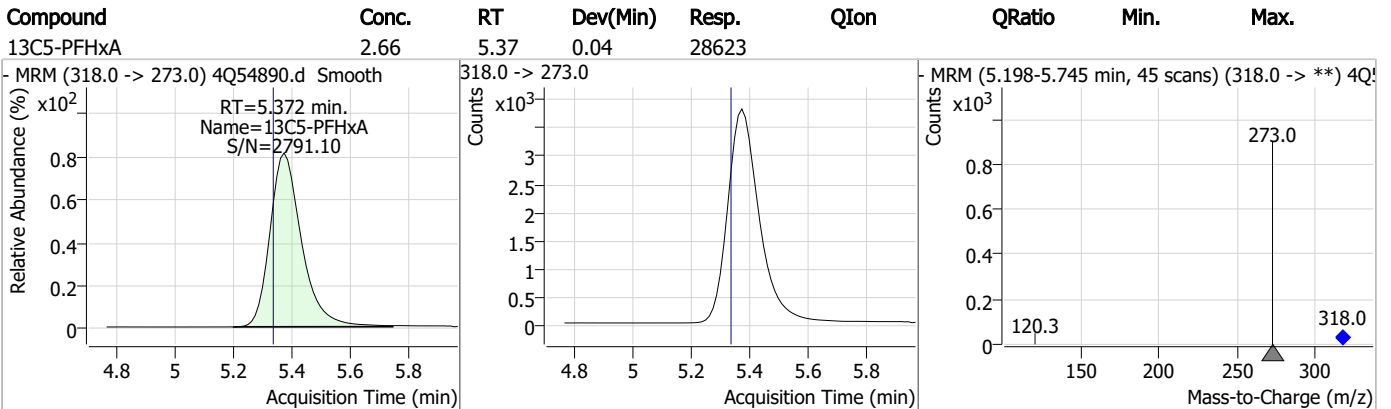
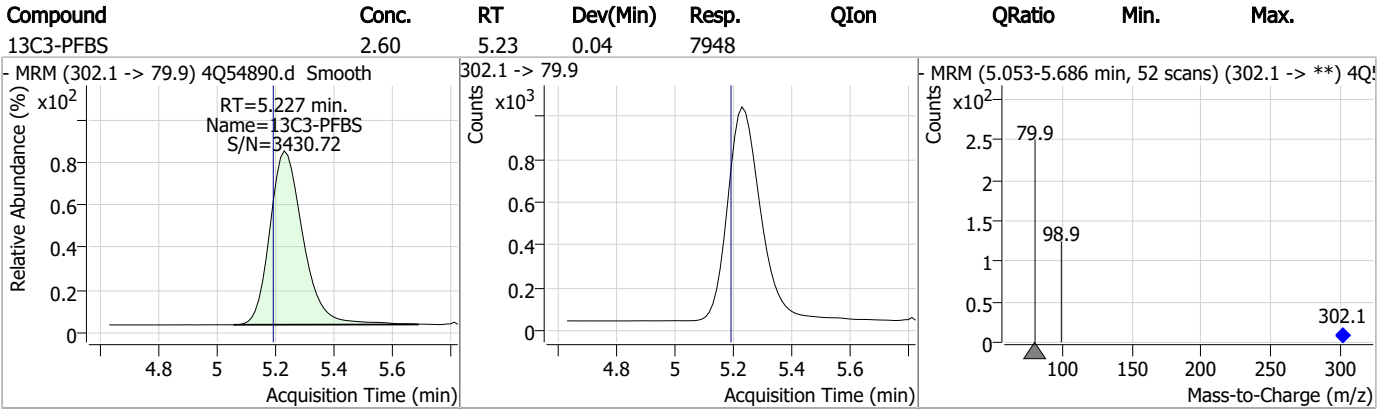
7.1.3  
7



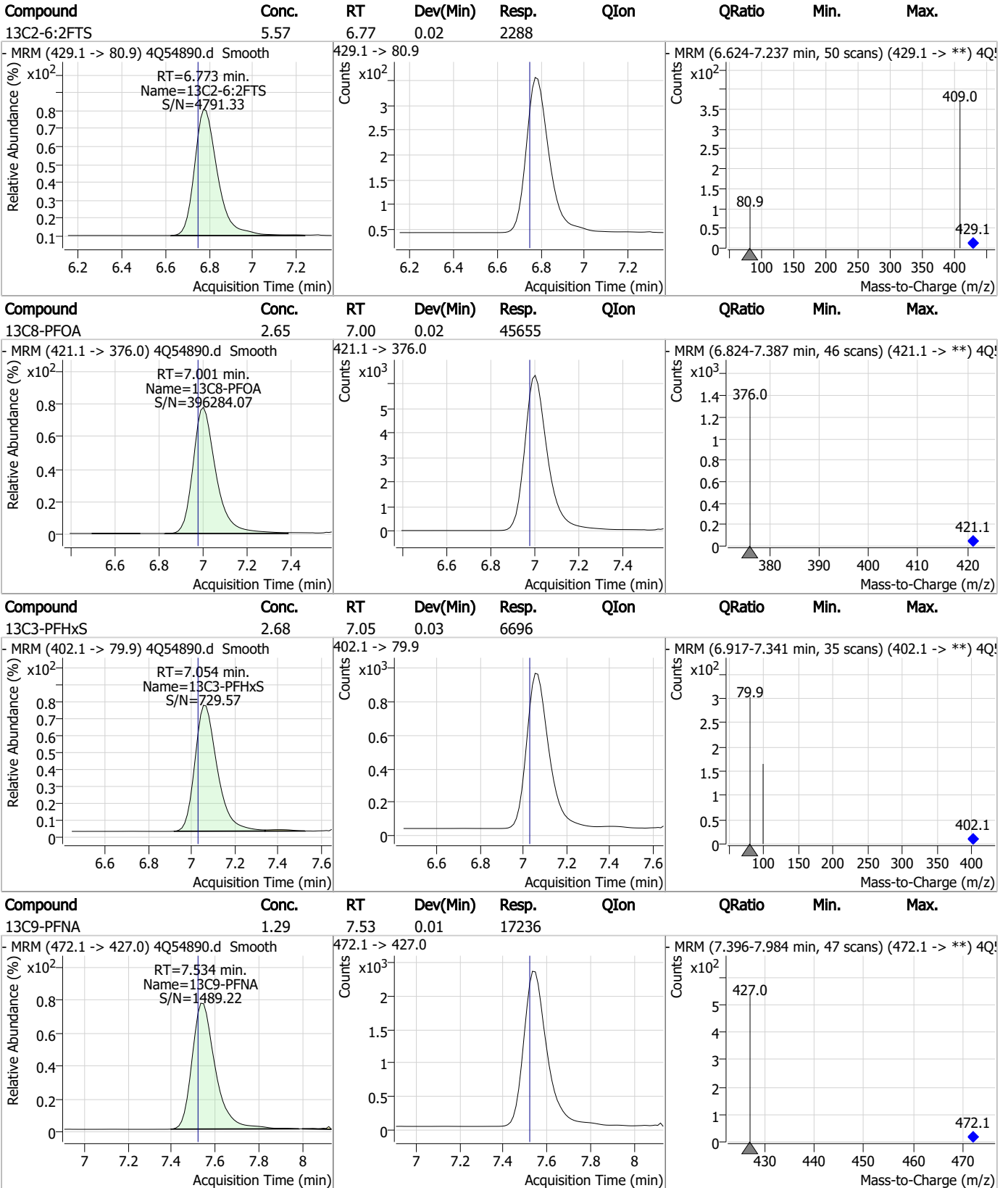
### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS

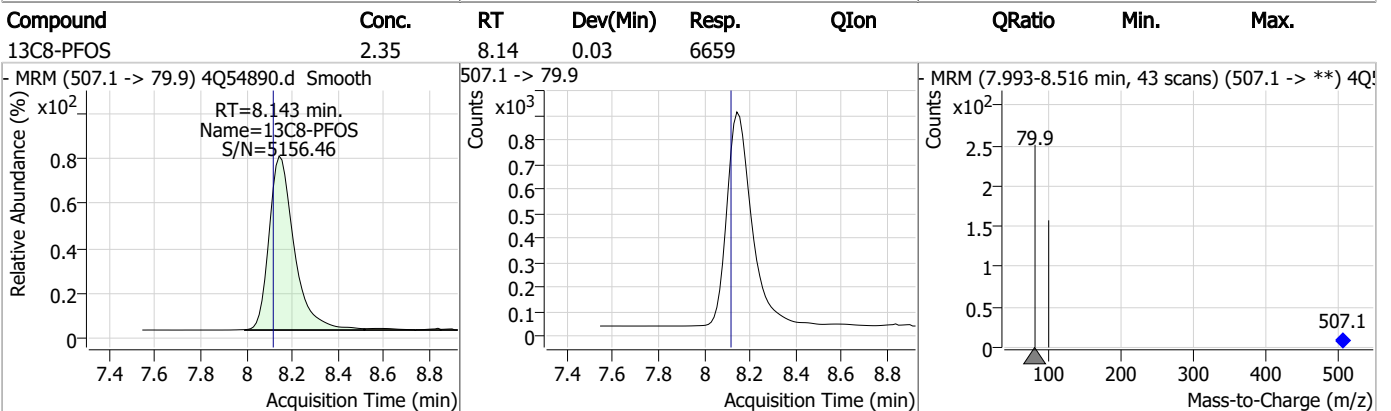
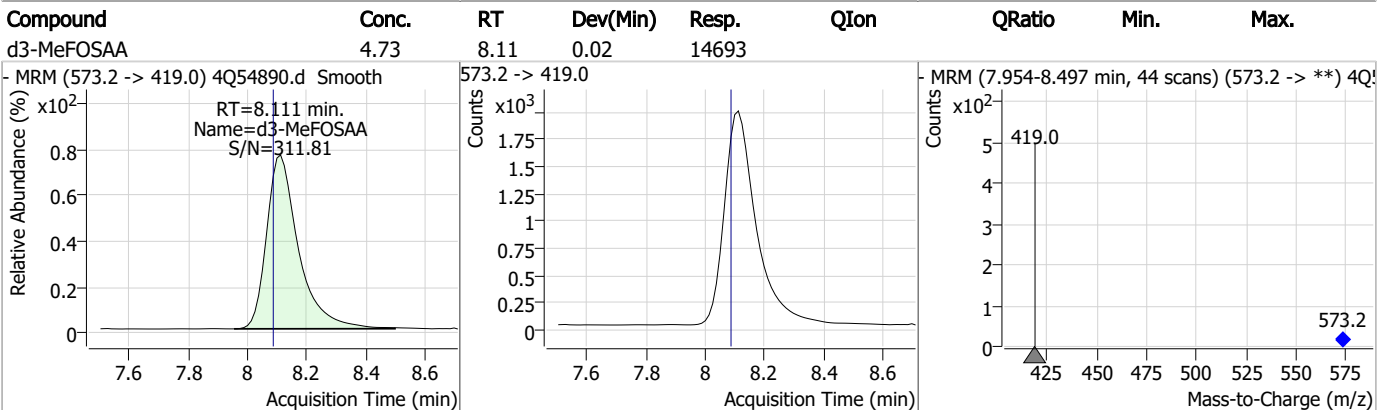
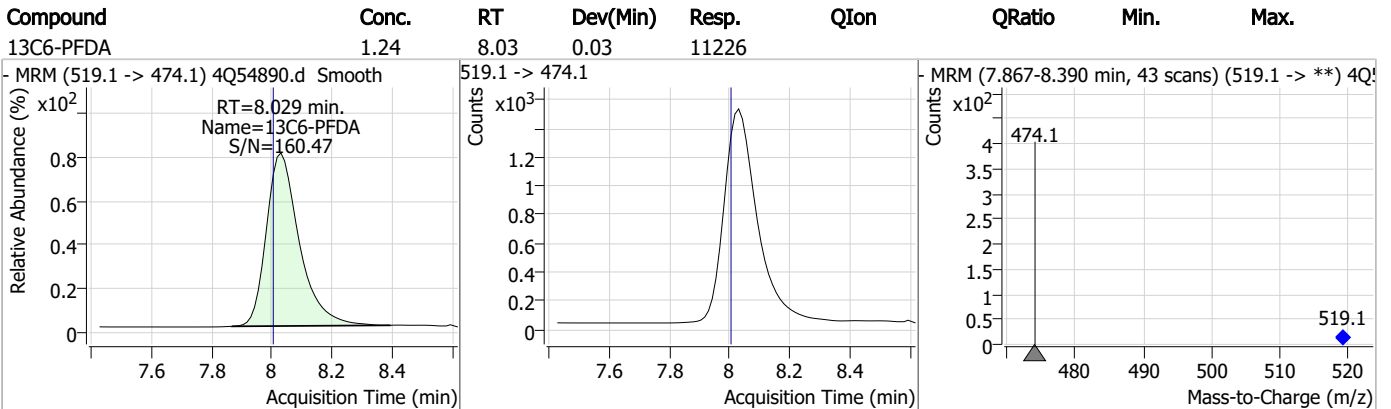
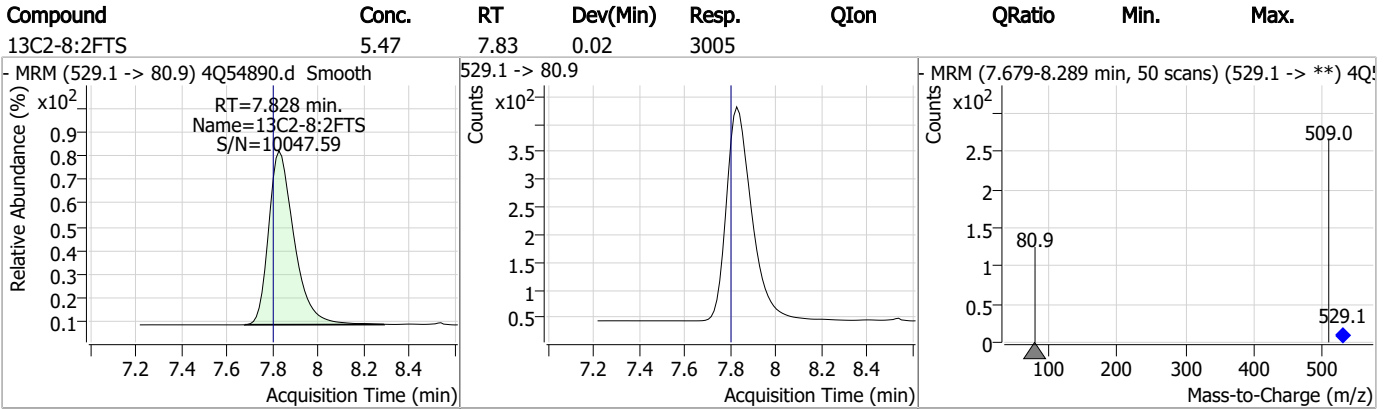


### Perfluorinated Compounds by LC/MS/MS

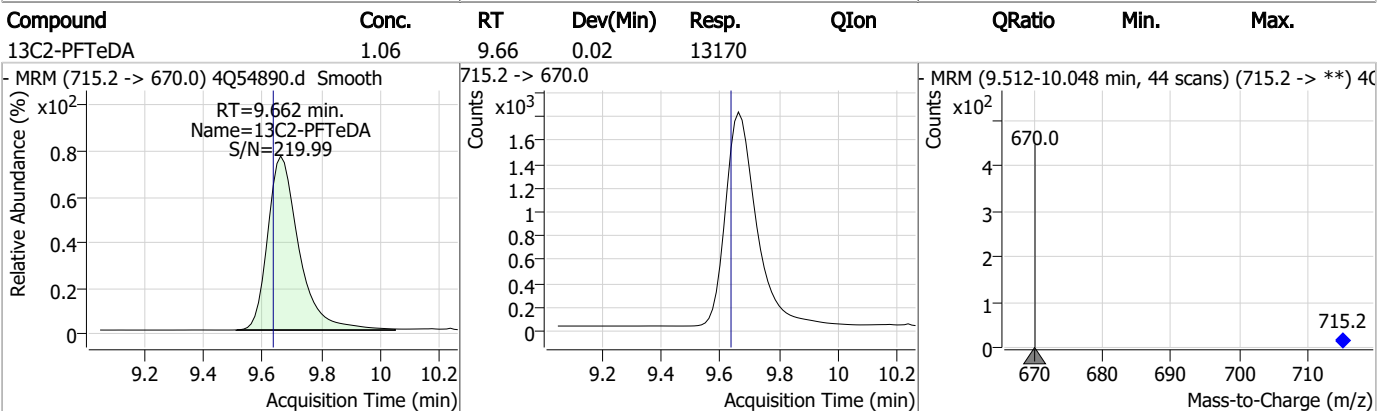
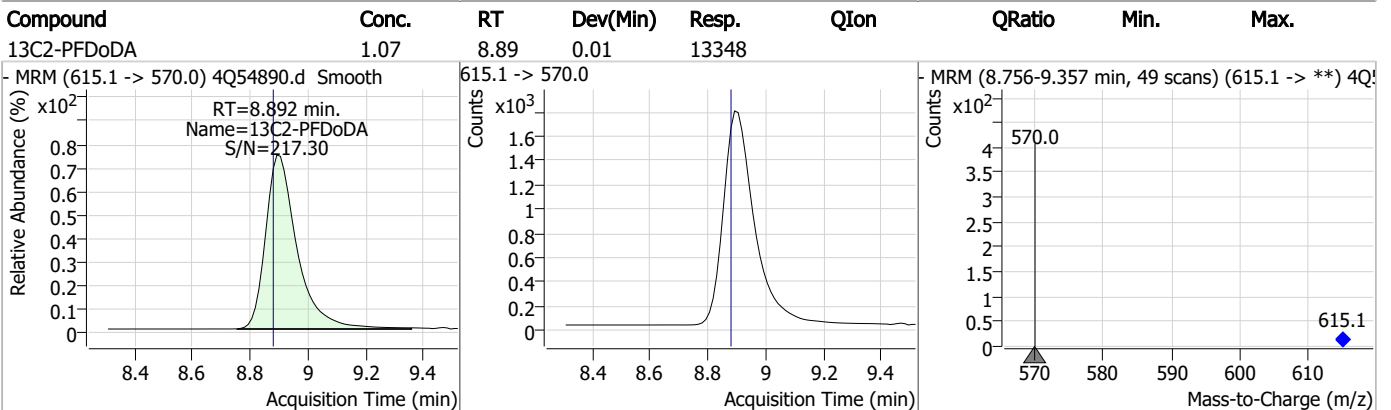
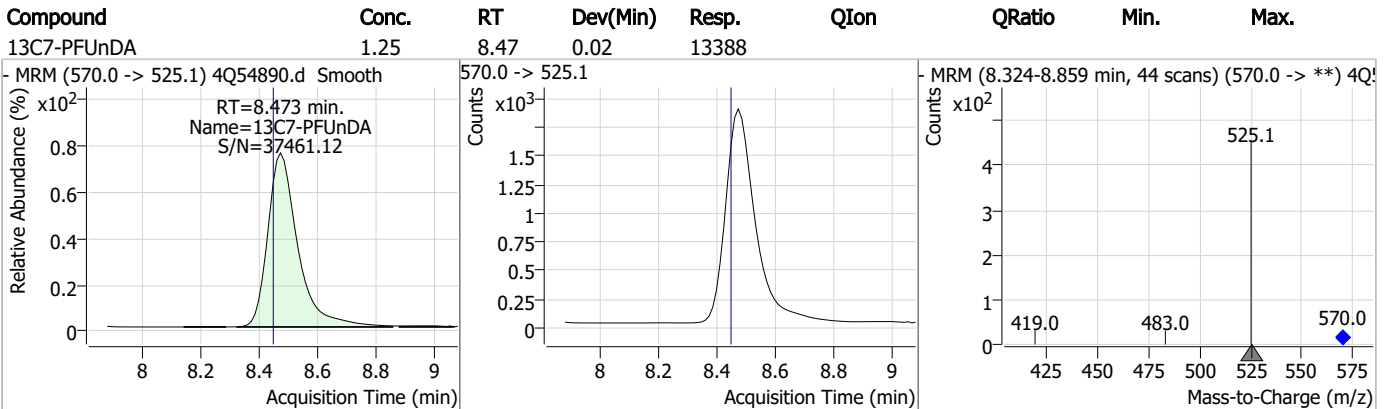
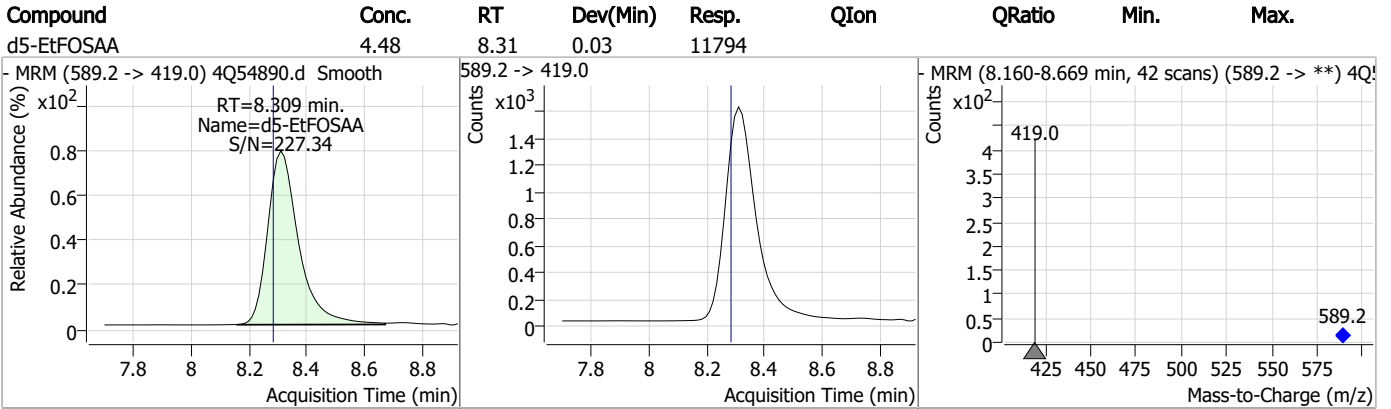




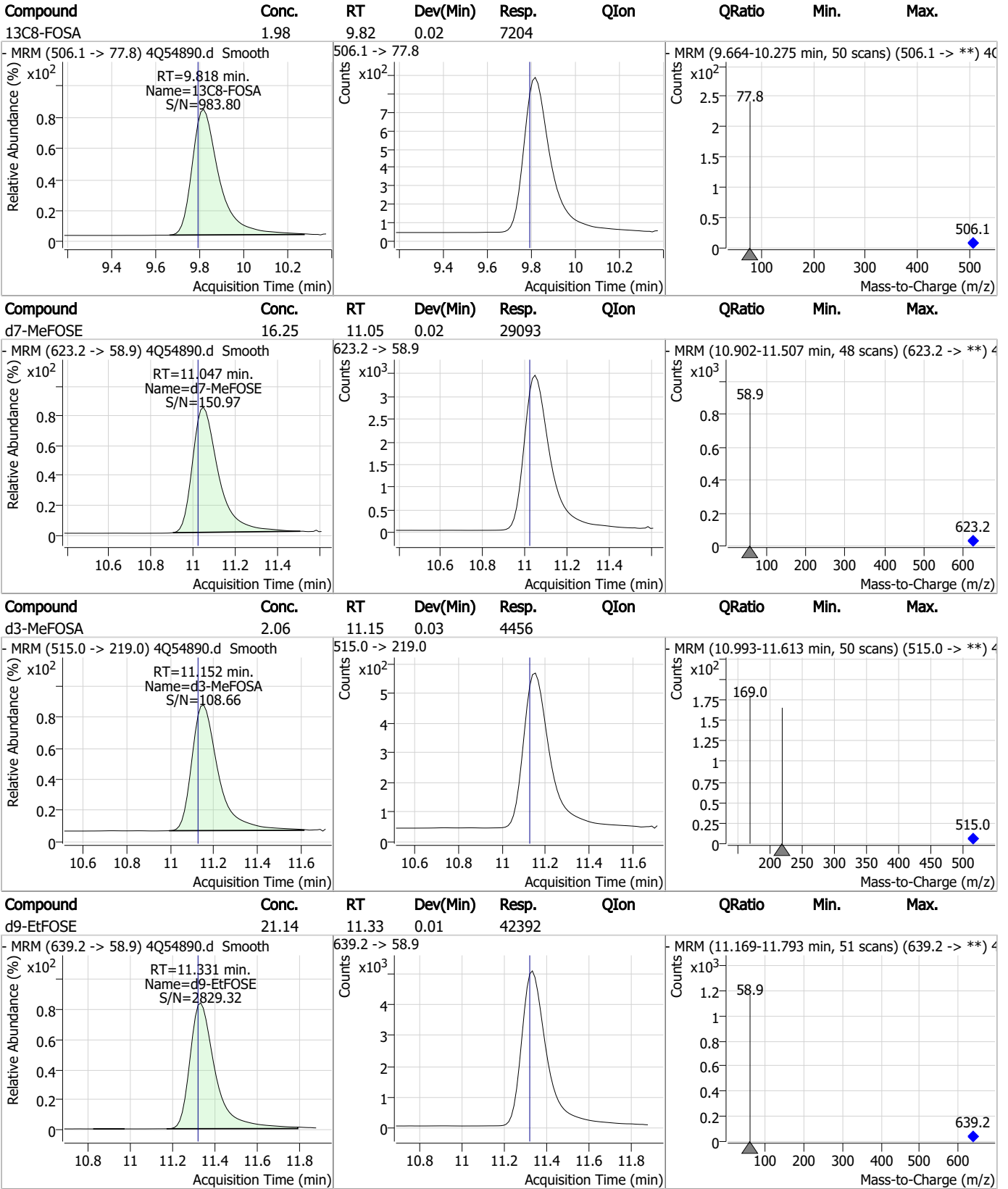
### Perfluorinated Compounds by LC/MS/MS



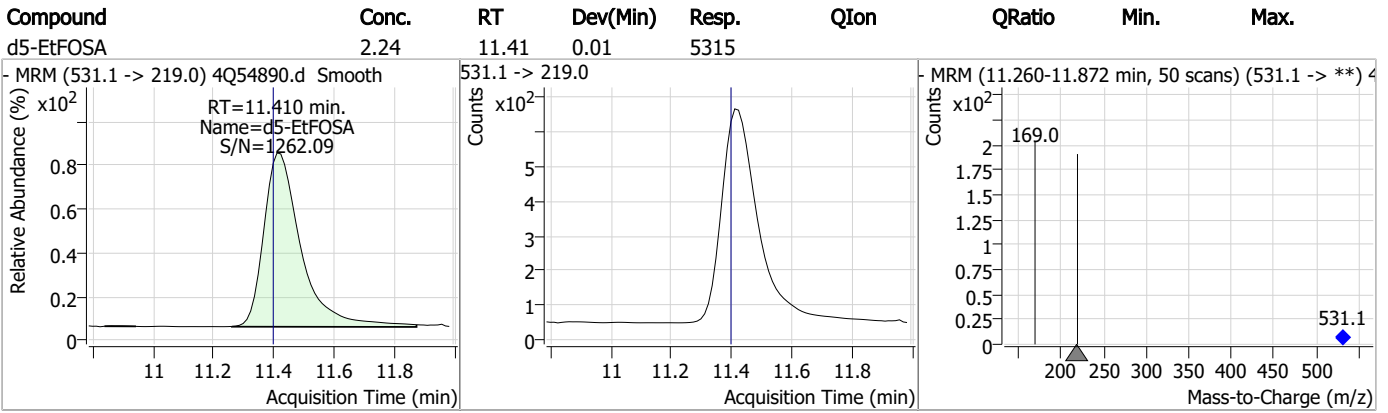
### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS



7.1.3  
7



Perfluorinated Compounds by LC/MS/MS

Data File : 4Q54892.d  
 Operator : annal  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 12/8/2023 9:34:26 PM  
 Sample Name : fc11715-4  
 Vial : P2-D5  
 DA Method File : 1633\_120823\_S4Q804.quantmethod.xml  
 Batch Name : s4q804.batch.bin  
 Sample Information : OP495,S4Q804,560,,,5.0,1,water

| Compound                           | RT                   | Transition     | Response          | Conc. Units | Dev(Min) |
|------------------------------------|----------------------|----------------|-------------------|-------------|----------|
| <b>Internal Standards</b>          |                      |                |                   |             |          |
| M4-PFBA                            | 2.765                | 216.8 -> 171.9 | 95408             | 10.00 µg/L  | 0.091    |
| M5-PFPeA                           | 4.200                | 268.3 -> 223.0 | 38117             | 5.00 µg/L   | 0.037    |
| M5-PFHxA                           | 5.372                | 318.0 -> 273.0 | 30050             | 2.50 µg/L   | 0.037    |
| M4-PFHpA                           | 6.317                | 367.1 -> 322.0 | 28299             | 2.50 µg/L   | 0.025    |
| M8-PFOA                            | 7.001                | 421.1 -> 376.0 | 45842             | 2.50 µg/L   | 0.025    |
| M9-PFNA                            | 7.547                | 472.1 -> 427.0 | 17837             | 1.25 µg/L   | 0.026    |
| M6-PFDA                            | 8.029                | 519.1 -> 474.1 | 12289             | 1.25 µg/L   | 0.025    |
| M7-PFUnDA                          | 8.473                | 570.0 -> 525.1 | 12690             | 1.25 µg/L   | 0.025    |
| M2-PFDoDA                          | 8.905                | 615.1 -> 570.0 | 13516             | 1.25 µg/L   | 0.025    |
| M2-PFTeDA                          | 9.662                | 715.2 -> 670.0 | 12986             | 1.25 µg/L   | 0.025    |
| M8-FOSA                            | 9.818                | 506.1 -> 77.8  | 7962              | 2.50 µg/L   | 0.025    |
| M3-PFBS                            | 5.227                | 302.1 -> 79.9  | 8107              | 2.50 µg/L   | 0.038    |
| M3-PFHxS                           | 7.054                | 402.1 -> 79.9  | 6852              | 2.50 µg/L   | 0.025    |
| M8-PFOS                            | 8.143                | 507.1 -> 79.9  | 6561              | 2.50 µg/L   | 0.026    |
| M2-4:2FTS                          | 5.071                | 329.1 -> 80.9  | 965               | 5.00 µg/L   | 0.025    |
| M2-6:2FTS                          | 6.773                | 429.1 -> 80.9  | 2293              | 5.00 µg/L   | 0.025    |
| M2-8:2FTS                          | 7.828                | 529.1 -> 80.9  | 2880              | 5.00 µg/L   | 0.025    |
| M3-MeFOSAA                         | 8.111                | 573.2 -> 419.0 | 17250             | 5.00 µg/L   | 0.025    |
| M3-HFPO-DA                         | 5.727                | 286.9 -> 168.9 | 28556             | 10.00 µg/L  | 0.037    |
| M5-EtFOSAA                         | 8.309                | 589.2 -> 419.0 | 13831             | 5.00 µg/L   | 0.026    |
| M7-MeFOSE                          | 11.047               | 623.2 -> 58.9  | 30295             | 25.00 µg/L  | 0.025    |
| M9-EtFOSE                          | 11.331               | 639.2 -> 58.9  | 43432             | 25.00 µg/L  | 0.012    |
| M5-EtFOSA                          | 11.422               | 531.1 -> 219.0 | 5499              | 2.50 µg/L   | 0.025    |
| M3-MeFOSA                          | 11.139               | 515.0 -> 219.0 | 4609              | 2.50 µg/L   | 0.012    |
| 13C4-PFOS                          | 8.144                | 502.8 -> 79.9  | 5705              | 2.50 µg/L   | 0.026    |
| 13C3-PFBA                          | 2.755                | 216.0 -> 172.0 | 40043             | 5.00 µg/L   | 0.077    |
| 18O2-PFHxS                         | 7.066                | 403.0 -> 83.9  | 3715              | 2.50 µg/L   | 0.025    |
| 13C4-PFOA                          | 7.002                | 417.1 -> 372.0 | 45350             | 2.50 µg/L   | 0.025    |
| 13C2-PFDA                          | 8.029                | 515.1 -> 470.1 | 12168             | 1.25 µg/L   | 0.025    |
| 13C5-PFNA                          | 7.534                | 468.0 -> 423.0 | 15958             | 1.25 µg/L   | 0.025    |
| 13C2-PFHxA                         | 5.373                | 315.1 -> 270.0 | 28910             | 2.50 µg/L   | 0.037    |
| <b>System Monitoring Compounds</b> |                      |                |                   |             |          |
| 13C2-4:2FTS                        | 5.071                | 329.1 -> 80.9  | 965               | 5.47 µg/L   | 0.025    |
| Spiked Amount: 5.00                | Range: 50.0 - 150.0% |                | Recovery = 109.4% |             |          |
| 13C2-6:2FTS                        | 6.773                | 429.1 -> 80.9  | 2293              | 5.99 µg/L   | 0.025    |
| Spiked Amount: 5.00                | Range: 50.0 - 150.0% |                | Recovery = 119.9% |             |          |
| 13C2-8:2FTS                        | 7.828                | 529.1 -> 80.9  | 2880              | 5.62 µg/L   | 0.025    |
| Spiked Amount: 5.00                | Range: 50.0 - 150.0% |                | Recovery = 112.5% |             |          |
| 13C2-PFDoDA                        | 8.905                | 615.1 -> 570.0 | 13516             | 1.11 µg/L   | 0.025    |
| Spiked Amount: 1.25                | Range: 50.0 - 150.0% |                | Recovery = 88.9%  |             |          |
| 13C2-PFTeDA                        | 9.662                | 715.2 -> 670.0 | 12986             | 1.08 µg/L   | 0.025    |
| Spiked Amount: 1.25                | Range: 50.0 - 150.0% |                | Recovery = 86.0%  |             |          |
| 13C3-PFBS                          | 5.227                | 302.1 -> 79.9  | 8107              | 2.85 µg/L   | 0.038    |
| Spiked Amount: 2.50                | Range: 50.0 - 150.0% |                | Recovery = 113.9% |             |          |
| 13C3-PFHxS                         | 7.054                | 402.1 -> 79.9  | 6852              | 2.94 µg/L   | 0.025    |

Perfluorinated Compounds by LC/MS/MS

| Compound             | RT                   | Transition     | Response | Conc. Units       | Dev(Min) |
|----------------------|----------------------|----------------|----------|-------------------|----------|
| Spiked Amount: 2.50  | Range: 50.0 - 150.0% |                |          | Recovery = 117.6% |          |
| 13C4-PFBA            | 2.765                | 216.8 -> 171.9 | 95408    | 11.35 µg/L        | 0.091    |
| Spiked Amount: 10.00 | Range: 50.0 - 150.0% |                |          | Recovery = 113.5% |          |
| 13C4-PFHpA           | 6.317                | 367.1 -> 322.0 | 28299    | 2.78 µg/L         | 0.025    |
| Spiked Amount: 2.50  | Range: 50.0 - 150.0% |                |          | Recovery = 111.1% |          |
| 13C5-PFHxA           | 5.372                | 318.0 -> 273.0 | 30050    | 2.82 µg/L         | 0.037    |
| Spiked Amount: 2.50  | Range: 50.0 - 150.0% |                |          | Recovery = 112.8% |          |
| 13C5-PFPeA           | 4.200                | 268.3 -> 223.0 | 38117    | 5.74 µg/L         | 0.037    |
| Spiked Amount: 5.00  | Range: 50.0 - 150.0% |                |          | Recovery = 114.9% |          |
| 13C6-PFDA            | 8.029                | 519.1 -> 474.1 | 12289    | 1.39 µg/L         | 0.025    |
| Spiked Amount: 1.25  | Range: 50.0 - 150.0% |                |          | Recovery = 111.0% |          |
| 13C7-PFUnDA          | 8.473                | 570.0 -> 525.1 | 12690    | 1.22 µg/L         | 0.025    |
| Spiked Amount: 1.25  | Range: 50.0 - 150.0% |                |          | Recovery = 97.3%  |          |
| 13C8-FOSA            | 9.818                | 506.1 -> 77.8  | 7962     | 2.15 µg/L         | 0.025    |
| Spiked Amount: 2.50  | Range: 50.0 - 150.0% |                |          | Recovery = 86.1%  |          |
| 13C8-PFOA            | 7.001                | 421.1 -> 376.0 | 45842    | 2.74 µg/L         | 0.025    |
| Spiked Amount: 2.50  | Range: 50.0 - 150.0% |                |          | Recovery = 109.4% |          |
| 13C8-PFOS            | 8.143                | 507.1 -> 79.9  | 6561     | 2.27 µg/L         | 0.026    |
| Spiked Amount: 2.50  | Range: 50.0 - 150.0% |                |          | Recovery = 90.8%  |          |
| 13C9-PFNA            | 7.547                | 472.1 -> 427.0 | 17837    | 1.40 µg/L         | 0.026    |
| Spiked Amount: 1.25  | Range: 50.0 - 150.0% |                |          | Recovery = 111.6% |          |
| d3-MeFOSAA           | 8.111                | 573.2 -> 419.0 | 17250    | 5.45 µg/L         | 0.025    |
| Spiked Amount: 5.00  | Range: 50.0 - 150.0% |                |          | Recovery = 108.9% |          |
| 13C3-HFPO-DA         | 5.727                | 286.9 -> 168.9 | 28556    | 10.73 µg/L        | 0.037    |
| Spiked Amount: 10.00 | Range: 50.0 - 150.0% |                |          | Recovery = 107.3% |          |
| d3-MeFOSA            | 11.139               | 515.0 -> 219.0 | 4609     | 2.09 µg/L         | 0.012    |
| Spiked Amount: 2.50  | Range: 50.0 - 150.0% |                |          | Recovery = 83.6%  |          |
| d5-EtFOSAA           | 8.309                | 589.2 -> 419.0 | 13831    | 5.16 µg/L         | 0.026    |
| Spiked Amount: 5.00  | Range: 50.0 - 150.0% |                |          | Recovery = 103.3% |          |
| d7-MeFOSE            | 11.047               | 623.2 -> 58.9  | 30295    | 16.61 µg/L        | 0.025    |
| Spiked Amount: 25.00 | Range: 50.0 - 150.0% |                |          | Recovery = 66.4%  |          |
| d9-EtFOSE            | 11.331               | 639.2 -> 58.9  | 43432    | 21.26 µg/L        | 0.012    |
| Spiked Amount: 25.00 | Range: 50.0 - 150.0% |                |          | Recovery = 85.0%  |          |
| d5-EtFOSA            | 11.422               | 531.1 -> 219.0 | 5499     | 2.27 µg/L         | 0.025    |
| Spiked Amount: 2.50  | Range: 50.0 - 150.0% |                |          | Recovery = 91.0%  |          |

Target Compounds

| Compound | RT    | Transition     | Response | Conc. Units | QValue |
|----------|-------|----------------|----------|-------------|--------|
| 4:2FTS   | -     | 327.1 -> 307.0 | -        | N.D.        |        |
|          |       | 327.1 -> 80.9  |          |             |        |
| 6:2FTS   | 6.774 | 427.1 -> 407.0 | 1067     | 0.44 µg/L   | 88     |
|          |       | 427.1 -> 80.9  | 312      |             |        |
| 8:2FTS   | -     | 527.1 -> 507.0 | -        | N.D.        |        |
|          |       | 527.1 -> 80.8  |          |             |        |
| EtFOSAA  | -     | 584.2 -> 419.1 | -        | N.D.        |        |
|          |       | 584.2 -> 526.0 |          |             |        |
| FOSA     | -     | 498.1 -> 77.9  | -        | N.D.        |        |
|          |       | 498.1 -> 478.0 |          |             |        |
| MeFOSAA  | -     | 570.1 -> 419.0 | -        | N.D.        |        |
|          |       | 570.1 -> 483.0 |          |             |        |
| PFBA     | -     | 212.8 -> 168.9 | -        | N.D.        |        |
| PFBS     | -     | 298.7 -> 79.9  | -        | N.D.        |        |
|          |       | 298.7 -> 98.8  |          |             |        |
| PFDA     | -     | 512.9 -> 469.0 | -        | N.D.        |        |
|          |       | 512.9 -> 219.0 |          |             |        |
| PFDODA   | -     | 613.1 -> 569.0 | -        | N.D.        |        |
|          |       | 613.1 -> 319.0 |          |             |        |
| PFDS     | -     | 599.0 -> 79.9  | -        | N.D.        |        |



7.14  
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## Perfluorinated Compounds by LC/MS/MS

| Compound     | RT | Transition     | Response | Conc. Units | Dev(Min) |
|--------------|----|----------------|----------|-------------|----------|
| PFHpA        | -  | 599.0 -> 98.8  | -        | N.D.        |          |
|              |    | 363.1 -> 319.0 |          |             |          |
| PFHpS        | -  | 363.1 -> 169.0 | -        | N.D.        |          |
|              |    | 449.0 -> 79.9  |          |             |          |
| PFHxA        | -  | 449.0 -> 98.9  | -        | N.D.        |          |
|              |    | 313.0 -> 269.0 |          |             |          |
| PFHxS        | -  | 313.0 -> 118.9 | -        | N.D.        |          |
|              |    | 398.7 -> 79.9  |          |             |          |
| PFNA         | -  | 398.7 -> 98.9  | -        | N.D.        |          |
|              |    | 463.0 -> 419.0 |          |             |          |
| PFNS         | -  | 463.0 -> 219.0 | -        | N.D.        |          |
|              |    | 548.8 -> 79.9  |          |             |          |
| PFOA         | -  | 548.8 -> 98.9  | -        | N.D.        |          |
|              |    | 413.0 -> 369.0 |          |             |          |
| PFOS         | -  | 413.0 -> 169.0 | -        | N.D.        |          |
|              |    | 498.9 -> 79.9  |          |             |          |
| PFPeA        | -  | 498.9 -> 98.8  | -        | N.D.        |          |
|              |    | 263.0 -> 219.0 |          |             |          |
| PFPeS        | -  | 349.1 -> 79.9  | -        | N.D.        |          |
|              |    | 349.1 -> 98.9  |          |             |          |
| PFTeDA       | -  | 713.1 -> 669.0 | -        | N.D.        |          |
|              |    | 713.1 -> 168.9 |          |             |          |
| PFTrDA       | -  | 663.0 -> 619.0 | -        | N.D.        |          |
|              |    | 663.0 -> 168.9 |          |             |          |
| PFUnDA       | -  | 563.1 -> 519.0 | -        | N.D.        |          |
|              |    | 563.1 -> 269.1 |          |             |          |
| 11Cl-PF3OUdS | -  | 630.9 -> 450.9 | -        | N.D.        |          |
|              |    | 632.9 -> 452.9 |          |             |          |
| 9Cl-PF3ONS   | -  | 530.8 -> 351.0 | -        | N.D.        |          |
|              |    | 532.8 -> 353.0 |          |             |          |
| ADONA        | -  | 376.9 -> 250.9 | -        | N.D.        |          |
|              |    | 376.9 -> 84.8  |          |             |          |
| HFPO-DA      | -  | 284.9 -> 168.9 | -        | N.D.        |          |
|              |    | 284.9 -> 184.9 |          |             |          |
| 3:3FTCA      | -  | 241.0 -> 177.0 | -        | N.D.        |          |
|              |    | 241.0 -> 117.0 |          |             |          |
| 5:3FTCA      | -  | 341.0 -> 237.1 | -        | N.D.        |          |
|              |    | 341.0 -> 217.0 |          |             |          |
| 7:3FTCA      | -  | 441.0 -> 316.9 | -        | N.D.        |          |
|              |    | 441.0 -> 336.9 |          |             |          |
| EtFOSA       | -  | 526.0 -> 219.0 | -        | N.D.        |          |
|              |    | 526.0 -> 169.0 |          |             |          |
| EtFOSE       | -  | 630.0 -> 58.9  | -        | N.D.        |          |
|              |    | 511.9 -> 219.0 |          |             |          |
| MeFOSA       | -  | 511.9 -> 169.0 | -        | N.D.        |          |
|              |    | 616.1 -> 58.9  |          |             |          |
| MeFOSE       | -  | 699.1 -> 79.9  | -        | N.D.        |          |
|              |    | 699.1 -> 98.8  |          |             |          |
| PFDoDS       | -  | 295.0 -> 201.0 | -        | N.D.        |          |
|              |    | 295.0 -> 84.9  |          |             |          |
| NFDHA        | -  | 279.0 -> 85.1  | -        | N.D.        |          |
|              |    | 229.0 -> 84.9  |          |             |          |
| PFMBA        | -  | 314.8 -> 134.9 | -        | N.D.        |          |
|              |    | 314.8 -> 82.9  |          |             |          |

# = Qualifier out of range, m = manually integrated, + = Area summed

### Perfluorinated Compounds by LC/MS/MS

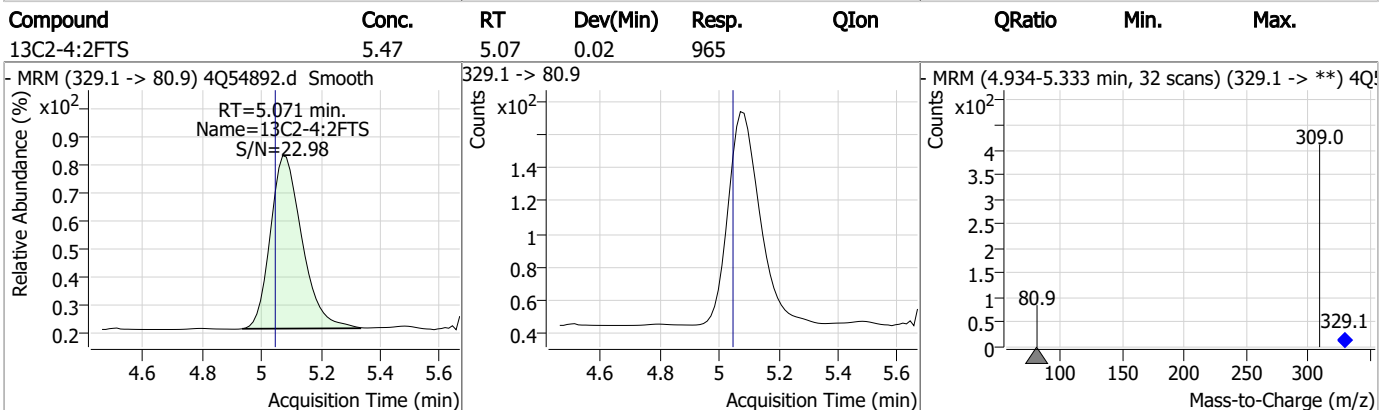
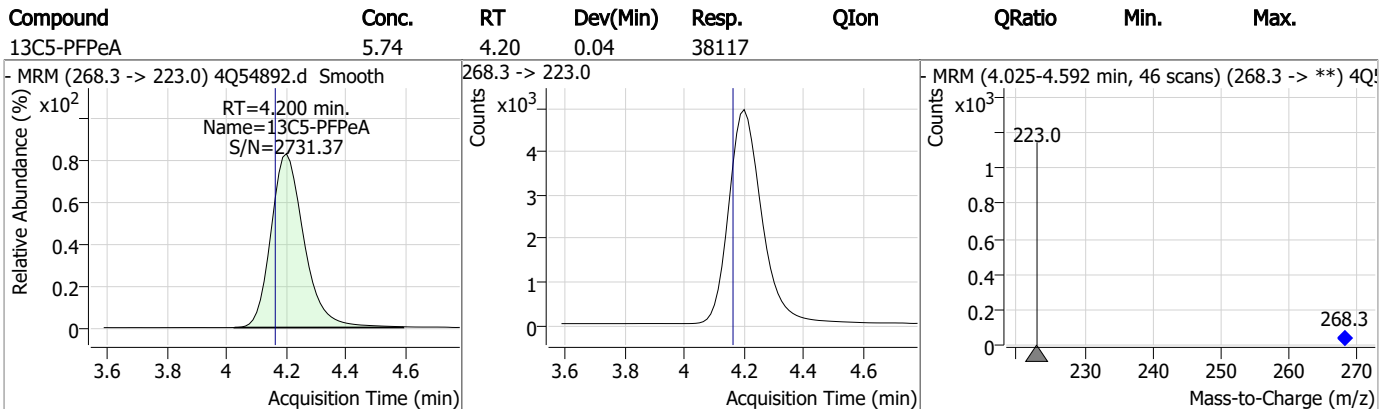
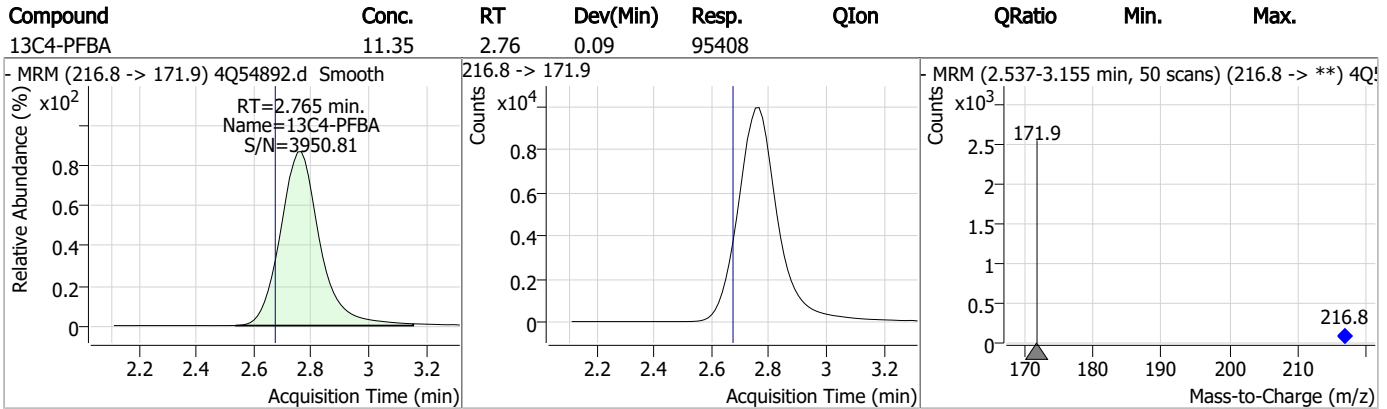
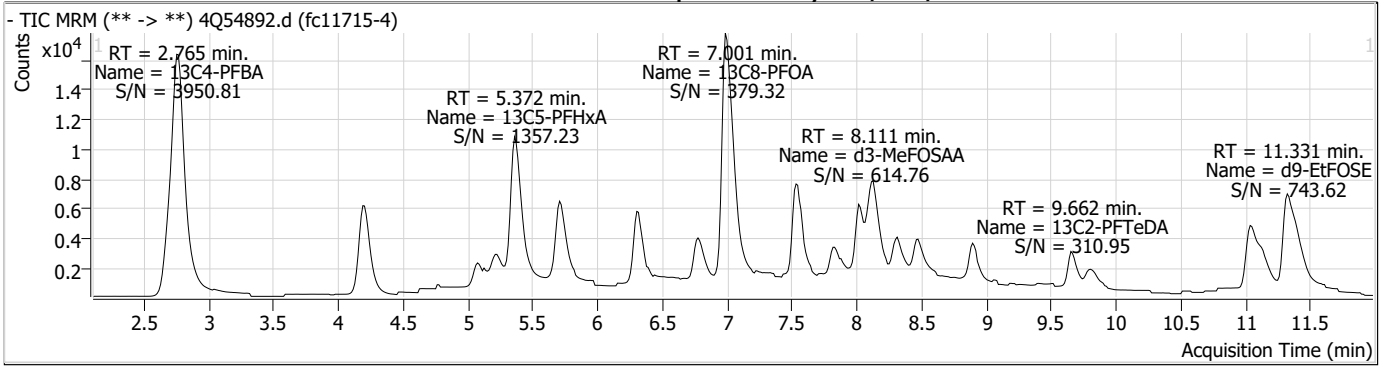
| Compound | RT | Transition | Response | Conc. Units | Dev(Min) |
|----------|----|------------|----------|-------------|----------|
|----------|----|------------|----------|-------------|----------|

7.1.4  
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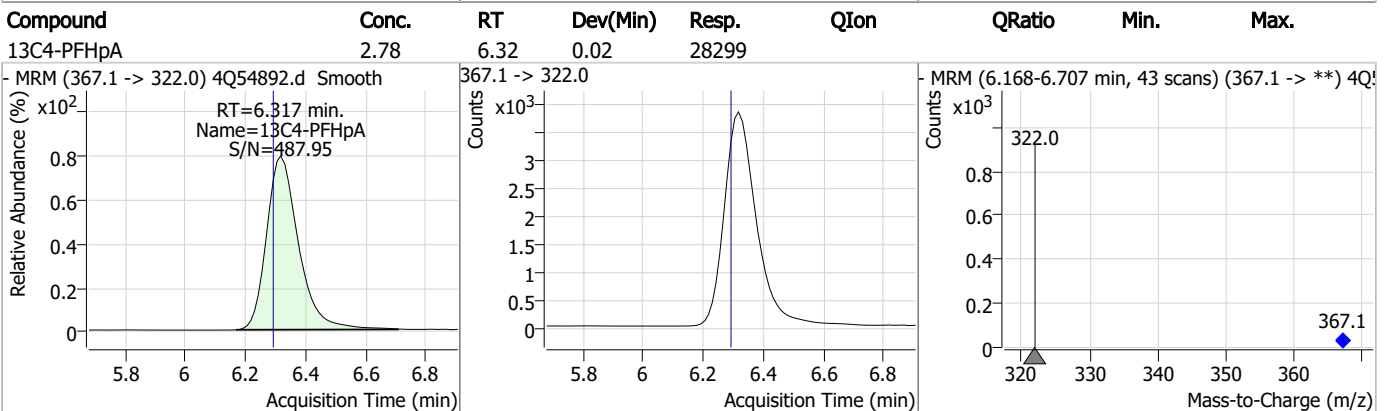
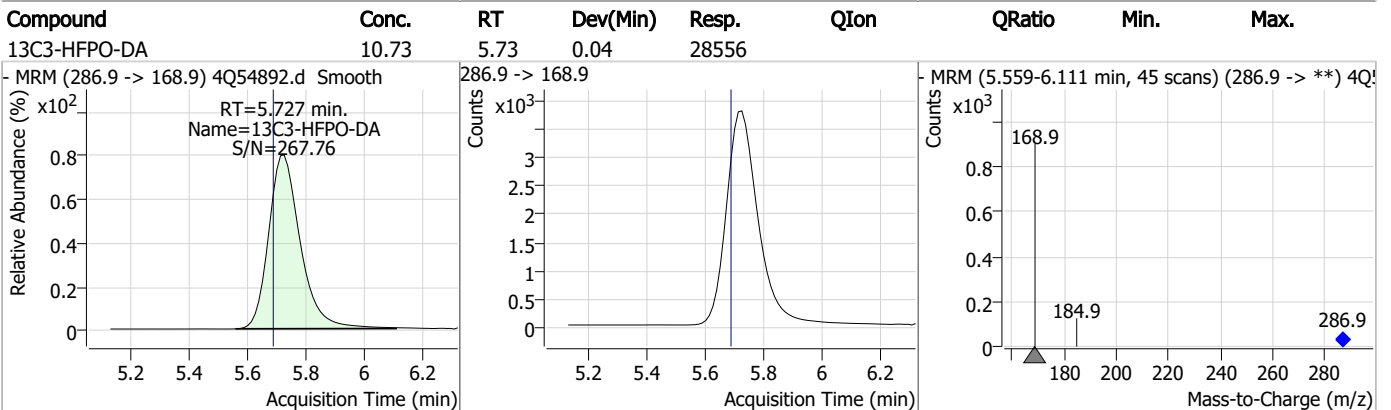
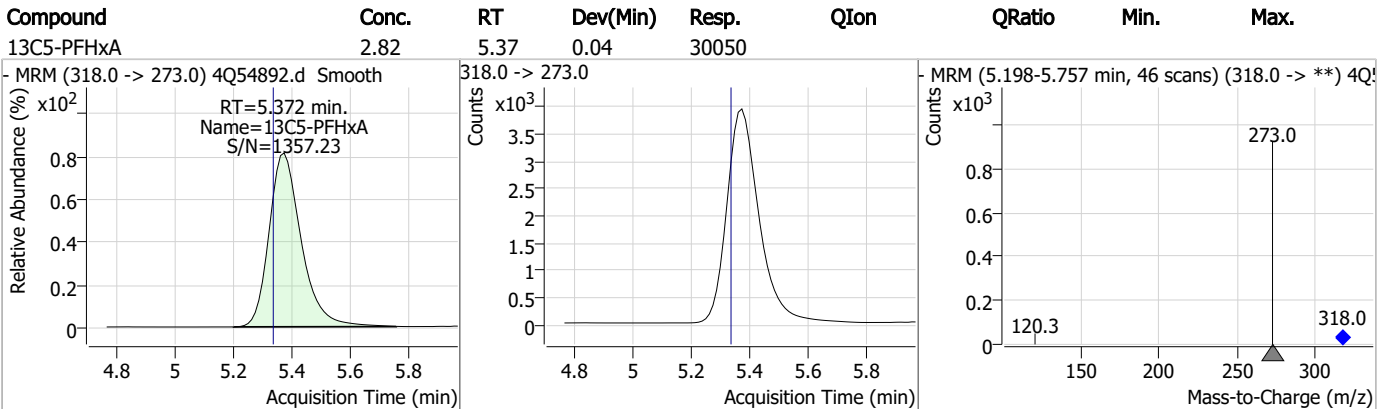
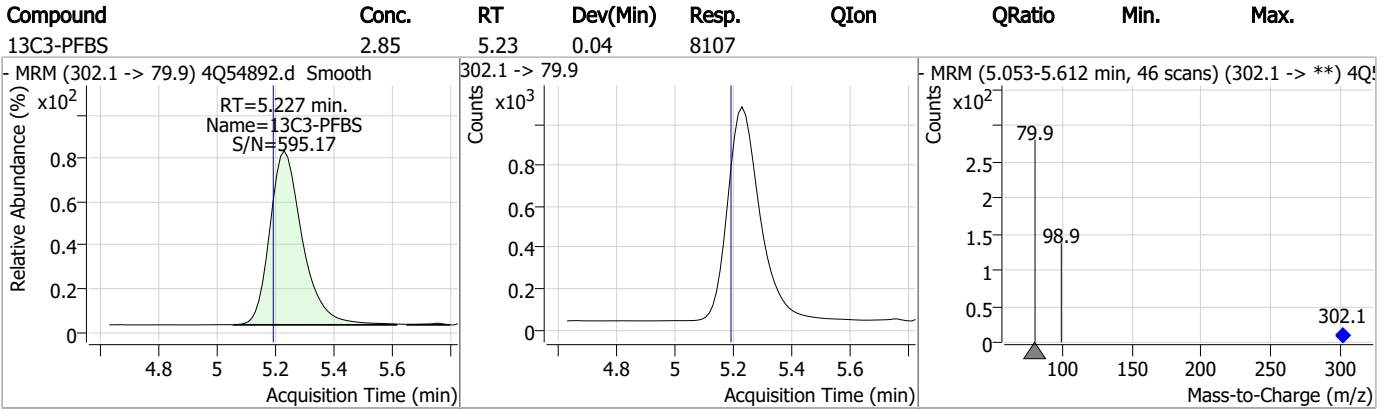




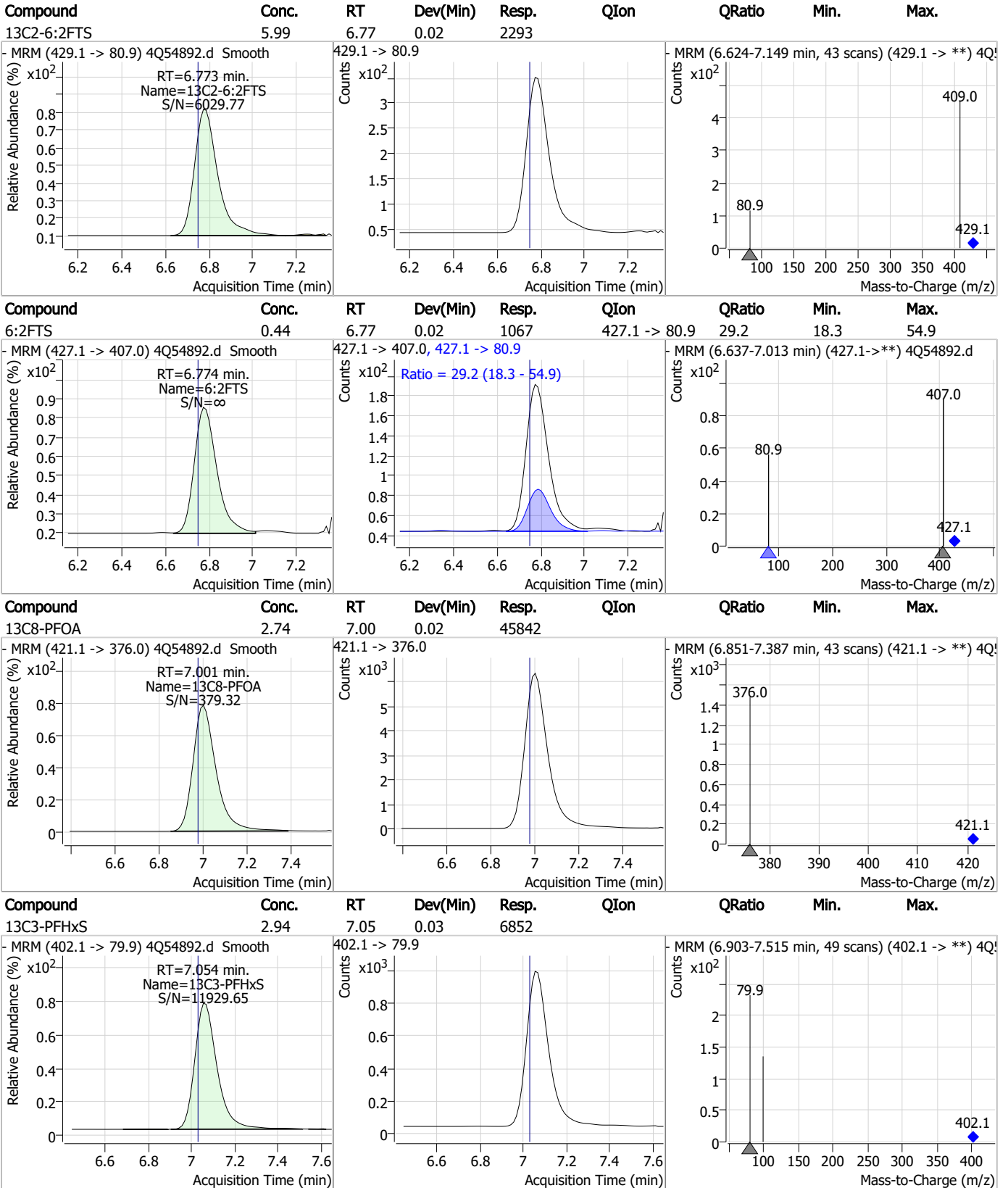
### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS



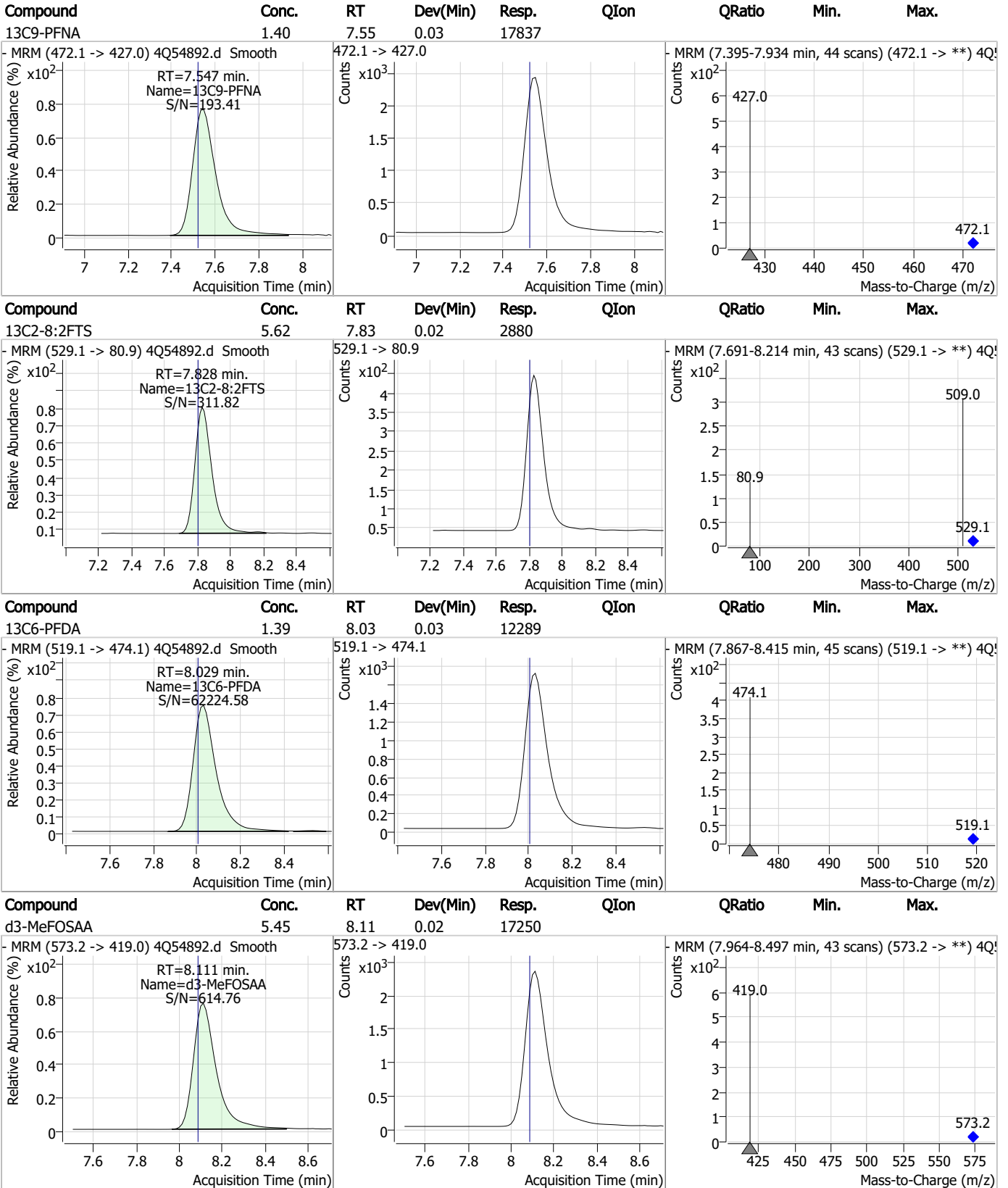
### Perfluorinated Compounds by LC/MS/MS



7.1.4

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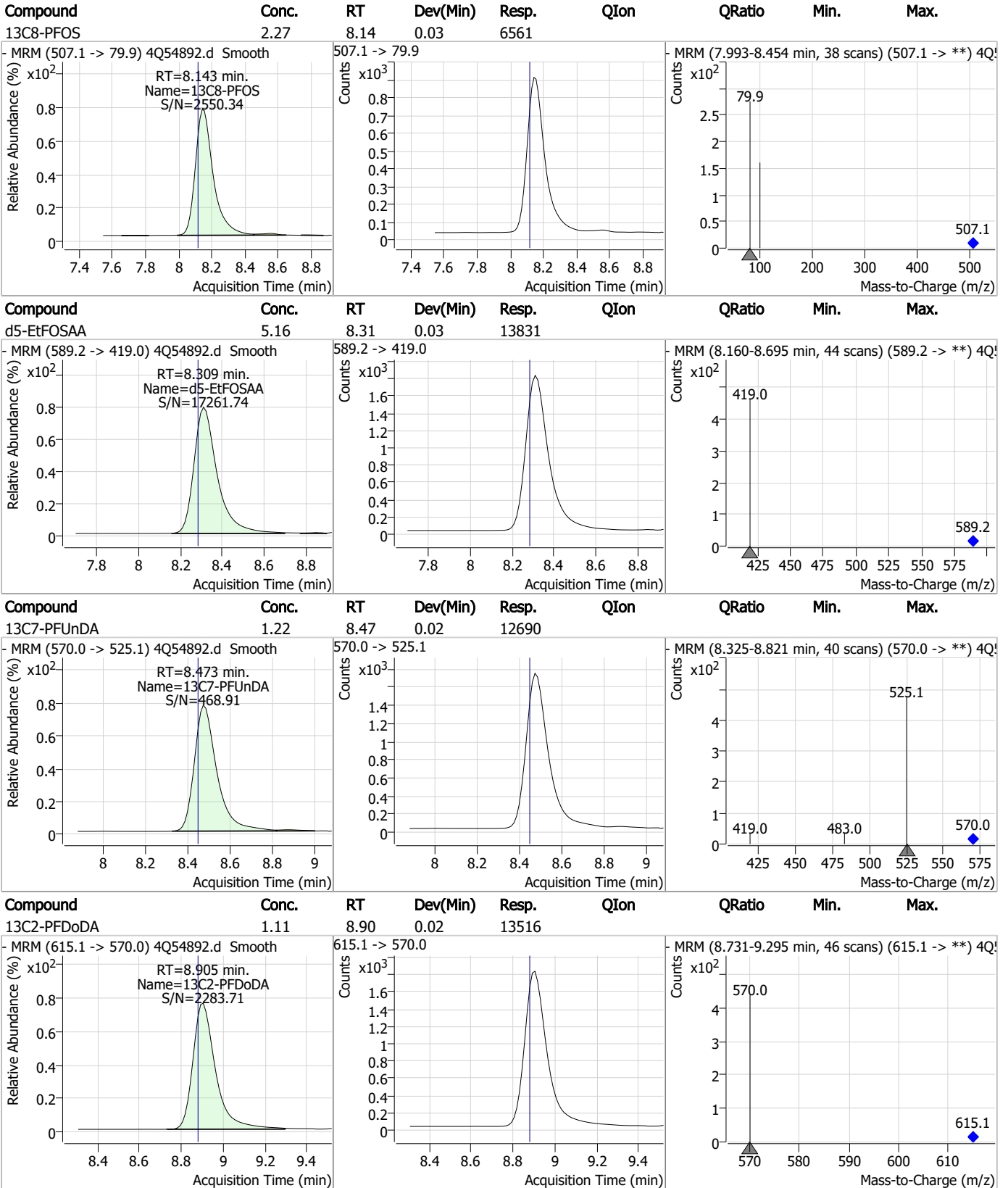
### Perfluorinated Compounds by LC/MS/MS



7.1.4

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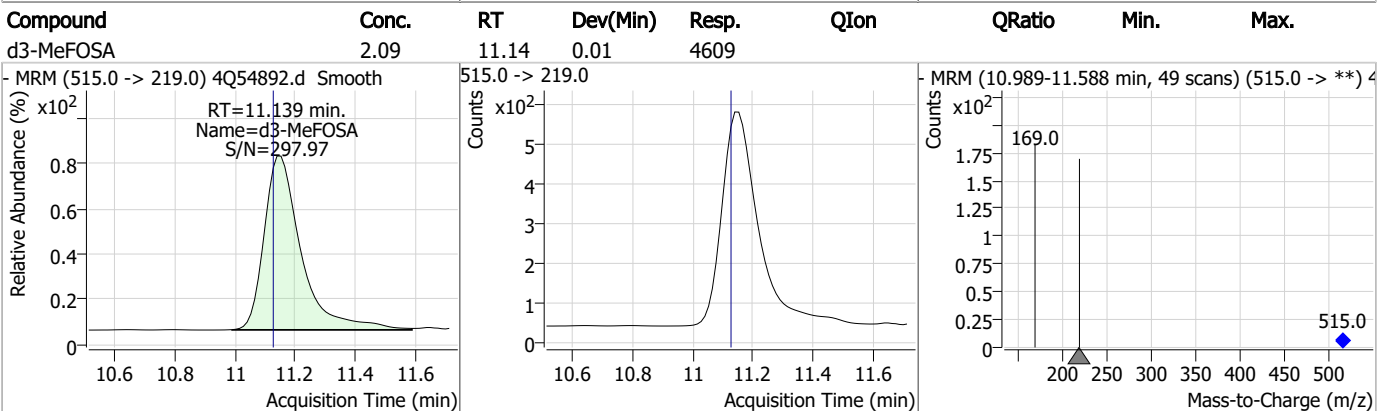
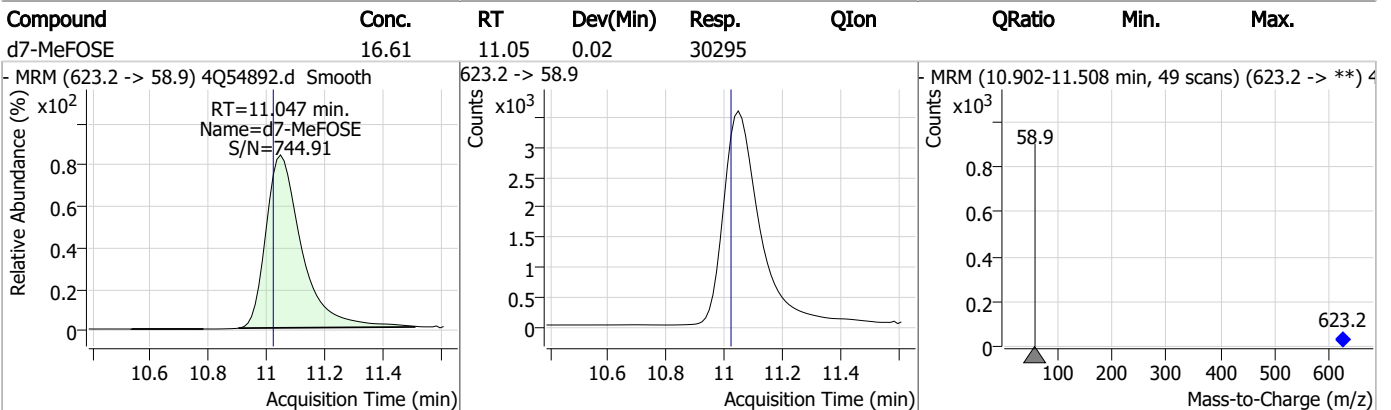
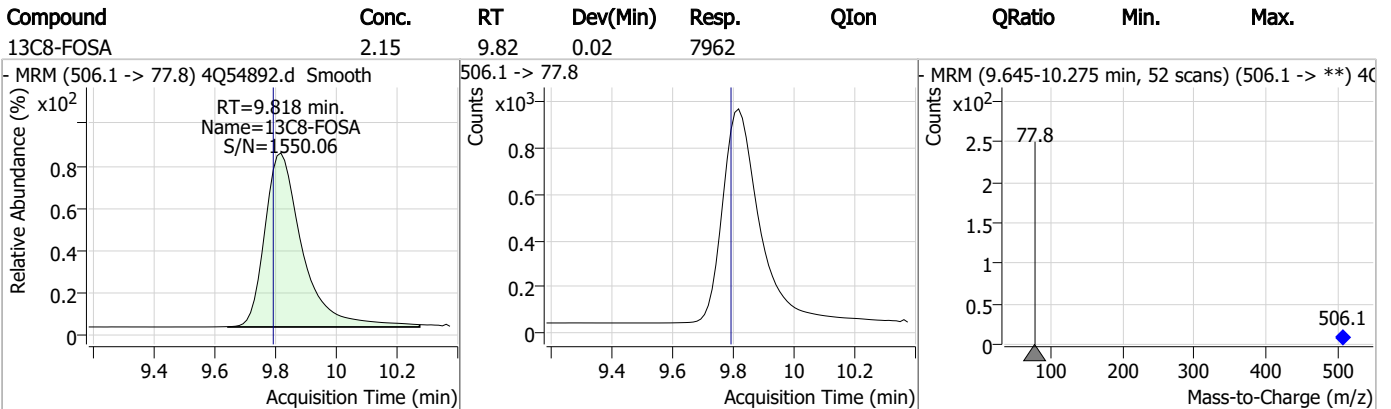
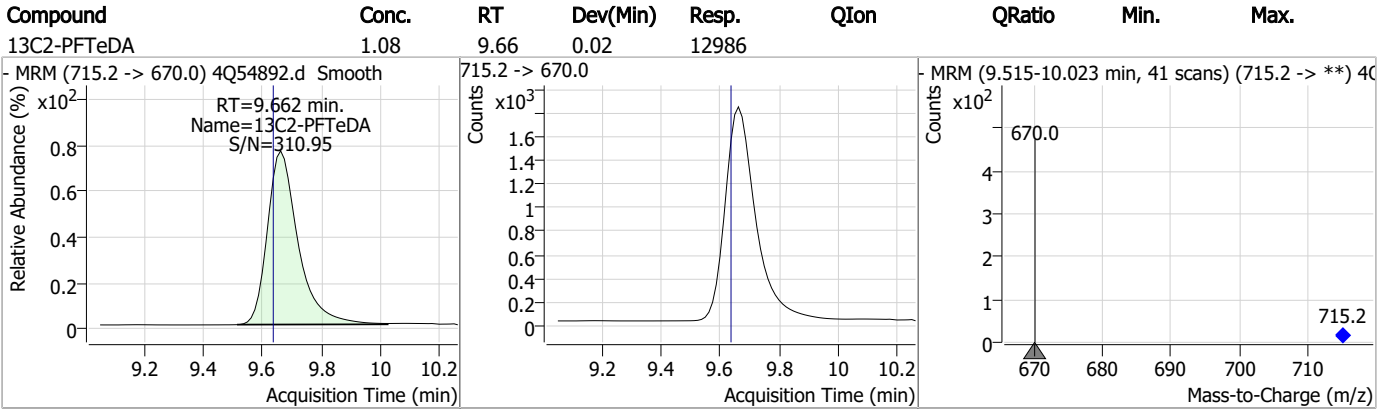
### Perfluorinated Compounds by LC/MS/MS



7.1.4

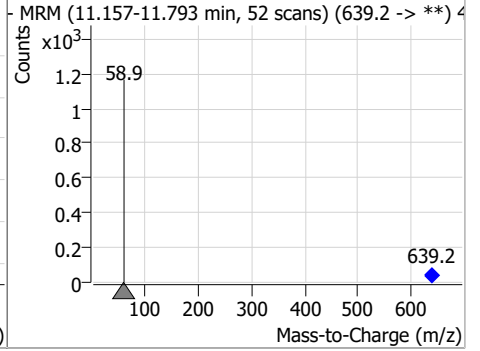
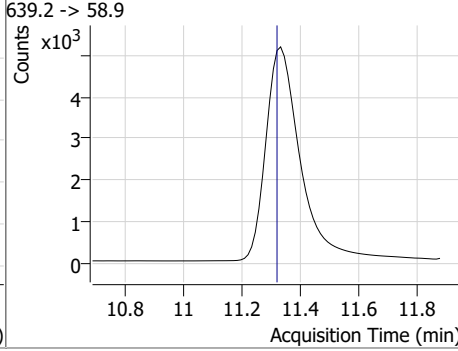
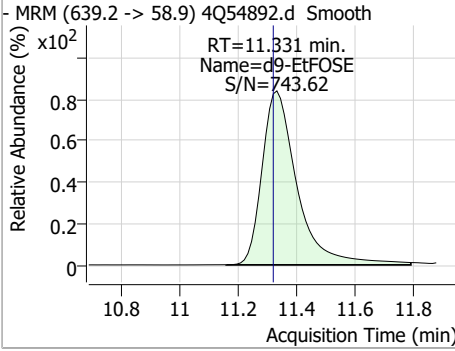
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### Perfluorinated Compounds by LC/MS/MS

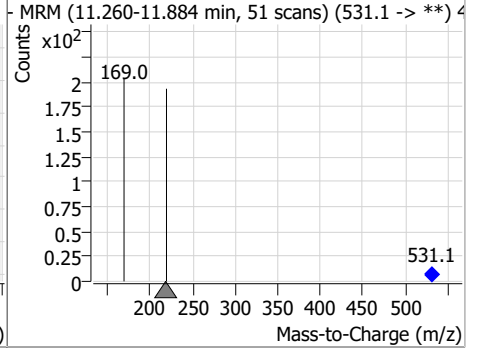
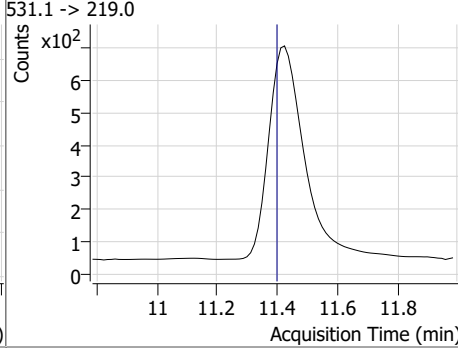
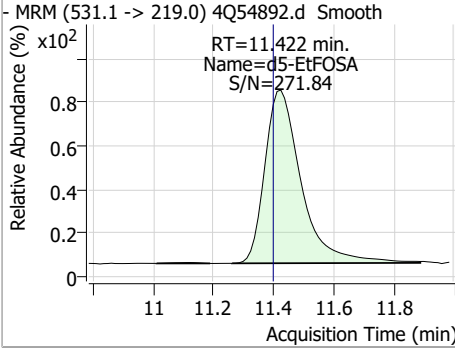


Perfluorinated Compounds by LC/MS/MS

| Compound  | Conc. | RT    | Dev(Min) | Resp. | QIon | QRatio | Min. | Max. |
|-----------|-------|-------|----------|-------|------|--------|------|------|
| d9-EtFOSE | 21.26 | 11.33 | 0.01     | 43432 |      |        |      |      |



| Compound  | Conc. | RT    | Dev(Min) | Resp. | QIon | QRatio | Min. | Max. |
|-----------|-------|-------|----------|-------|------|--------|------|------|
| d5-EtFOSA | 2.27  | 11.42 | 0.02     | 5499  |      |        |      |      |



7.1.4

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## Perfluorinated Compounds by LC/MS/MS

Data File : 4Q54885.d  
 Operator : annal  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 12/8/2023 7:51:10 PM  
 Sample Name : op495-mb  
 Vial : P2-C7  
 DA Method File : 1633\_120823\_S4Q804.quantmethod.xml  
 Batch Name : s4q804.batch.bin  
 Sample Information : OP495,S4Q804,500,,,5.0,1,water

| Compound                           | RT                   | Transition     | Response          | Conc. Units | Dev(Min) |
|------------------------------------|----------------------|----------------|-------------------|-------------|----------|
| <b>Internal Standards</b>          |                      |                |                   |             |          |
| M4-PFBA                            | 2.752                | 216.8 -> 171.9 | 101557            | 10.00 µg/L  | 0.078    |
| M5-PFPeA                           | 4.200                | 268.3 -> 223.0 | 39196             | 5.00 µg/L   | 0.037    |
| M5-PFHxA                           | 5.372                | 318.0 -> 273.0 | 30987             | 2.50 µg/L   | 0.037    |
| M4-PFHpA                           | 6.317                | 367.1 -> 322.0 | 31053             | 2.50 µg/L   | 0.025    |
| M8-PFOA                            | 7.001                | 421.1 -> 376.0 | 48156             | 2.50 µg/L   | 0.025    |
| M9-PFNA                            | 7.534                | 472.1 -> 427.0 | 18158             | 1.25 µg/L   | 0.012    |
| M6-PFDA                            | 8.017                | 519.1 -> 474.1 | 13357             | 1.25 µg/L   | 0.013    |
| M7-PFUnDA                          | 8.473                | 570.0 -> 525.1 | 14628             | 1.25 µg/L   | 0.025    |
| M2-PFDoDA                          | 8.892                | 615.1 -> 570.0 | 16008             | 1.25 µg/L   | 0.012    |
| M2-PFTeDA                          | 9.662                | 715.2 -> 670.0 | 14493             | 1.25 µg/L   | 0.025    |
| M8-FOSA                            | 9.818                | 506.1 -> 77.8  | 6468              | 2.50 µg/L   | 0.025    |
| M3-PFBS                            | 5.227                | 302.1 -> 79.9  | 8436              | 2.50 µg/L   | 0.038    |
| M3-PFHxS                           | 7.054                | 402.1 -> 79.9  | 7112              | 2.50 µg/L   | 0.025    |
| M8-PFOS                            | 8.143                | 507.1 -> 79.9  | 7917              | 2.50 µg/L   | 0.026    |
| M2-4:2FTS                          | 5.071                | 329.1 -> 80.9  | 1104              | 5.00 µg/L   | 0.025    |
| M2-6:2FTS                          | 6.773                | 429.1 -> 80.9  | 2259              | 5.00 µg/L   | 0.025    |
| M2-8:2FTS                          | 7.828                | 529.1 -> 80.9  | 2988              | 5.00 µg/L   | 0.025    |
| M3-MeFOSAA                         | 8.099                | 573.2 -> 419.0 | 17206             | 5.00 µg/L   | 0.012    |
| M3-HFPO-DA                         | 5.714                | 286.9 -> 168.9 | 30284             | 10.00 µg/L  | 0.025    |
| M5-EtFOSAA                         | 8.309                | 589.2 -> 419.0 | 13957             | 5.00 µg/L   | 0.026    |
| M7-MeFOSE                          | 11.047               | 623.2 -> 58.9  | 24922             | 25.00 µg/L  | 0.025    |
| M9-EtFOSE                          | 11.331               | 639.2 -> 58.9  | 36914             | 25.00 µg/L  | 0.012    |
| M5-EtFOSA                          | 11.422               | 531.1 -> 219.0 | 5061              | 2.50 µg/L   | 0.025    |
| M3-MeFOSA                          | 11.139               | 515.0 -> 219.0 | 4140              | 2.50 µg/L   | 0.012    |
| 13C4-PFOS                          | 8.144                | 502.8 -> 79.9  | 5453              | 2.50 µg/L   | 0.026    |
| 13C3-PFBA                          | 2.755                | 216.0 -> 172.0 | 40730             | 5.00 µg/L   | 0.077    |
| 18O2-PFHxS                         | 7.054                | 403.0 -> 83.9  | 4137              | 2.50 µg/L   | 0.013    |
| 13C4-PFOA                          | 7.002                | 417.1 -> 372.0 | 46712             | 2.50 µg/L   | 0.025    |
| 13C2-PFDA                          | 8.017                | 515.1 -> 470.1 | 12477             | 1.25 µg/L   | 0.013    |
| 13C5-PFNA                          | 7.534                | 468.0 -> 423.0 | 16250             | 1.25 µg/L   | 0.025    |
| 13C2-PFHxA                         | 5.373                | 315.1 -> 270.0 | 28002             | 2.50 µg/L   | 0.037    |
| <b>System Monitoring Compounds</b> |                      |                |                   |             |          |
| 13C2-4:2FTS                        | 5.071                | 329.1 -> 80.9  | 1104              | 5.62 µg/L   | 0.025    |
| Spiked Amount: 5.00                | Range: 50.0 - 150.0% |                | Recovery = 112.4% |             |          |
| 13C2-6:2FTS                        | 6.773                | 429.1 -> 80.9  | 2259              | 5.30 µg/L   | 0.025    |
| Spiked Amount: 5.00                | Range: 50.0 - 150.0% |                | Recovery = 106.1% |             |          |
| 13C2-8:2FTS                        | 7.828                | 529.1 -> 80.9  | 2988              | 5.24 µg/L   | 0.025    |
| Spiked Amount: 5.00                | Range: 50.0 - 150.0% |                | Recovery = 104.8% |             |          |
| 13C2-PFDoDA                        | 8.892                | 615.1 -> 570.0 | 16008             | 1.28 µg/L   | 0.012    |
| Spiked Amount: 1.25                | Range: 50.0 - 150.0% |                | Recovery = 102.7% |             |          |
| 13C2-PFTeDA                        | 9.662                | 715.2 -> 670.0 | 14493             | 1.17 µg/L   | 0.025    |
| Spiked Amount: 1.25                | Range: 50.0 - 150.0% |                | Recovery = 93.6%  |             |          |
| 13C3-PFBS                          | 5.227                | 302.1 -> 79.9  | 8436              | 2.66 µg/L   | 0.038    |
| Spiked Amount: 2.50                | Range: 50.0 - 150.0% |                | Recovery = 106.4% |             |          |
| 13C3-PFHxS                         | 7.054                | 402.1 -> 79.9  | 7112              | 2.74 µg/L   | 0.025    |

7.2.1  
7





### Perfluorinated Compounds by LC/MS/MS

| Compound             | RT                   | Transition     | Response | Conc. Units       | Dev(Min) |
|----------------------|----------------------|----------------|----------|-------------------|----------|
| Spiked Amount: 2.50  | Range: 50.0 - 150.0% |                |          | Recovery = 109.7% |          |
| 13C4-PFBA            | 2.752                | 216.8 -> 171.9 | 101557   | 11.87 µg/L        | 0.078    |
| Spiked Amount: 10.00 | Range: 50.0 - 150.0% |                |          | Recovery = 118.7% |          |
| 13C4-PFHpA           | 6.317                | 367.1 -> 322.0 | 31053    | 3.15 µg/L         | 0.025    |
| Spiked Amount: 2.50  | Range: 50.0 - 150.0% |                |          | Recovery = 125.9% |          |
| 13C5-PFHxA           | 5.372                | 318.0 -> 273.0 | 30987    | 3.00 µg/L         | 0.037    |
| Spiked Amount: 2.50  | Range: 50.0 - 150.0% |                |          | Recovery = 120.1% |          |
| 13C5-PFPeA           | 4.200                | 268.3 -> 223.0 | 39196    | 6.10 µg/L         | 0.037    |
| Spiked Amount: 5.00  | Range: 50.0 - 150.0% |                |          | Recovery = 122.0% |          |
| 13C6-PFDA            | 8.017                | 519.1 -> 474.1 | 13357    | 1.47 µg/L         | 0.013    |
| Spiked Amount: 1.25  | Range: 50.0 - 150.0% |                |          | Recovery = 117.7% |          |
| 13C7-PFUnDA          | 8.473                | 570.0 -> 525.1 | 14628    | 1.37 µg/L         | 0.025    |
| Spiked Amount: 1.25  | Range: 50.0 - 150.0% |                |          | Recovery = 109.3% |          |
| 13C8-FOSA            | 9.818                | 506.1 -> 77.8  | 6468     | 1.83 µg/L         | 0.025    |
| Spiked Amount: 2.50  | Range: 50.0 - 150.0% |                |          | Recovery = 73.2%  |          |
| 13C8-PFOA            | 7.001                | 421.1 -> 376.0 | 48156    | 2.79 µg/L         | 0.025    |
| Spiked Amount: 2.50  | Range: 50.0 - 150.0% |                |          | Recovery = 111.6% |          |
| 13C8-PFOS            | 8.143                | 507.1 -> 79.9  | 7917     | 2.87 µg/L         | 0.026    |
| Spiked Amount: 2.50  | Range: 50.0 - 150.0% |                |          | Recovery = 114.7% |          |
| 13C9-PFNA            | 7.534                | 472.1 -> 427.0 | 18158    | 1.39 µg/L         | 0.012    |
| Spiked Amount: 1.25  | Range: 50.0 - 150.0% |                |          | Recovery = 111.6% |          |
| d3-MeFOSAA           | 8.099                | 573.2 -> 419.0 | 17206    | 5.68 µg/L         | 0.012    |
| Spiked Amount: 5.00  | Range: 50.0 - 150.0% |                |          | Recovery = 113.7% |          |
| 13C3-HFPO-DA         | 5.714                | 286.9 -> 168.9 | 30284    | 11.75 µg/L        | 0.025    |
| Spiked Amount: 10.00 | Range: 50.0 - 150.0% |                |          | Recovery = 117.5% |          |
| d3-MeFOSA            | 11.139               | 515.0 -> 219.0 | 4140     | 1.96 µg/L         | 0.012    |
| Spiked Amount: 2.50  | Range: 50.0 - 150.0% |                |          | Recovery = 78.5%  |          |
| d5-EtFOSAA           | 8.309                | 589.2 -> 419.0 | 13957    | 5.45 µg/L         | 0.026    |
| Spiked Amount: 5.00  | Range: 50.0 - 150.0% |                |          | Recovery = 109.0% |          |
| d7-MeFOSE            | 11.047               | 623.2 -> 58.9  | 24922    | 14.30 µg/L        | 0.025    |
| Spiked Amount: 25.00 | Range: 50.0 - 150.0% |                |          | Recovery = 57.2%  |          |
| d9-EtFOSE            | 11.331               | 639.2 -> 58.9  | 36914    | 18.91 µg/L        | 0.012    |
| Spiked Amount: 25.00 | Range: 50.0 - 150.0% |                |          | Recovery = 75.6%  |          |
| d5-EtFOSA            | 11.422               | 531.1 -> 219.0 | 5061     | 2.19 µg/L         | 0.025    |
| Spiked Amount: 2.50  | Range: 50.0 - 150.0% |                |          | Recovery = 87.6%  |          |

| Target Compounds | RT | Transition     | Response | Conc. Units | QValue |
|------------------|----|----------------|----------|-------------|--------|
| 4:2FTS           | -  | 327.1 -> 307.0 | -        | N.D.        |        |
|                  |    | 327.1 -> 80.9  |          |             |        |
| 6:2FTS           | -  | 427.1 -> 407.0 | -        | N.D.        |        |
|                  |    | 427.1 -> 80.9  |          |             |        |
| 8:2FTS           | -  | 527.1 -> 507.0 | -        | N.D.        |        |
|                  |    | 527.1 -> 80.8  |          |             |        |
| EtFOSAA          | -  | 584.2 -> 419.1 | -        | N.D.        |        |
|                  |    | 584.2 -> 526.0 |          |             |        |
| FOSA             | -  | 498.1 -> 77.9  | -        | N.D.        |        |
|                  |    | 498.1 -> 478.0 |          |             |        |
| MeFOSAA          | -  | 570.1 -> 419.0 | -        | N.D.        |        |
|                  |    | 570.1 -> 483.0 |          |             |        |
| PFBA             | -  | 212.8 -> 168.9 | -        | N.D.        |        |
| PFBS             | -  | 298.7 -> 79.9  | -        | N.D.        |        |
|                  |    | 298.7 -> 98.8  |          |             |        |
| PFDA             | -  | 512.9 -> 469.0 | -        | N.D.        |        |
|                  |    | 512.9 -> 219.0 |          |             |        |
| PFDODA           | -  | 613.1 -> 569.0 | -        | N.D.        |        |
|                  |    | 613.1 -> 319.0 |          |             |        |
| PFDS             | -  | 599.0 -> 79.9  | -        | N.D.        |        |

Perfluorinated Compounds by LC/MS/MS

| Compound     | RT | Transition     | Response | Conc. Units | Dev(Min) |
|--------------|----|----------------|----------|-------------|----------|
|              |    | 599.0 -> 98.8  |          |             |          |
| PFHpA        | -  | 363.1 -> 319.0 | -        | N.D.        |          |
|              |    | 363.1 -> 169.0 |          |             |          |
| PFHpS        | -  | 449.0 -> 79.9  | -        | N.D.        |          |
|              |    | 449.0 -> 98.9  |          |             |          |
| PFHxA        | -  | 313.0 -> 269.0 | -        | N.D.        |          |
|              |    | 313.0 -> 118.9 |          |             |          |
| PFHxS        | -  | 398.7 -> 79.9  | -        | N.D.        |          |
|              |    | 398.7 -> 98.9  |          |             |          |
| PFNA         | -  | 463.0 -> 419.0 | -        | N.D.        |          |
|              |    | 463.0 -> 219.0 |          |             |          |
| PFNS         | -  | 548.8 -> 79.9  | -        | N.D.        |          |
|              |    | 548.8 -> 98.9  |          |             |          |
| PFOA         | -  | 413.0 -> 369.0 | -        | N.D.        |          |
|              |    | 413.0 -> 169.0 |          |             |          |
| PFOS         | -  | 498.9 -> 79.9  | -        | N.D.        |          |
|              |    | 498.9 -> 98.8  |          |             |          |
| PFPeA        | -  | 263.0 -> 219.0 | -        | N.D.        |          |
| PFPeS        | -  | 349.1 -> 79.9  | -        | N.D.        |          |
|              |    | 349.1 -> 98.9  |          |             |          |
| PFTeDA       | -  | 713.1 -> 669.0 | -        | N.D.        |          |
|              |    | 713.1 -> 168.9 |          |             |          |
| PFTTrDA      | -  | 663.0 -> 619.0 | -        | N.D.        |          |
|              |    | 663.0 -> 168.9 |          |             |          |
| PFUnDA       | -  | 563.1 -> 519.0 | -        | N.D.        |          |
|              |    | 563.1 -> 269.1 |          |             |          |
| 11Cl-PF3OUdS | -  | 630.9 -> 450.9 | -        | N.D.        |          |
|              |    | 632.9 -> 452.9 |          |             |          |
| 9Cl-PF3ONS   | -  | 530.8 -> 351.0 | -        | N.D.        |          |
|              |    | 532.8 -> 353.0 |          |             |          |
| ADONA        | -  | 376.9 -> 250.9 | -        | N.D.        |          |
|              |    | 376.9 -> 84.8  |          |             |          |
| HFPO-DA      | -  | 284.9 -> 168.9 | -        | N.D.        |          |
|              |    | 284.9 -> 184.9 |          |             |          |
| 3:3FTCA      | -  | 241.0 -> 177.0 | -        | N.D.        |          |
|              |    | 241.0 -> 117.0 |          |             |          |
| 5:3FTCA      | -  | 341.0 -> 237.1 | -        | N.D.        |          |
|              |    | 341.0 -> 217.0 |          |             |          |
| 7:3FTCA      | -  | 441.0 -> 316.9 | -        | N.D.        |          |
|              |    | 441.0 -> 336.9 |          |             |          |
| EtFOSA       | -  | 526.0 -> 219.0 | -        | N.D.        |          |
|              |    | 526.0 -> 169.0 |          |             |          |
| EtFOSE       | -  | 630.0 -> 58.9  | -        | N.D.        |          |
| MeFOSA       | -  | 511.9 -> 219.0 | -        | N.D.        |          |
|              |    | 511.9 -> 169.0 |          |             |          |
| MeFOSE       | -  | 616.1 -> 58.9  | -        | N.D.        |          |
| PFDoDS       | -  | 699.1 -> 79.9  | -        | N.D.        |          |
|              |    | 699.1 -> 98.8  |          |             |          |
| NFDHA        | -  | 295.0 -> 201.0 | -        | N.D.        |          |
|              |    | 295.0 -> 84.9  |          |             |          |
| PFMBA        | -  | 279.0 -> 85.1  | -        | N.D.        |          |
| PFMPA        | -  | 229.0 -> 84.9  | -        | N.D.        |          |
| PFEESA       | -  | 314.8 -> 134.9 | -        | N.D.        |          |
|              |    | 314.8 -> 82.9  |          |             |          |

# = Qualifier out of range, m = manually integrated, + = Area summed



7.2.1  
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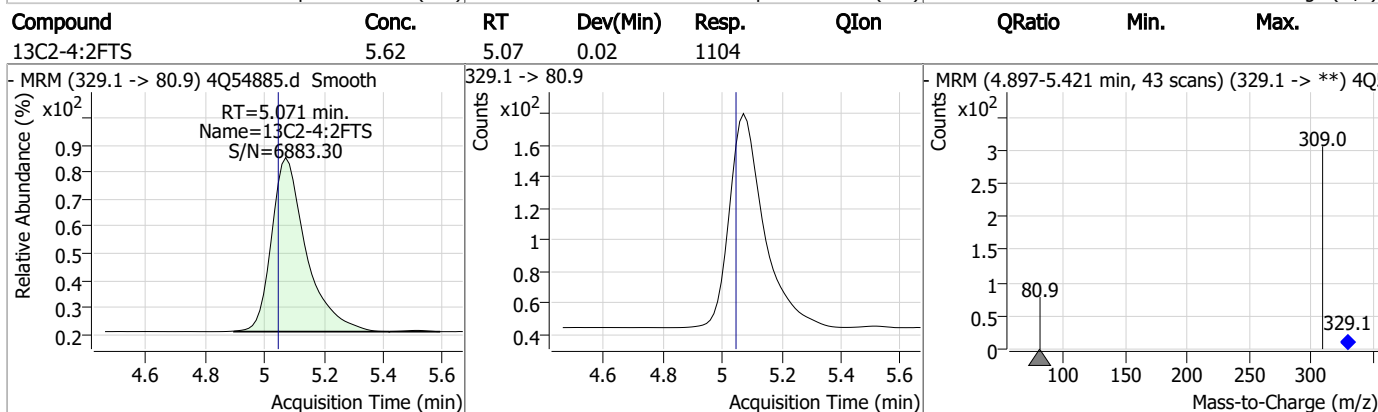
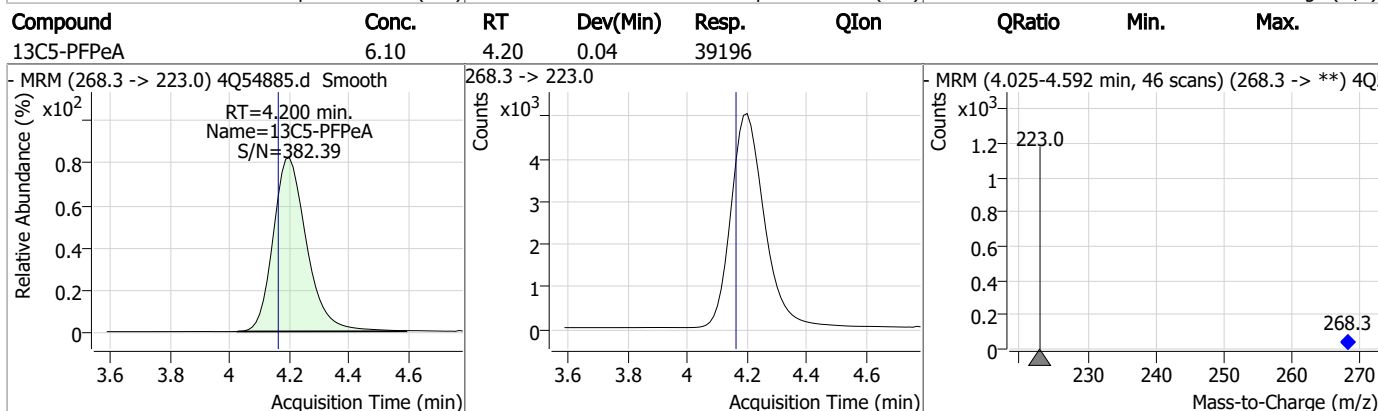
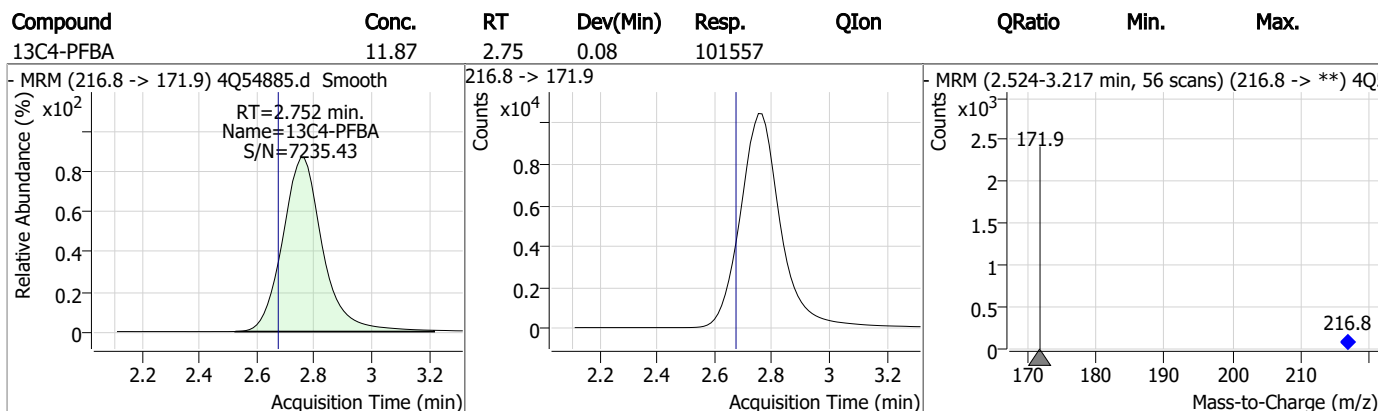
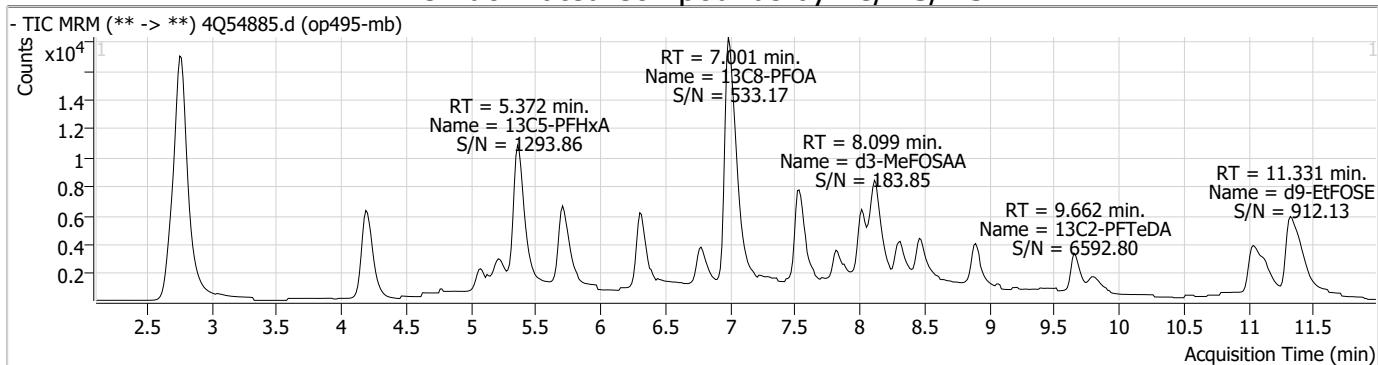
### Perfluorinated Compounds by LC/MS/MS

| Compound | RT | Transition | Response | Conc. Units | Dev(Min) |
|----------|----|------------|----------|-------------|----------|
|----------|----|------------|----------|-------------|----------|

7.2.1

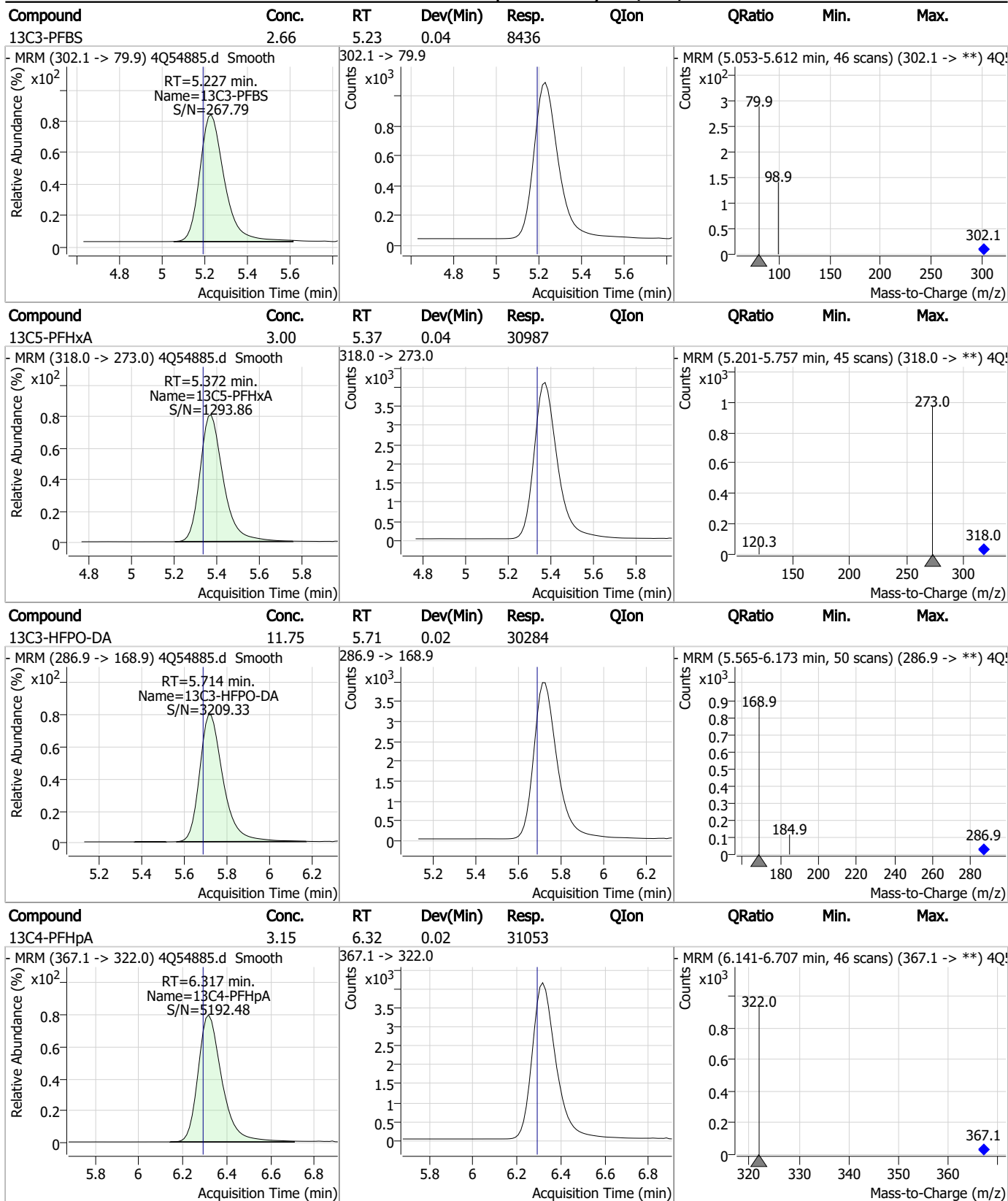
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### Perfluorinated Compounds by LC/MS/MS



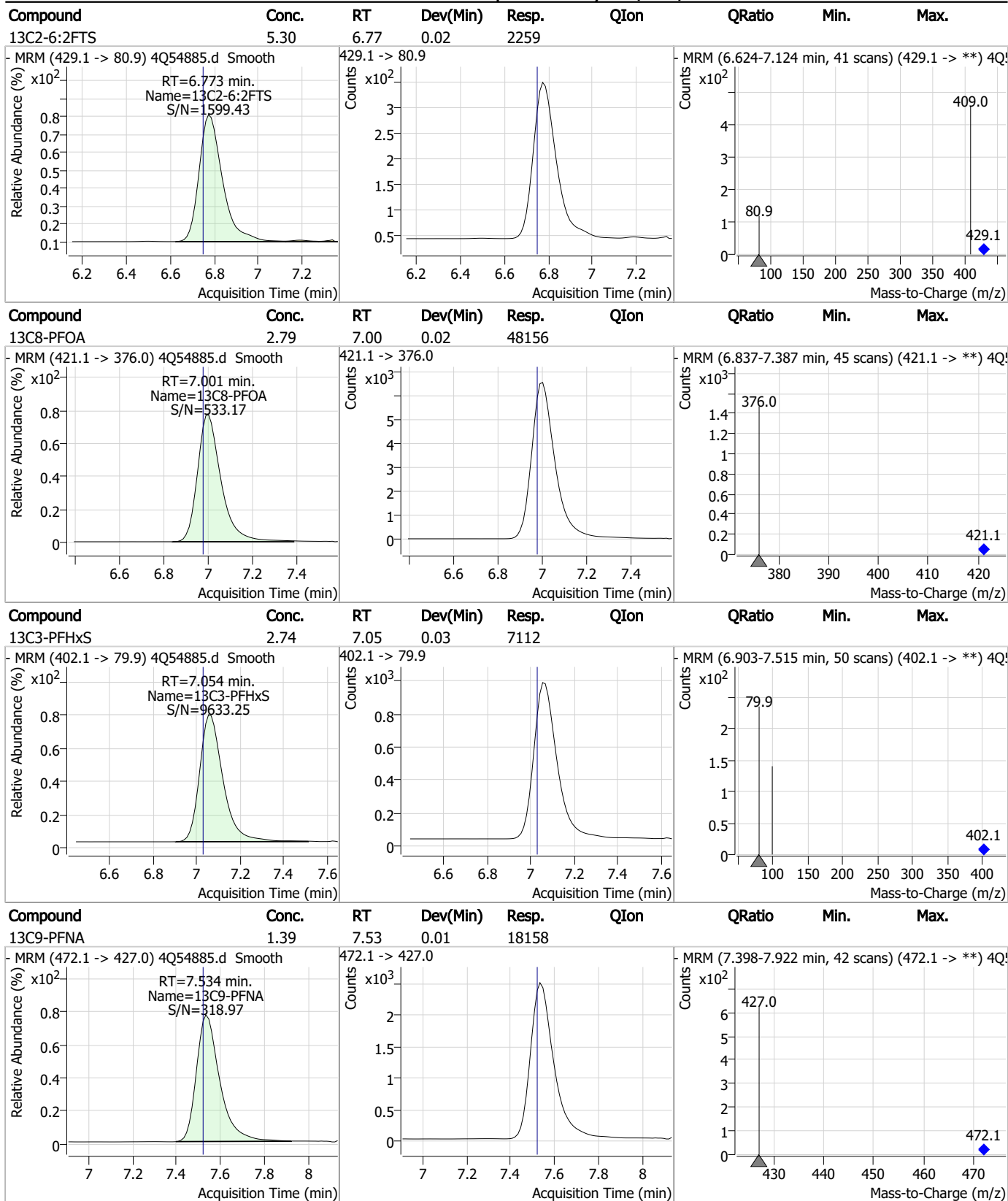
7.2.1  
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### Perfluorinated Compounds by LC/MS/MS



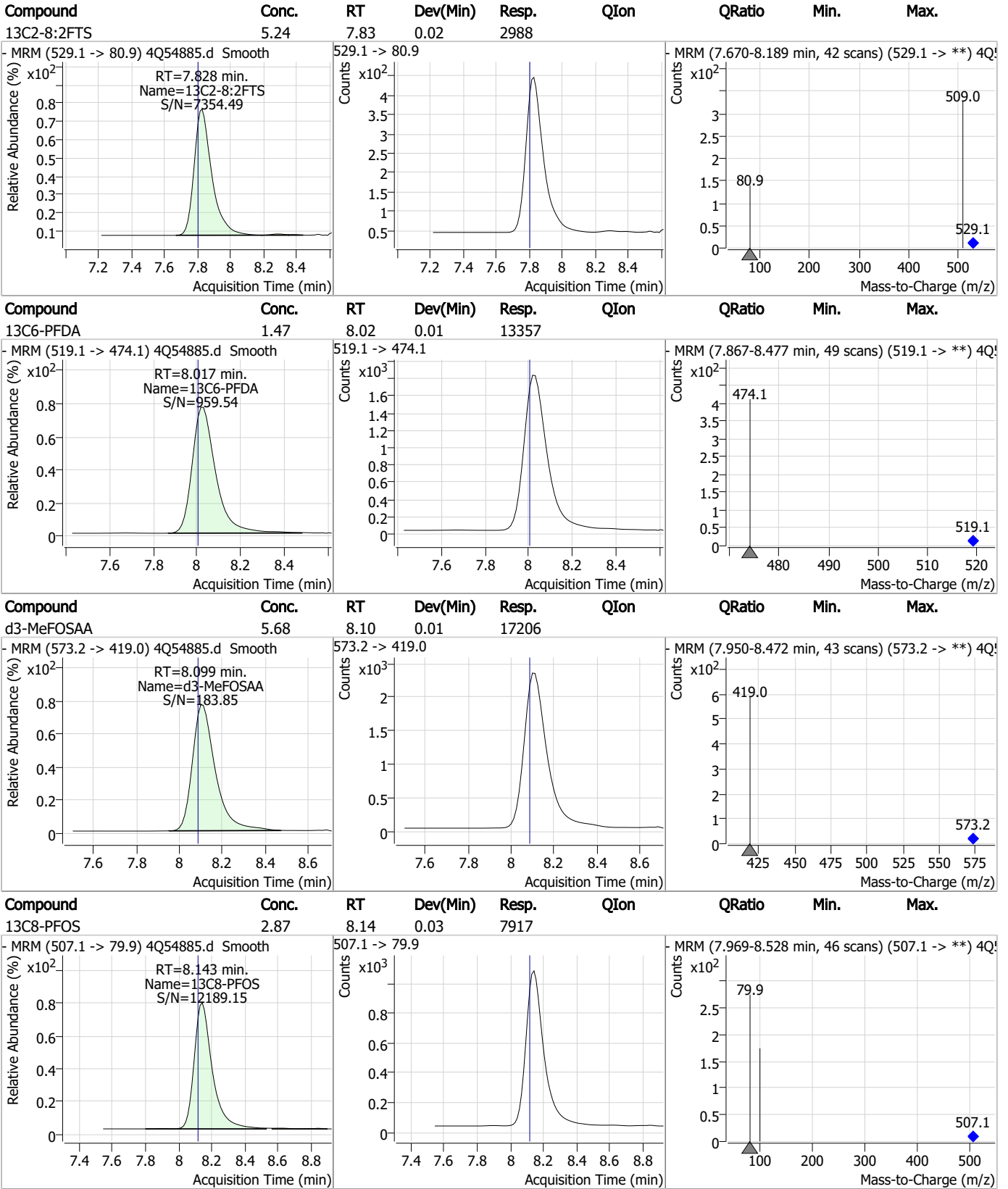
7.2.1  
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### Perfluorinated Compounds by LC/MS/MS



7.2.1  
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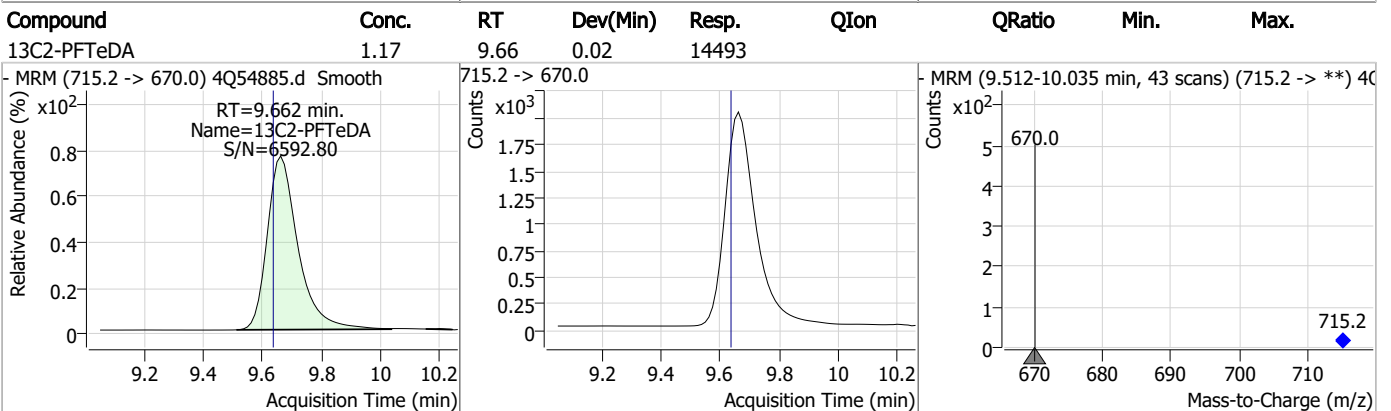
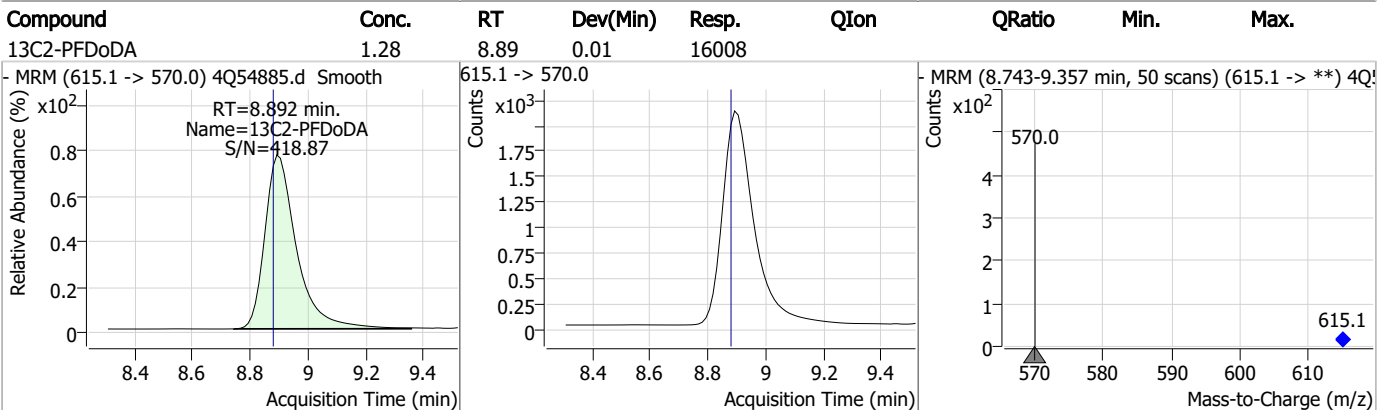
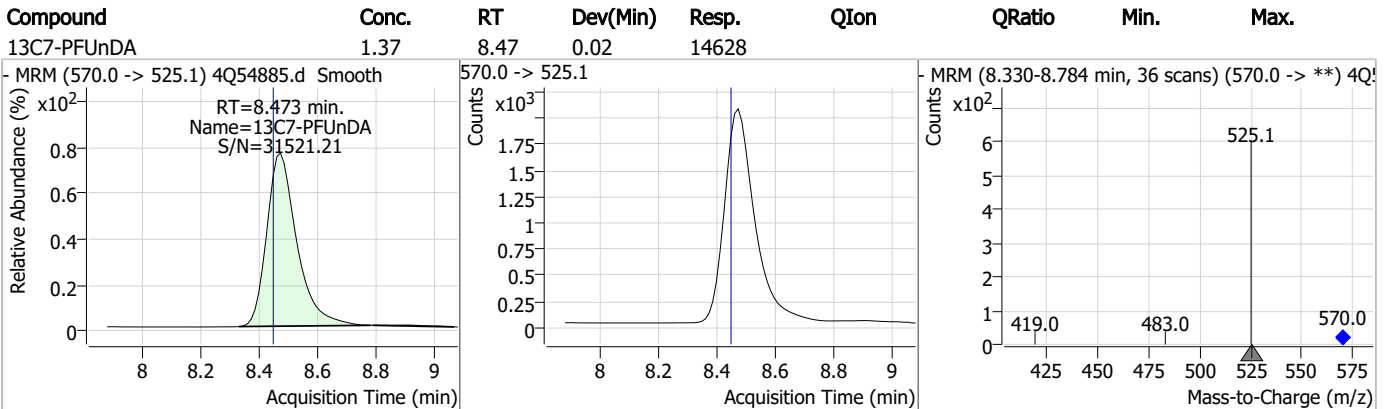
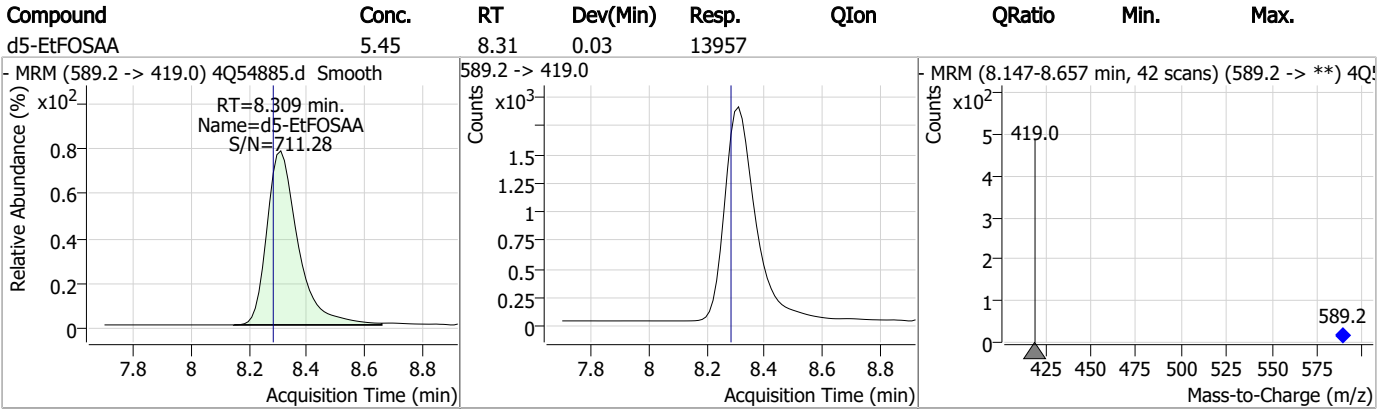
### Perfluorinated Compounds by LC/MS/MS



7.2.1

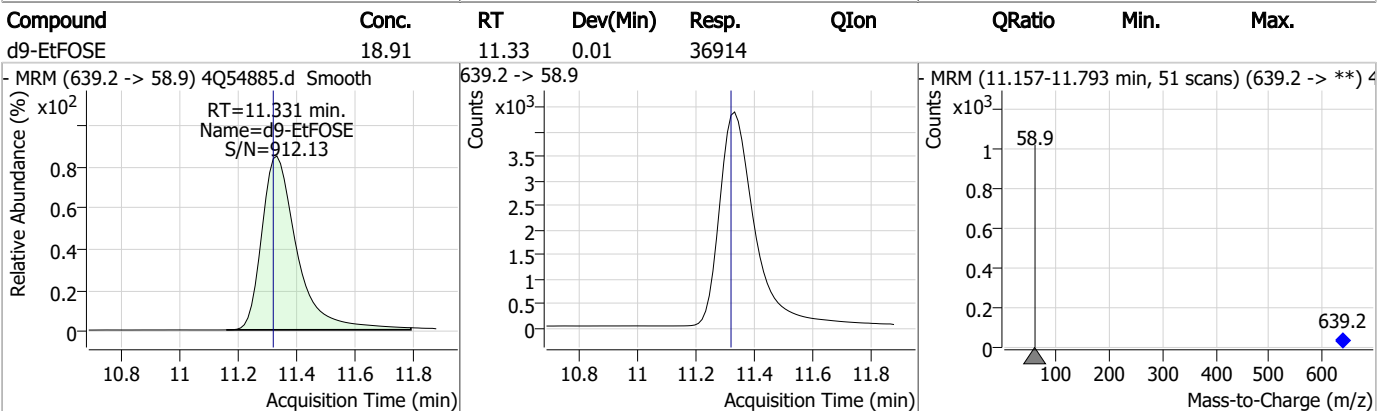
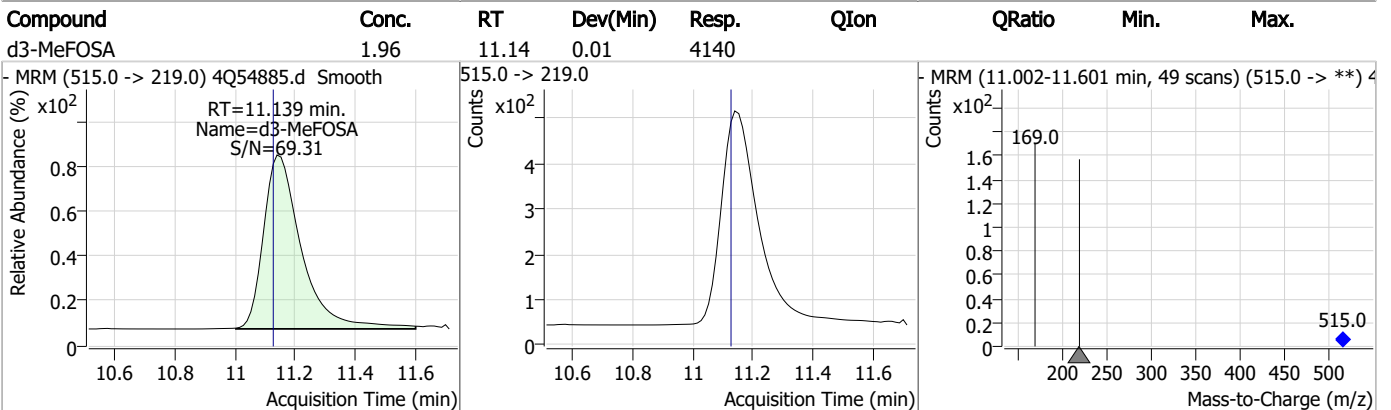
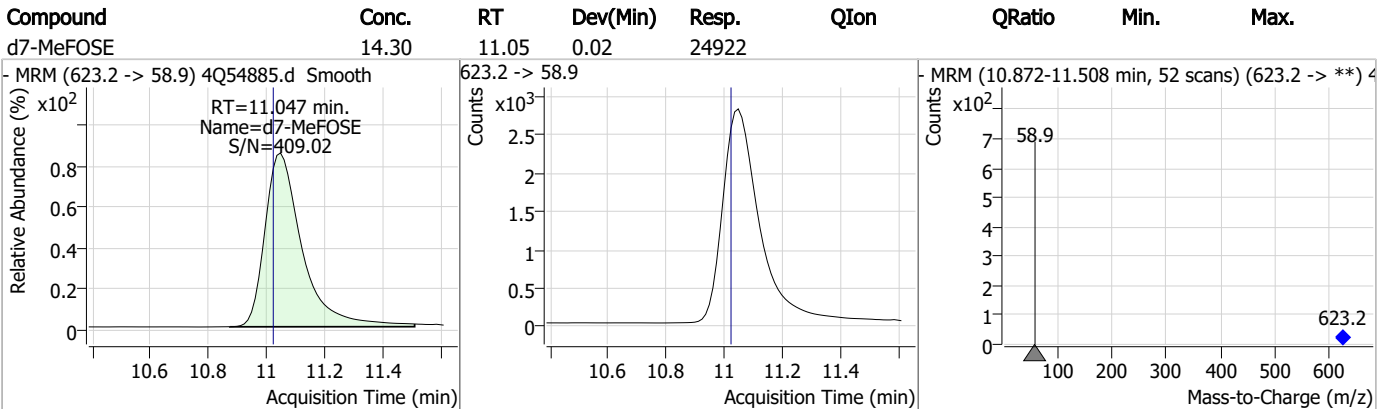
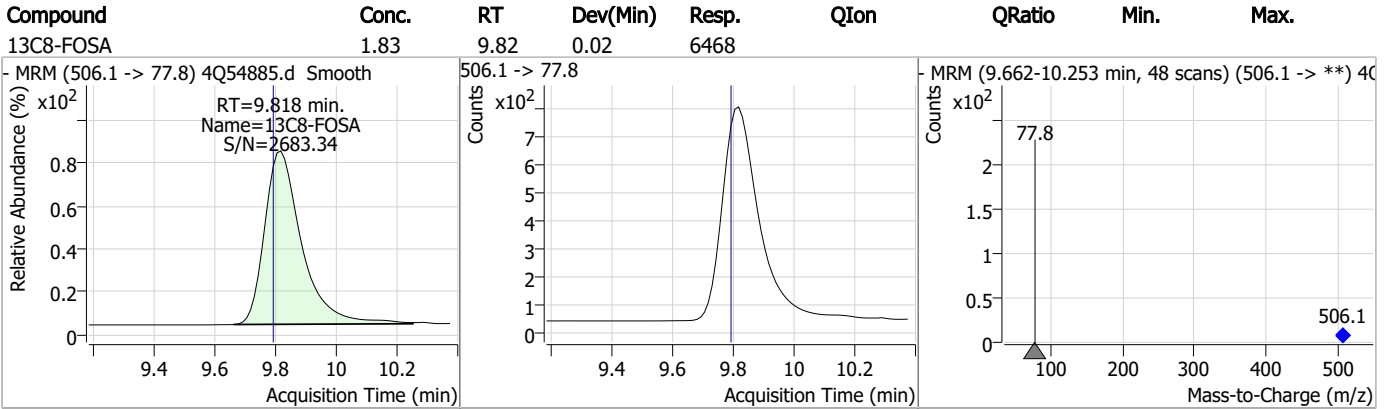
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### Perfluorinated Compounds by LC/MS/MS

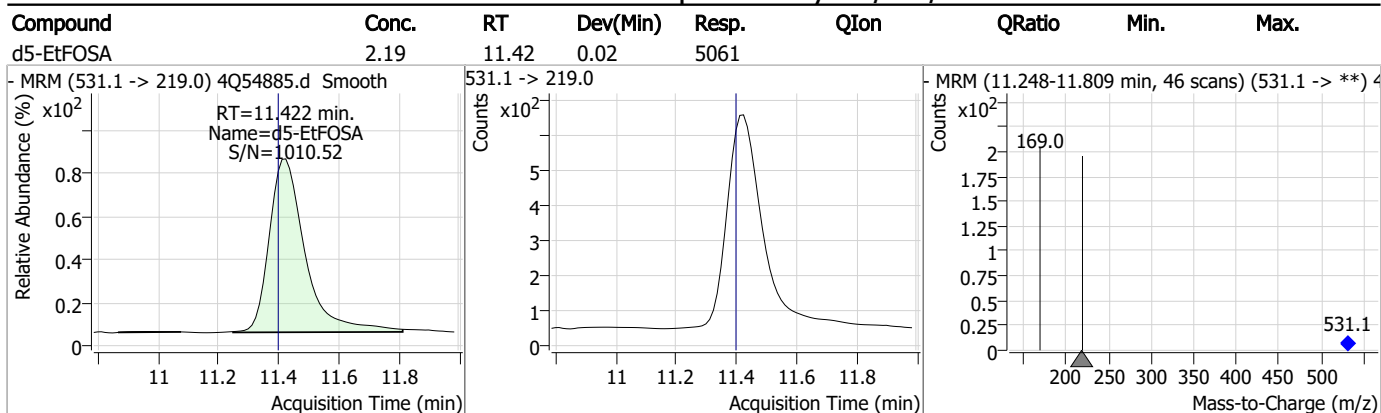




### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS



7.2.1

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### Perfluorinated Compounds by LC/MS/MS

Data File : 4Q54860.d  
 Operator : annal  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 12/8/2023 1:36:18 PM  
 Sample Name : iblk  
 Vial : P1-A1  
 DA Method File : 1633\_120823\_S4Q804.quantmethod.xml  
 Batch Name : s4q804.batch.bin  
 Sample Information : OP99999,S4Q804,500,,,5.0,1,water

| Compound                           | RT                   | Transition     | Response          | Conc. Units | Dev(Min) |
|------------------------------------|----------------------|----------------|-------------------|-------------|----------|
| <b>Internal Standards</b>          |                      |                |                   |             |          |
| M4-PFBA                            | 2.686                | 216.8 -> 171.9 | 101604            | 10.00 µg/L  | 0.012    |
| M5-PFPeA                           | 4.175                | 268.3 -> 223.0 | 43272             | 5.00 µg/L   | 0.012    |
| M5-PFHxA                           | 5.359                | 318.0 -> 273.0 | 32914             | 2.50 µg/L   | 0.025    |
| M4-PFHpA                           | 6.304                | 367.1 -> 322.0 | 33488             | 2.50 µg/L   | 0.012    |
| M8-PFOA                            | 6.989                | 421.1 -> 376.0 | 52746             | 2.50 µg/L   | 0.012    |
| M9-PFNA                            | 7.521                | 472.1 -> 427.0 | 21272             | 1.25 µg/L   | 0.000    |
| M6-PFDA                            | 8.017                | 519.1 -> 474.1 | 14680             | 1.25 µg/L   | 0.013    |
| M7-PFUnDA                          | 8.461                | 570.0 -> 525.1 | 17730             | 1.25 µg/L   | 0.012    |
| M2-PFDoDA                          | 8.892                | 615.1 -> 570.0 | 19498             | 1.25 µg/L   | 0.012    |
| M2-PFTeDA                          | 9.649                | 715.2 -> 670.0 | 19267             | 1.25 µg/L   | 0.012    |
| M8-FOSA                            | 9.794                | 506.1 -> 77.8  | 11454             | 2.50 µg/L   | 0.000    |
| M3-PFBS                            | 5.215                | 302.1 -> 79.9  | 9289              | 2.50 µg/L   | 0.025    |
| M3-PFHxS                           | 7.054                | 402.1 -> 79.9  | 7633              | 2.50 µg/L   | 0.025    |
| M8-PFOS                            | 8.130                | 507.1 -> 79.9  | 8440              | 2.50 µg/L   | 0.012    |
| M2-4:2FTS                          | 5.071                | 329.1 -> 80.9  | 1177              | 5.00 µg/L   | 0.025    |
| M2-6:2FTS                          | 6.773                | 429.1 -> 80.9  | 2642              | 5.00 µg/L   | 0.025    |
| M2-8:2FTS                          | 7.816                | 529.1 -> 80.9  | 3427              | 5.00 µg/L   | 0.012    |
| M3-MeFOSAA                         | 8.099                | 573.2 -> 419.0 | 20213             | 5.00 µg/L   | 0.012    |
| M3-HFPO-DA                         | 5.714                | 286.9 -> 168.9 | 33531             | 10.00 µg/L  | 0.025    |
| M5-EtFOSAA                         | 8.296                | 589.2 -> 419.0 | 17063             | 5.00 µg/L   | 0.012    |
| M7-MeFOSE                          | 11.034               | 623.2 -> 58.9  | 52115             | 25.00 µg/L  | 0.012    |
| M9-EtFOSE                          | 11.319               | 639.2 -> 58.9  | 58688             | 25.00 µg/L  | 0.000    |
| M5-EtFOSA                          | 11.398               | 531.1 -> 219.0 | 7049              | 2.50 µg/L   | 0.000    |
| M3-MeFOSA                          | 11.126               | 515.0 -> 219.0 | 6549              | 2.50 µg/L   | 0.000    |
| 13C4-PFOS                          | 8.130                | 502.8 -> 79.9  | 7273              | 2.50 µg/L   | 0.012    |
| 13C3-PFBA                          | 2.691                | 216.0 -> 172.0 | 48341             | 5.00 µg/L   | 0.013    |
| 18O2-PFHxS                         | 7.054                | 403.0 -> 83.9  | 4874              | 2.50 µg/L   | 0.013    |
| 13C4-PFOA                          | 6.989                | 417.1 -> 372.0 | 58334             | 2.50 µg/L   | 0.012    |
| 13C2-PFDA                          | 8.017                | 515.1 -> 470.1 | 15317             | 1.25 µg/L   | 0.013    |
| 13C5-PFNA                          | 7.522                | 468.0 -> 423.0 | 21243             | 1.25 µg/L   | 0.012    |
| 13C2-PFHxA                         | 5.360                | 315.1 -> 270.0 | 37372             | 2.50 µg/L   | 0.025    |
| <b>System Monitoring Compounds</b> |                      |                |                   |             |          |
| 13C2-4:2FTS                        | 5.071                | 329.1 -> 80.9  | 1177              | 5.09 µg/L   | 0.025    |
| Spiked Amount: 5.00                | Range: 50.0 - 150.0% |                | Recovery = 101.7% |             |          |
| 13C2-6:2FTS                        | 6.773                | 429.1 -> 80.9  | 2642              | 5.27 µg/L   | 0.025    |
| Spiked Amount: 5.00                | Range: 50.0 - 150.0% |                | Recovery = 105.3% |             |          |
| 13C2-8:2FTS                        | 7.816                | 529.1 -> 80.9  | 3427              | 5.10 µg/L   | 0.012    |
| Spiked Amount: 5.00                | Range: 50.0 - 150.0% |                | Recovery = 102.0% |             |          |
| 13C2-PFDoDA                        | 8.892                | 615.1 -> 570.0 | 19498             | 1.27 µg/L   | 0.012    |
| Spiked Amount: 1.25                | Range: 50.0 - 150.0% |                | Recovery = 101.9% |             |          |
| 13C2-PFTeDA                        | 9.649                | 715.2 -> 670.0 | 19267             | 1.27 µg/L   | 0.012    |
| Spiked Amount: 1.25                | Range: 50.0 - 150.0% |                | Recovery = 101.4% |             |          |
| 13C3-PFBS                          | 5.215                | 302.1 -> 79.9  | 9289              | 2.49 µg/L   | 0.025    |
| Spiked Amount: 2.50                | Range: 50.0 - 150.0% |                | Recovery = 99.5%  |             |          |
| 13C3-PFHxS                         | 7.054                | 402.1 -> 79.9  | 7633              | 2.50 µg/L   | 0.025    |

7.22  
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Perfluorinated Compounds by LC/MS/MS

| Compound             | RT                   | Transition     | Response | Conc. Units       | Dev(Min) |
|----------------------|----------------------|----------------|----------|-------------------|----------|
| Spiked Amount: 2.50  | Range: 50.0 - 150.0% |                |          | Recovery = 99.9%  |          |
| 13C4-PFBA            | 2.686                | 216.8 -> 171.9 | 101604   | 10.01 µg/L        | 0.012    |
| Spiked Amount: 10.00 | Range: 50.0 - 150.0% |                |          | Recovery = 100.1% |          |
| 13C4-PFHpA           | 6.304                | 367.1 -> 322.0 | 33488    | 2.54 µg/L         | 0.012    |
| Spiked Amount: 2.50  | Range: 50.0 - 150.0% |                |          | Recovery = 101.7% |          |
| 13C5-PFHxA           | 5.359                | 318.0 -> 273.0 | 32914    | 2.39 µg/L         | 0.025    |
| Spiked Amount: 2.50  | Range: 50.0 - 150.0% |                |          | Recovery = 95.6%  |          |
| 13C5-PFPeA           | 4.175                | 268.3 -> 223.0 | 43272    | 5.04 µg/L         | 0.012    |
| Spiked Amount: 5.00  | Range: 50.0 - 150.0% |                |          | Recovery = 100.9% |          |
| 13C6-PFDA            | 8.017                | 519.1 -> 474.1 | 14680    | 1.32 µg/L         | 0.013    |
| Spiked Amount: 1.25  | Range: 50.0 - 150.0% |                |          | Recovery = 105.4% |          |
| 13C7-PFUnDA          | 8.461                | 570.0 -> 525.1 | 17730    | 1.35 µg/L         | 0.012    |
| Spiked Amount: 1.25  | Range: 50.0 - 150.0% |                |          | Recovery = 107.9% |          |
| 13C8-FOSA            | 9.794                | 506.1 -> 77.8  | 11454    | 2.43 µg/L         | 0.000    |
| Spiked Amount: 2.50  | Range: 50.0 - 150.0% |                |          | Recovery = 97.2%  |          |
| 13C8-PFOA            | 6.989                | 421.1 -> 376.0 | 52746    | 2.45 µg/L         | 0.012    |
| Spiked Amount: 2.50  | Range: 50.0 - 150.0% |                |          | Recovery = 97.9%  |          |
| 13C8-PFOS            | 8.130                | 507.1 -> 79.9  | 8440     | 2.29 µg/L         | 0.012    |
| Spiked Amount: 2.50  | Range: 50.0 - 150.0% |                |          | Recovery = 91.7%  |          |
| 13C9-PFNA            | 7.521                | 472.1 -> 427.0 | 21272    | 1.25 µg/L         | 0.000    |
| Spiked Amount: 1.25  | Range: 50.0 - 150.0% |                |          | Recovery = 100.0% |          |
| d3-MeFOSAA           | 8.099                | 573.2 -> 419.0 | 20213    | 5.01 µg/L         | 0.012    |
| Spiked Amount: 5.00  | Range: 50.0 - 150.0% |                |          | Recovery = 100.1% |          |
| 13C3-HFPO-DA         | 5.714                | 286.9 -> 168.9 | 33531    | 9.75 µg/L         | 0.025    |
| Spiked Amount: 10.00 | Range: 50.0 - 150.0% |                |          | Recovery = 97.5%  |          |
| d3-MeFOSA            | 11.126               | 515.0 -> 219.0 | 6549     | 2.33 µg/L         | 0.000    |
| Spiked Amount: 2.50  | Range: 50.0 - 150.0% |                |          | Recovery = 93.2%  |          |
| d5-EtFOSAA           | 8.296                | 589.2 -> 419.0 | 17063    | 5.00 µg/L         | 0.012    |
| Spiked Amount: 5.00  | Range: 50.0 - 150.0% |                |          | Recovery = 99.9%  |          |
| d7-MeFOSE            | 11.034               | 623.2 -> 58.9  | 52115    | 22.41 µg/L        | 0.012    |
| Spiked Amount: 25.00 | Range: 50.0 - 150.0% |                |          | Recovery = 89.6%  |          |
| d9-EtFOSE            | 11.319               | 639.2 -> 58.9  | 58688    | 22.54 µg/L        | 0.000    |
| Spiked Amount: 25.00 | Range: 50.0 - 150.0% |                |          | Recovery = 90.1%  |          |
| d5-EtFOSA            | 11.398               | 531.1 -> 219.0 | 7049     | 2.29 µg/L         | 0.000    |
| Spiked Amount: 2.50  | Range: 50.0 - 150.0% |                |          | Recovery = 91.5%  |          |

| Target Compounds | RT | Transition     | Response | Conc. Units | QValue |
|------------------|----|----------------|----------|-------------|--------|
| 4:2FTS           | -  | 327.1 -> 307.0 | -        | N.D.        |        |
|                  |    | 327.1 -> 80.9  |          |             |        |
| 6:2FTS           | -  | 427.1 -> 407.0 | -        | N.D.        |        |
|                  |    | 427.1 -> 80.9  |          |             |        |
| 8:2FTS           | -  | 527.1 -> 507.0 | -        | N.D.        |        |
|                  |    | 527.1 -> 80.8  |          |             |        |
| EtFOSAA          | -  | 584.2 -> 419.1 | -        | N.D.        |        |
|                  |    | 584.2 -> 526.0 |          |             |        |
| FOSA             | -  | 498.1 -> 77.9  | -        | N.D.        |        |
|                  |    | 498.1 -> 478.0 |          |             |        |
| MeFOSAA          | -  | 570.1 -> 419.0 | -        | N.D.        |        |
|                  |    | 570.1 -> 483.0 |          |             |        |
| PFBA             | -  | 212.8 -> 168.9 | -        | N.D.        |        |
| PFBS             | -  | 298.7 -> 79.9  | -        | N.D.        |        |
|                  |    | 298.7 -> 98.8  |          |             |        |
| PFDA             | -  | 512.9 -> 469.0 | -        | N.D.        |        |
|                  |    | 512.9 -> 219.0 |          |             |        |
| PFDODA           | -  | 613.1 -> 569.0 | -        | N.D.        |        |
|                  |    | 613.1 -> 319.0 |          |             |        |
| PFDS             | -  | 599.0 -> 79.9  | -        | N.D.        |        |



7.22  
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Perfluorinated Compounds by LC/MS/MS

| Compound     | RT     | Transition     | Response | Conc.     | Units | Dev(Min) |
|--------------|--------|----------------|----------|-----------|-------|----------|
| PFHpA        | -      | 599.0 -> 98.8  | -        | N.D.      |       |          |
|              |        | 363.1 -> 319.0 |          |           |       |          |
| PFHpS        | -      | 363.1 -> 169.0 | -        | N.D.      |       |          |
|              |        | 449.0 -> 79.9  |          |           |       |          |
| PFHxA        | -      | 449.0 -> 98.9  | -        | N.D.      |       |          |
|              |        | 313.0 -> 269.0 |          |           |       |          |
| PFHxS        | -      | 313.0 -> 118.9 | -        | N.D.      |       |          |
|              |        | 398.7 -> 79.9  |          |           |       |          |
| PFNA         | -      | 398.7 -> 98.9  | -        | N.D.      |       |          |
|              |        | 463.0 -> 419.0 |          |           |       |          |
| PFNS         | -      | 463.0 -> 219.0 | -        | N.D.      |       |          |
|              |        | 548.8 -> 79.9  |          |           |       |          |
| PFOA         | -      | 548.8 -> 98.9  | -        | N.D.      |       |          |
|              |        | 413.0 -> 369.0 |          |           |       |          |
| PFOS         | -      | 413.0 -> 169.0 | -        | N.D.      |       |          |
|              |        | 498.9 -> 79.9  |          |           |       |          |
| PFPeA        | -      | 498.9 -> 98.8  | -        | N.D.      |       |          |
|              |        | 263.0 -> 219.0 |          |           |       |          |
| PFPeS        | -      | 349.1 -> 79.9  | -        | N.D.      |       |          |
|              |        | 349.1 -> 98.9  |          |           |       |          |
| PFTeDA       | -      | 713.1 -> 669.0 | -        | N.D.      |       |          |
|              |        | 713.1 -> 168.9 |          |           |       |          |
| PFTrDA       | -      | 663.0 -> 619.0 | -        | N.D.      |       |          |
|              |        | 663.0 -> 168.9 |          |           |       |          |
| PFUnDA       | -      | 563.1 -> 519.0 | -        | N.D.      |       |          |
|              |        | 563.1 -> 269.1 |          |           |       |          |
| 11Cl-PF3OUdS | -      | 630.9 -> 450.9 | -        | N.D.      |       |          |
|              |        | 632.9 -> 452.9 |          |           |       |          |
| 9Cl-PF3ONS   | -      | 530.8 -> 351.0 | -        | N.D.      |       |          |
|              |        | 532.8 -> 353.0 |          |           |       |          |
| ADONA        | -      | 376.9 -> 250.9 | -        | N.D.      |       |          |
|              |        | 376.9 -> 84.8  |          |           |       |          |
| HFPO-DA      | -      | 284.9 -> 168.9 | -        | N.D.      |       |          |
|              |        | 284.9 -> 184.9 |          |           |       |          |
| 3:3FTCA      | -      | 241.0 -> 177.0 | -        | N.D.      |       |          |
|              |        | 241.0 -> 117.0 |          |           |       |          |
| 5:3FTCA      | -      | 341.0 -> 237.1 | -        | N.D.      |       |          |
|              |        | 341.0 -> 217.0 |          |           |       |          |
| 7:3FTCA      | -      | 441.0 -> 316.9 | -        | N.D.      |       |          |
|              |        | 441.0 -> 336.9 |          |           |       |          |
| EtFOSA       | 11.374 | 526.0 -> 219.0 | 842      | 0.28 µg/L | m     | 93       |
|              |        | 526.0 -> 169.0 | 1094     |           |       |          |
| EtFOSE       | 11.332 | 630.0 -> 58.9  | 1560     | 0.75 µg/L | m     | 100      |
|              |        | 511.9 -> 219.0 | 522      | 0.22 µg/L |       | 44       |
| MeFOSA       | 11.140 | 511.9 -> 169.0 | 406      |           |       |          |
|              |        | 616.1 -> 58.9  | 874      | 0.42 µg/L | m     | 100      |
| PFDoDS       | -      | 699.1 -> 79.9  | -        | N.D.      |       |          |
|              |        | 699.1 -> 98.8  |          |           |       |          |
| NFDHA        | -      | 295.0 -> 201.0 | -        | N.D.      |       |          |
|              |        | 295.0 -> 84.9  |          |           |       |          |
| PFMBA        | -      | 279.0 -> 85.1  | -        | N.D.      |       |          |
| PFMPA        | -      | 229.0 -> 84.9  | -        | N.D.      |       |          |
| PFEESA       | -      | 314.8 -> 134.9 | -        | N.D.      |       |          |
|              |        | 314.8 -> 82.9  |          |           |       |          |

# = Qualifier out of range, m = manually integrated, + = Area summed



7.2.2  
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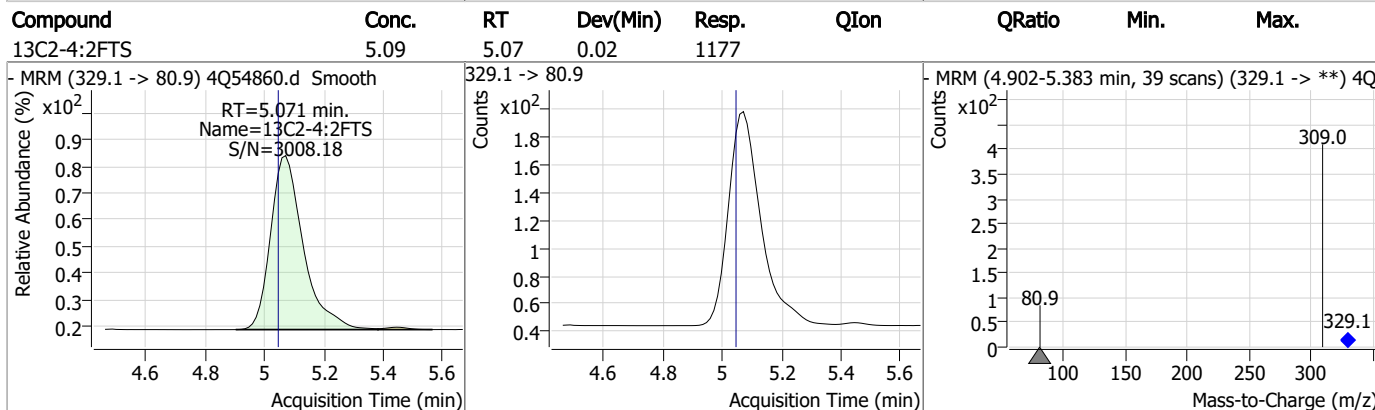
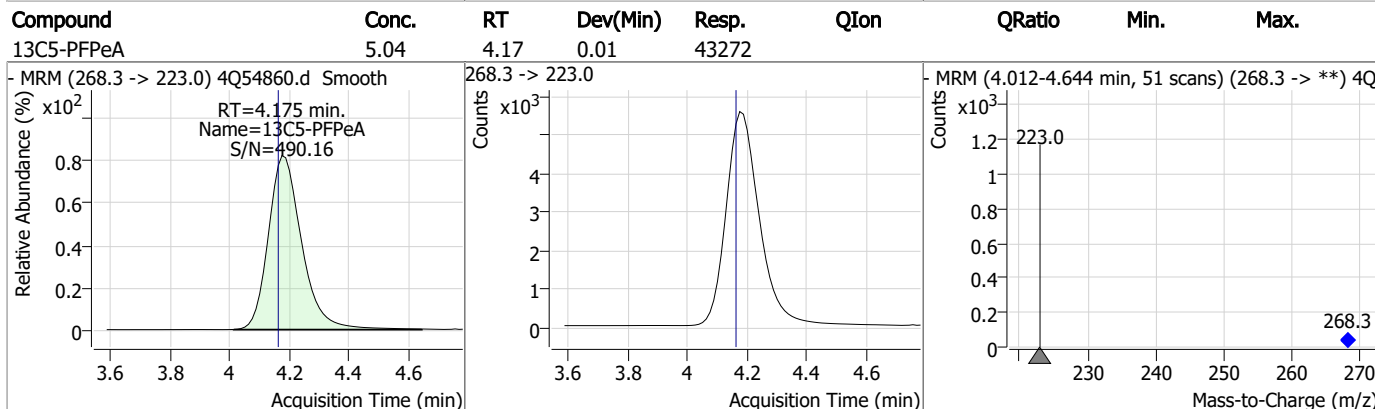
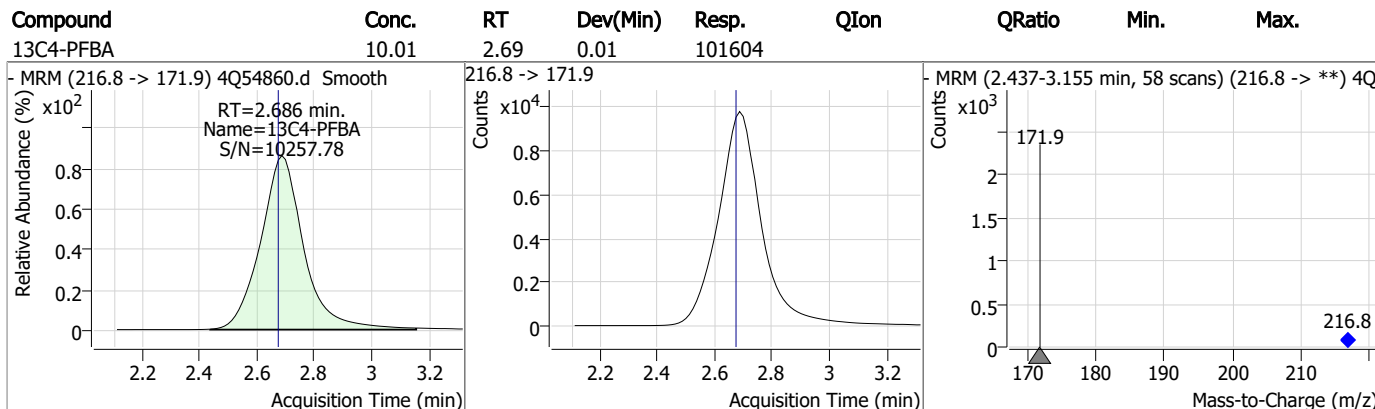
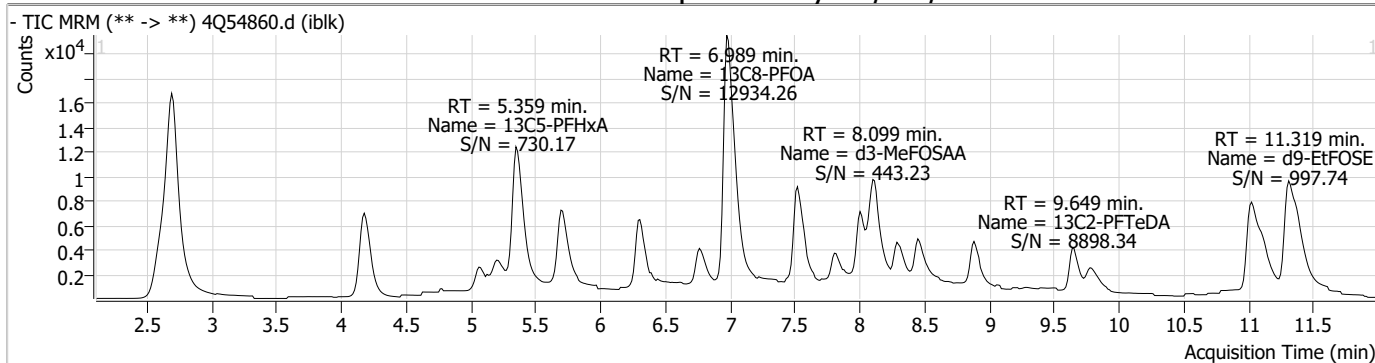
### Perfluorinated Compounds by LC/MS/MS

| Compound | RT | Transition | Response | Conc. Units | Dev(Min) |
|----------|----|------------|----------|-------------|----------|
|----------|----|------------|----------|-------------|----------|

7.2.2

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### Perfluorinated Compounds by LC/MS/MS



7.2.2  
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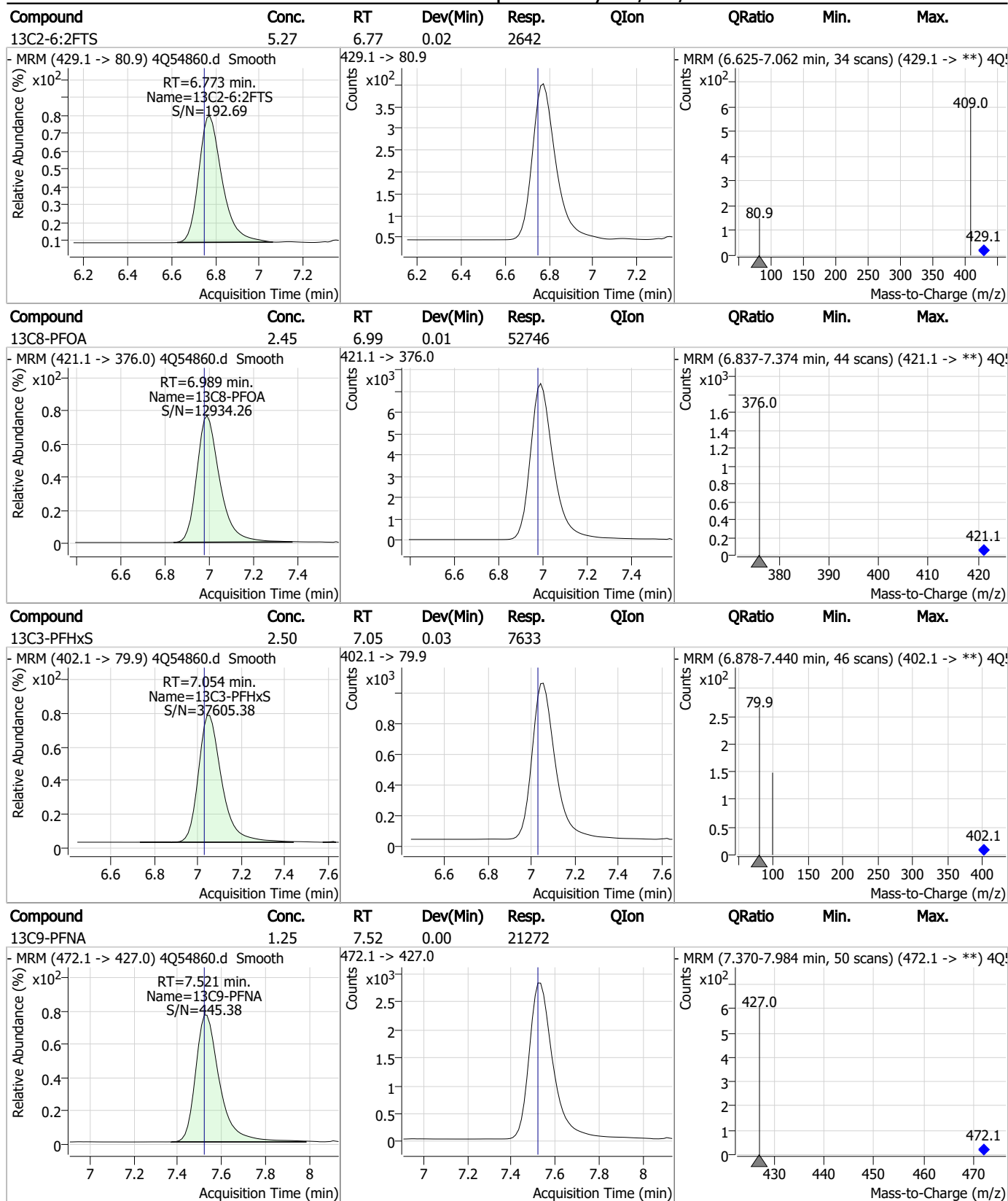
### Perfluorinated Compounds by LC/MS/MS

| Compound     | Conc. | RT   | Dev(Min) | Resp. | QIon | QRatio | Min. | Max. |
|--------------|-------|------|----------|-------|------|--------|------|------|
| 13C3-PFBS    | 2.49  | 5.21 | 0.03     | 9289  |      |        |      |      |
|              |       |      |          |       |      |        |      |      |
| 13C5-PFHxA   | 2.39  | 5.36 | 0.02     | 32914 |      |        |      |      |
|              |       |      |          |       |      |        |      |      |
| 13C3-HFPO-DA | 9.75  | 5.71 | 0.02     | 33531 |      |        |      |      |
|              |       |      |          |       |      |        |      |      |
| 13C4-PFHpA   | 2.54  | 6.30 | 0.01     | 33488 |      |        |      |      |
|              |       |      |          |       |      |        |      |      |

7.2.2  
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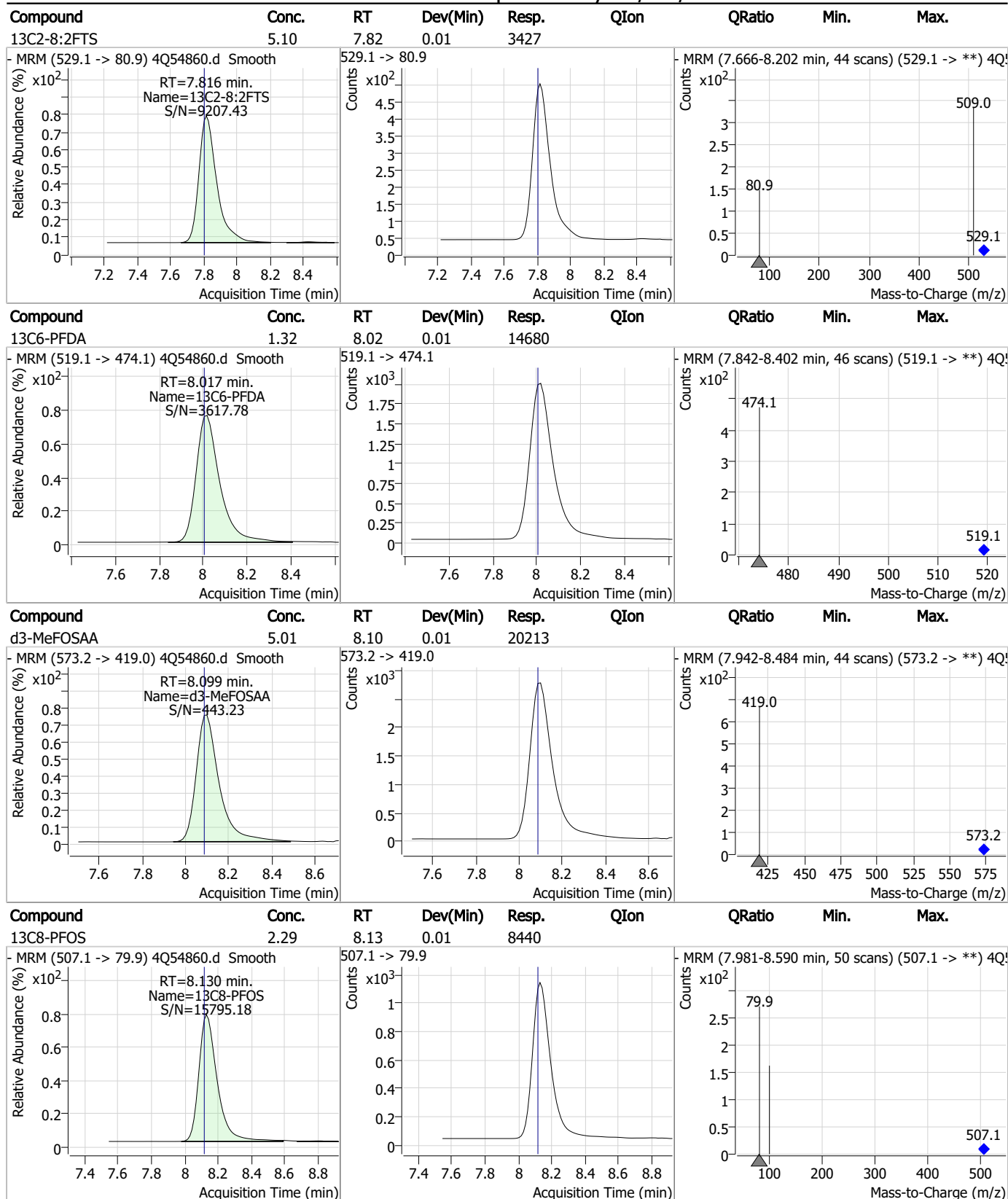


### Perfluorinated Compounds by LC/MS/MS



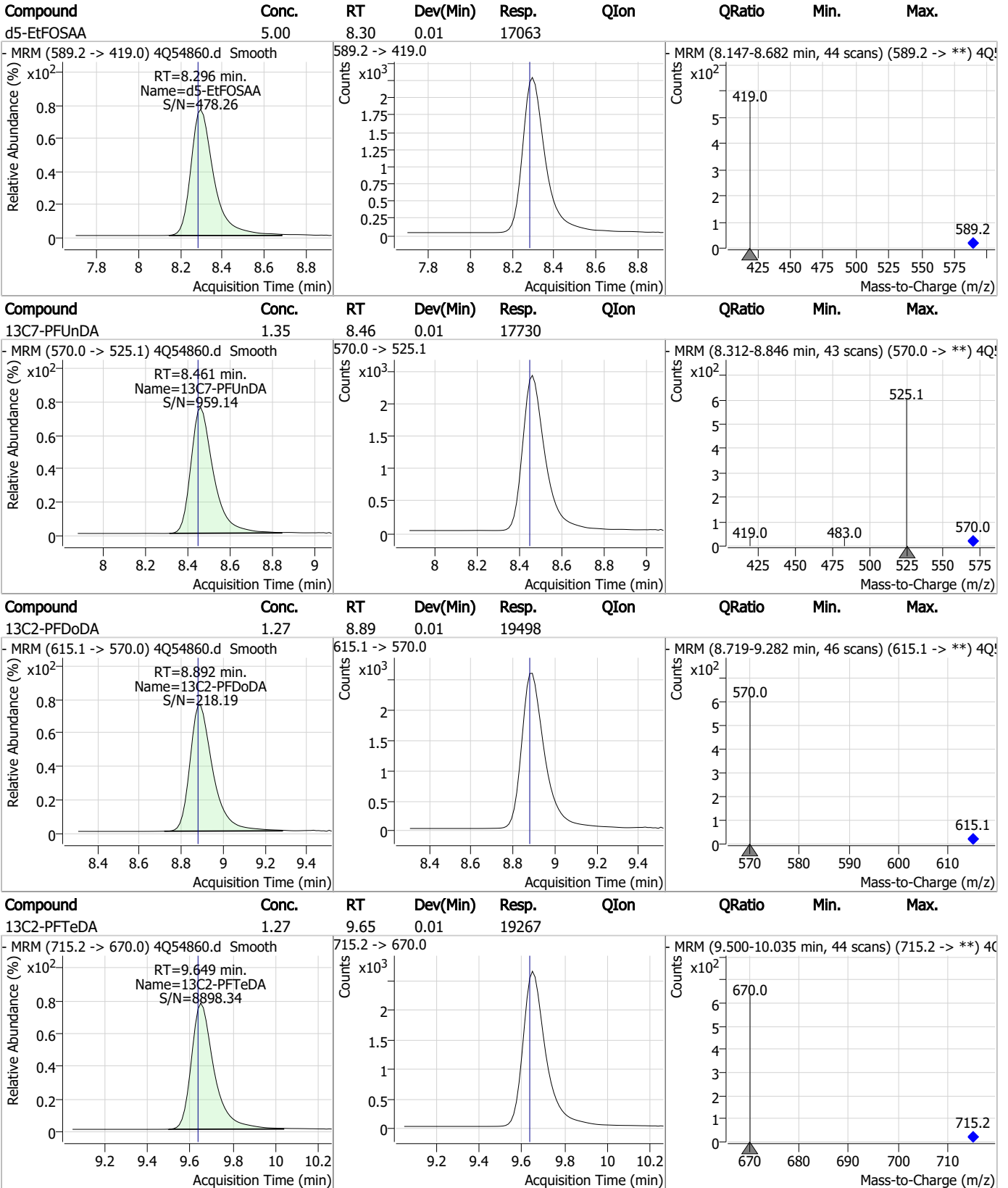
7.2.2  
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### Perfluorinated Compounds by LC/MS/MS



7.2.2  
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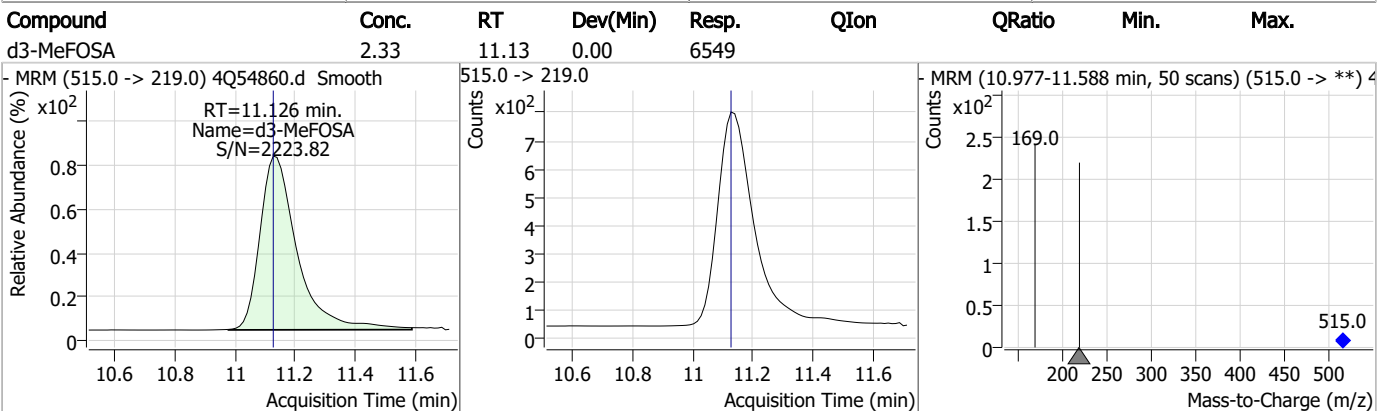
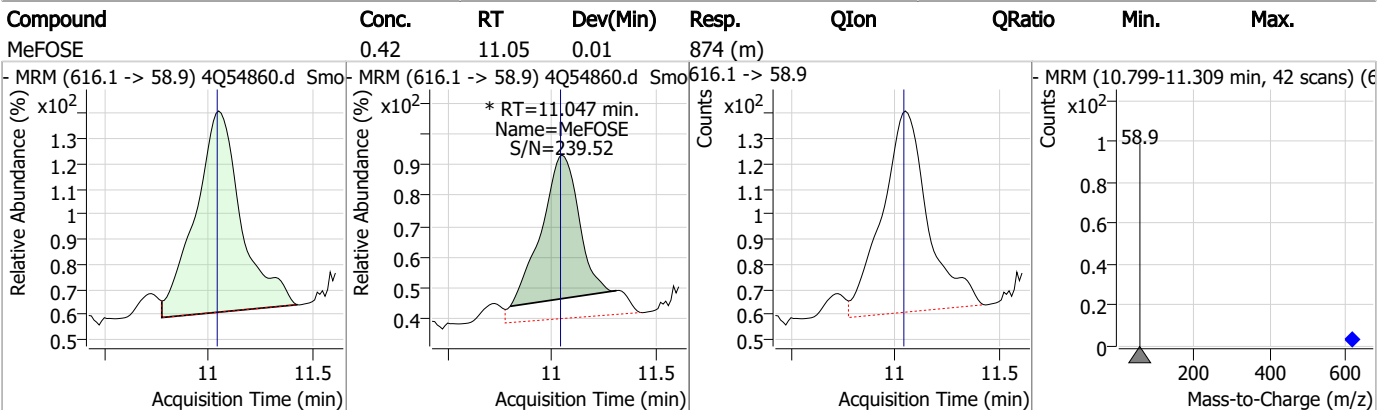
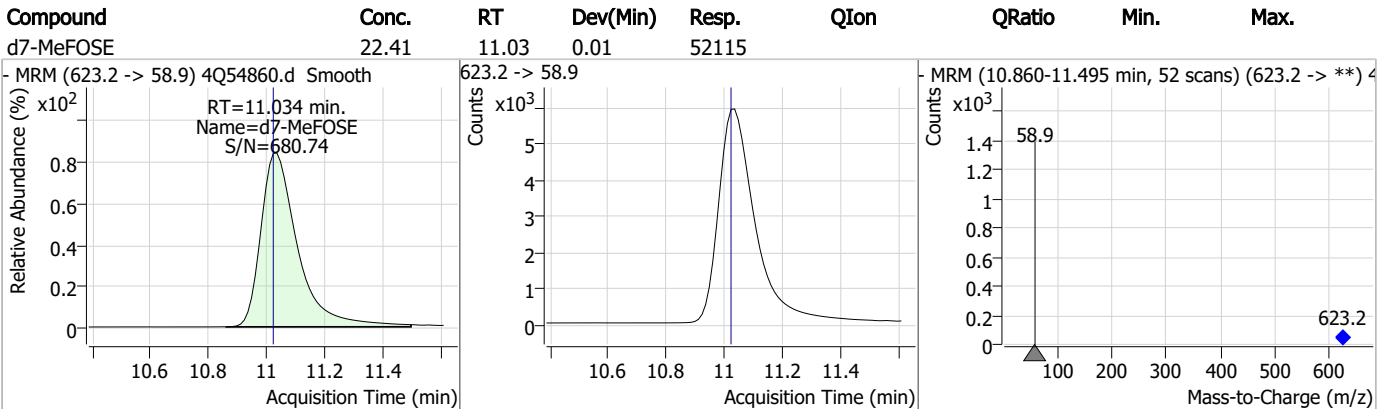
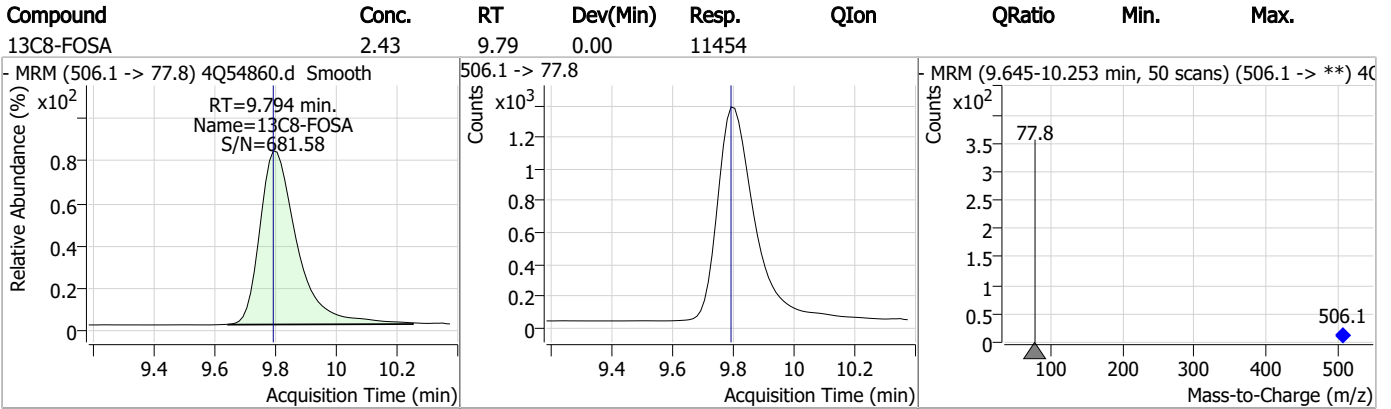
### Perfluorinated Compounds by LC/MS/MS



7.2.2

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### Perfluorinated Compounds by LC/MS/MS

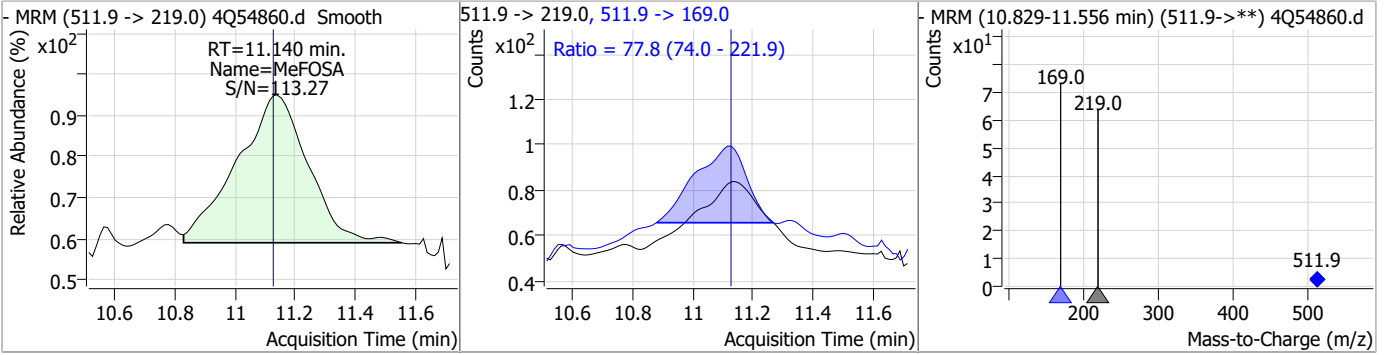


7.2.2

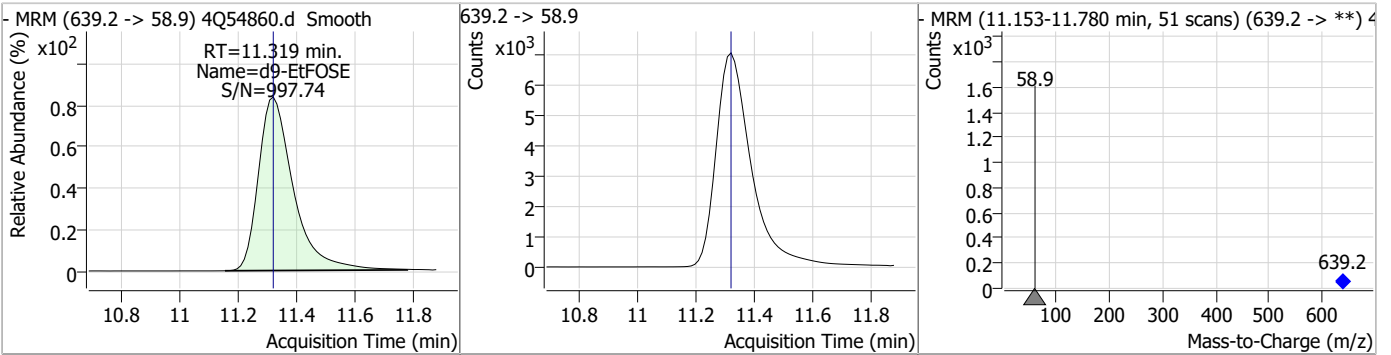
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### Perfluorinated Compounds by LC/MS/MS

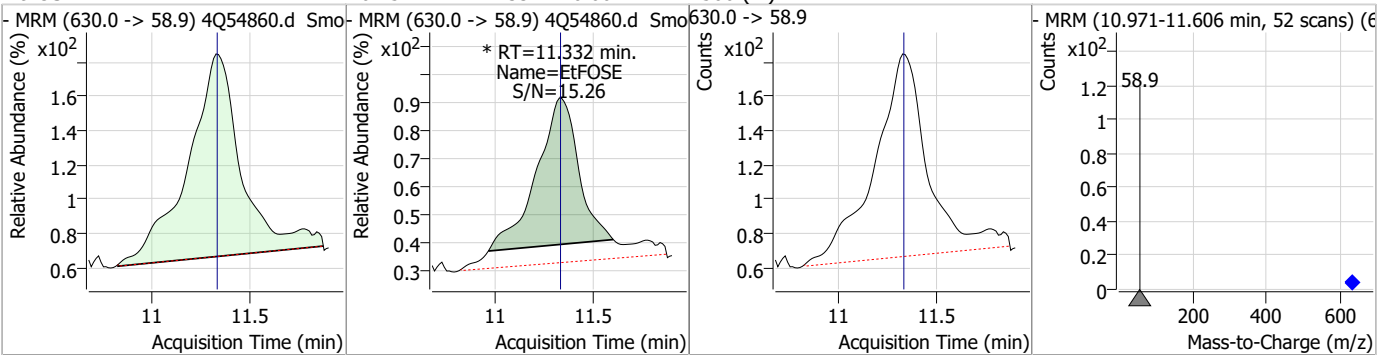
| Compound | Conc. | RT    | Dev(Min) | Resp. | QIon           | QRatio | Min. | Max.  |
|----------|-------|-------|----------|-------|----------------|--------|------|-------|
| MeFOSA   | 0.22  | 11.14 | 0.01     | 522   | 511.9 -> 169.0 | 77.8   | 74.0 | 221.9 |



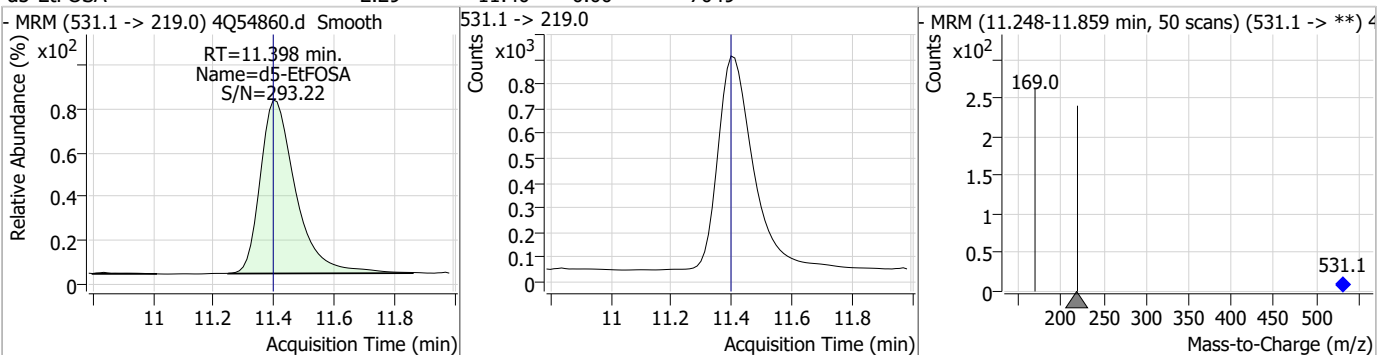
| Compound  | Conc. | RT    | Dev(Min) | Resp. | QIon | QRatio | Min. | Max. |
|-----------|-------|-------|----------|-------|------|--------|------|------|
| d9-EtFOSE | 22.54 | 11.32 | 0.00     | 58688 |      |        |      |      |



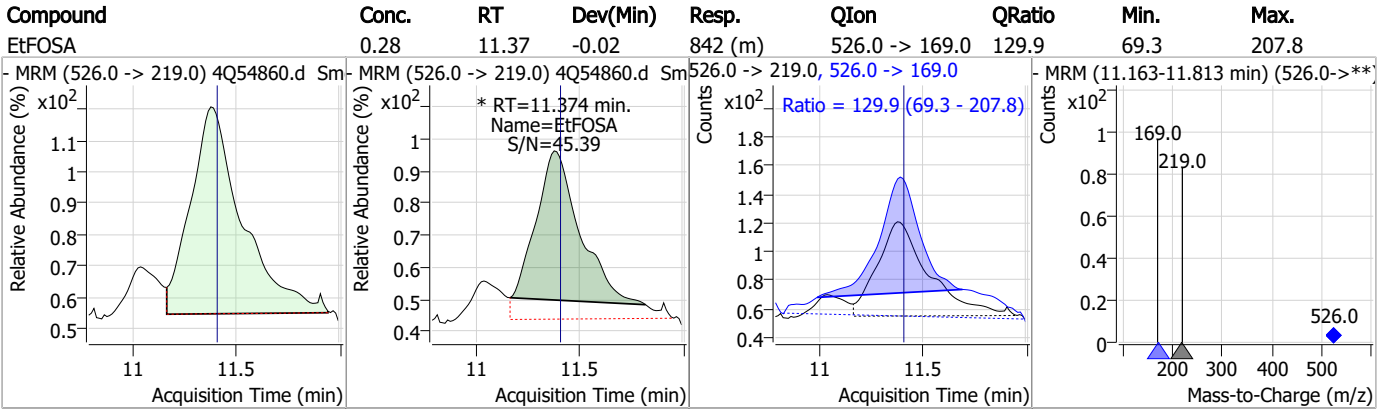
| Compound | Conc. | RT    | Dev(Min) | Resp.    | QIon | QRatio | Min. | Max. |
|----------|-------|-------|----------|----------|------|--------|------|------|
| EtFOSE   | 0.75  | 11.33 | 0.00     | 1560 (m) |      |        |      |      |



| Compound  | Conc. | RT    | Dev(Min) | Resp. | QIon | QRatio | Min. | Max. |
|-----------|-------|-------|----------|-------|------|--------|------|------|
| d5-EtFOSA | 2.29  | 11.40 | 0.00     | 7049  |      |        |      |      |



### Perfluorinated Compounds by LC/MS/MS



7.2.2

7

# Manual Integration Approval Summary

Sample Number: S4Q804-IBLK      Method: EPA DRAFT 1633  
Lab FileID: 4Q54860.D      Analyst approved: 12/10/23 12:52 Anna Ludwig  
Injection Time: 12/08/23 13:36      Supervisor approved: 12/11/23 15:42 Natasha Gumtie

| Parameter | CAS        | Sig# | R.T.<br>(min.) | Reason                  |
|-----------|------------|------|----------------|-------------------------|
| MeFOSE    | 24448-09-7 |      | 11.05          | Poorly defined baseline |
| EtFOSE    | 1691-99-2  |      | 11.33          | Poorly defined baseline |
| EtFOSA    | 4151-50-2  |      | 11.37          | Poorly defined baseline |

7.2.2.1

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### Perfluorinated Compounds by LC/MS/MS

Data File : 4Q54882.d  
 Operator : annal  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 12/8/2023 7:06:56 PM  
 Sample Name : iccb  
 Vial : P1-A1  
 DA Method File : 1633\_120823\_S4Q804.quantmethod.xml  
 Batch Name : s4q804.batch.bin  
 Sample Information : OP99999,S4Q804,500,,,5.0,1,water

| Compound                           | RT                   | Transition     | Response          | Conc. Units | Dev(Min) |
|------------------------------------|----------------------|----------------|-------------------|-------------|----------|
| <b>Internal Standards</b>          |                      |                |                   |             |          |
| M4-PFBA                            | 2.686                | 216.8 -> 171.9 | 104013            | 10.00 µg/L  | 0.012    |
| M5-PFPeA                           | 4.175                | 268.3 -> 223.0 | 42385             | 5.00 µg/L   | 0.013    |
| M5-PFHxA                           | 5.359                | 318.0 -> 273.0 | 33919             | 2.50 µg/L   | 0.025    |
| M4-PFHpA                           | 6.317                | 367.1 -> 322.0 | 33641             | 2.50 µg/L   | 0.025    |
| M8-PFOA                            | 7.001                | 421.1 -> 376.0 | 53529             | 2.50 µg/L   | 0.025    |
| M9-PFNA                            | 7.534                | 472.1 -> 427.0 | 21420             | 1.25 µg/L   | 0.012    |
| M6-PFDA                            | 8.017                | 519.1 -> 474.1 | 14889             | 1.25 µg/L   | 0.013    |
| M7-PFUnDA                          | 8.473                | 570.0 -> 525.1 | 18044             | 1.25 µg/L   | 0.025    |
| M2-PFDoDA                          | 8.892                | 615.1 -> 570.0 | 19321             | 1.25 µg/L   | 0.012    |
| M2-PFTeDA                          | 9.662                | 715.2 -> 670.0 | 19288             | 1.25 µg/L   | 0.025    |
| M8-FOSA                            | 9.818                | 506.1 -> 77.8  | 11912             | 2.50 µg/L   | 0.025    |
| M3-PFBS                            | 5.215                | 302.1 -> 79.9  | 9768              | 2.50 µg/L   | 0.025    |
| M3-PFHxS                           | 7.054                | 402.1 -> 79.9  | 8151              | 2.50 µg/L   | 0.025    |
| M8-PFOS                            | 8.143                | 507.1 -> 79.9  | 8666              | 2.50 µg/L   | 0.026    |
| M2-4:2FTS                          | 5.071                | 329.1 -> 80.9  | 1308              | 5.00 µg/L   | 0.025    |
| M2-6:2FTS                          | 6.773                | 429.1 -> 80.9  | 2674              | 5.00 µg/L   | 0.025    |
| M2-8:2FTS                          | 7.828                | 529.1 -> 80.9  | 3420              | 5.00 µg/L   | 0.025    |
| M3-MeFOSAA                         | 8.099                | 573.2 -> 419.0 | 19404             | 5.00 µg/L   | 0.012    |
| M3-HFPO-DA                         | 5.714                | 286.9 -> 168.9 | 32702             | 10.00 µg/L  | 0.025    |
| M5-EtFOSAA                         | 8.309                | 589.2 -> 419.0 | 16593             | 5.00 µg/L   | 0.026    |
| M7-MeFOSE                          | 11.047               | 623.2 -> 58.9  | 50412             | 25.00 µg/L  | 0.025    |
| M9-EtFOSE                          | 11.331               | 639.2 -> 58.9  | 60891             | 25.00 µg/L  | 0.012    |
| M5-EtFOSA                          | 11.410               | 531.1 -> 219.0 | 7294              | 2.50 µg/L   | 0.012    |
| M3-MeFOSA                          | 11.152               | 515.0 -> 219.0 | 6468              | 2.50 µg/L   | 0.026    |
| 13C4-PFOS                          | 8.144                | 502.8 -> 79.9  | 7232              | 2.50 µg/L   | 0.026    |
| 13C3-PFBA                          | 2.691                | 216.0 -> 172.0 | 49202             | 5.00 µg/L   | 0.013    |
| 18O2-PFHxS                         | 7.054                | 403.0 -> 83.9  | 5080              | 2.50 µg/L   | 0.013    |
| 13C4-PFOA                          | 7.002                | 417.1 -> 372.0 | 58077             | 2.50 µg/L   | 0.025    |
| 13C2-PFDA                          | 8.017                | 515.1 -> 470.1 | 16085             | 1.25 µg/L   | 0.013    |
| 13C5-PFNA                          | 7.534                | 468.0 -> 423.0 | 21237             | 1.25 µg/L   | 0.025    |
| 13C2-PFHxA                         | 5.360                | 315.1 -> 270.0 | 36175             | 2.50 µg/L   | 0.025    |
| <b>System Monitoring Compounds</b> |                      |                |                   |             |          |
| 13C2-4:2FTS                        | 5.071                | 329.1 -> 80.9  | 1308              | 5.42 µg/L   | 0.025    |
| Spiked Amount: 5.00                | Range: 50.0 - 150.0% |                | Recovery = 108.5% |             |          |
| 13C2-6:2FTS                        | 6.773                | 429.1 -> 80.9  | 2674              | 5.11 µg/L   | 0.025    |
| Spiked Amount: 5.00                | Range: 50.0 - 150.0% |                | Recovery = 102.3% |             |          |
| 13C2-8:2FTS                        | 7.828                | 529.1 -> 80.9  | 3420              | 4.88 µg/L   | 0.025    |
| Spiked Amount: 5.00                | Range: 50.0 - 150.0% |                | Recovery = 97.7%  |             |          |
| 13C2-PFDoDA                        | 8.892                | 615.1 -> 570.0 | 19321             | 1.20 µg/L   | 0.012    |
| Spiked Amount: 1.25                | Range: 50.0 - 150.0% |                | Recovery = 96.2%  |             |          |
| 13C2-PFTeDA                        | 9.662                | 715.2 -> 670.0 | 19288             | 1.21 µg/L   | 0.025    |
| Spiked Amount: 1.25                | Range: 50.0 - 150.0% |                | Recovery = 96.6%  |             |          |
| 13C3-PFBS                          | 5.215                | 302.1 -> 79.9  | 9768              | 2.51 µg/L   | 0.025    |
| Spiked Amount: 2.50                | Range: 50.0 - 150.0% |                | Recovery = 100.4% |             |          |
| 13C3-PFHxS                         | 7.054                | 402.1 -> 79.9  | 8151              | 2.56 µg/L   | 0.025    |

7.2.3  
7



Perfluorinated Compounds by LC/MS/MS

| Compound             | RT                   | Transition     | Response | Conc. Units       | Dev(Min) |
|----------------------|----------------------|----------------|----------|-------------------|----------|
| Spiked Amount: 2.50  | Range: 50.0 - 150.0% |                |          | Recovery = 102.4% |          |
| 13C4-PFBA            | 2.686                | 216.8 -> 171.9 | 104013   | 10.07 µg/L        | 0.012    |
| Spiked Amount: 10.00 | Range: 50.0 - 150.0% |                |          | Recovery = 100.7% |          |
| 13C4-PFHpA           | 6.317                | 367.1 -> 322.0 | 33641    | 2.64 µg/L         | 0.025    |
| Spiked Amount: 2.50  | Range: 50.0 - 150.0% |                |          | Recovery = 105.5% |          |
| 13C5-PFHxA           | 5.359                | 318.0 -> 273.0 | 33919    | 2.54 µg/L         | 0.025    |
| Spiked Amount: 2.50  | Range: 50.0 - 150.0% |                |          | Recovery = 101.8% |          |
| 13C5-PFPeA           | 4.175                | 268.3 -> 223.0 | 42385    | 5.10 µg/L         | 0.013    |
| Spiked Amount: 5.00  | Range: 50.0 - 150.0% |                |          | Recovery = 102.1% |          |
| 13C6-PFDA            | 8.017                | 519.1 -> 474.1 | 14889    | 1.27 µg/L         | 0.013    |
| Spiked Amount: 1.25  | Range: 50.0 - 150.0% |                |          | Recovery = 101.8% |          |
| 13C7-PFUnDA          | 8.473                | 570.0 -> 525.1 | 18044    | 1.31 µg/L         | 0.025    |
| Spiked Amount: 1.25  | Range: 50.0 - 150.0% |                |          | Recovery = 104.6% |          |
| 13C8-FOSA            | 9.818                | 506.1 -> 77.8  | 11912    | 2.54 µg/L         | 0.025    |
| Spiked Amount: 2.50  | Range: 50.0 - 150.0% |                |          | Recovery = 101.7% |          |
| 13C8-PFOA            | 7.001                | 421.1 -> 376.0 | 53529    | 2.49 µg/L         | 0.025    |
| Spiked Amount: 2.50  | Range: 50.0 - 150.0% |                |          | Recovery = 99.8%  |          |
| 13C8-PFOS            | 8.143                | 507.1 -> 79.9  | 8666     | 2.37 µg/L         | 0.026    |
| Spiked Amount: 2.50  | Range: 50.0 - 150.0% |                |          | Recovery = 94.7%  |          |
| 13C9-PFNA            | 7.534                | 472.1 -> 427.0 | 21420    | 1.26 µg/L         | 0.012    |
| Spiked Amount: 1.25  | Range: 50.0 - 150.0% |                |          | Recovery = 100.7% |          |
| d3-MeFOSAA           | 8.099                | 573.2 -> 419.0 | 19404    | 4.83 µg/L         | 0.012    |
| Spiked Amount: 5.00  | Range: 50.0 - 150.0% |                |          | Recovery = 96.7%  |          |
| 13C3-HFPO-DA         | 5.714                | 286.9 -> 168.9 | 32702    | 9.82 µg/L         | 0.025    |
| Spiked Amount: 10.00 | Range: 50.0 - 150.0% |                |          | Recovery = 98.2%  |          |
| d3-MeFOSA            | 11.152               | 515.0 -> 219.0 | 6468     | 2.31 µg/L         | 0.026    |
| Spiked Amount: 2.50  | Range: 50.0 - 150.0% |                |          | Recovery = 92.5%  |          |
| d5-EtFOSAA           | 8.309                | 589.2 -> 419.0 | 16593    | 4.89 µg/L         | 0.026    |
| Spiked Amount: 5.00  | Range: 50.0 - 150.0% |                |          | Recovery = 97.7%  |          |
| d7-MeFOSE            | 11.047               | 623.2 -> 58.9  | 50412    | 21.80 µg/L        | 0.025    |
| Spiked Amount: 25.00 | Range: 50.0 - 150.0% |                |          | Recovery = 87.2%  |          |
| d9-EtFOSE            | 11.331               | 639.2 -> 58.9  | 60891    | 23.51 µg/L        | 0.012    |
| Spiked Amount: 25.00 | Range: 50.0 - 150.0% |                |          | Recovery = 94.1%  |          |
| d5-EtFOSA            | 11.410               | 531.1 -> 219.0 | 7294     | 2.38 µg/L         | 0.012    |
| Spiked Amount: 2.50  | Range: 50.0 - 150.0% |                |          | Recovery = 95.2%  |          |

Target Compounds

QValue

|         |   |                |   |      |  |
|---------|---|----------------|---|------|--|
| 4:2FTS  | - | 327.1 -> 307.0 | - | N.D. |  |
|         |   | 327.1 -> 80.9  |   |      |  |
| 6:2FTS  | - | 427.1 -> 407.0 | - | N.D. |  |
|         |   | 427.1 -> 80.9  |   |      |  |
| 8:2FTS  | - | 527.1 -> 507.0 | - | N.D. |  |
|         |   | 527.1 -> 80.8  |   |      |  |
| EtFOSAA | - | 584.2 -> 419.1 | - | N.D. |  |
|         |   | 584.2 -> 526.0 |   |      |  |
| FOSA    | - | 498.1 -> 77.9  | - | N.D. |  |
|         |   | 498.1 -> 478.0 |   |      |  |
| MeFOSAA | - | 570.1 -> 419.0 | - | N.D. |  |
|         |   | 570.1 -> 483.0 |   |      |  |
| PFBA    | - | 212.8 -> 168.9 | - | N.D. |  |
| PFBS    | - | 298.7 -> 79.9  | - | N.D. |  |
|         |   | 298.7 -> 98.8  |   |      |  |
| PFDA    | - | 512.9 -> 469.0 | - | N.D. |  |
|         |   | 512.9 -> 219.0 |   |      |  |
| PFDODA  | - | 613.1 -> 569.0 | - | N.D. |  |
|         |   | 613.1 -> 319.0 |   |      |  |
| PFDS    | - | 599.0 -> 79.9  | - | N.D. |  |



7.2.3  
7

Perfluorinated Compounds by LC/MS/MS

| Compound     | RT    | Transition     | Response | Conc. | Units | Dev(Min) |
|--------------|-------|----------------|----------|-------|-------|----------|
| PFHpA        | -     | 599.0 -> 98.8  | -        | N.D.  |       |          |
|              |       | 363.1 -> 319.0 |          |       |       |          |
| PFHpS        | -     | 363.1 -> 169.0 | -        | N.D.  |       |          |
|              |       | 449.0 -> 79.9  |          |       |       |          |
| PFHxA        | -     | 449.0 -> 98.9  | -        | N.D.  |       |          |
|              |       | 313.0 -> 269.0 |          |       |       |          |
| PFHxS        | -     | 313.0 -> 118.9 | -        | N.D.  |       |          |
|              |       | 398.7 -> 79.9  |          |       |       |          |
| PFNA         | -     | 398.7 -> 98.9  | -        | N.D.  |       |          |
|              |       | 463.0 -> 419.0 |          |       |       |          |
| PFNS         | -     | 463.0 -> 219.0 | -        | N.D.  |       |          |
|              |       | 548.8 -> 79.9  |          |       |       |          |
| PFOA         | 6.990 | 548.8 -> 98.9  | 493      | 0.02  | µg/L  | 85       |
|              |       | 413.0 -> 369.0 | 147      |       | m     |          |
| PFOS         | -     | 413.0 -> 169.0 | -        | N.D.  |       |          |
|              |       | 498.9 -> 79.9  |          |       |       |          |
| PFPeA        | -     | 498.9 -> 98.8  | -        | N.D.  |       |          |
|              |       | 263.0 -> 219.0 |          |       |       |          |
| PFPeS        | -     | 349.1 -> 79.9  | -        | N.D.  |       |          |
|              |       | 349.1 -> 98.9  |          |       |       |          |
| PFTeDA       | -     | 713.1 -> 669.0 | -        | N.D.  |       |          |
|              |       | 713.1 -> 168.9 |          |       |       |          |
| PFTrDA       | -     | 663.0 -> 619.0 | -        | N.D.  |       |          |
|              |       | 663.0 -> 168.9 |          |       |       |          |
| PFUnDA       | -     | 563.1 -> 519.0 | -        | N.D.  |       |          |
|              |       | 563.1 -> 269.1 |          |       |       |          |
| 11Cl-PF3OUdS | -     | 630.9 -> 450.9 | -        | N.D.  |       |          |
|              |       | 632.9 -> 452.9 |          |       |       |          |
| 9Cl-PF3ONS   | -     | 530.8 -> 351.0 | -        | N.D.  |       |          |
|              |       | 532.8 -> 353.0 |          |       |       |          |
| ADONA        | -     | 376.9 -> 250.9 | -        | N.D.  |       |          |
|              |       | 376.9 -> 84.8  |          |       |       |          |
| HFPO-DA      | -     | 284.9 -> 168.9 | -        | N.D.  |       |          |
|              |       | 284.9 -> 184.9 |          |       |       |          |
| 3:3FTCA      | -     | 241.0 -> 177.0 | -        | N.D.  |       |          |
|              |       | 241.0 -> 117.0 |          |       |       |          |
| 5:3FTCA      | -     | 341.0 -> 237.1 | -        | N.D.  |       |          |
|              |       | 341.0 -> 217.0 |          |       |       |          |
| 7:3FTCA      | -     | 441.0 -> 316.9 | -        | N.D.  |       |          |
|              |       | 441.0 -> 336.9 |          |       |       |          |
| EtFOSA       | -     | 526.0 -> 219.0 | -        | N.D.  |       |          |
|              |       | 526.0 -> 169.0 |          |       |       |          |
| EtFOSE       | -     | 630.0 -> 58.9  | -        | N.D.  |       |          |
|              |       | 511.9 -> 219.0 |          |       |       |          |
| MeFOSA       | -     | 511.9 -> 169.0 | -        | N.D.  |       |          |
|              |       | 616.1 -> 58.9  |          |       |       |          |
| MeFOSE       | -     | 699.1 -> 79.9  | -        | N.D.  |       |          |
|              |       | 699.1 -> 98.8  |          |       |       |          |
| PFDoDS       | -     | 295.0 -> 201.0 | -        | N.D.  |       |          |
|              |       | 295.0 -> 84.9  |          |       |       |          |
| NFDHA        | -     | 279.0 -> 85.1  | -        | N.D.  |       |          |
|              |       | 229.0 -> 84.9  |          |       |       |          |
| PFMBA        | -     | 314.8 -> 134.9 | -        | N.D.  |       |          |
|              |       | 314.8 -> 82.9  |          |       |       |          |

# = Qualifier out of range, m = manually integrated, + = Area summed



7.2.3  
7

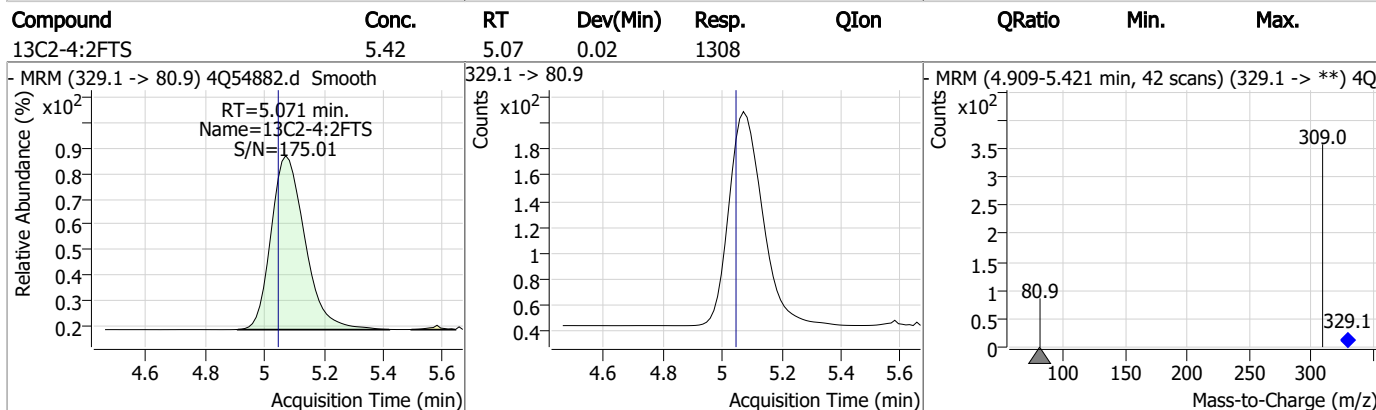
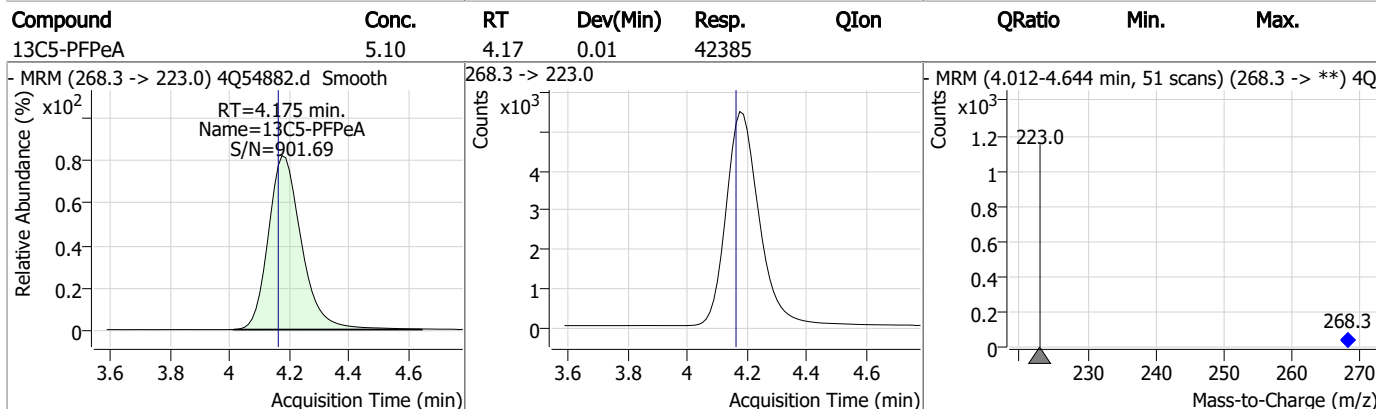
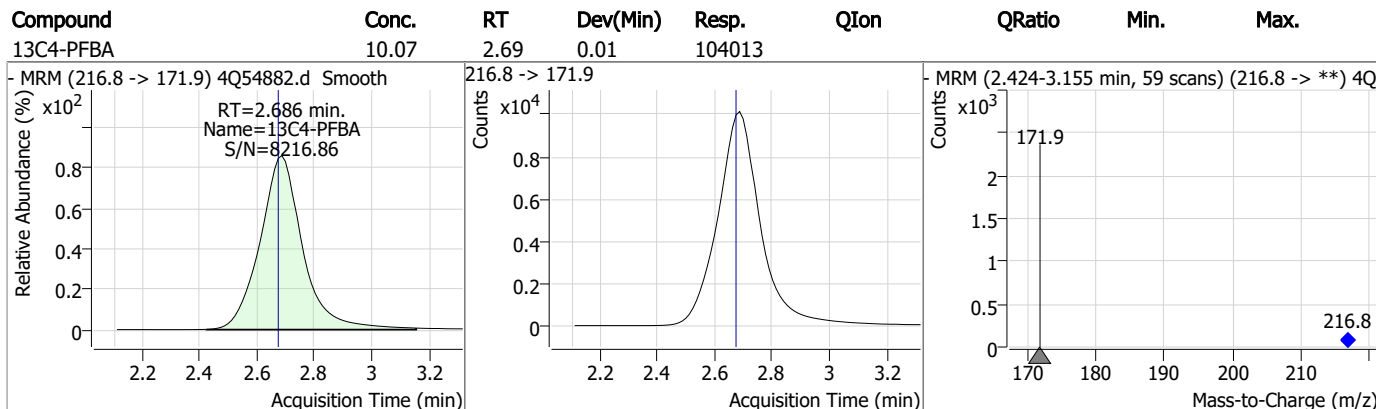
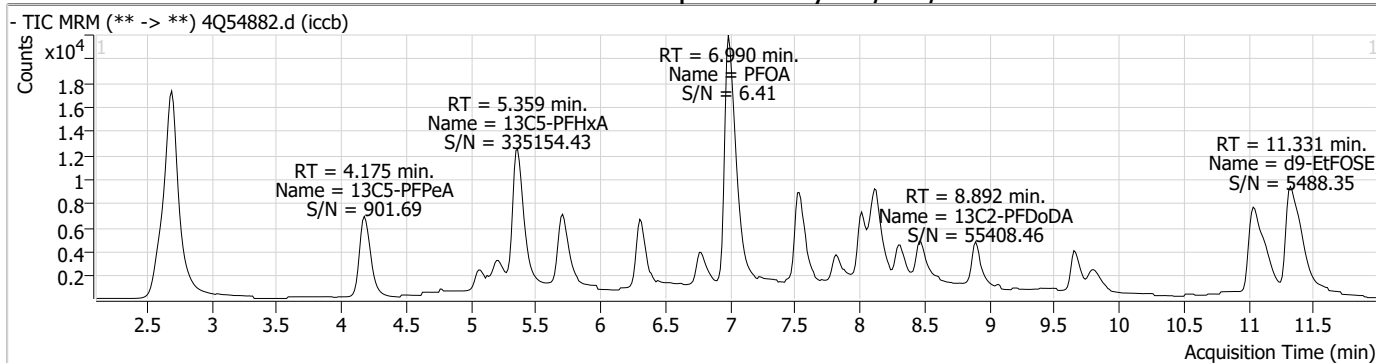
### Perfluorinated Compounds by LC/MS/MS

| Compound | RT | Transition | Response | Conc. Units | Dev(Min) |
|----------|----|------------|----------|-------------|----------|
|----------|----|------------|----------|-------------|----------|

7.2.3

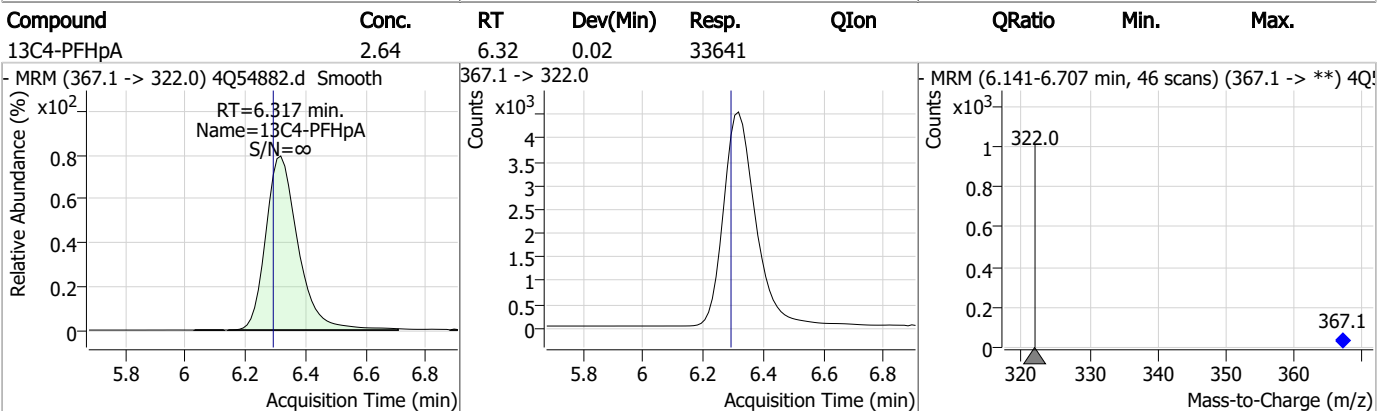
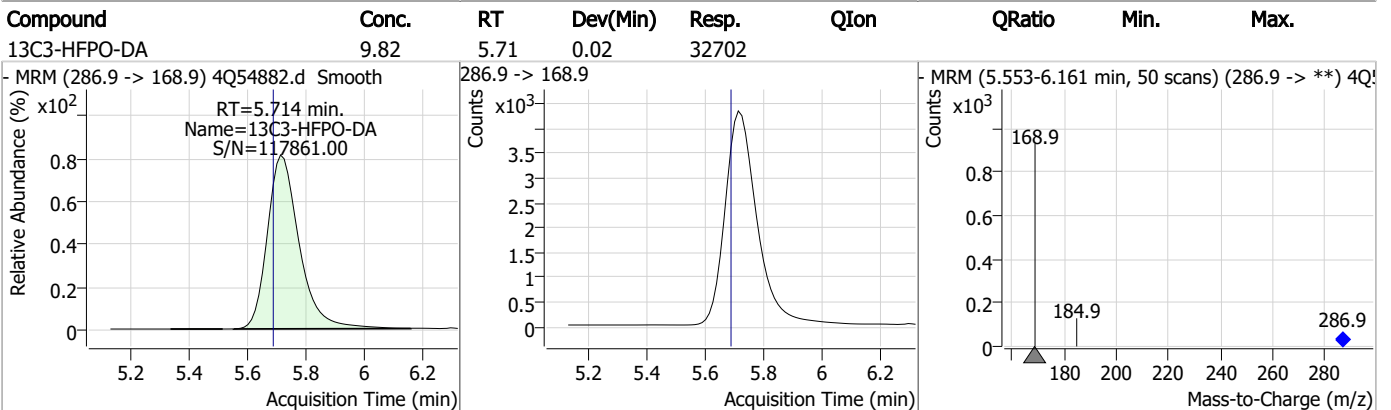
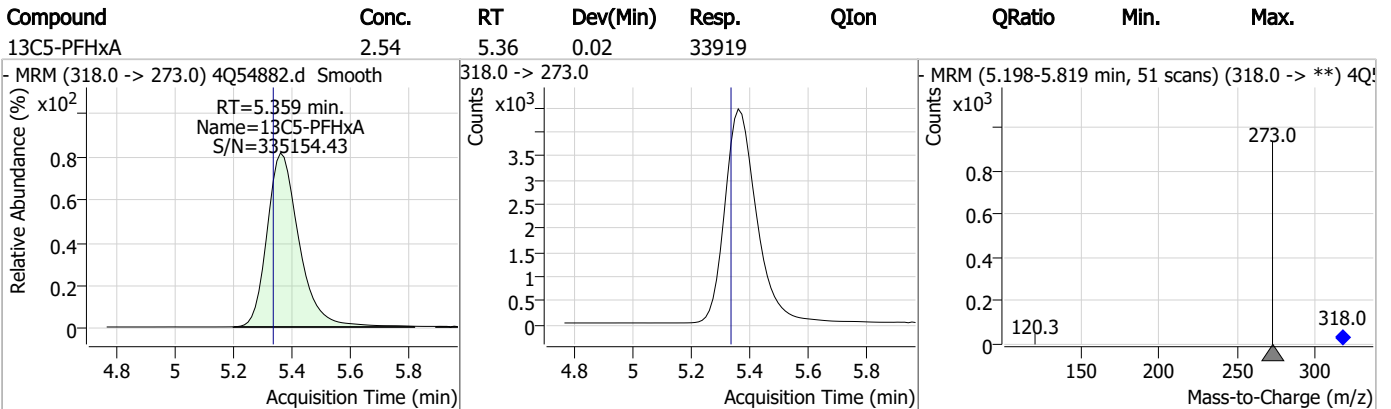
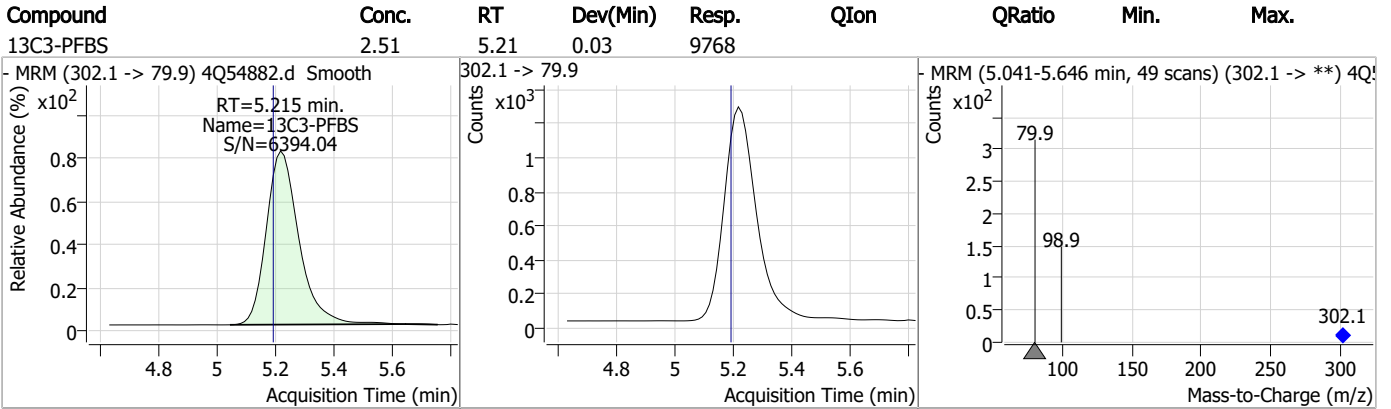
7

### Perfluorinated Compounds by LC/MS/MS

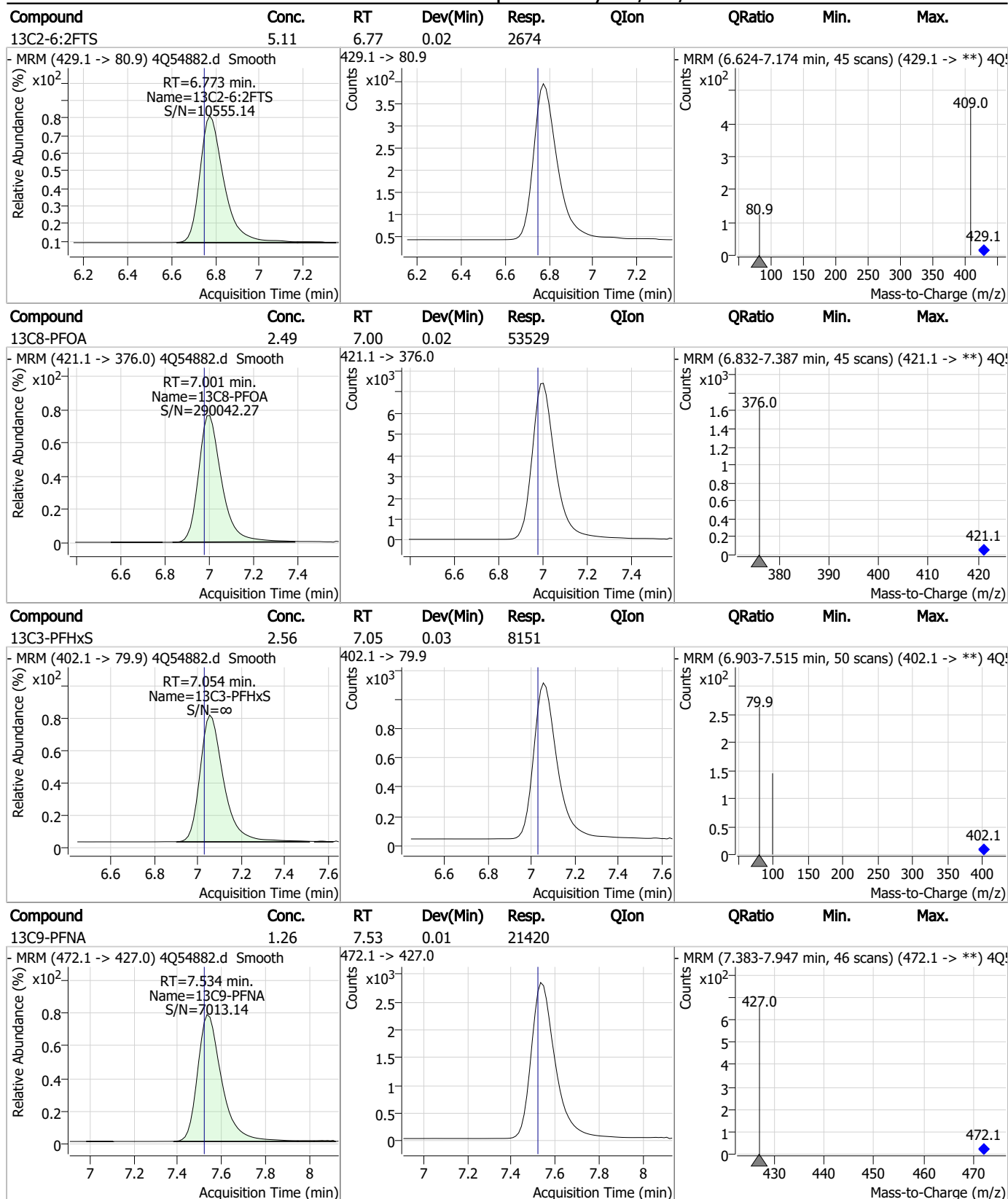


7.2.3  
7

### Perfluorinated Compounds by LC/MS/MS

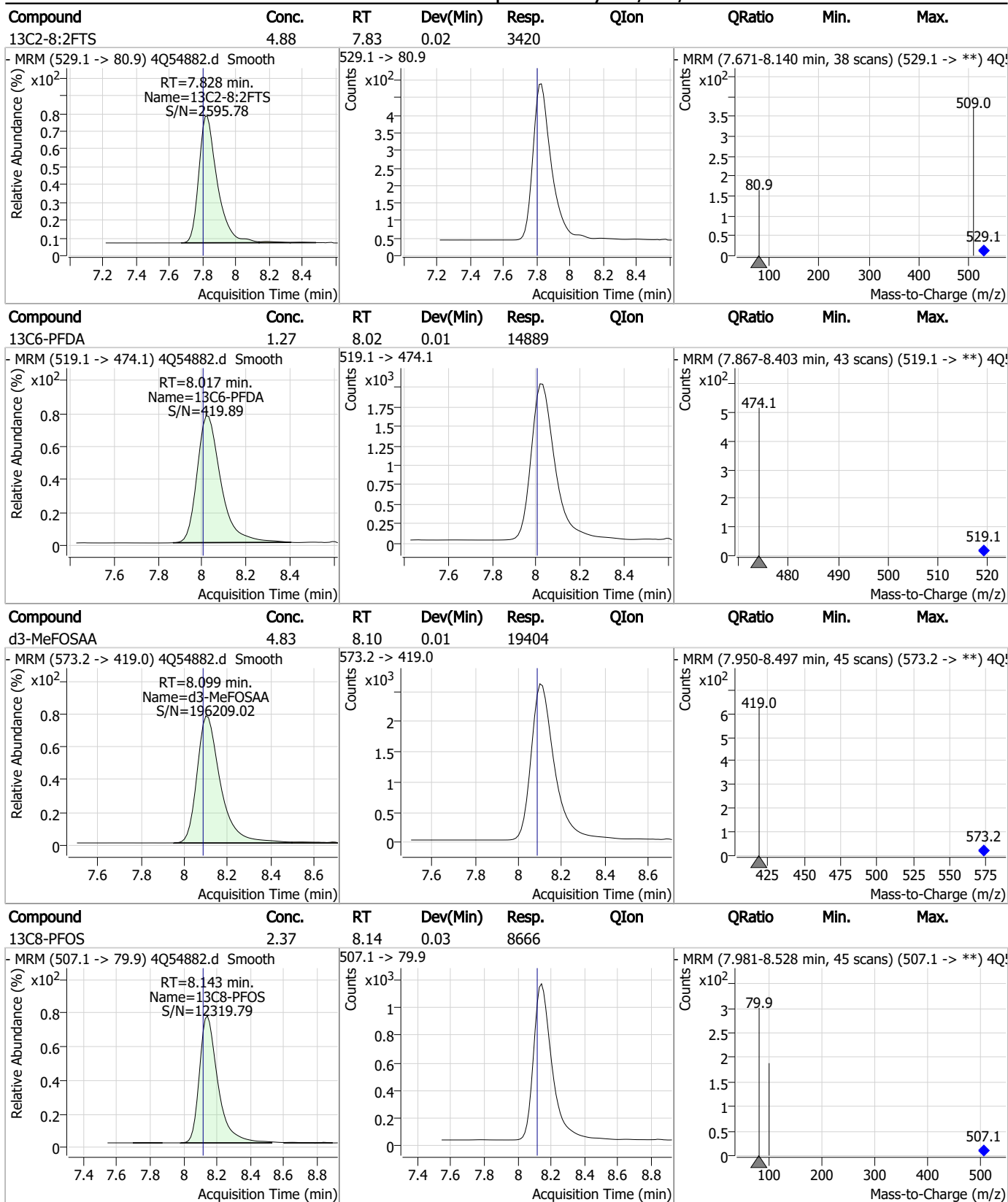


### Perfluorinated Compounds by LC/MS/MS



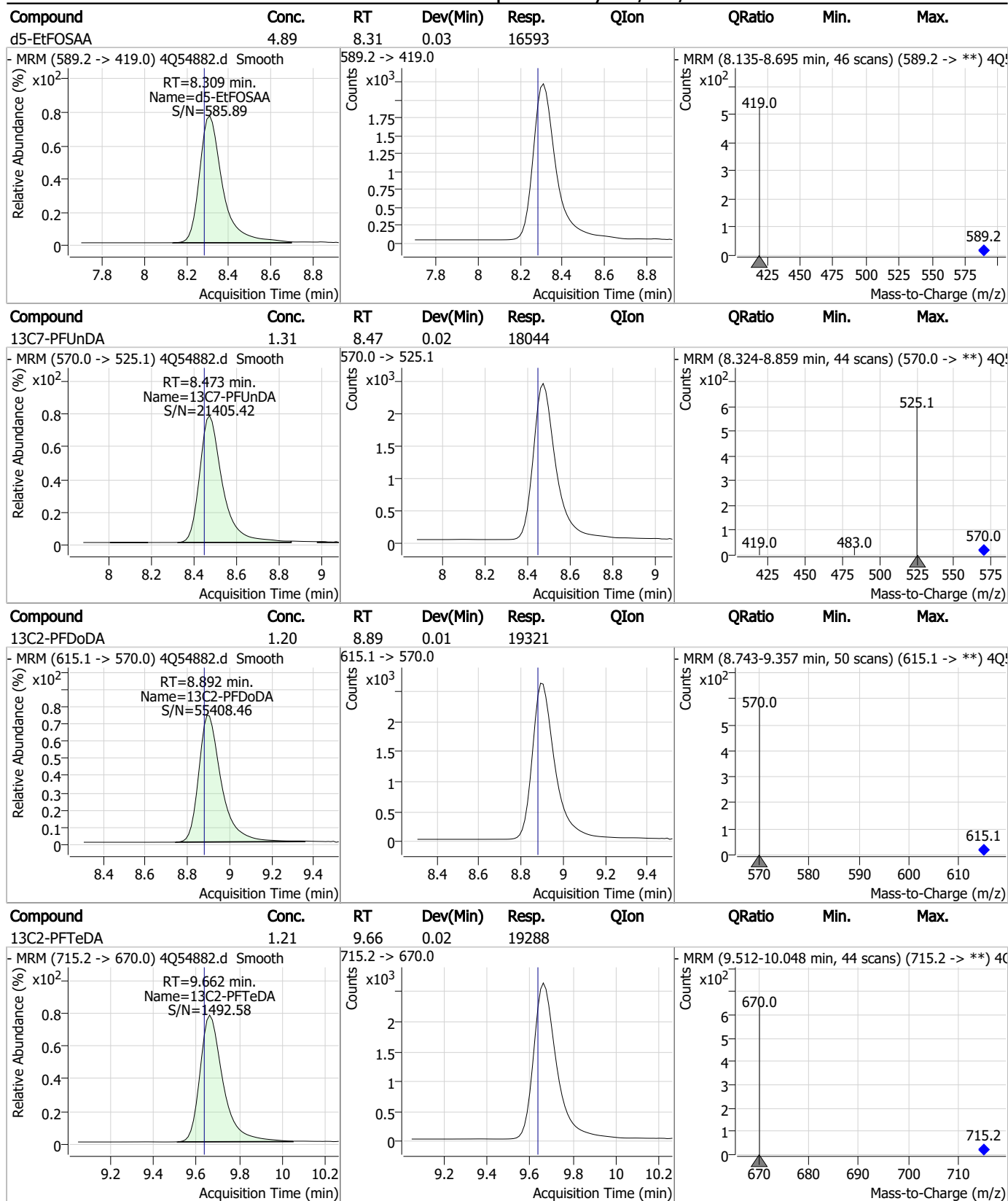
7.2.3  
7

### Perfluorinated Compounds by LC/MS/MS



7.2.3  
7

### Perfluorinated Compounds by LC/MS/MS

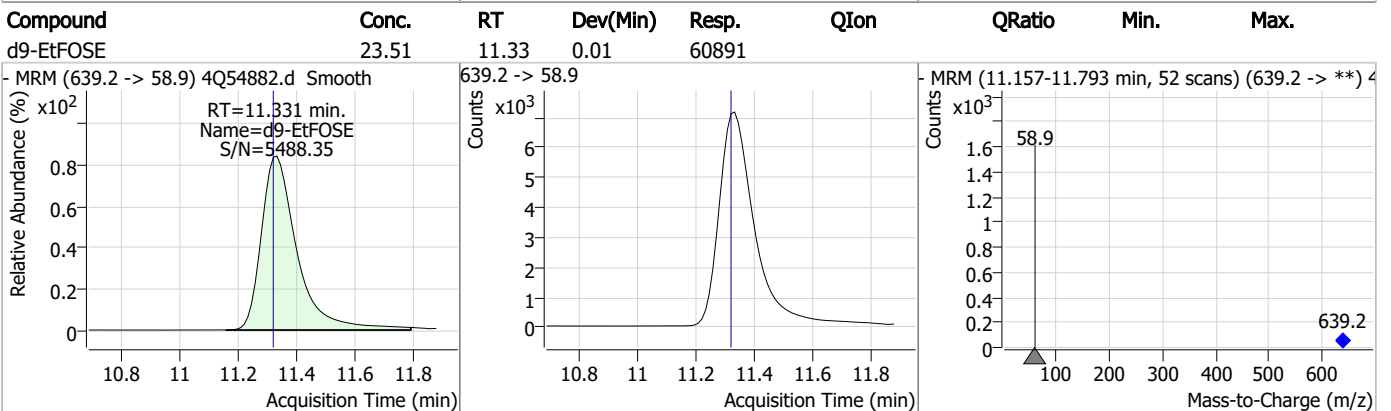
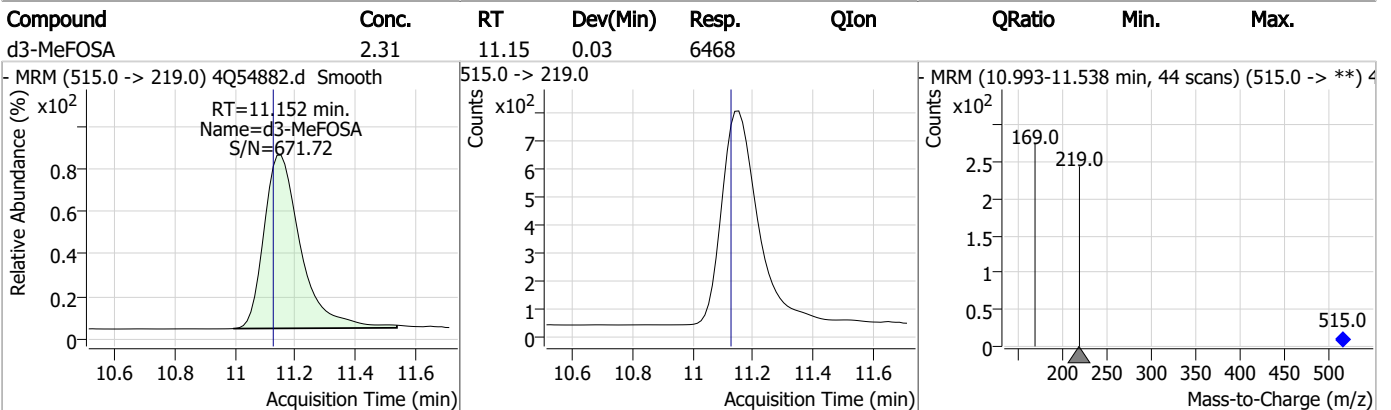
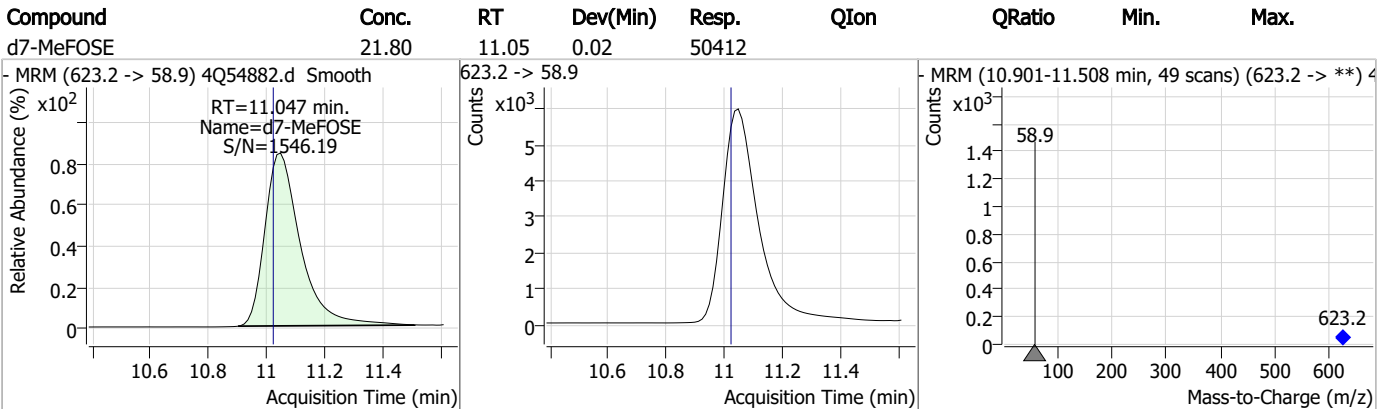
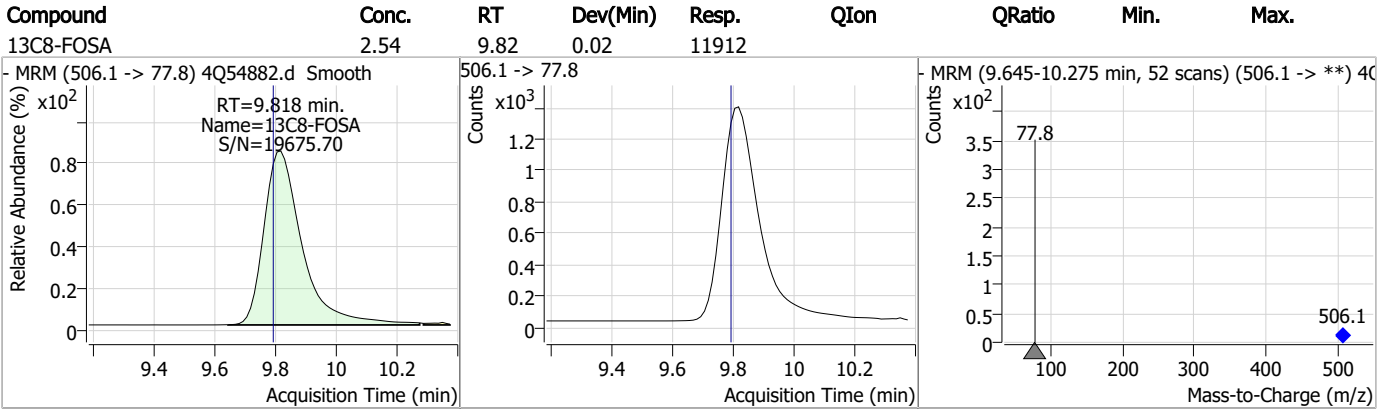


7.2.3

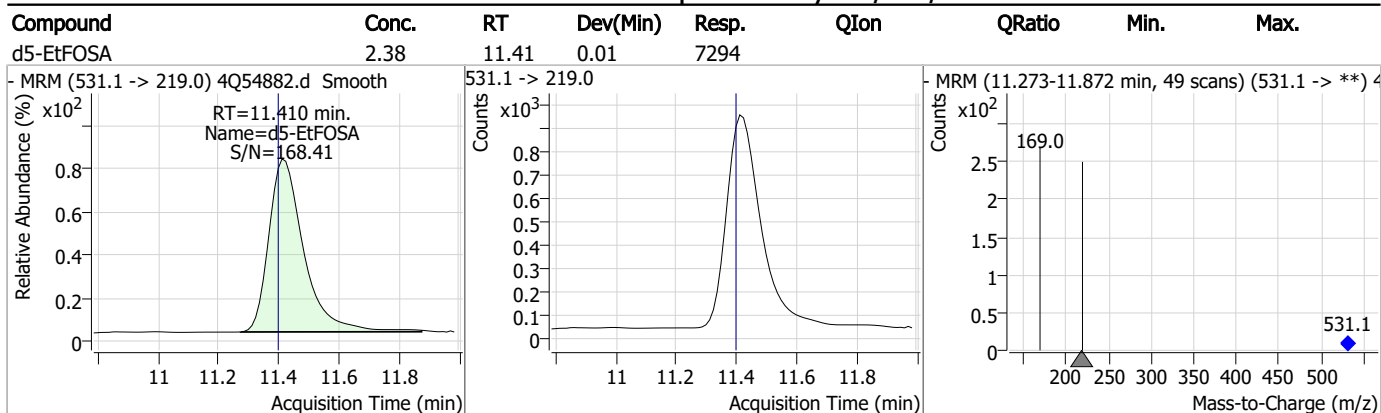
7



### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS



7.2.3  
7

# Manual Integration Approval Summary

Sample Number: S4Q804-ICCB                      Method: EPA DRAFT 1633  
Lab FileID: 4Q54882.D                      Analyst approved: 12/10/23 12:52 Anna Ludwig  
Injection Time: 12/08/23 19:06                      Supervisor approved: 12/11/23 15:42 Natasha Guntie

| Parameter              | CAS      | Sig# | R.T.<br>(min.) | Reason     |
|------------------------|----------|------|----------------|------------|
| Perfluorooctanoic acid | 335-67-1 |      | 6.99           | Split peak |

7.2.3.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q54883.d  
 Operator : annal  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 12/8/2023 7:21:41 PM  
 Sample Name : op495-bs  
 Vial : P2-C5  
 DA Method File : 1633\_120823\_S4Q804.quantmethod.xml  
 Batch Name : s4q804.batch.bin  
 Sample Information : OP495,S4Q804,500,,,5.0,1,water

| Compound                           | RT                   | Transition     | Response          | Conc. Units | Dev(Min) |
|------------------------------------|----------------------|----------------|-------------------|-------------|----------|
| <b>Internal Standards</b>          |                      |                |                   |             |          |
| M4-PFBA                            | 2.765                | 216.8 -> 171.9 | 68301             | 10.00 µg/L  | 0.091    |
| M5-PFPeA                           | 4.200                | 268.3 -> 223.0 | 39216             | 5.00 µg/L   | 0.037    |
| M5-PFHxA                           | 5.372                | 318.0 -> 273.0 | 30593             | 2.50 µg/L   | 0.037    |
| M4-PFHpA                           | 6.317                | 367.1 -> 322.0 | 30702             | 2.50 µg/L   | 0.025    |
| M8-PFOA                            | 7.001                | 421.1 -> 376.0 | 49095             | 2.50 µg/L   | 0.025    |
| M9-PFNA                            | 7.534                | 472.1 -> 427.0 | 18862             | 1.25 µg/L   | 0.012    |
| M6-PFDA                            | 8.029                | 519.1 -> 474.1 | 13222             | 1.25 µg/L   | 0.025    |
| M7-PFUnDA                          | 8.473                | 570.0 -> 525.1 | 16204             | 1.25 µg/L   | 0.025    |
| M2-PFDoDA                          | 8.892                | 615.1 -> 570.0 | 16615             | 1.25 µg/L   | 0.012    |
| M2-PFTeDA                          | 9.662                | 715.2 -> 670.0 | 15551             | 1.25 µg/L   | 0.025    |
| M8-FOSA                            | 9.818                | 506.1 -> 77.8  | 7636              | 2.50 µg/L   | 0.025    |
| M3-PFBS                            | 5.227                | 302.1 -> 79.9  | 8511              | 2.50 µg/L   | 0.038    |
| M3-PFHxS                           | 7.054                | 402.1 -> 79.9  | 7231              | 2.50 µg/L   | 0.025    |
| M8-PFOS                            | 8.143                | 507.1 -> 79.9  | 7754              | 2.50 µg/L   | 0.026    |
| M2-4:2FTS                          | 5.071                | 329.1 -> 80.9  | 851               | 5.00 µg/L   | 0.025    |
| M2-6:2FTS                          | 6.773                | 429.1 -> 80.9  | 2202              | 5.00 µg/L   | 0.025    |
| M2-8:2FTS                          | 7.828                | 529.1 -> 80.9  | 3245              | 5.00 µg/L   | 0.025    |
| M3-MeFOSAA                         | 8.111                | 573.2 -> 419.0 | 16769             | 5.00 µg/L   | 0.025    |
| M3-HFPO-DA                         | 5.714                | 286.9 -> 168.9 | 29621             | 10.00 µg/L  | 0.025    |
| M5-EtFOSAA                         | 8.309                | 589.2 -> 419.0 | 14498             | 5.00 µg/L   | 0.026    |
| M7-MeFOSE                          | 11.047               | 623.2 -> 58.9  | 26908             | 25.00 µg/L  | 0.025    |
| M9-EtFOSE                          | 11.331               | 639.2 -> 58.9  | 38645             | 25.00 µg/L  | 0.012    |
| M5-EtFOSA                          | 11.422               | 531.1 -> 219.0 | 5157              | 2.50 µg/L   | 0.025    |
| M3-MeFOSA                          | 11.152               | 515.0 -> 219.0 | 4854              | 2.50 µg/L   | 0.026    |
| 13C4-PFOS                          | 8.144                | 502.8 -> 79.9  | 6267              | 2.50 µg/L   | 0.026    |
| 13C3-PFBA                          | 2.755                | 216.0 -> 172.0 | 42736             | 5.00 µg/L   | 0.077    |
| 18O2-PFHxS                         | 7.054                | 403.0 -> 83.9  | 3949              | 2.50 µg/L   | 0.013    |
| 13C4-PFOA                          | 7.002                | 417.1 -> 372.0 | 47916             | 2.50 µg/L   | 0.025    |
| 13C2-PFDA                          | 8.017                | 515.1 -> 470.1 | 13871             | 1.25 µg/L   | 0.013    |
| 13C5-PFNA                          | 7.534                | 468.0 -> 423.0 | 17467             | 1.25 µg/L   | 0.025    |
| 13C2-PFHxA                         | 5.373                | 315.1 -> 270.0 | 30135             | 2.50 µg/L   | 0.037    |
| <b>System Monitoring Compounds</b> |                      |                |                   |             |          |
| 13C2-4:2FTS                        | 5.071                | 329.1 -> 80.9  | 851               | 4.54 µg/L   | 0.025    |
| Spiked Amount: 5.00                | Range: 50.0 - 150.0% |                | Recovery = 90.8%  |             |          |
| 13C2-6:2FTS                        | 6.773                | 429.1 -> 80.9  | 2202              | 5.42 µg/L   | 0.025    |
| Spiked Amount: 5.00                | Range: 50.0 - 150.0% |                | Recovery = 108.3% |             |          |
| 13C2-8:2FTS                        | 7.828                | 529.1 -> 80.9  | 3245              | 5.96 µg/L   | 0.025    |
| Spiked Amount: 5.00                | Range: 50.0 - 150.0% |                | Recovery = 119.2% |             |          |
| 13C2-PFDoDA                        | 8.892                | 615.1 -> 570.0 | 16615             | 1.20 µg/L   | 0.012    |
| Spiked Amount: 1.25                | Range: 50.0 - 150.0% |                | Recovery = 95.9%  |             |          |
| 13C2-PFTeDA                        | 9.662                | 715.2 -> 670.0 | 15551             | 1.13 µg/L   | 0.025    |
| Spiked Amount: 1.25                | Range: 50.0 - 150.0% |                | Recovery = 90.3%  |             |          |
| 13C3-PFBS                          | 5.227                | 302.1 -> 79.9  | 8511              | 2.81 µg/L   | 0.038    |
| Spiked Amount: 2.50                | Range: 50.0 - 150.0% |                | Recovery = 112.5% |             |          |
| 13C3-PFHxS                         | 7.054                | 402.1 -> 79.9  | 7231              | 2.92 µg/L   | 0.025    |

7.31  
7

### Perfluorinated Compounds by LC/MS/MS

| Compound                | RT                   | Transition     | Response | Conc. Units       | Dev(Min)      |
|-------------------------|----------------------|----------------|----------|-------------------|---------------|
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 116.8% |               |
| 13C4-PFBA               | 2.765                | 216.8 -> 171.9 | 68301    | 7.61 µg/L         | 0.091         |
| Spiked Amount: 10.00    | Range: 50.0 - 150.0% |                |          | Recovery = 76.1%  |               |
| 13C4-PFHpA              | 6.317                | 367.1 -> 322.0 | 30702    | 2.89 µg/L         | 0.025         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 115.6% |               |
| 13C5-PFHxA              | 5.372                | 318.0 -> 273.0 | 30593    | 2.76 µg/L         | 0.037         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 110.2% |               |
| 13C5-PFPeA              | 4.200                | 268.3 -> 223.0 | 39216    | 5.67 µg/L         | 0.037         |
| Spiked Amount: 5.00     | Range: 50.0 - 150.0% |                |          | Recovery = 113.4% |               |
| 13C6-PFDA               | 8.029                | 519.1 -> 474.1 | 13222    | 1.31 µg/L         | 0.025         |
| Spiked Amount: 1.25     | Range: 50.0 - 150.0% |                |          | Recovery = 104.8% |               |
| 13C7-PFUnDA             | 8.473                | 570.0 -> 525.1 | 16204    | 1.36 µg/L         | 0.025         |
| Spiked Amount: 1.25     | Range: 50.0 - 150.0% |                |          | Recovery = 108.9% |               |
| 13C8-FOSA               | 9.818                | 506.1 -> 77.8  | 7636     | 1.88 µg/L         | 0.025         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 75.2%  |               |
| 13C8-PFOA               | 7.001                | 421.1 -> 376.0 | 49095    | 2.77 µg/L         | 0.025         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 110.9% |               |
| 13C8-PFOS               | 8.143                | 507.1 -> 79.9  | 7754     | 2.44 µg/L         | 0.026         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 97.7%  |               |
| 13C9-PFNA               | 7.534                | 472.1 -> 427.0 | 18862    | 1.35 µg/L         | 0.012         |
| Spiked Amount: 1.25     | Range: 50.0 - 150.0% |                |          | Recovery = 107.8% |               |
| d3-MeFOSAA              | 8.111                | 573.2 -> 419.0 | 16769    | 4.82 µg/L         | 0.025         |
| Spiked Amount: 5.00     | Range: 50.0 - 150.0% |                |          | Recovery = 96.4%  |               |
| 13C3-HFPO-DA            | 5.714                | 286.9 -> 168.9 | 29621    | 10.68 µg/L        | 0.025         |
| Spiked Amount: 10.00    | Range: 50.0 - 150.0% |                |          | Recovery = 106.8% |               |
| d3-MeFOSA               | 11.152               | 515.0 -> 219.0 | 4854     | 2.00 µg/L         | 0.026         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 80.1%  |               |
| d5-EtFOSAA              | 8.309                | 589.2 -> 419.0 | 14498    | 4.93 µg/L         | 0.026         |
| Spiked Amount: 5.00     | Range: 50.0 - 150.0% |                |          | Recovery = 98.5%  |               |
| d7-MeFOSE               | 11.047               | 623.2 -> 58.9  | 26908    | 13.43 µg/L        | 0.025         |
| Spiked Amount: 25.00    | Range: 50.0 - 150.0% |                |          | Recovery = 53.7%  |               |
| d9-EtFOSE               | 11.331               | 639.2 -> 58.9  | 38645    | 17.22 µg/L        | 0.012         |
| Spiked Amount: 25.00    | Range: 50.0 - 150.0% |                |          | Recovery = 68.9%  |               |
| d5-EtFOSA               | 11.422               | 531.1 -> 219.0 | 5157     | 1.94 µg/L         | 0.025         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 77.7%  |               |
| <b>Target Compounds</b> |                      |                |          |                   | <b>QValue</b> |
| 4:2FTS                  | 5.072                | 327.1 -> 307.0 | 15304    | 10.44 µg/L        | 99            |
|                         |                      | 327.1 -> 80.9  | 6475     |                   |               |
| 6:2FTS                  | 6.774                | 427.1 -> 407.0 | 22531    | 9.74 µg/L         | 99            |
|                         |                      | 427.1 -> 80.9  | 8174     |                   |               |
| 8:2FTS                  | 7.829                | 527.1 -> 507.0 | 16213    | 9.48 µg/L         | 99            |
|                         |                      | 527.1 -> 80.8  | 6703     |                   |               |
| EtFOSAA                 | 8.310                | 584.2 -> 419.1 | 6049     | 2.29 µg/L         | m 76          |
|                         |                      | 584.2 -> 526.0 | 2755     |                   |               |
| FOSA                    | 9.810                | 498.1 -> 77.9  | 8467     | 2.47 µg/L         | 100           |
|                         |                      | 498.1 -> 478.0 | 242      |                   |               |
| MeFOSAA                 | 8.112                | 570.1 -> 419.0 | 6779     | 2.82 µg/L         | m 87          |
|                         |                      | 570.1 -> 483.0 | 1491     |                   |               |
| PFBA                    | 2.758                | 212.8 -> 168.9 | 22031    | 10.07 µg/L        | 100           |
| PFBS                    | 5.216                | 298.7 -> 79.9  | 5653     | 2.14 µg/L         | 98            |
|                         |                      | 298.7 -> 98.8  | 2352     |                   |               |
| PFDA                    | 8.017                | 512.9 -> 469.0 | 22635    | 2.33 µg/L         | 99            |
|                         |                      | 512.9 -> 219.0 | 4781     |                   |               |
| PFDODA                  | 8.893                | 613.1 -> 569.0 | 31372    | 2.62 µg/L         | 95            |
|                         |                      | 613.1 -> 319.0 | 5986     |                   |               |
| PFDS                    | 9.032                | 599.0 -> 79.9  | 5109     | 2.48 µg/L         | 92            |

7.3.1  
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Perfluorinated Compounds by LC/MS/MS

| Compound     | RT     | Transition     | Response | Conc. | Units | Dev(Min) |
|--------------|--------|----------------|----------|-------|-------|----------|
|              |        | 599.0 -> 98.8  | 2402     |       |       |          |
| PFHpA        | 6.317  | 363.1 -> 319.0 | 41908    | 2.42  | µg/L  | 100      |
|              |        | 363.1 -> 169.0 | 7646     |       |       |          |
| PFHpS        | 7.637  | 449.0 -> 79.9  | 7313     | 2.38  | µg/L  | 99       |
|              |        | 449.0 -> 98.9  | 3861     |       |       |          |
| PFHxA        | 5.362  | 313.0 -> 269.0 | 23762    | 2.43  | µg/L  | 99       |
|              |        | 313.0 -> 118.9 | 624      |       |       |          |
| PFHxS        | 7.055  | 398.7 -> 79.9  | 5384     | 2.31  | µg/L  | m 91     |
|              |        | 398.7 -> 98.9  | 2870     |       |       |          |
| PFNA         | 7.534  | 463.0 -> 419.0 | 27464    | 2.48  | µg/L  | 96       |
|              |        | 463.0 -> 219.0 | 6900     |       |       |          |
| PFNS         | 8.598  | 548.8 -> 79.9  | 3733     | 2.82  | µg/L  | 98       |
|              |        | 548.8 -> 98.9  | 1803     |       |       |          |
| PFOA         | 7.003  | 413.0 -> 369.0 | 49501    | 2.45  | µg/L  | 97       |
|              |        | 413.0 -> 169.0 | 10361    |       |       |          |
| PFOS         | 8.144  | 498.9 -> 79.9  | 7466     | 2.31  | µg/L  | m 53     |
|              |        | 498.9 -> 98.8  | 3456     |       |       |          |
| PFPeA        | 4.202  | 263.0 -> 219.0 | 37948    | 4.92  | µg/L  | 100      |
| PFPeS        | 6.307  | 349.1 -> 79.9  | 5218     | 2.38  | µg/L  | 97       |
|              |        | 349.1 -> 98.9  | 2307     |       |       |          |
| PFTeDA       | 9.662  | 713.1 -> 669.0 | 26228    | 2.42  | µg/L  | 99       |
|              |        | 713.1 -> 168.9 | 2849     |       |       |          |
| PFTrDA       | 9.292  | 663.0 -> 619.0 | 33816    | 2.60  | µg/L  | 100      |
|              |        | 663.0 -> 168.9 | 4595     |       |       |          |
| PFUnDA       | 8.474  | 563.1 -> 519.0 | 29168    | 2.47  | µg/L  | 96       |
|              |        | 563.1 -> 269.1 | 6670     |       |       |          |
| 11CI-PF3OUdS | 9.319  | 630.9 -> 450.9 | 41151    | 5.05  | µg/L  | 98       |
|              |        | 632.9 -> 452.9 | 12376    |       |       |          |
| 9CI-PF3ONS   | 8.476  | 530.8 -> 351.0 | 42196    | 5.12  | µg/L  | 97       |
|              |        | 532.8 -> 353.0 | 13523    |       |       |          |
| ADONA        | 6.581  | 376.9 -> 250.9 | 106237   | 5.31  | µg/L  | 99       |
|              |        | 376.9 -> 84.8  | 26046    |       |       |          |
| HFPO-DA      | 5.715  | 284.9 -> 168.9 | 14603    | 5.15  | µg/L  | 100      |
|              |        | 284.9 -> 184.9 | 1391     |       |       |          |
| 3:3FTCA      | 3.692  | 241.0 -> 177.0 | 4289     | 12.33 | µg/L  | 98       |
|              |        | 241.0 -> 117.0 | 411      |       |       |          |
| 5:3FTCA      | 6.045  | 341.0 -> 237.1 | 110408   | 63.41 | µg/L  | 99       |
|              |        | 341.0 -> 217.0 | 78401    |       |       |          |
| 7:3FTCA      | 7.562  | 441.0 -> 316.9 | 58524    | 64.09 | µg/L  | 94       |
|              |        | 441.0 -> 336.9 | 144996   |       |       |          |
| EtFOSA       | 11.412 | 526.0 -> 219.0 | 11475    | 5.23  | µg/L  | 99       |
|              |        | 526.0 -> 169.0 | 15790    |       |       |          |
| EtFOSE       | 11.345 | 630.0 -> 58.9  | 16050    | 11.74 | µg/L  | 100      |
| MeFOSA       | 11.140 | 511.9 -> 219.0 | 8004     | 4.63  | µg/L  | 99       |
|              |        | 511.9 -> 169.0 | 11783    |       |       |          |
| MeFOSE       | 11.060 | 616.1 -> 58.9  | 12473    | 11.68 | µg/L  | 100      |
| PFDoDS       | 9.789  | 699.1 -> 79.9  | 3558     | 2.26  | µg/L  | 96       |
|              |        | 699.1 -> 98.8  | 1921     |       |       |          |
| NFDHA        | 5.253  | 295.0 -> 201.0 | 3404     | 4.92  | µg/L  | 98       |
|              |        | 295.0 -> 84.9  | 926      |       |       |          |
| PFMBA        | 4.591  | 279.0 -> 85.1  | 21681    | 5.10  | µg/L  | 100      |
| PFMPA        | 3.357  | 229.0 -> 84.9  | 23367    | 5.01  | µg/L  | 100      |
| PFEESA       | 5.747  | 314.8 -> 134.9 | 33098    | 4.59  | µg/L  | 99       |
|              |        | 314.8 -> 82.9  | 1205     |       |       |          |

# = Qualifier out of range, m = manually integrated, + = Area summed



7.3.1  
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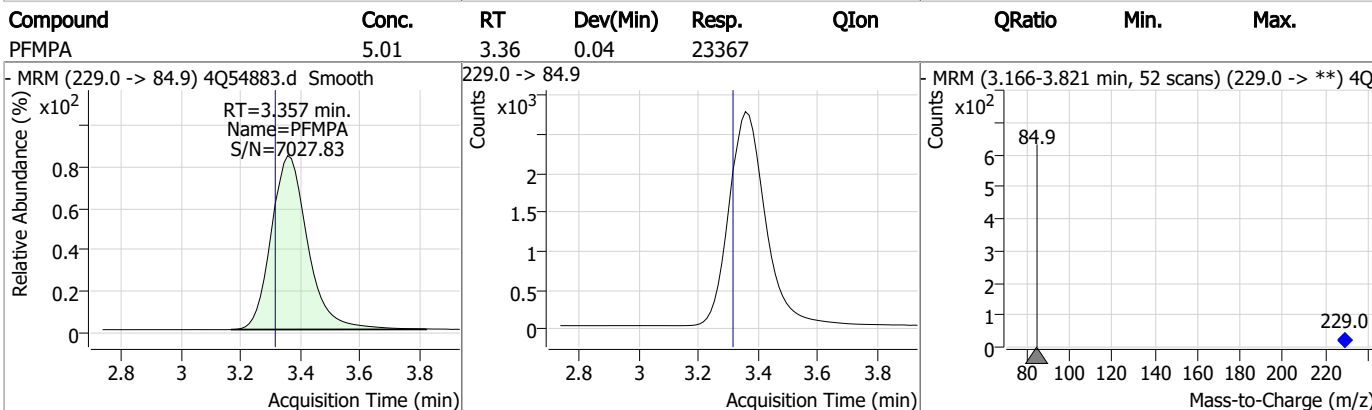
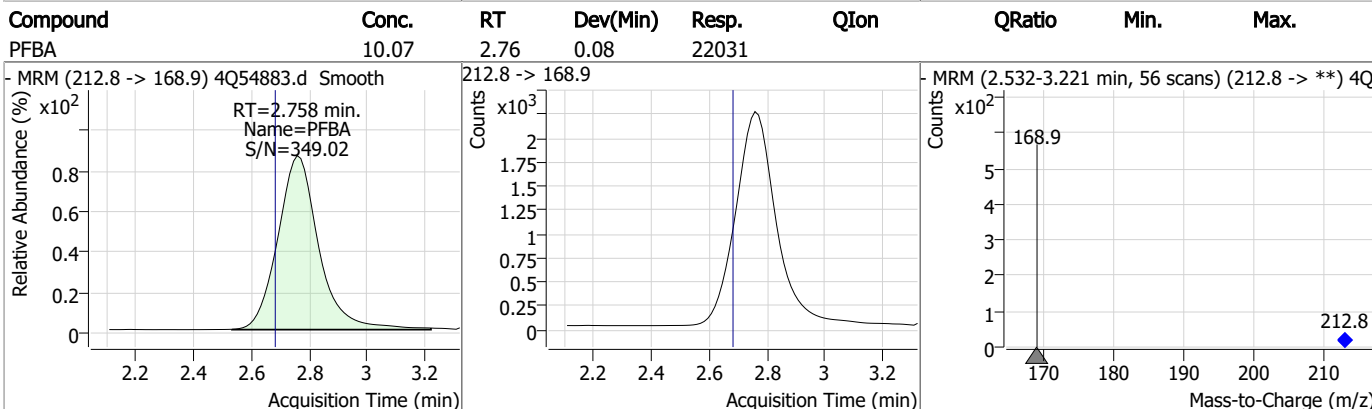
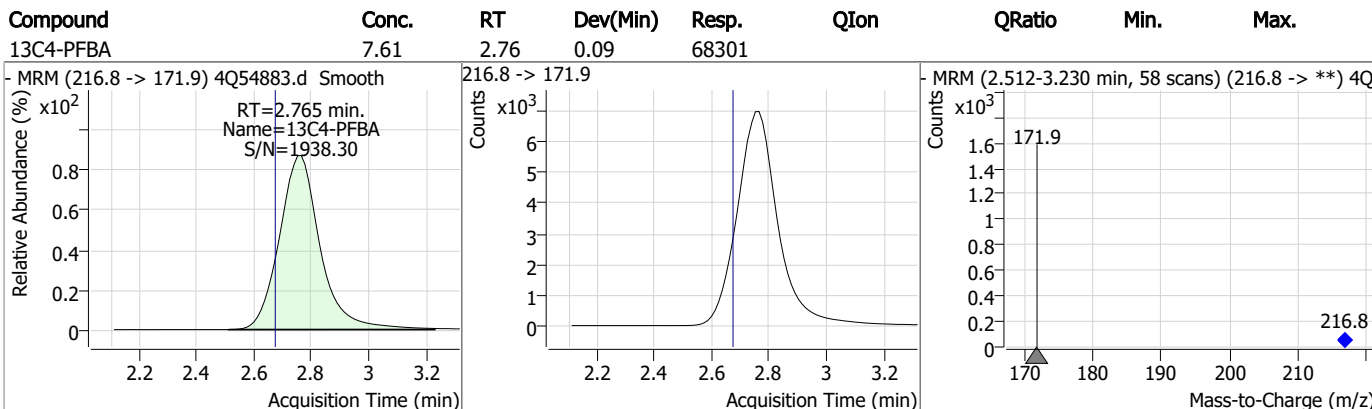
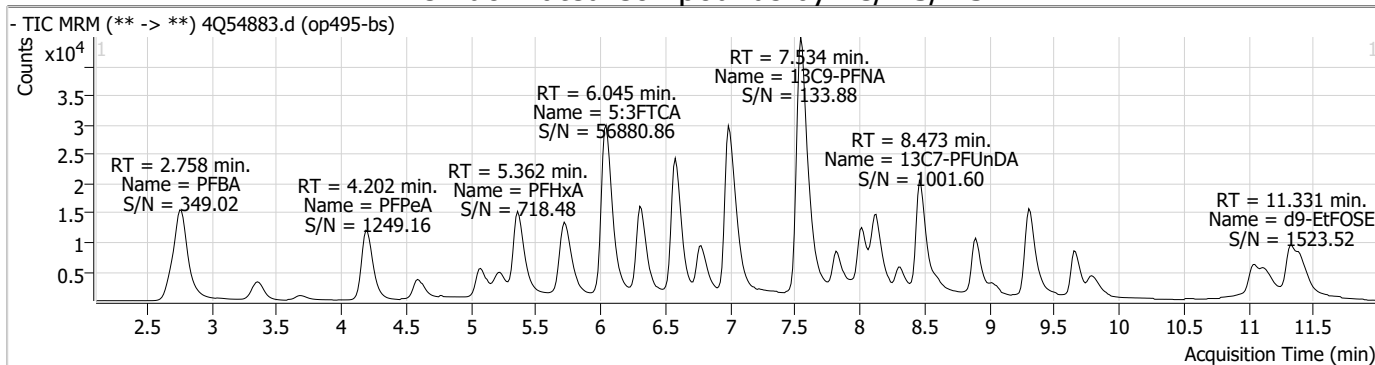
### Perfluorinated Compounds by LC/MS/MS

| Compound | RT | Transition | Response | Conc. Units | Dev(Min) |
|----------|----|------------|----------|-------------|----------|
|----------|----|------------|----------|-------------|----------|

7.3.1

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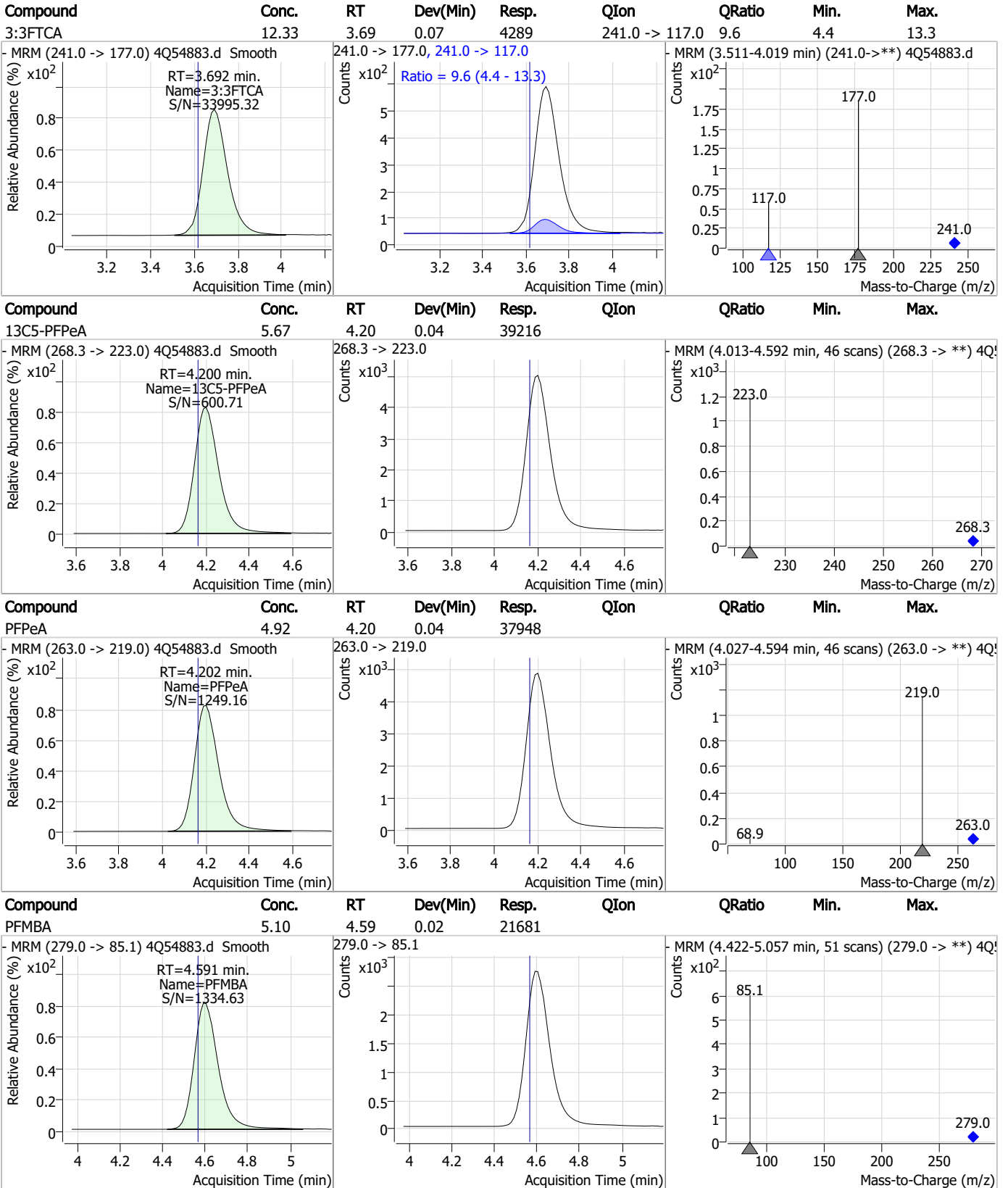
### Perfluorinated Compounds by LC/MS/MS



7.3.1  
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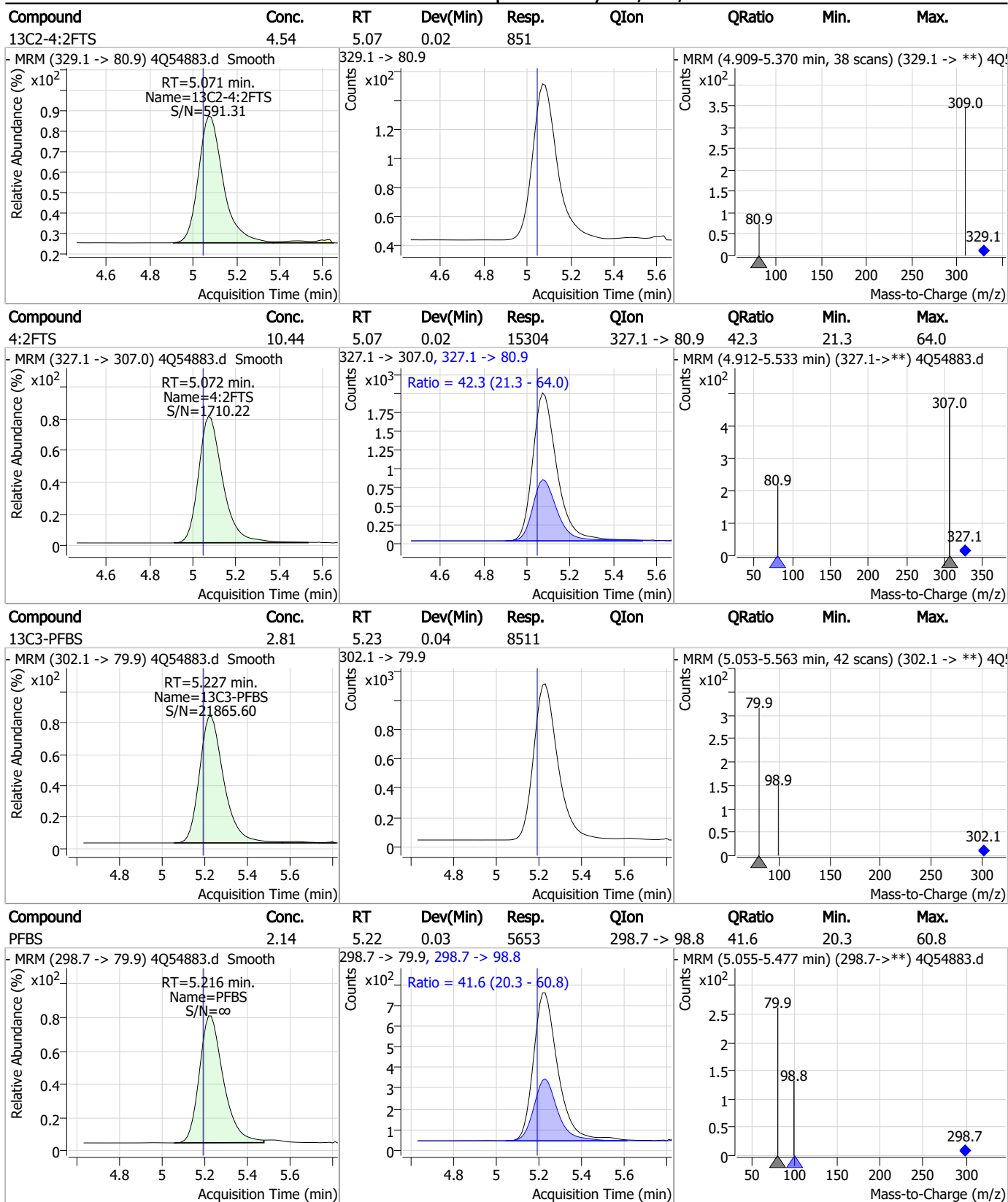
### Perfluorinated Compounds by LC/MS/MS



7.3.1

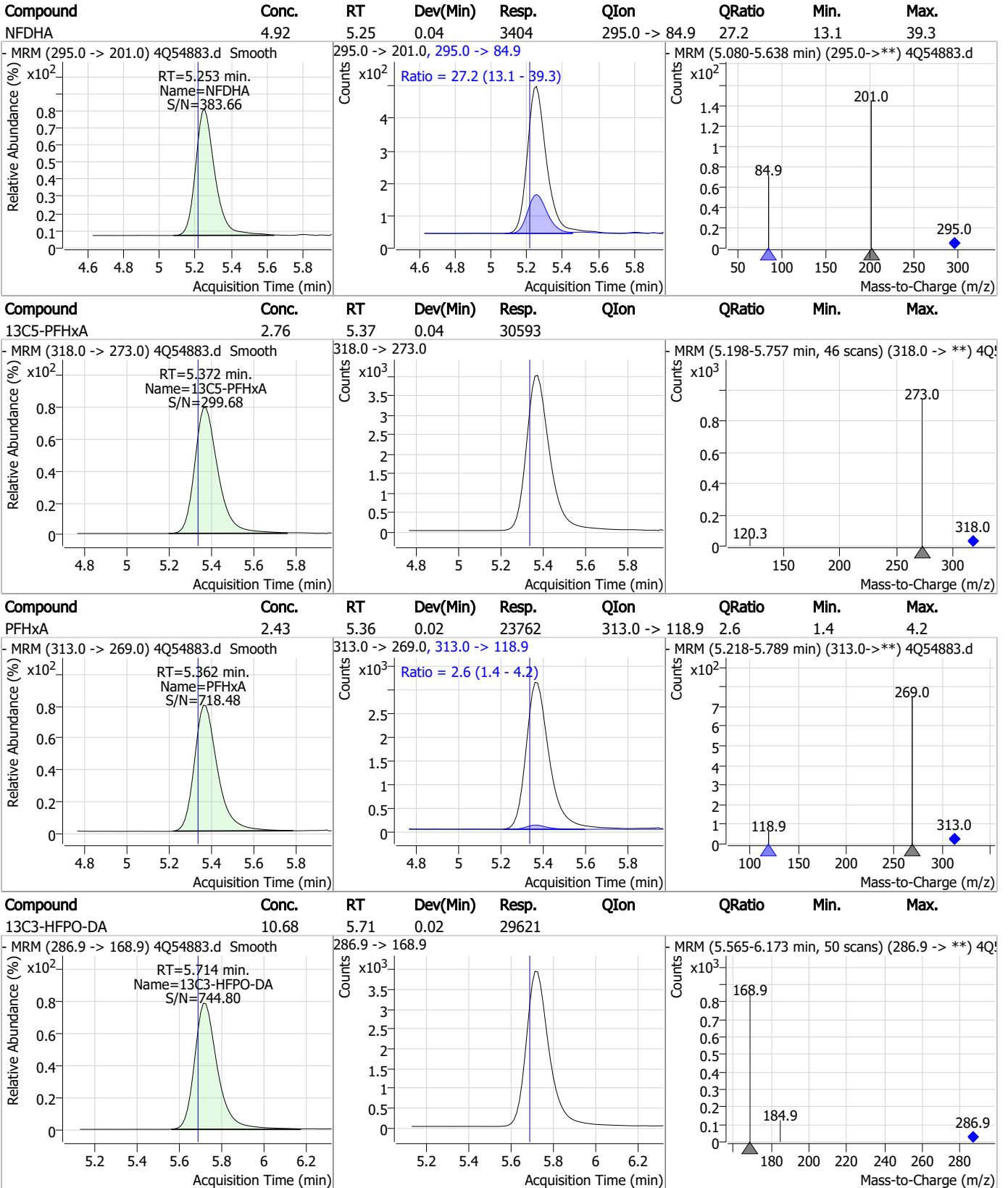
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### Perfluorinated Compounds by LC/MS/MS



7.3.1  
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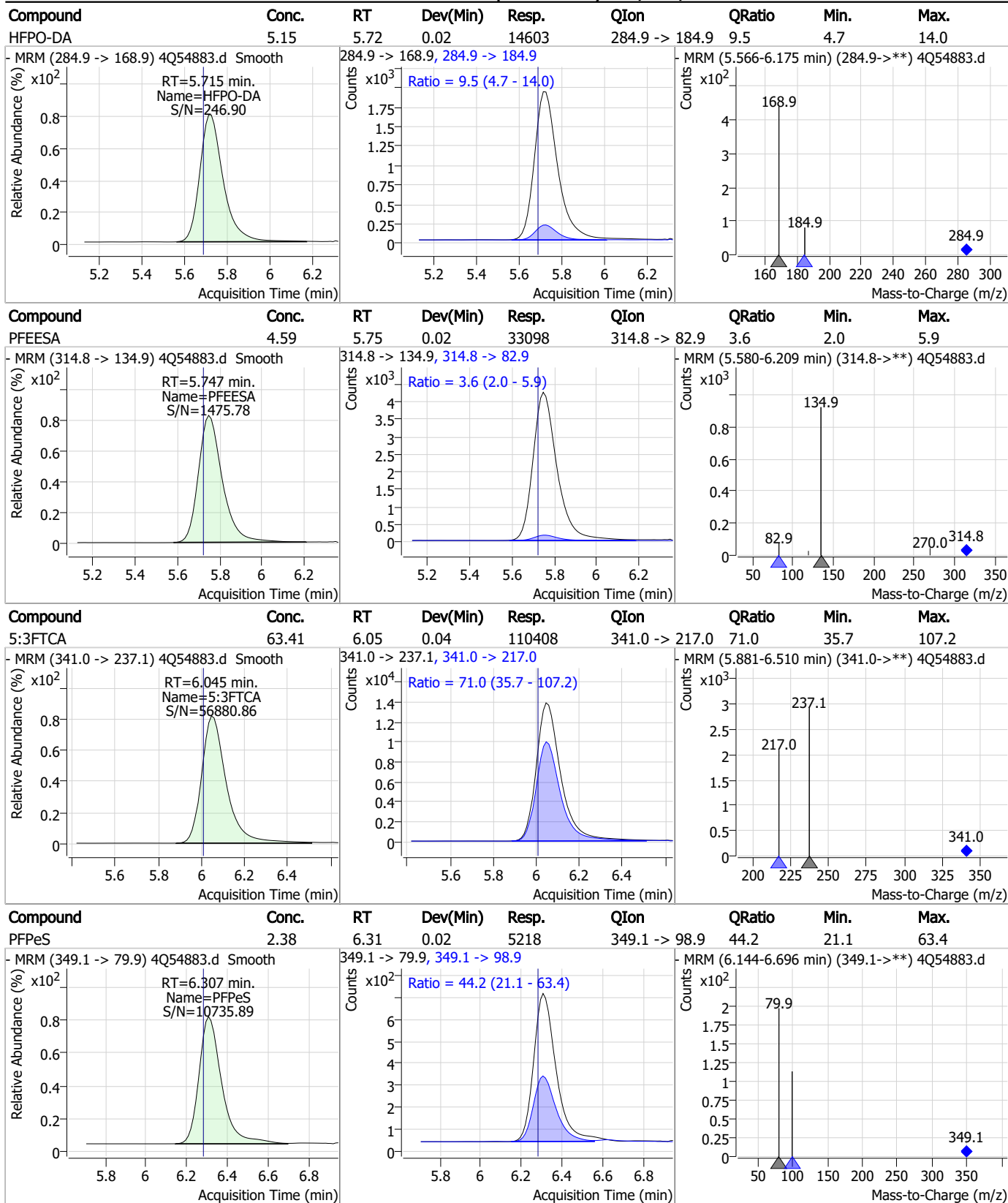
### Perfluorinated Compounds by LC/MS/MS



7.3.1

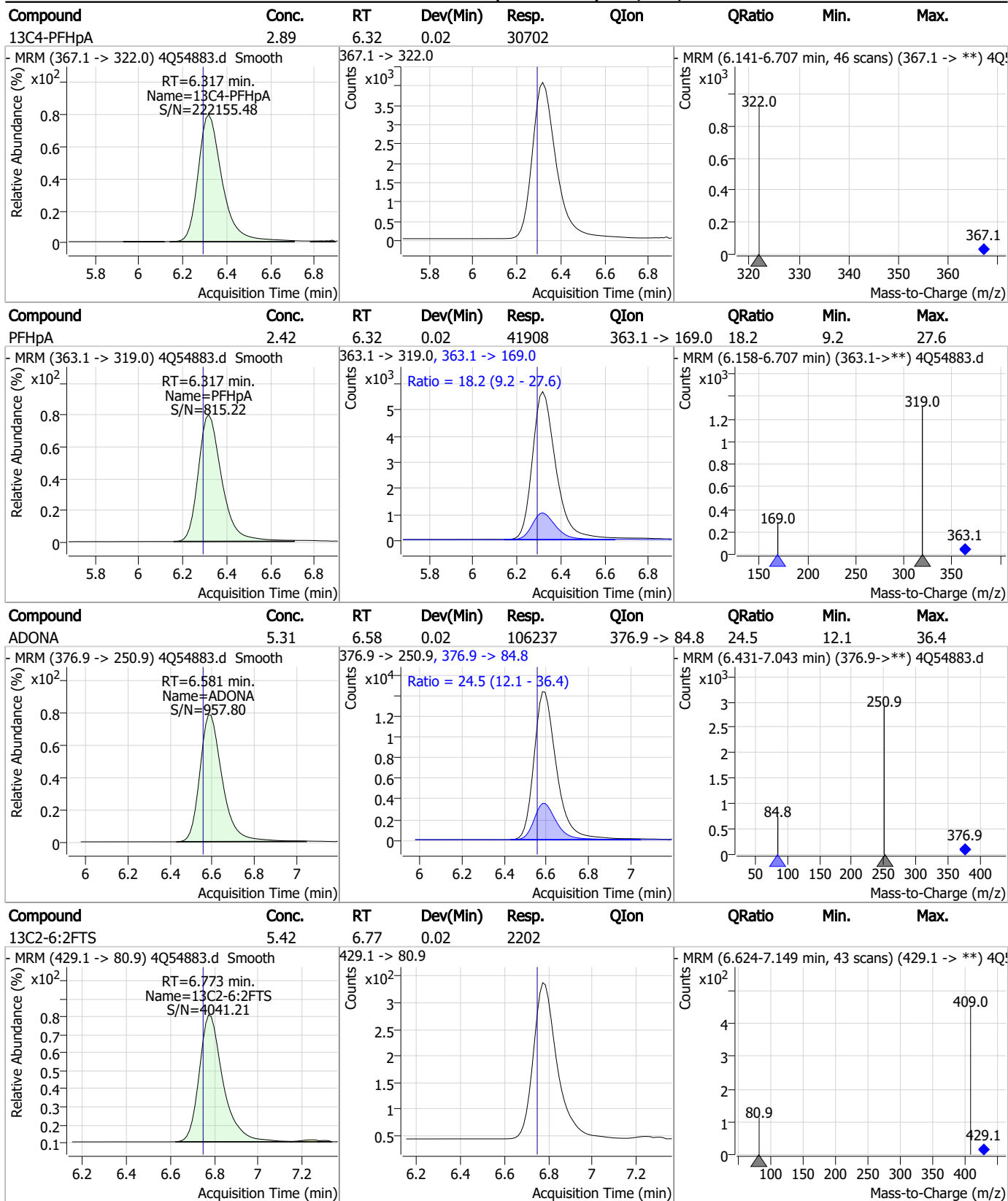
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### Perfluorinated Compounds by LC/MS/MS



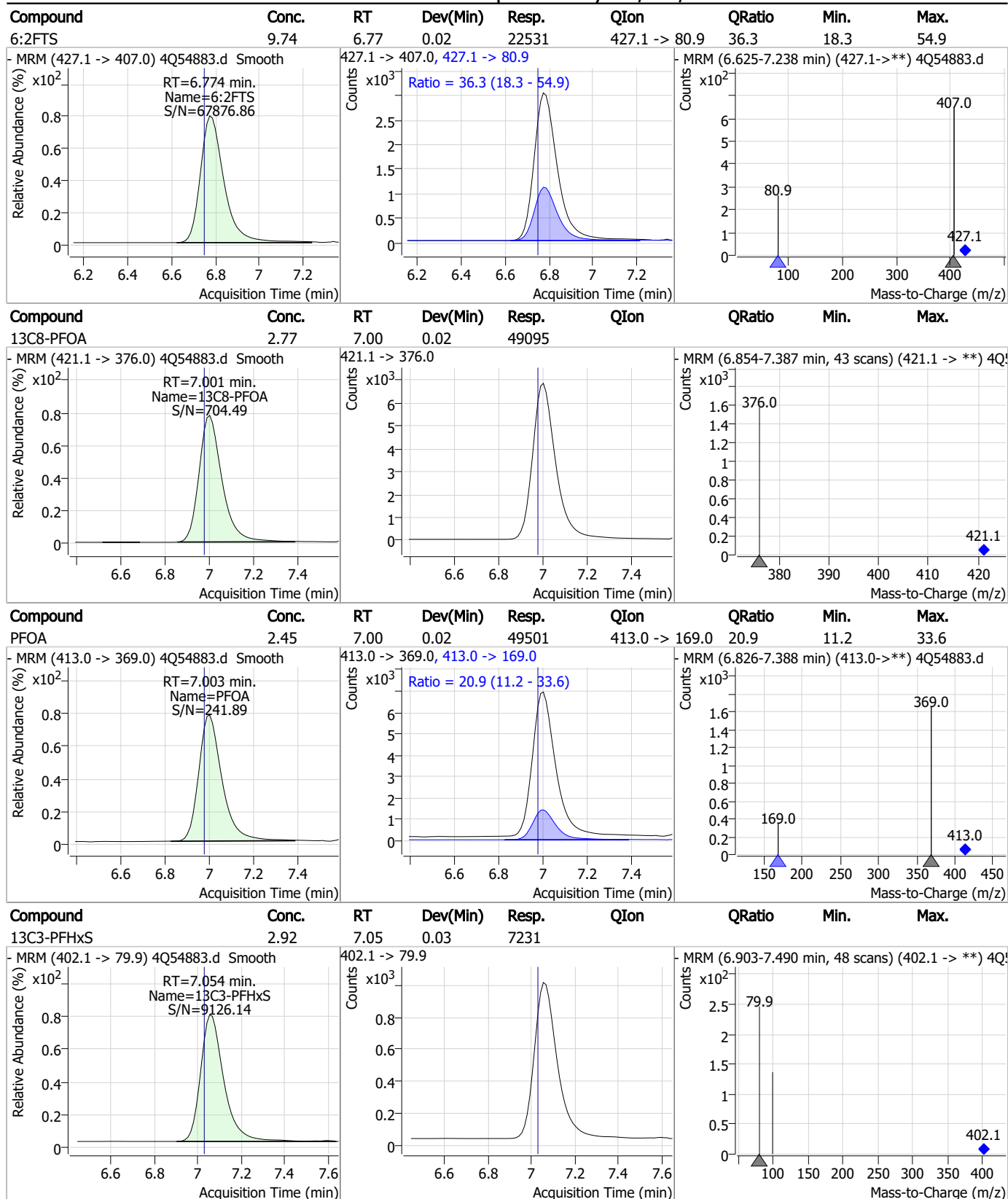
7.3.1  
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### Perfluorinated Compounds by LC/MS/MS



7.3.1  
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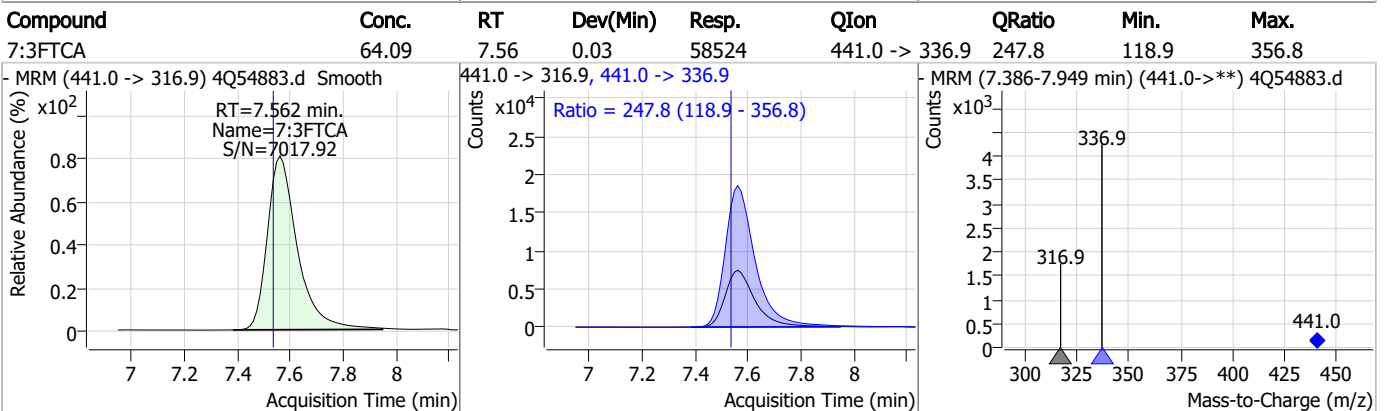
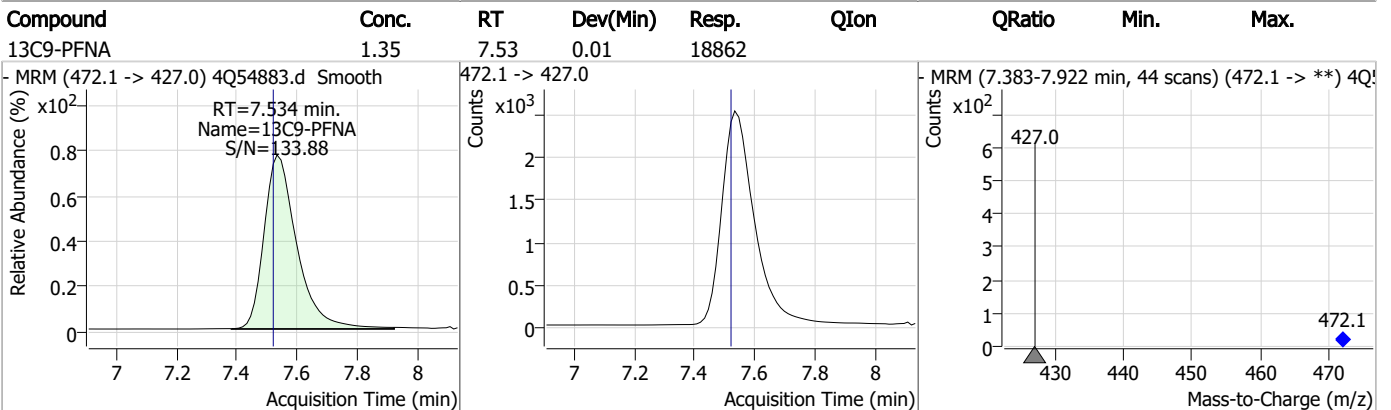
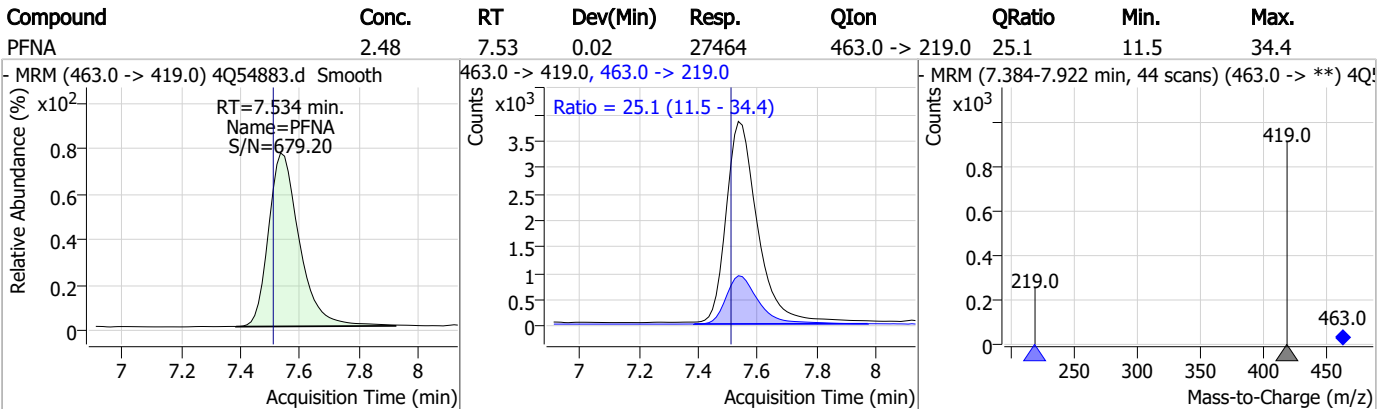
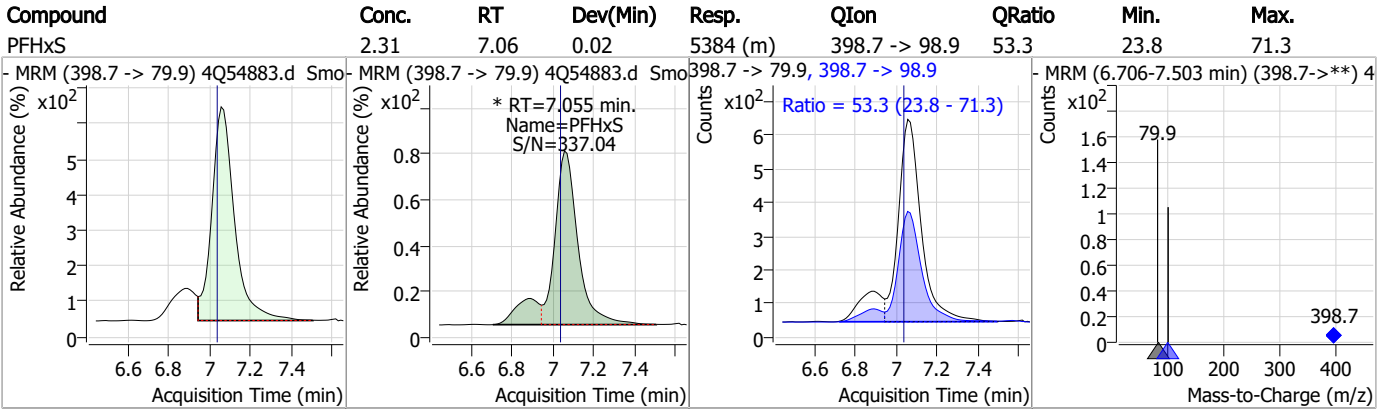
### Perfluorinated Compounds by LC/MS/MS



7.3.1  
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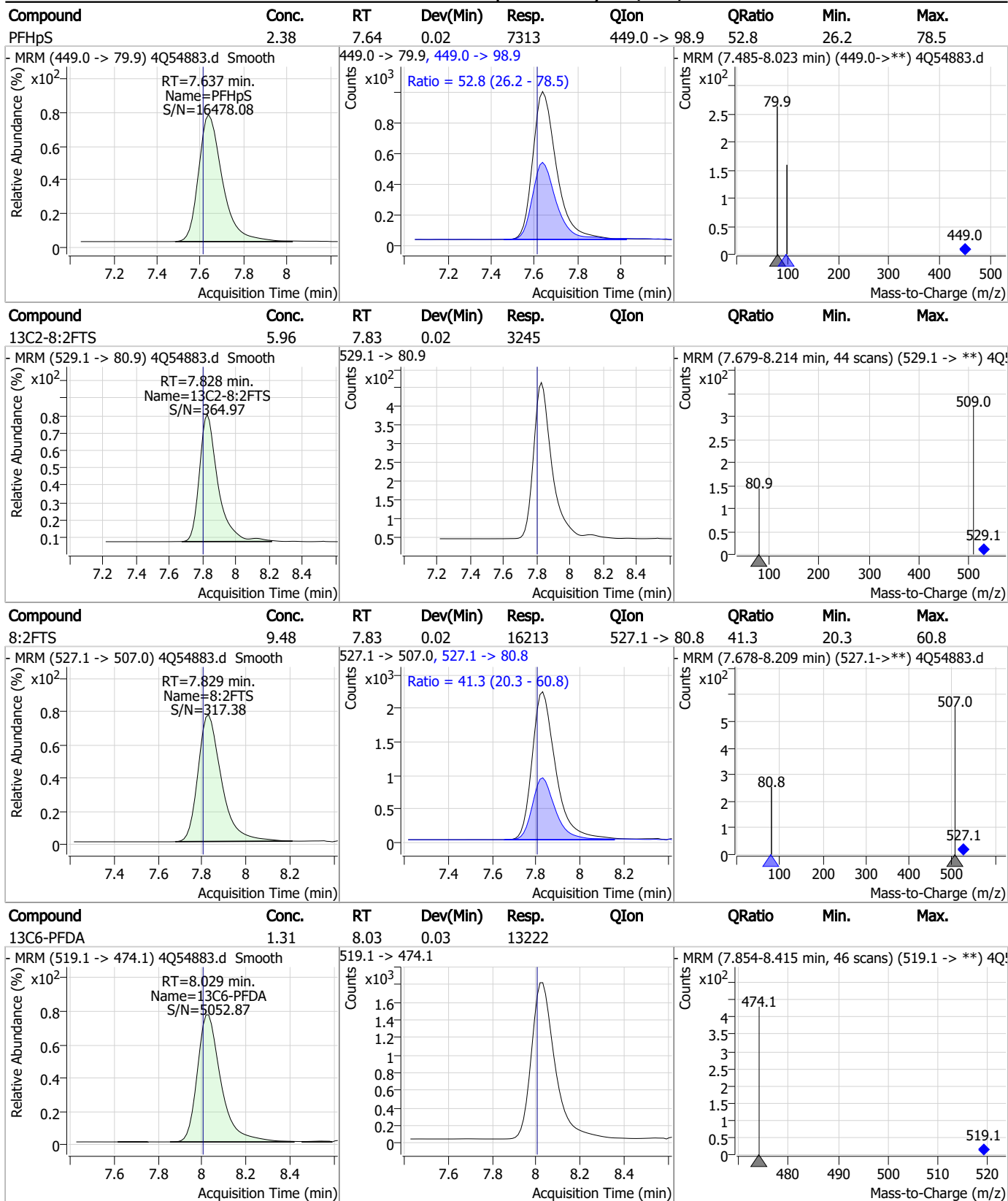


### Perfluorinated Compounds by LC/MS/MS





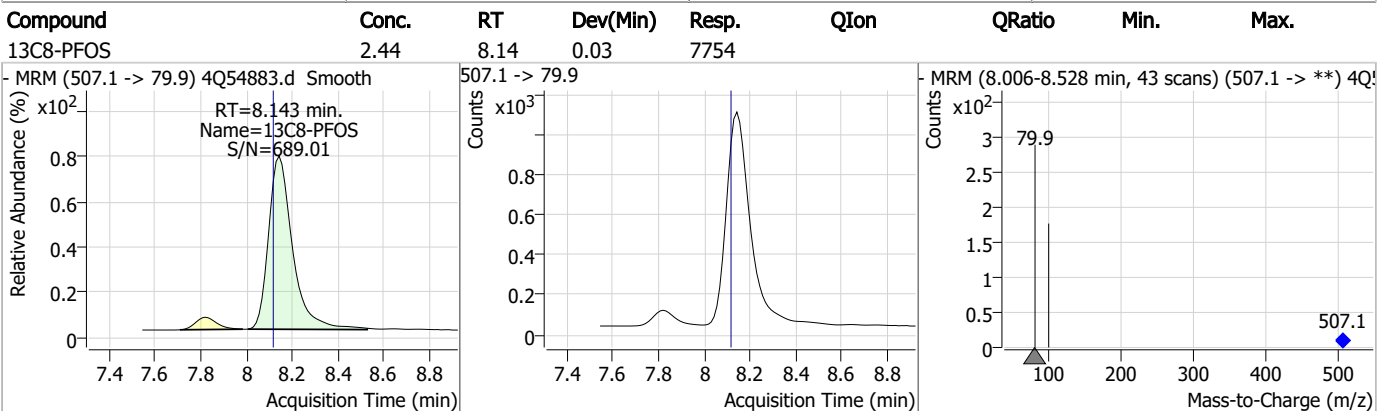
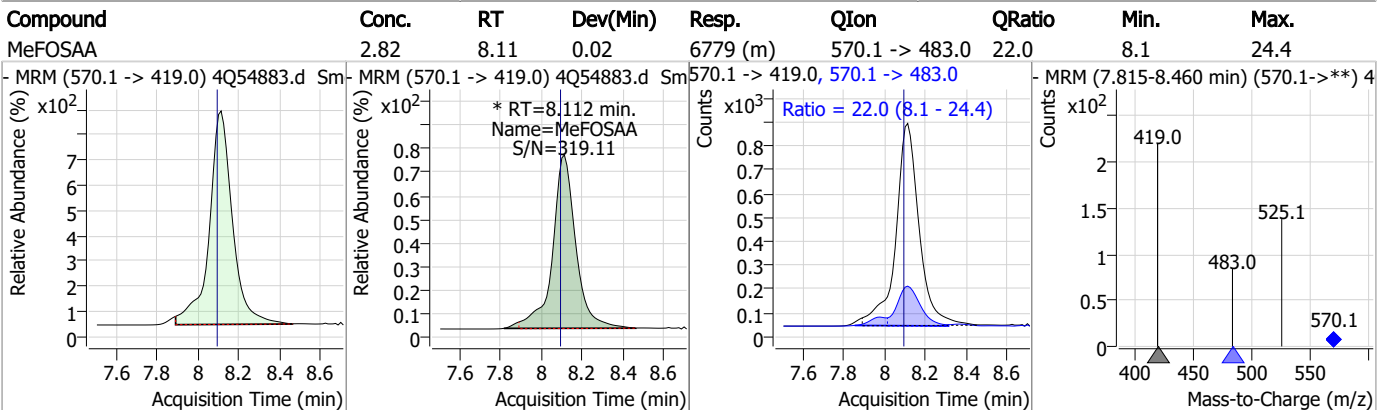
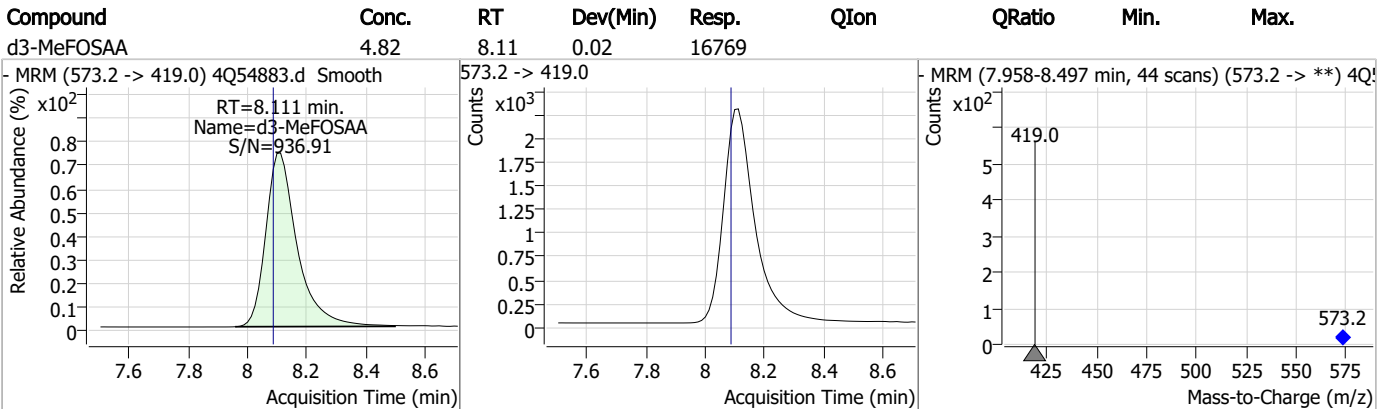
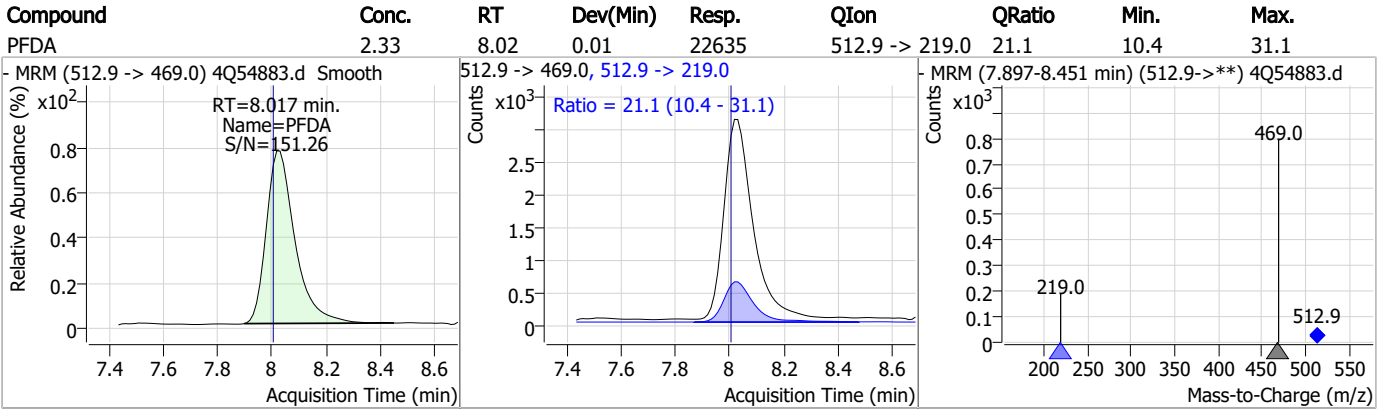
### Perfluorinated Compounds by LC/MS/MS



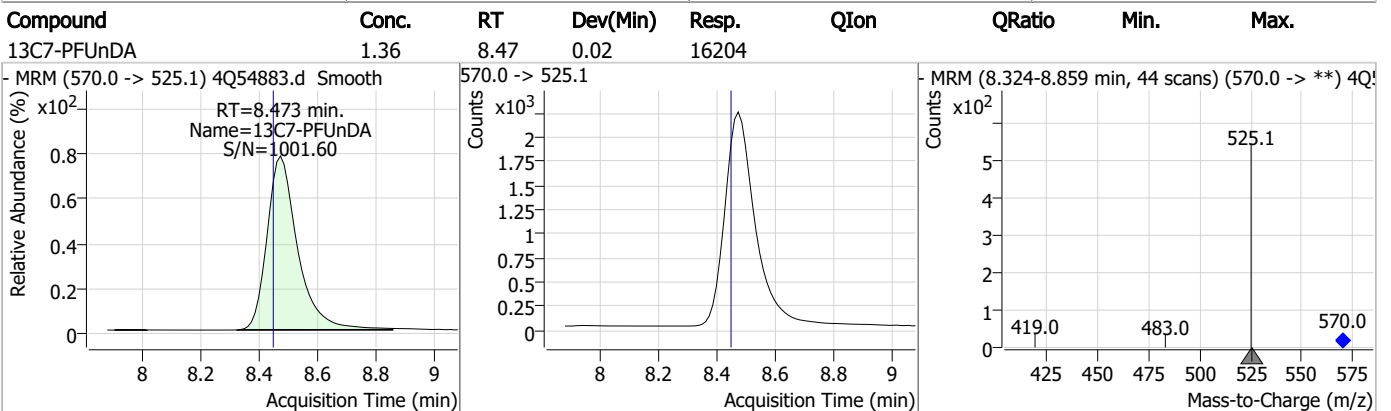
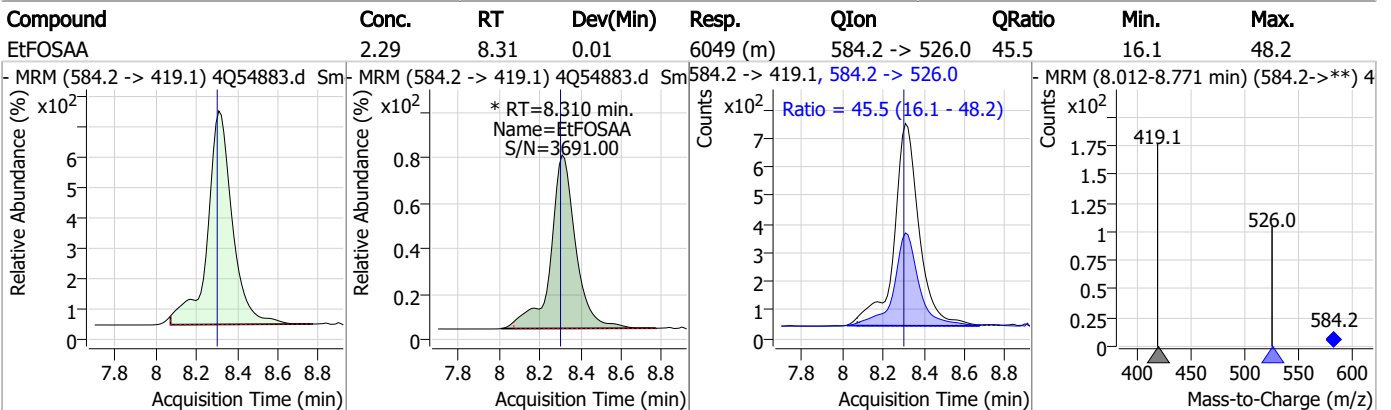
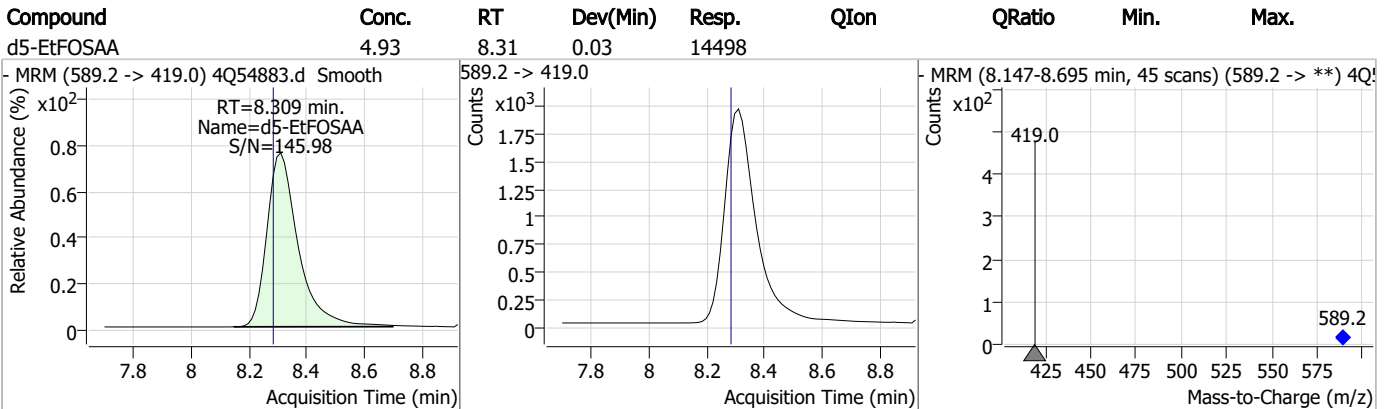
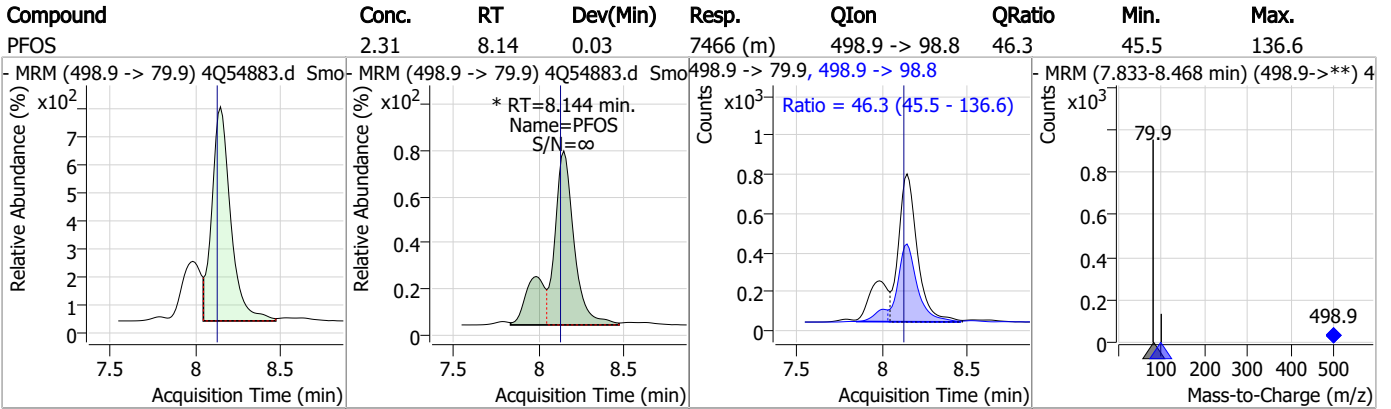
7.3.1  
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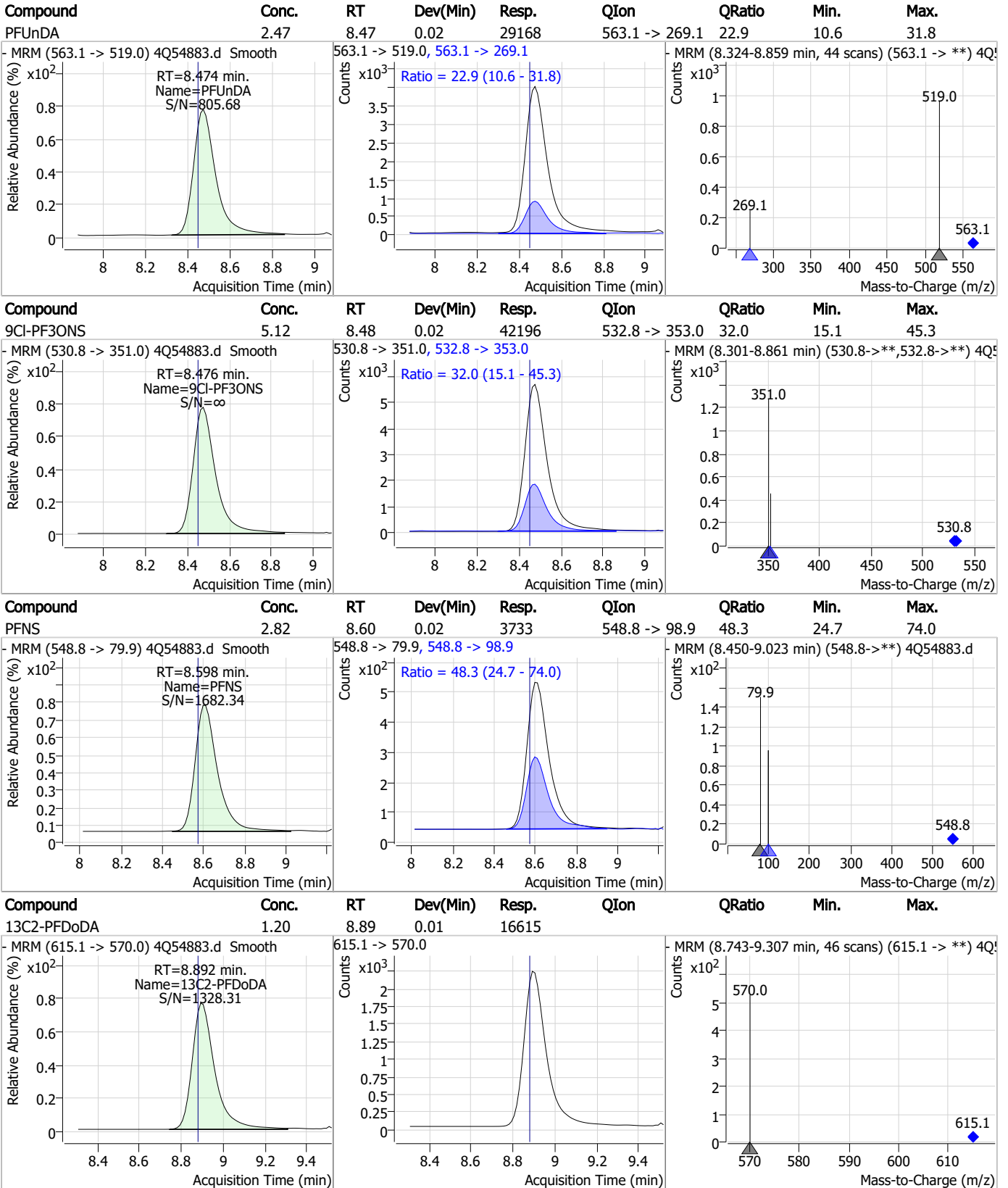
### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS

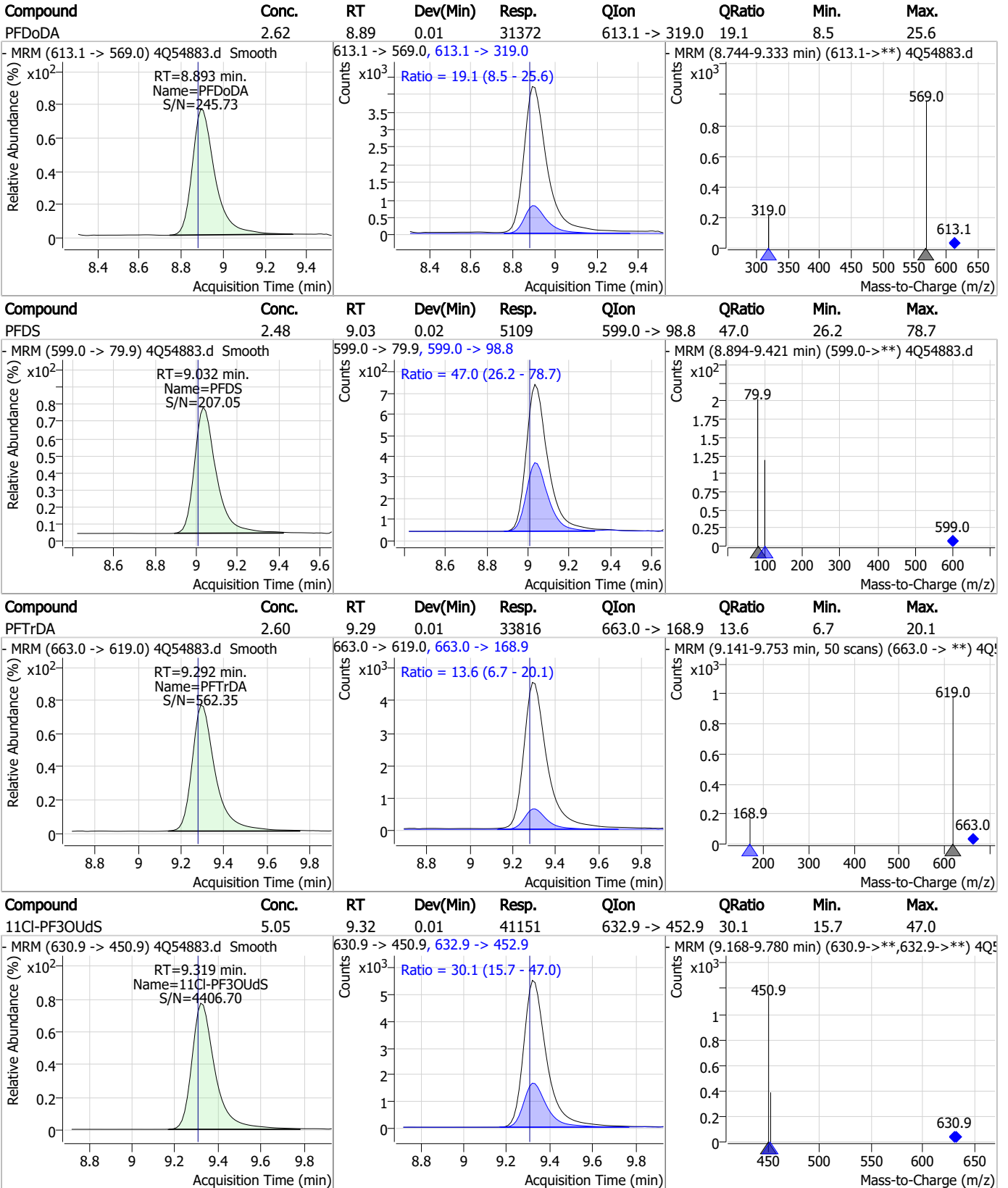


7.3.1

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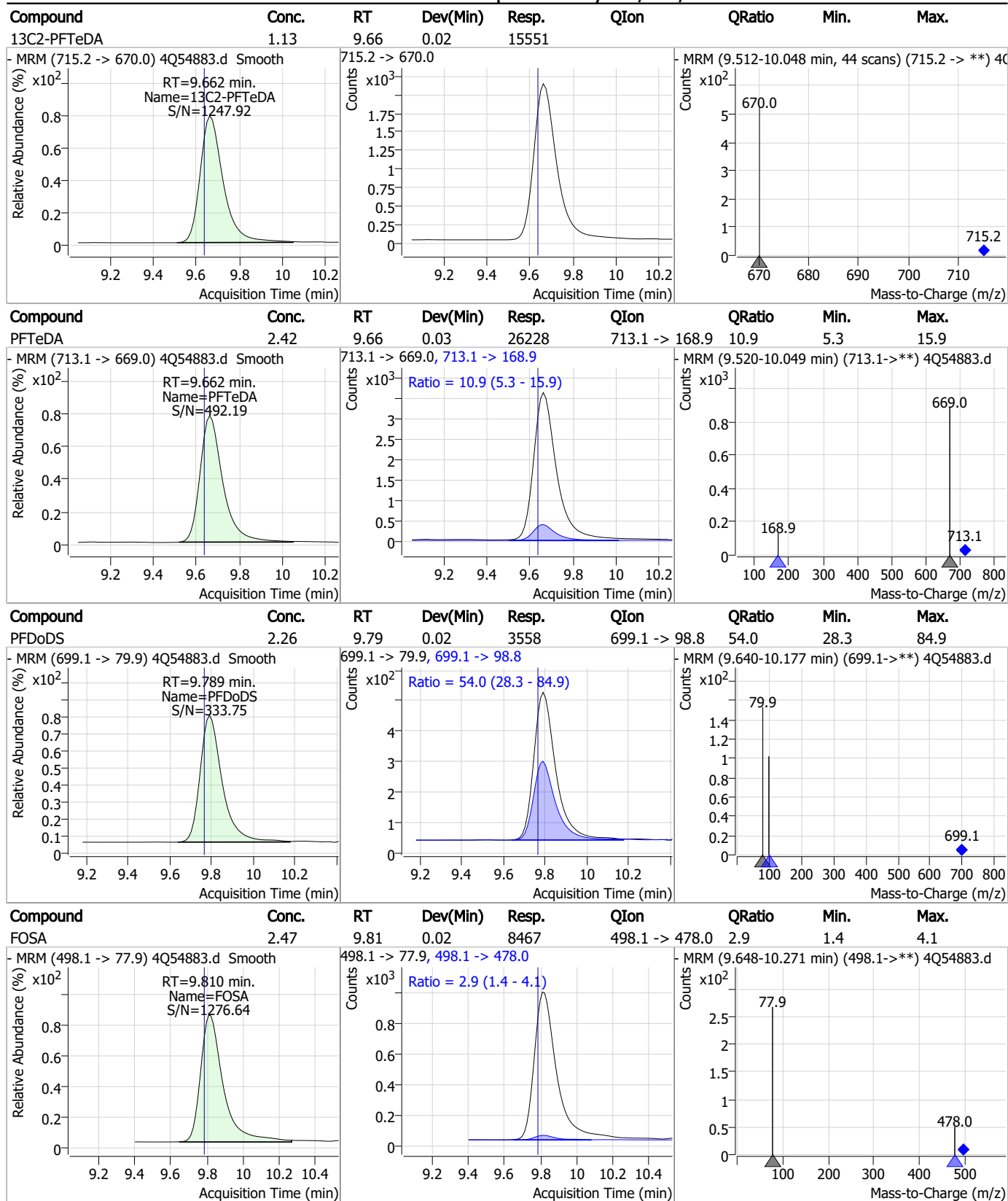
### Perfluorinated Compounds by LC/MS/MS



7.3.1

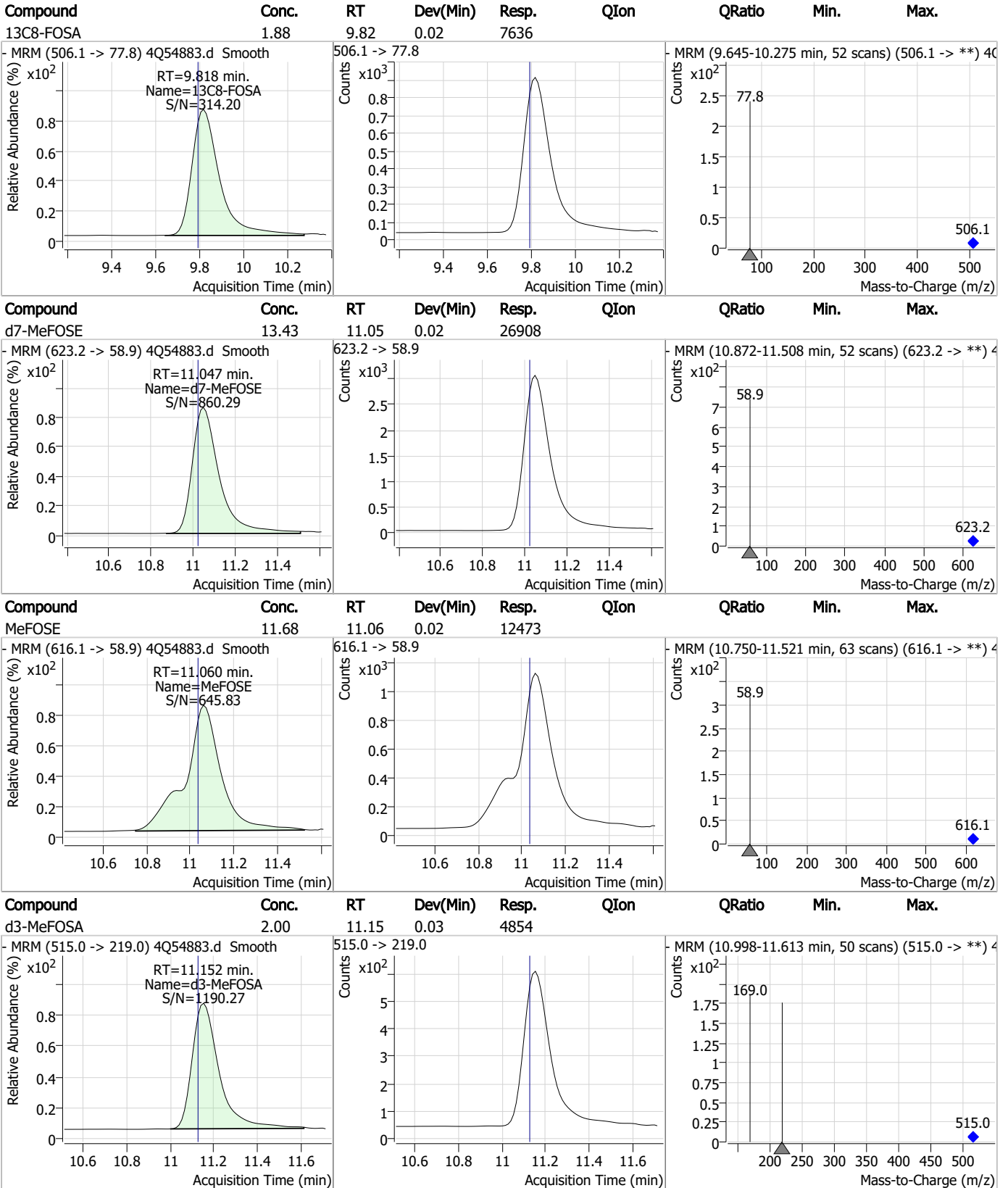
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### Perfluorinated Compounds by LC/MS/MS



7.3.1  
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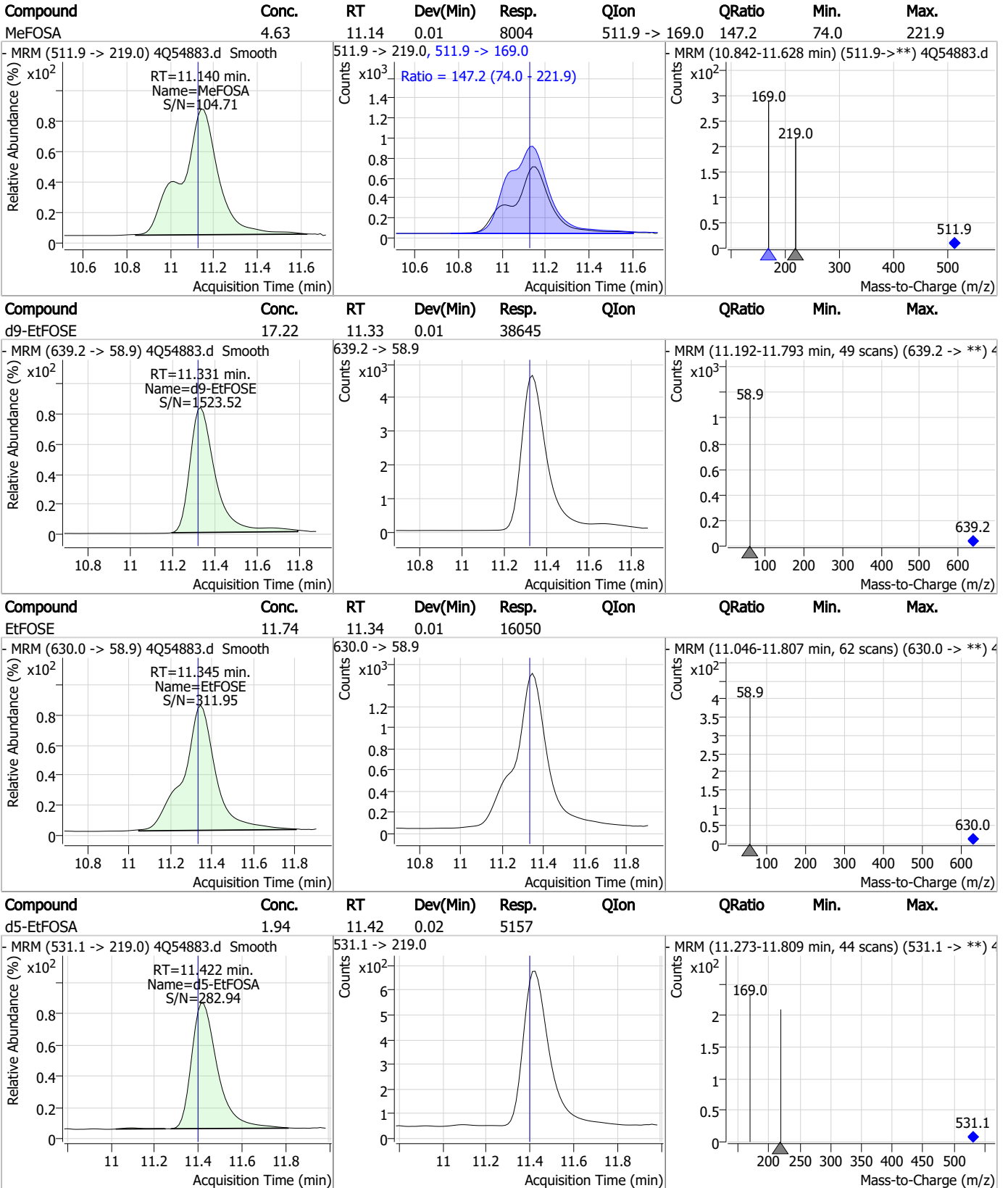
### Perfluorinated Compounds by LC/MS/MS



7.3.1

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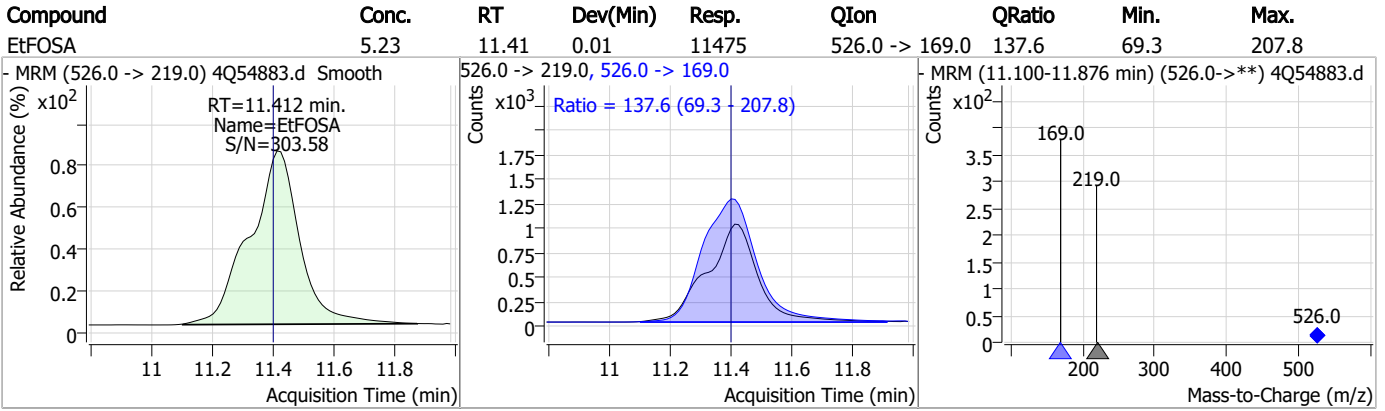
### Perfluorinated Compounds by LC/MS/MS



7.3.1

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### Perfluorinated Compounds by LC/MS/MS



7.3.1

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# Manual Integration Approval Summary

Sample Number: OP495-BS                      Method: EPA DRAFT 1633  
Lab FileID: 4Q54883.D                      Analyst approved: 12/10/23 12:52 Anna Ludwig  
Injection Time: 12/08/23 19:21                      Supervisor approved: 12/11/23 16:36 Norman Farmer

| Parameter                    | CAS       | Sig# | R.T.<br>(min.) | Reason     |
|------------------------------|-----------|------|----------------|------------|
| Perfluorohexanesulfonic acid | 355-46-4  |      | 7.05           | Split peak |
| MeFOSAA                      | 2355-31-9 |      | 8.11           | Split peak |
| Perfluorooctanesulfonic acid | 1763-23-1 |      | 8.14           | Split peak |
| EtFOSAA                      | 2991-50-6 |      | 8.31           | Split peak |

7.3.1.1

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## Perfluorinated Compounds by LC/MS/MS

Data File : 4Q54884.d  
 Operator : annal  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 12/8/2023 7:36:25 PM  
 Sample Name : op495-llbs:3  
 Vial : P2-C6  
 DA Method File : 1633\_120823\_S4Q804.quantmethod.xml  
 Batch Name : s4q804.batch.bin  
 Sample Information : OP495,S4Q804,500,,,5.0,1,water

| Compound                           | RT                   | Transition     | Response          | Conc. Units | Dev(Min) |
|------------------------------------|----------------------|----------------|-------------------|-------------|----------|
| <b>Internal Standards</b>          |                      |                |                   |             |          |
| M4-PFBA                            | 2.752                | 216.8 -> 171.9 | 99747             | 10.00 µg/L  | 0.078    |
| M5-PFPeA                           | 4.187                | 268.3 -> 223.0 | 38371             | 5.00 µg/L   | 0.025    |
| M5-PFHxA                           | 5.372                | 318.0 -> 273.0 | 29942             | 2.50 µg/L   | 0.037    |
| M4-PFHpA                           | 6.317                | 367.1 -> 322.0 | 29875             | 2.50 µg/L   | 0.025    |
| M8-PFOA                            | 6.989                | 421.1 -> 376.0 | 47703             | 2.50 µg/L   | 0.012    |
| M9-PFNA                            | 7.534                | 472.1 -> 427.0 | 18221             | 1.25 µg/L   | 0.012    |
| M6-PFDA                            | 8.017                | 519.1 -> 474.1 | 12928             | 1.25 µg/L   | 0.013    |
| M7-PFUnDA                          | 8.473                | 570.0 -> 525.1 | 15951             | 1.25 µg/L   | 0.025    |
| M2-PFDoDA                          | 8.892                | 615.1 -> 570.0 | 16023             | 1.25 µg/L   | 0.012    |
| M2-PFTeDA                          | 9.662                | 715.2 -> 670.0 | 14911             | 1.25 µg/L   | 0.025    |
| M8-FOSA                            | 9.818                | 506.1 -> 77.8  | 7840              | 2.50 µg/L   | 0.025    |
| M3-PFBS                            | 5.227                | 302.1 -> 79.9  | 8356              | 2.50 µg/L   | 0.038    |
| M3-PFHxS                           | 7.054                | 402.1 -> 79.9  | 7256              | 2.50 µg/L   | 0.025    |
| M8-PFOS                            | 8.143                | 507.1 -> 79.9  | 7493              | 2.50 µg/L   | 0.026    |
| M2-4:2FTS                          | 5.071                | 329.1 -> 80.9  | 961               | 5.00 µg/L   | 0.025    |
| M2-6:2FTS                          | 6.773                | 429.1 -> 80.9  | 2158              | 5.00 µg/L   | 0.025    |
| M2-8:2FTS                          | 7.828                | 529.1 -> 80.9  | 3079              | 5.00 µg/L   | 0.025    |
| M3-MeFOSAA                         | 8.111                | 573.2 -> 419.0 | 17235             | 5.00 µg/L   | 0.025    |
| M3-HFPO-DA                         | 5.714                | 286.9 -> 168.9 | 30074             | 10.00 µg/L  | 0.025    |
| M5-EtFOSAA                         | 8.309                | 589.2 -> 419.0 | 14238             | 5.00 µg/L   | 0.026    |
| M7-MeFOSE                          | 11.047               | 623.2 -> 58.9  | 26831             | 25.00 µg/L  | 0.025    |
| M9-EtFOSE                          | 11.331               | 639.2 -> 58.9  | 36939             | 25.00 µg/L  | 0.012    |
| M5-EtFOSA                          | 11.410               | 531.1 -> 219.0 | 4956              | 2.50 µg/L   | 0.012    |
| M3-MeFOSA                          | 11.139               | 515.0 -> 219.0 | 4422              | 2.50 µg/L   | 0.012    |
| 13C4-PFOS                          | 8.144                | 502.8 -> 79.9  | 6020              | 2.50 µg/L   | 0.026    |
| 13C3-PFBA                          | 2.755                | 216.0 -> 172.0 | 42899             | 5.00 µg/L   | 0.077    |
| 18O2-PFHxS                         | 7.054                | 403.0 -> 83.9  | 3935              | 2.50 µg/L   | 0.013    |
| 13C4-PFOA                          | 6.989                | 417.1 -> 372.0 | 48276             | 2.50 µg/L   | 0.012    |
| 13C2-PFDA                          | 8.017                | 515.1 -> 470.1 | 13411             | 1.25 µg/L   | 0.013    |
| 13C5-PFNA                          | 7.534                | 468.0 -> 423.0 | 17289             | 1.25 µg/L   | 0.025    |
| 13C2-PFHxA                         | 5.373                | 315.1 -> 270.0 | 30138             | 2.50 µg/L   | 0.037    |
| <b>System Monitoring Compounds</b> |                      |                |                   |             |          |
| 13C2-4:2FTS                        | 5.071                | 329.1 -> 80.9  | 961               | 5.14 µg/L   | 0.025    |
| Spiked Amount: 5.00                | Range: 50.0 - 150.0% |                | Recovery = 102.9% |             |          |
| 13C2-6:2FTS                        | 6.773                | 429.1 -> 80.9  | 2158              | 5.33 µg/L   | 0.025    |
| Spiked Amount: 5.00                | Range: 50.0 - 150.0% |                | Recovery = 106.5% |             |          |
| 13C2-8:2FTS                        | 7.828                | 529.1 -> 80.9  | 3079              | 5.68 µg/L   | 0.025    |
| Spiked Amount: 5.00                | Range: 50.0 - 150.0% |                | Recovery = 113.5% |             |          |
| 13C2-PFDoDA                        | 8.892                | 615.1 -> 570.0 | 16023             | 1.20 µg/L   | 0.012    |
| Spiked Amount: 1.25                | Range: 50.0 - 150.0% |                | Recovery = 95.6%  |             |          |
| 13C2-PFTeDA                        | 9.662                | 715.2 -> 670.0 | 14911             | 1.12 µg/L   | 0.025    |
| Spiked Amount: 1.25                | Range: 50.0 - 150.0% |                | Recovery = 89.6%  |             |          |
| 13C3-PFBS                          | 5.227                | 302.1 -> 79.9  | 8356              | 2.77 µg/L   | 0.038    |
| Spiked Amount: 2.50                | Range: 50.0 - 150.0% |                | Recovery = 110.8% |             |          |
| 13C3-PFHxS                         | 7.054                | 402.1 -> 79.9  | 7256              | 2.94 µg/L   | 0.025    |

7.32  
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### Perfluorinated Compounds by LC/MS/MS

| Compound                | RT                   | Transition     | Response | Conc. Units       | Dev(Min)      |
|-------------------------|----------------------|----------------|----------|-------------------|---------------|
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 117.6% |               |
| 13C4-PFBA               | 2.752                | 216.8 -> 171.9 | 99747    | 11.07 µg/L        | 0.078         |
| Spiked Amount: 10.00    | Range: 50.0 - 150.0% |                |          | Recovery = 110.7% |               |
| 13C4-PFHpA              | 6.317                | 367.1 -> 322.0 | 29875    | 2.81 µg/L         | 0.025         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 112.5% |               |
| 13C5-PFHxA              | 5.372                | 318.0 -> 273.0 | 29942    | 2.70 µg/L         | 0.037         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 107.9% |               |
| 13C5-PFPeA              | 4.187                | 268.3 -> 223.0 | 38371    | 5.55 µg/L         | 0.025         |
| Spiked Amount: 5.00     | Range: 50.0 - 150.0% |                |          | Recovery = 110.9% |               |
| 13C6-PFDA               | 8.017                | 519.1 -> 474.1 | 12928    | 1.32 µg/L         | 0.013         |
| Spiked Amount: 1.25     | Range: 50.0 - 150.0% |                |          | Recovery = 106.0% |               |
| 13C7-PFUnDA             | 8.473                | 570.0 -> 525.1 | 15951    | 1.39 µg/L         | 0.025         |
| Spiked Amount: 1.25     | Range: 50.0 - 150.0% |                |          | Recovery = 110.9% |               |
| 13C8-FOSA               | 9.818                | 506.1 -> 77.8  | 7840     | 2.01 µg/L         | 0.025         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 80.4%  |               |
| 13C8-PFOA               | 6.989                | 421.1 -> 376.0 | 47703    | 2.67 µg/L         | 0.012         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 107.0% |               |
| 13C8-PFOS               | 8.143                | 507.1 -> 79.9  | 7493     | 2.46 µg/L         | 0.026         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 98.3%  |               |
| 13C9-PFNA               | 7.534                | 472.1 -> 427.0 | 18221    | 1.32 µg/L         | 0.012         |
| Spiked Amount: 1.25     | Range: 50.0 - 150.0% |                |          | Recovery = 105.2% |               |
| d3-MeFOSAA              | 8.111                | 573.2 -> 419.0 | 17235    | 5.16 µg/L         | 0.025         |
| Spiked Amount: 5.00     | Range: 50.0 - 150.0% |                |          | Recovery = 103.1% |               |
| 13C3-HFPO-DA            | 5.714                | 286.9 -> 168.9 | 30074    | 10.84 µg/L        | 0.025         |
| Spiked Amount: 10.00    | Range: 50.0 - 150.0% |                |          | Recovery = 108.4% |               |
| d3-MeFOSA               | 11.139               | 515.0 -> 219.0 | 4422     | 1.90 µg/L         | 0.012         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 76.0%  |               |
| d5-EtFOSAA              | 8.309                | 589.2 -> 419.0 | 14238    | 5.04 µg/L         | 0.026         |
| Spiked Amount: 5.00     | Range: 50.0 - 150.0% |                |          | Recovery = 100.7% |               |
| d7-MeFOSE               | 11.047               | 623.2 -> 58.9  | 26831    | 13.94 µg/L        | 0.025         |
| Spiked Amount: 25.00    | Range: 50.0 - 150.0% |                |          | Recovery = 55.8%  |               |
| d9-EtFOSE               | 11.331               | 639.2 -> 58.9  | 36939    | 17.14 µg/L        | 0.012         |
| Spiked Amount: 25.00    | Range: 50.0 - 150.0% |                |          | Recovery = 68.5%  |               |
| d5-EtFOSA               | 11.410               | 531.1 -> 219.0 | 4956     | 1.94 µg/L         | 0.012         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 77.7%  |               |
| <b>Target Compounds</b> |                      |                |          |                   | <b>QValue</b> |
| 4:2FTS                  | 5.072                | 327.1 -> 307.0 | 4875     | 2.95 µg/L         | 98            |
|                         |                      | 327.1 -> 80.9  | 2132     |                   |               |
| 6:2FTS                  | 6.774                | 427.1 -> 407.0 | 6663     | 2.94 µg/L         | 98            |
|                         |                      | 427.1 -> 80.9  | 2534     |                   |               |
| 8:2FTS                  | 7.829                | 527.1 -> 507.0 | 5323     | 3.28 µg/L         | 94            |
|                         |                      | 527.1 -> 80.8  | 1955     |                   |               |
| EtFOSAA                 | 8.310                | 584.2 -> 419.1 | 1963     | 0.76 µg/L         | m 90          |
|                         |                      | 584.2 -> 526.0 | 745      |                   |               |
| FOSA                    | 9.823                | 498.1 -> 77.9  | 2636     | 0.75 µg/L         | 98            |
|                         |                      | 498.1 -> 478.0 | 88       |                   |               |
| MeFOSAA                 | 8.112                | 570.1 -> 419.0 | 2088     | 0.84 µg/L         | m 96          |
|                         |                      | 570.1 -> 483.0 | 379      |                   |               |
| PFBA                    | 2.758                | 212.8 -> 168.9 | 9717     | 3.04 µg/L         | 100           |
| PFBS                    | 5.228                | 298.7 -> 79.9  | 1765     | 0.68 µg/L         | 97            |
|                         |                      | 298.7 -> 98.8  | 753      |                   |               |
| PFDA                    | 8.017                | 512.9 -> 469.0 | 7454     | 0.78 µg/L         | 99            |
|                         |                      | 512.9 -> 219.0 | 1577     |                   |               |
| PFDODA                  | 8.893                | 613.1 -> 569.0 | 9344     | 0.81 µg/L         | 98            |
|                         |                      | 613.1 -> 319.0 | 1694     |                   |               |
| PFDS                    | 9.032                | 599.0 -> 79.9  | 1489     | 0.75 µg/L         | 99            |

7.3.2  
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Perfluorinated Compounds by LC/MS/MS

| Compound     | RT     | Transition     | Response | Conc. | Units | Dev(Min) |
|--------------|--------|----------------|----------|-------|-------|----------|
|              |        | 599.0 -> 98.8  | 776      |       |       |          |
| PFHpA        | 6.317  | 363.1 -> 319.0 | 12744    | 0.76  | µg/L  | 99       |
|              |        | 363.1 -> 169.0 | 2280     |       |       |          |
| PFHpS        | 7.637  | 449.0 -> 79.9  | 2383     | 0.80  | µg/L  | 95       |
|              |        | 449.0 -> 98.9  | 1156     |       |       |          |
| PFHxA        | 5.362  | 313.0 -> 269.0 | 6940     | 0.73  | µg/L  | 99       |
|              |        | 313.0 -> 118.9 | 207      |       |       |          |
| PFHxS        | 7.055  | 398.7 -> 79.9  | 1710     | 0.73  | µg/L  | m 93     |
|              |        | 398.7 -> 98.9  | 893      |       |       |          |
| PFNA         | 7.534  | 463.0 -> 419.0 | 7764     | 0.73  | µg/L  | 97       |
|              |        | 463.0 -> 219.0 | 1913     |       |       |          |
| PFNS         | 8.598  | 548.8 -> 79.9  | 1062     | 0.83  | µg/L  | 97       |
|              |        | 548.8 -> 98.9  | 546      |       |       |          |
| PFOA         | 6.990  | 413.0 -> 369.0 | 14318    | 0.73  | µg/L  | 99       |
|              |        | 413.0 -> 169.0 | 3171     |       |       |          |
| PFOS         | 8.144  | 498.9 -> 79.9  | 2379     | 0.76  | µg/L  | # 46     |
|              |        | 498.9 -> 98.8  | 953      |       |       |          |
| PFPeA        | 4.189  | 263.0 -> 219.0 | 11202    | 1.48  | µg/L  | 100      |
| PFPeS        | 6.307  | 349.1 -> 79.9  | 1502     | 0.68  | µg/L  | 92       |
|              |        | 349.1 -> 98.9  | 708      |       |       |          |
| PFTeDA       | 9.662  | 713.1 -> 669.0 | 7718     | 0.74  | µg/L  | 95       |
|              |        | 713.1 -> 168.9 | 964      |       |       |          |
| PFTrDA       | 9.304  | 663.0 -> 619.0 | 10114    | 0.81  | µg/L  | 99       |
|              |        | 663.0 -> 168.9 | 1393     |       |       |          |
| PFUnDA       | 8.474  | 563.1 -> 519.0 | 9406     | 0.81  | µg/L  | 96       |
|              |        | 563.1 -> 269.1 | 2174     |       |       |          |
| 11CI-PF3OUdS | 9.319  | 630.9 -> 450.9 | 12622    | 1.52  | µg/L  | 97       |
|              |        | 632.9 -> 452.9 | 3726     |       |       |          |
| 9CI-PF3ONS   | 8.476  | 530.8 -> 351.0 | 12539    | 1.50  | µg/L  | 96       |
|              |        | 532.8 -> 353.0 | 4093     |       |       |          |
| ADONA        | 6.581  | 376.9 -> 250.9 | 31964    | 1.57  | µg/L  | 99       |
|              |        | 376.9 -> 84.8  | 7872     |       |       |          |
| HFPO-DA      | 5.728  | 284.9 -> 168.9 | 4508     | 1.57  | µg/L  | 100      |
|              |        | 284.9 -> 184.9 | 431      |       |       |          |
| 3:3FTCA      | 3.679  | 241.0 -> 177.0 | 1640     | 3.23  | µg/L  | 99       |
|              |        | 241.0 -> 117.0 | 152      |       |       |          |
| 5:3FTCA      | 6.045  | 341.0 -> 237.1 | 32364    | 18.99 | µg/L  | 100      |
|              |        | 341.0 -> 217.0 | 23063    |       |       |          |
| 7:3FTCA      | 7.562  | 441.0 -> 316.9 | 18292    | 20.47 | µg/L  | 96       |
|              |        | 441.0 -> 336.9 | 42413    |       |       |          |
| EtFOSA       | 11.412 | 526.0 -> 219.0 | 3208     | 1.52  | µg/L  | 96       |
|              |        | 526.0 -> 169.0 | 4603     |       |       |          |
| EtFOSE       | 11.345 | 630.0 -> 58.9  | 5112     | 3.91  | µg/L  | 100      |
| MeFOSA       | 11.140 | 511.9 -> 219.0 | 2133     | 1.35  | µg/L  | 96       |
|              |        | 511.9 -> 169.0 | 3264     |       |       |          |
| MeFOSE       | 11.060 | 616.1 -> 58.9  | 3971     | 3.73  | µg/L  | 100      |
| PFDoDS       | 9.789  | 699.1 -> 79.9  | 1024     | 0.67  | µg/L  | 93       |
|              |        | 699.1 -> 98.8  | 631      |       |       |          |
| NFDHA        | 5.241  | 295.0 -> 201.0 | 1050     | 1.55  | µg/L  | 94       |
|              |        | 295.0 -> 84.9  | 308      |       |       |          |
| PFMBA        | 4.591  | 279.0 -> 85.1  | 6483     | 1.56  | µg/L  | 100      |
| PFMPA        | 3.357  | 229.0 -> 84.9  | 7402     | 1.62  | µg/L  | 100      |
| PFEESA       | 5.747  | 314.8 -> 134.9 | 9880     | 1.40  | µg/L  | 100      |
|              |        | 314.8 -> 82.9  | 398      |       |       |          |

# = Qualifier out of range, m = manually integrated, + = Area summed

7.3.2  
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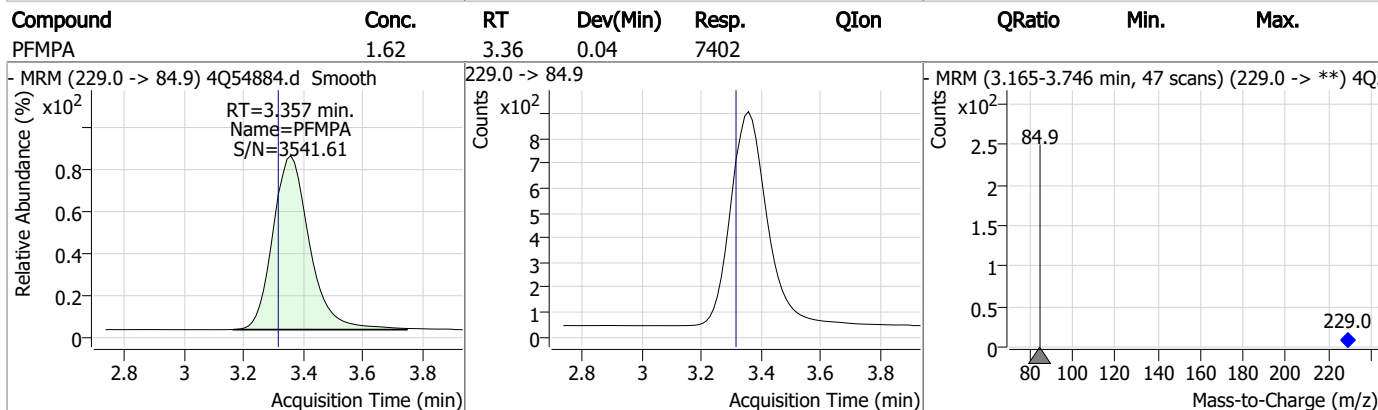
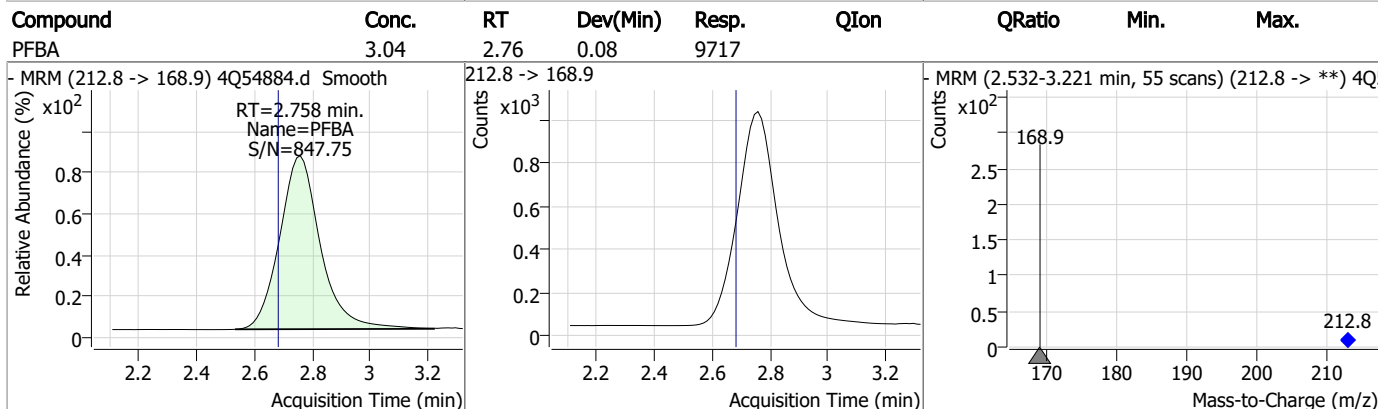
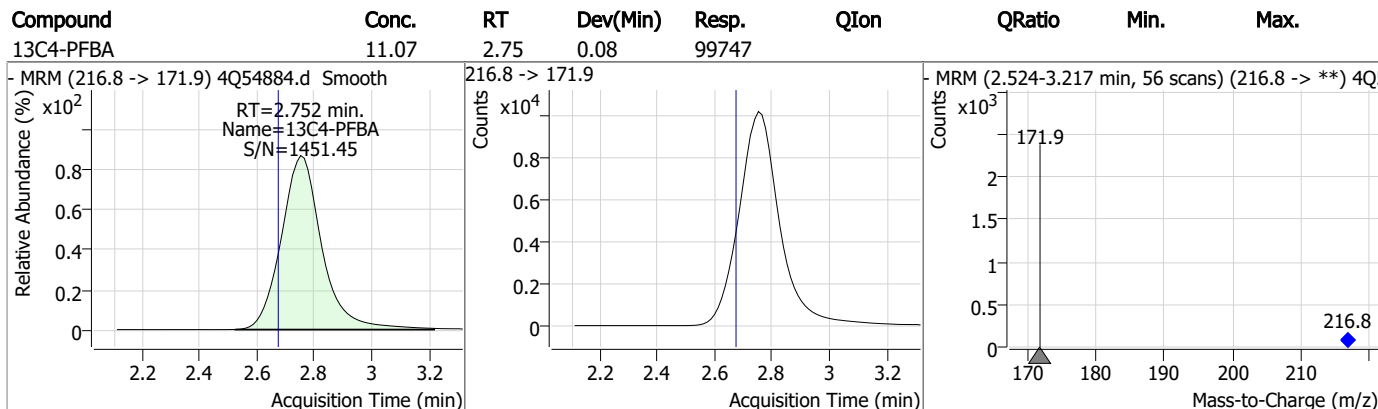
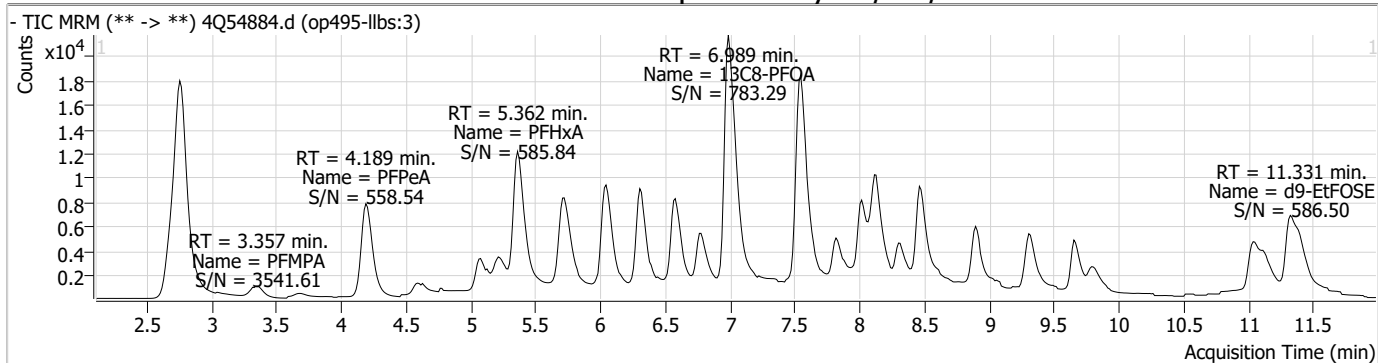
### Perfluorinated Compounds by LC/MS/MS

| Compound | RT | Transition | Response | Conc. Units | Dev(Min) |
|----------|----|------------|----------|-------------|----------|
|----------|----|------------|----------|-------------|----------|

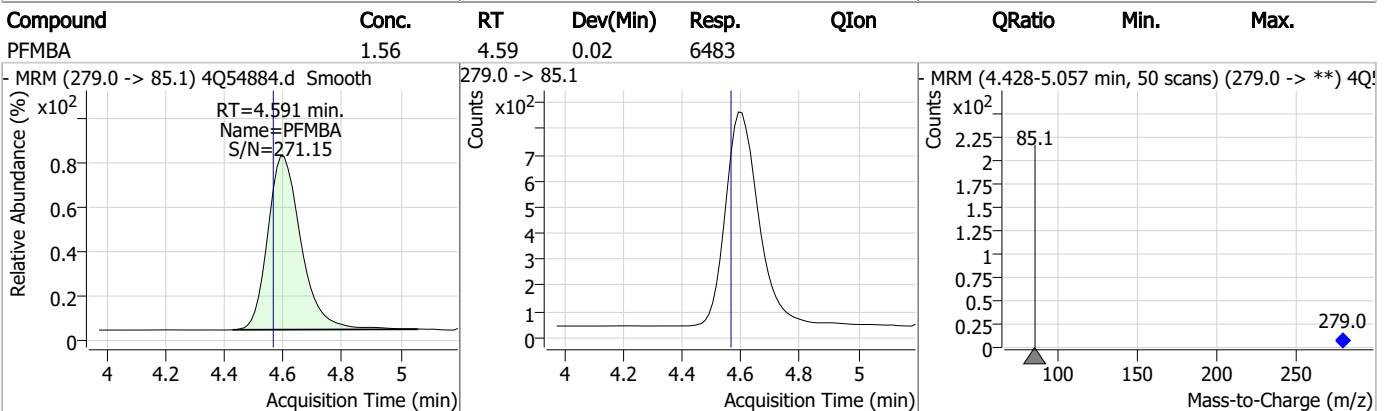
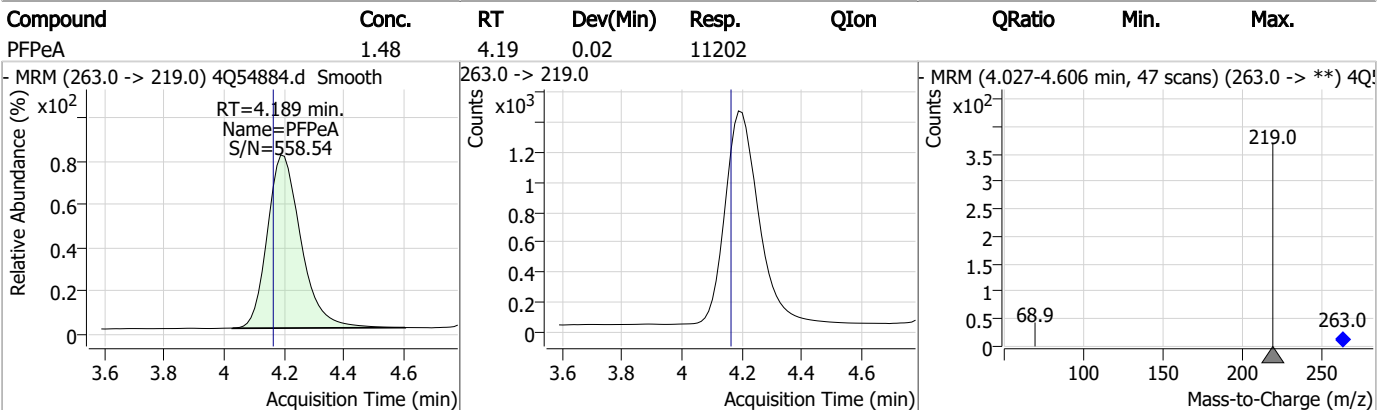
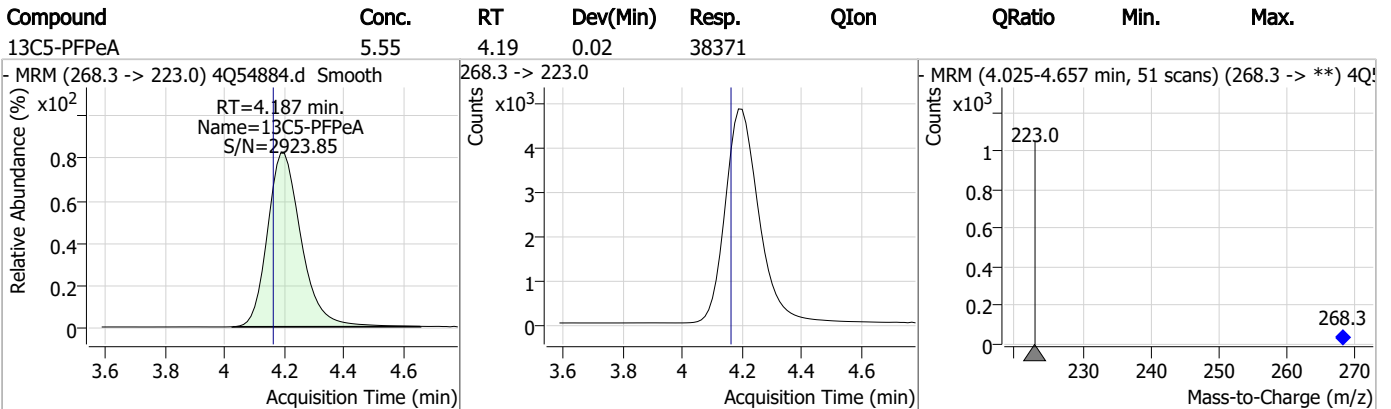
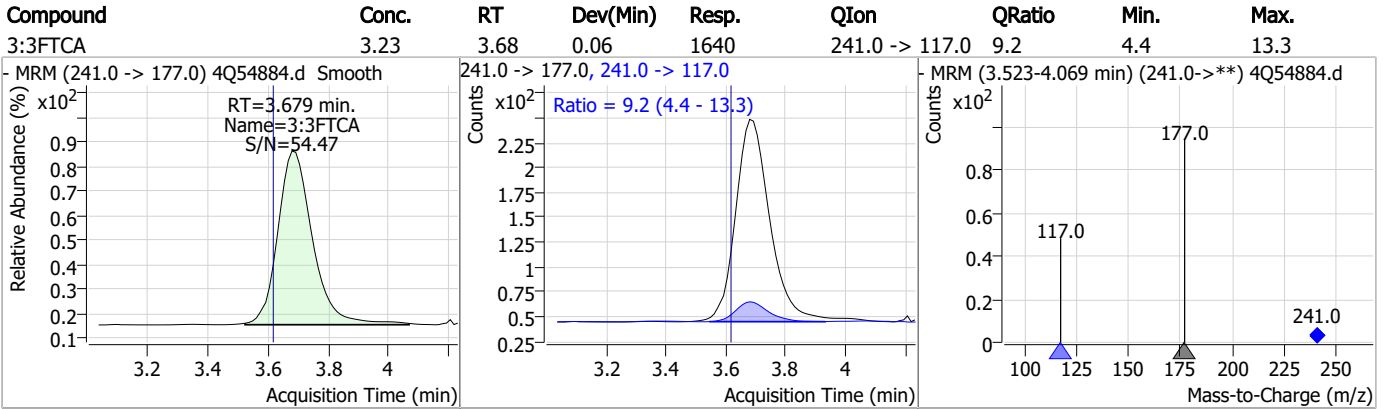
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### Perfluorinated Compounds by LC/MS/MS



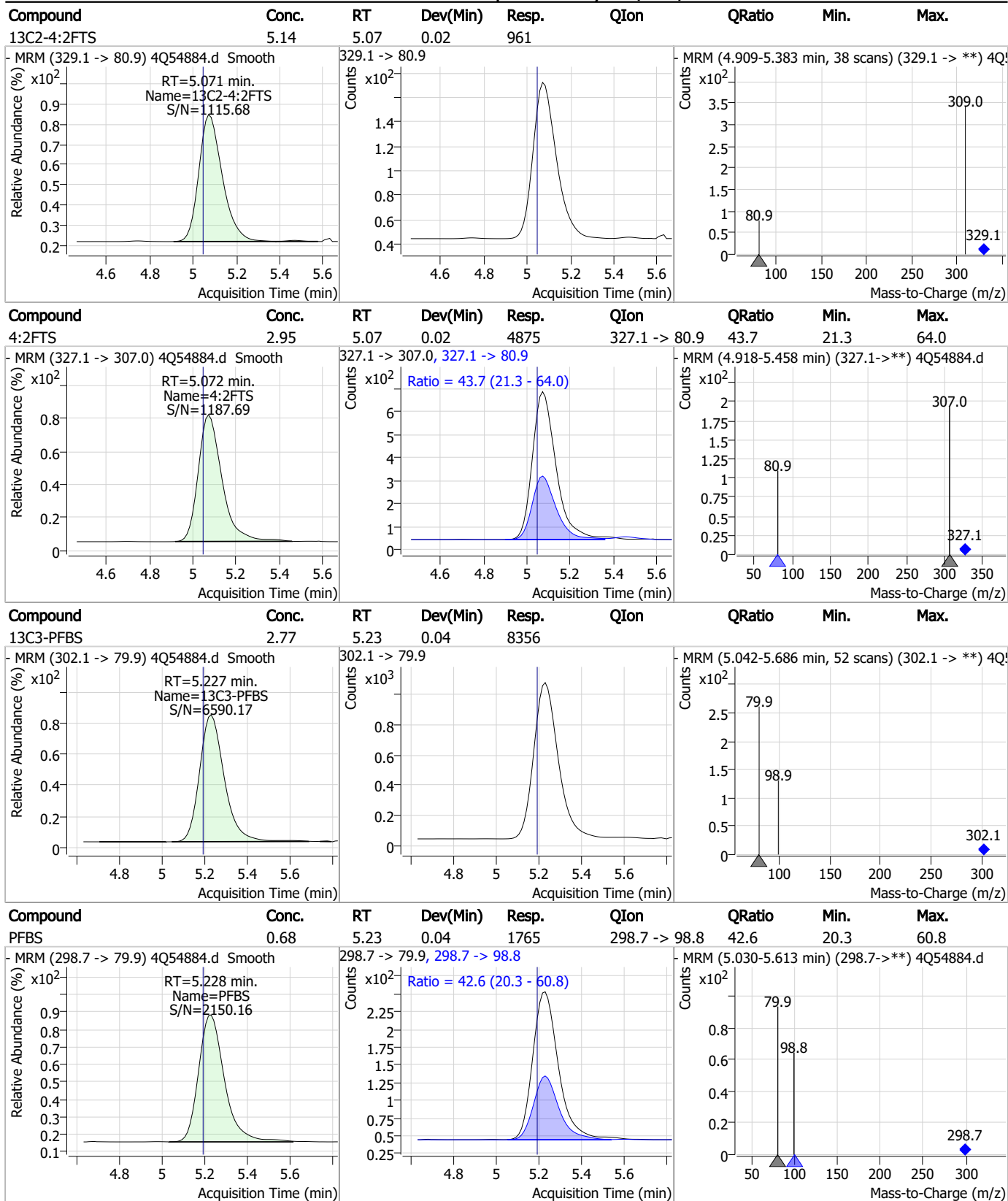
### Perfluorinated Compounds by LC/MS/MS



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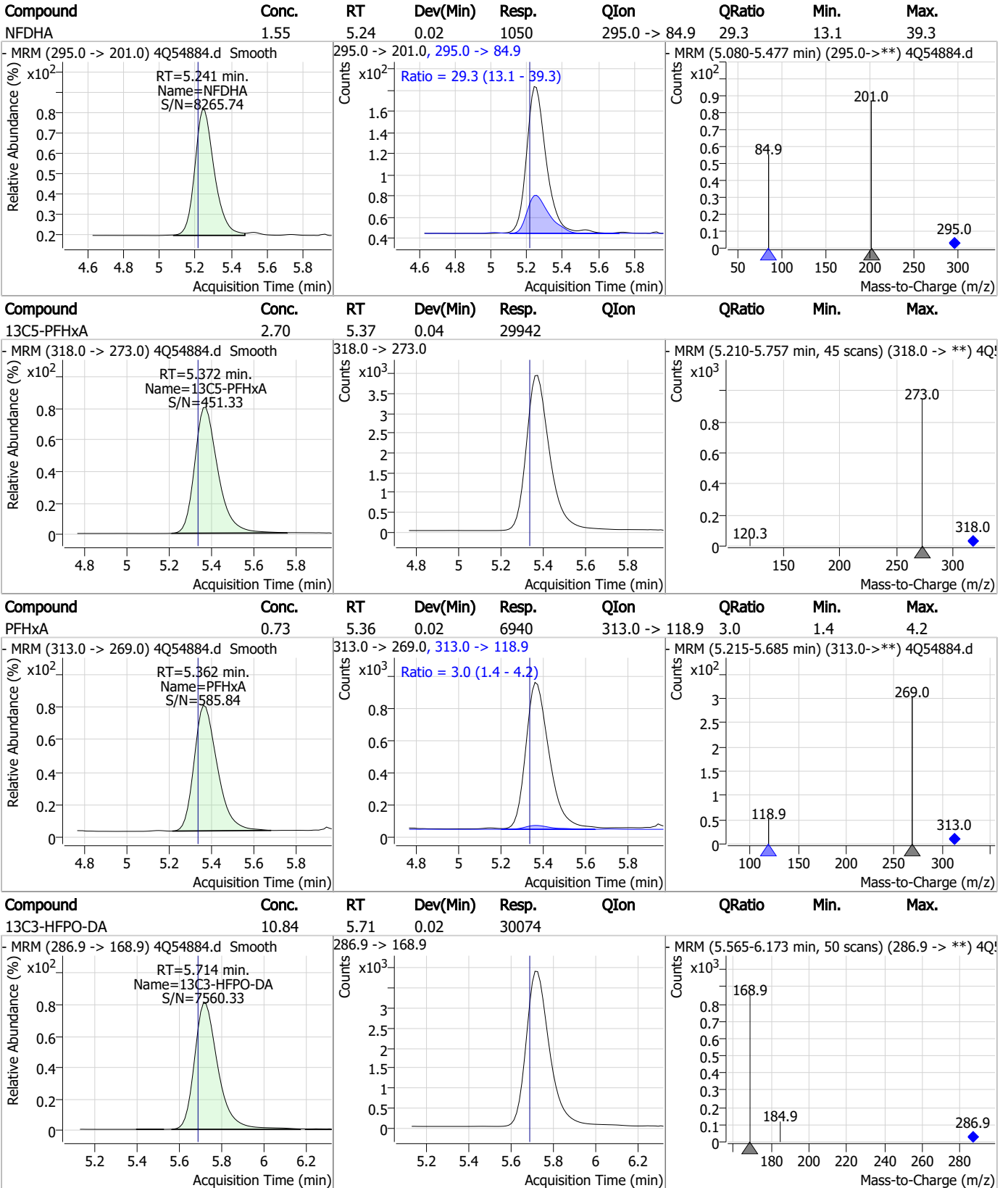
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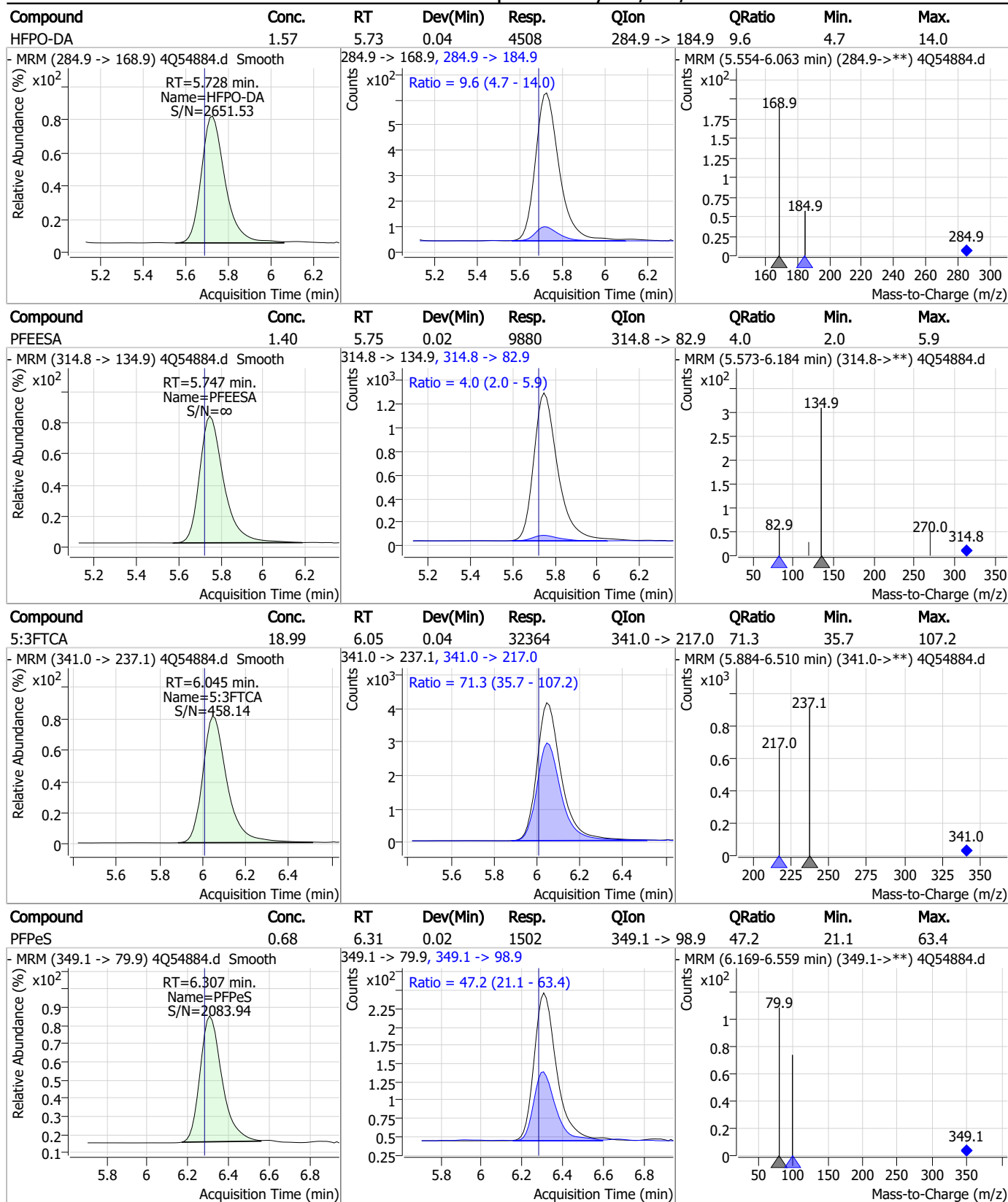


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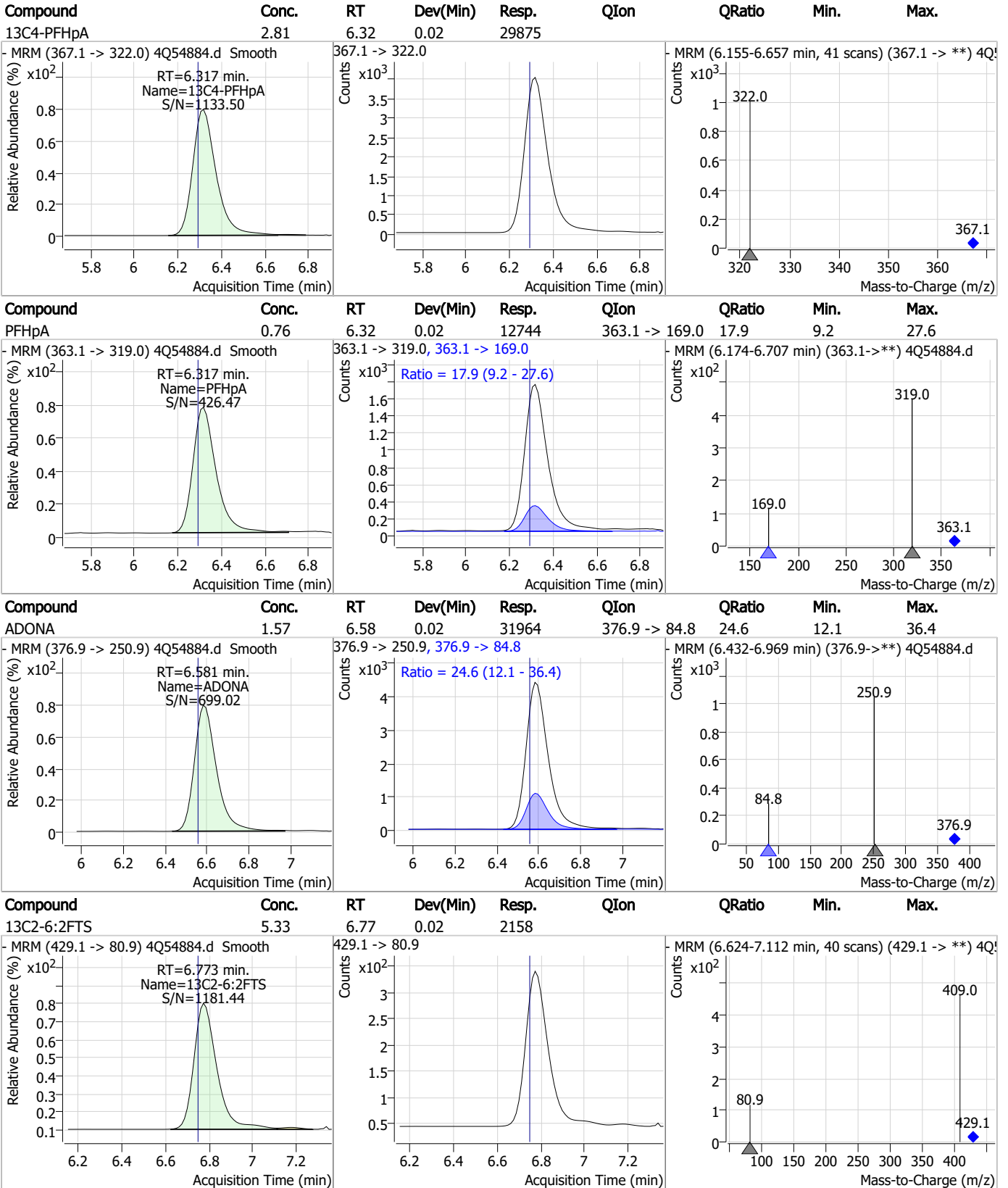
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### Perfluorinated Compounds by LC/MS/MS



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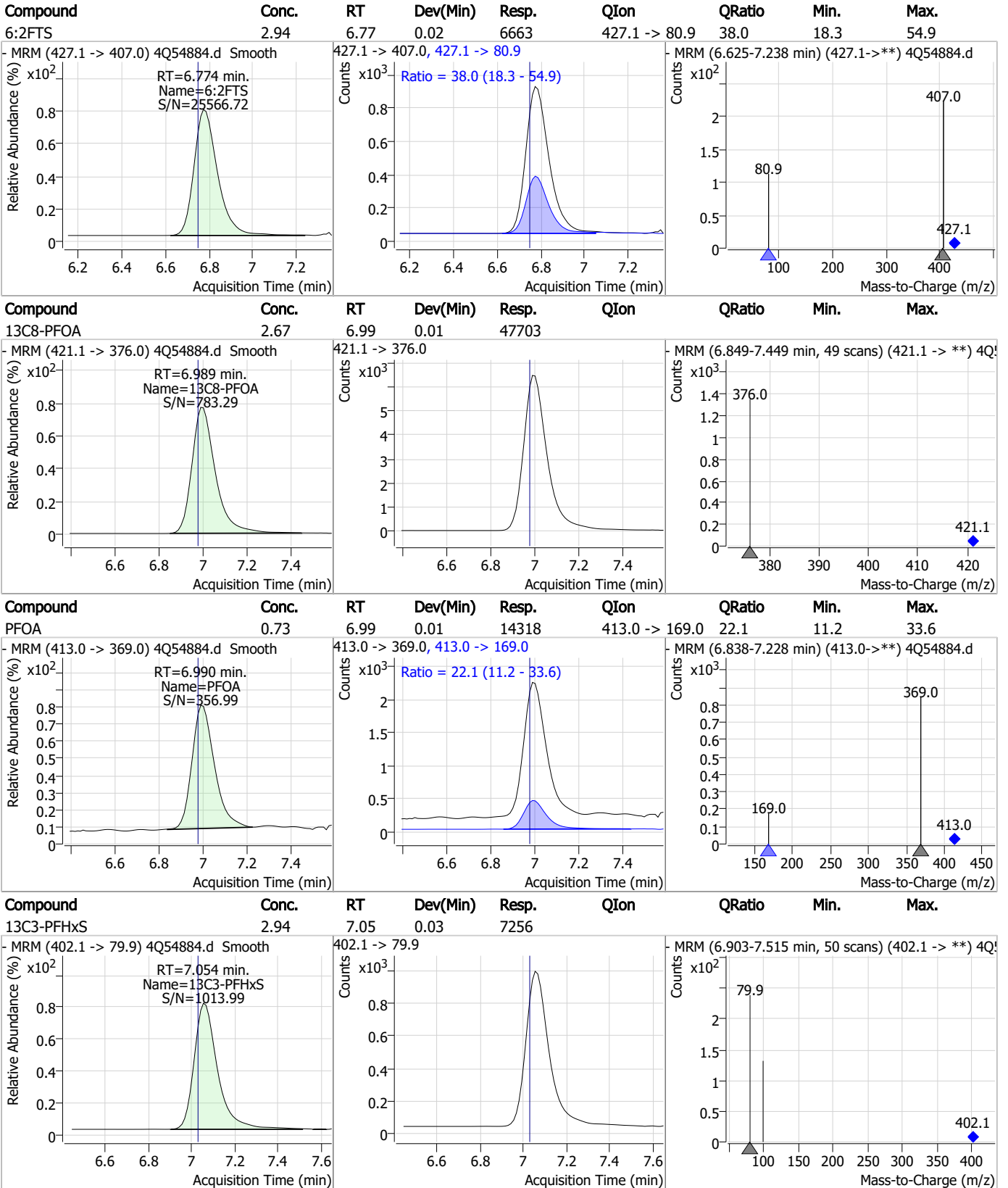
### Perfluorinated Compounds by LC/MS/MS



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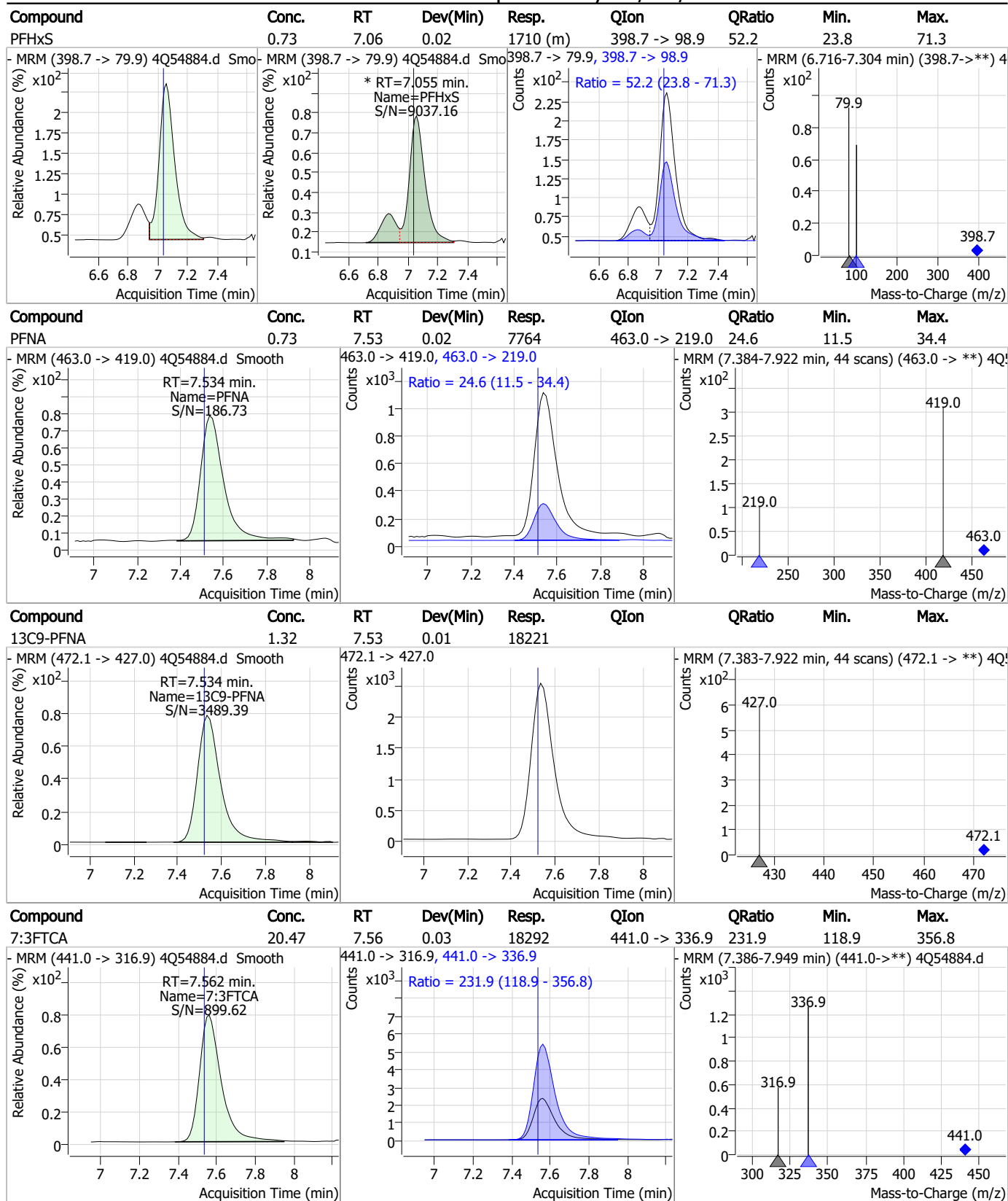
### Perfluorinated Compounds by LC/MS/MS



7.3.2

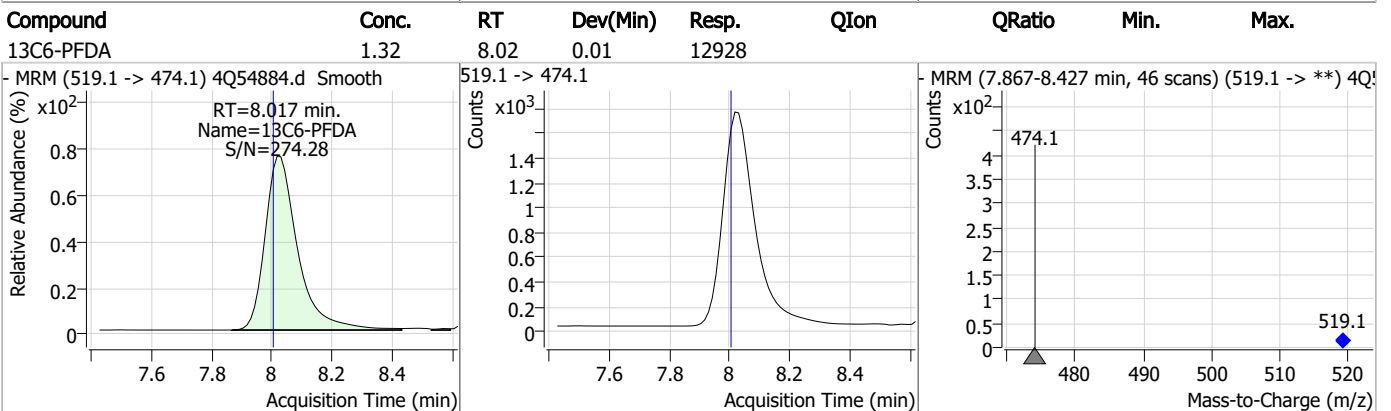
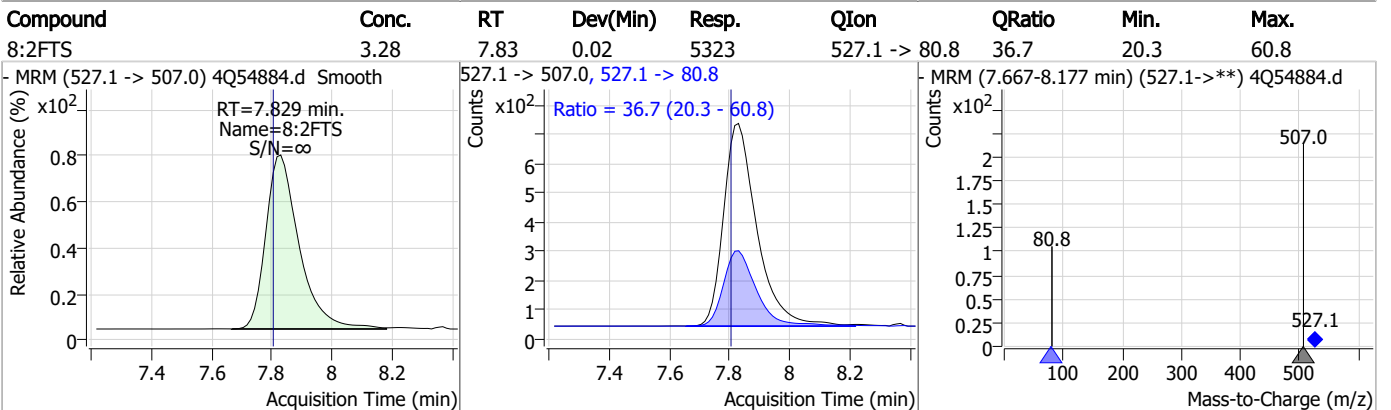
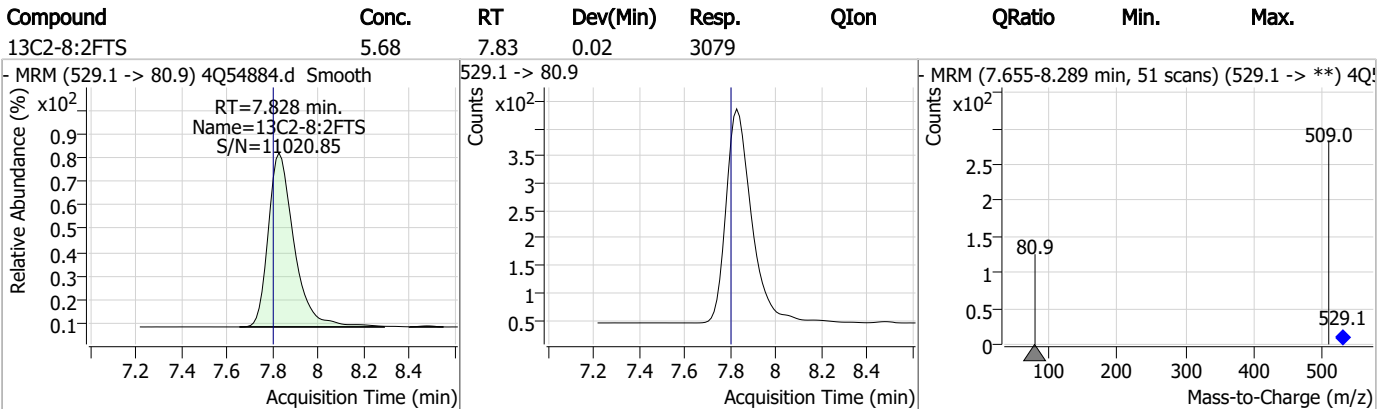
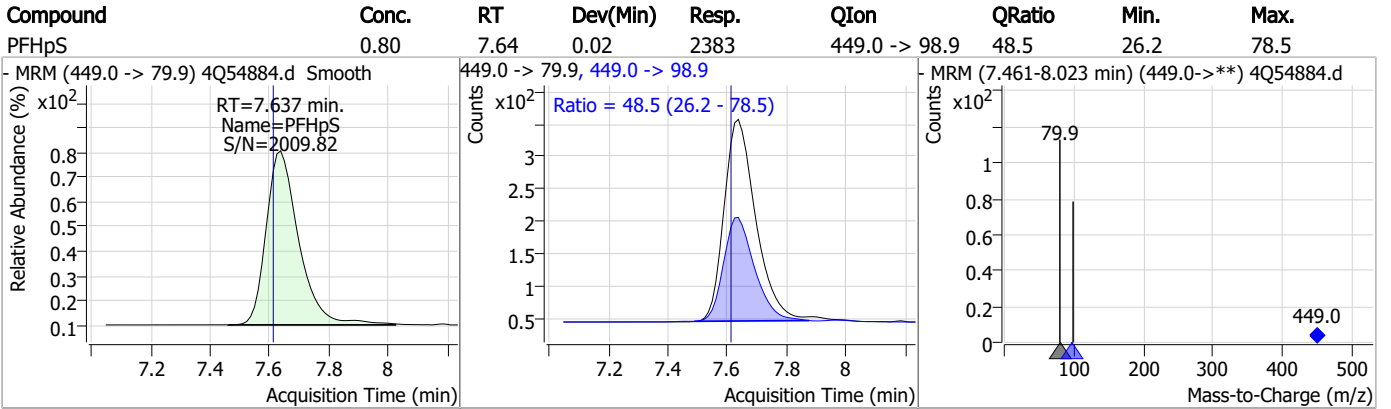
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### Perfluorinated Compounds by LC/MS/MS

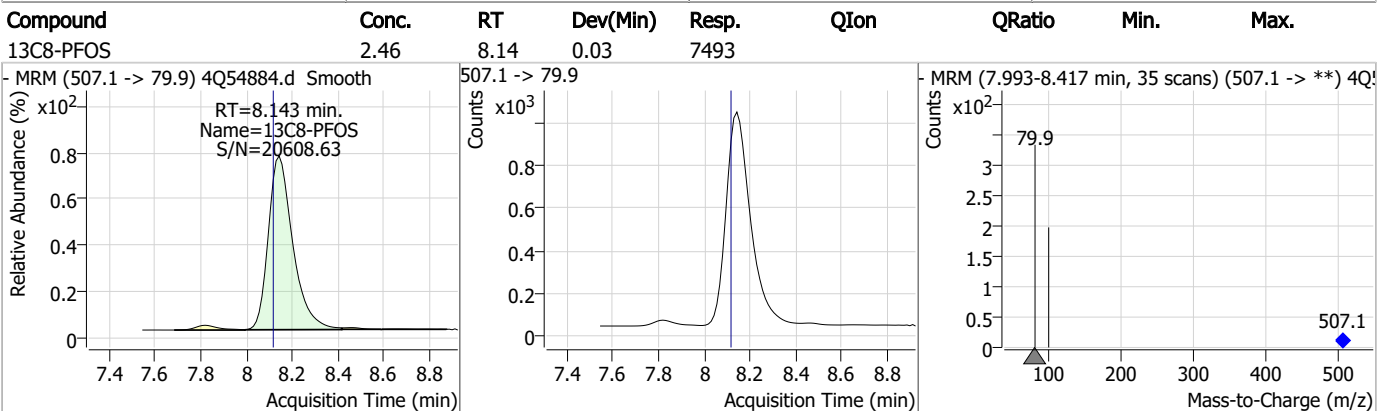
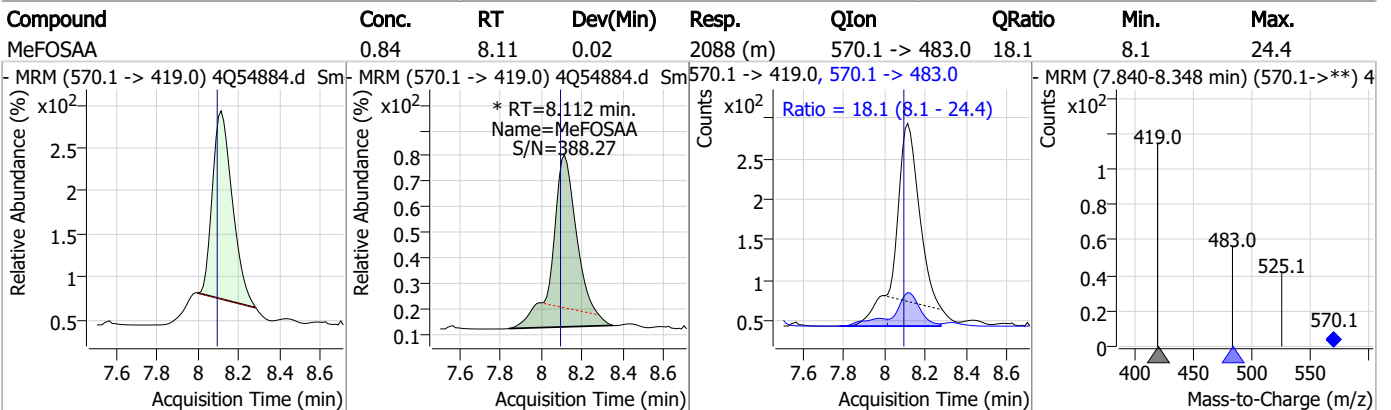
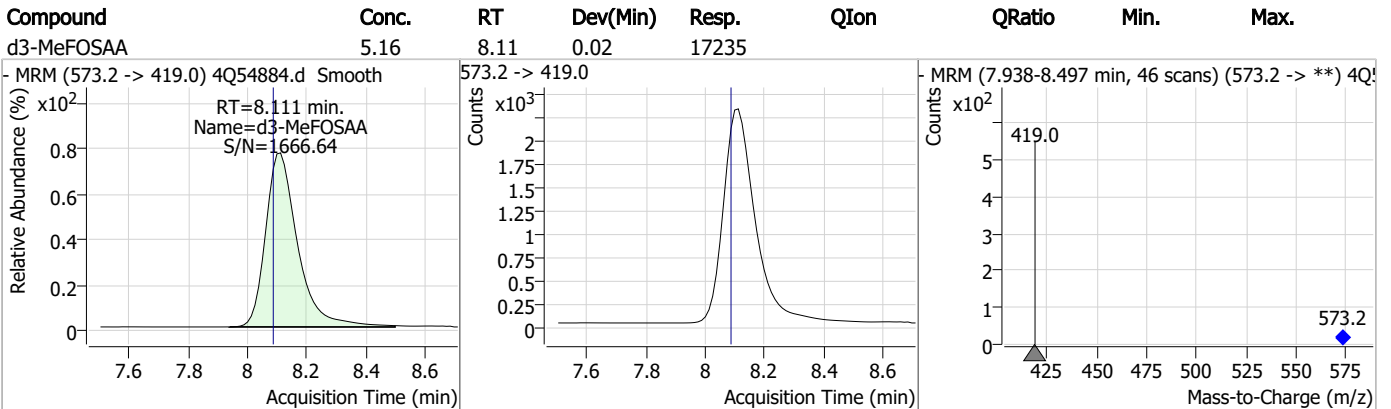
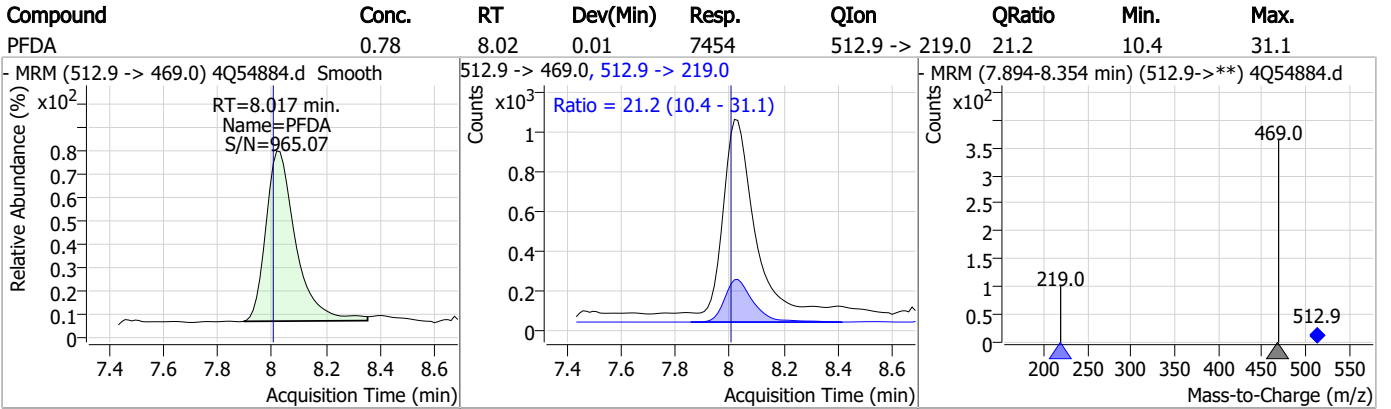


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### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS



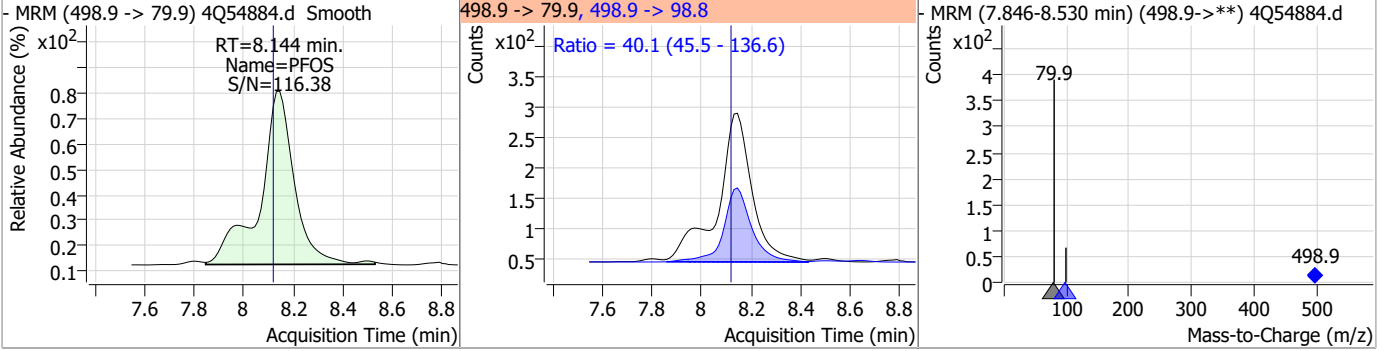
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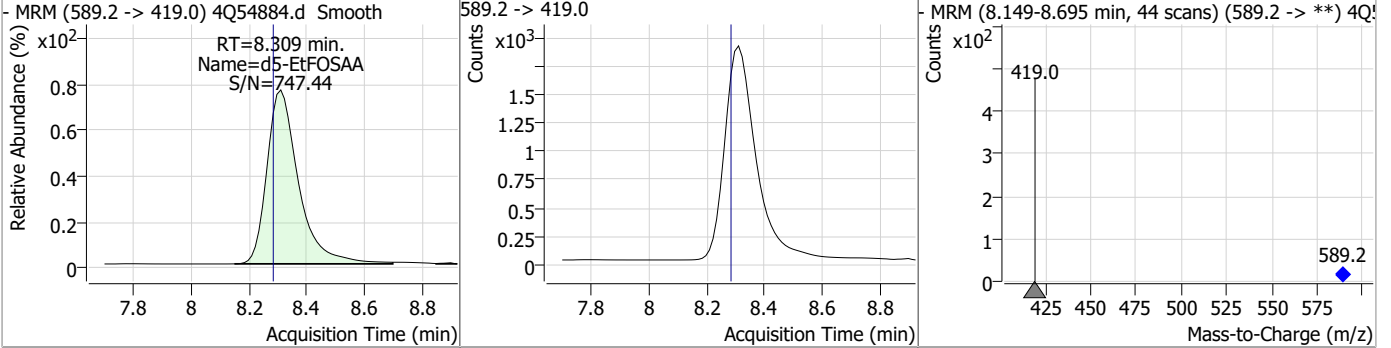


### Perfluorinated Compounds by LC/MS/MS

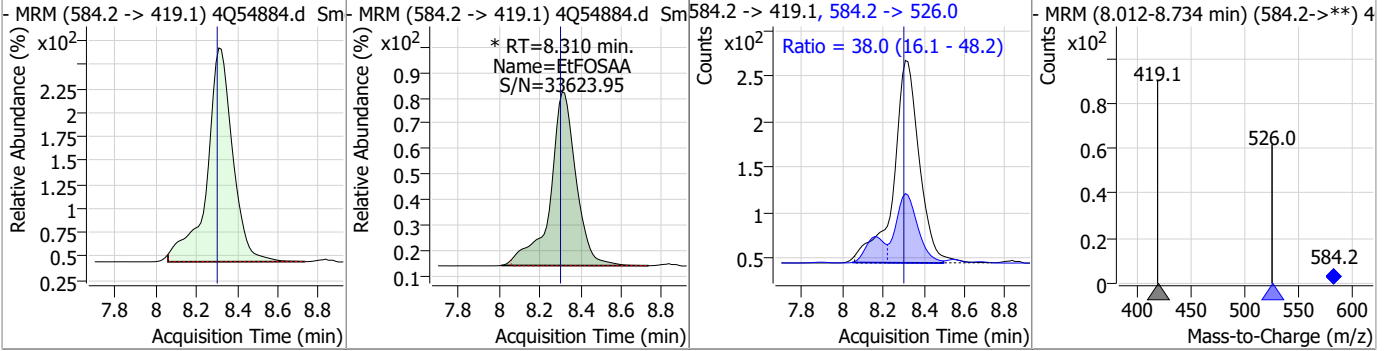
| Compound | Conc. | RT   | Dev(Min) | Resp. | QIon          | QRatio | Min. | Max.  |
|----------|-------|------|----------|-------|---------------|--------|------|-------|
| PFOS     | 0.76  | 8.14 | 0.03     | 2379  | 498.9 -> 98.8 | 40.1   | 45.5 | 136.6 |



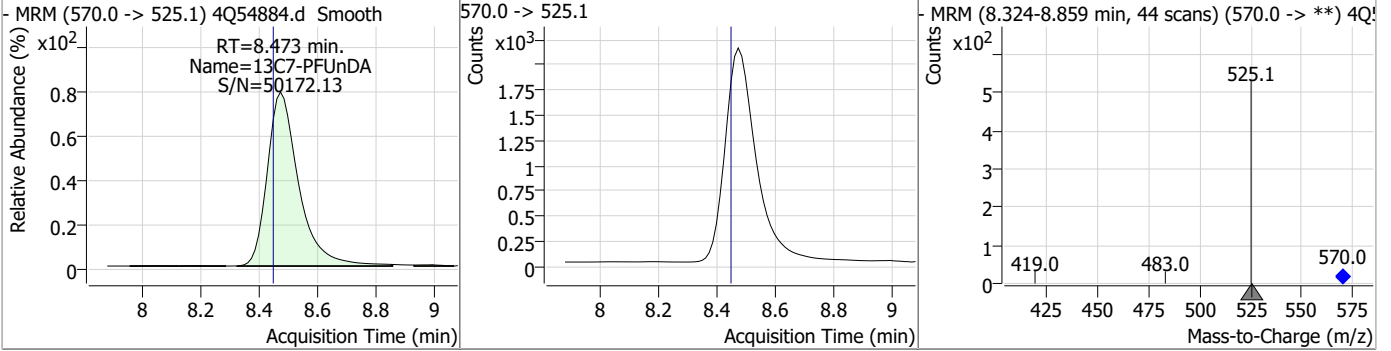
| Compound   | Conc. | RT   | Dev(Min) | Resp. | QIon | QRatio | Min. | Max. |
|------------|-------|------|----------|-------|------|--------|------|------|
| d5-EtFOSAA | 5.04  | 8.31 | 0.03     | 14238 |      |        |      |      |



| Compound | Conc. | RT   | Dev(Min) | Resp.    | QIon           | QRatio | Min. | Max. |
|----------|-------|------|----------|----------|----------------|--------|------|------|
| EtFOSAA  | 0.76  | 8.31 | 0.01     | 1963 (m) | 584.2 -> 526.0 | 38.0   | 16.1 | 48.2 |

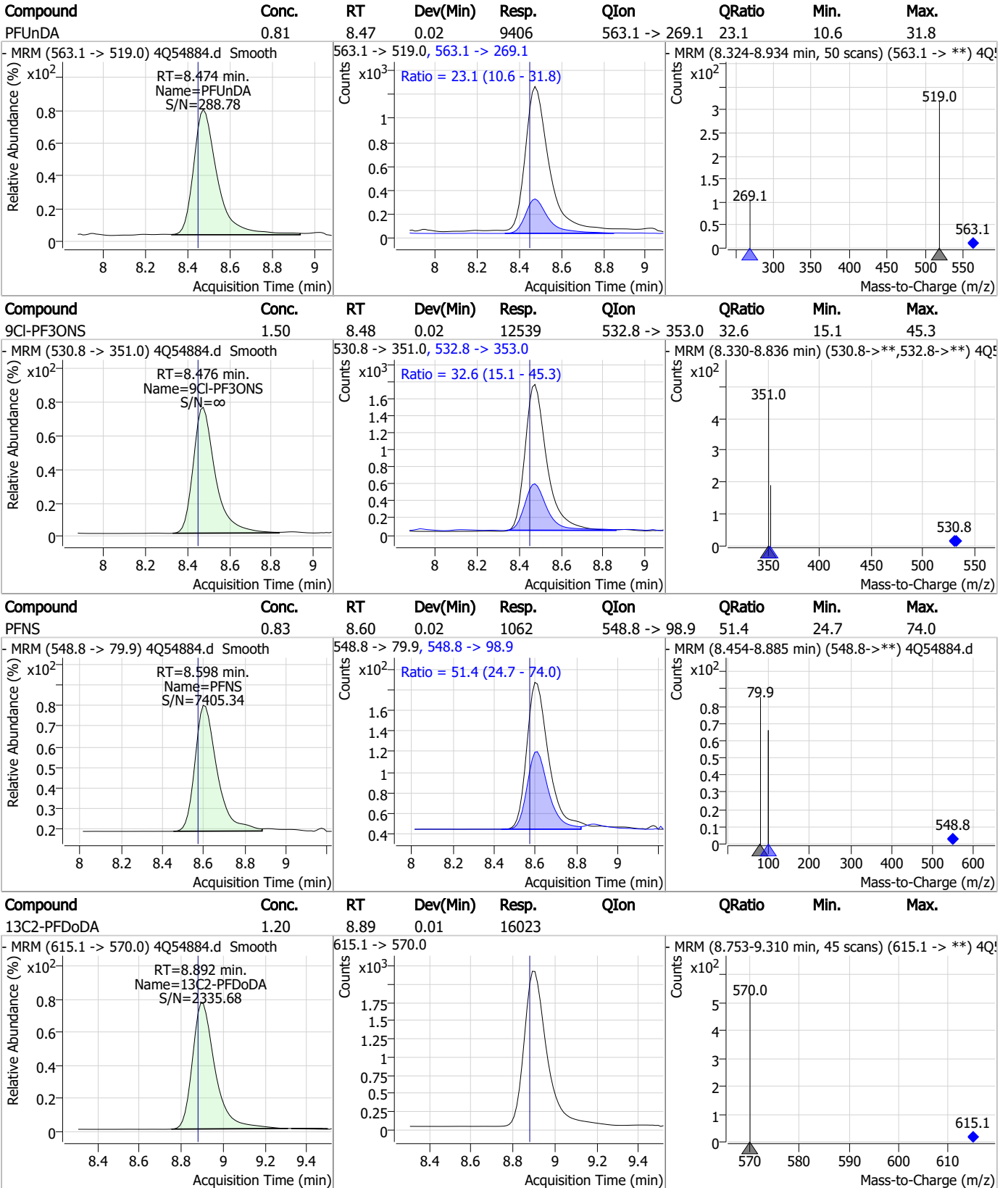


| Compound    | Conc. | RT   | Dev(Min) | Resp. | QIon | QRatio | Min. | Max. |
|-------------|-------|------|----------|-------|------|--------|------|------|
| 13C7-PFUnDA | 1.39  | 8.47 | 0.02     | 15951 |      |        |      |      |





### Perfluorinated Compounds by LC/MS/MS

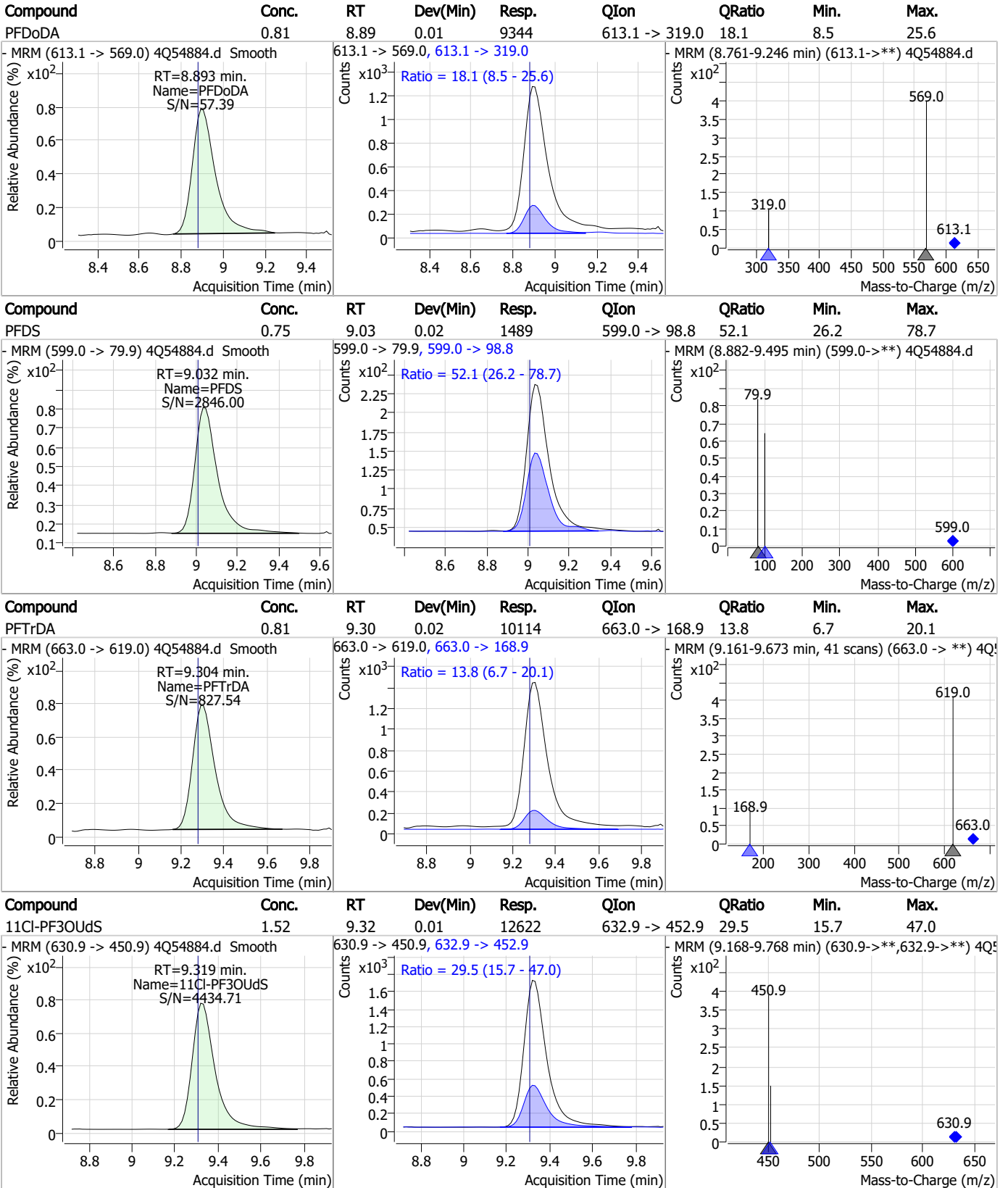


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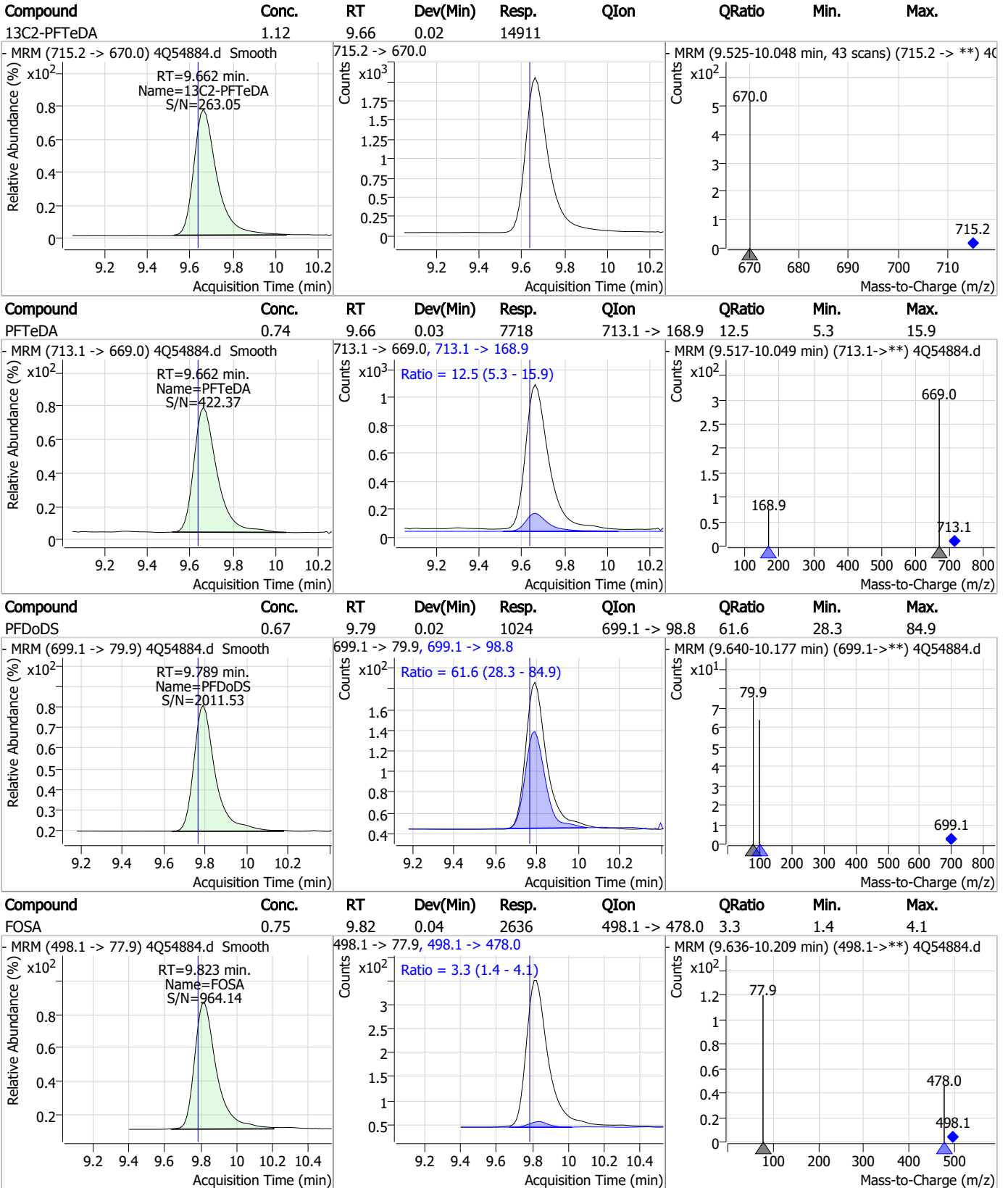


### Perfluorinated Compounds by LC/MS/MS



7.3.2  
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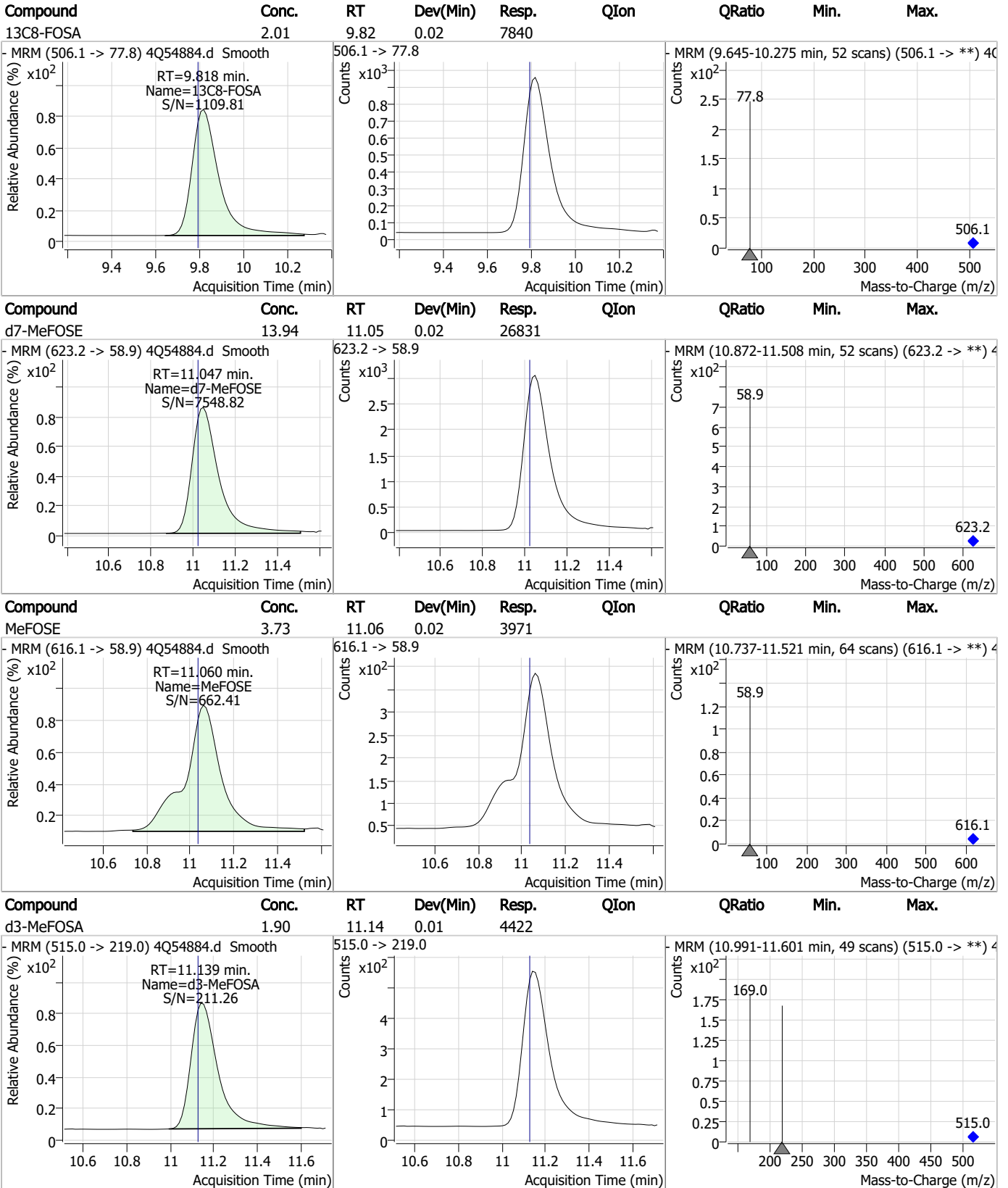
### Perfluorinated Compounds by LC/MS/MS



7.3.2

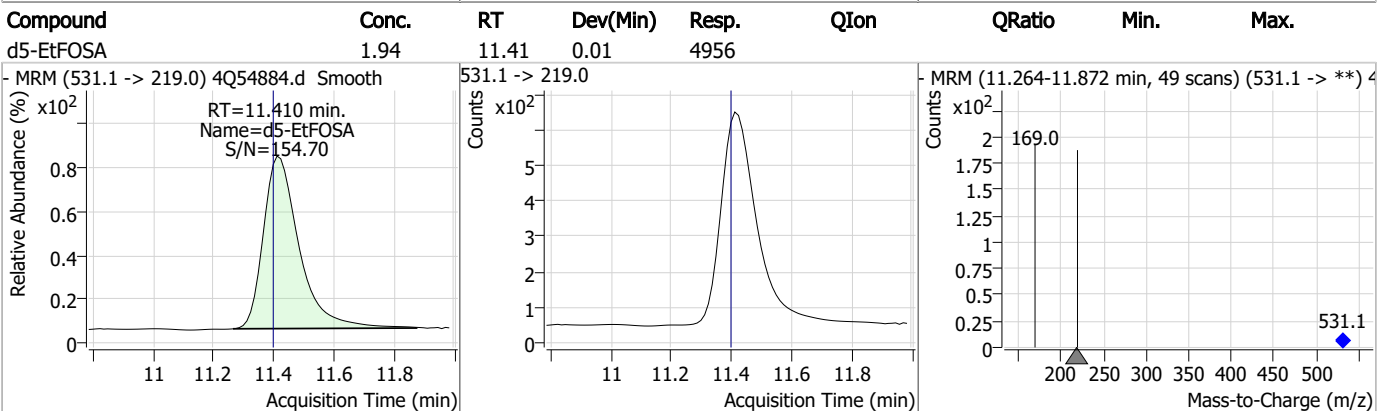
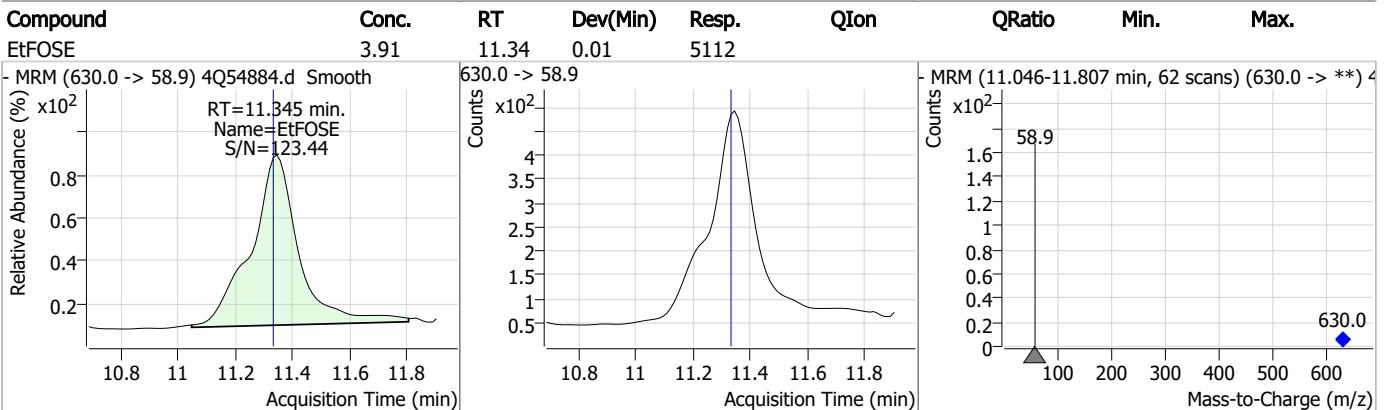
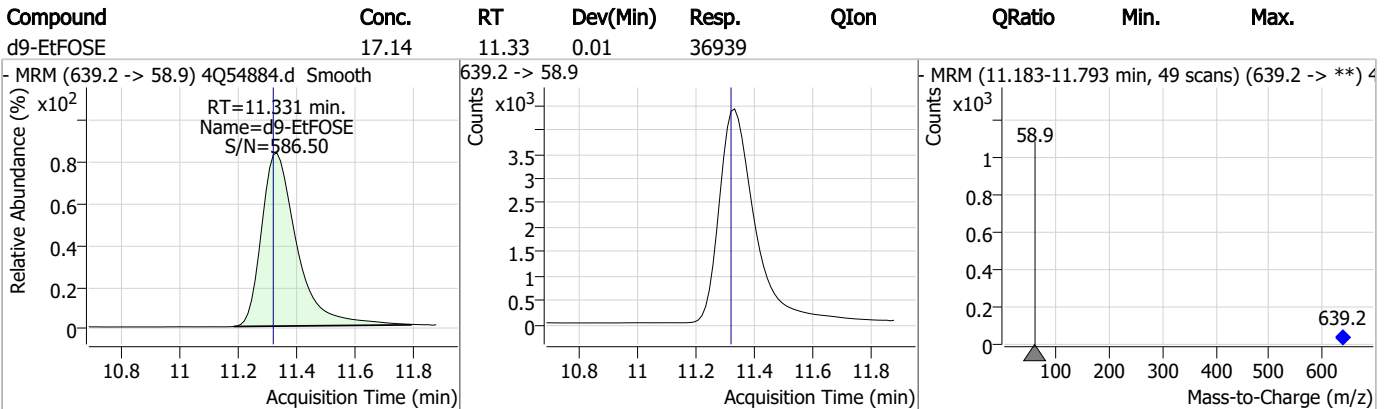
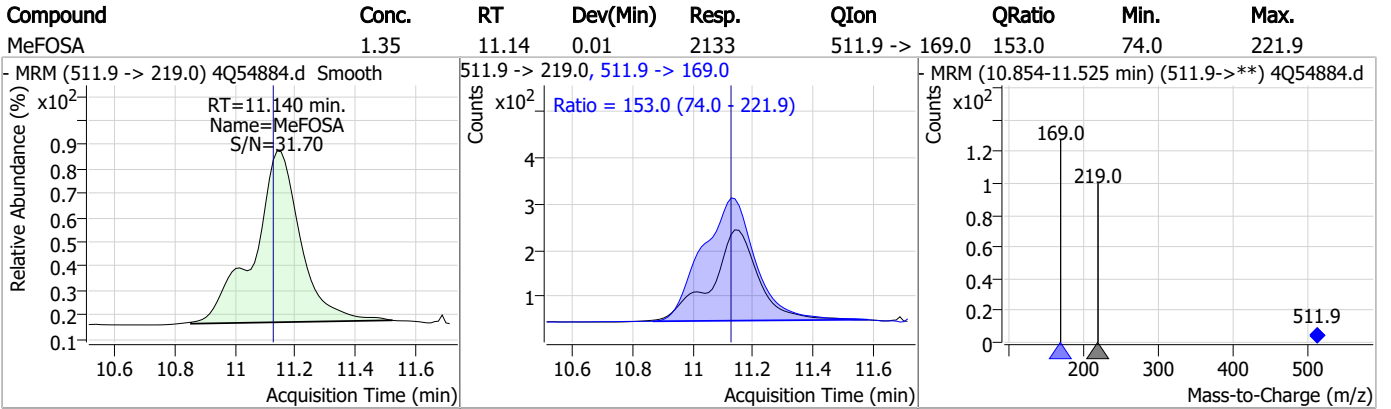
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### Perfluorinated Compounds by LC/MS/MS



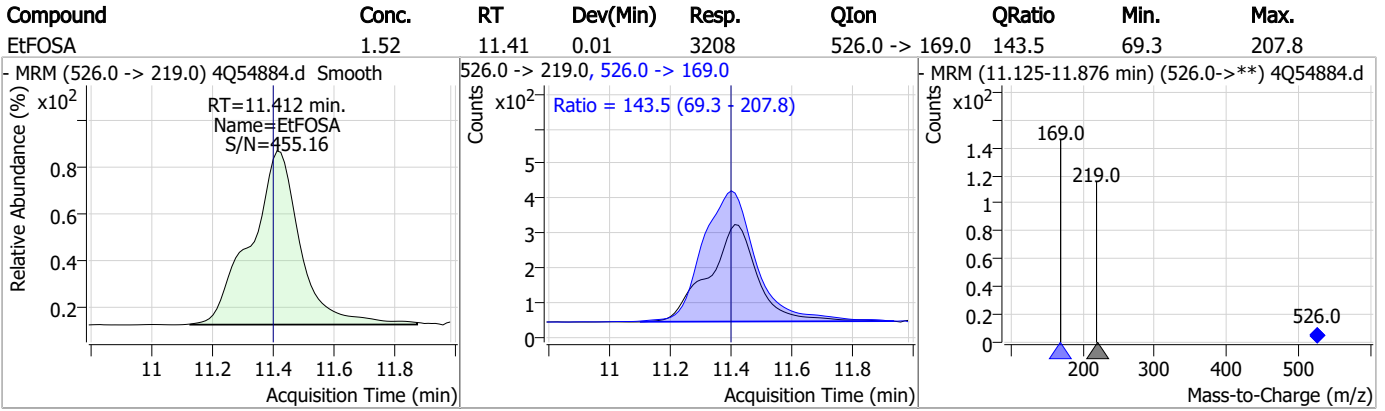
7.3.2  
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### Perfluorinated Compounds by LC/MS/MS



7.3.2  
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Perfluorinated Compounds by LC/MS/MS



7.3.2  
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# Manual Integration Approval Summary

Sample Number: OP495-LLBS                      Method: EPA DRAFT 1633  
Lab FileID: 4Q54884.D                      Analyst approved: 12/10/23 12:52 Anna Ludwig  
Injection Time: 12/08/23 19:36                      Supervisor approved: 12/11/23 16:36 Norman Farmer

| Parameter                    | CAS       | Sig# | R.T.<br>(min.) | Reason     |
|------------------------------|-----------|------|----------------|------------|
| Perfluorohexanesulfonic acid | 355-46-4  |      | 7.05           | Split peak |
| MeFOSAA                      | 2355-31-9 |      | 8.11           | Split peak |
| EtFOSAA                      | 2991-50-6 |      | 8.31           | Split peak |

7.3.2.1

7

## Perfluorinated Compounds by LC/MS/MS

Data File : 4Q54889.d  
 Operator : annal  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 12/8/2023 8:50:10 PM  
 Sample Name : op495-ms  
 Vial : P2-D2  
 DA Method File : 1633\_120823\_S4Q804.quantmethod.xml  
 Batch Name : s4q804.batch.bin  
 Sample Information : OP495,S4Q804,550,,,5.0,1,water

| Compound                           | RT                   | Transition     | Response          | Conc. Units | Dev(Min) |
|------------------------------------|----------------------|----------------|-------------------|-------------|----------|
| <b>Internal Standards</b>          |                      |                |                   |             |          |
| M4-PFBA                            | 2.752                | 216.8 -> 171.9 | 94150             | 10.00 µg/L  | 0.078    |
| M5-PFPeA                           | 4.200                | 268.3 -> 223.0 | 37907             | 5.00 µg/L   | 0.037    |
| M5-PFHxA                           | 5.372                | 318.0 -> 273.0 | 29514             | 2.50 µg/L   | 0.037    |
| M4-PFHpA                           | 6.317                | 367.1 -> 322.0 | 28749             | 2.50 µg/L   | 0.025    |
| M8-PFOA                            | 7.001                | 421.1 -> 376.0 | 47897             | 2.50 µg/L   | 0.025    |
| M9-PFNA                            | 7.534                | 472.1 -> 427.0 | 17688             | 1.25 µg/L   | 0.012    |
| M6-PFDA                            | 8.017                | 519.1 -> 474.1 | 12116             | 1.25 µg/L   | 0.013    |
| M7-PFUnDA                          | 8.473                | 570.0 -> 525.1 | 14090             | 1.25 µg/L   | 0.025    |
| M2-PFDoDA                          | 8.892                | 615.1 -> 570.0 | 14556             | 1.25 µg/L   | 0.012    |
| M2-PFTeDA                          | 9.662                | 715.2 -> 670.0 | 14321             | 1.25 µg/L   | 0.025    |
| M8-FOSA                            | 9.818                | 506.1 -> 77.8  | 8057              | 2.50 µg/L   | 0.025    |
| M3-PFBS                            | 5.227                | 302.1 -> 79.9  | 8223              | 2.50 µg/L   | 0.038    |
| M3-PFHxS                           | 7.054                | 402.1 -> 79.9  | 6666              | 2.50 µg/L   | 0.025    |
| M8-PFOS                            | 8.143                | 507.1 -> 79.9  | 6914              | 2.50 µg/L   | 0.026    |
| M2-4:2FTS                          | 5.071                | 329.1 -> 80.9  | 933               | 5.00 µg/L   | 0.025    |
| M2-6:2FTS                          | 6.773                | 429.1 -> 80.9  | 2269              | 5.00 µg/L   | 0.025    |
| M2-8:2FTS                          | 7.828                | 529.1 -> 80.9  | 2894              | 5.00 µg/L   | 0.025    |
| M3-MeFOSAA                         | 8.111                | 573.2 -> 419.0 | 16576             | 5.00 µg/L   | 0.025    |
| M3-HFPO-DA                         | 5.727                | 286.9 -> 168.9 | 29115             | 10.00 µg/L  | 0.037    |
| M5-EtFOSAA                         | 8.309                | 589.2 -> 419.0 | 14118             | 5.00 µg/L   | 0.026    |
| M7-MeFOSE                          | 11.047               | 623.2 -> 58.9  | 34014             | 25.00 µg/L  | 0.025    |
| M9-EtFOSE                          | 11.331               | 639.2 -> 58.9  | 47716             | 25.00 µg/L  | 0.012    |
| M5-EtFOSA                          | 11.410               | 531.1 -> 219.0 | 5601              | 2.50 µg/L   | 0.012    |
| M3-MeFOSA                          | 11.152               | 515.0 -> 219.0 | 5192              | 2.50 µg/L   | 0.026    |
| 13C4-PFOS                          | 8.144                | 502.8 -> 79.9  | 5794              | 2.50 µg/L   | 0.026    |
| 13C3-PFBA                          | 2.755                | 216.0 -> 172.0 | 42293             | 5.00 µg/L   | 0.077    |
| 18O2-PFHxS                         | 7.054                | 403.0 -> 83.9  | 4074              | 2.50 µg/L   | 0.013    |
| 13C4-PFOA                          | 7.002                | 417.1 -> 372.0 | 47845             | 2.50 µg/L   | 0.025    |
| 13C2-PFDA                          | 8.029                | 515.1 -> 470.1 | 13011             | 1.25 µg/L   | 0.025    |
| 13C5-PFNA                          | 7.534                | 468.0 -> 423.0 | 17500             | 1.25 µg/L   | 0.025    |
| 13C2-PFHxA                         | 5.373                | 315.1 -> 270.0 | 30989             | 2.50 µg/L   | 0.037    |
| <b>System Monitoring Compounds</b> |                      |                |                   |             |          |
| 13C2-4:2FTS                        | 5.071                | 329.1 -> 80.9  | 933               | 4.83 µg/L   | 0.025    |
| Spiked Amount: 5.00                | Range: 50.0 - 150.0% |                | Recovery = 96.5%  |             |          |
| 13C2-6:2FTS                        | 6.773                | 429.1 -> 80.9  | 2269              | 5.41 µg/L   | 0.025    |
| Spiked Amount: 5.00                | Range: 50.0 - 150.0% |                | Recovery = 108.2% |             |          |
| 13C2-8:2FTS                        | 7.828                | 529.1 -> 80.9  | 2894              | 5.15 µg/L   | 0.025    |
| Spiked Amount: 5.00                | Range: 50.0 - 150.0% |                | Recovery = 103.1% |             |          |
| 13C2-PFDoDA                        | 8.892                | 615.1 -> 570.0 | 14556             | 1.12 µg/L   | 0.012    |
| Spiked Amount: 1.25                | Range: 50.0 - 150.0% |                | Recovery = 89.6%  |             |          |
| 13C2-PFTeDA                        | 9.662                | 715.2 -> 670.0 | 14321             | 1.11 µg/L   | 0.025    |
| Spiked Amount: 1.25                | Range: 50.0 - 150.0% |                | Recovery = 88.7%  |             |          |
| 13C3-PFBS                          | 5.227                | 302.1 -> 79.9  | 8223              | 2.63 µg/L   | 0.038    |
| Spiked Amount: 2.50                | Range: 50.0 - 150.0% |                | Recovery = 105.3% |             |          |
| 13C3-PFHxS                         | 7.054                | 402.1 -> 79.9  | 6666              | 2.61 µg/L   | 0.025    |

7.4.1  
7



### Perfluorinated Compounds by LC/MS/MS

| Compound                | RT                   | Transition     | Response | Conc. Units       | Dev(Min)      |
|-------------------------|----------------------|----------------|----------|-------------------|---------------|
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 104.4% |               |
| 13C4-PFBA               | 2.752                | 216.8 -> 171.9 | 94150    | 10.60 µg/L        | 0.078         |
| Spiked Amount: 10.00    | Range: 50.0 - 150.0% |                |          | Recovery = 106.0% |               |
| 13C4-PFHpA              | 6.317                | 367.1 -> 322.0 | 28749    | 2.63 µg/L         | 0.025         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 105.3% |               |
| 13C5-PFHxA              | 5.372                | 318.0 -> 273.0 | 29514    | 2.58 µg/L         | 0.037         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 103.4% |               |
| 13C5-PFPeA              | 4.200                | 268.3 -> 223.0 | 37907    | 5.33 µg/L         | 0.037         |
| Spiked Amount: 5.00     | Range: 50.0 - 150.0% |                |          | Recovery = 106.6% |               |
| 13C6-PFDA               | 8.017                | 519.1 -> 474.1 | 12116    | 1.28 µg/L         | 0.013         |
| Spiked Amount: 1.25     | Range: 50.0 - 150.0% |                |          | Recovery = 102.4% |               |
| 13C7-PFUnDA             | 8.473                | 570.0 -> 525.1 | 14090    | 1.26 µg/L         | 0.025         |
| Spiked Amount: 1.25     | Range: 50.0 - 150.0% |                |          | Recovery = 101.0% |               |
| 13C8-FOSA               | 9.818                | 506.1 -> 77.8  | 8057     | 2.15 µg/L         | 0.025         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 85.8%  |               |
| 13C8-PFOA               | 7.001                | 421.1 -> 376.0 | 47897    | 2.71 µg/L         | 0.025         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 108.4% |               |
| 13C8-PFOS               | 8.143                | 507.1 -> 79.9  | 6914     | 2.36 µg/L         | 0.026         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 94.3%  |               |
| 13C9-PFNA               | 7.534                | 472.1 -> 427.0 | 17688    | 1.26 µg/L         | 0.012         |
| Spiked Amount: 1.25     | Range: 50.0 - 150.0% |                |          | Recovery = 100.9% |               |
| d3-MeFOSAA              | 8.111                | 573.2 -> 419.0 | 16576    | 5.15 µg/L         | 0.025         |
| Spiked Amount: 5.00     | Range: 50.0 - 150.0% |                |          | Recovery = 103.1% |               |
| 13C3-HFPO-DA            | 5.727                | 286.9 -> 168.9 | 29115    | 10.20 µg/L        | 0.037         |
| Spiked Amount: 10.00    | Range: 50.0 - 150.0% |                |          | Recovery = 102.0% |               |
| d3-MeFOSA               | 11.152               | 515.0 -> 219.0 | 5192     | 2.32 µg/L         | 0.026         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 92.7%  |               |
| d5-EtFOSAA              | 8.309                | 589.2 -> 419.0 | 14118    | 5.19 µg/L         | 0.026         |
| Spiked Amount: 5.00     | Range: 50.0 - 150.0% |                |          | Recovery = 103.8% |               |
| d7-MeFOSE               | 11.047               | 623.2 -> 58.9  | 34014    | 18.36 µg/L        | 0.025         |
| Spiked Amount: 25.00    | Range: 50.0 - 150.0% |                |          | Recovery = 73.5%  |               |
| d9-EtFOSE               | 11.331               | 639.2 -> 58.9  | 47716    | 23.00 µg/L        | 0.012         |
| Spiked Amount: 25.00    | Range: 50.0 - 150.0% |                |          | Recovery = 92.0%  |               |
| d5-EtFOSA               | 11.410               | 531.1 -> 219.0 | 5601     | 2.28 µg/L         | 0.012         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 91.2%  |               |
| <b>Target Compounds</b> |                      |                |          |                   | <b>QValue</b> |
| 4:2FTS                  | 5.072                | 327.1 -> 307.0 | 16024    | 9.97 µg/L         | 100           |
|                         |                      | 327.1 -> 80.9  | 6878     |                   |               |
| 6:2FTS                  | 6.774                | 427.1 -> 407.0 | 22985    | 9.64 µg/L         | 98            |
|                         |                      | 427.1 -> 80.9  | 8084     |                   |               |
| 8:2FTS                  | 7.829                | 527.1 -> 507.0 | 15951    | 10.46 µg/L        | 100           |
|                         |                      | 527.1 -> 80.8  | 6420     |                   |               |
| EtFOSAA                 | 8.310                | 584.2 -> 419.1 | 5856     | 2.27 µg/L         | m 80          |
|                         |                      | 584.2 -> 526.0 | 2540     |                   |               |
| FOSA                    | 9.810                | 498.1 -> 77.9  | 9026     | 2.49 µg/L         | 99            |
|                         |                      | 498.1 -> 478.0 | 273      |                   |               |
| MeFOSAA                 | 8.112                | 570.1 -> 419.0 | 6154     | 2.59 µg/L         | 86            |
|                         |                      | 570.1 -> 483.0 | 1368     |                   |               |
| PFBA                    | 2.758                | 212.8 -> 168.9 | 30133    | 9.99 µg/L         | 100           |
| PFBS                    | 5.228                | 298.7 -> 79.9  | 5807     | 2.28 µg/L         | 93            |
|                         |                      | 298.7 -> 98.8  | 2111     |                   |               |
| PFDA                    | 8.017                | 512.9 -> 469.0 | 21746    | 2.44 µg/L         | 98            |
|                         |                      | 512.9 -> 219.0 | 4324     |                   |               |
| PFDoDA                  | 8.905                | 613.1 -> 569.0 | 27011    | 2.58 µg/L         | 96            |
|                         |                      | 613.1 -> 319.0 | 5042     |                   |               |
| PFDS                    | 9.032                | 599.0 -> 79.9  | 4290     | 2.33 µg/L         | 99            |

7.4.1  
7

Perfluorinated Compounds by LC/MS/MS

| Compound     | RT     | Transition     | Response | Conc. | Units | Dev(Min) |
|--------------|--------|----------------|----------|-------|-------|----------|
|              |        | 599.0 -> 98.8  | 2296     |       |       |          |
| PFHpA        | 6.317  | 363.1 -> 319.0 | 39625    | 2.45  | µg/L  | 99       |
|              |        | 363.1 -> 169.0 | 7404     |       |       |          |
| PFHpS        | 7.637  | 449.0 -> 79.9  | 7222     | 2.63  | µg/L  | 97       |
|              |        | 449.0 -> 98.9  | 3601     |       |       |          |
| PFHxA        | 5.375  | 313.0 -> 269.0 | 22790    | 2.42  | µg/L  | 99       |
|              |        | 313.0 -> 118.9 | 735      |       |       |          |
| PFHxS        | 7.055  | 398.7 -> 79.9  | 4861     | 2.26  | µg/L  | m 92     |
|              |        | 398.7 -> 98.9  | 2572     |       |       |          |
| PFNA         | 7.534  | 463.0 -> 419.0 | 25890    | 2.49  | µg/L  | 97       |
|              |        | 463.0 -> 219.0 | 6359     |       |       |          |
| PFNS         | 8.611  | 548.8 -> 79.9  | 3340     | 2.83  | µg/L  | 93       |
|              |        | 548.8 -> 98.9  | 1818     |       |       |          |
| PFOA         | 7.003  | 413.0 -> 369.0 | 46386    | 2.35  | µg/L  | 98       |
|              |        | 413.0 -> 169.0 | 9939     |       |       |          |
| PFOS         | 8.144  | 498.9 -> 79.9  | 6783     | 2.36  | µg/L  | m 59     |
|              |        | 498.9 -> 98.8  | 3550     |       |       |          |
| PFPeA        | 4.202  | 263.0 -> 219.0 | 35876    | 4.81  | µg/L  | 100      |
| PFPeS        | 6.307  | 349.1 -> 79.9  | 4770     | 2.36  | µg/L  | 97       |
|              |        | 349.1 -> 98.9  | 2109     |       |       |          |
| PFTeDA       | 9.662  | 713.1 -> 669.0 | 24610    | 2.47  | µg/L  | 100      |
|              |        | 713.1 -> 168.9 | 2593     |       |       |          |
| PFTrDA       | 9.292  | 663.0 -> 619.0 | 30450    | 2.67  | µg/L  | 97       |
|              |        | 663.0 -> 168.9 | 4412     |       |       |          |
| PFUnDA       | 8.474  | 563.1 -> 519.0 | 26666    | 2.60  | µg/L  | 99       |
|              |        | 563.1 -> 269.1 | 5729     |       |       |          |
| 11CI-PF3OUdS | 9.319  | 630.9 -> 450.9 | 35582    | 4.44  | µg/L  | 99       |
|              |        | 632.9 -> 452.9 | 10924    |       |       |          |
| 9CI-PF3ONS   | 8.476  | 530.8 -> 351.0 | 38843    | 4.79  | µg/L  | 97       |
|              |        | 532.8 -> 353.0 | 10998    |       |       |          |
| ADONA        | 6.581  | 376.9 -> 250.9 | 104071   | 5.29  | µg/L  | 100      |
|              |        | 376.9 -> 84.8  | 25165    |       |       |          |
| HFPO-DA      | 5.728  | 284.9 -> 168.9 | 13983    | 5.02  | µg/L  | 99       |
|              |        | 284.9 -> 184.9 | 1288     |       |       |          |
| 3:3FTCA      | 3.679  | 241.0 -> 177.0 | 5143     | 10.73 | µg/L  | 98       |
|              |        | 241.0 -> 117.0 | 416      |       |       |          |
| 5:3FTCA      | 6.045  | 341.0 -> 237.1 | 106729   | 63.54 | µg/L  | 99       |
|              |        | 341.0 -> 217.0 | 75811    |       |       |          |
| 7:3FTCA      | 7.562  | 441.0 -> 316.9 | 56367    | 63.99 | µg/L  | 98       |
|              |        | 441.0 -> 336.9 | 136464   |       |       |          |
| EtFOSA       | 11.424 | 526.0 -> 219.0 | 12094    | 5.07  | µg/L  | 99       |
|              |        | 526.0 -> 169.0 | 16553    |       |       |          |
| EtFOSE       | 11.345 | 630.0 -> 58.9  | 19693    | 11.66 | µg/L  | 100      |
| MeFOSA       | 11.140 | 511.9 -> 219.0 | 8189     | 4.43  | µg/L  | m 98     |
|              |        | 511.9 -> 169.0 | 11920    |       |       |          |
| MeFOSE       | 11.060 | 616.1 -> 58.9  | 13449    | 9.97  | µg/L  | m 100    |
| PFDoDS       | 9.789  | 699.1 -> 79.9  | 3352     | 2.39  | µg/L  | 97       |
|              |        | 699.1 -> 98.8  | 1831     |       |       |          |
| NFDHA        | 5.253  | 295.0 -> 201.0 | 3327     | 4.99  | µg/L  | 98       |
|              |        | 295.0 -> 84.9  | 903      |       |       |          |
| PFMBA        | 4.603  | 279.0 -> 85.1  | 20902    | 5.09  | µg/L  | 100      |
| PFMPA        | 3.357  | 229.0 -> 84.9  | 23410    | 5.19  | µg/L  | 100      |
| PFEESA       | 5.747  | 314.8 -> 134.9 | 32905    | 4.73  | µg/L  | 99       |
|              |        | 314.8 -> 82.9  | 1210     |       |       |          |

# = Qualifier out of range, m = manually integrated, + = Area summed

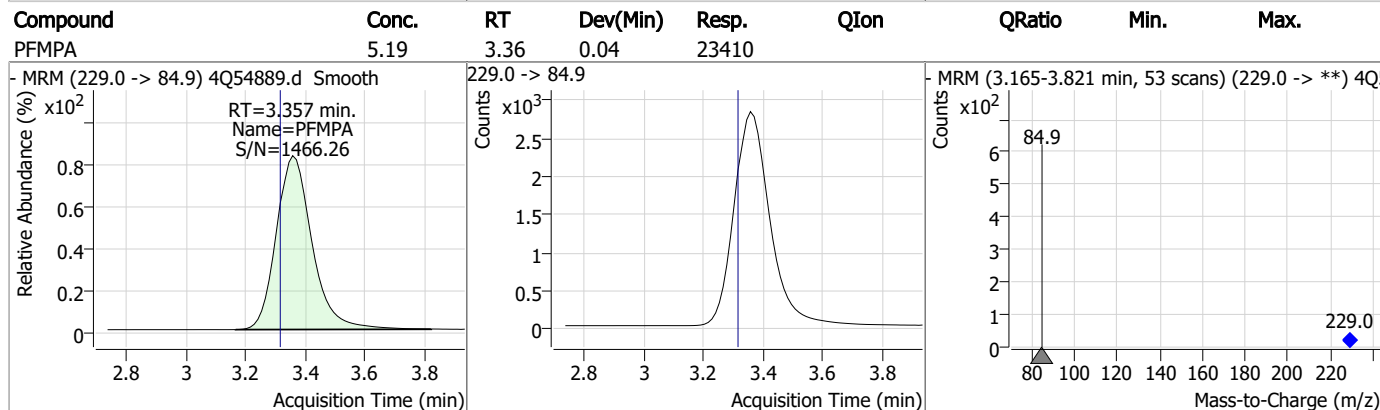
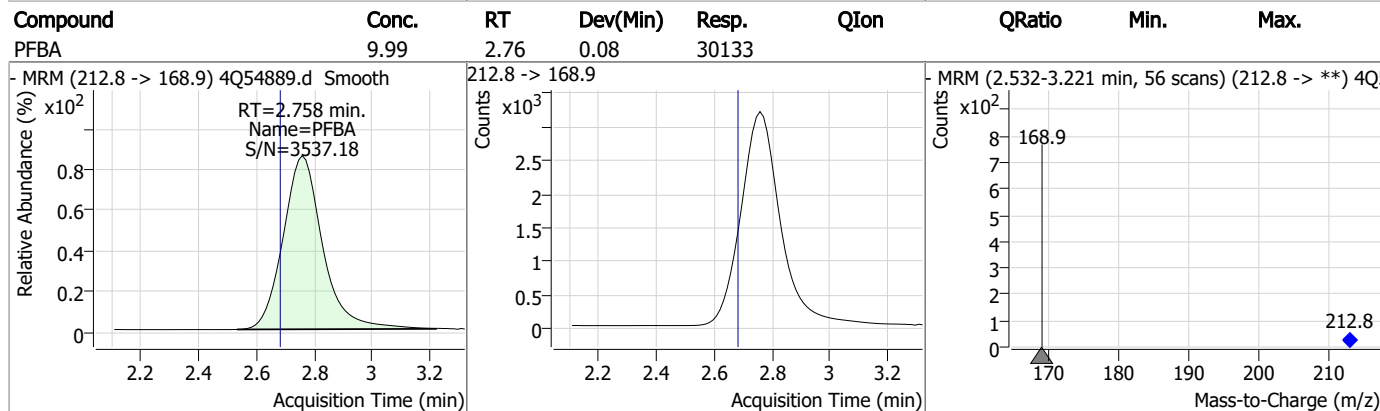
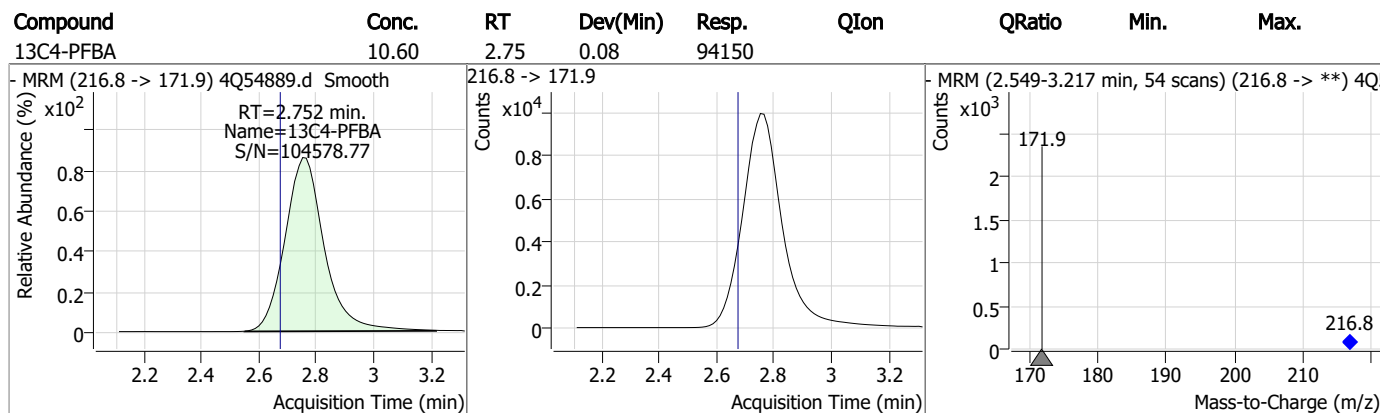
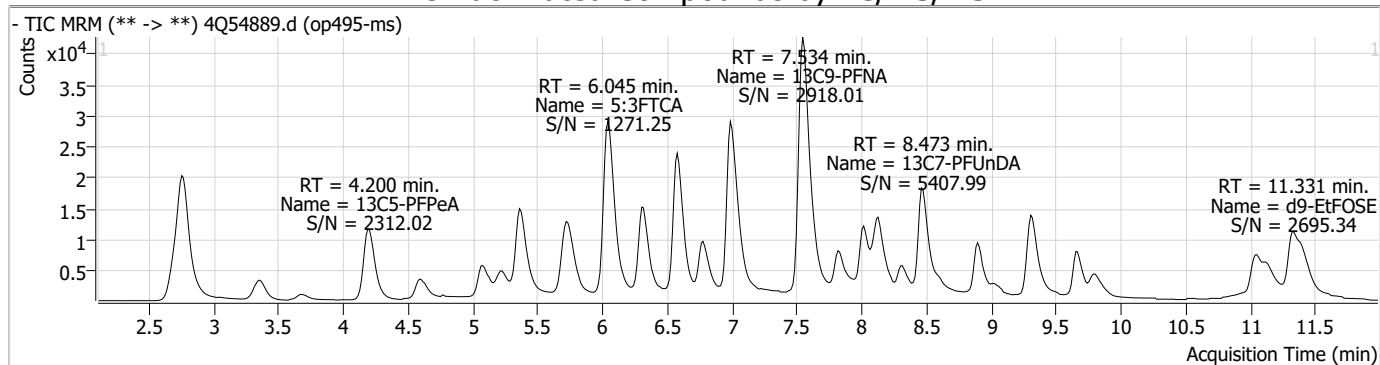
### Perfluorinated Compounds by LC/MS/MS

| Compound | RT | Transition | Response | Conc. Units | Dev(Min) |
|----------|----|------------|----------|-------------|----------|
|----------|----|------------|----------|-------------|----------|

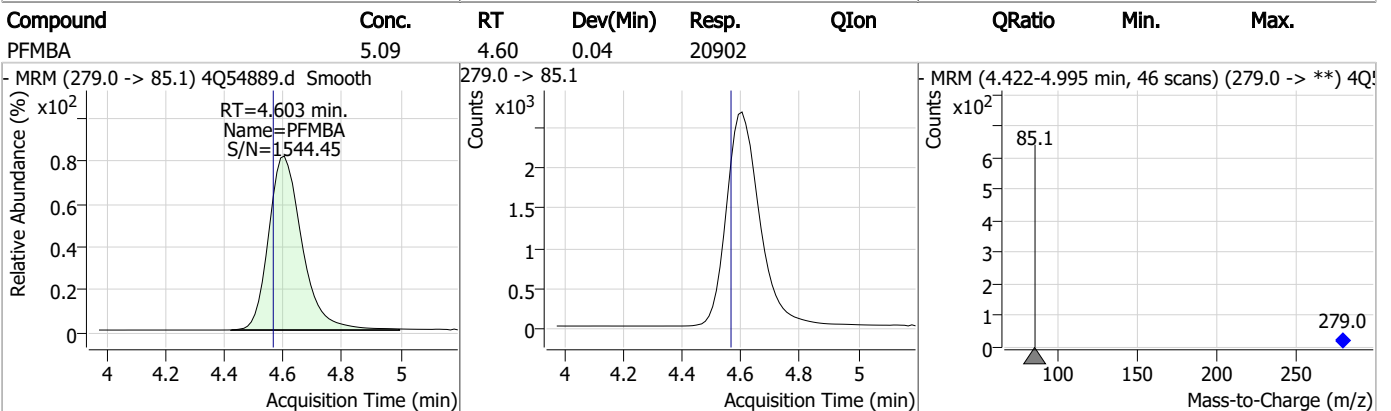
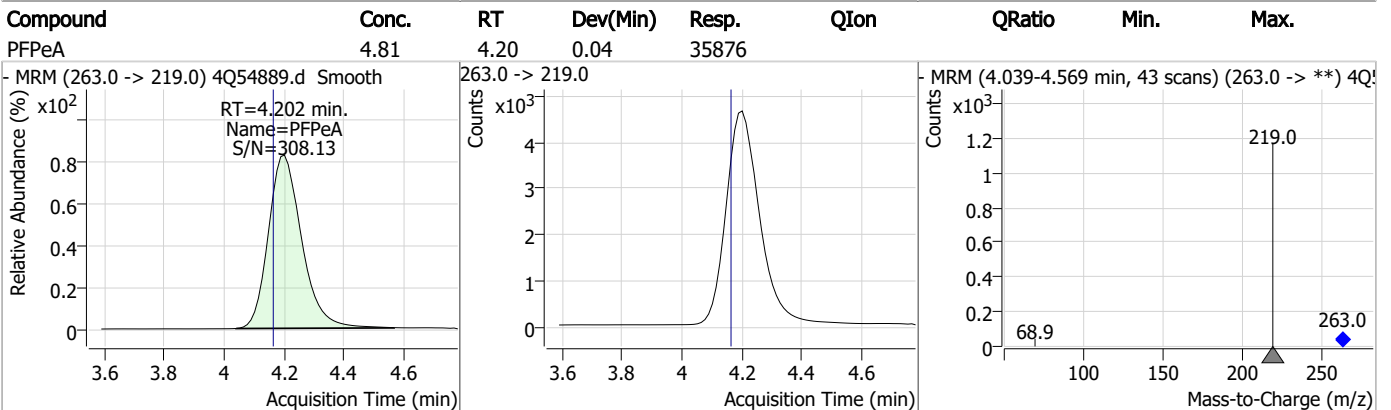
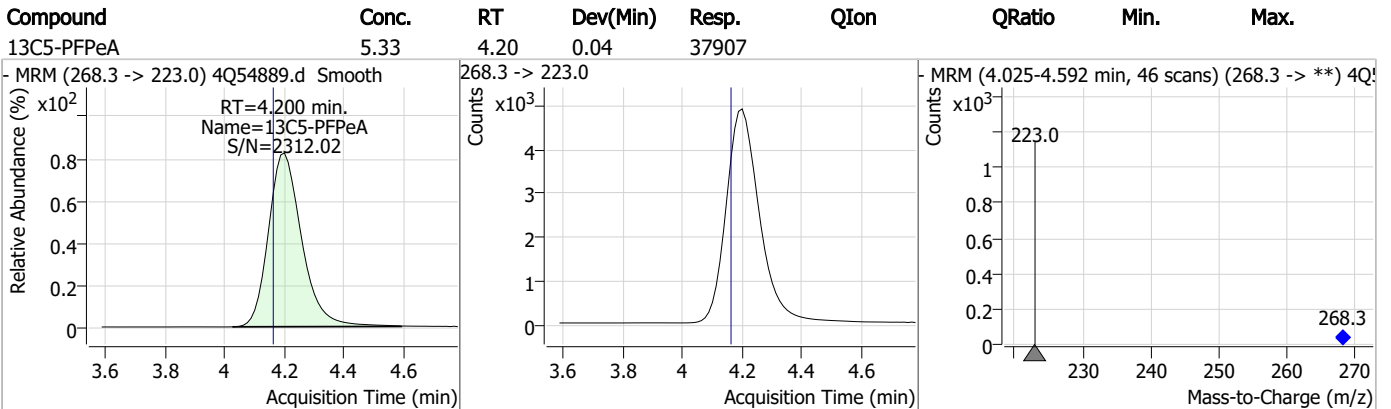
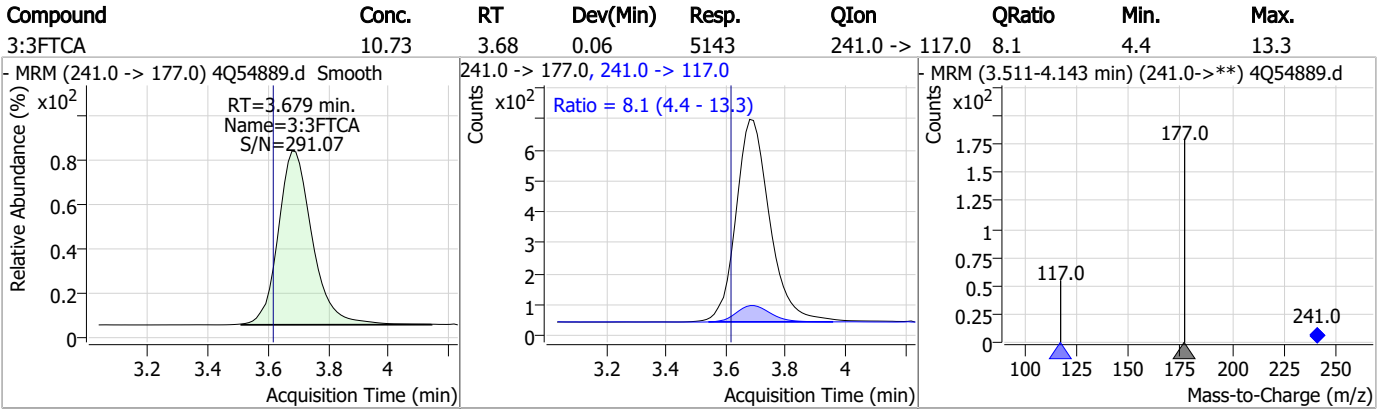
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### Perfluorinated Compounds by LC/MS/MS



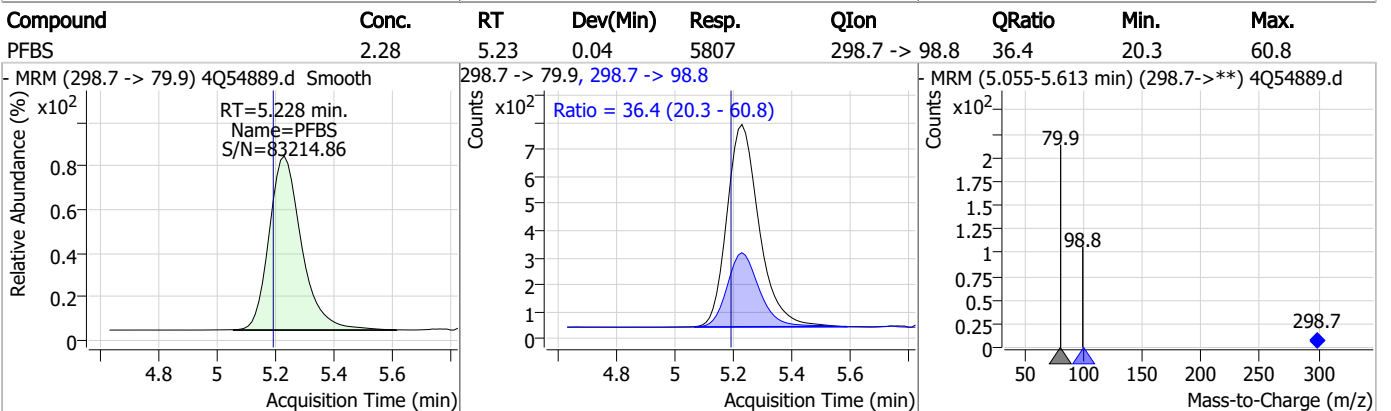
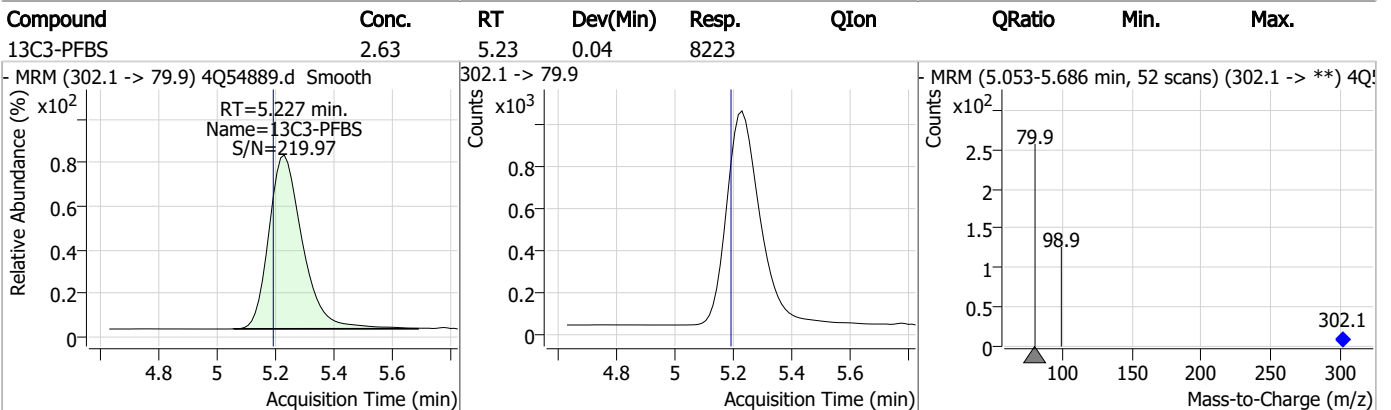
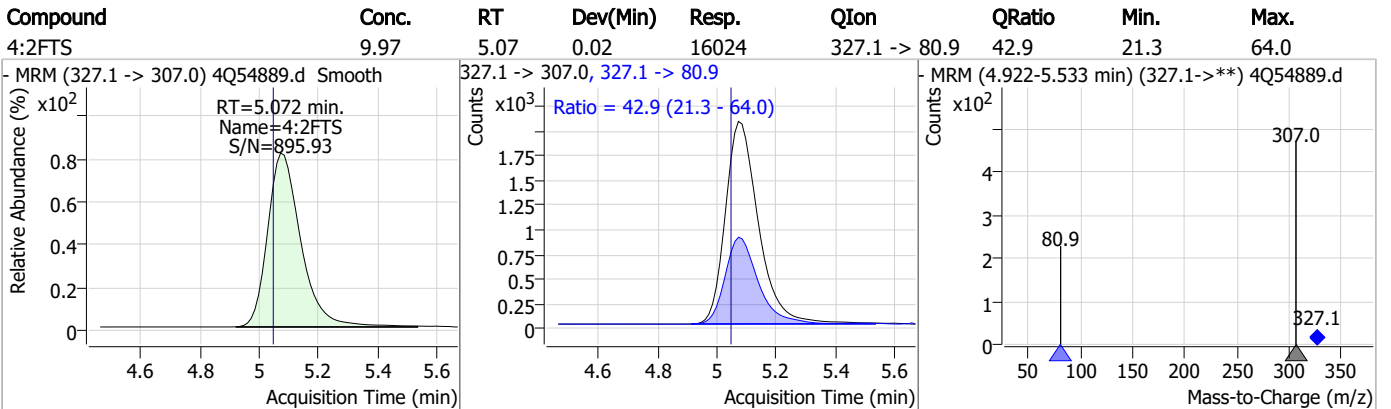
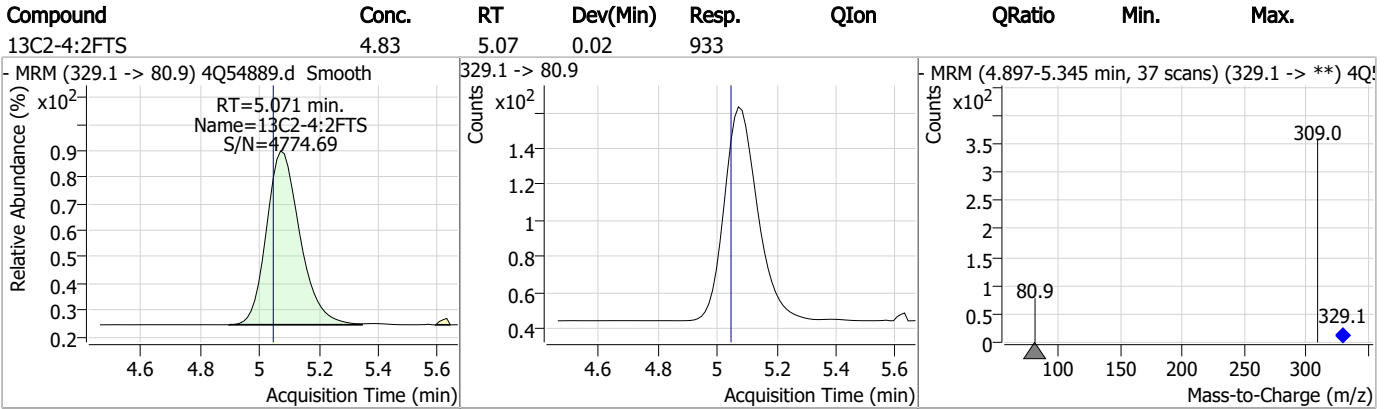
### Perfluorinated Compounds by LC/MS/MS



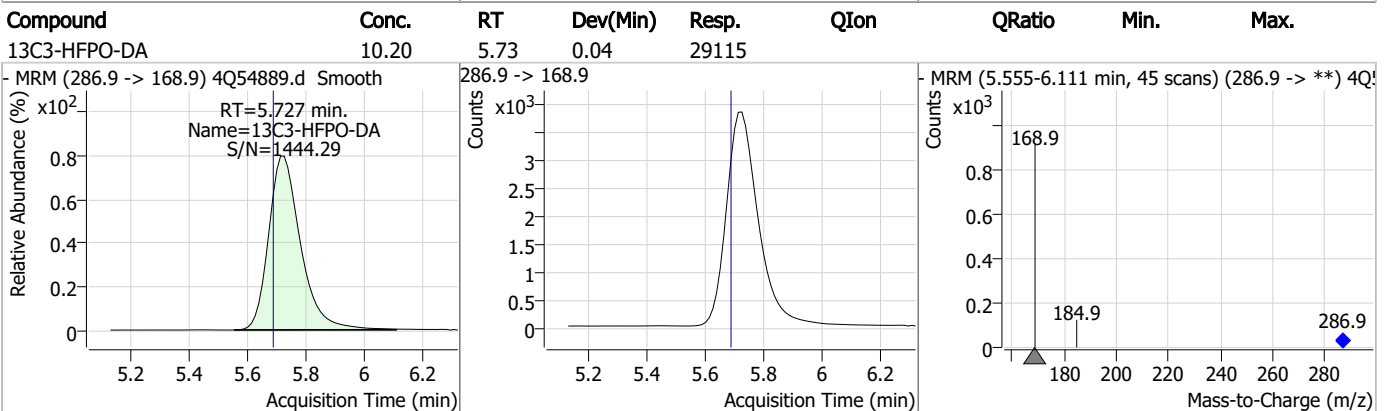
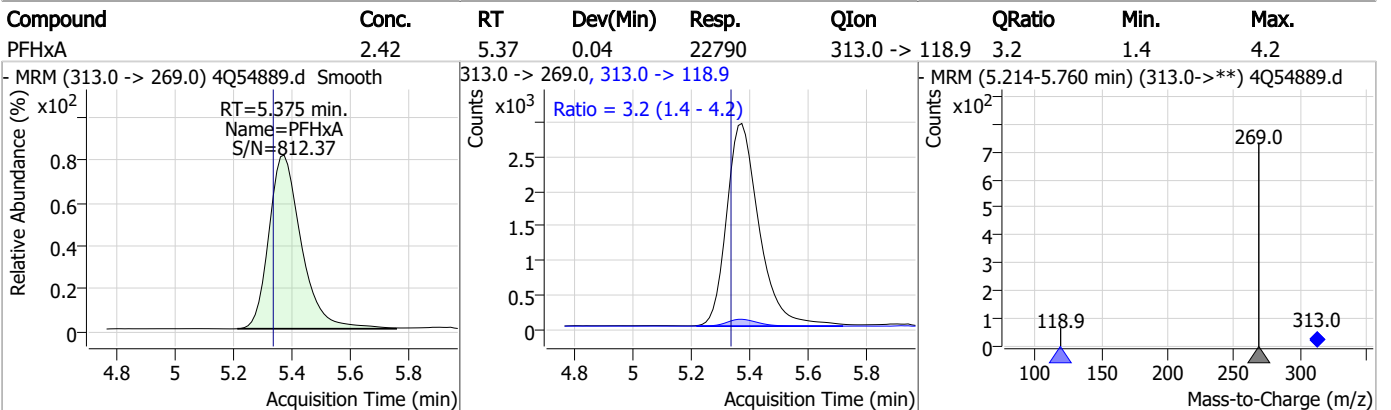
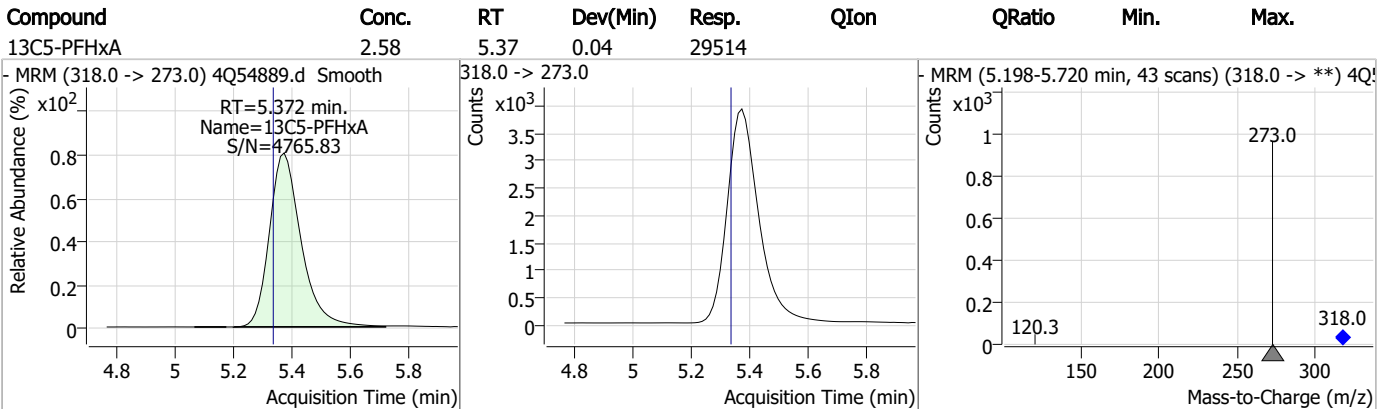
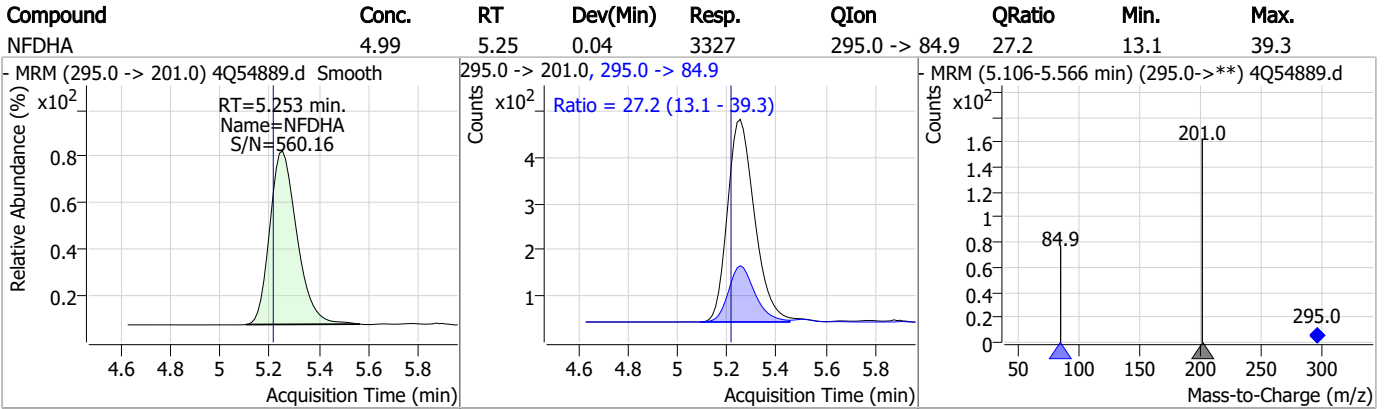
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### Perfluorinated Compounds by LC/MS/MS

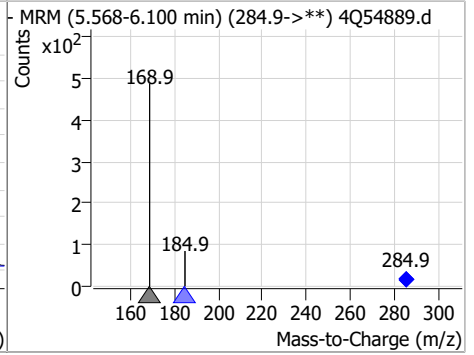
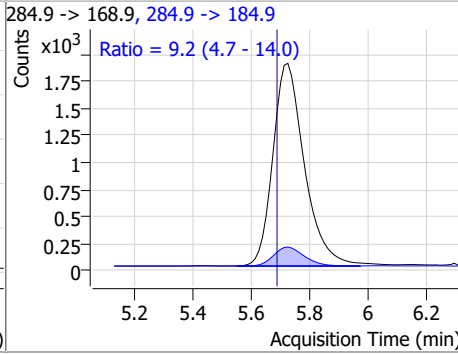
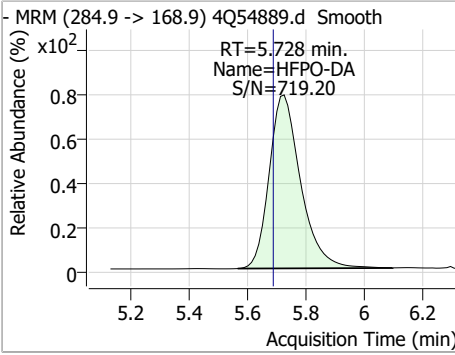


### Perfluorinated Compounds by LC/MS/MS

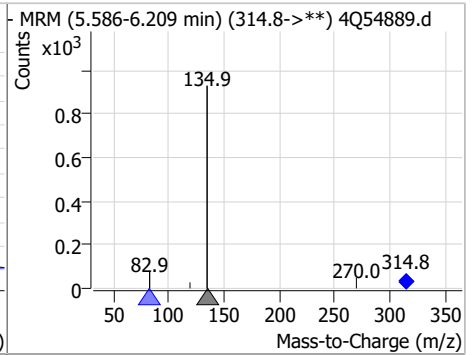
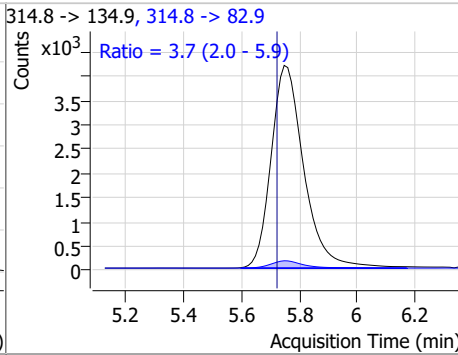
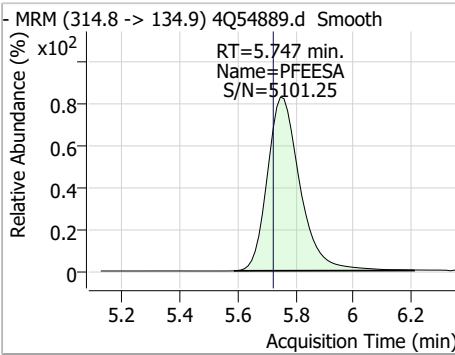


### Perfluorinated Compounds by LC/MS/MS

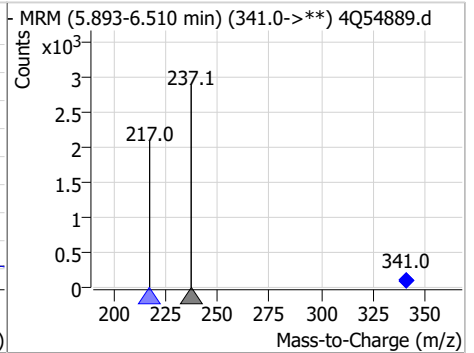
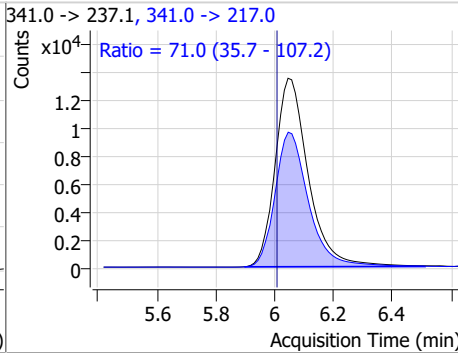
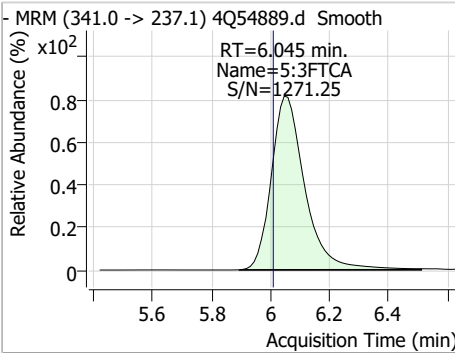
| Compound | Conc. | RT   | Dev(Min) | Resp. | QIon           | QRatio | Min. | Max. |
|----------|-------|------|----------|-------|----------------|--------|------|------|
| HFPO-DA  | 5.02  | 5.73 | 0.04     | 13983 | 284.9 -> 184.9 | 9.2    | 4.7  | 14.0 |



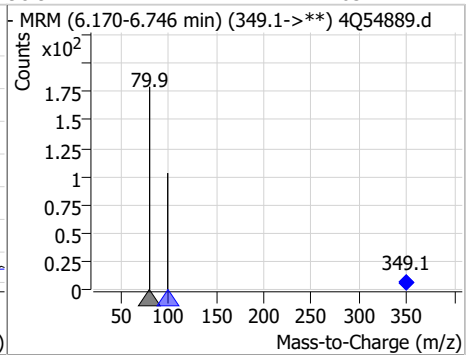
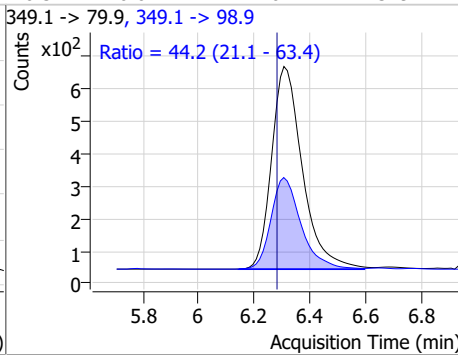
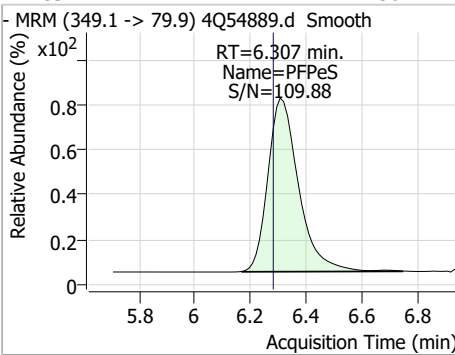
| Compound | Conc. | RT   | Dev(Min) | Resp. | QIon          | QRatio | Min. | Max. |
|----------|-------|------|----------|-------|---------------|--------|------|------|
| PFEESA   | 4.73  | 5.75 | 0.02     | 32905 | 314.8 -> 82.9 | 3.7    | 2.0  | 5.9  |



| Compound | Conc. | RT   | Dev(Min) | Resp.  | QIon           | QRatio | Min. | Max.  |
|----------|-------|------|----------|--------|----------------|--------|------|-------|
| 5:3FTCA  | 63.54 | 6.05 | 0.04     | 106729 | 341.0 -> 217.0 | 71.0   | 35.7 | 107.2 |

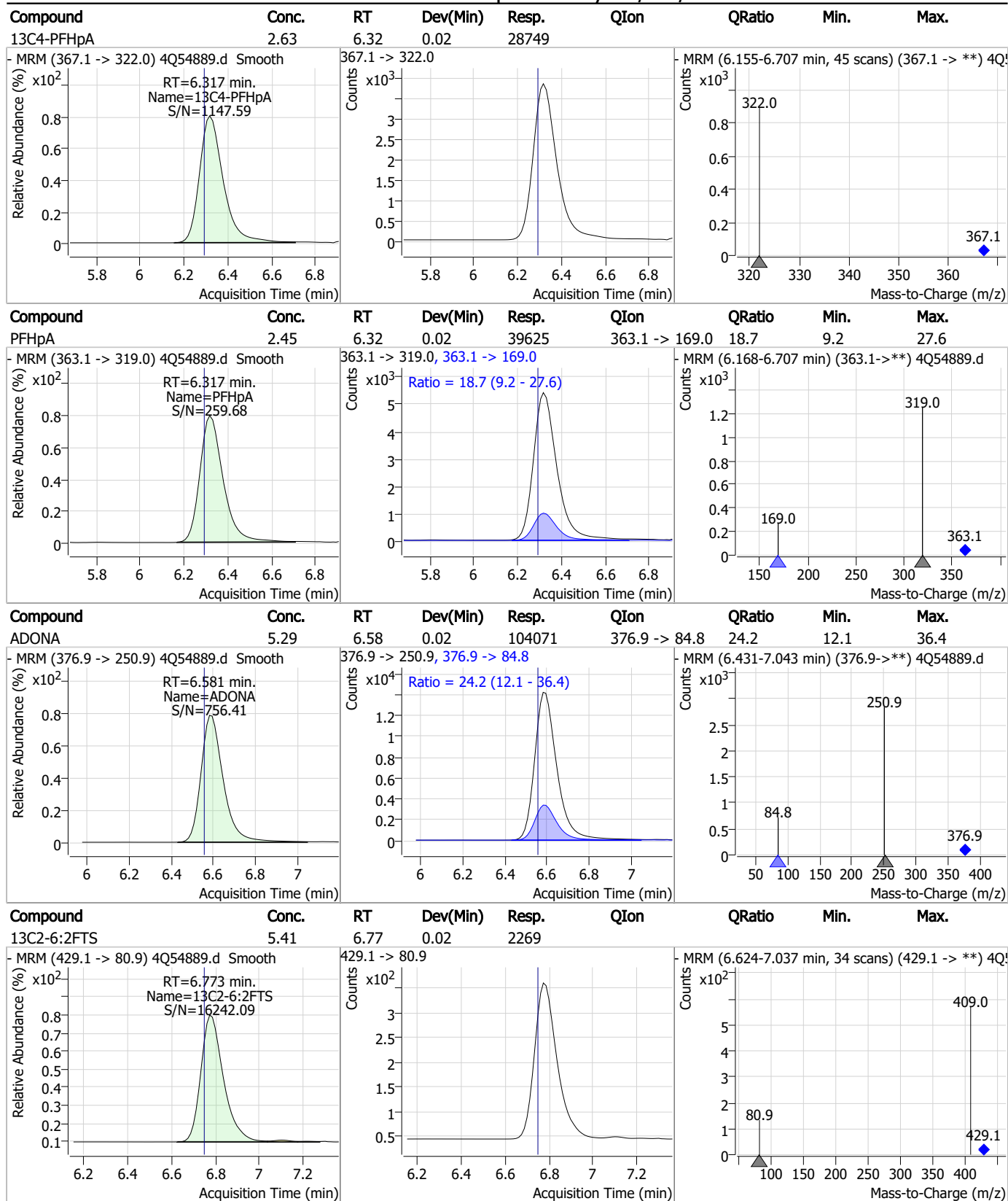


| Compound | Conc. | RT   | Dev(Min) | Resp. | QIon          | QRatio | Min. | Max. |
|----------|-------|------|----------|-------|---------------|--------|------|------|
| PFPeS    | 2.36  | 6.31 | 0.02     | 4770  | 349.1 -> 98.9 | 44.2   | 21.1 | 63.4 |



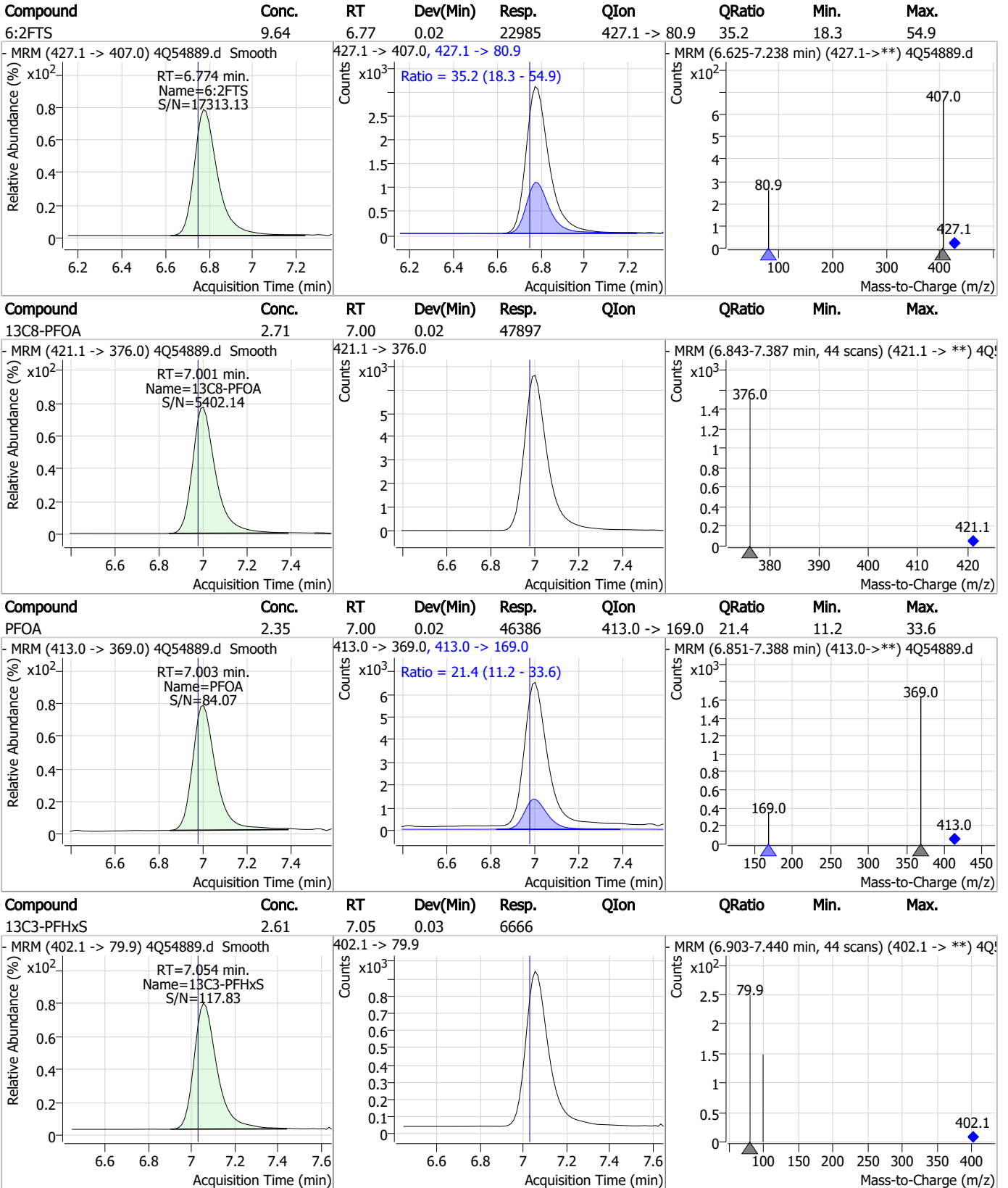


### Perfluorinated Compounds by LC/MS/MS



7.4.1  
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### Perfluorinated Compounds by LC/MS/MS

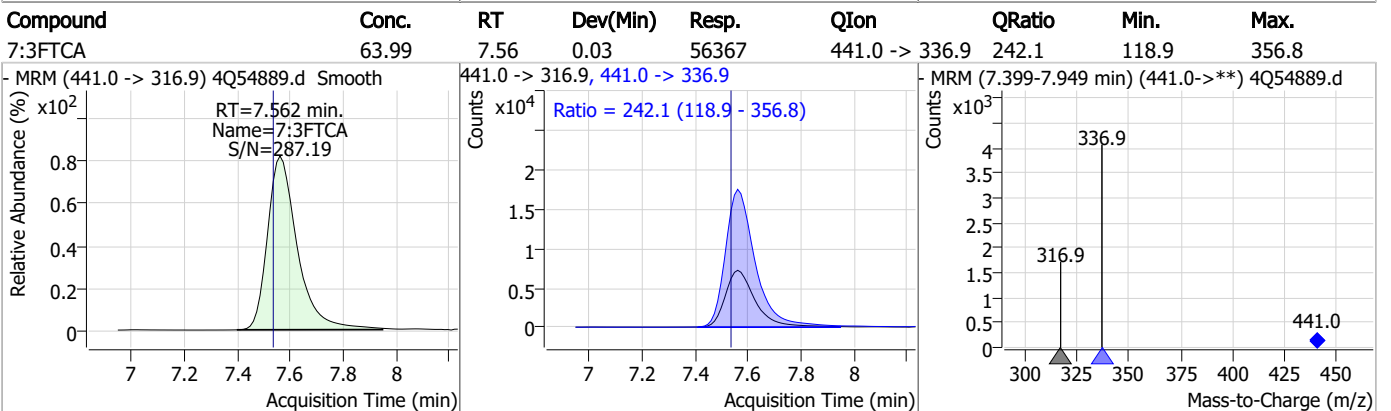
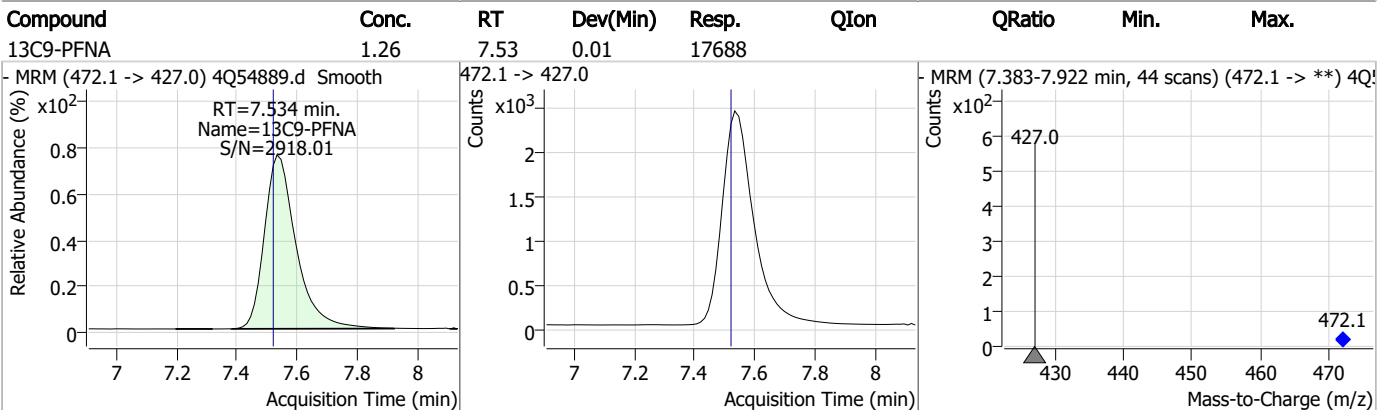
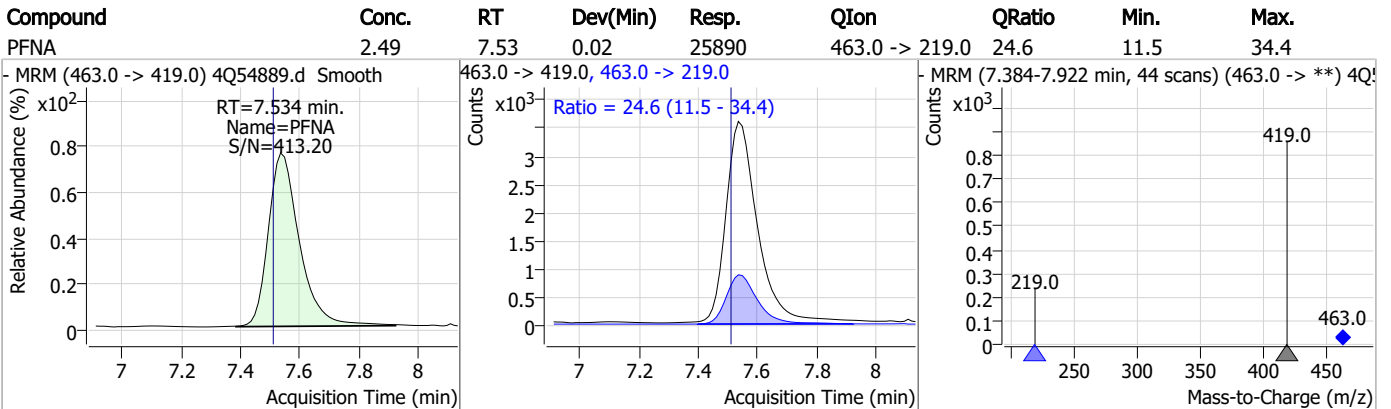
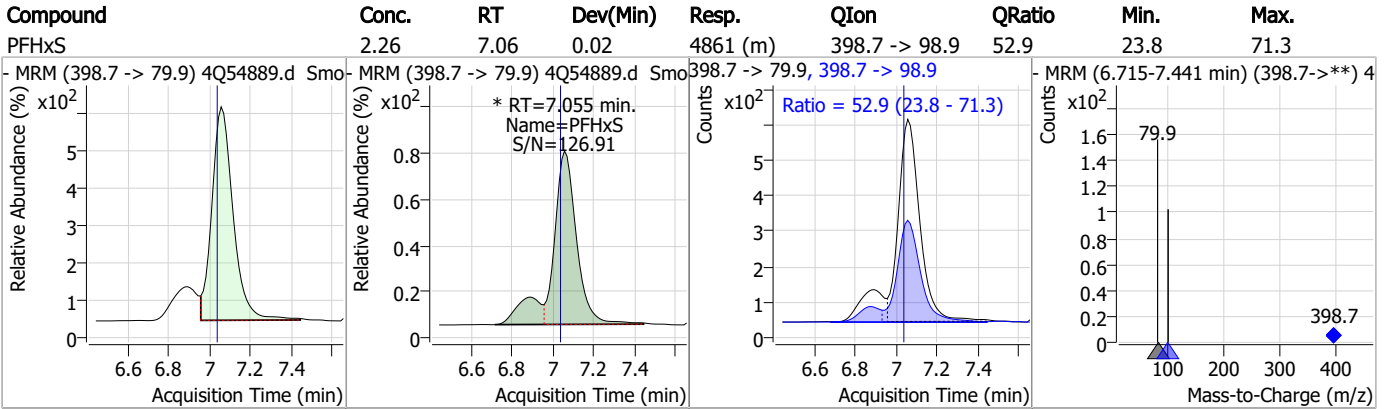


7.4.1

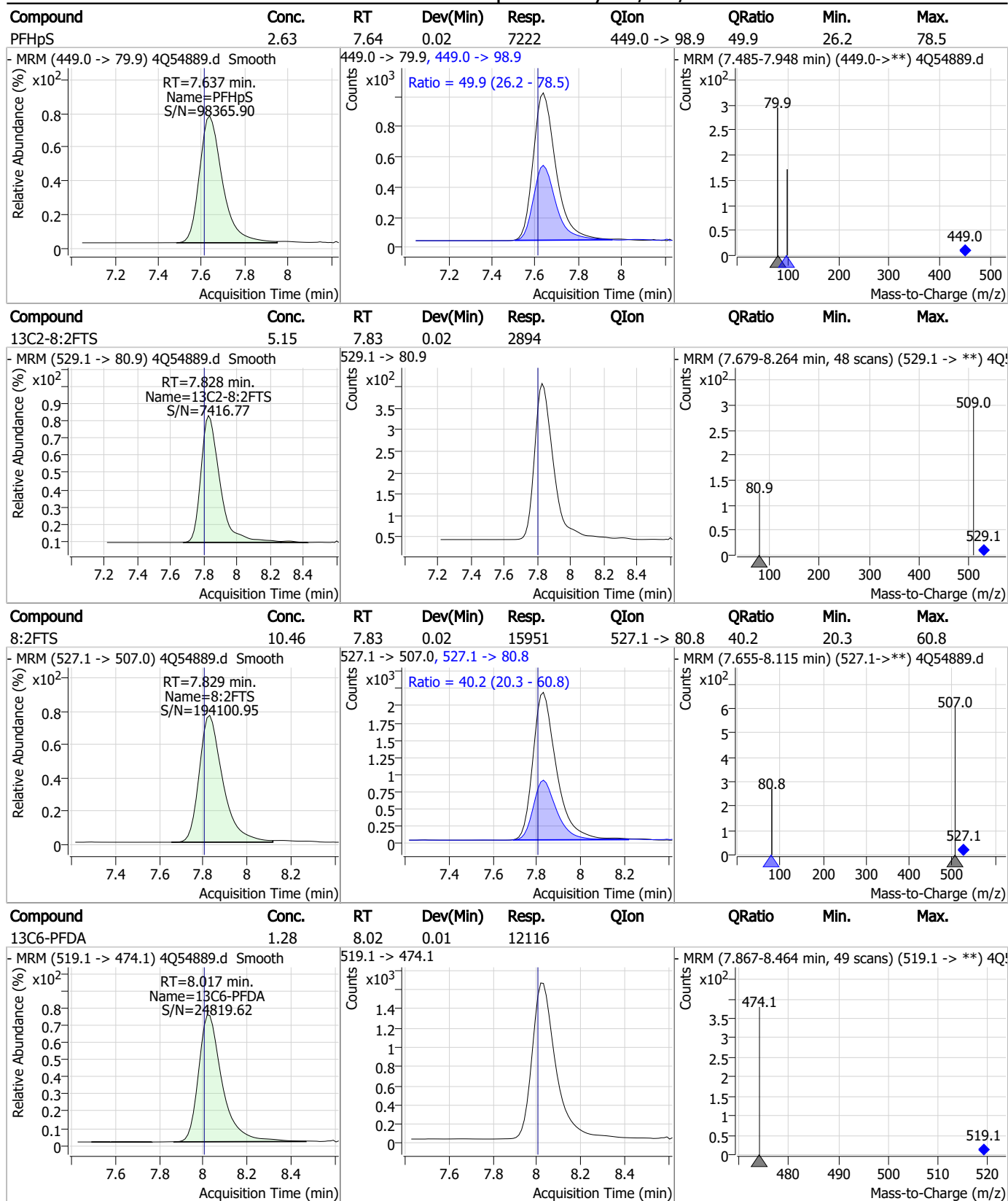
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### Perfluorinated Compounds by LC/MS/MS

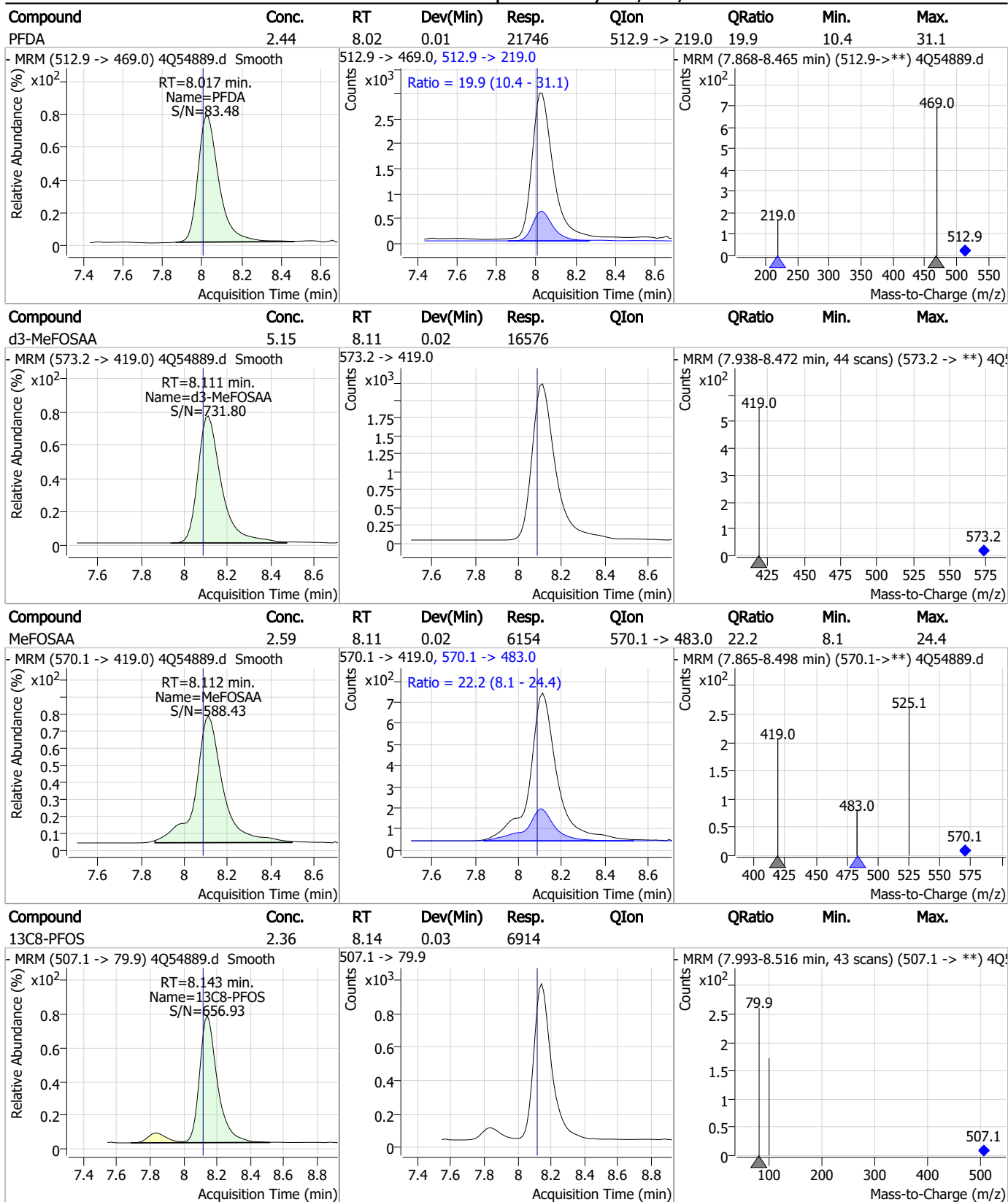


### Perfluorinated Compounds by LC/MS/MS



7.4.1  
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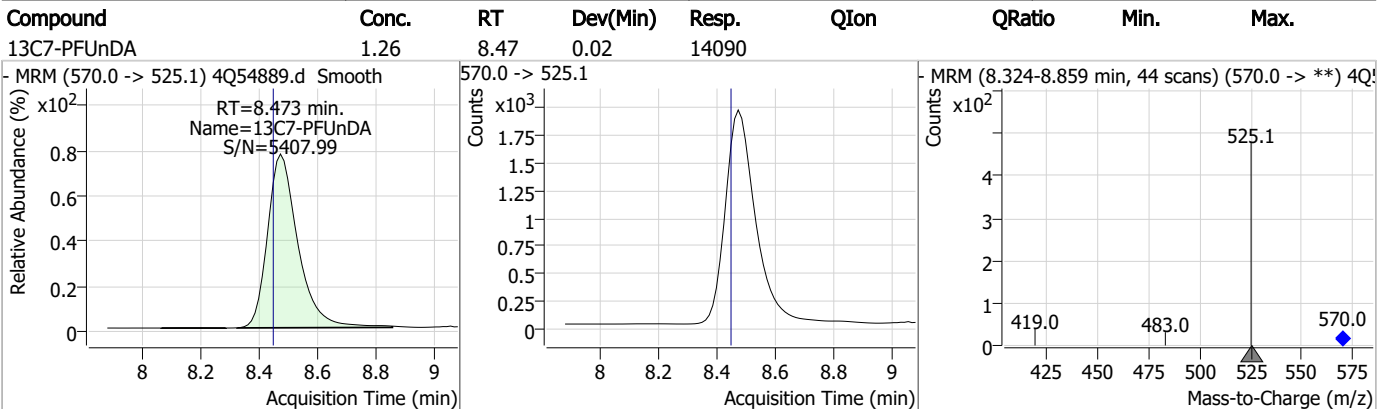
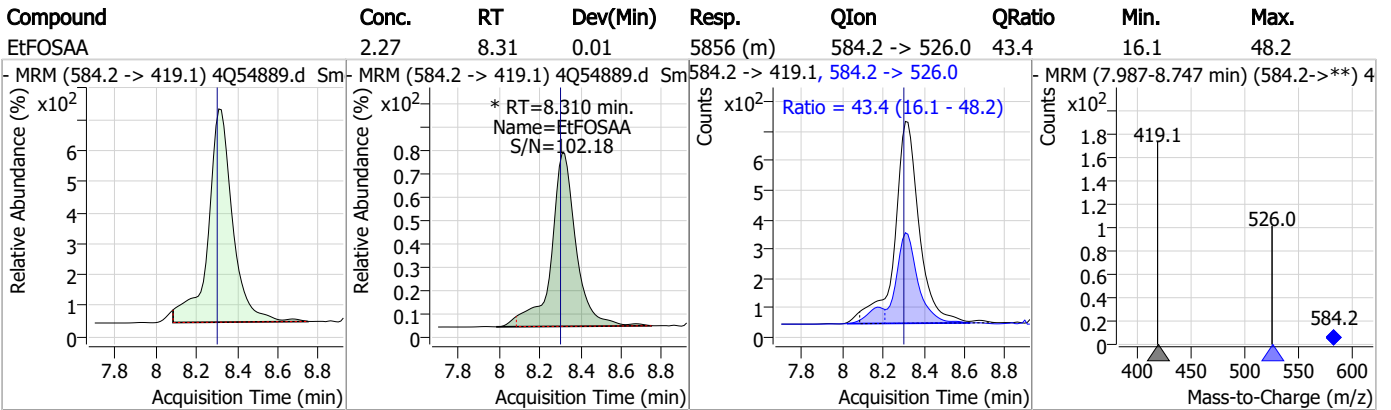
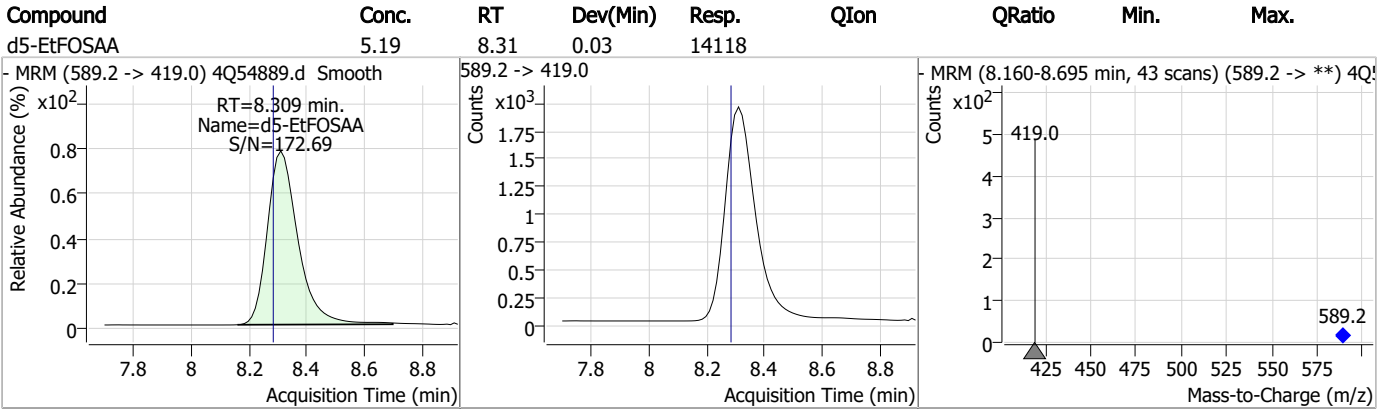
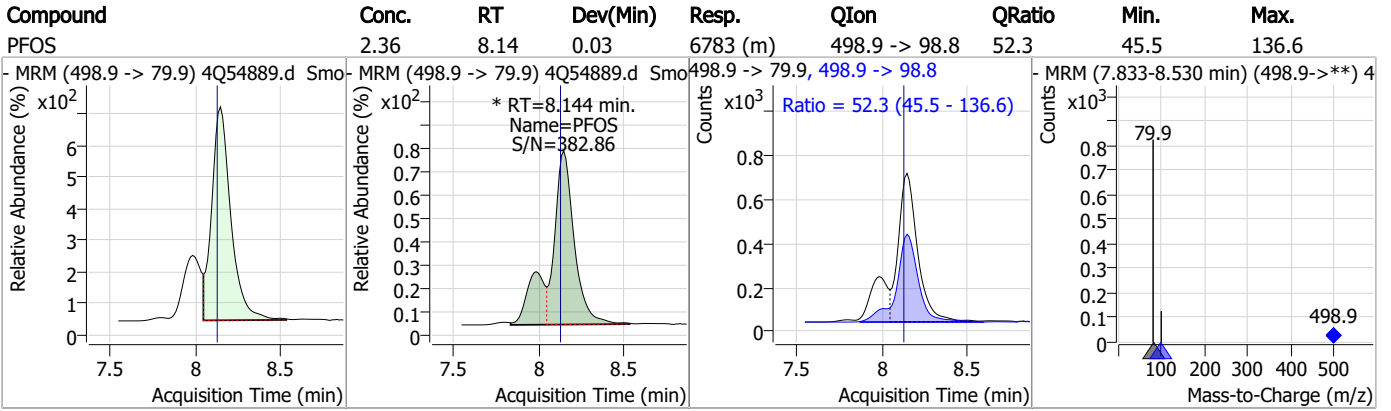
### Perfluorinated Compounds by LC/MS/MS



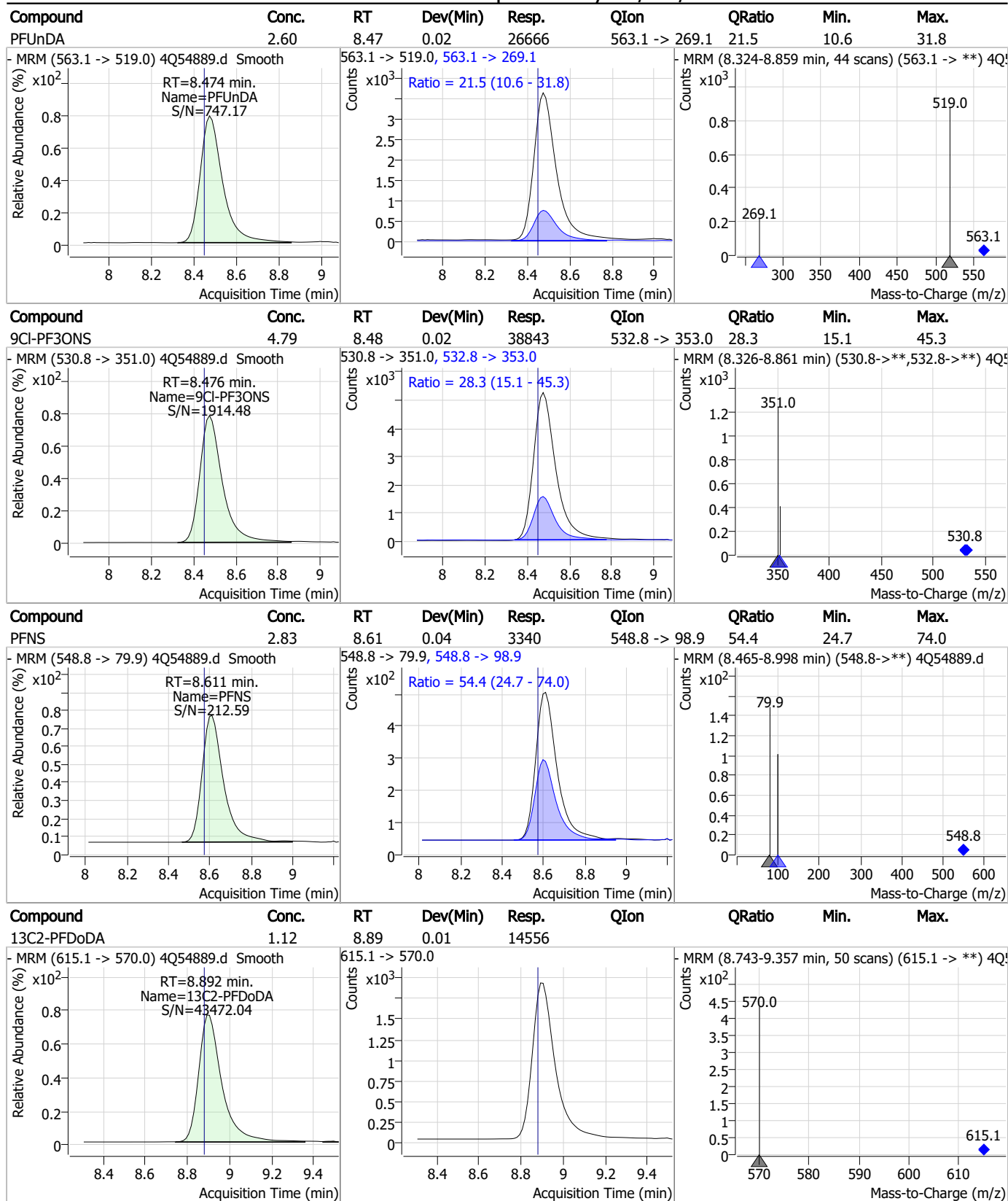
7.4.1

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### Perfluorinated Compounds by LC/MS/MS



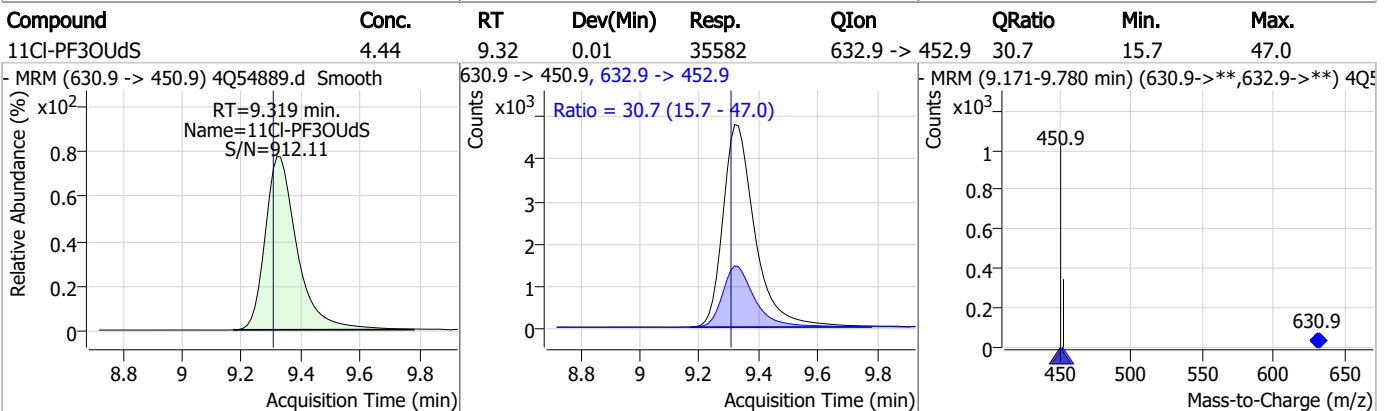
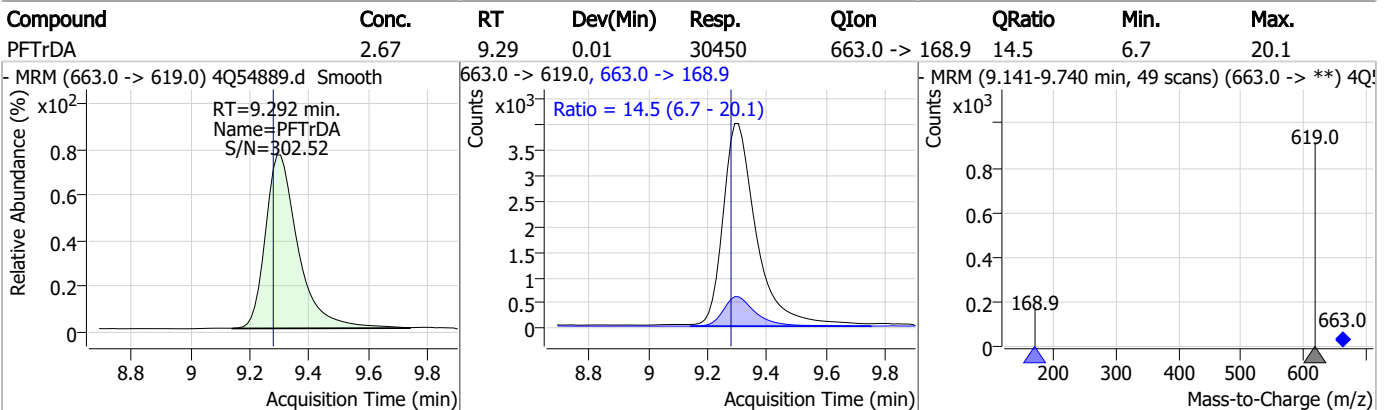
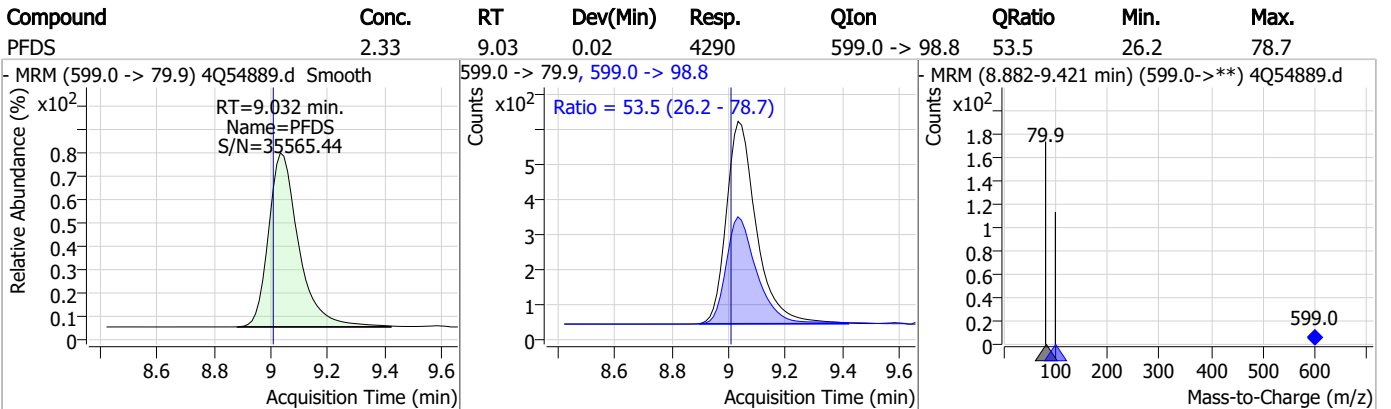
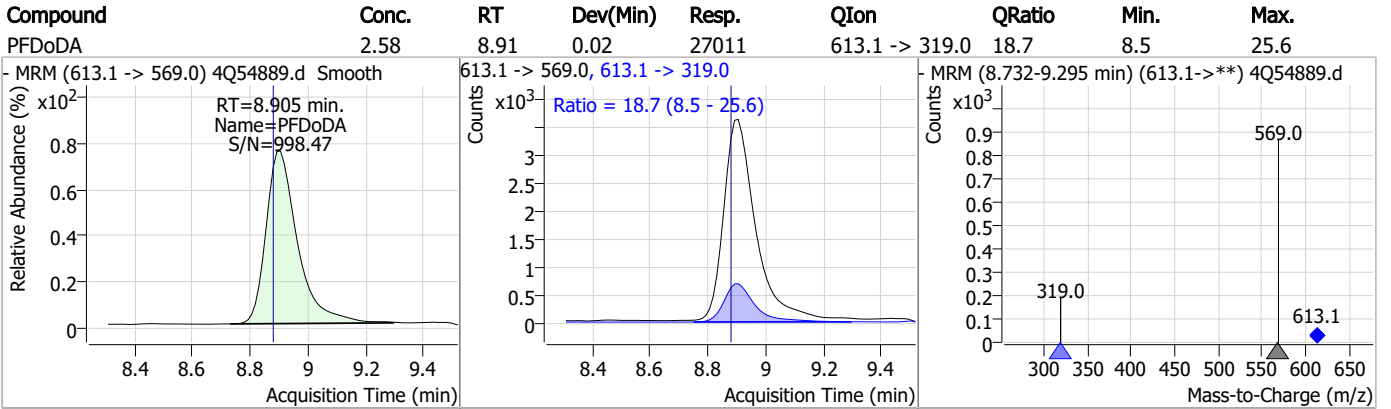
### Perfluorinated Compounds by LC/MS/MS



7.4.1  
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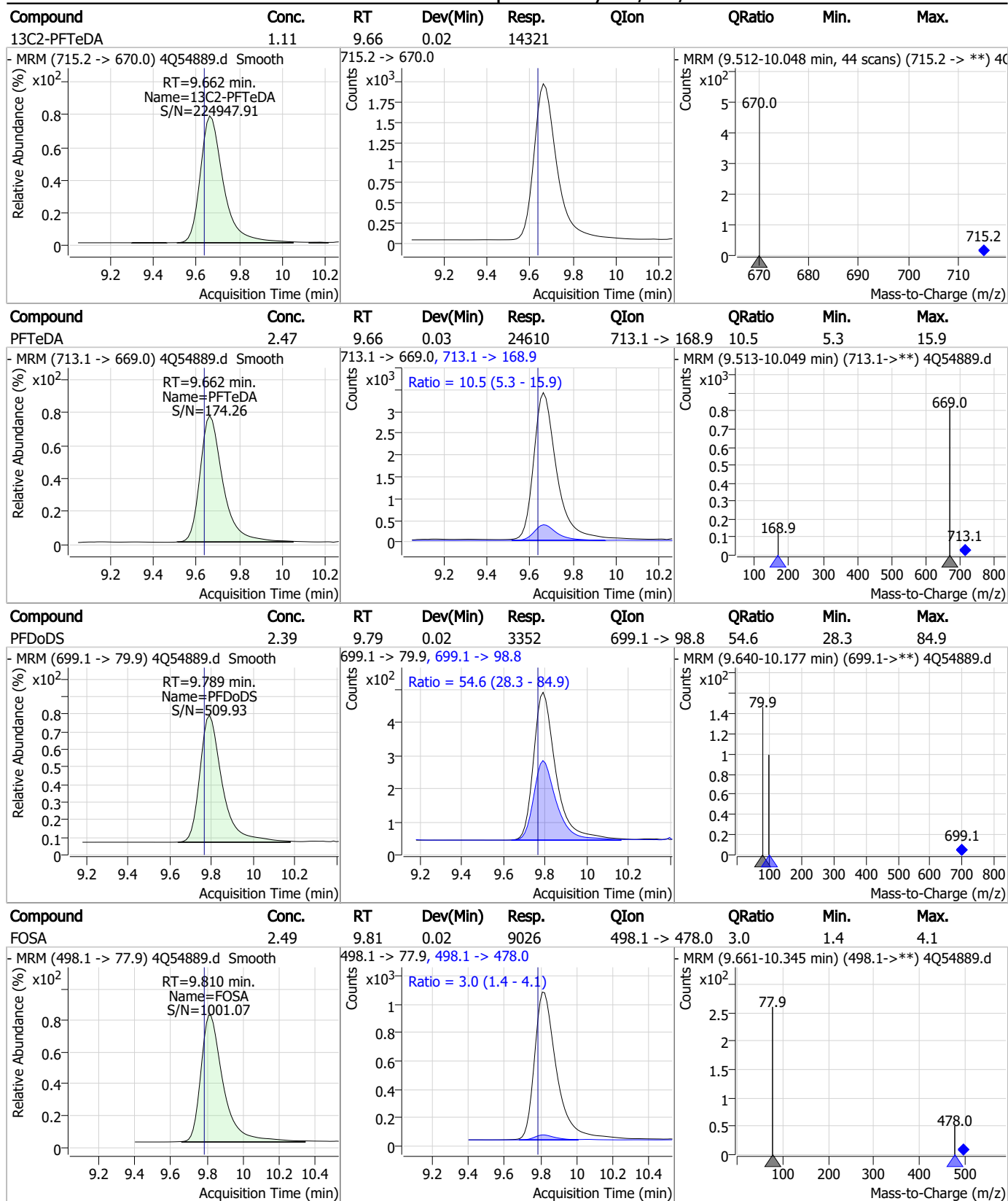


### Perfluorinated Compounds by LC/MS/MS



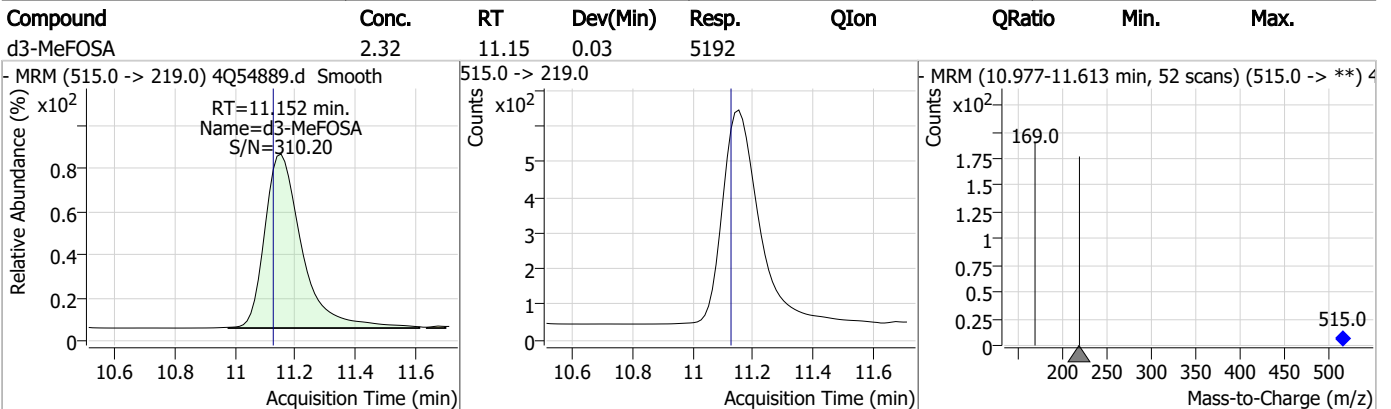
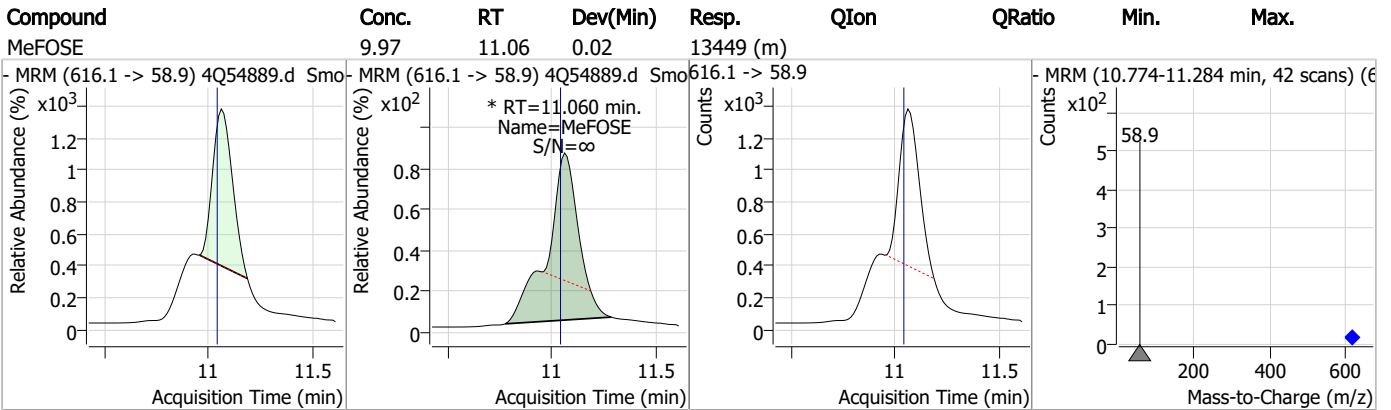
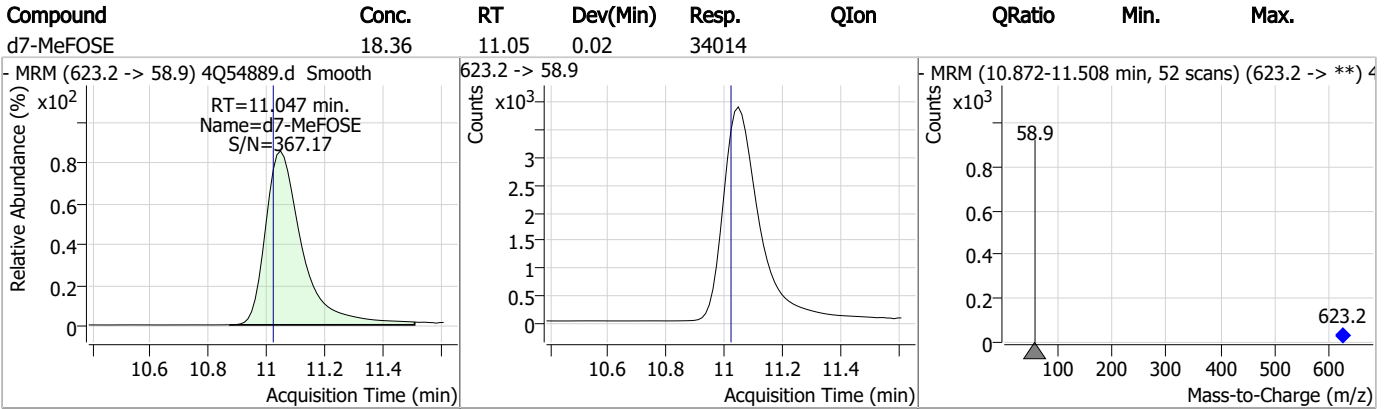
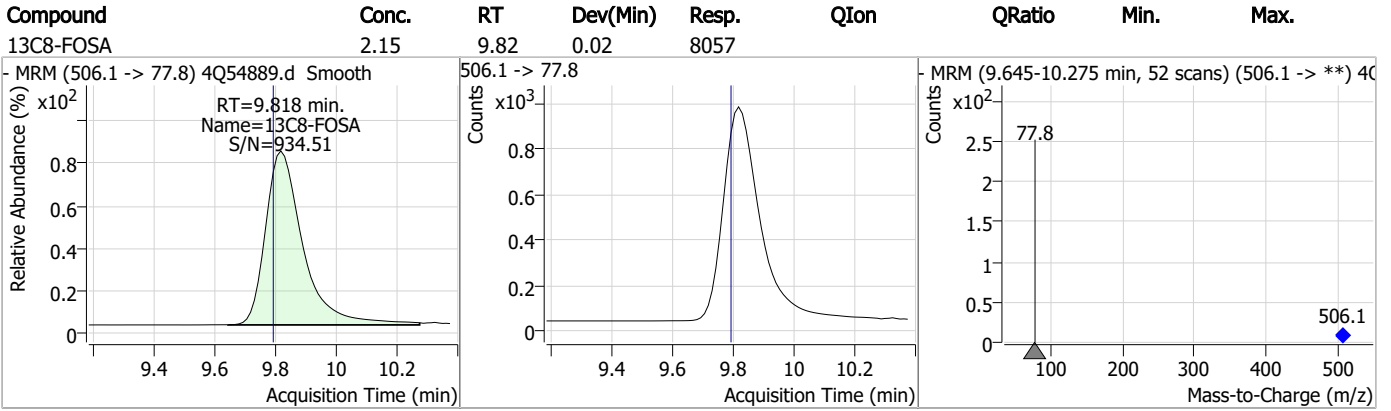


### Perfluorinated Compounds by LC/MS/MS



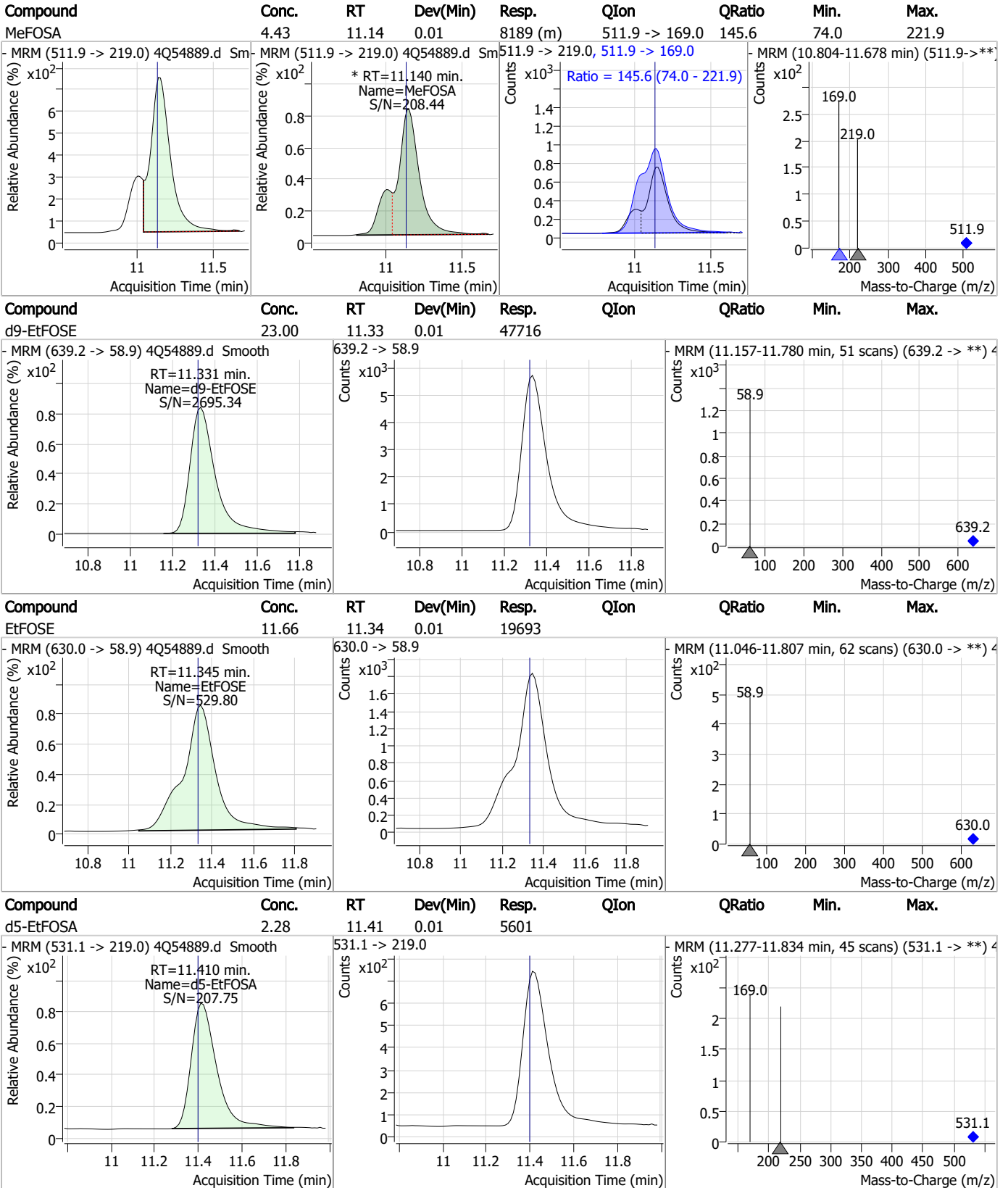
7.4.1  
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### Perfluorinated Compounds by LC/MS/MS



7.4.1  
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### Perfluorinated Compounds by LC/MS/MS

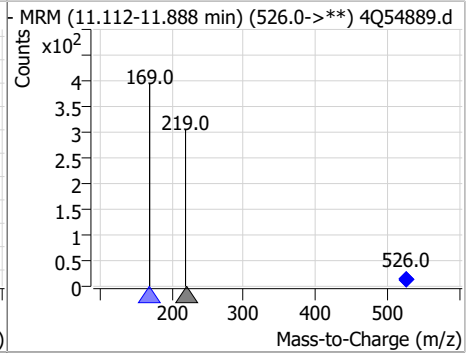
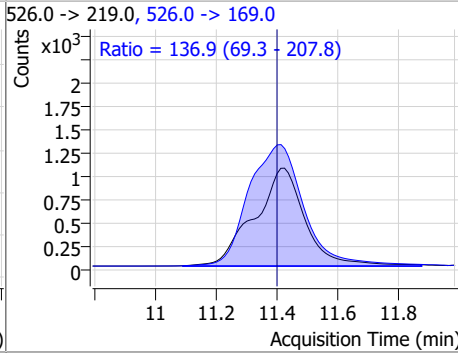
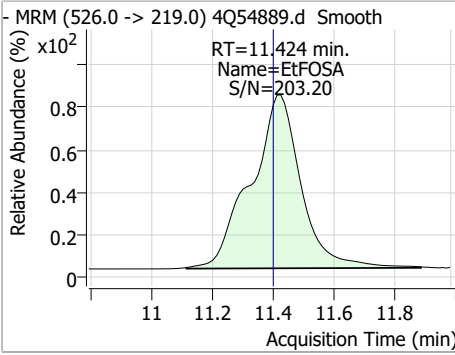


7.4.1

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### Perfluorinated Compounds by LC/MS/MS

| Compound | Conc. | RT    | Dev(Min) | Resp. | QIon           | QRatio | Min. | Max.  |
|----------|-------|-------|----------|-------|----------------|--------|------|-------|
| EtFOSA   | 5.07  | 11.42 | 0.02     | 12094 | 526.0 -> 169.0 | 136.9  | 69.3 | 207.8 |



7.4.1

7

# Manual Integration Approval Summary

Sample Number: OP495-MS                      Method: EPA DRAFT 1633  
Lab FileID: 4Q54889.D                      Analyst approved: 12/10/23 12:57 Anna Ludwig  
Injection Time: 12/08/23 20:50                      Supervisor approved: 12/11/23 16:36 Norman Farmer

| Parameter                    | CAS        | Sig# | R.T.<br>(min.) | Reason     |
|------------------------------|------------|------|----------------|------------|
| Perfluorohexanesulfonic acid | 355-46-4   |      | 7.05           | Split peak |
| Perfluorooctanesulfonic acid | 1763-23-1  |      | 8.14           | Split peak |
| EtFOSAA                      | 2991-50-6  |      | 8.31           | Split peak |
| MeFOSE                       | 24448-09-7 |      | 11.06          | Split peak |
| MeFOSA                       | 31506-32-8 |      | 11.14          | Split peak |

7.4.1.1  
7

## Perfluorinated Compounds by LC/MS/MS

Data File : 4Q54891.d  
 Operator : annal  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 12/8/2023 9:19:42 PM  
 Sample Name : op495-dup  
 Vial : P2-D4  
 DA Method File : 1633\_120823\_S4Q804.quantmethod.xml  
 Batch Name : s4q804.batch.bin  
 Sample Information : OP495,S4Q804,530,,,5.0,1,water

| Compound                           | RT                   | Transition     | Response          | Conc. Units | Dev(Min) |
|------------------------------------|----------------------|----------------|-------------------|-------------|----------|
| <b>Internal Standards</b>          |                      |                |                   |             |          |
| M4-PFBA                            | 2.765                | 216.8 -> 171.9 | 95837             | 10.00 µg/L  | 0.091    |
| M5-PFPeA                           | 4.200                | 268.3 -> 223.0 | 37490             | 5.00 µg/L   | 0.037    |
| M5-PFHxA                           | 5.372                | 318.0 -> 273.0 | 30442             | 2.50 µg/L   | 0.037    |
| M4-PFHpA                           | 6.317                | 367.1 -> 322.0 | 29005             | 2.50 µg/L   | 0.025    |
| M8-PFOA                            | 7.001                | 421.1 -> 376.0 | 47821             | 2.50 µg/L   | 0.025    |
| M9-PFNA                            | 7.534                | 472.1 -> 427.0 | 17962             | 1.25 µg/L   | 0.012    |
| M6-PFDA                            | 8.029                | 519.1 -> 474.1 | 11495             | 1.25 µg/L   | 0.025    |
| M7-PFUnDA                          | 8.473                | 570.0 -> 525.1 | 13914             | 1.25 µg/L   | 0.025    |
| M2-PFDoDA                          | 8.892                | 615.1 -> 570.0 | 13723             | 1.25 µg/L   | 0.012    |
| M2-PFTeDA                          | 9.662                | 715.2 -> 670.0 | 13481             | 1.25 µg/L   | 0.025    |
| M8-FOSA                            | 9.818                | 506.1 -> 77.8  | 6946              | 2.50 µg/L   | 0.025    |
| M3-PFBS                            | 5.227                | 302.1 -> 79.9  | 8131              | 2.50 µg/L   | 0.038    |
| M3-PFHxS                           | 7.054                | 402.1 -> 79.9  | 7123              | 2.50 µg/L   | 0.025    |
| M8-PFOS                            | 8.143                | 507.1 -> 79.9  | 7858              | 2.50 µg/L   | 0.026    |
| M2-4:2FTS                          | 5.083                | 329.1 -> 80.9  | 946               | 5.00 µg/L   | 0.037    |
| M2-6:2FTS                          | 6.786                | 429.1 -> 80.9  | 2280              | 5.00 µg/L   | 0.037    |
| M2-8:2FTS                          | 7.828                | 529.1 -> 80.9  | 2922              | 5.00 µg/L   | 0.025    |
| M3-MeFOSAA                         | 8.111                | 573.2 -> 419.0 | 15860             | 5.00 µg/L   | 0.025    |
| M3-HFPO-DA                         | 5.727                | 286.9 -> 168.9 | 28516             | 10.00 µg/L  | 0.037    |
| M5-EtFOSAA                         | 8.309                | 589.2 -> 419.0 | 13050             | 5.00 µg/L   | 0.026    |
| M7-MeFOSE                          | 11.047               | 623.2 -> 58.9  | 28263             | 25.00 µg/L  | 0.025    |
| M9-EtFOSE                          | 11.331               | 639.2 -> 58.9  | 42374             | 25.00 µg/L  | 0.012    |
| M5-EtFOSA                          | 11.422               | 531.1 -> 219.0 | 5515              | 2.50 µg/L   | 0.025    |
| M3-MeFOSA                          | 11.139               | 515.0 -> 219.0 | 4581              | 2.50 µg/L   | 0.012    |
| 13C4-PFOS                          | 8.144                | 502.8 -> 79.9  | 5731              | 2.50 µg/L   | 0.026    |
| 13C3-PFBA                          | 2.768                | 216.0 -> 172.0 | 41483             | 5.00 µg/L   | 0.090    |
| 18O2-PFHxS                         | 7.054                | 403.0 -> 83.9  | 3983              | 2.50 µg/L   | 0.013    |
| 13C4-PFOA                          | 7.002                | 417.1 -> 372.0 | 48975             | 2.50 µg/L   | 0.025    |
| 13C2-PFDA                          | 8.029                | 515.1 -> 470.1 | 13061             | 1.25 µg/L   | 0.025    |
| 13C5-PFNA                          | 7.547                | 468.0 -> 423.0 | 17583             | 1.25 µg/L   | 0.038    |
| 13C2-PFHxA                         | 5.373                | 315.1 -> 270.0 | 30685             | 2.50 µg/L   | 0.037    |
| <b>System Monitoring Compounds</b> |                      |                |                   |             |          |
| 13C2-4:2FTS                        | 5.083                | 329.1 -> 80.9  | 946               | 5.01 µg/L   | 0.037    |
| Spiked Amount: 5.00                | Range: 50.0 - 150.0% |                | Recovery = 100.1% |             |          |
| 13C2-6:2FTS                        | 6.786                | 429.1 -> 80.9  | 2280              | 5.56 µg/L   | 0.037    |
| Spiked Amount: 5.00                | Range: 50.0 - 150.0% |                | Recovery = 111.2% |             |          |
| 13C2-8:2FTS                        | 7.828                | 529.1 -> 80.9  | 2922              | 5.32 µg/L   | 0.025    |
| Spiked Amount: 5.00                | Range: 50.0 - 150.0% |                | Recovery = 106.4% |             |          |
| 13C2-PFDoDA                        | 8.892                | 615.1 -> 570.0 | 13723             | 1.05 µg/L   | 0.012    |
| Spiked Amount: 1.25                | Range: 50.0 - 150.0% |                | Recovery = 84.1%  |             |          |
| 13C2-PFTeDA                        | 9.662                | 715.2 -> 670.0 | 13481             | 1.04 µg/L   | 0.025    |
| Spiked Amount: 1.25                | Range: 50.0 - 150.0% |                | Recovery = 83.2%  |             |          |
| 13C3-PFBS                          | 5.227                | 302.1 -> 79.9  | 8131              | 2.66 µg/L   | 0.038    |
| Spiked Amount: 2.50                | Range: 50.0 - 150.0% |                | Recovery = 106.5% |             |          |
| 13C3-PFHxS                         | 7.054                | 402.1 -> 79.9  | 7123              | 2.85 µg/L   | 0.025    |

7.5.1  
7

Perfluorinated Compounds by LC/MS/MS

| Compound             | RT                   | Transition     | Response | Conc. Units       | Dev(Min) |
|----------------------|----------------------|----------------|----------|-------------------|----------|
| Spiked Amount: 2.50  | Range: 50.0 - 150.0% |                |          | Recovery = 114.1% |          |
| 13C4-PFBA            | 2.765                | 216.8 -> 171.9 | 95837    | 11.00 µg/L        | 0.091    |
| Spiked Amount: 10.00 | Range: 50.0 - 150.0% |                |          | Recovery = 110.0% |          |
| 13C4-PFHpA           | 6.317                | 367.1 -> 322.0 | 29005    | 2.68 µg/L         | 0.025    |
| Spiked Amount: 2.50  | Range: 50.0 - 150.0% |                |          | Recovery = 107.3% |          |
| 13C5-PFHxA           | 5.372                | 318.0 -> 273.0 | 30442    | 2.69 µg/L         | 0.037    |
| Spiked Amount: 2.50  | Range: 50.0 - 150.0% |                |          | Recovery = 107.7% |          |
| 13C5-PFPeA           | 4.200                | 268.3 -> 223.0 | 37490    | 5.32 µg/L         | 0.037    |
| Spiked Amount: 5.00  | Range: 50.0 - 150.0% |                |          | Recovery = 106.5% |          |
| 13C6-PFDA            | 8.029                | 519.1 -> 474.1 | 11495    | 1.21 µg/L         | 0.025    |
| Spiked Amount: 1.25  | Range: 50.0 - 150.0% |                |          | Recovery = 96.8%  |          |
| 13C7-PFUnDA          | 8.473                | 570.0 -> 525.1 | 13914    | 1.24 µg/L         | 0.025    |
| Spiked Amount: 1.25  | Range: 50.0 - 150.0% |                |          | Recovery = 99.3%  |          |
| 13C8-FOSA            | 9.818                | 506.1 -> 77.8  | 6946     | 1.87 µg/L         | 0.025    |
| Spiked Amount: 2.50  | Range: 50.0 - 150.0% |                |          | Recovery = 74.8%  |          |
| 13C8-PFOA            | 7.001                | 421.1 -> 376.0 | 47821    | 2.64 µg/L         | 0.025    |
| Spiked Amount: 2.50  | Range: 50.0 - 150.0% |                |          | Recovery = 105.7% |          |
| 13C8-PFOS            | 8.143                | 507.1 -> 79.9  | 7858     | 2.71 µg/L         | 0.026    |
| Spiked Amount: 2.50  | Range: 50.0 - 150.0% |                |          | Recovery = 108.3% |          |
| 13C9-PFNA            | 7.534                | 472.1 -> 427.0 | 17962    | 1.28 µg/L         | 0.012    |
| Spiked Amount: 1.25  | Range: 50.0 - 150.0% |                |          | Recovery = 102.0% |          |
| d3-MeFOSAA           | 8.111                | 573.2 -> 419.0 | 15860    | 4.98 µg/L         | 0.025    |
| Spiked Amount: 5.00  | Range: 50.0 - 150.0% |                |          | Recovery = 99.7%  |          |
| 13C3-HFPO-DA         | 5.727                | 286.9 -> 168.9 | 28516    | 10.09 µg/L        | 0.037    |
| Spiked Amount: 10.00 | Range: 50.0 - 150.0% |                |          | Recovery = 100.9% |          |
| d3-MeFOSA            | 11.139               | 515.0 -> 219.0 | 4581     | 2.07 µg/L         | 0.012    |
| Spiked Amount: 2.50  | Range: 50.0 - 150.0% |                |          | Recovery = 82.7%  |          |
| d5-EtFOSAA           | 8.309                | 589.2 -> 419.0 | 13050    | 4.85 µg/L         | 0.026    |
| Spiked Amount: 5.00  | Range: 50.0 - 150.0% |                |          | Recovery = 97.0%  |          |
| d7-MeFOSE            | 11.047               | 623.2 -> 58.9  | 28263    | 15.42 µg/L        | 0.025    |
| Spiked Amount: 25.00 | Range: 50.0 - 150.0% |                |          | Recovery = 61.7%  |          |
| d9-EtFOSE            | 11.331               | 639.2 -> 58.9  | 42374    | 20.65 µg/L        | 0.012    |
| Spiked Amount: 25.00 | Range: 50.0 - 150.0% |                |          | Recovery = 82.6%  |          |
| d5-EtFOSA            | 11.422               | 531.1 -> 219.0 | 5515     | 2.27 µg/L         | 0.025    |
| Spiked Amount: 2.50  | Range: 50.0 - 150.0% |                |          | Recovery = 90.8%  |          |

Target Compounds

| Compound | RT | Transition     | Response | Conc. Units | QValue |
|----------|----|----------------|----------|-------------|--------|
| 4:2FTS   | -  | 327.1 -> 307.0 | -        | N.D.        |        |
|          |    | 327.1 -> 80.9  |          |             |        |
| 6:2FTS   | -  | 427.1 -> 407.0 | -        | N.D.        |        |
|          |    | 427.1 -> 80.9  |          |             |        |
| 8:2FTS   | -  | 527.1 -> 507.0 | -        | N.D.        |        |
|          |    | 527.1 -> 80.8  |          |             |        |
| EtFOSAA  | -  | 584.2 -> 419.1 | -        | N.D.        |        |
|          |    | 584.2 -> 526.0 |          |             |        |
| FOSA     | -  | 498.1 -> 77.9  | -        | N.D.        |        |
|          |    | 498.1 -> 478.0 |          |             |        |
| MeFOSAA  | -  | 570.1 -> 419.0 | -        | N.D.        |        |
|          |    | 570.1 -> 483.0 |          |             |        |
| PFBA     | -  | 212.8 -> 168.9 | -        | N.D.        |        |
| PFBS     | -  | 298.7 -> 79.9  | -        | N.D.        |        |
|          |    | 298.7 -> 98.8  |          |             |        |
| PFDA     | -  | 512.9 -> 469.0 | -        | N.D.        |        |
|          |    | 512.9 -> 219.0 |          |             |        |
| PFDODA   | -  | 613.1 -> 569.0 | -        | N.D.        |        |
|          |    | 613.1 -> 319.0 |          |             |        |
| PFDS     | -  | 599.0 -> 79.9  | -        | N.D.        |        |



7.5.1  
7

Perfluorinated Compounds by LC/MS/MS

| Compound     | RT | Transition     | Response | Conc. Units | Dev(Min) |
|--------------|----|----------------|----------|-------------|----------|
| PFHpA        | -  | 599.0 -> 98.8  | -        | N.D.        |          |
|              |    | 363.1 -> 319.0 |          |             |          |
| PFHpS        | -  | 363.1 -> 169.0 | -        | N.D.        |          |
|              |    | 449.0 -> 79.9  |          |             |          |
| PFHxA        | -  | 449.0 -> 98.9  | -        | N.D.        |          |
|              |    | 313.0 -> 269.0 |          |             |          |
| PFHxS        | -  | 313.0 -> 118.9 | -        | N.D.        |          |
|              |    | 398.7 -> 79.9  |          |             |          |
| PFNA         | -  | 398.7 -> 98.9  | -        | N.D.        |          |
|              |    | 463.0 -> 419.0 |          |             |          |
| PFNS         | -  | 463.0 -> 219.0 | -        | N.D.        |          |
|              |    | 548.8 -> 79.9  |          |             |          |
| PFOA         | -  | 548.8 -> 98.9  | -        | N.D.        |          |
|              |    | 413.0 -> 369.0 |          |             |          |
| PFOS         | -  | 413.0 -> 169.0 | -        | N.D.        |          |
|              |    | 498.9 -> 79.9  |          |             |          |
| PFPeA        | -  | 498.9 -> 98.8  | -        | N.D.        |          |
|              |    | 263.0 -> 219.0 |          |             |          |
| PFPeS        | -  | 349.1 -> 79.9  | -        | N.D.        |          |
|              |    | 349.1 -> 98.9  |          |             |          |
| PFTeDA       | -  | 713.1 -> 669.0 | -        | N.D.        |          |
|              |    | 713.1 -> 168.9 |          |             |          |
| PFTrDA       | -  | 663.0 -> 619.0 | -        | N.D.        |          |
|              |    | 663.0 -> 168.9 |          |             |          |
| PFUnDA       | -  | 563.1 -> 519.0 | -        | N.D.        |          |
|              |    | 563.1 -> 269.1 |          |             |          |
| 11Cl-PF3OUdS | -  | 630.9 -> 450.9 | -        | N.D.        |          |
|              |    | 632.9 -> 452.9 |          |             |          |
| 9Cl-PF3ONS   | -  | 530.8 -> 351.0 | -        | N.D.        |          |
|              |    | 532.8 -> 353.0 |          |             |          |
| ADONA        | -  | 376.9 -> 250.9 | -        | N.D.        |          |
|              |    | 376.9 -> 84.8  |          |             |          |
| HFPO-DA      | -  | 284.9 -> 168.9 | -        | N.D.        |          |
|              |    | 284.9 -> 184.9 |          |             |          |
| 3:3FTCA      | -  | 241.0 -> 177.0 | -        | N.D.        |          |
|              |    | 241.0 -> 117.0 |          |             |          |
| 5:3FTCA      | -  | 341.0 -> 237.1 | -        | N.D.        |          |
|              |    | 341.0 -> 217.0 |          |             |          |
| 7:3FTCA      | -  | 441.0 -> 316.9 | -        | N.D.        |          |
|              |    | 441.0 -> 336.9 |          |             |          |
| EtFOSA       | -  | 526.0 -> 219.0 | -        | N.D.        |          |
|              |    | 526.0 -> 169.0 |          |             |          |
| EtFOSE       | -  | 630.0 -> 58.9  | -        | N.D.        |          |
|              |    | 511.9 -> 219.0 |          |             |          |
| MeFOSA       | -  | 511.9 -> 169.0 | -        | N.D.        |          |
|              |    | 616.1 -> 58.9  |          |             |          |
| MeFOSE       | -  | 699.1 -> 79.9  | -        | N.D.        |          |
|              |    | 699.1 -> 98.8  |          |             |          |
| PFDoDS       | -  | 295.0 -> 201.0 | -        | N.D.        |          |
|              |    | 295.0 -> 84.9  |          |             |          |
| NFDHA        | -  | 279.0 -> 85.1  | -        | N.D.        |          |
|              |    | 229.0 -> 84.9  |          |             |          |
| PFMBA        | -  | 314.8 -> 134.9 | -        | N.D.        |          |
|              |    | 314.8 -> 82.9  |          |             |          |

# = Qualifier out of range, m = manually integrated, + = Area summed



7.5.1  
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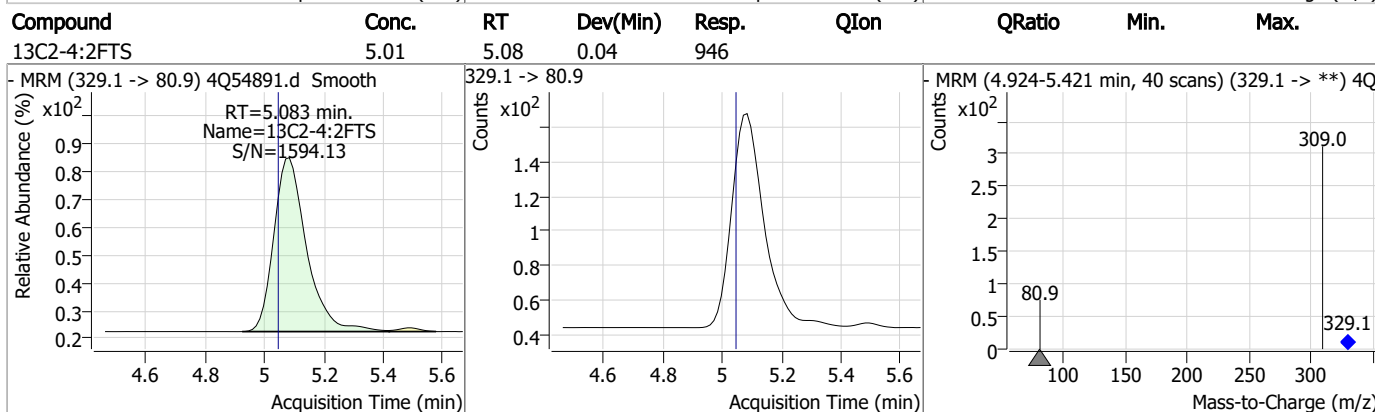
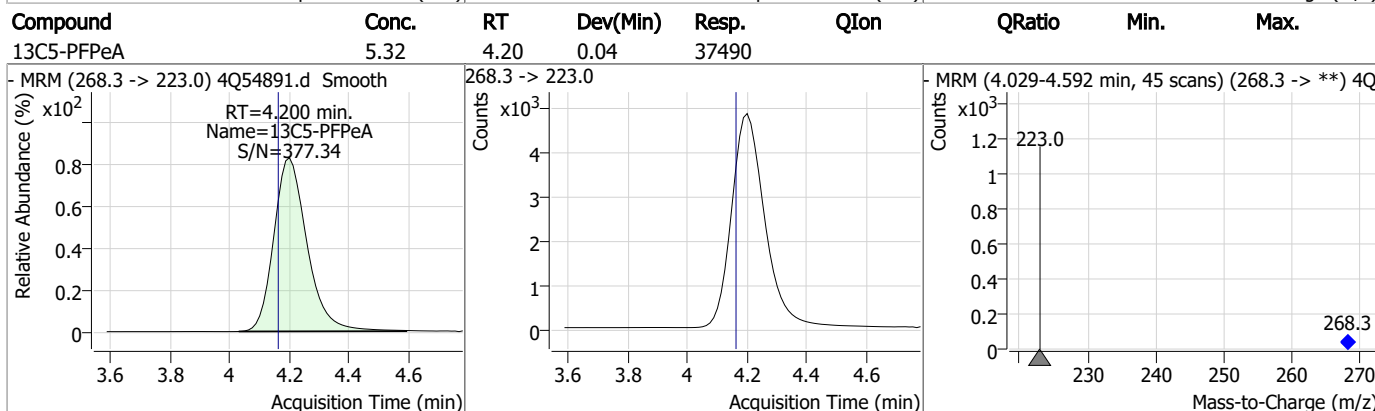
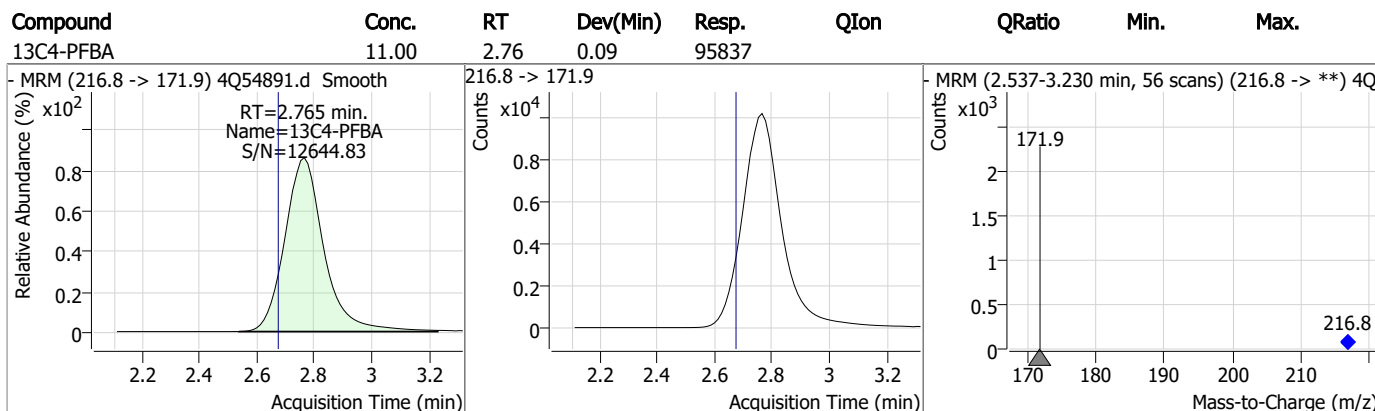
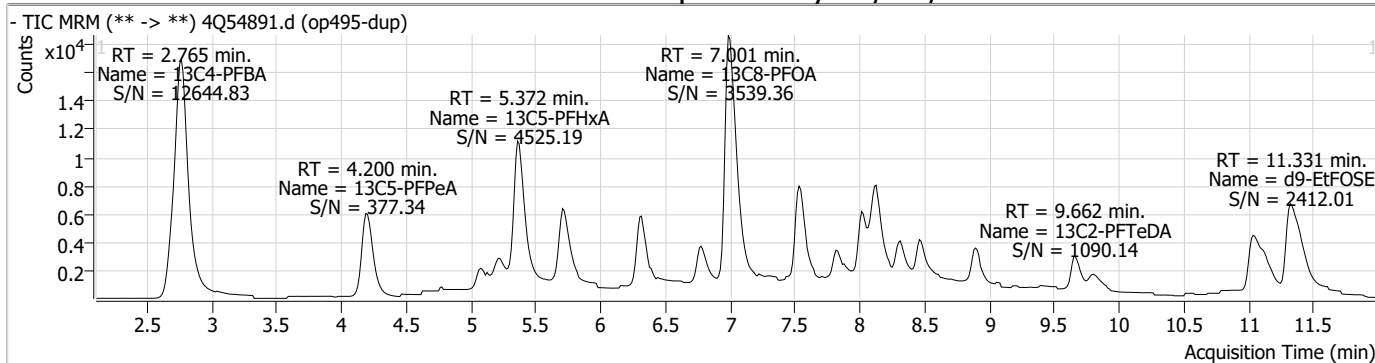
### Perfluorinated Compounds by LC/MS/MS

| Compound | RT | Transition | Response | Conc. Units | Dev(Min) |
|----------|----|------------|----------|-------------|----------|
|----------|----|------------|----------|-------------|----------|

7.5.1

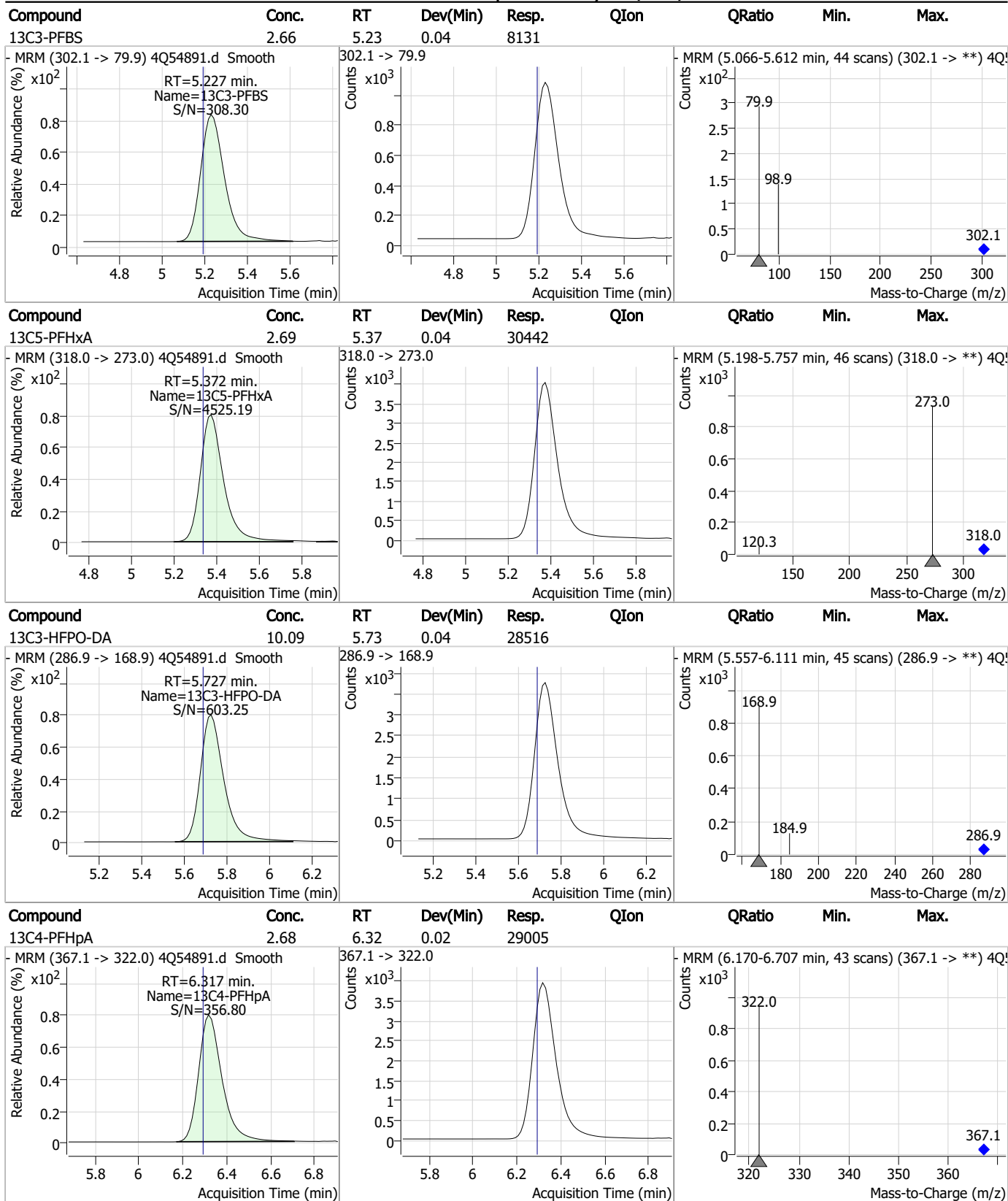
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### Perfluorinated Compounds by LC/MS/MS



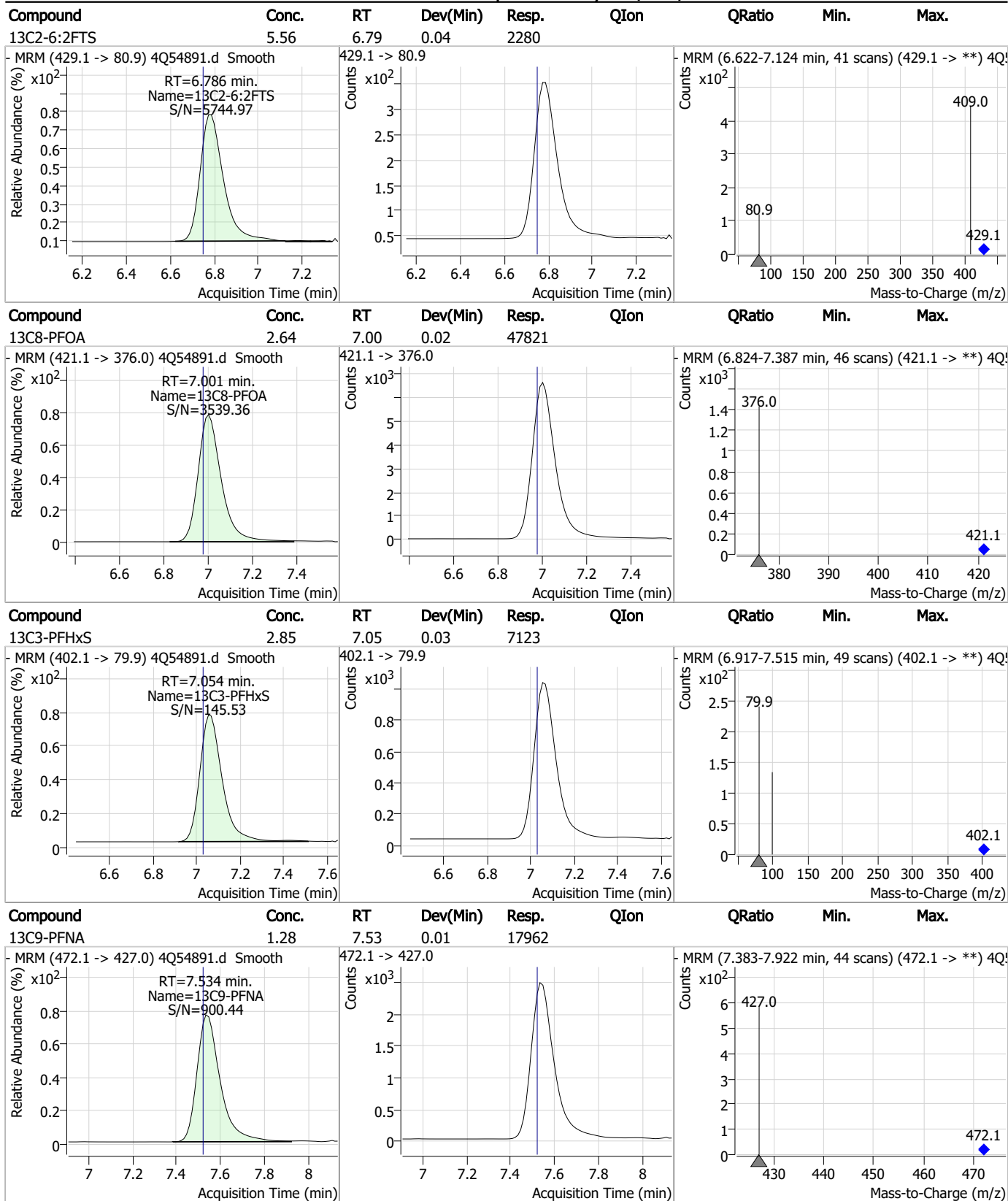
7.5.1  
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### Perfluorinated Compounds by LC/MS/MS



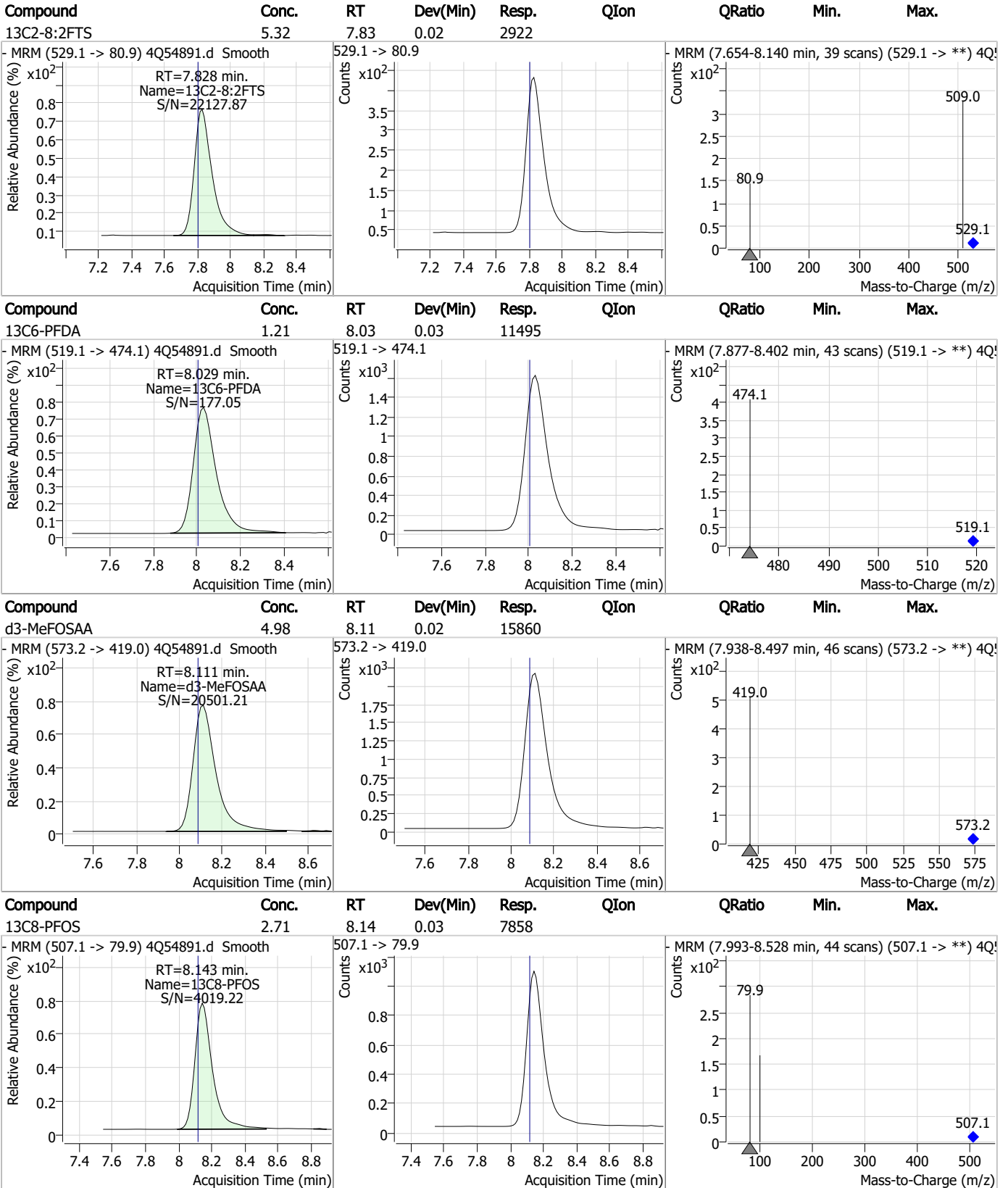
7.5.1  
7

### Perfluorinated Compounds by LC/MS/MS



7.5.1  
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### Perfluorinated Compounds by LC/MS/MS



7.5.1

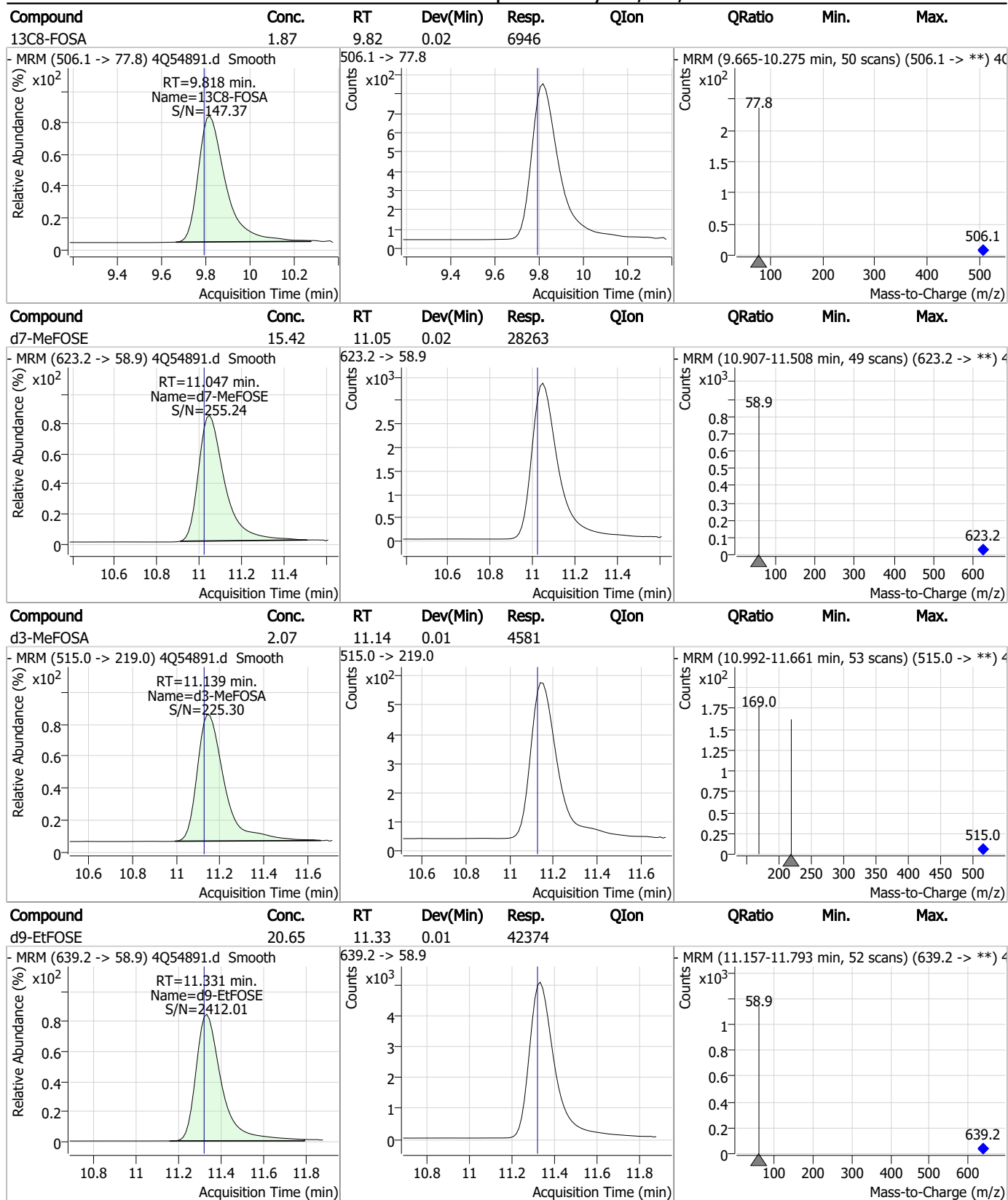
7

### Perfluorinated Compounds by LC/MS/MS

| Compound    | Conc. | RT   | Dev(Min) | Resp. | QIon | QRatio | Min. | Max. |
|-------------|-------|------|----------|-------|------|--------|------|------|
| d5-EtFOSAA  | 4.85  | 8.31 | 0.03     | 13050 |      |        |      |      |
|             |       |      |          |       |      |        |      |      |
| 13C7-PFUnDA | 1.24  | 8.47 | 0.02     | 13914 |      |        |      |      |
|             |       |      |          |       |      |        |      |      |
| 13C2-PFDoDA | 1.05  | 8.89 | 0.01     | 13723 |      |        |      |      |
|             |       |      |          |       |      |        |      |      |
| 13C2-PFTeDA | 1.04  | 9.66 | 0.02     | 13481 |      |        |      |      |
|             |       |      |          |       |      |        |      |      |

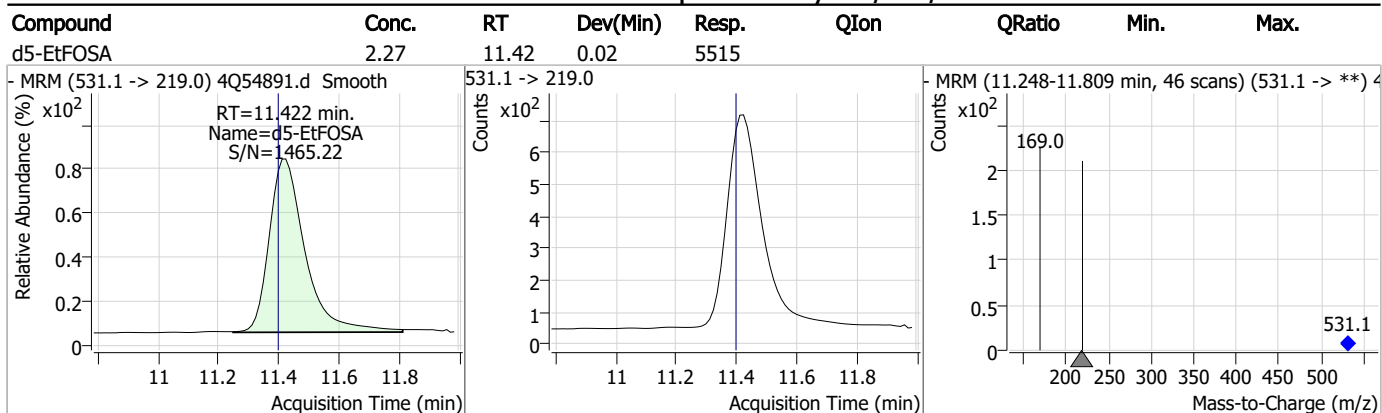
7.5.1  
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### Perfluorinated Compounds by LC/MS/MS



7.5.1  
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### Perfluorinated Compounds by LC/MS/MS



7.5.1  
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Manual Integrations  
**APPROVED**  
 (compounds with "m" flag)

Natasha Gumtie  
 12/11/23 15:42

### Perfluorinated Compounds by LC/MS/MS

Data File : 4Q54849.d  
 Operator : annal  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 12/8/2023 10:54:00 AM  
 Sample Name : RT TDCA  
 Vial : P1-B1  
 DA Method File : TDCA.quantmethod.xml  
 Batch Name : s4q804\_TDCA.batch.bin  
 Sample Information : OP99999,S4Q804,500,,,5.0,1,water

| Compound                           | RT                   | Transition                     | Response          | Conc. | Units | Dev(Min) | QValue |
|------------------------------------|----------------------|--------------------------------|-------------------|-------|-------|----------|--------|
| <b>Internal Standards</b>          |                      |                                |                   |       |       |          |        |
| M8-PFOS                            | 8.105                | 507.1 -> 79.9                  | 13411             | 2.50  | µg/L  | 0.062    |        |
| 13C4-PFOS                          | 8.106                | 502.8 -> 79.9                  | 10969             | 2.50  | µg/L  | 0.062    |        |
| <b>System Monitoring Compounds</b> |                      |                                |                   |       |       |          |        |
| 13C8-PFOS                          | 8.105                | 507.1 -> 79.9                  | 13411             | 3.10  | µg/L  | 0.062    |        |
| Spiked Amount: 2.50                | Range: 50.0 - 150.0% |                                | Recovery = 124.0% |       |       |          |        |
| <b>Target Compounds</b>            |                      |                                |                   |       |       |          |        |
| PFOS                               | 8.106                | 498.9 -> 79.9<br>498.9 -> 98.8 | 12889<br>5873     | 2.81  | µg/L  | m        | 92     |
| TCDCa                              | 6.610                | 498.9 -> 79.9                  | 4217              | 6.81  | ng/ml |          | 100    |
| TDCA                               | 6.759                | 498.9 -> 79.9                  | 5427              | 9.68  | ng/ml |          | 100    |
| TUDCA                              | 5.766                | 498.9 -> 79.9                  | 7046              | 5.93  | ng/ml |          | 100    |

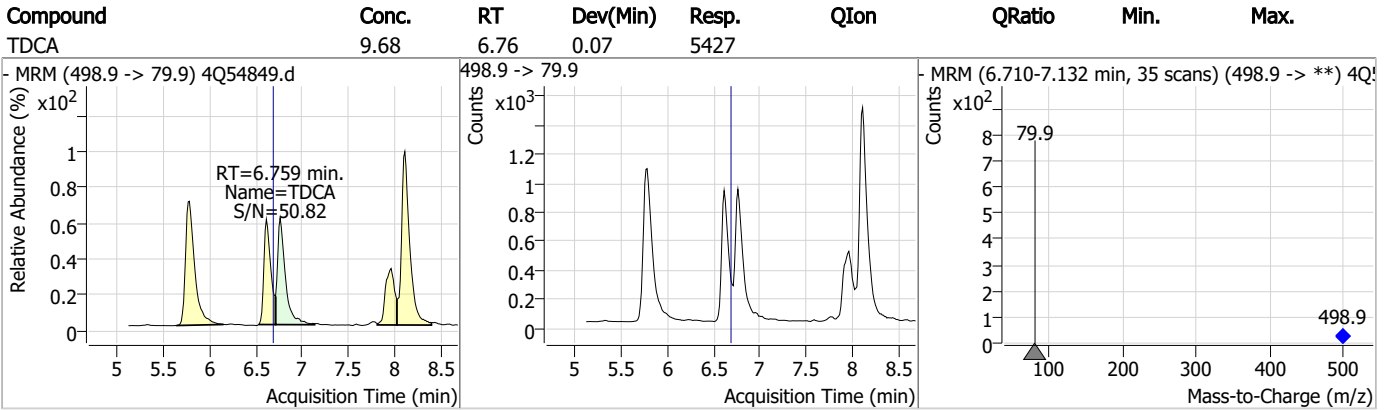
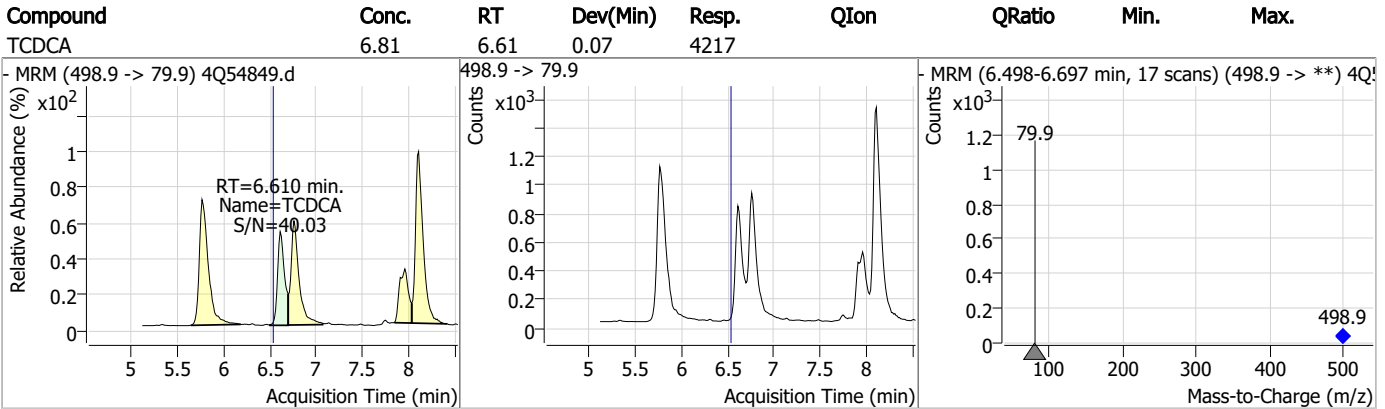
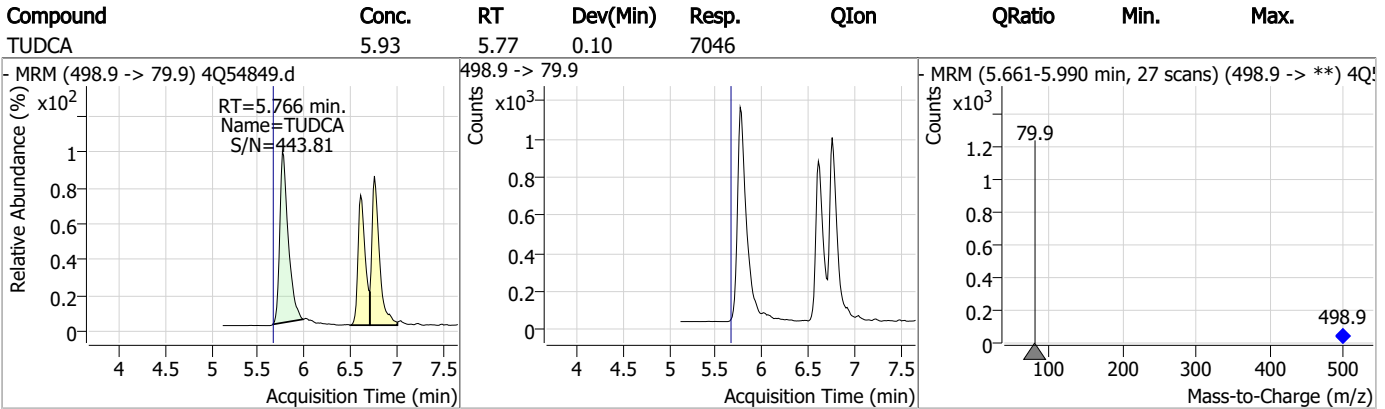
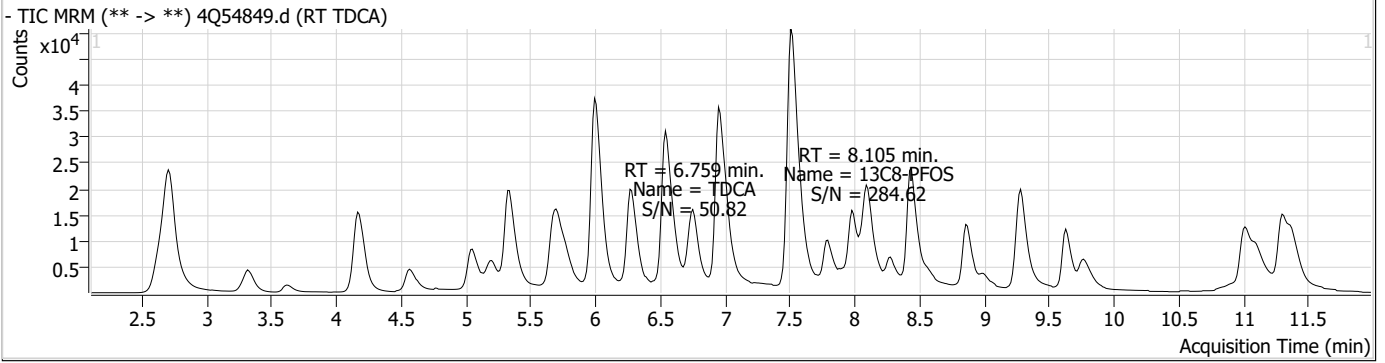
# = Qualifier out of range, m = manually integrated, + = Area summed

7.6.1

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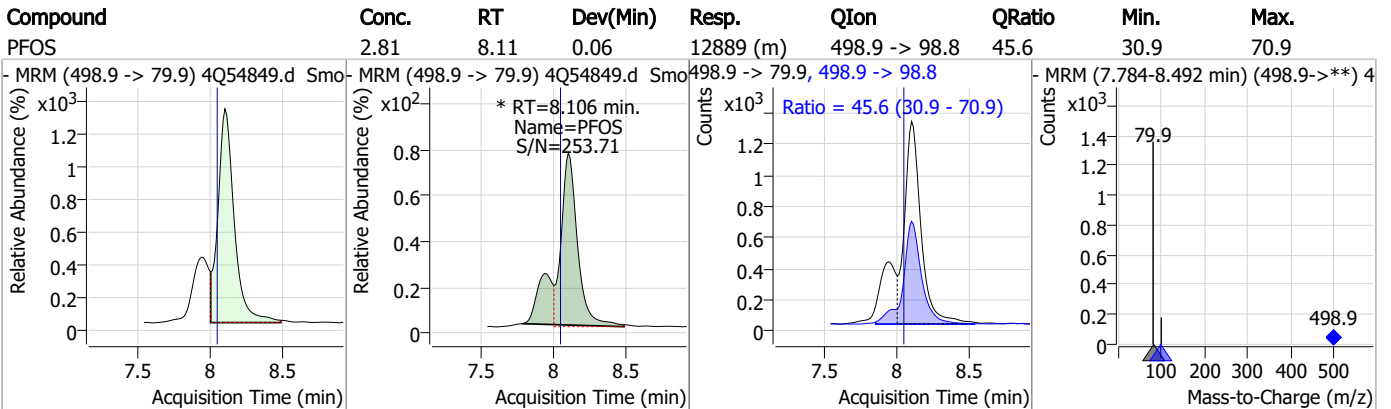
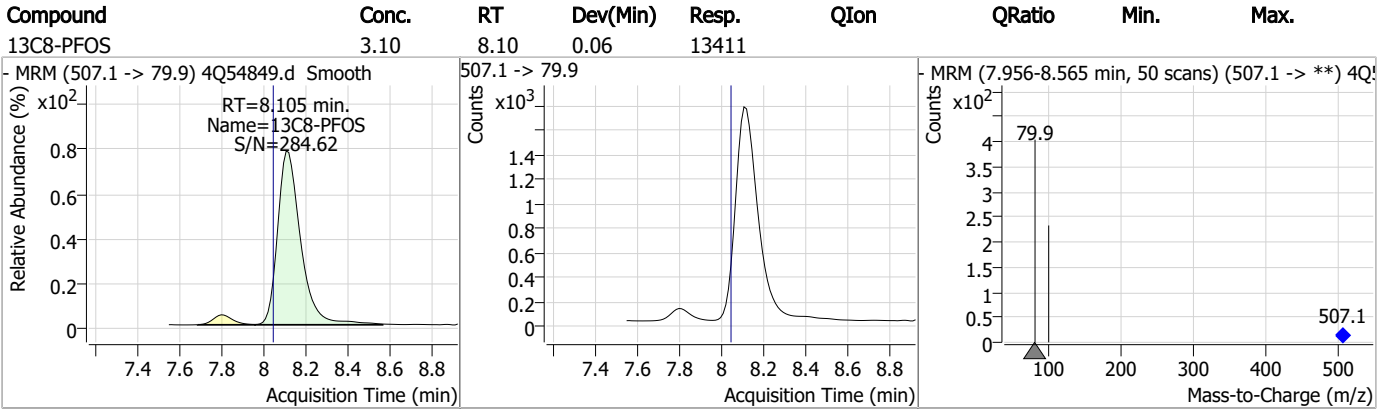


### Perfluorinated Compounds by LC/MS/MS



7.6.1  
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Perfluorinated Compounds by LC/MS/MS



7.6.1

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# Manual Integration Approval Summary

Sample Number: S4Q804-RT                      Method: EPA DRAFT 1633  
Lab FileID: 4Q54849.D                      Analyst approved: 12/10/23 12:52 Anna Ludwig  
Injection Time: 12/08/23 10:54                      Supervisor approved: 12/11/23 15:42 Natasha Guntie

| Parameter                    | CAS       | Sig# | R.T.<br>(min.) | Reason     |
|------------------------------|-----------|------|----------------|------------|
| Perfluorooctanesulfonic acid | 1763-23-1 |      | 8.11           | Split peak |

## Perfluorinated Compounds by LC/MS/MS

Data File : 4Q54850.d  
 Operator : annal  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 12/8/2023 11:08:43 AM  
 Sample Name : RT\_BR\_LN  
 Vial : P1-B2  
 DA Method File : 1633\_120823\_S4Q804.quantmethod.xml  
 Batch Name : s4q804.batch.bin  
 Sample Information : OP99999,S4Q804,500,,,5.0,1,water

| Compound                           | RT                   | Transition     | Response          | Conc. Units | Dev(Min) |
|------------------------------------|----------------------|----------------|-------------------|-------------|----------|
| <b>Internal Standards</b>          |                      |                |                   |             |          |
| M4-PFBA                            | 2.686                | 216.8 -> 171.9 | 109577            | 10.00 µg/L  | 0.012    |
| M5-PFPeA                           | 4.162                | 268.3 -> 223.0 | 48116             | 5.00 µg/L   | 0.000    |
| M5-PFHxA                           | 5.334                | 318.0 -> 273.0 | 38330             | 2.50 µg/L   | 0.000    |
| M4-PFHpA                           | 6.280                | 367.1 -> 322.0 | 35630             | 2.50 µg/L   | -0.012   |
| M8-PFOA                            | 6.964                | 421.1 -> 376.0 | 56973             | 2.50 µg/L   | -0.012   |
| M9-PFNA                            | 7.509                | 472.1 -> 427.0 | 22614             | 1.25 µg/L   | -0.012   |
| M6-PFDA                            | 7.992                | 519.1 -> 474.1 | 16475             | 1.25 µg/L   | -0.012   |
| M7-PFUnDA                          | 8.436                | 570.0 -> 525.1 | 18484             | 1.25 µg/L   | -0.012   |
| M2-PFDoDA                          | 8.867                | 615.1 -> 570.0 | 20923             | 1.25 µg/L   | -0.012   |
| M2-PFTeDA                          | 9.637                | 715.2 -> 670.0 | 21263             | 1.25 µg/L   | 0.000    |
| M8-FOSA                            | 9.781                | 506.1 -> 77.8  | 11885             | 2.50 µg/L   | -0.012   |
| M3-PFBS                            | 5.190                | 302.1 -> 79.9  | 10561             | 2.50 µg/L   | 0.000    |
| M3-PFHxS                           | 7.029                | 402.1 -> 79.9  | 8520              | 2.50 µg/L   | 0.000    |
| M8-PFOS                            | 8.117                | 507.1 -> 79.9  | 9271              | 2.50 µg/L   | 0.000    |
| M2-4:2FTS                          | 5.046                | 329.1 -> 80.9  | 1179              | 5.00 µg/L   | 0.000    |
| M2-6:2FTS                          | 6.748                | 429.1 -> 80.9  | 2435              | 5.00 µg/L   | 0.000    |
| M2-8:2FTS                          | 7.791                | 529.1 -> 80.9  | 3373              | 5.00 µg/L   | -0.012   |
| M3-MeFOSAA                         | 8.074                | 573.2 -> 419.0 | 20080             | 5.00 µg/L   | -0.012   |
| M3-HFPO-DA                         | 5.689                | 286.9 -> 168.9 | 38767             | 10.00 µg/L  | 0.000    |
| M5-EtFOSAA                         | 8.271                | 589.2 -> 419.0 | 17695             | 5.00 µg/L   | -0.012   |
| M7-MeFOSE                          | 11.022               | 623.2 -> 58.9  | 54556             | 25.00 µg/L  | 0.000    |
| M9-EtFOSE                          | 11.306               | 639.2 -> 58.9  | 65060             | 25.00 µg/L  | -0.012   |
| M5-EtFOSA                          | 11.398               | 531.1 -> 219.0 | 7671              | 2.50 µg/L   | 0.000    |
| M3-MeFOSA                          | 11.114               | 515.0 -> 219.0 | 7453              | 2.50 µg/L   | -0.012   |
| 13C4-PFOS                          | 8.106                | 502.8 -> 79.9  | 7793              | 2.50 µg/L   | -0.012   |
| 13C3-PFBA                          | 2.691                | 216.0 -> 172.0 | 52810             | 5.00 µg/L   | 0.013    |
| 18O2-PFHxS                         | 7.028                | 403.0 -> 83.9  | 5235              | 2.50 µg/L   | -0.012   |
| 13C4-PFOA                          | 6.964                | 417.1 -> 372.0 | 59749             | 2.50 µg/L   | -0.012   |
| 13C2-PFDA                          | 7.992                | 515.1 -> 470.1 | 17180             | 1.25 µg/L   | -0.012   |
| 13C5-PFNA                          | 7.509                | 468.0 -> 423.0 | 22242             | 1.25 µg/L   | 0.000    |
| 13C2-PFHxA                         | 5.335                | 315.1 -> 270.0 | 40598             | 2.50 µg/L   | 0.000    |
| <b>System Monitoring Compounds</b> |                      |                |                   |             |          |
| 13C2-4:2FTS                        | 5.046                | 329.1 -> 80.9  | 1179              | 4.75 µg/L   | 0.000    |
| Spiked Amount: 5.00                | Range: 50.0 - 150.0% |                | Recovery = 94.9%  |             |          |
| 13C2-6:2FTS                        | 6.748                | 429.1 -> 80.9  | 2435              | 4.52 µg/L   | 0.000    |
| Spiked Amount: 5.00                | Range: 50.0 - 150.0% |                | Recovery = 90.4%  |             |          |
| 13C2-8:2FTS                        | 7.791                | 529.1 -> 80.9  | 3373              | 4.67 µg/L   | -0.012   |
| Spiked Amount: 5.00                | Range: 50.0 - 150.0% |                | Recovery = 93.5%  |             |          |
| 13C2-PFDoDA                        | 8.867                | 615.1 -> 570.0 | 20923             | 1.22 µg/L   | -0.012   |
| Spiked Amount: 1.25                | Range: 50.0 - 150.0% |                | Recovery = 97.5%  |             |          |
| 13C2-PFTeDA                        | 9.637                | 715.2 -> 670.0 | 21263             | 1.25 µg/L   | 0.000    |
| Spiked Amount: 1.25                | Range: 50.0 - 150.0% |                | Recovery = 99.7%  |             |          |
| 13C3-PFBS                          | 5.190                | 302.1 -> 79.9  | 10561             | 2.63 µg/L   | 0.000    |
| Spiked Amount: 2.50                | Range: 50.0 - 150.0% |                | Recovery = 105.3% |             |          |
| 13C3-PFHxS                         | 7.029                | 402.1 -> 79.9  | 8520              | 2.60 µg/L   | 0.000    |

7.62  
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## Perfluorinated Compounds by LC/MS/MS

| Compound                | RT                   | Transition     | Response | Conc. Units       | Dev(Min)      |
|-------------------------|----------------------|----------------|----------|-------------------|---------------|
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 103.8% |               |
| 13C4-PFBA               | 2.686                | 216.8 -> 171.9 | 109577   | 9.88 µg/L         | 0.012         |
| Spiked Amount: 10.00    | Range: 50.0 - 150.0% |                |          | Recovery = 98.8%  |               |
| 13C4-PFHpA              | 6.280                | 367.1 -> 322.0 | 35630    | 2.49 µg/L         | -0.012        |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 99.6%  |               |
| 13C5-PFHxA              | 5.334                | 318.0 -> 273.0 | 38330    | 2.56 µg/L         | 0.000         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 102.5% |               |
| 13C5-PFPeA              | 4.162                | 268.3 -> 223.0 | 48116    | 5.16 µg/L         | 0.000         |
| Spiked Amount: 5.00     | Range: 50.0 - 150.0% |                |          | Recovery = 103.3% |               |
| 13C6-PFDA               | 7.992                | 519.1 -> 474.1 | 16475    | 1.32 µg/L         | -0.012        |
| Spiked Amount: 1.25     | Range: 50.0 - 150.0% |                |          | Recovery = 105.4% |               |
| 13C7-PFUnDA             | 8.436                | 570.0 -> 525.1 | 18484    | 1.25 µg/L         | -0.012        |
| Spiked Amount: 1.25     | Range: 50.0 - 150.0% |                |          | Recovery = 100.3% |               |
| 13C8-FOSA               | 9.781                | 506.1 -> 77.8  | 11885    | 2.35 µg/L         | -0.012        |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 94.1%  |               |
| 13C8-PFOA               | 6.964                | 421.1 -> 376.0 | 56973    | 2.58 µg/L         | -0.012        |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 103.2% |               |
| 13C8-PFOS               | 8.117                | 507.1 -> 79.9  | 9271     | 2.35 µg/L         | 0.000         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 94.0%  |               |
| 13C9-PFNA               | 7.509                | 472.1 -> 427.0 | 22614    | 1.27 µg/L         | -0.012        |
| Spiked Amount: 1.25     | Range: 50.0 - 150.0% |                |          | Recovery = 101.5% |               |
| d3-MeFOSAA              | 8.074                | 573.2 -> 419.0 | 20080    | 4.64 µg/L         | -0.012        |
| Spiked Amount: 5.00     | Range: 50.0 - 150.0% |                |          | Recovery = 92.8%  |               |
| 13C3-HFPO-DA            | 5.689                | 286.9 -> 168.9 | 38767    | 10.37 µg/L        | 0.000         |
| Spiked Amount: 10.00    | Range: 50.0 - 150.0% |                |          | Recovery = 103.7% |               |
| d3-MeFOSA               | 11.114               | 515.0 -> 219.0 | 7453     | 2.47 µg/L         | -0.012        |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 99.0%  |               |
| d5-EtFOSAA              | 8.271                | 589.2 -> 419.0 | 17695    | 4.84 µg/L         | -0.012        |
| Spiked Amount: 5.00     | Range: 50.0 - 150.0% |                |          | Recovery = 96.7%  |               |
| d7-MeFOSE               | 11.022               | 623.2 -> 58.9  | 54556    | 21.90 µg/L        | 0.000         |
| Spiked Amount: 25.00    | Range: 50.0 - 150.0% |                |          | Recovery = 87.6%  |               |
| d9-EtFOSE               | 11.306               | 639.2 -> 58.9  | 65060    | 23.32 µg/L        | -0.012        |
| Spiked Amount: 25.00    | Range: 50.0 - 150.0% |                |          | Recovery = 93.3%  |               |
| d5-EtFOSA               | 11.398               | 531.1 -> 219.0 | 7671     | 2.32 µg/L         | 0.000         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 92.9%  |               |
| <b>Target Compounds</b> |                      |                |          |                   | <b>QValue</b> |
| 4:2FTS                  | 5.047                | 327.1 -> 307.0 | 103905   | 51.16 µg/L        | 97            |
|                         |                      | 327.1 -> 80.9  | 42237    |                   |               |
| 6:2FTS                  | 6.749                | 427.1 -> 407.0 | 133922   | 52.32 µg/L        | 98            |
|                         |                      | 427.1 -> 80.9  | 47757    |                   |               |
| 8:2FTS                  | 7.792                | 527.1 -> 507.0 | 96759    | 54.43 µg/L        | 98            |
|                         |                      | 527.1 -> 80.8  | 37751    |                   |               |
| EtFOSAA                 | 8.284                | 584.2 -> 419.1 | 40376    | 12.51 µg/L        | 85            |
|                         |                      | 584.2 -> 526.0 | 16337    |                   |               |
| FOSA                    | 9.785                | 498.1 -> 77.9  | 152926   | 28.63 µg/L        | 98            |
|                         |                      | 498.1 -> 478.0 | 5436     |                   |               |
| MeFOSAA                 | 8.075                | 570.1 -> 419.0 | 42693    | 14.83 µg/L        | 93            |
|                         |                      | 570.1 -> 483.0 | 8287     |                   |               |
| PFBA                    | 2.682                | 212.8 -> 168.9 | 181473   | 51.71 µg/L        | 100           |
| PFBS                    | 5.191                | 298.7 -> 79.9  | 36638    | 11.18 µg/L        | 97            |
|                         |                      | 298.7 -> 98.8  | 14206    |                   |               |
| PFDA                    | 7.992                | 512.9 -> 469.0 | 147416   | 12.18 µg/L        | 99            |
|                         |                      | 512.9 -> 219.0 | 29566    |                   |               |
| PFDoDA                  | 8.868                | 613.1 -> 569.0 | 208217   | 13.82 µg/L        | 100           |
|                         |                      | 613.1 -> 319.0 | 36008    |                   |               |
| PFDS                    | 9.008                | 599.0 -> 79.9  | 31505    | 12.77 µg/L        | 93            |

## Perfluorinated Compounds by LC/MS/MS

| Compound     | RT     | Transition     | Response | Conc.  | Units | Dev(Min) |
|--------------|--------|----------------|----------|--------|-------|----------|
|              |        | 599.0 -> 98.8  | 15050    |        |       |          |
| PFHpA        | 6.280  | 363.1 -> 319.0 | 275243   | 13.72  | µg/L  | 98       |
|              |        | 363.1 -> 169.0 | 47994    |        |       |          |
| PFHpS        | 7.612  | 449.0 -> 79.9  | 44856    | 12.19  | µg/L  | 100      |
|              |        | 449.0 -> 98.9  | 23353    |        |       |          |
| PFHxA        | 5.337  | 313.0 -> 269.0 | 157141   | 12.85  | µg/L  | 99       |
|              |        | 313.0 -> 118.9 | 5108     |        |       |          |
| PFHxS        | 7.030  | 398.7 -> 79.9  | 31747    | 11.55  | µg/L  | m 94     |
|              |        | 398.7 -> 98.9  | 16274    |        |       |          |
| PFNA         | 7.371  | 463.0 -> 419.0 | 385448   | 29.01  | µg/L  | m 96     |
|              |        | 463.0 -> 219.0 | 96237    |        |       |          |
| PFNS         | 8.574  | 548.8 -> 79.9  | 21414    | 13.54  | µg/L  | 95       |
|              |        | 548.8 -> 98.9  | 11287    |        |       |          |
| PFOA         | 6.965  | 413.0 -> 369.0 | 656626   | 28.03  | µg/L  | m 97     |
|              |        | 413.0 -> 169.0 | 138186   |        |       |          |
| PFOS         | 8.106  | 498.9 -> 79.9  | 46215    | 11.98  | µg/L  | #m 52    |
|              |        | 498.9 -> 98.8  | 20888    |        |       |          |
| PFPeA        | 4.164  | 263.0 -> 219.0 | 244735   | 25.85  | µg/L  | 100      |
| PFPeS        | 6.282  | 349.1 -> 79.9  | 32626    | 12.61  | µg/L  | 97       |
|              |        | 349.1 -> 98.9  | 14406    |        |       |          |
| PFTeDA       | 9.637  | 713.1 -> 669.0 | 198691   | 13.43  | µg/L  | 99       |
|              |        | 713.1 -> 168.9 | 20078    |        |       |          |
| PFTrDA       | 9.267  | 663.0 -> 619.0 | 229108   | 13.99  | µg/L  | 98       |
|              |        | 663.0 -> 168.9 | 32225    |        |       |          |
| PFUnDA       | 8.437  | 563.1 -> 519.0 | 173424   | 12.90  | µg/L  | 100      |
|              |        | 563.1 -> 269.1 | 37151    |        |       |          |
| 11CI-PF3OUdS | 9.294  | 630.9 -> 450.9 | 263908   | 24.72  | µg/L  | 99       |
|              |        | 632.9 -> 452.9 | 81419    |        |       |          |
| 9CI-PF3ONS   | 8.438  | 530.8 -> 351.0 | 251590   | 23.32  | µg/L  | 100      |
|              |        | 532.8 -> 353.0 | 76603    |        |       |          |
| ADONA        | 6.556  | 376.9 -> 250.9 | 696640   | 26.61  | µg/L  | 100      |
|              |        | 376.9 -> 84.8  | 167896   |        |       |          |
| HFPO-DA      | 5.690  | 284.9 -> 168.9 | 97169    | 26.20  | µg/L  | 100      |
|              |        | 284.9 -> 184.9 | 9150     |        |       |          |
| 3:3FTCA      | 3.617  | 241.0 -> 177.0 | 35968    | 64.47  | µg/L  | 100      |
|              |        | 241.0 -> 117.0 | 3208     |        |       |          |
| 5:3FTCA      | 6.008  | 341.0 -> 237.1 | 698089   | 319.99 | µg/L  | 100      |
|              |        | 341.0 -> 217.0 | 499659   |        |       |          |
| 7:3FTCA      | 7.524  | 441.0 -> 316.9 | 364678   | 318.77 | µg/L  | 98       |
|              |        | 441.0 -> 336.9 | 857839   |        |       |          |
| EtFOSA       | 11.399 | 526.0 -> 219.0 | 145844   | 44.66  | µg/L  | 96       |
|              |        | 526.0 -> 169.0 | 208885   |        |       |          |
| EtFOSE       | 11.320 | 630.0 -> 58.9  | 190689   | 82.82  | µg/L  | 100      |
| MeFOSA       | 11.115 | 511.9 -> 219.0 | 115075   | 43.36  | µg/L  | m 98     |
|              |        | 511.9 -> 169.0 | 167905   |        |       |          |
| MeFOSE       | 11.035 | 616.1 -> 58.9  | 190571   | 88.04  | µg/L  | 100      |
| PFDoDS       | 9.765  | 699.1 -> 79.9  | 24953    | 13.26  | µg/L  | 97       |
|              |        | 699.1 -> 98.8  | 13582    |        |       |          |
| NFDHA        | 5.216  | 295.0 -> 201.0 | 21479    | 24.79  | µg/L  | 97       |
|              |        | 295.0 -> 84.9  | 5327     |        |       |          |
| PFMBA        | 4.566  | 279.0 -> 85.1  | 131289   | 25.19  | µg/L  | 100      |
| PFMPA        | 3.315  | 229.0 -> 84.9  | 145882   | 25.47  | µg/L  | 100      |
| PFEESA       | 5.722  | 314.8 -> 134.9 | 209661   | 23.19  | µg/L  | 99       |
|              |        | 314.8 -> 82.9  | 7234     |        |       |          |

# = Qualifier out of range, m = manually integrated, + = Area summed

# Perfluorinated Compounds by LC/MS/MS

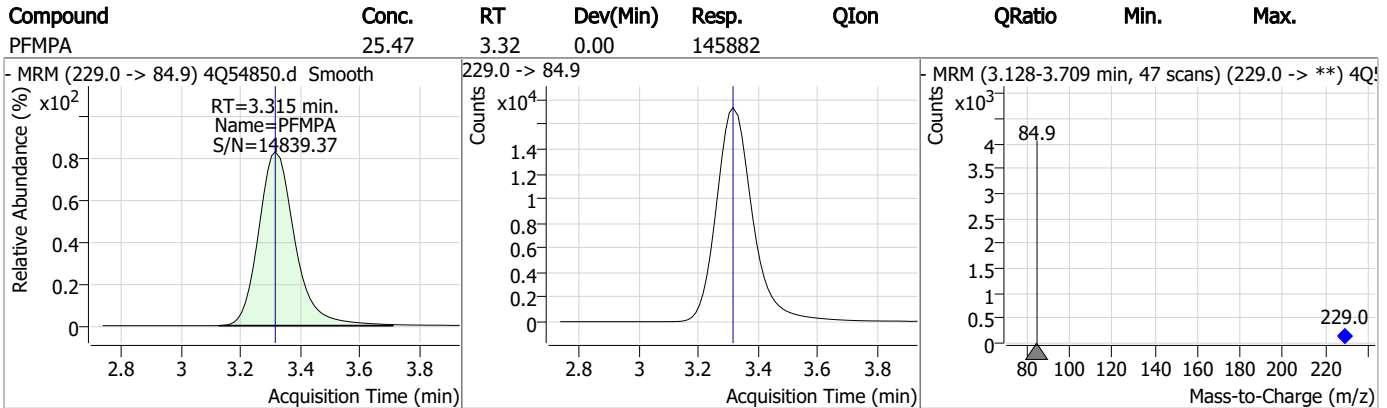
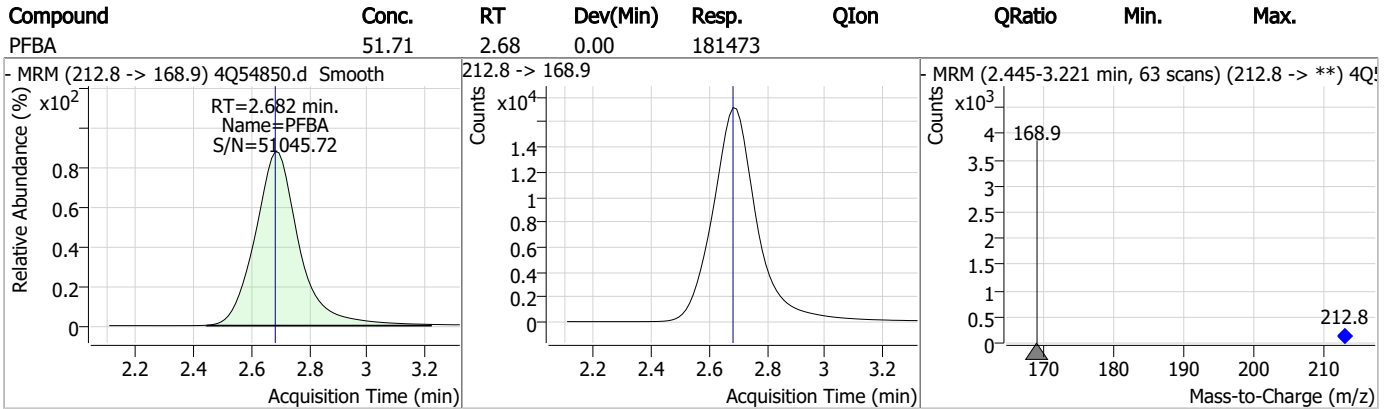
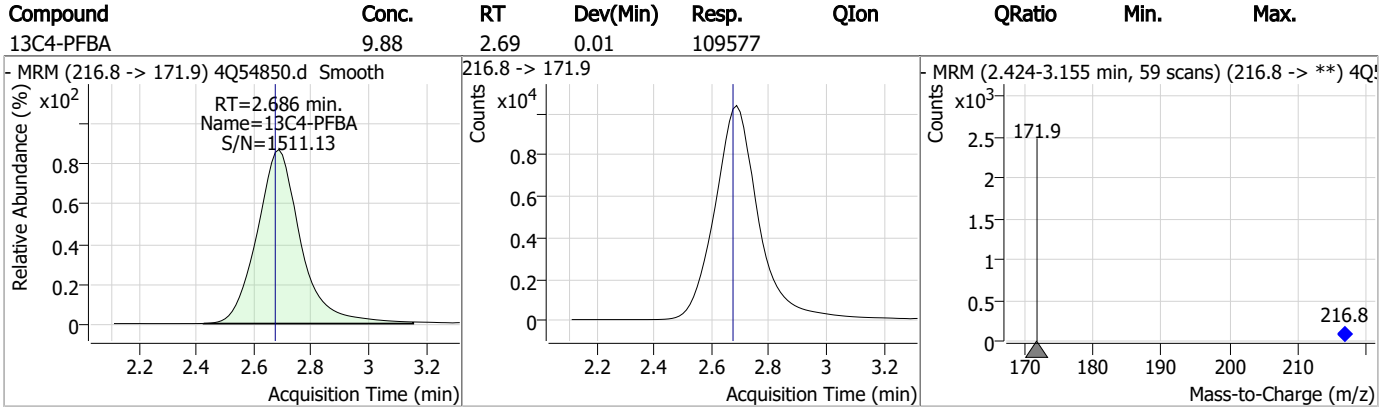
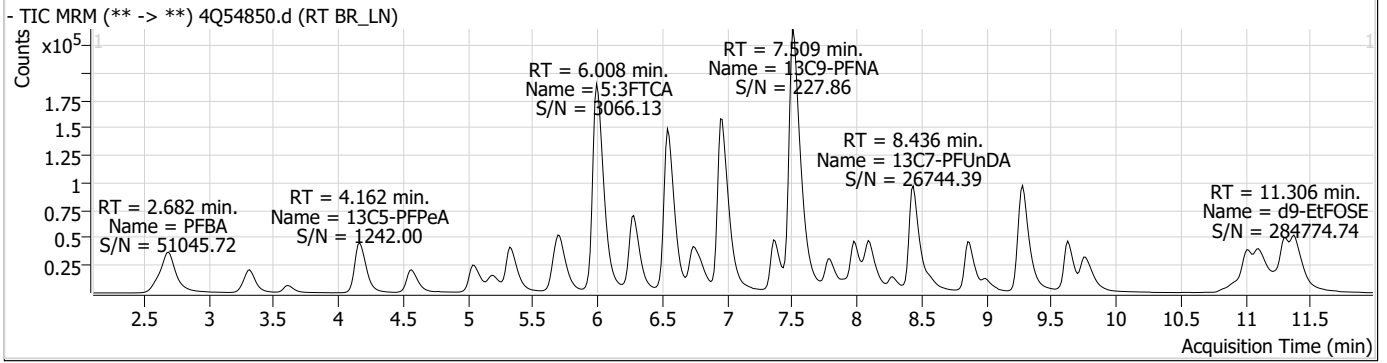
| Compound | RT | Transition | Response | Conc. Units | Dev(Min) |
|----------|----|------------|----------|-------------|----------|
|----------|----|------------|----------|-------------|----------|

7.6.2

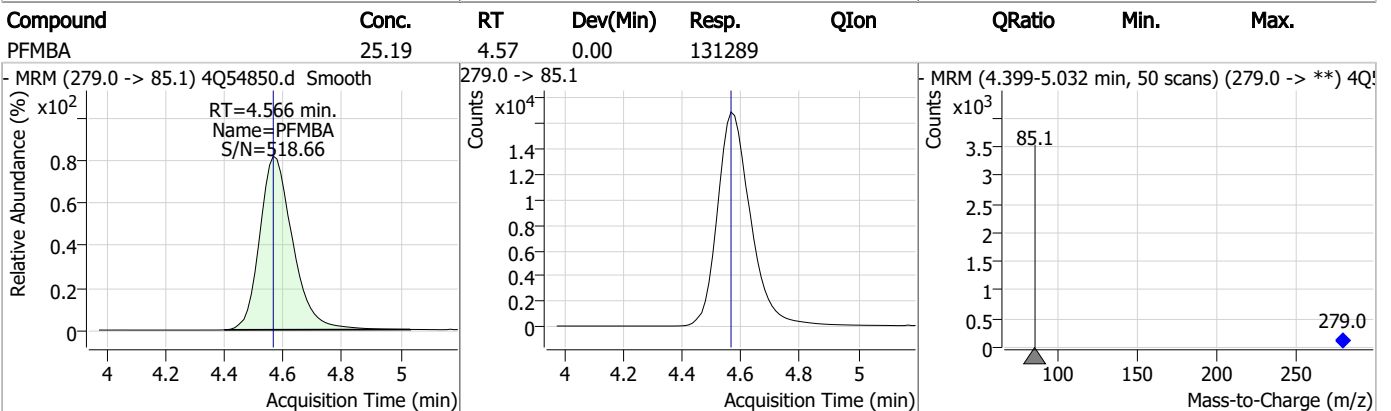
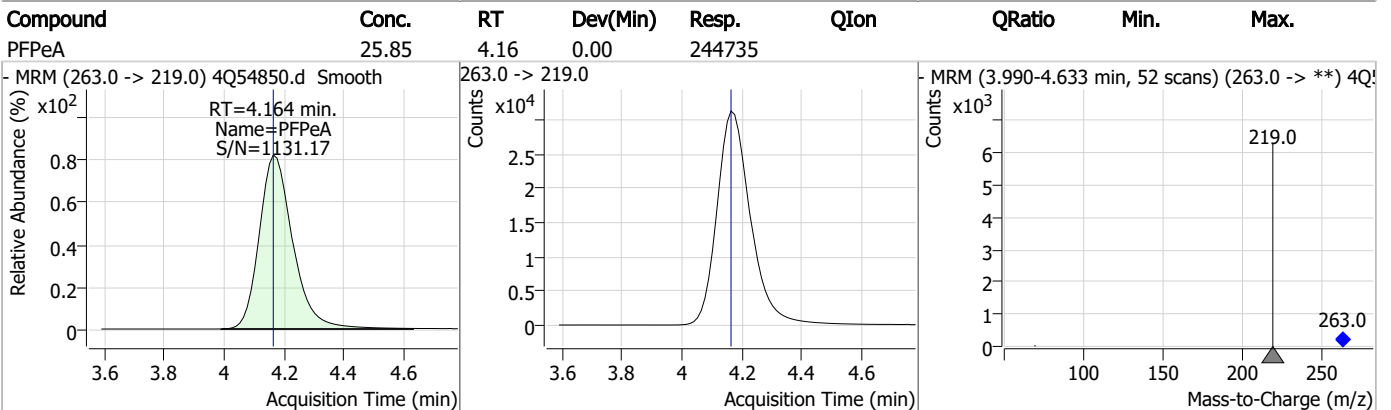
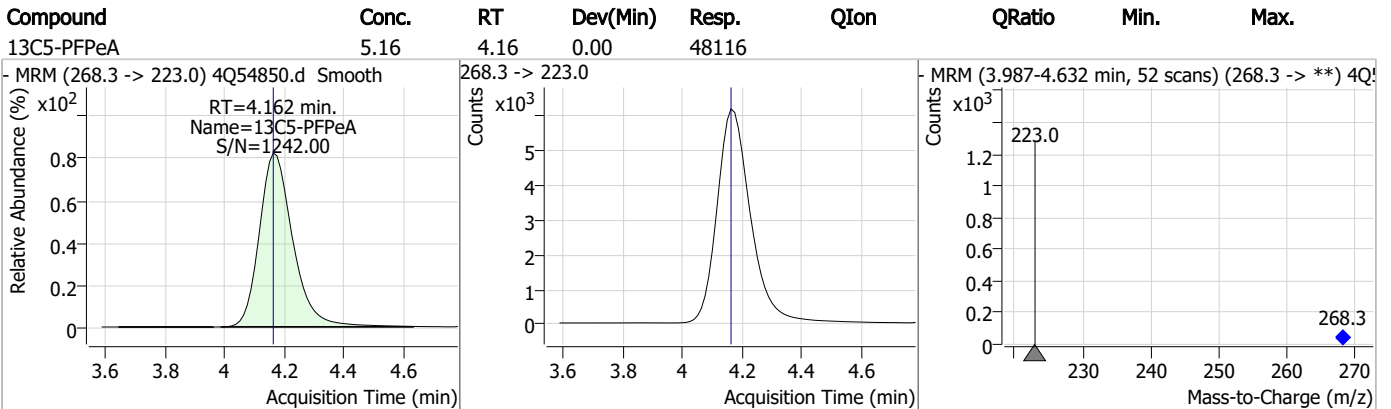
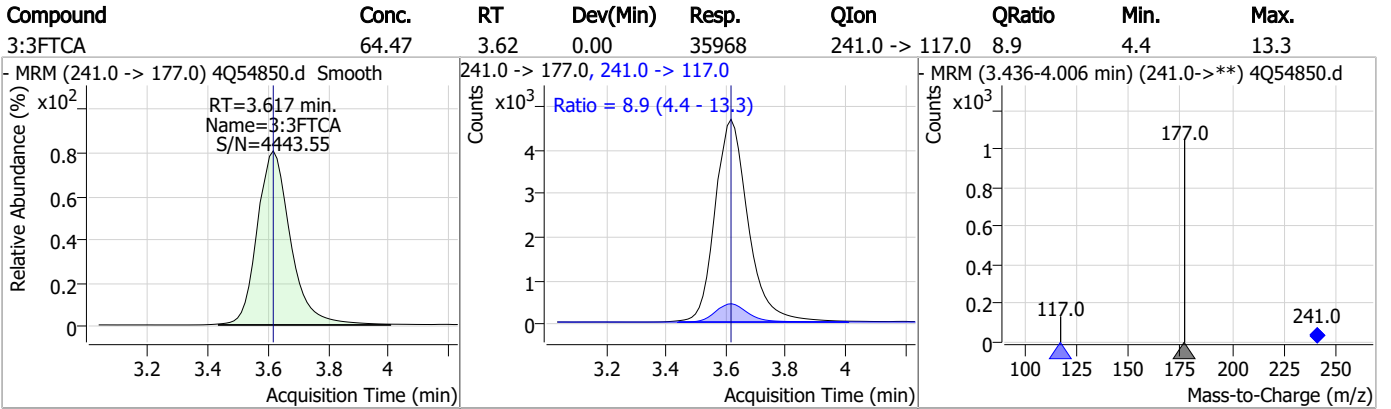
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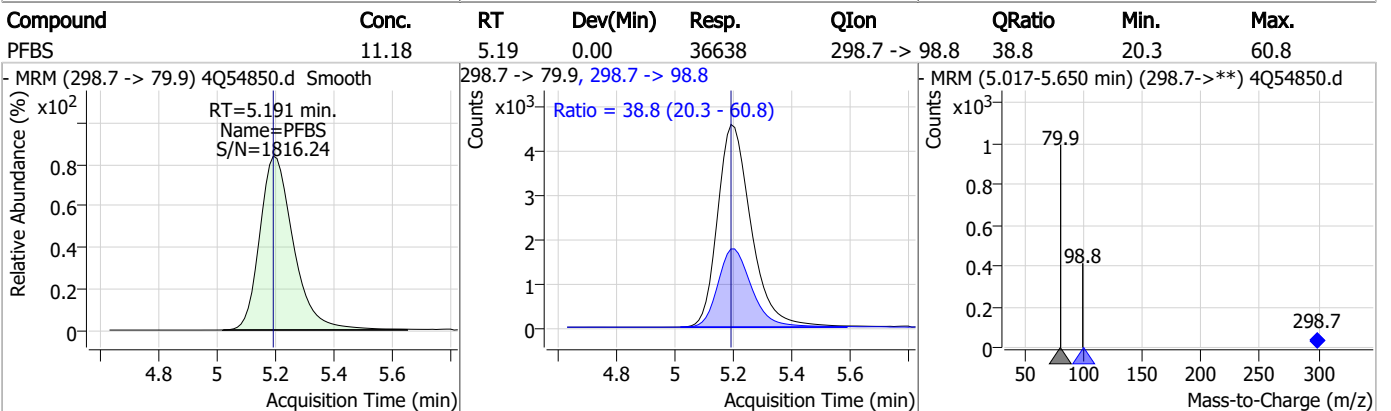
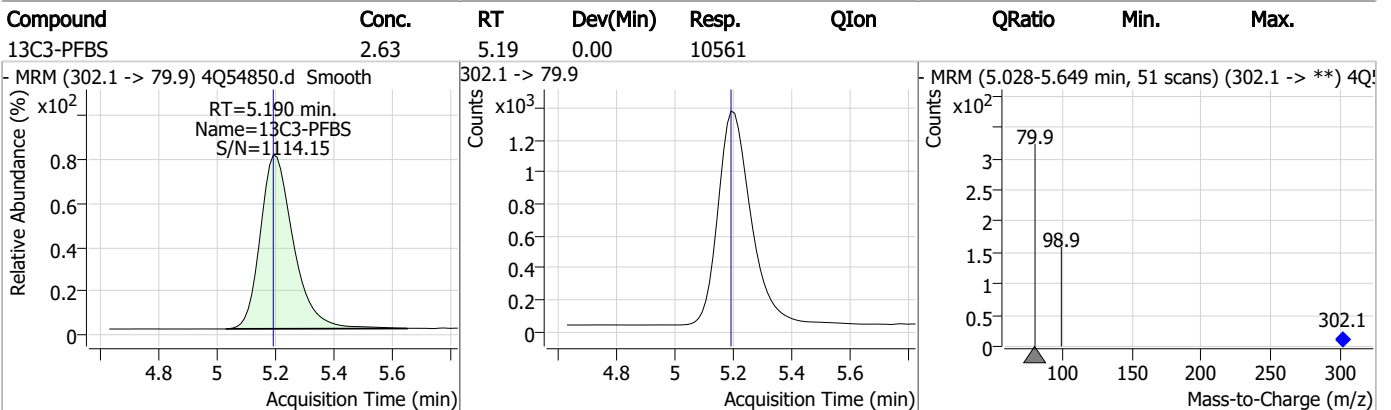
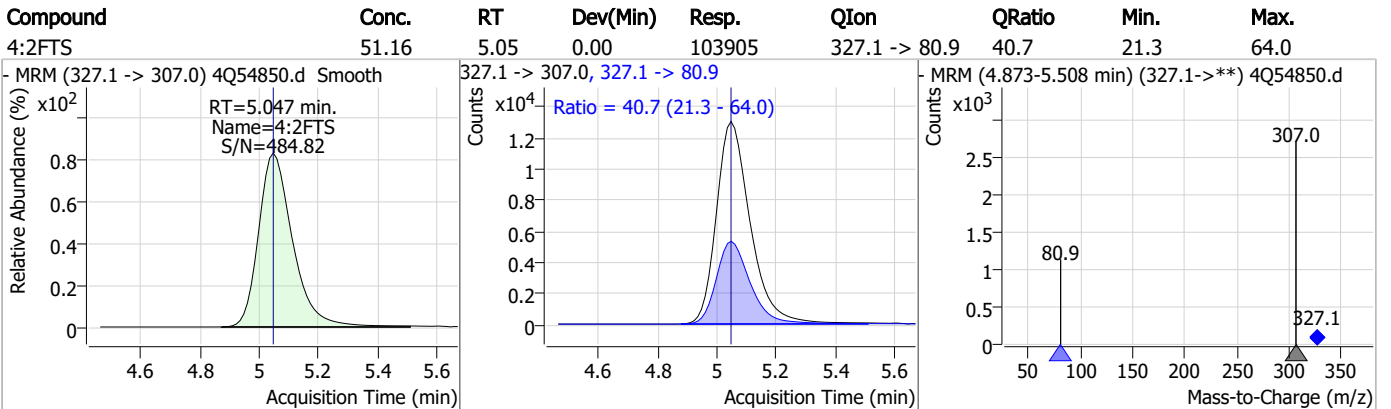
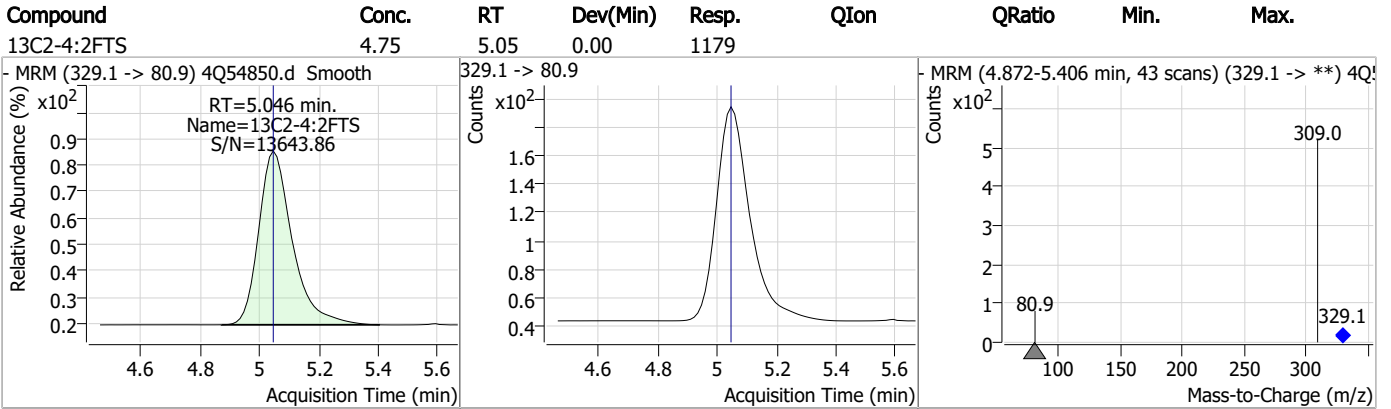
# Perfluorinated Compounds by LC/MS/MS



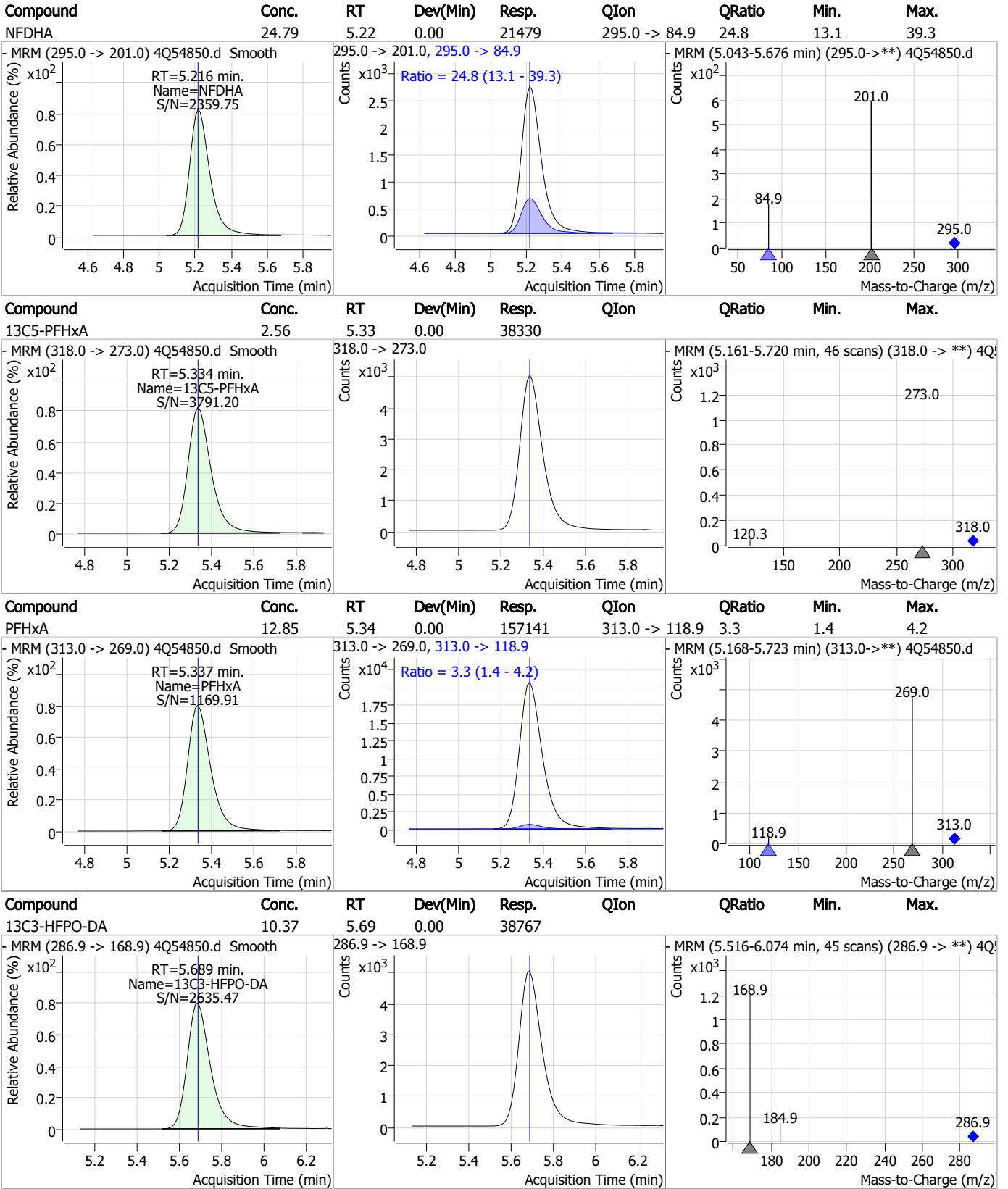
# Perfluorinated Compounds by LC/MS/MS



# Perfluorinated Compounds by LC/MS/MS

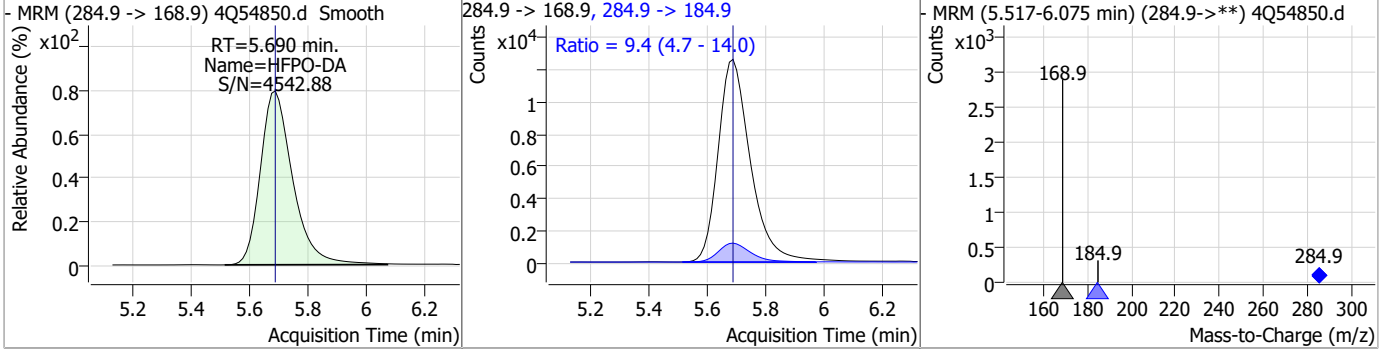


# Perfluorinated Compounds by LC/MS/MS

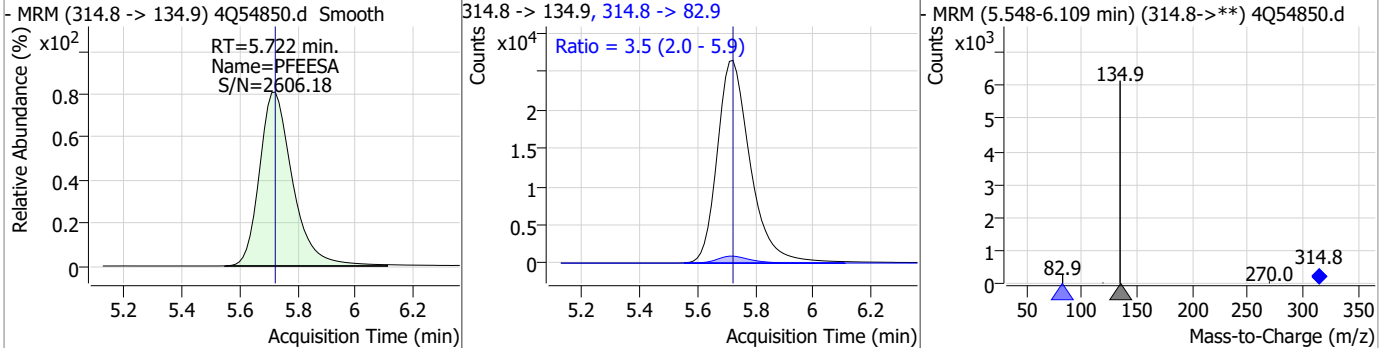


# Perfluorinated Compounds by LC/MS/MS

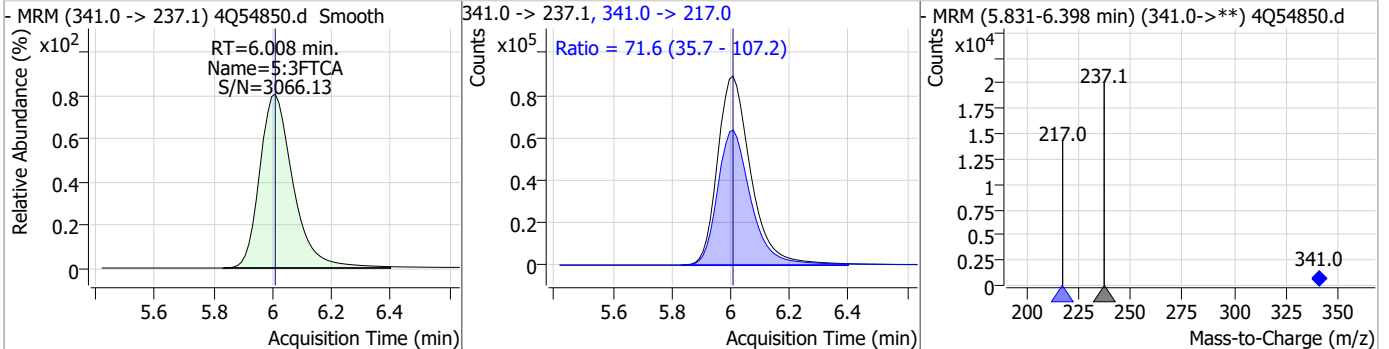
| Compound | Conc. | RT   | Dev(Min) | Resp. | QIon           | QRatio | Min. | Max. |
|----------|-------|------|----------|-------|----------------|--------|------|------|
| HFPO-DA  | 26.20 | 5.69 | 0.00     | 97169 | 284.9 -> 184.9 | 9.4    | 4.7  | 14.0 |



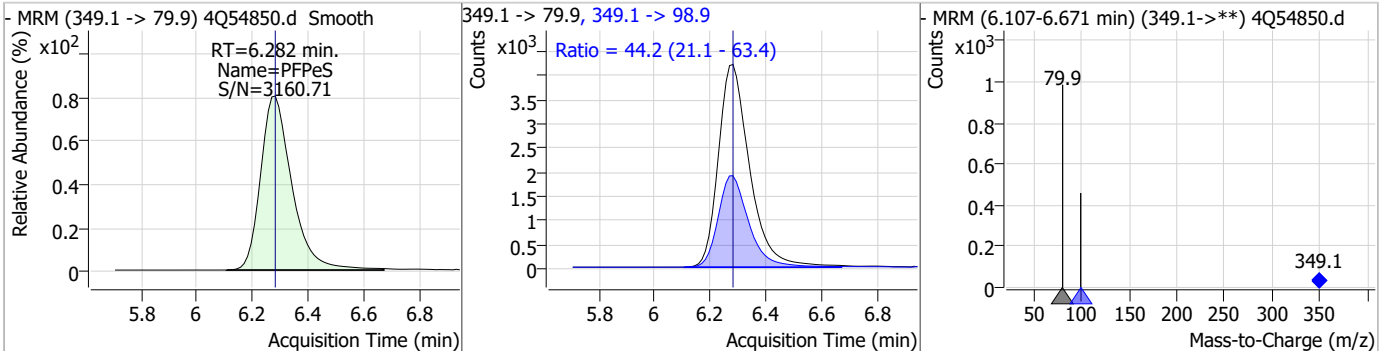
| Compound | Conc. | RT   | Dev(Min) | Resp.  | QIon          | QRatio | Min. | Max. |
|----------|-------|------|----------|--------|---------------|--------|------|------|
| PFEESA   | 23.19 | 5.72 | 0.00     | 209661 | 314.8 -> 82.9 | 3.5    | 2.0  | 5.9  |



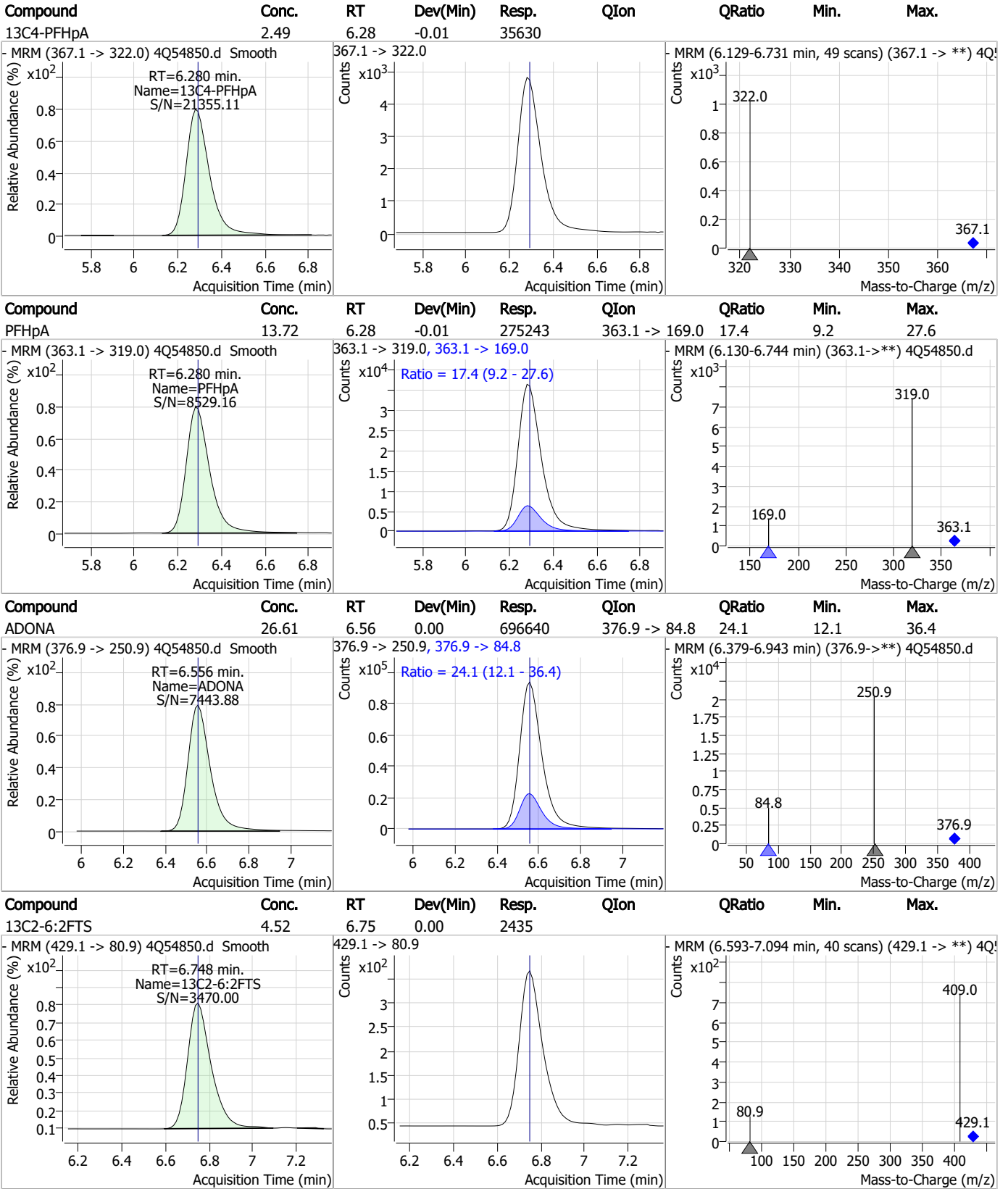
| Compound | Conc.  | RT   | Dev(Min) | Resp.  | QIon           | QRatio | Min. | Max.  |
|----------|--------|------|----------|--------|----------------|--------|------|-------|
| 5:3FTCA  | 319.99 | 6.01 | 0.00     | 698089 | 341.0 -> 217.0 | 71.6   | 35.7 | 107.2 |



| Compound | Conc. | RT   | Dev(Min) | Resp. | QIon          | QRatio | Min. | Max. |
|----------|-------|------|----------|-------|---------------|--------|------|------|
| PFPeS    | 12.61 | 6.28 | 0.00     | 32626 | 349.1 -> 98.9 | 44.2   | 21.1 | 63.4 |



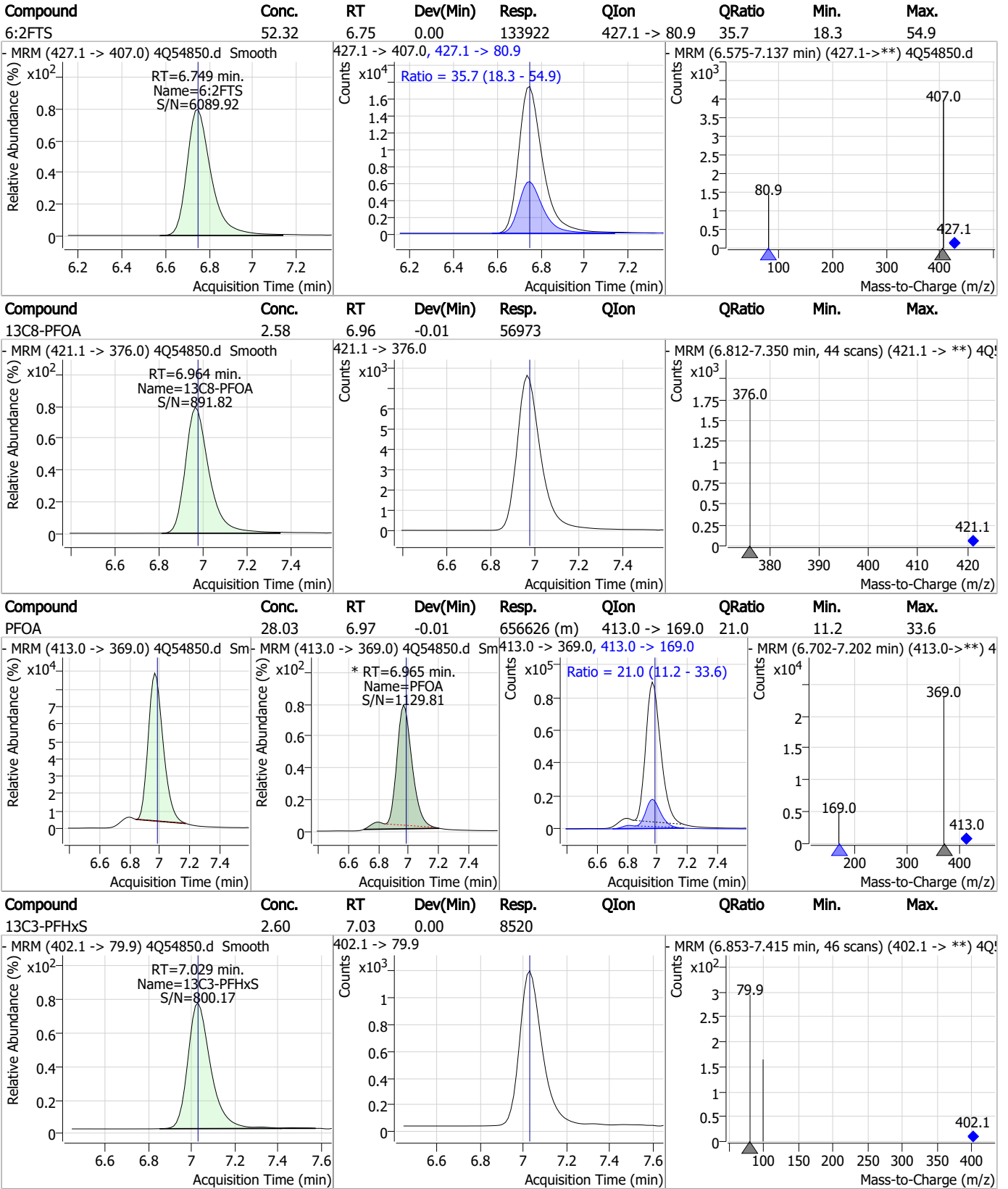
# Perfluorinated Compounds by LC/MS/MS



7.6.2

7

# Perfluorinated Compounds by LC/MS/MS

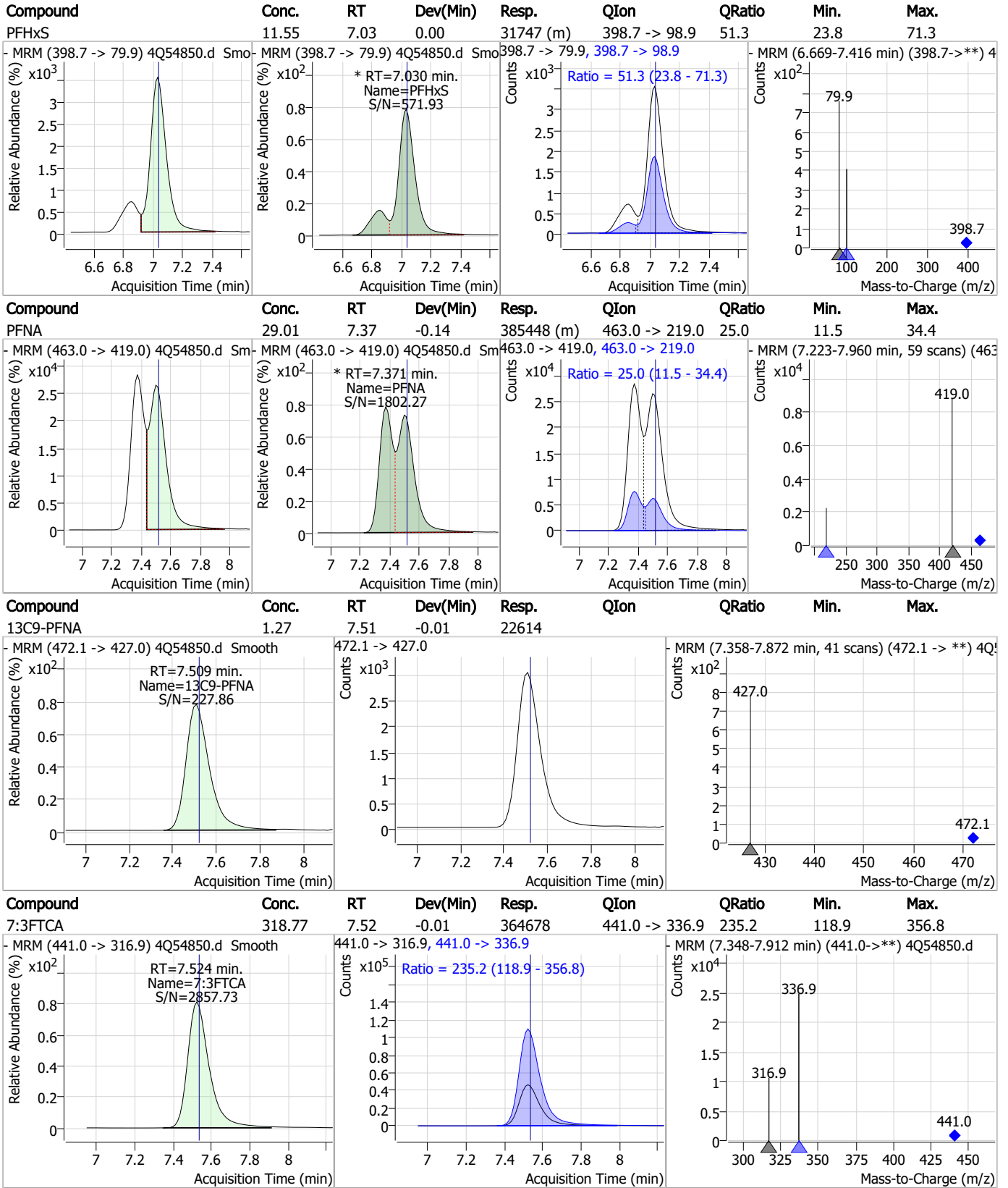


7.6.2

7



# Perfluorinated Compounds by LC/MS/MS



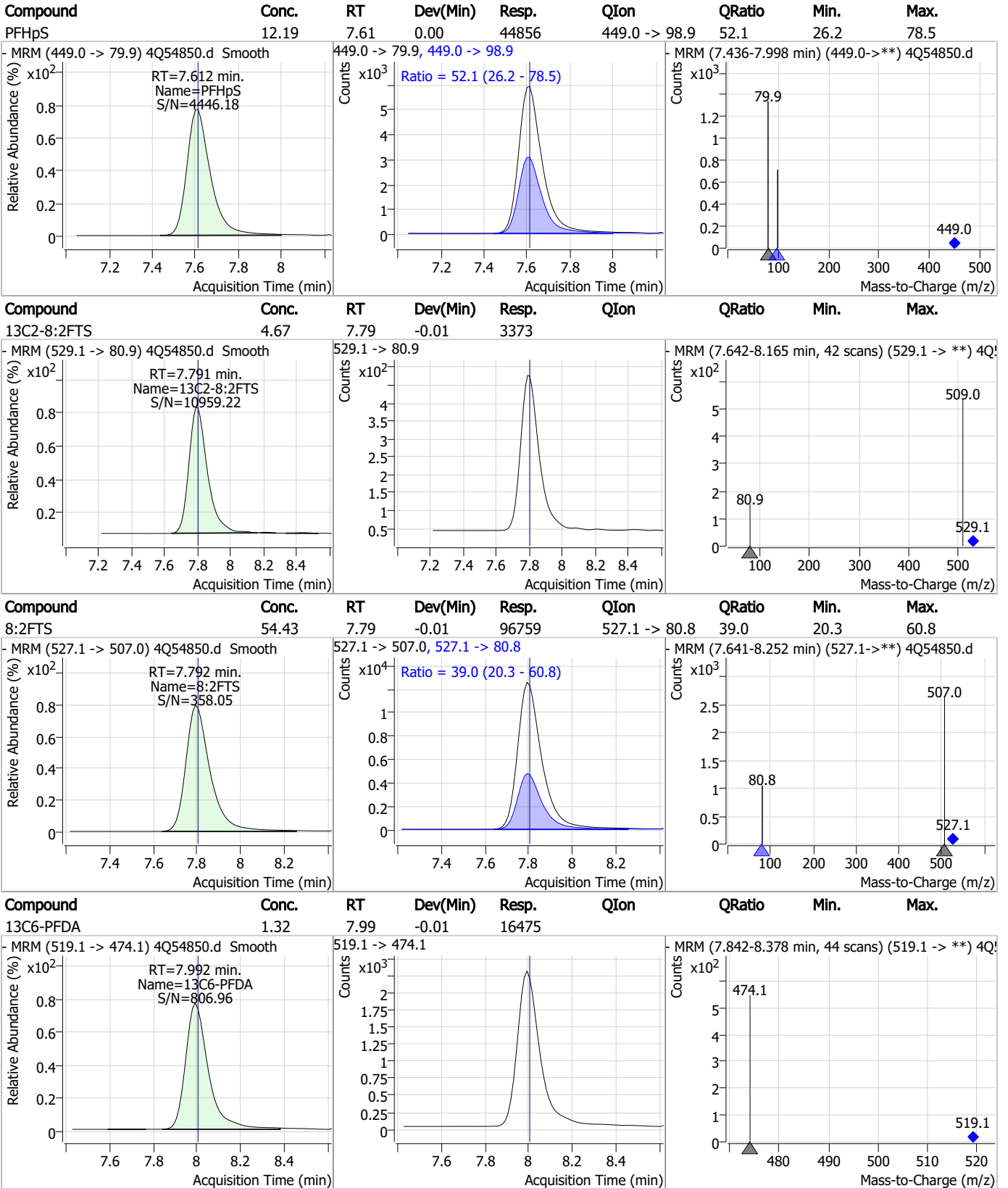
7.6.2

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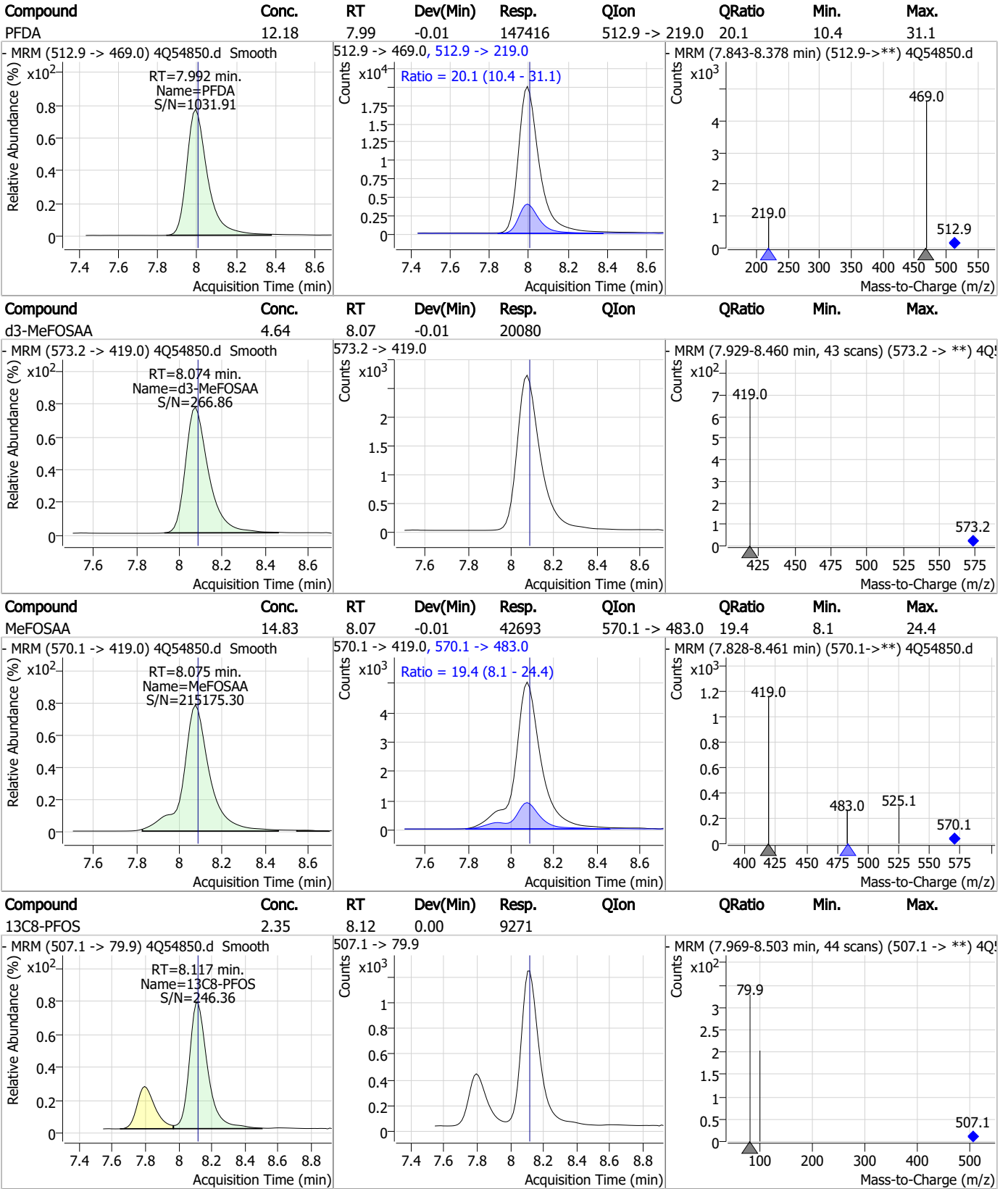
# Perfluorinated Compounds by LC/MS/MS



7.6.2

7

# Perfluorinated Compounds by LC/MS/MS



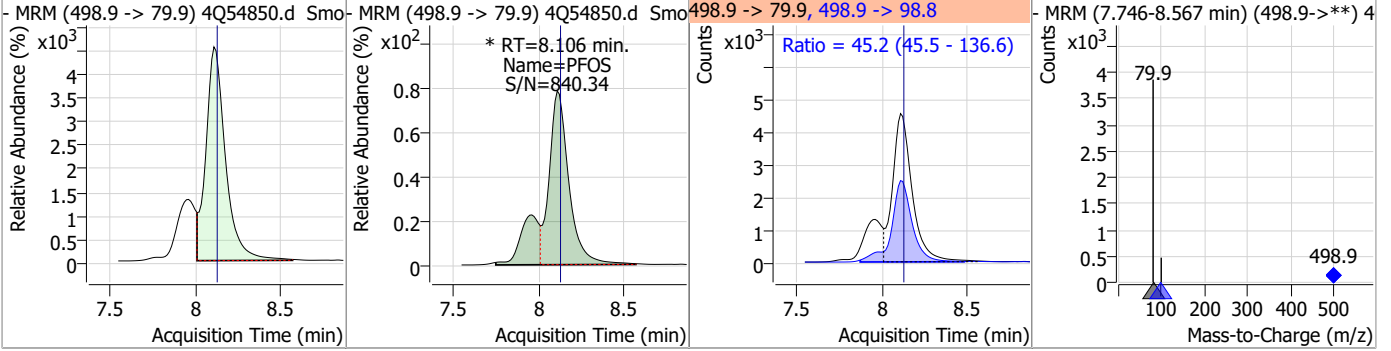
7.6.2

7

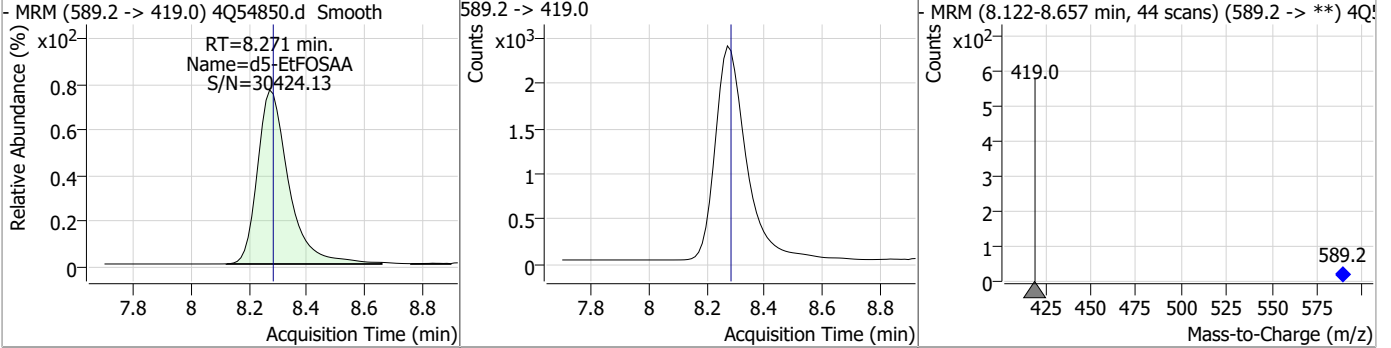


# Perfluorinated Compounds by LC/MS/MS

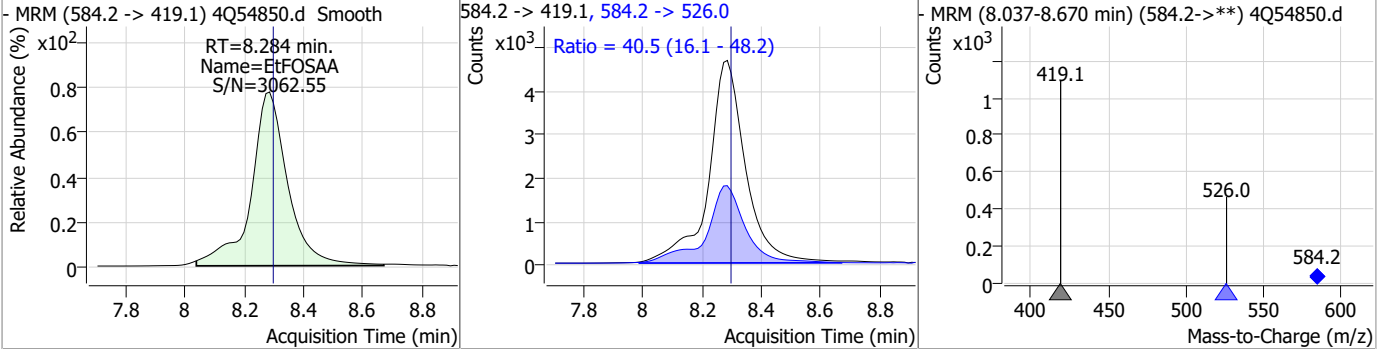
| Compound | Conc. | RT   | Dev(Min) | Resp.     | QIon          | QRatio | Min. | Max.  |
|----------|-------|------|----------|-----------|---------------|--------|------|-------|
| PFOS     | 11.98 | 8.11 | -0.01    | 46215 (m) | 498.9 -> 98.8 | 45.2   | 45.5 | 136.6 |



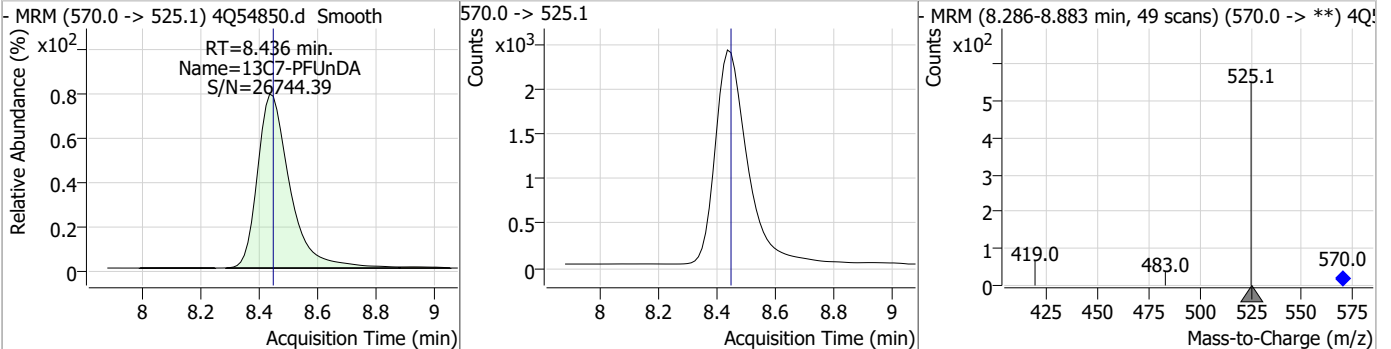
| Compound   | Conc. | RT   | Dev(Min) | Resp. | QIon | QRatio | Min. | Max. |
|------------|-------|------|----------|-------|------|--------|------|------|
| d5-EtFOSAA | 4.84  | 8.27 | -0.01    | 17695 |      |        |      |      |



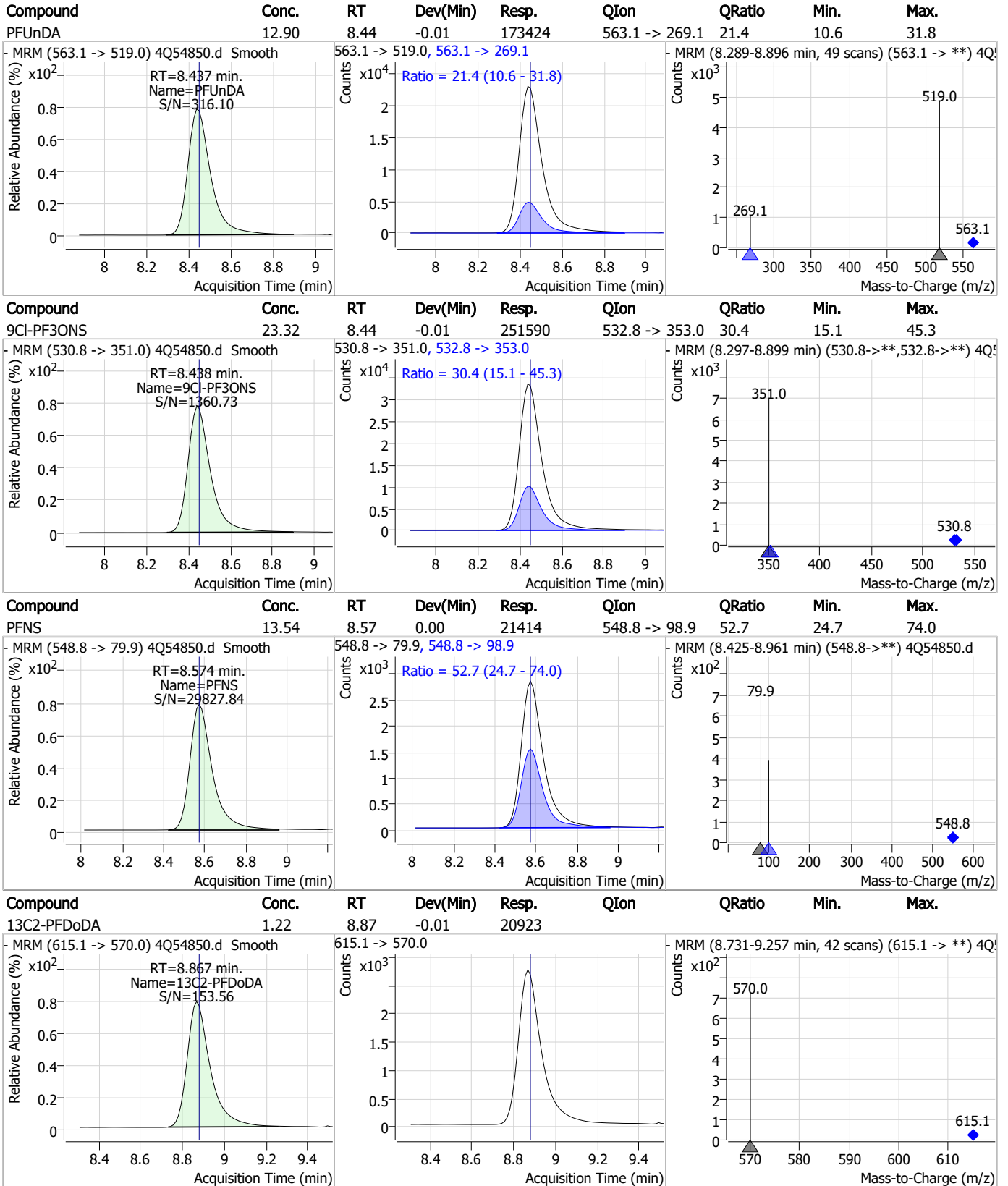
| Compound | Conc. | RT   | Dev(Min) | Resp. | QIon           | QRatio | Min. | Max. |
|----------|-------|------|----------|-------|----------------|--------|------|------|
| EtFOSAA  | 12.51 | 8.28 | -0.01    | 40376 | 584.2 -> 526.0 | 40.5   | 16.1 | 48.2 |



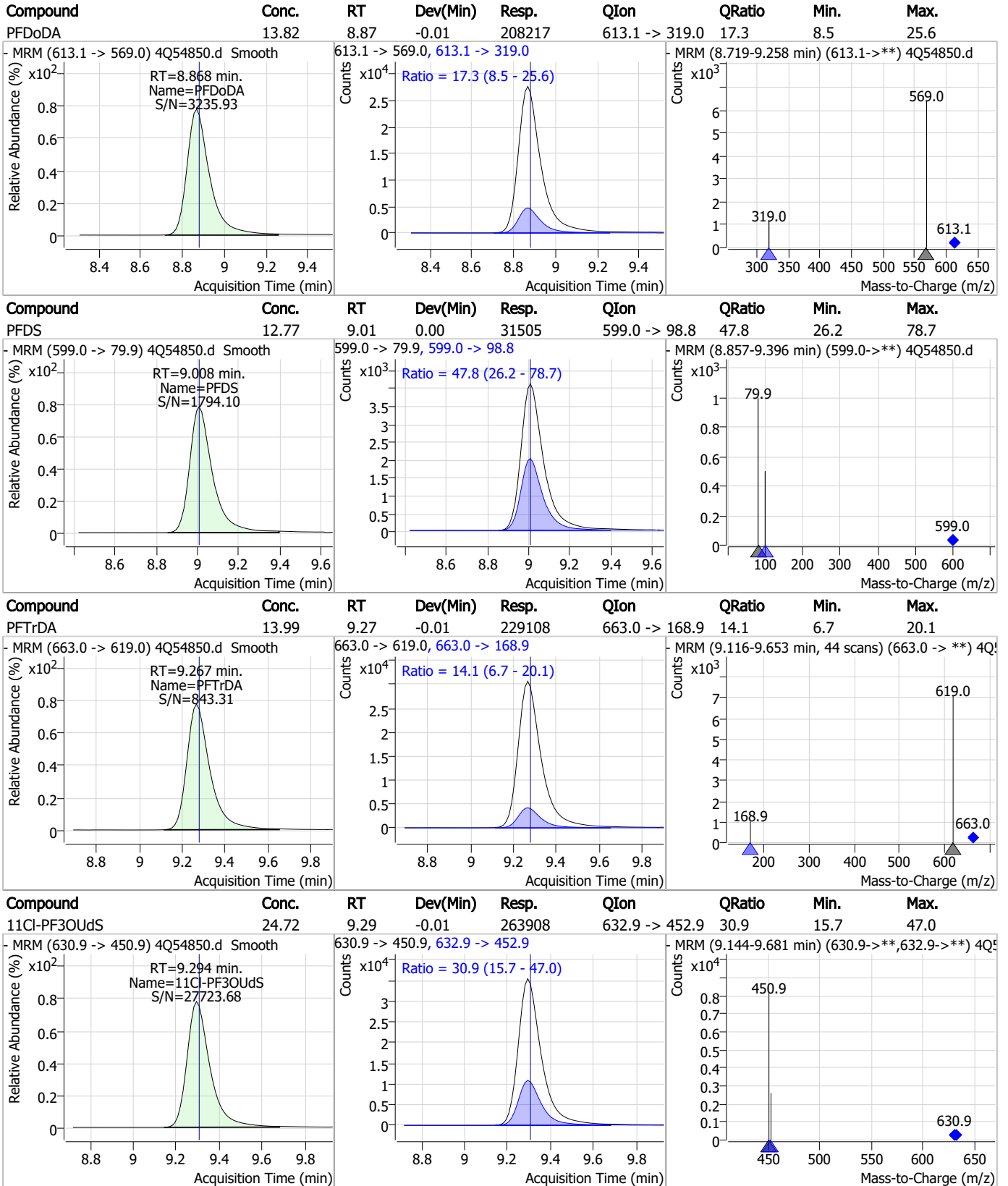
| Compound    | Conc. | RT   | Dev(Min) | Resp. | QIon | QRatio | Min. | Max. |
|-------------|-------|------|----------|-------|------|--------|------|------|
| 13C7-PFUnDA | 1.25  | 8.44 | -0.01    | 18484 |      |        |      |      |



# Perfluorinated Compounds by LC/MS/MS



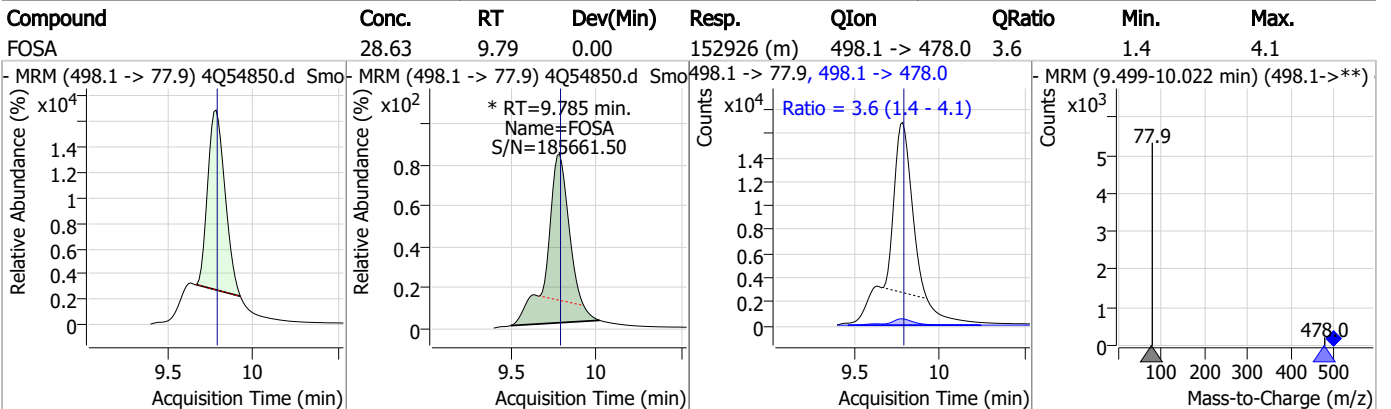
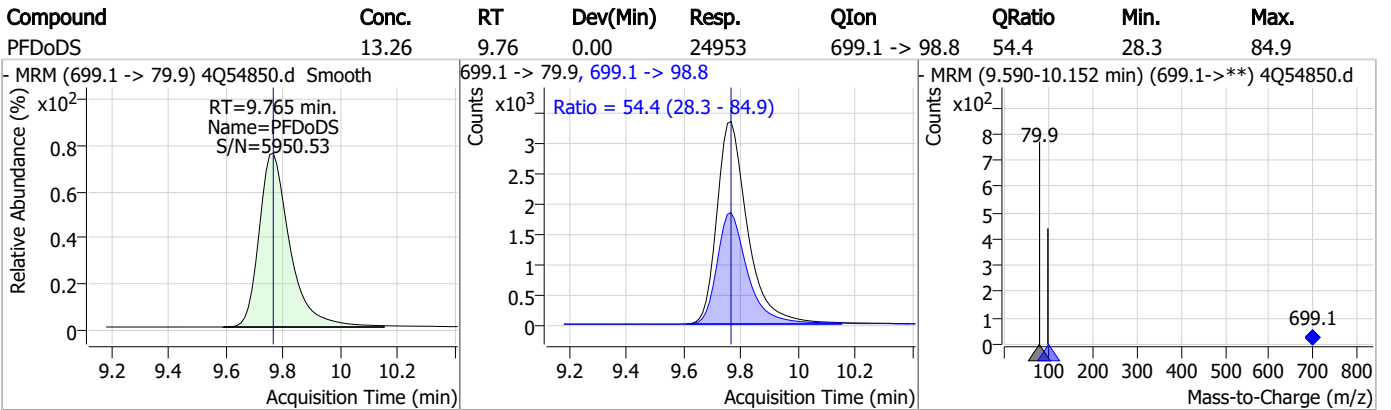
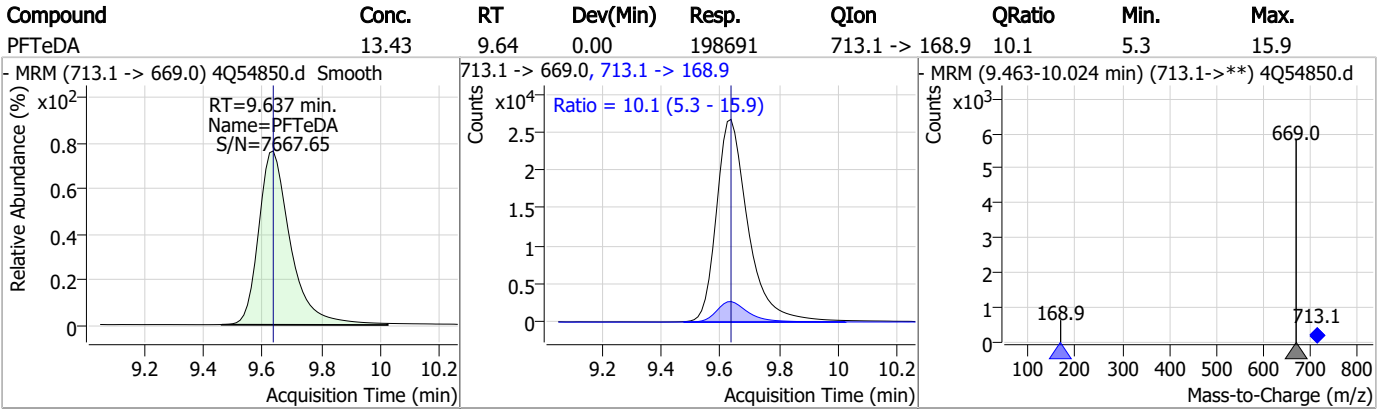
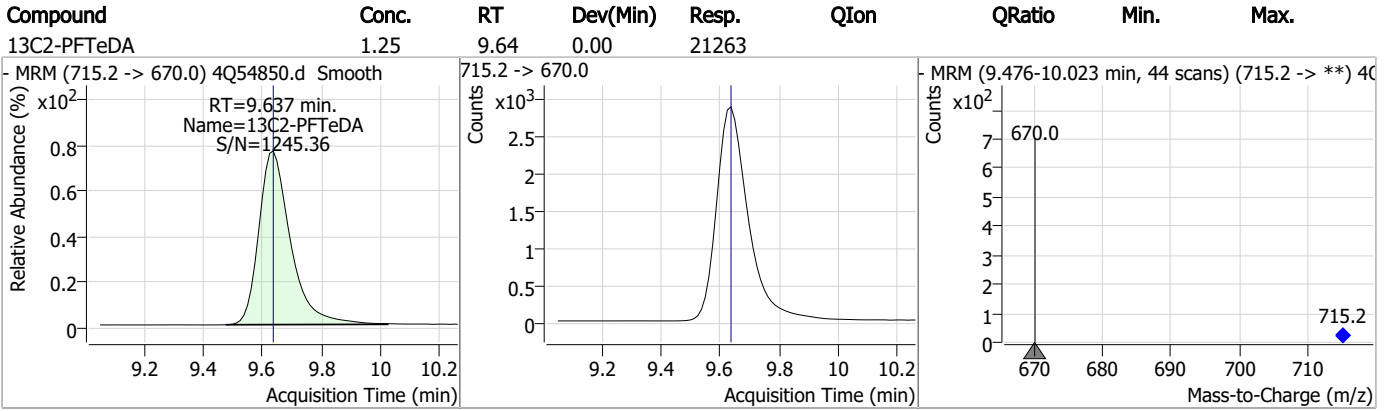
# Perfluorinated Compounds by LC/MS/MS



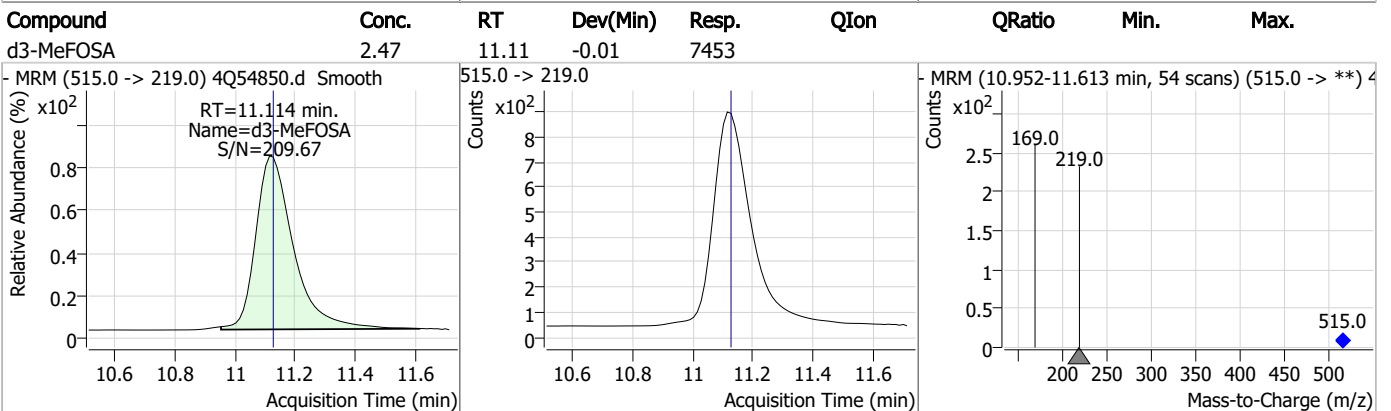
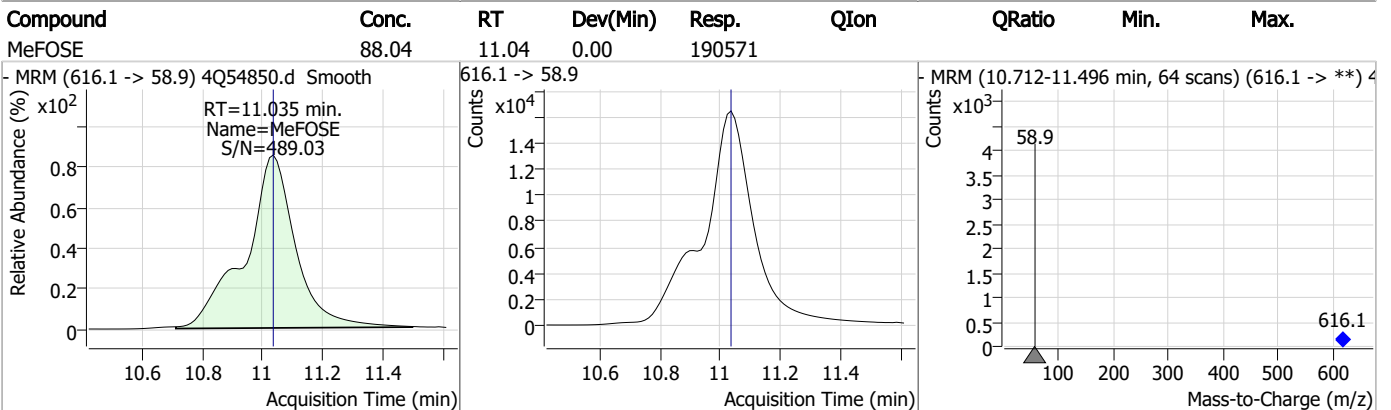
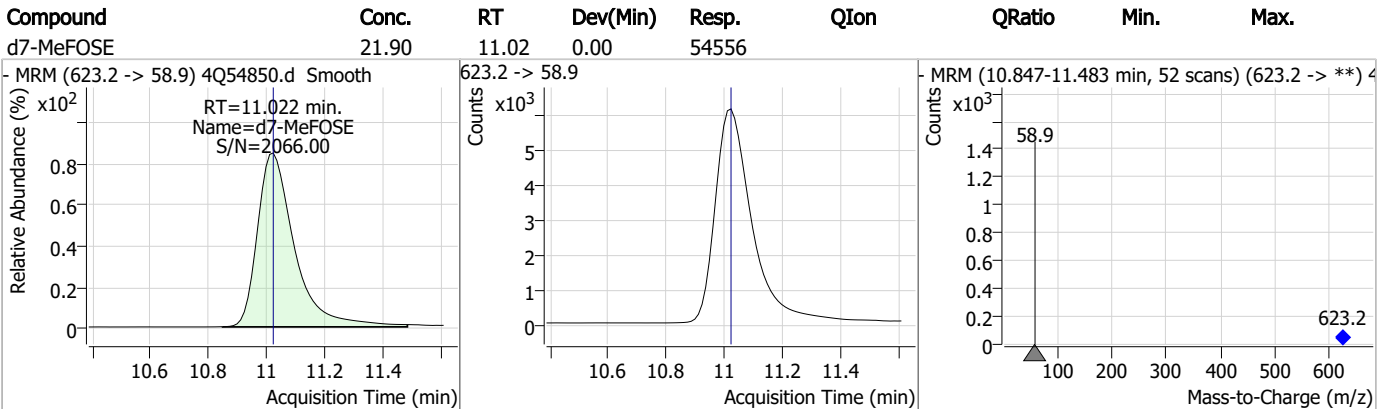
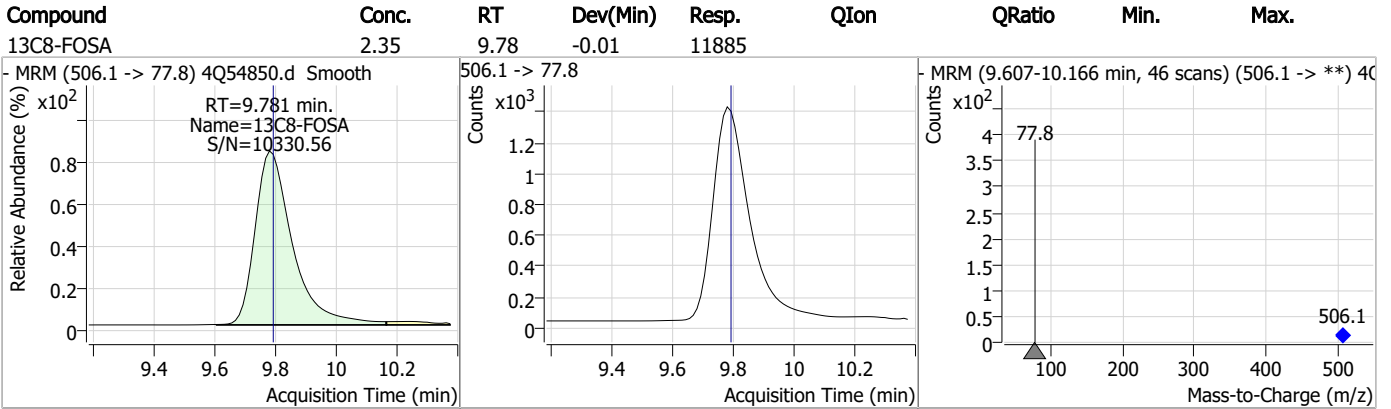
7.6.2

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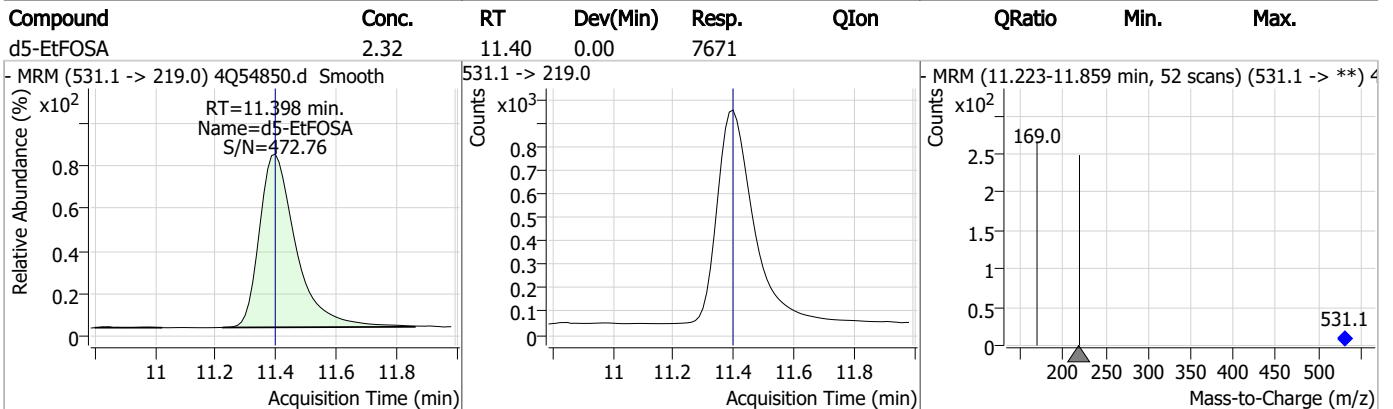
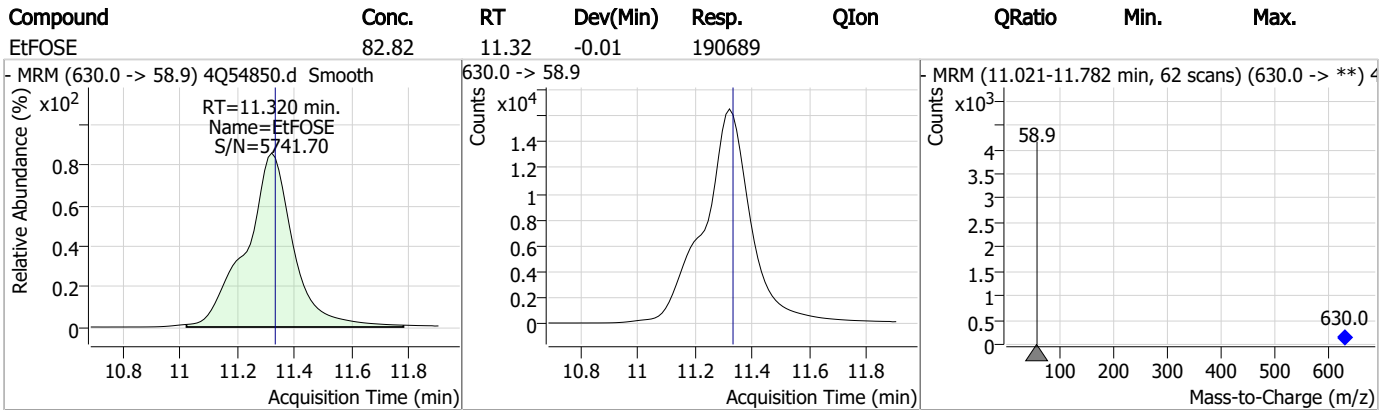
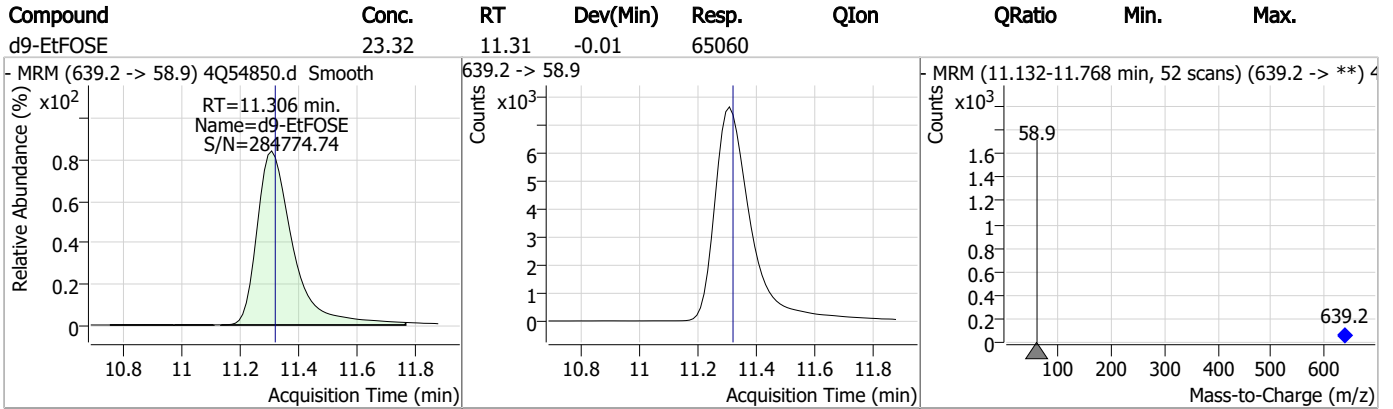
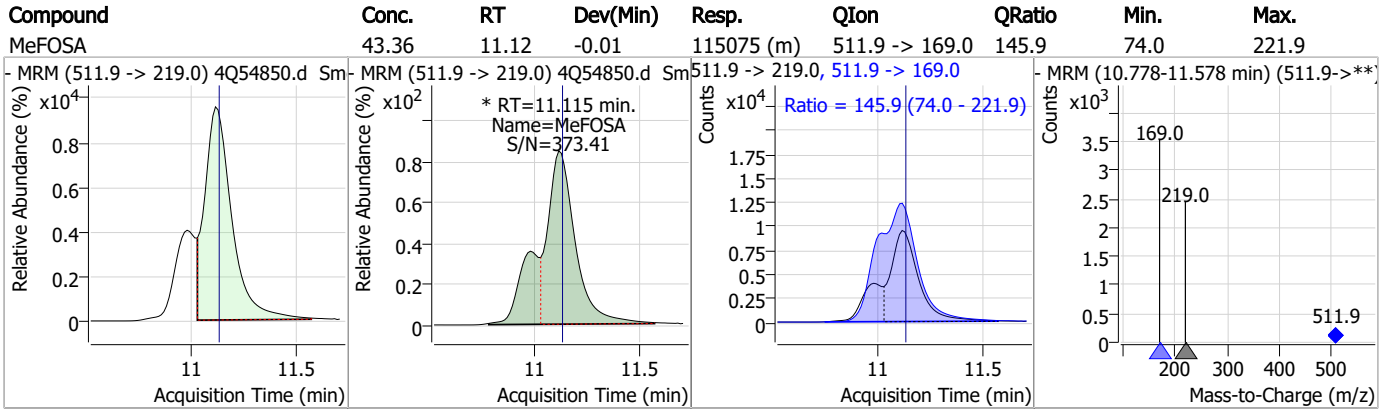
# Perfluorinated Compounds by LC/MS/MS



# Perfluorinated Compounds by LC/MS/MS

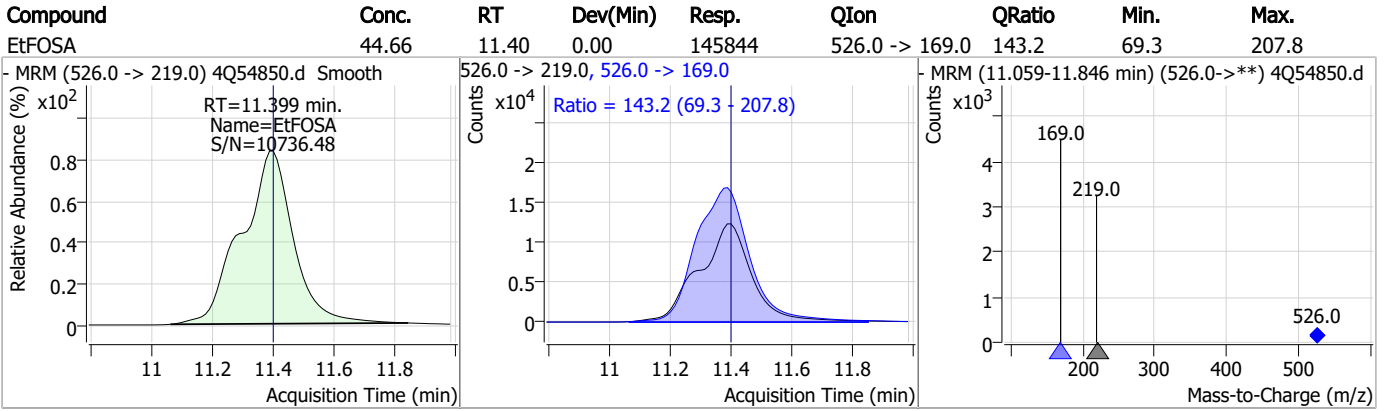


# Perfluorinated Compounds by LC/MS/MS





# Perfluorinated Compounds by LC/MS/MS



7.6.2

7

# Manual Integration Approval Summary

Sample Number: S4Q804-RT                      Method: EPA DRAFT 1633  
Lab FileID: 4Q54850.D                      Analyst approved: 12/10/23 12:52 Anna Ludwig  
Injection Time: 12/08/23 11:08                      Supervisor approved: 12/11/23 15:42 Natasha Guntie

| Parameter                    | CAS        | Sig# | R.T.<br>(min.) | Reason     |
|------------------------------|------------|------|----------------|------------|
| Perfluorooctanoic acid       | 335-67-1   |      | 6.96           | Split peak |
| Perfluorohexanesulfonic acid | 355-46-4   |      | 7.03           | Split peak |
| Perfluorononanoic acid       | 375-95-1   |      | 7.37           | Split peak |
| Perfluorooctanesulfonic acid | 1763-23-1  |      | 8.11           | Split peak |
| PFOSA                        | 754-91-6   |      | 9.79           | Split peak |
| MeFOSA                       | 31506-32-8 |      | 11.12          | Split peak |

7.6.2.1  
7

## QQQ Check Tune Report



**Instrument Name** LCMS4-Q  
**MS Model** G6470A  
**MS Instrument Serial** SG2004G105  
**Software\_Firmware Version** 10.0.142, FW: A.00.08.100  
**Tune Date & Time** 04 December 2023 11:25:52  
**Data Path** D:\MassHunter\Tune\QQQ\G6470A\atunes.TUNE.XML  
**Ion Source** AJS ESI  
**Ionization Mode** AJS ESI  
**Tuned Resolution** All  
**Vacuum Pressure** 1.67E+0 [R] (Torr); 3.50E-5 [H] (Torr)

## Source Parameters

| Parameter               | Negative |
|-------------------------|----------|
| Gas Temp (°C)           | 300      |
| Gas Flow (l/min)        | 8        |
| Nebulizer (psi)         | 15       |
| Capillary (V)           | 4000     |
| Nozzle Voltage (V)      | 1500     |
| Sheath Gas Temp (°C)    | 250      |
| Sheath Gas Flow (l/min) | 7        |

### QQQ Check Tune Report



#### Negative Results

**Analyzer: MS1 Polarity: Negative Width: Unit**

| m/z Expected | m/z Measured | Delta | Result | FWHM Expected | FWHM Measured | Delta | Result | Abundance |
|--------------|--------------|-------|--------|---------------|---------------|-------|--------|-----------|
| 112.99       | 113.00       | 0.01  | Pass   | 0.70          | 0.72          | 0.02  | Pass   | 202777    |
| 302.00       | 302.00       | 0.00  | Pass   | 0.70          | 0.71          | 0.01  | Pass   | 118515    |
| 601.98       | 602.01       | 0.03  | Pass   | 0.70          | 0.68          | -0.02 | Pass   | 292915    |
| 1033.99      | 1034.02      | 0.03  | Pass   | 0.70          | 0.69          | -0.01 | Pass   | 405873    |
| 1633.95      | 1633.99      | 0.04  | Pass   | 0.70          | 0.69          | -0.01 | Pass   | 773026    |
| 2233.91      | 2233.91      | 0.00  | Pass   | 0.70          | 0.71          | 0.01  | Pass   | 485475    |

**Analyzer: MS2 Polarity: Negative Width: Unit**

| m/z Expected | m/z Measured | Delta | Result | FWHM Expected | FWHM Measured | Delta | Result | Abundance |
|--------------|--------------|-------|--------|---------------|---------------|-------|--------|-----------|
| 69.00        | 69.00        | 0.08  | Pass   | 0.70          | 0.59          | -0.11 | Pass   | 42638     |
| 112.99       | 112.99       | 0.00  | Pass   | 0.70          | 0.68          | -0.02 | Pass   | 151020    |
| 302.00       | 302.01       | 0.01  | Pass   | 0.70          | 0.68          | -0.02 | Pass   | 112041    |
| 601.98       | 601.97       | -0.01 | Pass   | 0.70          | 0.68          | -0.02 | Pass   | 188919    |
| 1033.99      | 1033.98      | -0.01 | Pass   | 0.70          | 0.67          | -0.03 | Pass   | 312165    |
| 1633.95      | 1633.93      | -0.02 | Pass   | 0.70          | 0.70          | 0.00  | Pass   | 552126    |
| 2233.91      | 2233.91      | 0.00  | Pass   | 0.70          | 0.71          | 0.01  | Pass   | 515692    |

**Analyzer: MS1 Polarity: Negative Width: Wide**

| m/z Expected | m/z Measured | Delta | Result | FWHM Expected | FWHM Measured | Delta | Result | Abundance |
|--------------|--------------|-------|--------|---------------|---------------|-------|--------|-----------|
| 112.99       | 112.81       | -0.18 | Pass   | 1.20          | 1.65          | 0.45  | Pass   | 289969    |
| 302.00       | 301.84       | -0.16 | Pass   | 1.20          | 1.25          | 0.05  | Pass   | 180926    |
| 601.98       | 601.88       | -0.10 | Pass   | 1.20          | 1.14          | -0.06 | Pass   | 411910    |
| 1033.99      | 1033.97      | -0.02 | Pass   | 1.20          | 1.14          | -0.06 | Pass   | 639151    |
| 1633.95      | 1633.99      | 0.04  | Pass   | 1.20          | 1.14          | -0.06 | Pass   | 1506417   |
| 2233.91      | 2233.96      | 0.05  | Pass   | 1.20          | 1.15          | -0.05 | Pass   | 1018316   |

**Analyzer: MS2 Polarity: Negative Width: Wide**

| m/z Expected | m/z Measured | Delta | Result | FWHM Expected | FWHM Measured | Delta | Result | Abundance |
|--------------|--------------|-------|--------|---------------|---------------|-------|--------|-----------|
| 69.00        | 69.10        | 0.10  | Pass   | 1.20          | 1.06          | -0.14 | Pass   | 60618     |
| 112.99       | 113.00       | 0.01  | Pass   | 1.20          | 1.18          | -0.02 | Pass   | 212281    |
| 302.00       | 301.99       | -0.01 | Pass   | 1.20          | 1.35          | 0.15  | Pass   | 166450    |
| 601.98       | 601.97       | -0.01 | Pass   | 1.20          | 1.40          | 0.20  | Pass   | 369094    |
| 1033.99      | 1033.98      | -0.01 | Pass   | 1.20          | 1.51          | 0.31  | Pass   | 664259    |
| 1633.95      | 1633.93      | -0.02 | Pass   | 1.20          | 1.35          | 0.15  | Pass   | 2016790   |
| 2233.91      | 2233.94      | 0.03  | Pass   | 1.20          | 1.17          | -0.03 | Pass   | 1372594   |

**Analyzer: MS1 Polarity: Negative Width: Widest**

| m/z Expected | m/z Measured | Delta | Result | FWHM Expected | FWHM Measured | Delta | Result | Abundance |
|--------------|--------------|-------|--------|---------------|---------------|-------|--------|-----------|
| 112.99       | 112.68       | -0.31 | Pass   | 2.50          | 2.91          | 0.41  | Pass   | 339595    |
| 302.00       | 301.80       | -0.20 | Pass   | 2.50          | 2.47          | -0.03 | Pass   | 223657    |
| 601.98       | 601.80       | -0.18 | Pass   | 2.50          | 2.51          | 0.01  | Pass   | 634092    |
| 1033.99      | 1033.52      | -0.47 | Pass   | 2.50          | 2.64          | 0.14  | Pass   | 1351348   |
| 1633.95      | 1633.50      | -0.45 | Pass   | 2.50          | 2.88          | 0.38  | Pass   | 4706322   |
| 2233.91      | 2233.38      | -0.53 | Pass   | 2.50          | 3.15          | 0.65  | Pass   | 4309825   |

**Analyzer: MS2 Polarity: Negative Width: Widest**

| m/z Expected | m/z Measured | Delta | Result | FWHM Expected | FWHM Measured | Delta | Result | Abundance |
|--------------|--------------|-------|--------|---------------|---------------|-------|--------|-----------|
| 69.00        | 69.05        | 0.05  | Pass   | 2.50          | 2.36          | -0.14 | Pass   | 76756     |
| 112.99       | 112.97       | -0.02 | Pass   | 2.50          | 2.43          | -0.07 | Pass   | 291228    |
| 302.00       | 302.00       | 0.00  | Pass   | 2.50          | 2.61          | 0.11  | Pass   | 227107    |
| 601.98       | 601.96       | -0.02 | Pass   | 2.50          | 2.60          | 0.10  | Pass   | 564001    |
| 1033.99      | 1034.01      | 0.02  | Pass   | 2.50          | 2.66          | 0.16  | Pass   | 1190821   |
| 1633.95      | 1633.98      | 0.03  | Pass   | 2.50          | 2.46          | -0.04 | Pass   | 4202035   |
| 2233.91      | 2233.90      | -0.01 | Pass   | 2.50          | 2.23          | -0.27 | Pass   | 4290357   |

7.7.1  
7

# Manual Integration Approval Summary

Sample Number: S4Q804-IC804      Method: EPA DRAFT 1633  
Lab FileID: 4Q54851.D      Analyst approved: 12/10/23 12:52 Anna Ludwig  
Injection Time: 12/08/23 11:23      Supervisor approved: 12/11/23 15:42 Natasha Guntie

| Parameter | CAS       | Sig# | R.T.<br>(min.) | Reason     |
|-----------|-----------|------|----------------|------------|
| EiFOSE    | 1691-99-2 |      | 11.32          | Split peak |
| EiFOSA    | 4151-50-2 |      | 11.40          | Split peak |

7.7.1.1

7

## Perfluorinated Compounds by LC/MS/MS

Data File : 4Q54852.d  
 Operator : annal  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 12/8/2023 11:38:18 AM  
 Sample Name : ic804-1  
 Vial : P1-A2  
 DA Method File : 1633\_120823\_S4Q804.quantmethod.xml  
 Batch Name : s4q804.batch.bin  
 Sample Information : OP99999,S4Q804,500,,,5.0,1,water

| Compound                           | RT                   | Transition     | Response          | Conc. Units | Dev(Min) |
|------------------------------------|----------------------|----------------|-------------------|-------------|----------|
| <b>Internal Standards</b>          |                      |                |                   |             |          |
| M4-PFBA                            | 2.686                | 216.8 -> 171.9 | 95084             | 10.00 µg/L  | 0.012    |
| M5-PFPeA                           | 4.162                | 268.3 -> 223.0 | 40685             | 5.00 µg/L   | 0.000    |
| M5-PFHxA                           | 5.334                | 318.0 -> 273.0 | 32988             | 2.50 µg/L   | 0.000    |
| M4-PFHpA                           | 6.292                | 367.1 -> 322.0 | 31422             | 2.50 µg/L   | 0.000    |
| M8-PFOA                            | 6.964                | 421.1 -> 376.0 | 51339             | 2.50 µg/L   | -0.012   |
| M9-PFNA                            | 7.509                | 472.1 -> 427.0 | 19744             | 1.25 µg/L   | -0.012   |
| M6-PFDA                            | 7.992                | 519.1 -> 474.1 | 13003             | 1.25 µg/L   | -0.012   |
| M7-PFUnDA                          | 8.449                | 570.0 -> 525.1 | 17542             | 1.25 µg/L   | 0.000    |
| M2-PFDoDA                          | 8.867                | 615.1 -> 570.0 | 18439             | 1.25 µg/L   | -0.012   |
| M2-PFTeDA                          | 9.637                | 715.2 -> 670.0 | 18112             | 1.25 µg/L   | 0.000    |
| M8-FOSA                            | 9.781                | 506.1 -> 77.8  | 11195             | 2.50 µg/L   | -0.012   |
| M3-PFBS                            | 5.202                | 302.1 -> 79.9  | 8909              | 2.50 µg/L   | 0.013    |
| M3-PFHxS                           | 7.029                | 402.1 -> 79.9  | 7560              | 2.50 µg/L   | 0.000    |
| M8-PFOS                            | 8.117                | 507.1 -> 79.9  | 8298              | 2.50 µg/L   | 0.000    |
| M2-4:2FTS                          | 5.046                | 329.1 -> 80.9  | 1254              | 5.00 µg/L   | 0.000    |
| M2-6:2FTS                          | 6.748                | 429.1 -> 80.9  | 2595              | 5.00 µg/L   | 0.000    |
| M2-8:2FTS                          | 7.804                | 529.1 -> 80.9  | 3392              | 5.00 µg/L   | 0.000    |
| M3-MeFOSAA                         | 8.074                | 573.2 -> 419.0 | 19113             | 5.00 µg/L   | -0.012   |
| M3-HFPO-DA                         | 5.689                | 286.9 -> 168.9 | 33418             | 10.00 µg/L  | 0.000    |
| M5-EtFOSAA                         | 8.283                | 589.2 -> 419.0 | 15482             | 5.00 µg/L   | 0.000    |
| M7-MeFOSE                          | 11.022               | 623.2 -> 58.9  | 52293             | 25.00 µg/L  | 0.000    |
| M9-EtFOSE                          | 11.306               | 639.2 -> 58.9  | 60619             | 25.00 µg/L  | -0.012   |
| M5-EtFOSA                          | 11.397               | 531.1 -> 219.0 | 6934              | 2.50 µg/L   | 0.000    |
| M3-MeFOSA                          | 11.126               | 515.0 -> 219.0 | 6245              | 2.50 µg/L   | 0.000    |
| 13C4-PFOS                          | 8.118                | 502.8 -> 79.9  | 6765              | 2.50 µg/L   | 0.000    |
| 13C3-PFBA                          | 2.691                | 216.0 -> 172.0 | 45431             | 5.00 µg/L   | 0.013    |
| 18O2-PFHxS                         | 7.028                | 403.0 -> 83.9  | 4914              | 2.50 µg/L   | -0.012   |
| 13C4-PFOA                          | 6.964                | 417.1 -> 372.0 | 55018             | 2.50 µg/L   | -0.012   |
| 13C2-PFDA                          | 7.992                | 515.1 -> 470.1 | 15568             | 1.25 µg/L   | -0.012   |
| 13C5-PFNA                          | 7.509                | 468.0 -> 423.0 | 19286             | 1.25 µg/L   | 0.000    |
| 13C2-PFHxA                         | 5.335                | 315.1 -> 270.0 | 34907             | 2.50 µg/L   | 0.000    |
| <b>System Monitoring Compounds</b> |                      |                |                   |             |          |
| 13C2-4:2FTS                        | 5.046                | 329.1 -> 80.9  | 1254              | 5.38 µg/L   | 0.000    |
| Spiked Amount: 5.00                | Range: 50.0 - 150.0% |                | Recovery = 107.5% |             |          |
| 13C2-6:2FTS                        | 6.748                | 429.1 -> 80.9  | 2595              | 5.13 µg/L   | 0.000    |
| Spiked Amount: 5.00                | Range: 50.0 - 150.0% |                | Recovery = 102.6% |             |          |
| 13C2-8:2FTS                        | 7.804                | 529.1 -> 80.9  | 3392              | 5.01 µg/L   | 0.000    |
| Spiked Amount: 5.00                | Range: 50.0 - 150.0% |                | Recovery = 100.1% |             |          |
| 13C2-PFDoDA                        | 8.867                | 615.1 -> 570.0 | 18439             | 1.19 µg/L   | -0.012   |
| Spiked Amount: 1.25                | Range: 50.0 - 150.0% |                | Recovery = 94.8%  |             |          |
| 13C2-PFTeDA                        | 9.637                | 715.2 -> 670.0 | 18112             | 1.17 µg/L   | 0.000    |
| Spiked Amount: 1.25                | Range: 50.0 - 150.0% |                | Recovery = 93.8%  |             |          |
| 13C3-PFBS                          | 5.202                | 302.1 -> 79.9  | 8909              | 2.37 µg/L   | 0.013    |
| Spiked Amount: 2.50                | Range: 50.0 - 150.0% |                | Recovery = 94.6%  |             |          |
| 13C3-PFHxS                         | 7.029                | 402.1 -> 79.9  | 7560              | 2.45 µg/L   | 0.000    |

## Perfluorinated Compounds by LC/MS/MS

| Compound                | RT                   | Transition     | Response | Conc. Units       | Dev(Min)      |
|-------------------------|----------------------|----------------|----------|-------------------|---------------|
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 98.1%  |               |
| 13C4-PFBA               | 2.686                | 216.8 -> 171.9 | 95084    | 9.97 µg/L         | 0.012         |
| Spiked Amount: 10.00    | Range: 50.0 - 150.0% |                |          | Recovery = 99.7%  |               |
| 13C4-PFHpA              | 6.292                | 367.1 -> 322.0 | 31422    | 2.55 µg/L         | 0.000         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 102.2% |               |
| 13C5-PFHxA              | 5.334                | 318.0 -> 273.0 | 32988    | 2.56 µg/L         | 0.000         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 102.6% |               |
| 13C5-PFPeA              | 4.162                | 268.3 -> 223.0 | 40685    | 5.08 µg/L         | 0.000         |
| Spiked Amount: 5.00     | Range: 50.0 - 150.0% |                |          | Recovery = 101.6% |               |
| 13C6-PFDA               | 7.992                | 519.1 -> 474.1 | 13003    | 1.15 µg/L         | -0.012        |
| Spiked Amount: 1.25     | Range: 50.0 - 150.0% |                |          | Recovery = 91.8%  |               |
| 13C7-PFUnDA             | 8.449                | 570.0 -> 525.1 | 17542    | 1.31 µg/L         | 0.000         |
| Spiked Amount: 1.25     | Range: 50.0 - 150.0% |                |          | Recovery = 105.1% |               |
| 13C8-FOSA               | 9.781                | 506.1 -> 77.8  | 11195    | 2.55 µg/L         | -0.012        |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 102.1% |               |
| 13C8-PFOA               | 6.964                | 421.1 -> 376.0 | 51339    | 2.53 µg/L         | -0.012        |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 101.0% |               |
| 13C8-PFOS               | 8.117                | 507.1 -> 79.9  | 8298     | 2.42 µg/L         | 0.000         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 96.9%  |               |
| 13C9-PFNA               | 7.509                | 472.1 -> 427.0 | 19744    | 1.28 µg/L         | -0.012        |
| Spiked Amount: 1.25     | Range: 50.0 - 150.0% |                |          | Recovery = 102.2% |               |
| d3-MeFOSAA              | 8.074                | 573.2 -> 419.0 | 19113    | 5.09 µg/L         | -0.012        |
| Spiked Amount: 5.00     | Range: 50.0 - 150.0% |                |          | Recovery = 101.8% |               |
| 13C3-HFPO-DA            | 5.689                | 286.9 -> 168.9 | 33418    | 10.40 µg/L        | 0.000         |
| Spiked Amount: 10.00    | Range: 50.0 - 150.0% |                |          | Recovery = 104.0% |               |
| d3-MeFOSA               | 11.126               | 515.0 -> 219.0 | 6245     | 2.39 µg/L         | 0.000         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 95.5%  |               |
| d5-EtFOSAA              | 8.283                | 589.2 -> 419.0 | 15482    | 4.87 µg/L         | 0.000         |
| Spiked Amount: 5.00     | Range: 50.0 - 150.0% |                |          | Recovery = 97.5%  |               |
| d7-MeFOSE               | 11.022               | 623.2 -> 58.9  | 52293    | 24.18 µg/L        | 0.000         |
| Spiked Amount: 25.00    | Range: 50.0 - 150.0% |                |          | Recovery = 96.7%  |               |
| d9-EtFOSE               | 11.306               | 639.2 -> 58.9  | 60619    | 25.02 µg/L        | -0.012        |
| Spiked Amount: 25.00    | Range: 50.0 - 150.0% |                |          | Recovery = 100.1% |               |
| d5-EtFOSA               | 11.397               | 531.1 -> 219.0 | 6934     | 2.42 µg/L         | 0.000         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 96.7%  |               |
| <b>Target Compounds</b> |                      |                |          |                   | <b>QValue</b> |
| 4:2FTS                  | 5.047                | 327.1 -> 307.0 | 1558     | 0.72 µg/L         | 98            |
|                         |                      | 327.1 -> 80.9  | 648      |                   |               |
| 6:2FTS                  | 6.749                | 427.1 -> 407.0 | 2077     | 0.76 µg/L         | 93            |
|                         |                      | 427.1 -> 80.9  | 673      |                   |               |
| 8:2FTS                  | 7.804                | 527.1 -> 507.0 | 1346     | 0.75 µg/L         | 98            |
|                         |                      | 527.1 -> 80.8  | 529      |                   |               |
| EtFOSAA                 | 8.284                | 584.2 -> 419.1 | 551      | 0.20 µg/L         | 96            |
|                         |                      | 584.2 -> 526.0 | 164      |                   |               |
| FOSA                    | 9.785                | 498.1 -> 77.9  | 971      | 0.19 µg/L         | 97            |
|                         |                      | 498.1 -> 478.0 | 37       |                   |               |
| MeFOSAA                 | 8.075                | 570.1 -> 419.0 | 545      | 0.20 µg/L         | m 96          |
|                         |                      | 570.1 -> 483.0 | 81       |                   |               |
| PFBA                    | 2.695                | 212.8 -> 168.9 | 2328     | 0.76 µg/L         | 100           |
| PFBS                    | 5.191                | 298.7 -> 79.9  | 518      | 0.19 µg/L         | 93            |
|                         |                      | 298.7 -> 98.8  | 234      |                   |               |
| PFDA                    | 7.992                | 512.9 -> 469.0 | 2253     | 0.24 µg/L         | 88            |
|                         |                      | 512.9 -> 219.0 | 338      |                   |               |
| PFDODA                  | 8.868                | 613.1 -> 569.0 | 2308     | 0.17 µg/L         | 89            |
|                         |                      | 613.1 -> 319.0 | 503      |                   |               |
| PFDS                    | 9.008                | 599.0 -> 79.9  | 441      | 0.20 µg/L         | 91            |

## Perfluorinated Compounds by LC/MS/MS

| Compound     | RT     | Transition     | Response | Conc. | Units | Dev(Min) |
|--------------|--------|----------------|----------|-------|-------|----------|
|              |        | 599.0 -> 98.8  | 203      |       |       |          |
| PFHpA        | 6.293  | 363.1 -> 319.0 | 3438     | 0.19  | µg/L  | 94       |
|              |        | 363.1 -> 169.0 | 536      |       |       |          |
| PFHpS        | 7.612  | 449.0 -> 79.9  | 632      | 0.19  | µg/L  | 91       |
|              |        | 449.0 -> 98.9  | 368      |       |       |          |
| PFHxA        | 5.337  | 313.0 -> 269.0 | 2084     | 0.20  | µg/L  | 99       |
|              |        | 313.0 -> 118.9 | 66       |       |       |          |
| PFHxS        | 7.030  | 398.7 -> 79.9  | 454      | 0.19  | µg/L  | m 99     |
|              |        | 398.7 -> 98.9  | 214      |       |       |          |
| PFNA         | 7.510  | 463.0 -> 419.0 | 2107     | 0.18  | µg/L  | m 99     |
|              |        | 463.0 -> 219.0 | 495      |       |       |          |
| PFNS         | 8.574  | 548.8 -> 79.9  | 267      | 0.19  | µg/L  | 98       |
|              |        | 548.8 -> 98.9  | 136      |       |       |          |
| PFOA         | 6.978  | 413.0 -> 369.0 | 3902     | 0.18  | µg/L  | 98       |
|              |        | 413.0 -> 169.0 | 904      |       |       |          |
| PFOS         | 8.119  | 498.9 -> 79.9  | 824      | 0.24  | µg/L  | #m 40    |
|              |        | 498.9 -> 98.8  | 280      |       |       |          |
| PFPeA        | 4.164  | 263.0 -> 219.0 | 3114     | 0.39  | µg/L  | 100      |
| PFPeS        | 6.282  | 349.1 -> 79.9  | 367      | 0.16  | µg/L  | 99       |
|              |        | 349.1 -> 98.9  | 153      |       |       |          |
| PFTeDA       | 9.637  | 713.1 -> 669.0 | 2576     | 0.20  | µg/L  | 97       |
|              |        | 713.1 -> 168.9 | 246      |       |       |          |
| PFTrDA       | 9.267  | 663.0 -> 619.0 | 2608     | 0.18  | µg/L  | 88       |
|              |        | 663.0 -> 168.9 | 476      |       |       |          |
| PFUnDA       | 8.449  | 563.1 -> 519.0 | 2092     | 0.16  | µg/L  | 90       |
|              |        | 563.1 -> 269.1 | 537      |       |       |          |
| 11Cl-PF3OUdS | 9.294  | 630.9 -> 450.9 | 3203     | 0.35  | µg/L  | 97       |
|              |        | 632.9 -> 452.9 | 1047     |       |       |          |
| 9Cl-PF3ONS   | 8.451  | 530.8 -> 351.0 | 3283     | 0.35  | µg/L  | 98       |
|              |        | 532.8 -> 353.0 | 961      |       |       |          |
| ADONA        | 6.556  | 376.9 -> 250.9 | 8666     | 0.38  | µg/L  | 100      |
|              |        | 376.9 -> 84.8  | 2097     |       |       |          |
| HFPO-DA      | 5.690  | 284.9 -> 168.9 | 1182     | 0.37  | µg/L  | 96       |
|              |        | 284.9 -> 184.9 | 128      |       |       |          |
| 3:3FTCA      | 3.617  | 241.0 -> 177.0 | 423      | 0.87  | µg/L  | 99       |
|              |        | 241.0 -> 117.0 | 37       |       |       |          |
| 5:3FTCA      | 6.008  | 341.0 -> 237.1 | 8499     | 4.53  | µg/L  | 97       |
|              |        | 341.0 -> 217.0 | 5884     |       |       |          |
| 7:3FTCA      | 7.524  | 441.0 -> 316.9 | 4678     | 4.75  | µg/L  | 88       |
|              |        | 441.0 -> 336.9 | 10190    |       |       |          |
| EtFOSA       | 11.399 | 526.0 -> 219.0 | 1187     | 0.40  | µg/L  | 92       |
|              |        | 526.0 -> 169.0 | 1530     |       |       |          |
| EtFOSE       | 11.320 | 630.0 -> 58.9  | 2179     | 1.02  | µg/L  | 100      |
| MeFOSA       | 11.115 | 511.9 -> 219.0 | 840      | 0.38  | µg/L  | 96       |
|              |        | 511.9 -> 169.0 | 1286     |       |       |          |
| MeFOSE       | 11.035 | 616.1 -> 58.9  | 2158     | 1.04  | µg/L  | 100      |
| PFDoDS       | 9.764  | 699.1 -> 79.9  | 309      | 0.18  | µg/L  | 98       |
|              |        | 699.1 -> 98.8  | 179      |       |       |          |
| NFDHA        | 5.216  | 295.0 -> 201.0 | 293      | 0.39  | µg/L  | 88       |
|              |        | 295.0 -> 84.9  | 59       |       |       |          |
| PFMBA        | 4.566  | 279.0 -> 85.1  | 1729     | 0.39  | µg/L  | 100      |
| PFMPA        | 3.315  | 229.0 -> 84.9  | 1898     | 0.39  | µg/L  | 100      |
| PFEESA       | 5.722  | 314.8 -> 134.9 | 2585     | 0.33  | µg/L  | 94       |
|              |        | 314.8 -> 82.9  | 148      |       |       |          |

# = Qualifier out of range, m = manually integrated, + = Area summed



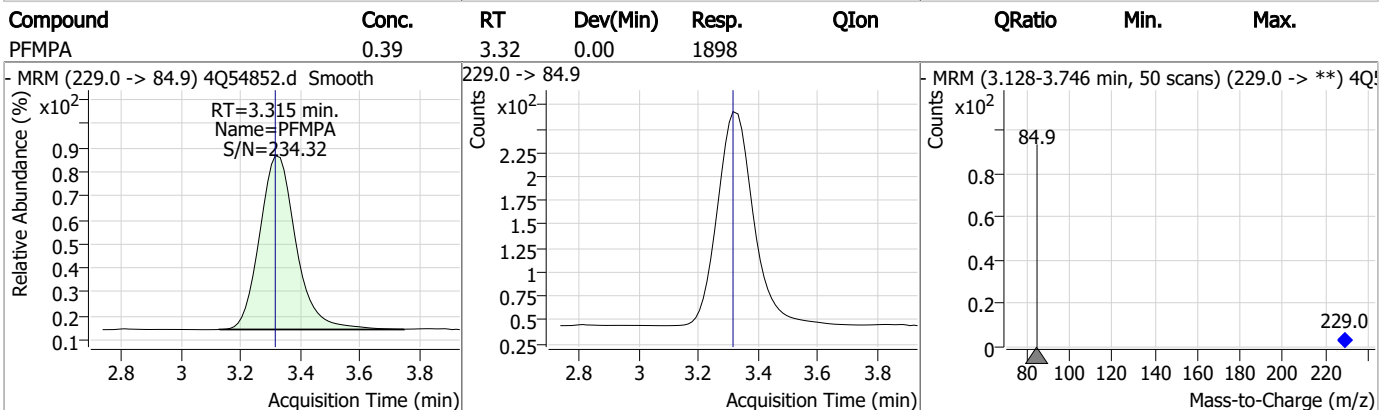
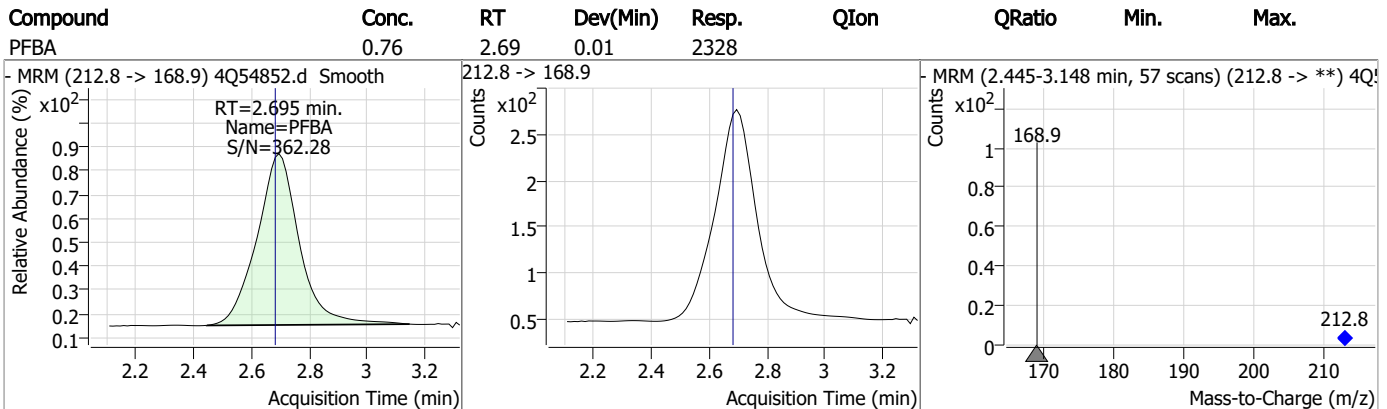
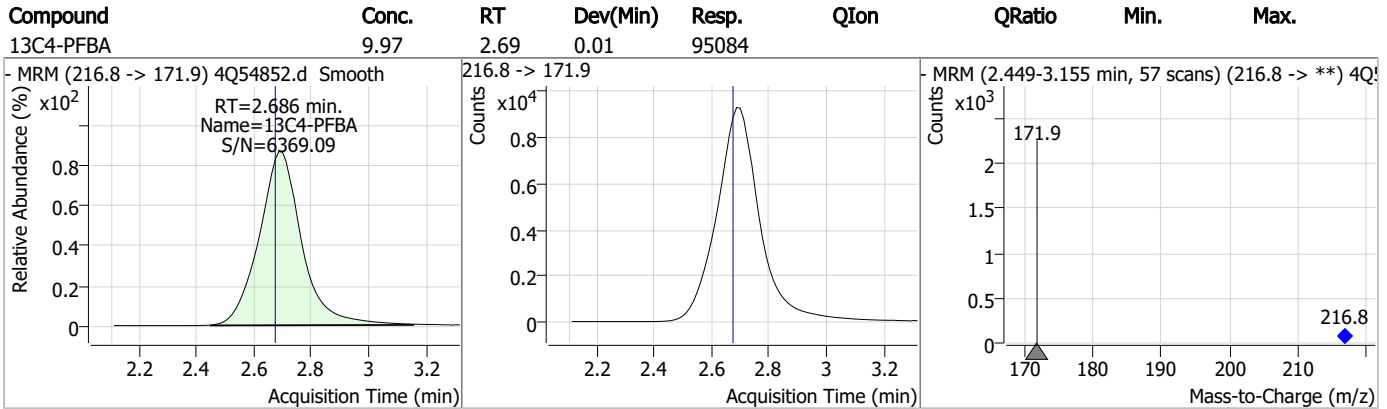
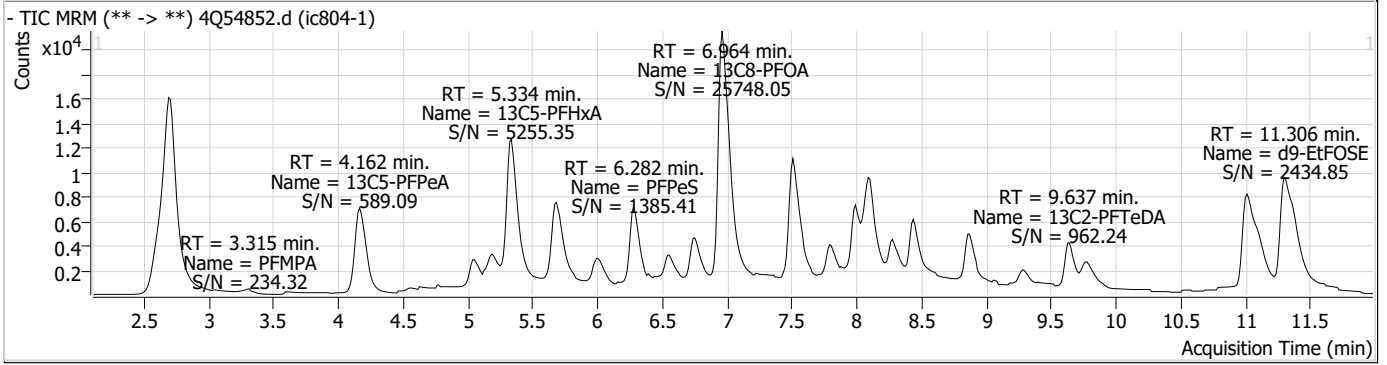
### Perfluorinated Compounds by LC/MS/MS

| Compound | RT | Transition | Response | Conc. Units | Dev(Min) |
|----------|----|------------|----------|-------------|----------|
|----------|----|------------|----------|-------------|----------|

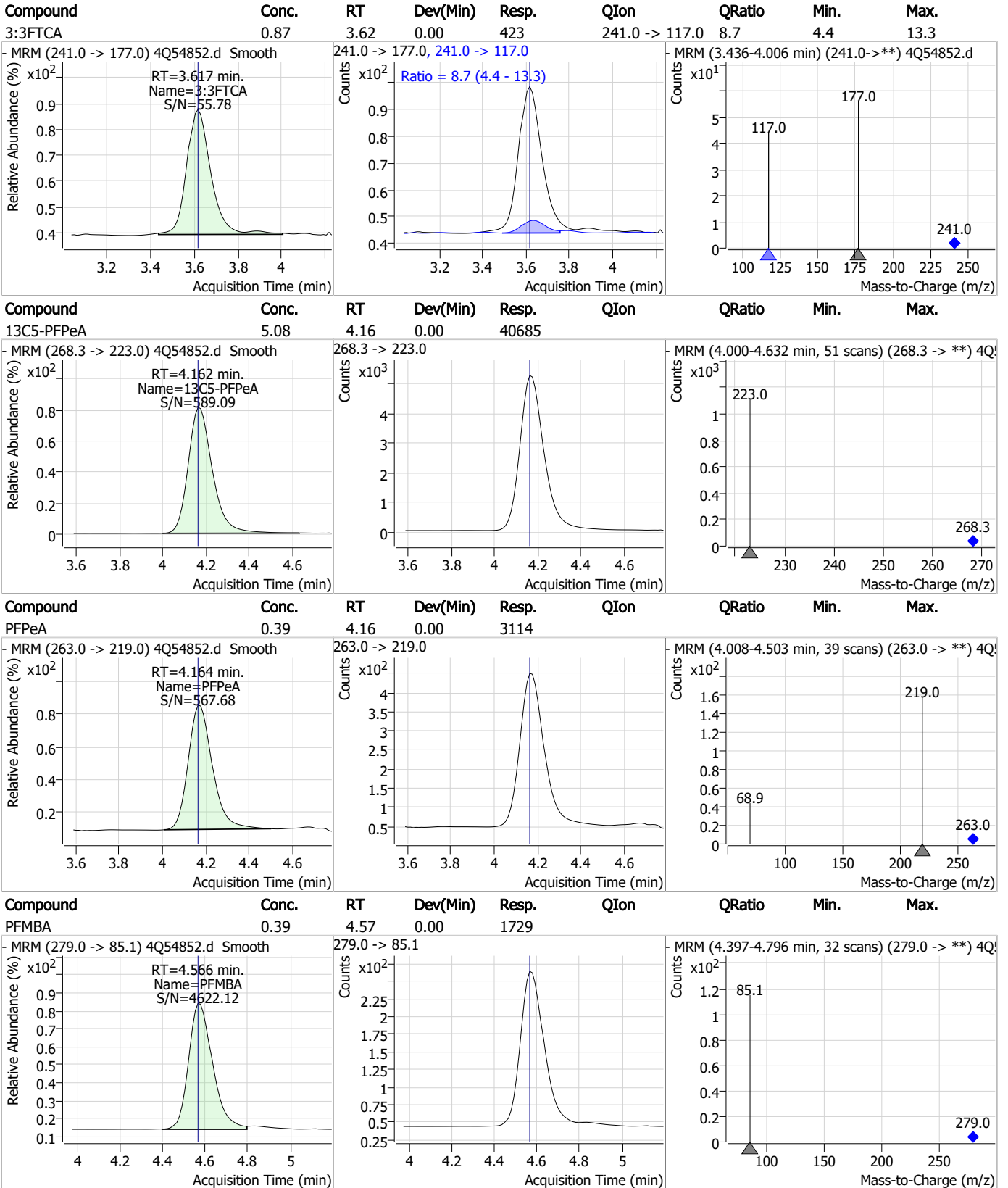
7.7.2  
7



### Perfluorinated Compounds by LC/MS/MS



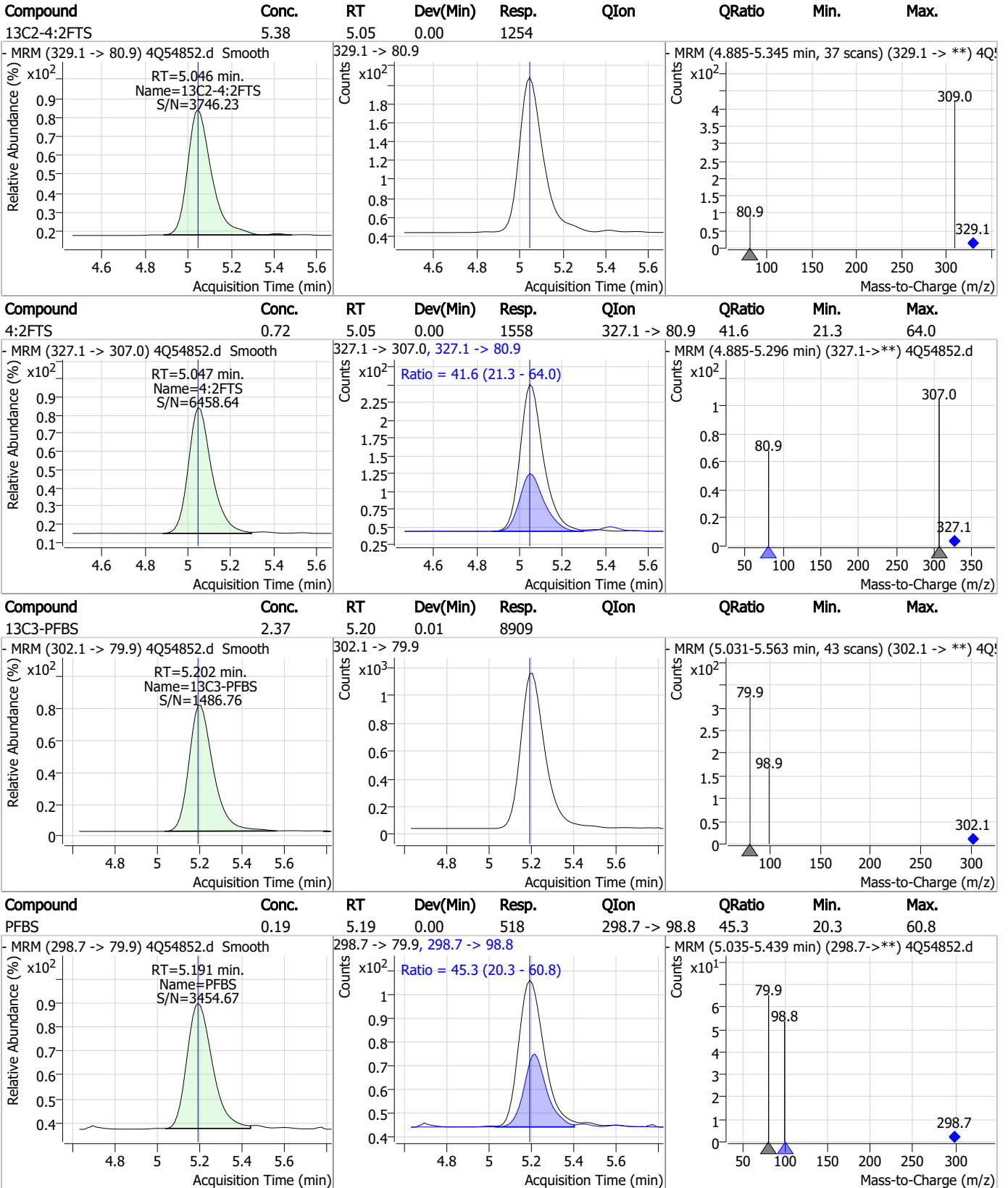
### Perfluorinated Compounds by LC/MS/MS



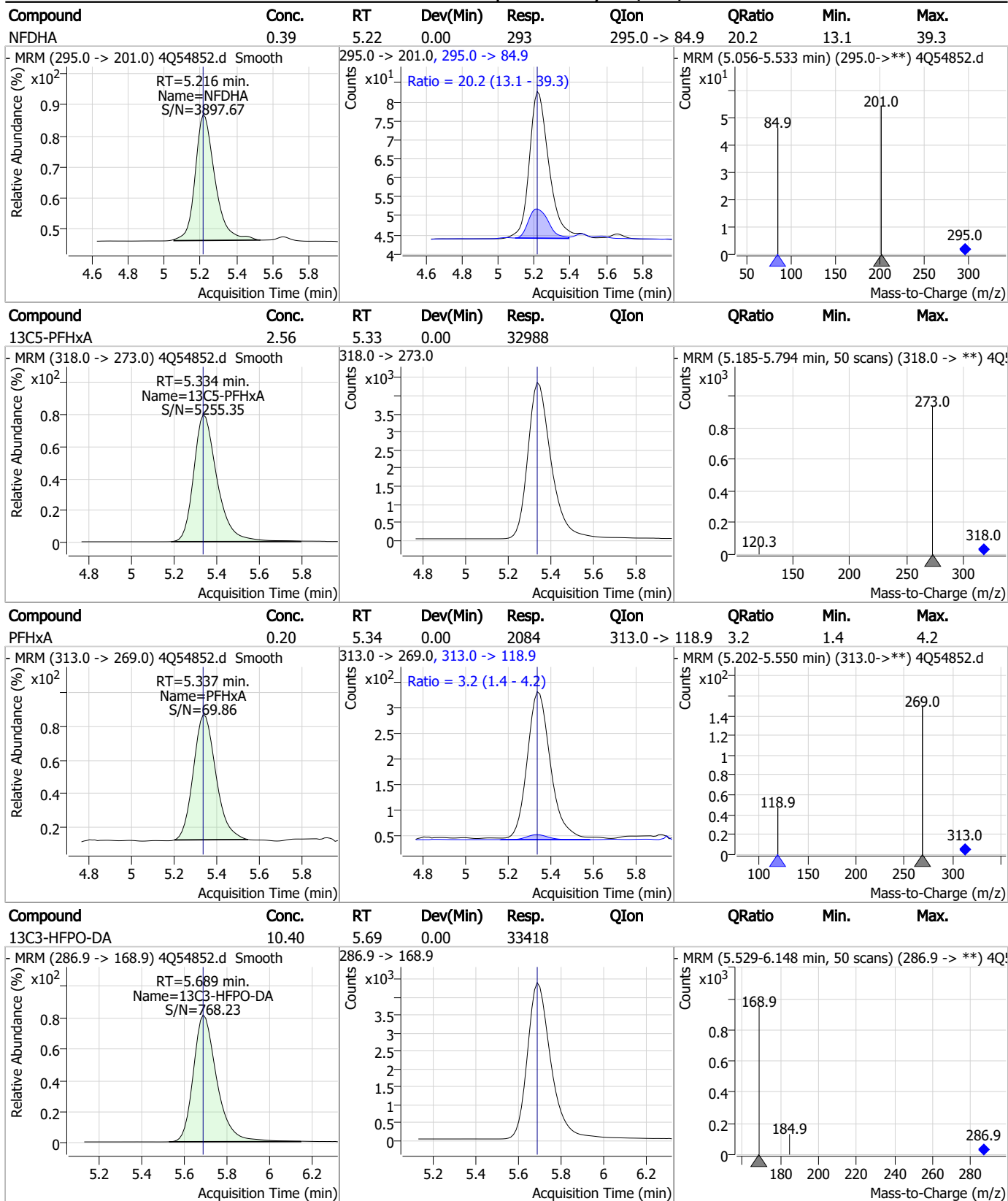
7.7.2

7

### Perfluorinated Compounds by LC/MS/MS



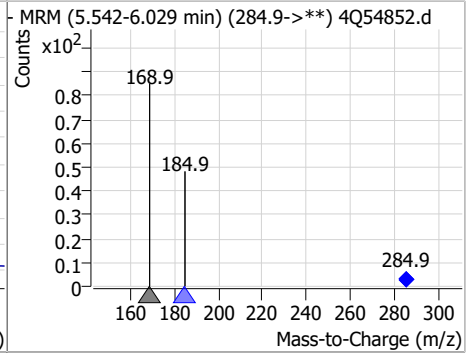
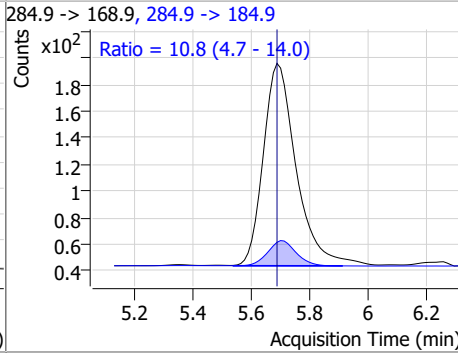
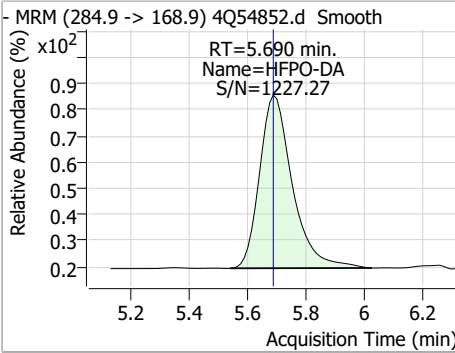
### Perfluorinated Compounds by LC/MS/MS



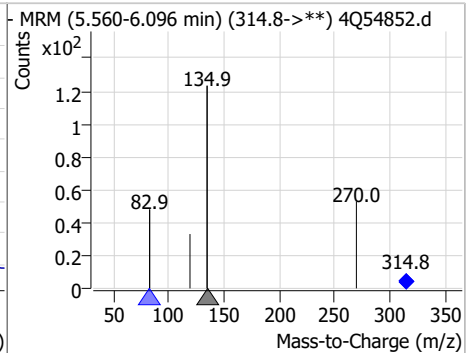
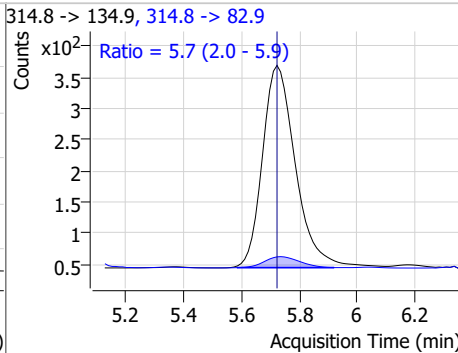
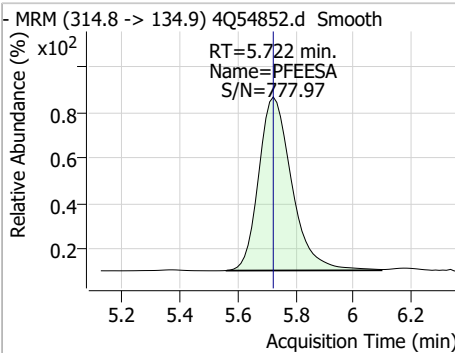
7.7.2  
7

### Perfluorinated Compounds by LC/MS/MS

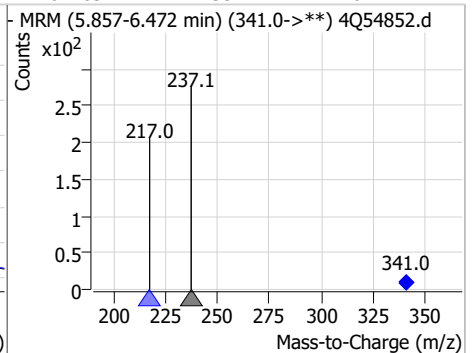
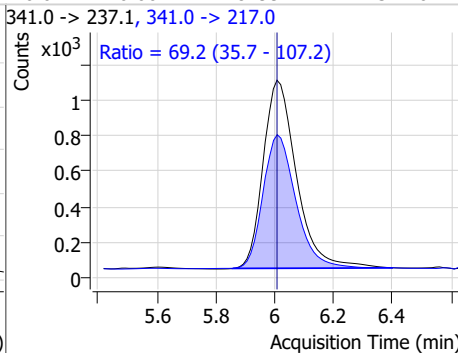
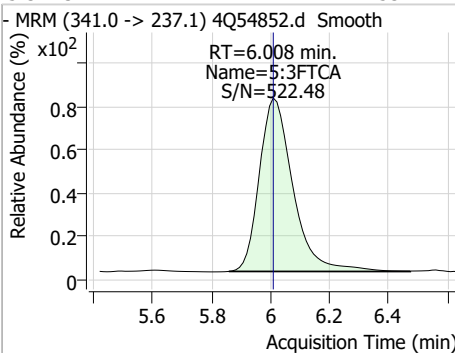
| Compound | Conc. | RT   | Dev(Min) | Resp. | QIon           | QRatio | Min. | Max. |
|----------|-------|------|----------|-------|----------------|--------|------|------|
| HFPO-DA  | 0.37  | 5.69 | 0.00     | 1182  | 284.9 -> 184.9 | 10.8   | 4.7  | 14.0 |



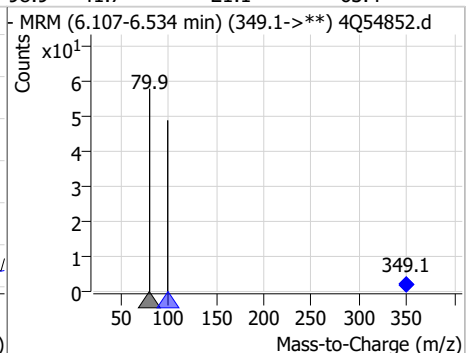
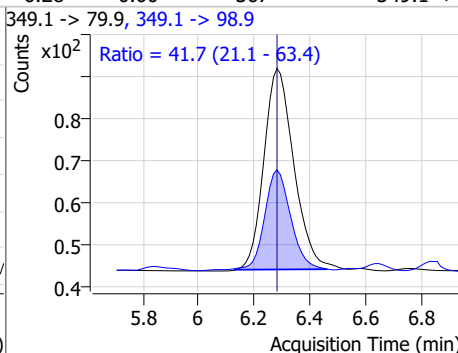
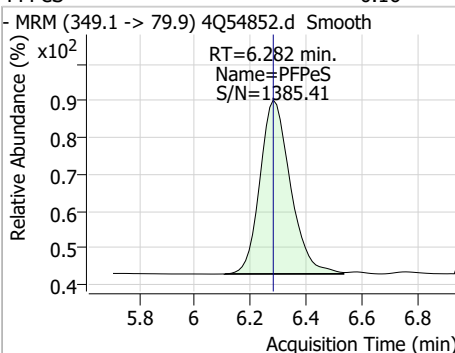
| Compound | Conc. | RT   | Dev(Min) | Resp. | QIon          | QRatio | Min. | Max. |
|----------|-------|------|----------|-------|---------------|--------|------|------|
| PFEESA   | 0.33  | 5.72 | 0.00     | 2585  | 314.8 -> 82.9 | 5.7    | 2.0  | 5.9  |



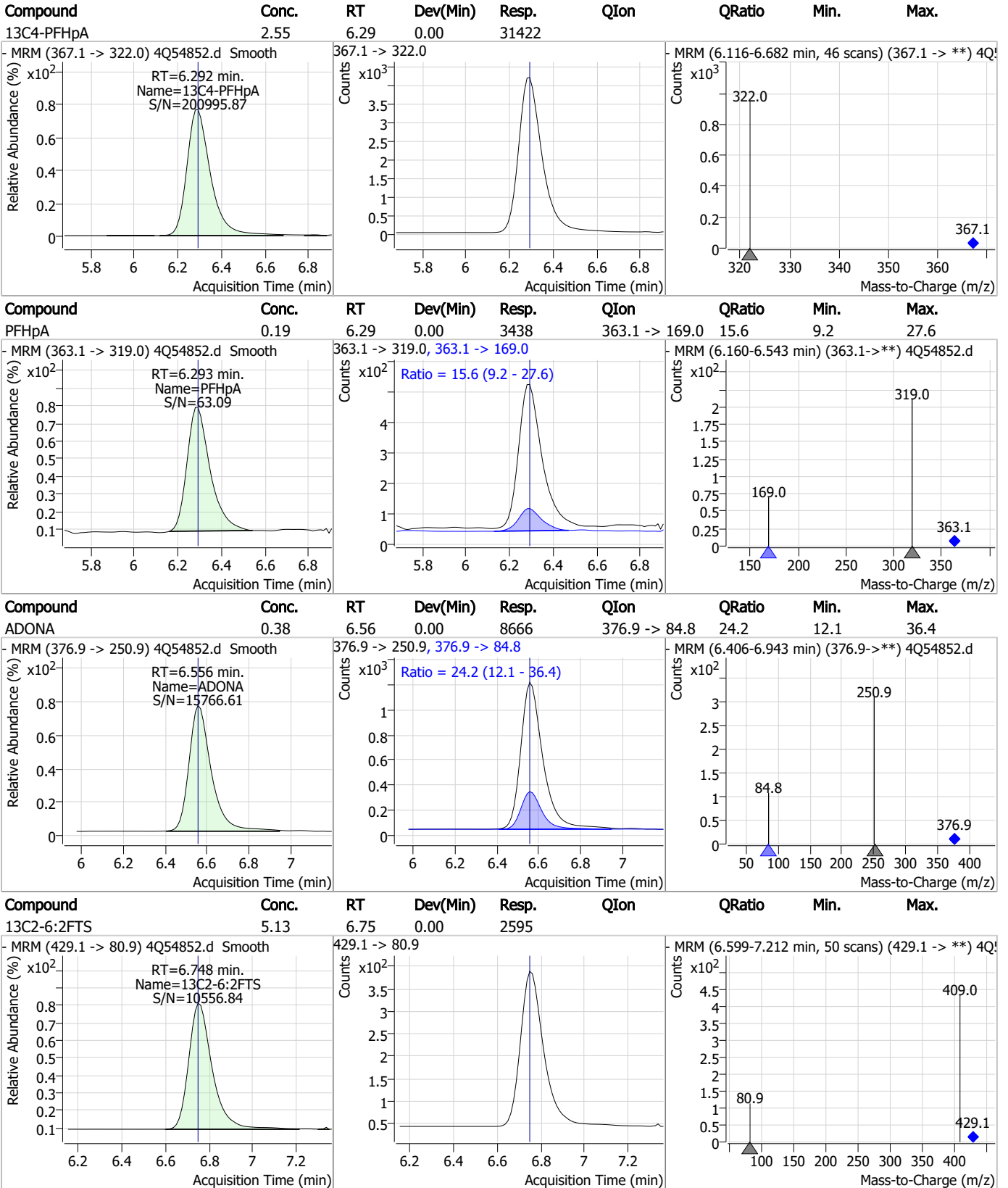
| Compound | Conc. | RT   | Dev(Min) | Resp. | QIon           | QRatio | Min. | Max.  |
|----------|-------|------|----------|-------|----------------|--------|------|-------|
| 5:3FTCA  | 4.53  | 6.01 | 0.00     | 8499  | 341.0 -> 217.0 | 69.2   | 35.7 | 107.2 |



| Compound | Conc. | RT   | Dev(Min) | Resp. | QIon          | QRatio | Min. | Max. |
|----------|-------|------|----------|-------|---------------|--------|------|------|
| PFPeS    | 0.16  | 6.28 | 0.00     | 367   | 349.1 -> 98.9 | 41.7   | 21.1 | 63.4 |



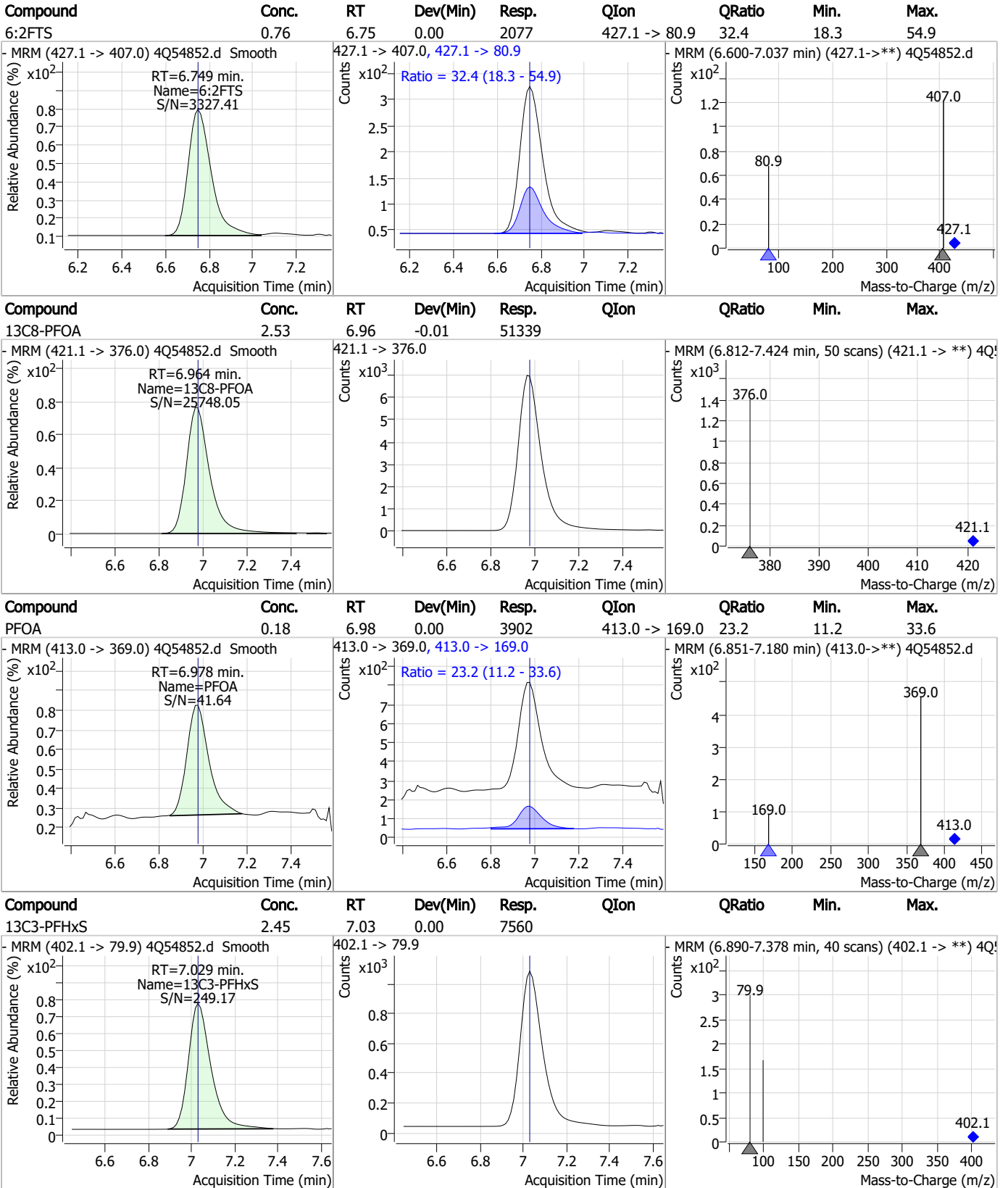
### Perfluorinated Compounds by LC/MS/MS



7.7.2

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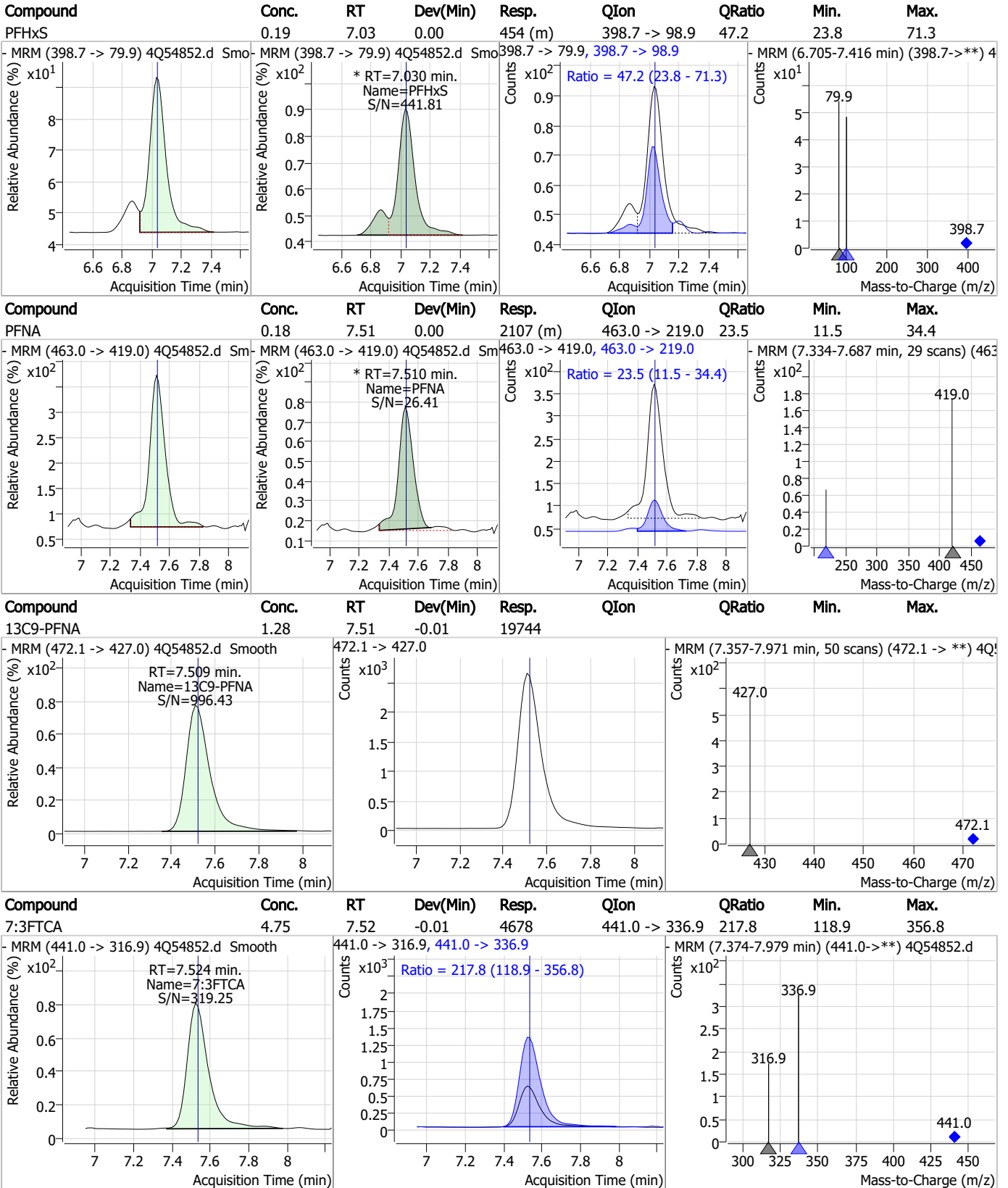
### Perfluorinated Compounds by LC/MS/MS



7.7.2  
7



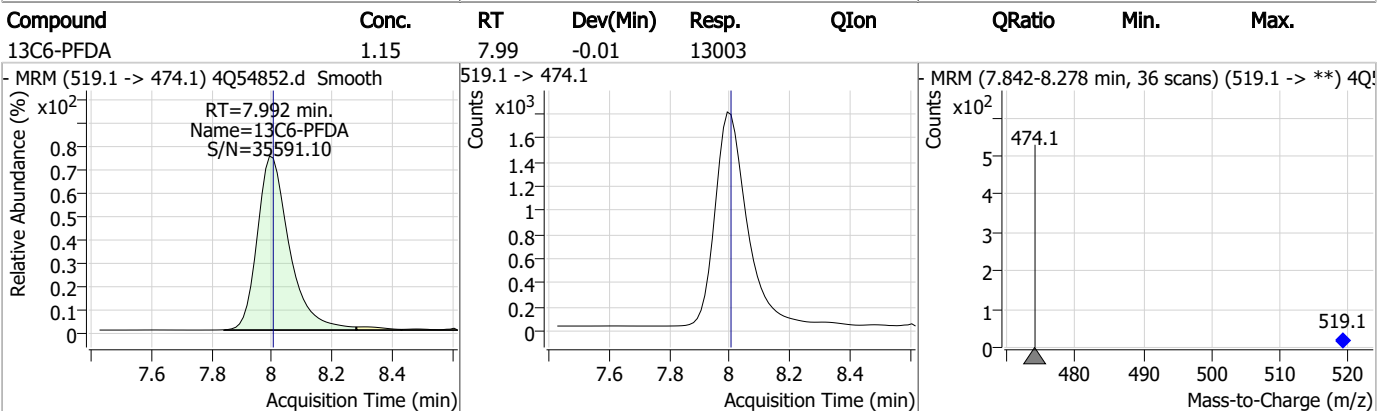
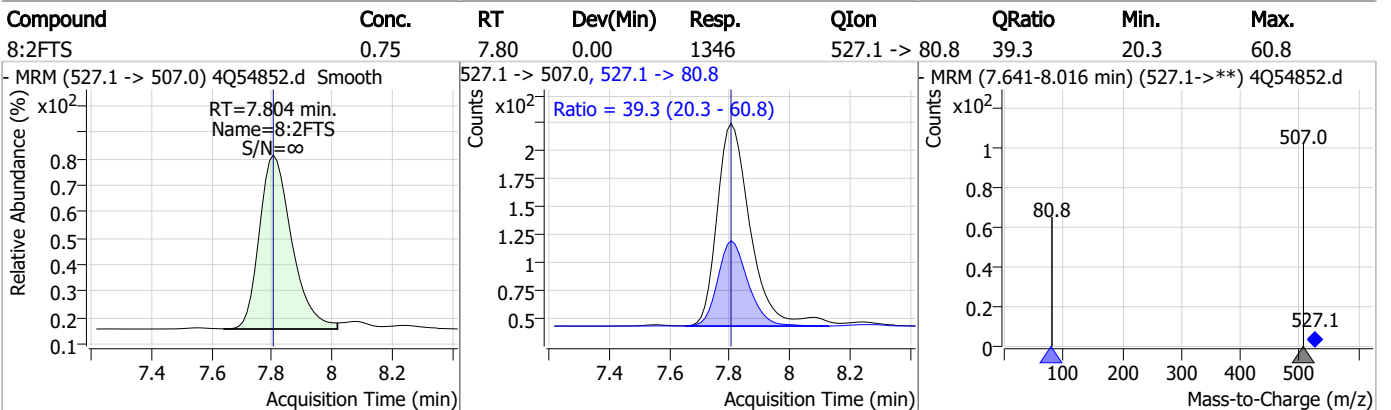
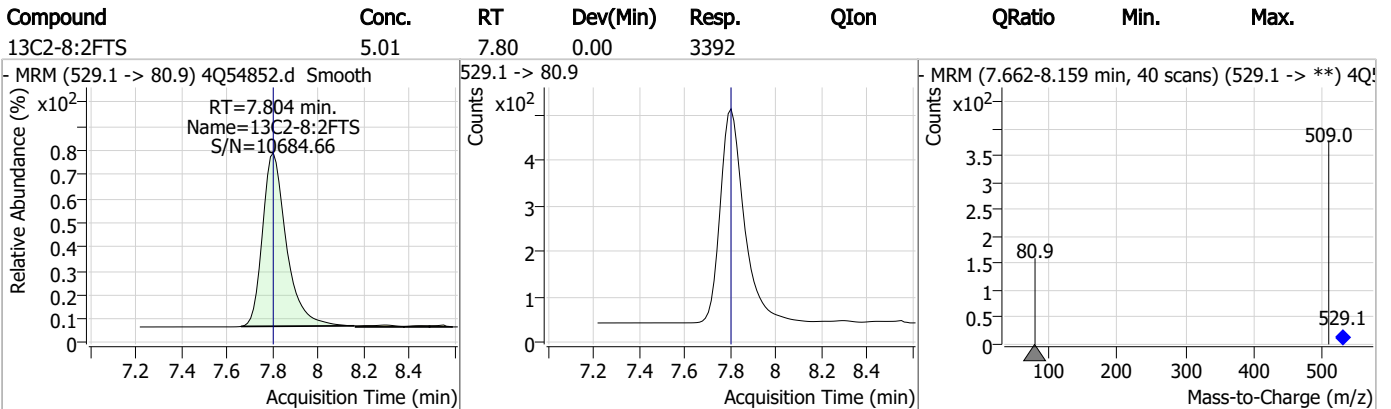
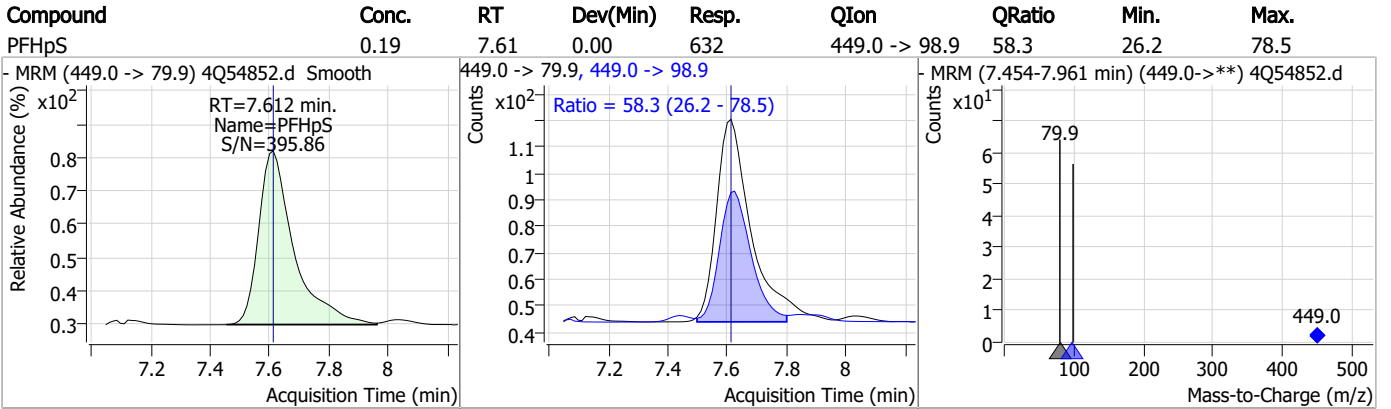
### Perfluorinated Compounds by LC/MS/MS



7.7.2

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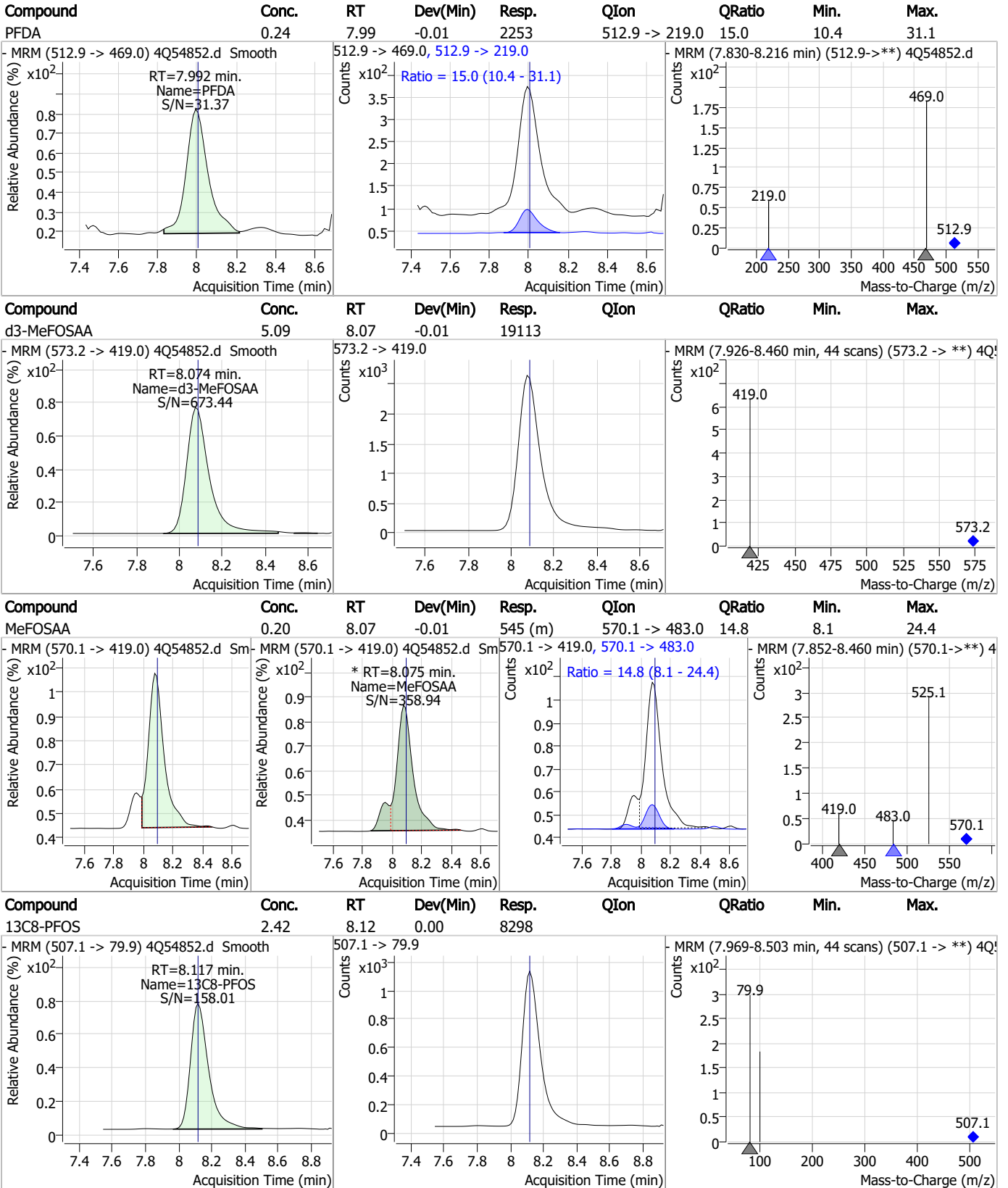
### Perfluorinated Compounds by LC/MS/MS



7.7.2

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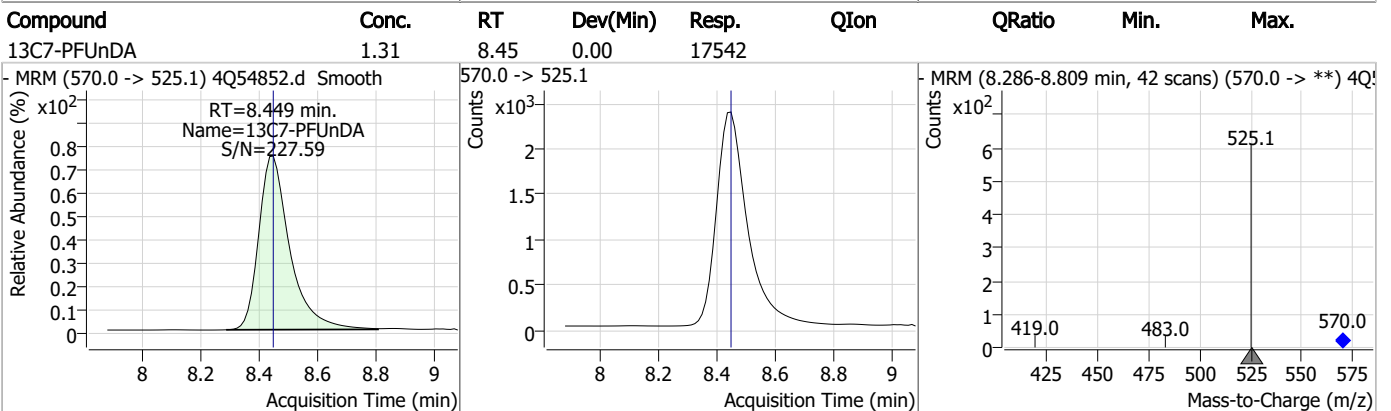
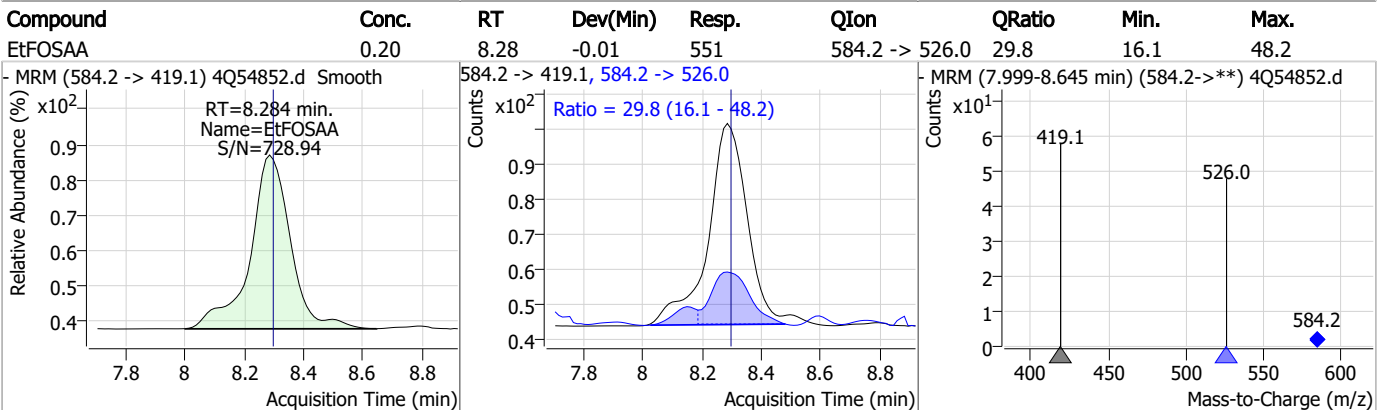
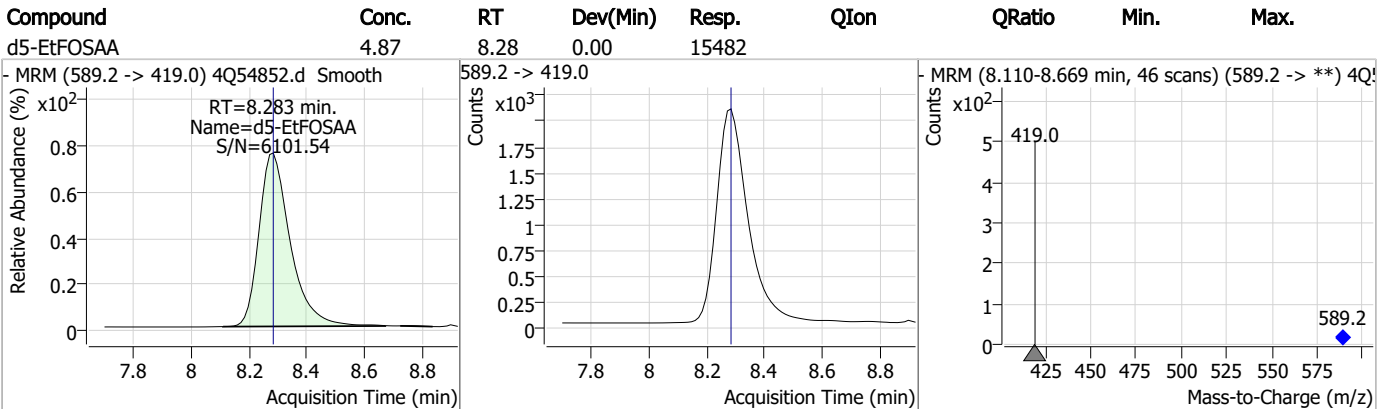
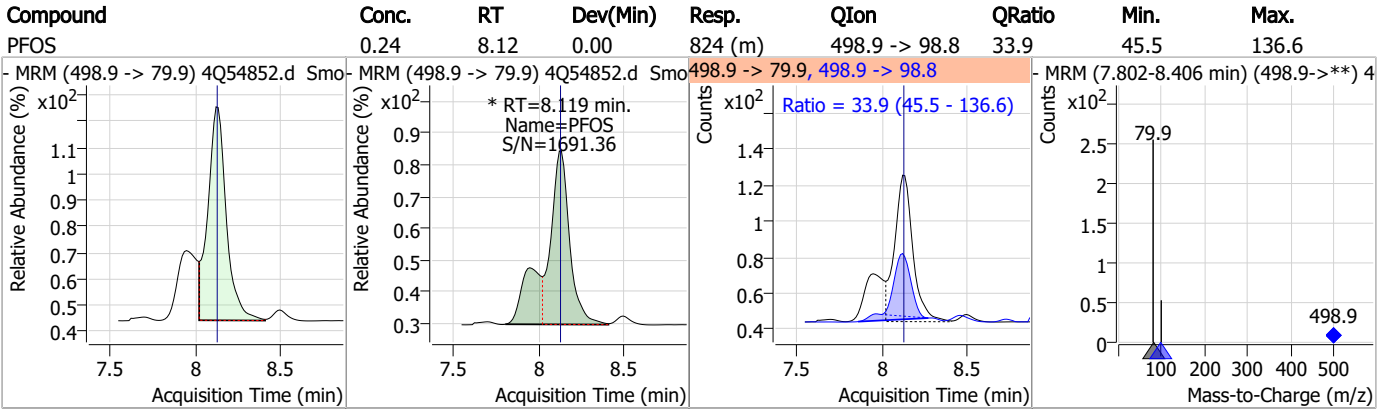
### Perfluorinated Compounds by LC/MS/MS



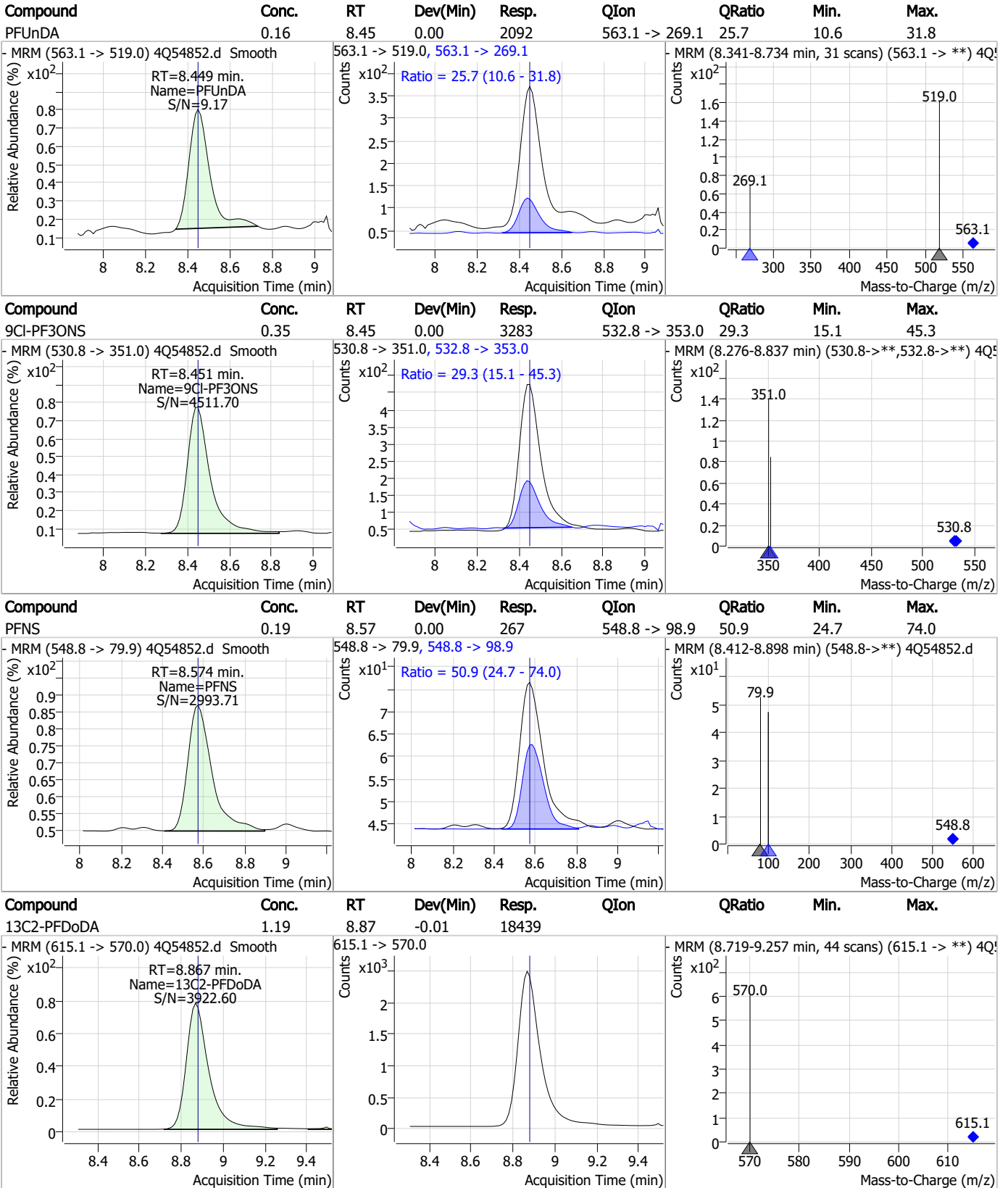
7.7.2

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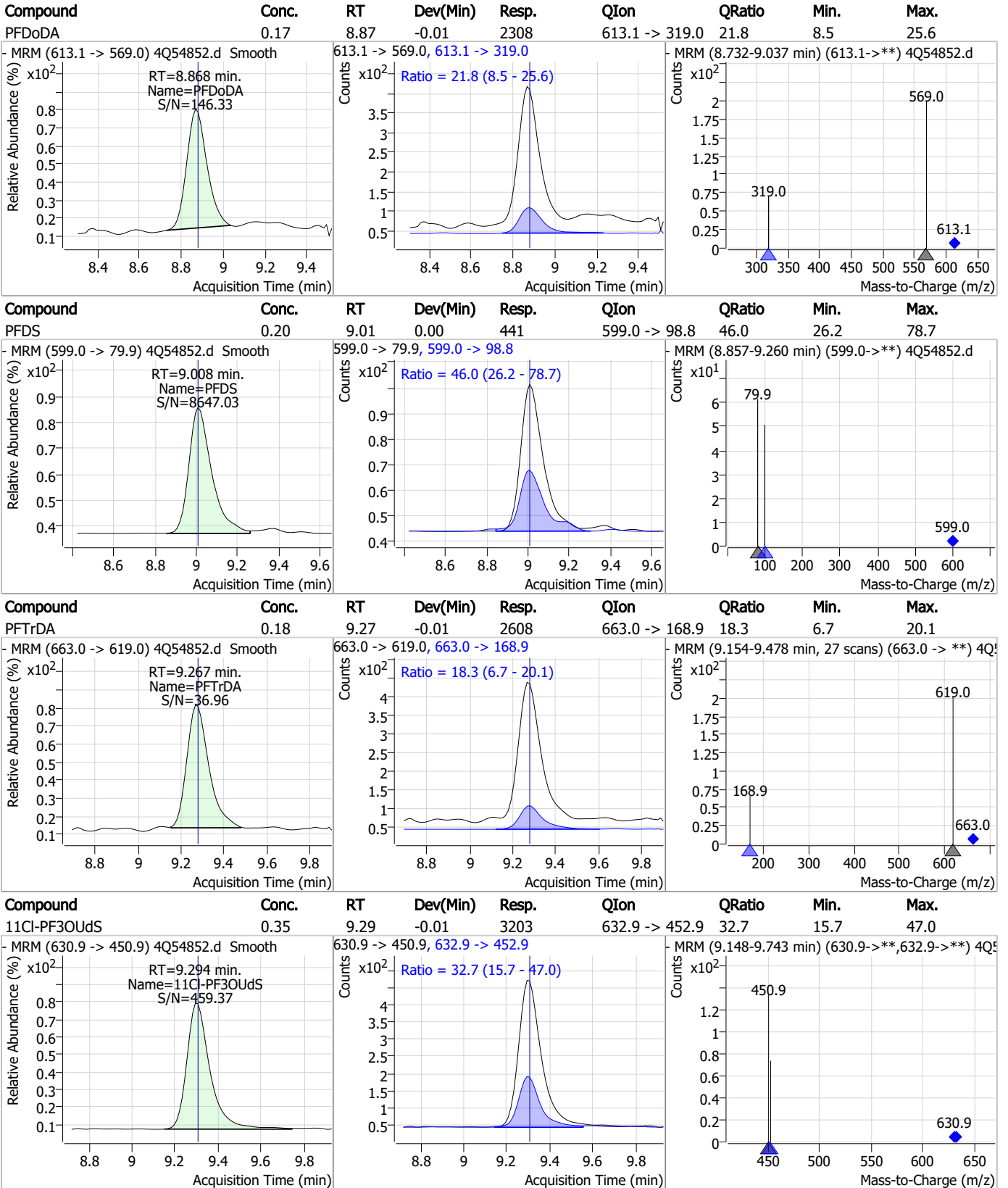
### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS



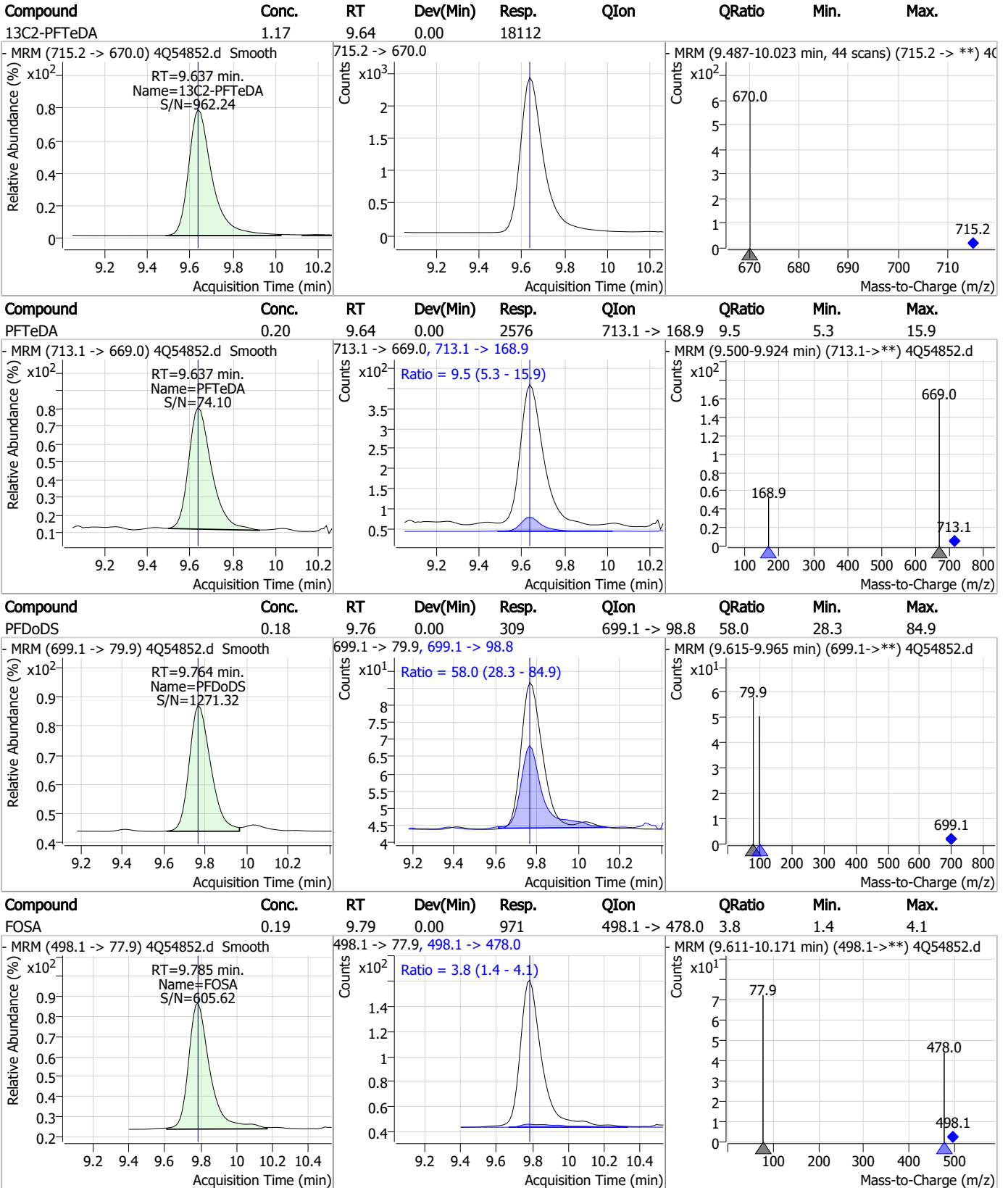
### Perfluorinated Compounds by LC/MS/MS



7.7.2

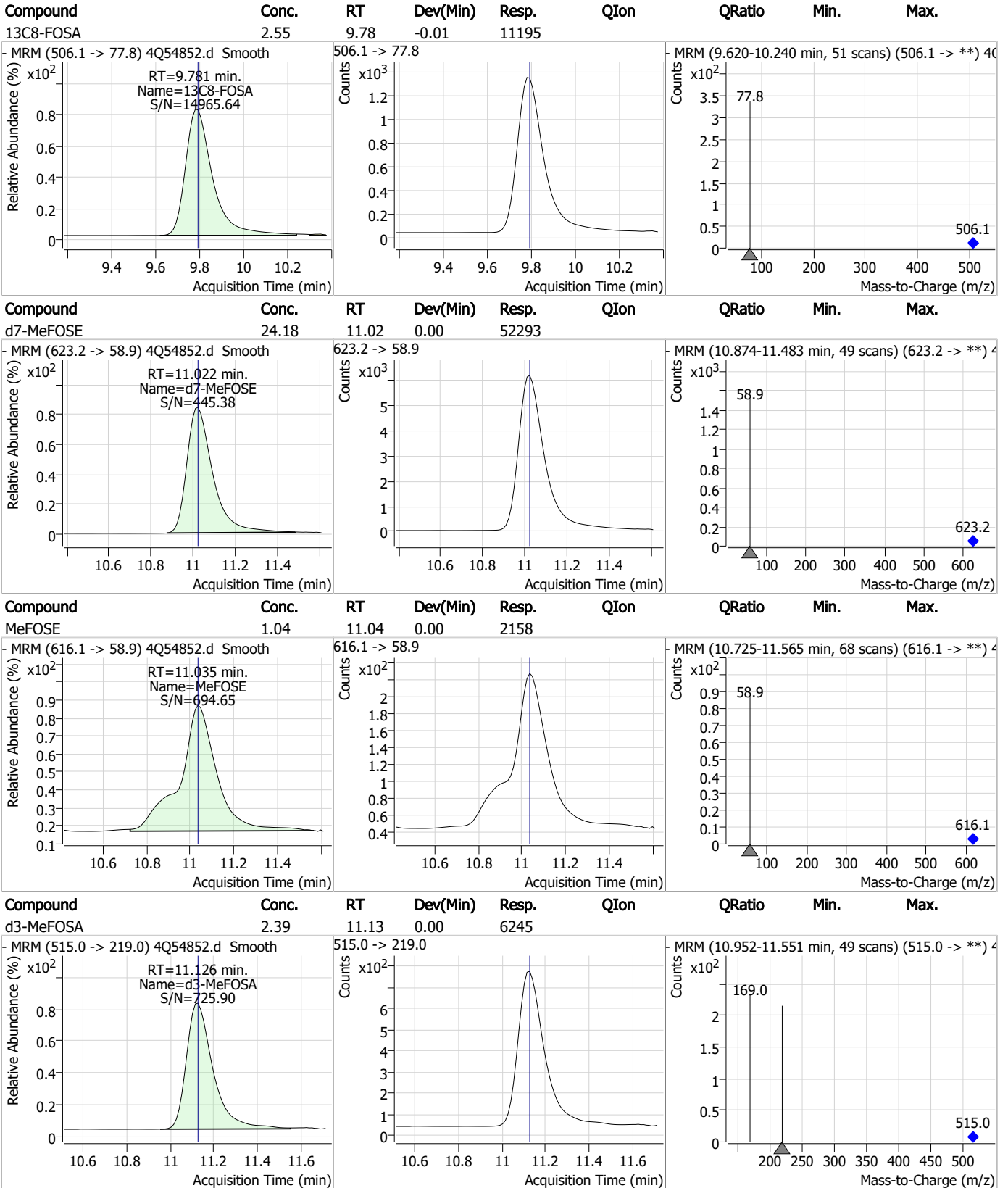
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### Perfluorinated Compounds by LC/MS/MS



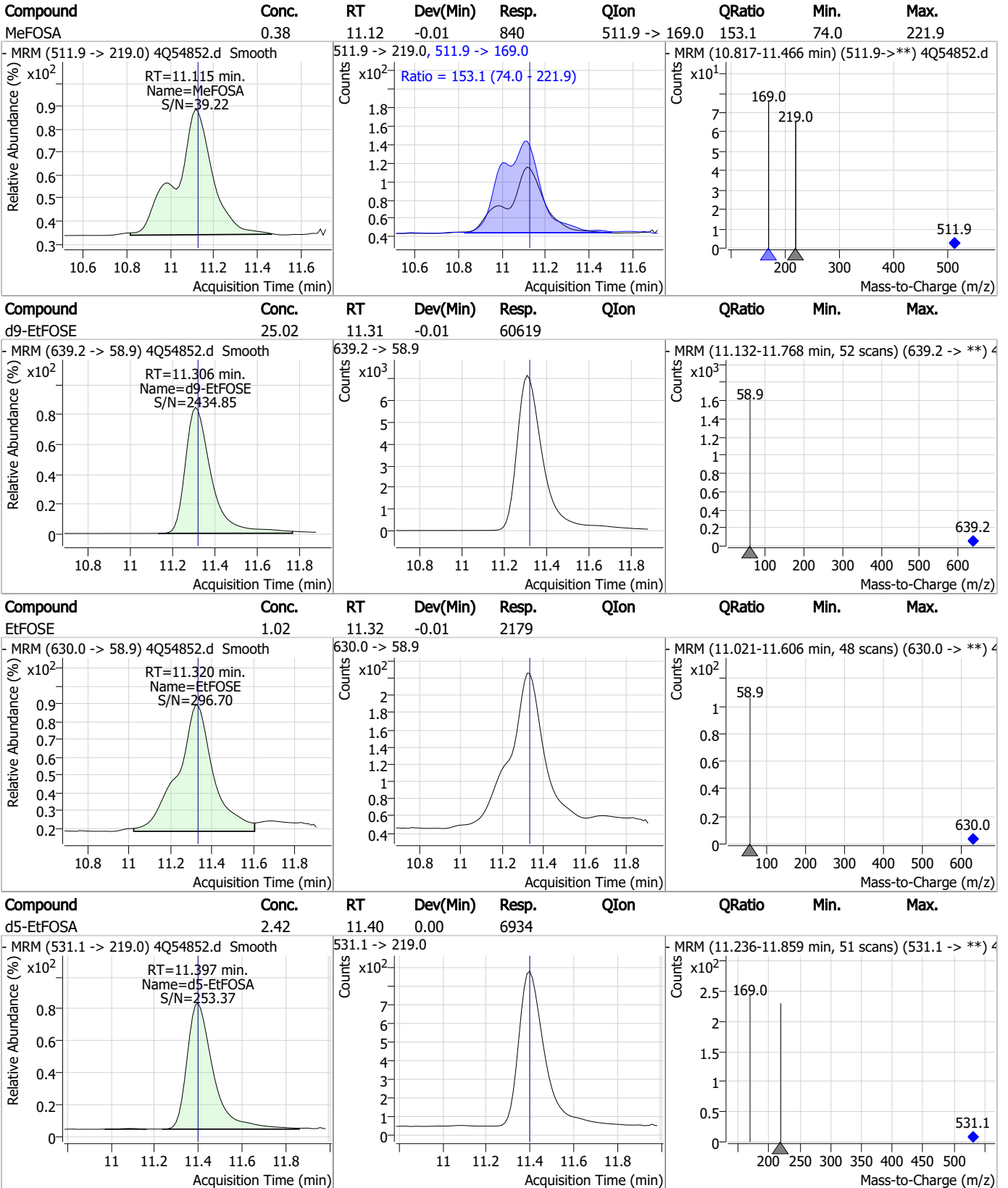


### Perfluorinated Compounds by LC/MS/MS





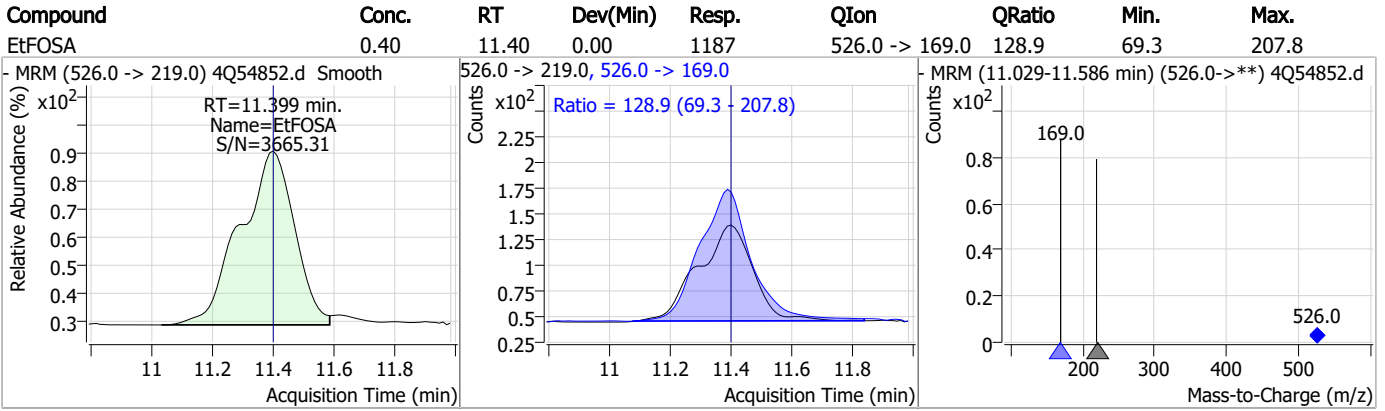
### Perfluorinated Compounds by LC/MS/MS



7.7.2

7

### Perfluorinated Compounds by LC/MS/MS



7.7.2

7

# Manual Integration Approval Summary

Sample Number: S4Q804-IC804      Method: EPA DRAFT 1633  
Lab FileID: 4Q54852.D      Analyst approved: 12/10/23 12:52 Anna Ludwig  
Injection Time: 12/08/23 11:38      Supervisor approved: 12/11/23 15:42 Natasha Guntie

| Parameter                    | CAS       | Sig# | R.T.<br>(min.) | Reason                  |
|------------------------------|-----------|------|----------------|-------------------------|
| Perfluorohexanesulfonic acid | 355-46-4  |      | 7.03           | Split peak              |
| Perfluorononanoic acid       | 375-95-1  |      | 7.51           | Poorly defined baseline |
| MeFOSAA                      | 2355-31-9 |      | 8.07           | Split peak              |
| Perfluorooctanesulfonic acid | 1763-23-1 |      | 8.12           | Split peak              |

7.7.2.1

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## Perfluorinated Compounds by LC/MS/MS

Data File : 4Q54853.d  
 Operator : annal  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 12/8/2023 11:53:03 AM  
 Sample Name : ic804-2  
 Vial : P1-A3  
 DA Method File : 1633\_120823\_S4Q804.quantmethod.xml  
 Batch Name : s4q804.batch.bin  
 Sample Information : OP99999,S4Q804,500,,,5.0,1,water

| Compound                           | RT                   | Transition     | Response          | Conc. Units | Dev(Min) |
|------------------------------------|----------------------|----------------|-------------------|-------------|----------|
| <b>Internal Standards</b>          |                      |                |                   |             |          |
| M4-PFBA                            | 2.686                | 216.8 -> 171.9 | 98674             | 10.00 µg/L  | 0.012    |
| M5-PFPeA                           | 4.162                | 268.3 -> 223.0 | 41310             | 5.00 µg/L   | 0.000    |
| M5-PFHxA                           | 5.334                | 318.0 -> 273.0 | 33063             | 2.50 µg/L   | 0.000    |
| M4-PFHpA                           | 6.292                | 367.1 -> 322.0 | 32710             | 2.50 µg/L   | 0.000    |
| M8-PFOA                            | 6.976                | 421.1 -> 376.0 | 51954             | 2.50 µg/L   | 0.000    |
| M9-PFNA                            | 7.509                | 472.1 -> 427.0 | 20101             | 1.25 µg/L   | -0.012   |
| M6-PFDA                            | 7.992                | 519.1 -> 474.1 | 14794             | 1.25 µg/L   | -0.012   |
| M7-PFUnDA                          | 8.448                | 570.0 -> 525.1 | 18213             | 1.25 µg/L   | 0.000    |
| M2-PFDoDA                          | 8.880                | 615.1 -> 570.0 | 19768             | 1.25 µg/L   | 0.000    |
| M2-PFTeDA                          | 9.637                | 715.2 -> 670.0 | 18453             | 1.25 µg/L   | 0.000    |
| M8-FOSA                            | 9.794                | 506.1 -> 77.8  | 10756             | 2.50 µg/L   | 0.000    |
| M3-PFBS                            | 5.202                | 302.1 -> 79.9  | 9554              | 2.50 µg/L   | 0.013    |
| M3-PFHxS                           | 7.029                | 402.1 -> 79.9  | 7502              | 2.50 µg/L   | 0.000    |
| M8-PFOS                            | 8.117                | 507.1 -> 79.9  | 8684              | 2.50 µg/L   | 0.000    |
| M2-4:2FTS                          | 5.046                | 329.1 -> 80.9  | 1362              | 5.00 µg/L   | 0.000    |
| M2-6:2FTS                          | 6.748                | 429.1 -> 80.9  | 2855              | 5.00 µg/L   | 0.000    |
| M2-8:2FTS                          | 7.804                | 529.1 -> 80.9  | 3525              | 5.00 µg/L   | 0.000    |
| M3-MeFOSAA                         | 8.074                | 573.2 -> 419.0 | 20027             | 5.00 µg/L   | -0.012   |
| M3-HFPO-DA                         | 5.689                | 286.9 -> 168.9 | 33471             | 10.00 µg/L  | 0.000    |
| M5-EtFOSAA                         | 8.283                | 589.2 -> 419.0 | 16617             | 5.00 µg/L   | 0.000    |
| M7-MeFOSE                          | 11.022               | 623.2 -> 58.9  | 57217             | 25.00 µg/L  | 0.000    |
| M9-EtFOSE                          | 11.306               | 639.2 -> 58.9  | 62397             | 25.00 µg/L  | -0.012   |
| M5-EtFOSA                          | 11.397               | 531.1 -> 219.0 | 7078              | 2.50 µg/L   | 0.000    |
| M3-MeFOSA                          | 11.126               | 515.0 -> 219.0 | 6282              | 2.50 µg/L   | 0.000    |
| 13C4-PFOS                          | 8.118                | 502.8 -> 79.9  | 6596              | 2.50 µg/L   | 0.000    |
| 13C3-PFBA                          | 2.678                | 216.0 -> 172.0 | 46375             | 5.00 µg/L   | 0.000    |
| 18O2-PFHxS                         | 7.041                | 403.0 -> 83.9  | 4968              | 2.50 µg/L   | 0.000    |
| 13C4-PFOA                          | 6.977                | 417.1 -> 372.0 | 55132             | 2.50 µg/L   | 0.000    |
| 13C2-PFDA                          | 7.992                | 515.1 -> 470.1 | 15765             | 1.25 µg/L   | -0.012   |
| 13C5-PFNA                          | 7.509                | 468.0 -> 423.0 | 21376             | 1.25 µg/L   | 0.000    |
| 13C2-PFHxA                         | 5.335                | 315.1 -> 270.0 | 36612             | 2.50 µg/L   | 0.000    |
| <b>System Monitoring Compounds</b> |                      |                |                   |             |          |
| 13C2-4:2FTS                        | 5.046                | 329.1 -> 80.9  | 1362              | 5.77 µg/L   | 0.000    |
| Spiked Amount: 5.00                | Range: 50.0 - 150.0% |                | Recovery = 115.5% |             |          |
| 13C2-6:2FTS                        | 6.748                | 429.1 -> 80.9  | 2855              | 5.58 µg/L   | 0.000    |
| Spiked Amount: 5.00                | Range: 50.0 - 150.0% |                | Recovery = 111.6% |             |          |
| 13C2-8:2FTS                        | 7.804                | 529.1 -> 80.9  | 3525              | 5.15 µg/L   | 0.000    |
| Spiked Amount: 5.00                | Range: 50.0 - 150.0% |                | Recovery = 102.9% |             |          |
| 13C2-PFDoDA                        | 8.880                | 615.1 -> 570.0 | 19768             | 1.25 µg/L   | 0.000    |
| Spiked Amount: 1.25                | Range: 50.0 - 150.0% |                | Recovery = 100.4% |             |          |
| 13C2-PFTeDA                        | 9.637                | 715.2 -> 670.0 | 18453             | 1.18 µg/L   | 0.000    |
| Spiked Amount: 1.25                | Range: 50.0 - 150.0% |                | Recovery = 94.3%  |             |          |
| 13C3-PFBS                          | 5.202                | 302.1 -> 79.9  | 9554              | 2.51 µg/L   | 0.013    |
| Spiked Amount: 2.50                | Range: 50.0 - 150.0% |                | Recovery = 100.3% |             |          |
| 13C3-PFHxS                         | 7.029                | 402.1 -> 79.9  | 7502              | 2.41 µg/L   | 0.000    |

## Perfluorinated Compounds by LC/MS/MS

| Compound                | RT                   | Transition     | Response          | Conc. Units | Dev(Min)      |
|-------------------------|----------------------|----------------|-------------------|-------------|---------------|
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                | Recovery = 96.3%  |             |               |
| 13C4-PFBA               | 2.686                | 216.8 -> 171.9 | 98674             | 10.13 µg/L  | 0.012         |
| Spiked Amount: 10.00    | Range: 50.0 - 150.0% |                | Recovery = 101.3% |             |               |
| 13C4-PFHpA              | 6.292                | 367.1 -> 322.0 | 32710             | 2.53 µg/L   | 0.000         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                | Recovery = 101.4% |             |               |
| 13C5-PFHxA              | 5.334                | 318.0 -> 273.0 | 33063             | 2.45 µg/L   | 0.000         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                | Recovery = 98.0%  |             |               |
| 13C5-PFPeA              | 4.162                | 268.3 -> 223.0 | 41310             | 4.92 µg/L   | 0.000         |
| Spiked Amount: 5.00     | Range: 50.0 - 150.0% |                | Recovery = 98.3%  |             |               |
| 13C6-PFDA               | 7.992                | 519.1 -> 474.1 | 14794             | 1.29 µg/L   | -0.012        |
| Spiked Amount: 1.25     | Range: 50.0 - 150.0% |                | Recovery = 103.2% |             |               |
| 13C7-PFUnDA             | 8.448                | 570.0 -> 525.1 | 18213             | 1.35 µg/L   | 0.000         |
| Spiked Amount: 1.25     | Range: 50.0 - 150.0% |                | Recovery = 107.7% |             |               |
| 13C8-FOSA               | 9.794                | 506.1 -> 77.8  | 10756             | 2.52 µg/L   | 0.000         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                | Recovery = 100.6% |             |               |
| 13C8-PFOA               | 6.976                | 421.1 -> 376.0 | 51954             | 2.55 µg/L   | 0.000         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                | Recovery = 102.0% |             |               |
| 13C8-PFOS               | 8.117                | 507.1 -> 79.9  | 8684              | 2.60 µg/L   | 0.000         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                | Recovery = 104.0% |             |               |
| 13C9-PFNA               | 7.509                | 472.1 -> 427.0 | 20101             | 1.17 µg/L   | -0.012        |
| Spiked Amount: 1.25     | Range: 50.0 - 150.0% |                | Recovery = 93.9%  |             |               |
| d3-MeFOSAA              | 8.074                | 573.2 -> 419.0 | 20027             | 5.47 µg/L   | -0.012        |
| Spiked Amount: 5.00     | Range: 50.0 - 150.0% |                | Recovery = 109.4% |             |               |
| 13C3-HFPO-DA            | 5.689                | 286.9 -> 168.9 | 33471             | 9.93 µg/L   | 0.000         |
| Spiked Amount: 10.00    | Range: 50.0 - 150.0% |                | Recovery = 99.3%  |             |               |
| d3-MeFOSA               | 11.126               | 515.0 -> 219.0 | 6282              | 2.46 µg/L   | 0.000         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                | Recovery = 98.5%  |             |               |
| d5-EtFOSAA              | 8.283                | 589.2 -> 419.0 | 16617             | 5.36 µg/L   | 0.000         |
| Spiked Amount: 5.00     | Range: 50.0 - 150.0% |                | Recovery = 107.3% |             |               |
| d7-MeFOSE               | 11.022               | 623.2 -> 58.9  | 57217             | 27.13 µg/L  | 0.000         |
| Spiked Amount: 25.00    | Range: 50.0 - 150.0% |                | Recovery = 108.5% |             |               |
| d9-EtFOSE               | 11.306               | 639.2 -> 58.9  | 62397             | 26.42 µg/L  | -0.012        |
| Spiked Amount: 25.00    | Range: 50.0 - 150.0% |                | Recovery = 105.7% |             |               |
| d5-EtFOSA               | 11.397               | 531.1 -> 219.0 | 7078              | 2.53 µg/L   | 0.000         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                | Recovery = 101.3% |             |               |
| <b>Target Compounds</b> |                      |                |                   |             | <b>QValue</b> |
| 4:2FTS                  | 5.047                | 327.1 -> 307.0 | 2828              | 1.21 µg/L   | 97            |
|                         |                      | 327.1 -> 80.9  | 1270              |             |               |
| 6:2FTS                  | 6.749                | 427.1 -> 407.0 | 3697              | 1.23 µg/L   | 92            |
|                         |                      | 427.1 -> 80.9  | 1539              |             |               |
| 8:2FTS                  | 7.804                | 527.1 -> 507.0 | 2843              | 1.53 µg/L   | 95            |
|                         |                      | 527.1 -> 80.8  | 1244              |             |               |
| EtFOSAA                 | 8.284                | 584.2 -> 419.1 | 1039              | 0.34 µg/L   | m 74          |
|                         |                      | 584.2 -> 526.0 | 486               |             |               |
| FOSA                    | 9.785                | 498.1 -> 77.9  | 1823              | 0.38 µg/L   | 98            |
|                         |                      | 498.1 -> 478.0 | 66                |             |               |
| MeFOSAA                 | 8.075                | 570.1 -> 419.0 | 1107              | 0.39 µg/L   | m 81          |
|                         |                      | 570.1 -> 483.0 | 270               |             |               |
| PFBA                    | 2.682                | 212.8 -> 168.9 | 4195              | 1.33 µg/L   | 100           |
| PFBS                    | 5.191                | 298.7 -> 79.9  | 953               | 0.32 µg/L   | 94            |
|                         |                      | 298.7 -> 98.8  | 349               |             |               |
| PFDA                    | 7.992                | 512.9 -> 469.0 | 3570              | 0.33 µg/L   | 98            |
|                         |                      | 512.9 -> 219.0 | 710               |             |               |
| PFDODA                  | 8.880                | 613.1 -> 569.0 | 5102              | 0.36 µg/L   | 98            |
|                         |                      | 613.1 -> 319.0 | 920               |             |               |
| PFDS                    | 9.008                | 599.0 -> 79.9  | 691               | 0.30 µg/L   | 98            |

## Perfluorinated Compounds by LC/MS/MS

| Compound     | RT     | Transition     | Response | Conc. | Units | Dev(Min) |
|--------------|--------|----------------|----------|-------|-------|----------|
|              |        | 599.0 -> 98.8  | 374      |       |       |          |
| PFHpA        | 6.293  | 363.1 -> 319.0 | 5834     | 0.32  | µg/L  | 95       |
|              |        | 363.1 -> 169.0 | 1200     |       |       |          |
| PFHpS        | 7.612  | 449.0 -> 79.9  | 1048     | 0.30  | µg/L  | 93       |
|              |        | 449.0 -> 98.9  | 596      |       |       |          |
| PFHxA        | 5.337  | 313.0 -> 269.0 | 3707     | 0.35  | µg/L  | 99       |
|              |        | 313.0 -> 118.9 | 113      |       |       |          |
| PFHxS        | 7.043  | 398.7 -> 79.9  | 813      | 0.34  | µg/L  | m 95     |
|              |        | 398.7 -> 98.9  | 413      |       |       |          |
| PFNA         | 7.510  | 463.0 -> 419.0 | 4078     | 0.35  | µg/L  | 91       |
|              |        | 463.0 -> 219.0 | 1113     |       |       |          |
| PFNS         | 8.586  | 548.8 -> 79.9  | 543      | 0.37  | µg/L  | 75       |
|              |        | 548.8 -> 98.9  | 360      |       |       |          |
| PFOA         | 6.978  | 413.0 -> 369.0 | 7947     | 0.37  | µg/L  | 99       |
|              |        | 413.0 -> 169.0 | 1760     |       |       |          |
| PFOS         | 8.106  | 498.9 -> 79.9  | 1267     | 0.35  | µg/L  | m 55     |
|              |        | 498.9 -> 98.8  | 611      |       |       |          |
| PFPeA        | 4.164  | 263.0 -> 219.0 | 5556     | 0.68  | µg/L  | 100      |
| PFPeS        | 6.282  | 349.1 -> 79.9  | 721      | 0.32  | µg/L  | 87       |
|              |        | 349.1 -> 98.9  | 363      |       |       |          |
| PFTeDA       | 9.637  | 713.1 -> 669.0 | 4684     | 0.36  | µg/L  | 99       |
|              |        | 713.1 -> 168.9 | 509      |       |       |          |
| PFTrDA       | 9.279  | 663.0 -> 619.0 | 5328     | 0.34  | µg/L  | 100      |
|              |        | 663.0 -> 168.9 | 721      |       |       |          |
| PFUnDA       | 8.449  | 563.1 -> 519.0 | 4502     | 0.34  | µg/L  | 98       |
|              |        | 563.1 -> 269.1 | 916      |       |       |          |
| 11Cl-PF3OUdS | 9.294  | 630.9 -> 450.9 | 5803     | 0.63  | µg/L  | 99       |
|              |        | 632.9 -> 452.9 | 1772     |       |       |          |
| 9Cl-PF3ONS   | 8.451  | 530.8 -> 351.0 | 6403     | 0.69  | µg/L  | 96       |
|              |        | 532.8 -> 353.0 | 1812     |       |       |          |
| ADONA        | 6.556  | 376.9 -> 250.9 | 16007    | 0.71  | µg/L  | 100      |
|              |        | 376.9 -> 84.8  | 3845     |       |       |          |
| HFPO-DA      | 5.690  | 284.9 -> 168.9 | 2124     | 0.66  | µg/L  | 98       |
|              |        | 284.9 -> 184.9 | 214      |       |       |          |
| 3:3FTCA      | 3.617  | 241.0 -> 177.0 | 834      | 1.66  | µg/L  | 100      |
|              |        | 241.0 -> 117.0 | 75       |       |       |          |
| 5:3FTCA      | 6.008  | 341.0 -> 237.1 | 16299    | 8.66  | µg/L  | 96       |
|              |        | 341.0 -> 217.0 | 11080    |       |       |          |
| 7:3FTCA      | 7.536  | 441.0 -> 316.9 | 8481     | 8.59  | µg/L  | 97       |
|              |        | 441.0 -> 336.9 | 20535    |       |       |          |
| EtFOSA       | 11.399 | 526.0 -> 219.0 | 2130     | 0.71  | µg/L  | 99       |
|              |        | 526.0 -> 169.0 | 2984     |       |       |          |
| EtFOSE       | 11.320 | 630.0 -> 58.9  | 3750     | 1.70  | µg/L  | 100      |
| MeFOSA       | 11.115 | 511.9 -> 219.0 | 1649     | 0.74  | µg/L  | 97       |
|              |        | 511.9 -> 169.0 | 2369     |       |       |          |
| MeFOSE       | 11.035 | 616.1 -> 58.9  | 3777     | 1.66  | µg/L  | 100      |
| PFDoDS       | 9.764  | 699.1 -> 79.9  | 585      | 0.33  | µg/L  | 91       |
|              |        | 699.1 -> 98.8  | 368      |       |       |          |
| NFDHA        | 5.216  | 295.0 -> 201.0 | 640      | 0.86  | µg/L  | 84       |
|              |        | 295.0 -> 84.9  | 116      |       |       |          |
| PFMBA        | 4.566  | 279.0 -> 85.1  | 3043     | 0.68  | µg/L  | 100      |
| PFMPA        | 3.315  | 229.0 -> 84.9  | 3392     | 0.69  | µg/L  | 100      |
| PFEESA       | 5.722  | 314.8 -> 134.9 | 4832     | 0.62  | µg/L  | 99       |
|              |        | 314.8 -> 82.9  | 179      |       |       |          |

# = Qualifier out of range, m = manually integrated, + = Area summed

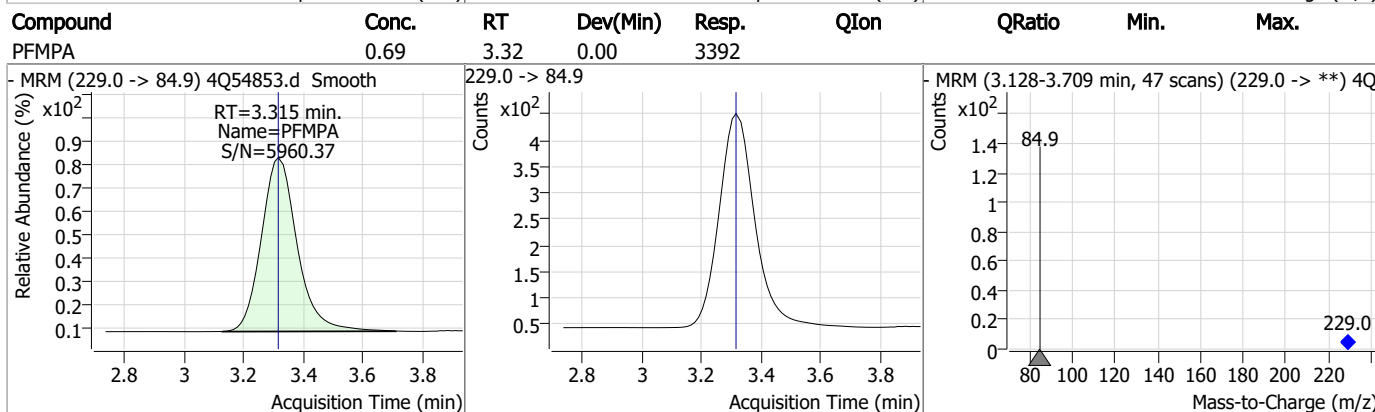
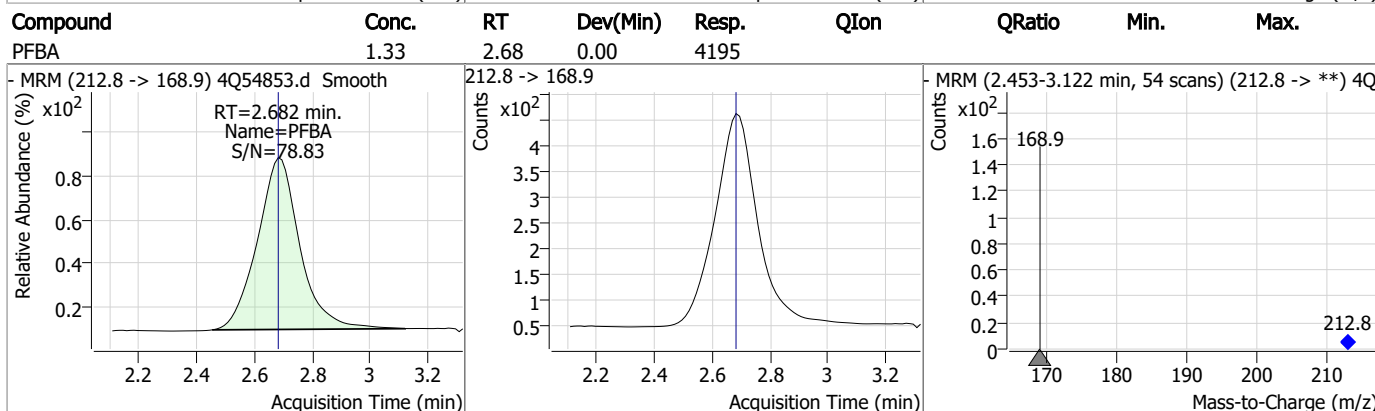
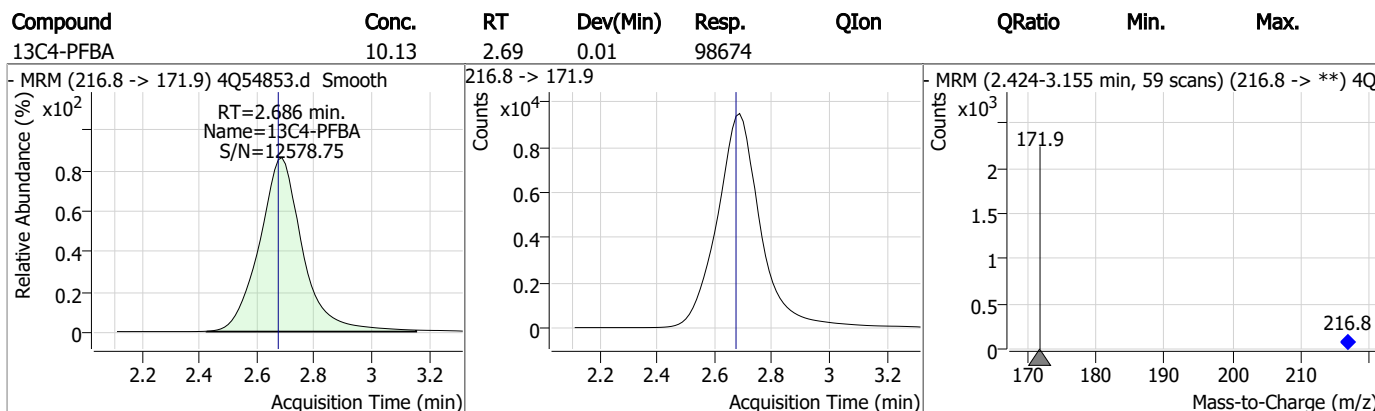
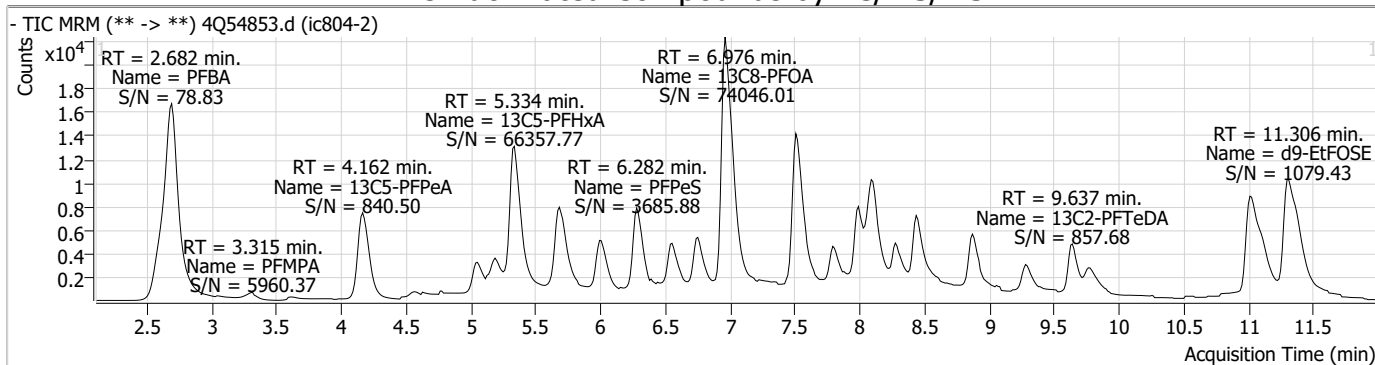
### Perfluorinated Compounds by LC/MS/MS

| Compound | RT | Transition | Response | Conc. Units | Dev(Min) |
|----------|----|------------|----------|-------------|----------|
|----------|----|------------|----------|-------------|----------|

7.7.3

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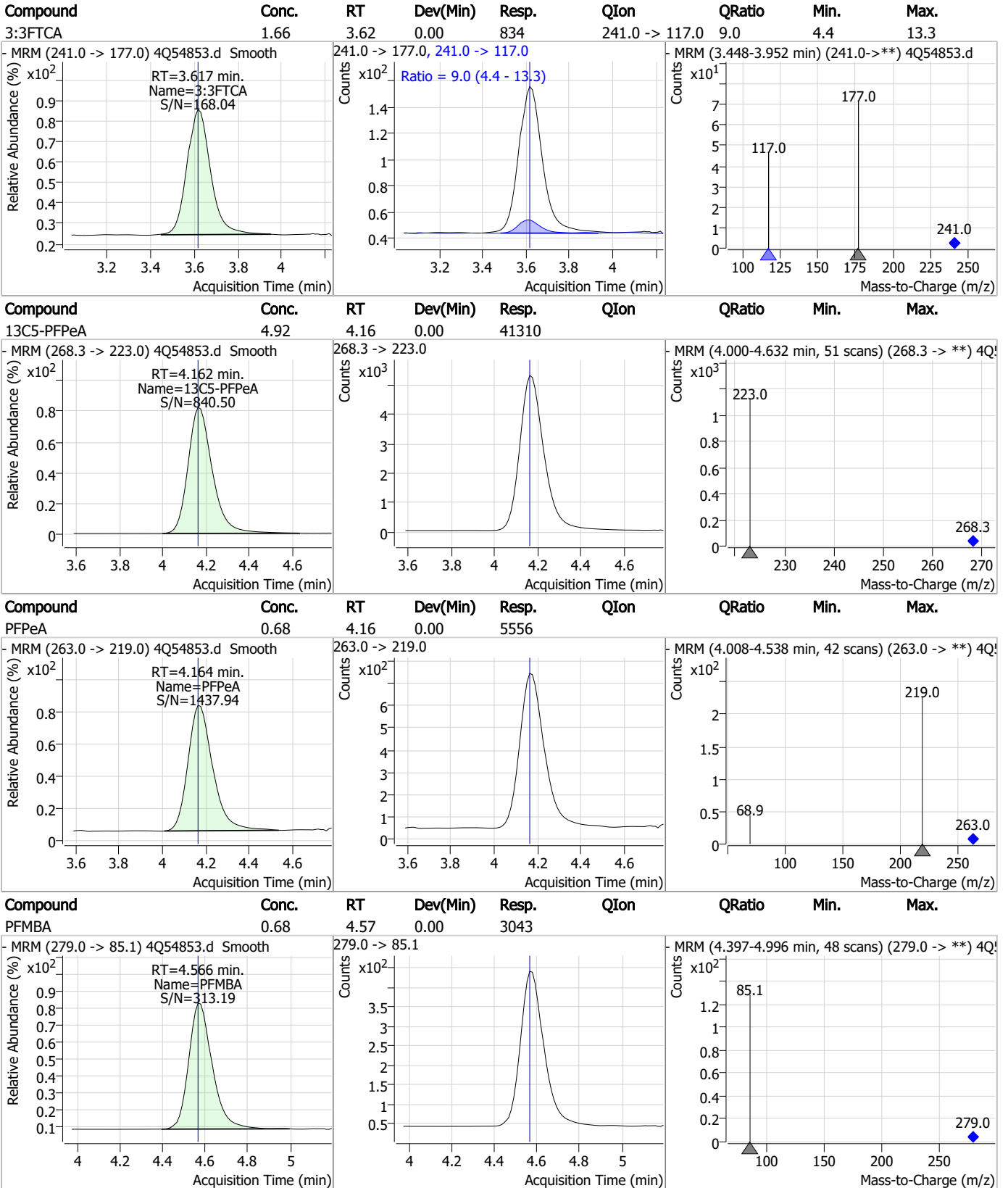
### Perfluorinated Compounds by LC/MS/MS



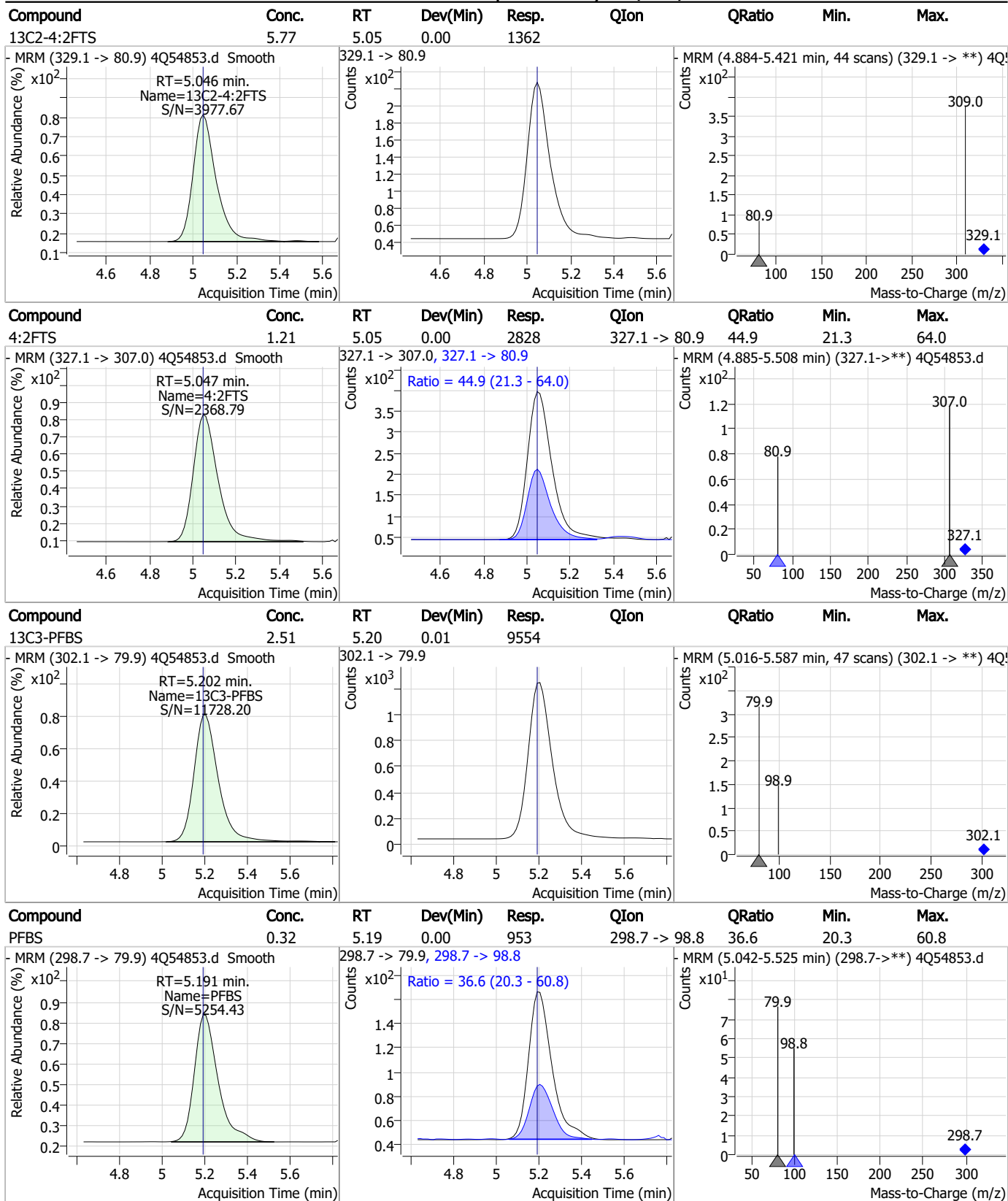
7.7.3  
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Perfluorinated Compounds by LC/MS/MS

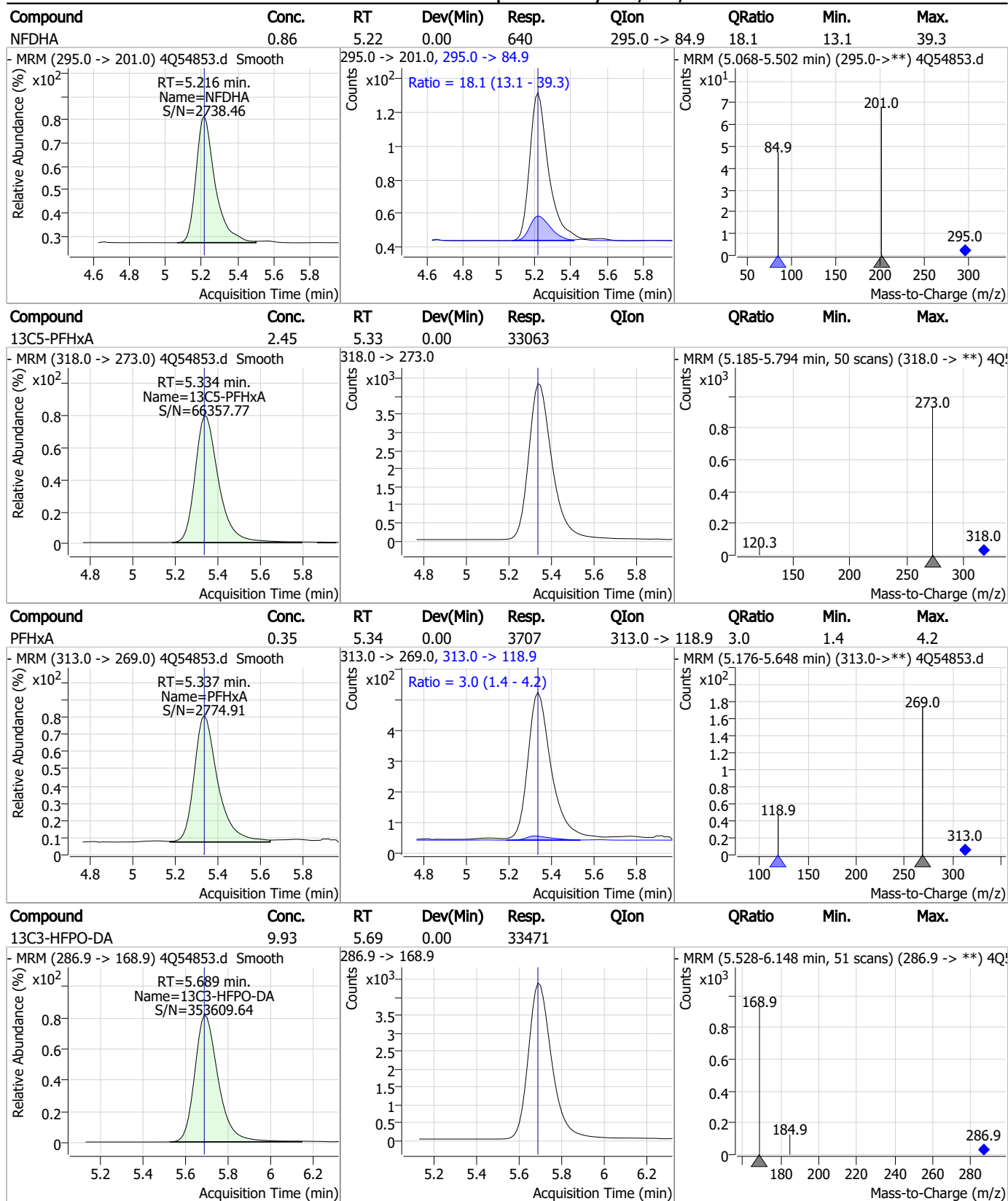


### Perfluorinated Compounds by LC/MS/MS



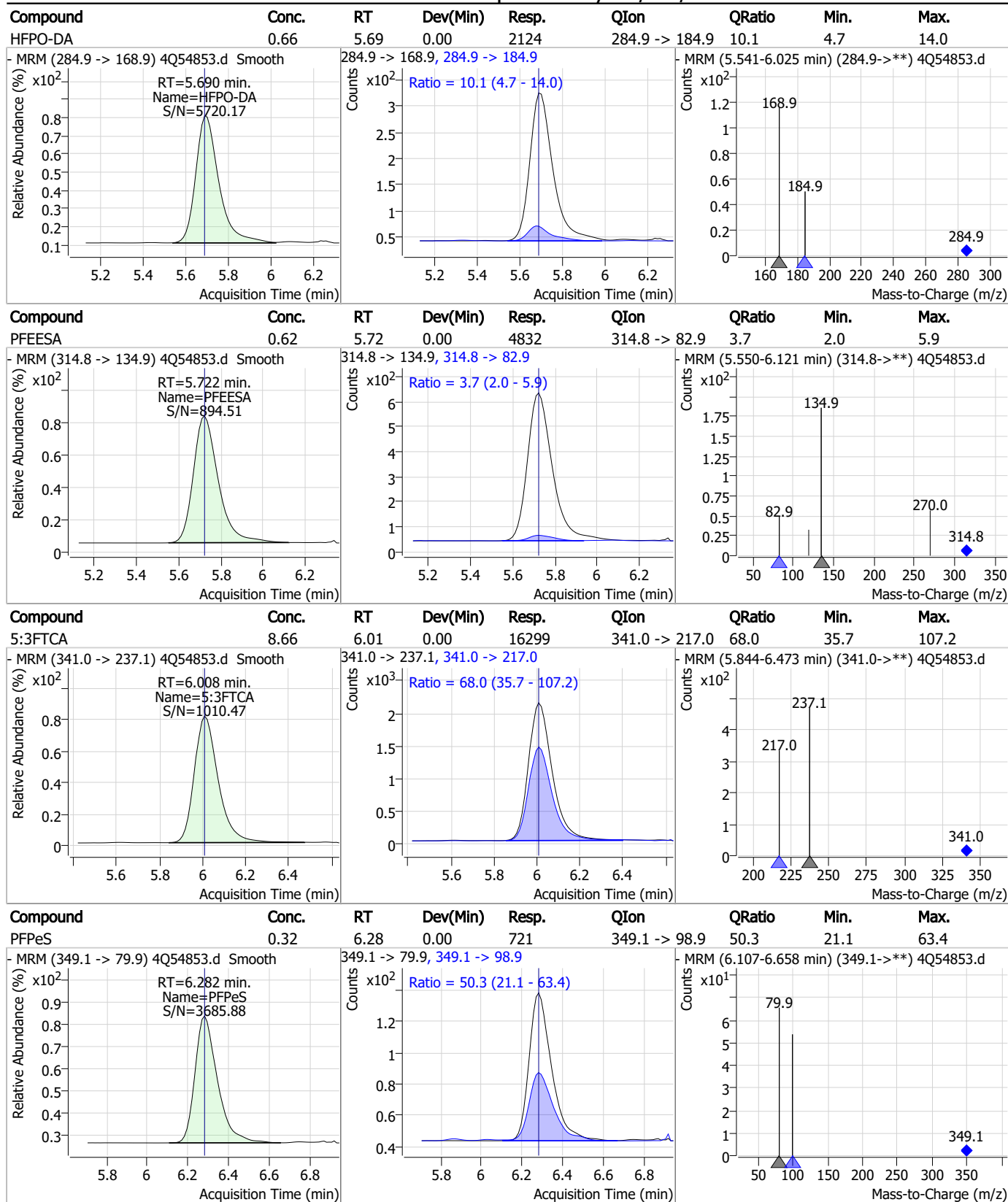
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### Perfluorinated Compounds by LC/MS/MS



7.7.3  
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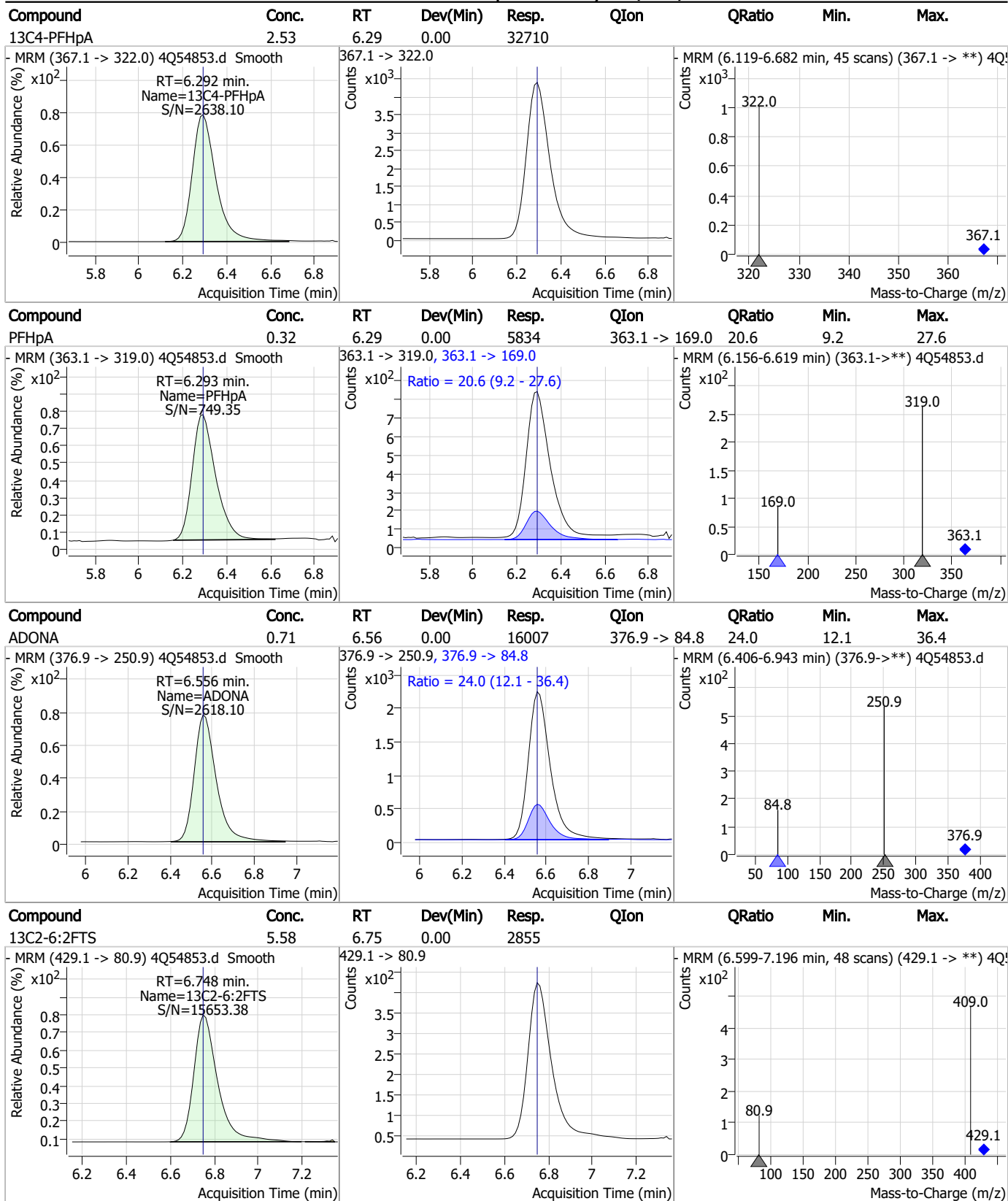
### Perfluorinated Compounds by LC/MS/MS



7.7.3

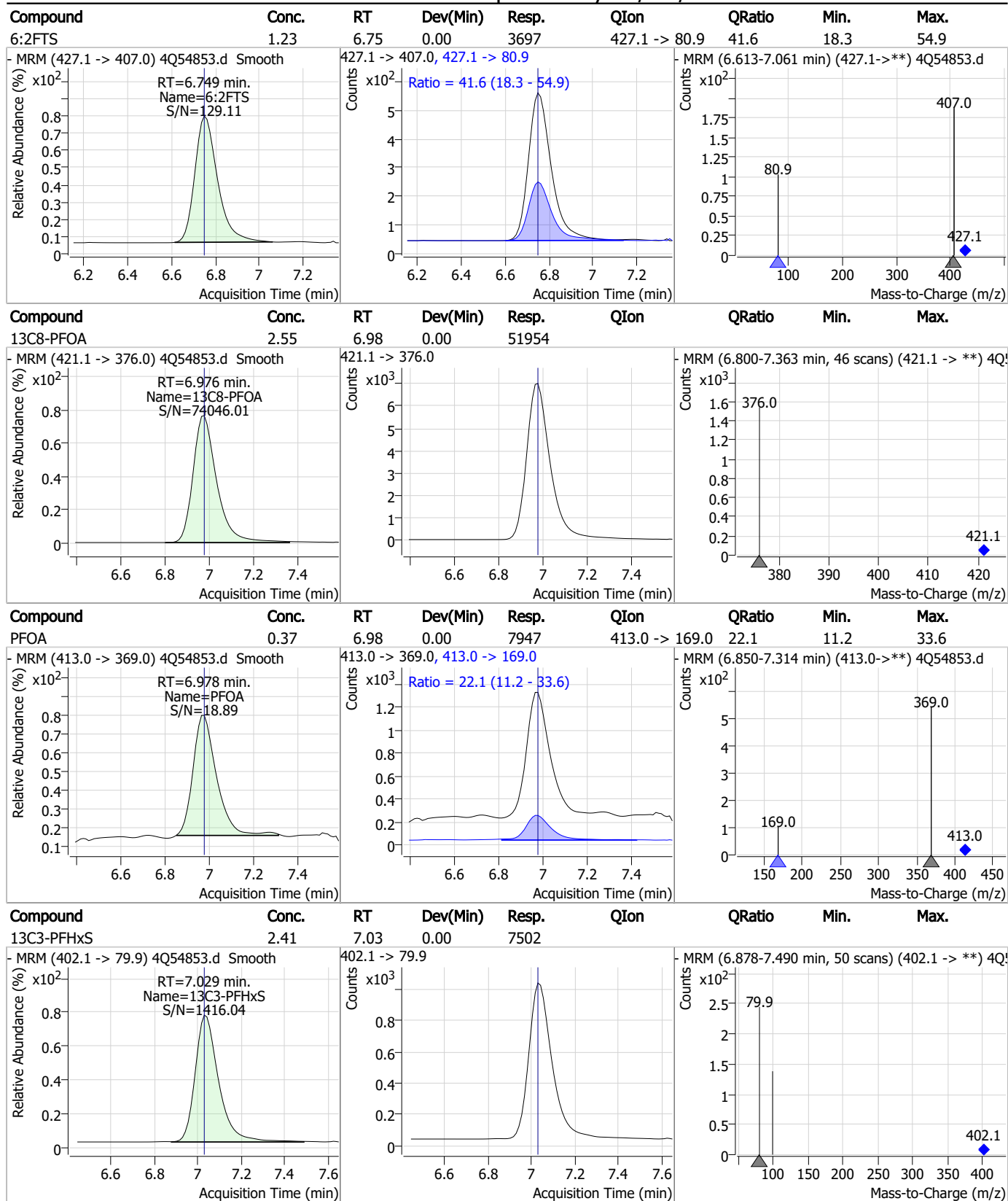
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### Perfluorinated Compounds by LC/MS/MS



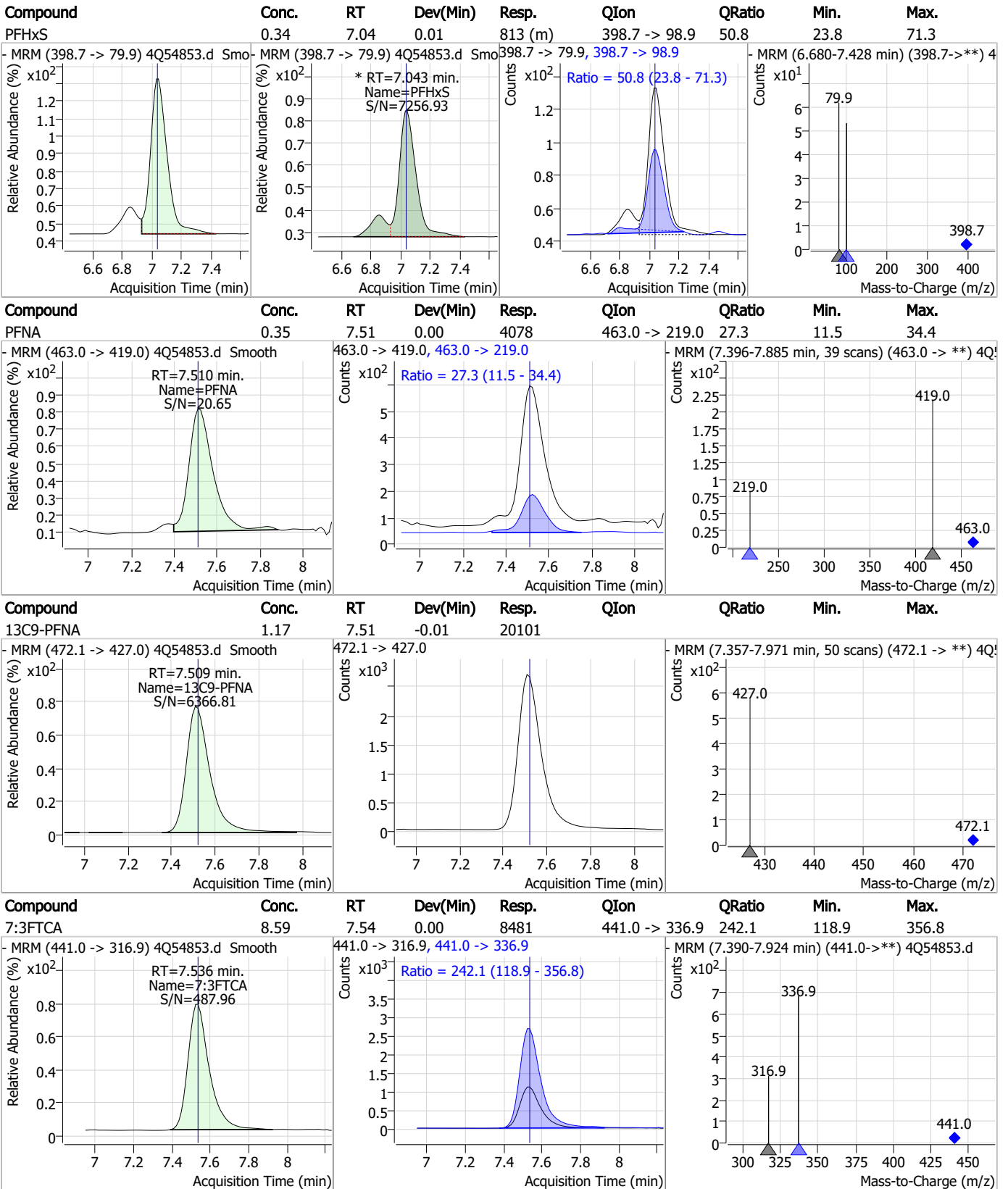
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### Perfluorinated Compounds by LC/MS/MS



7.7.3  
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### Perfluorinated Compounds by LC/MS/MS

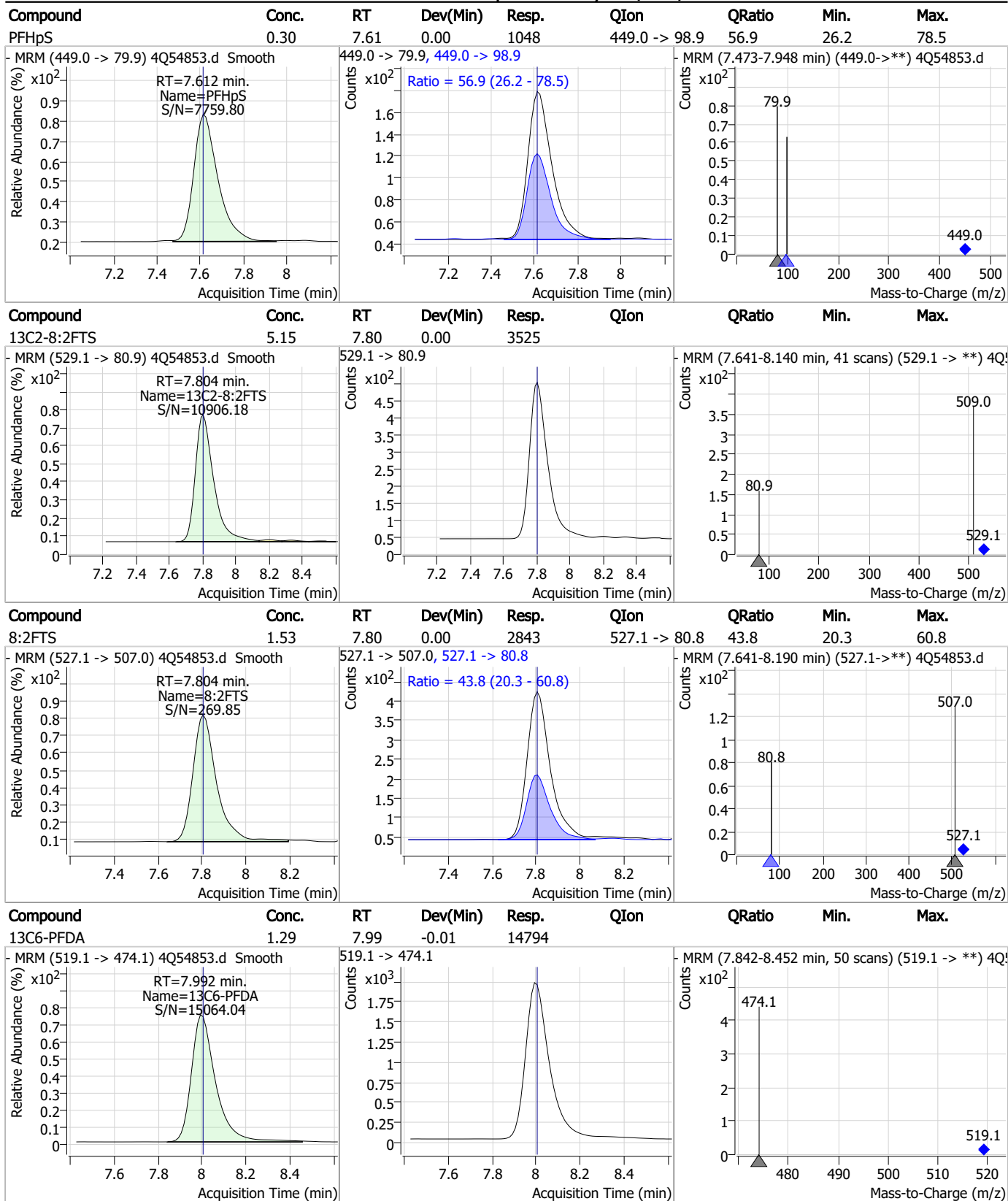


7.7.3

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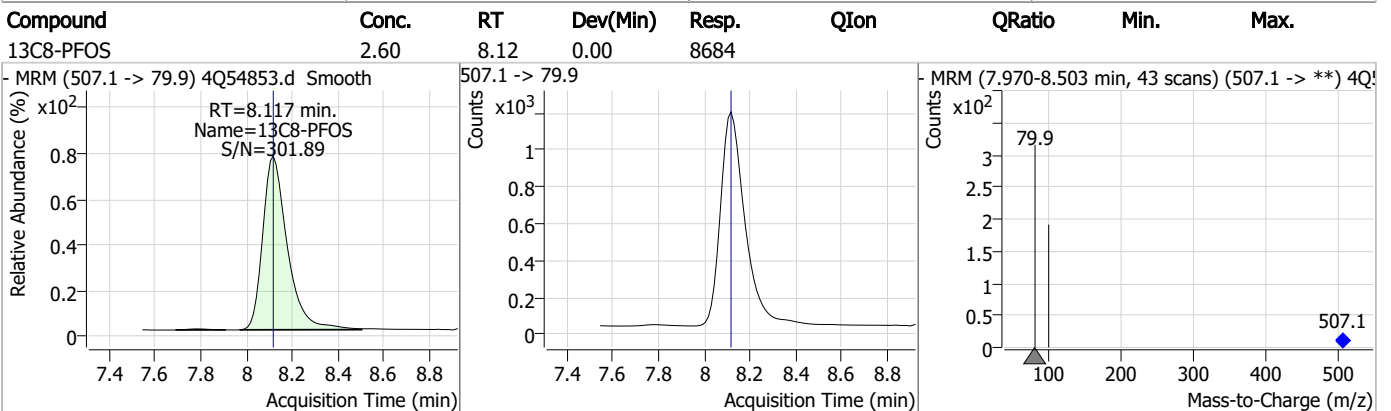
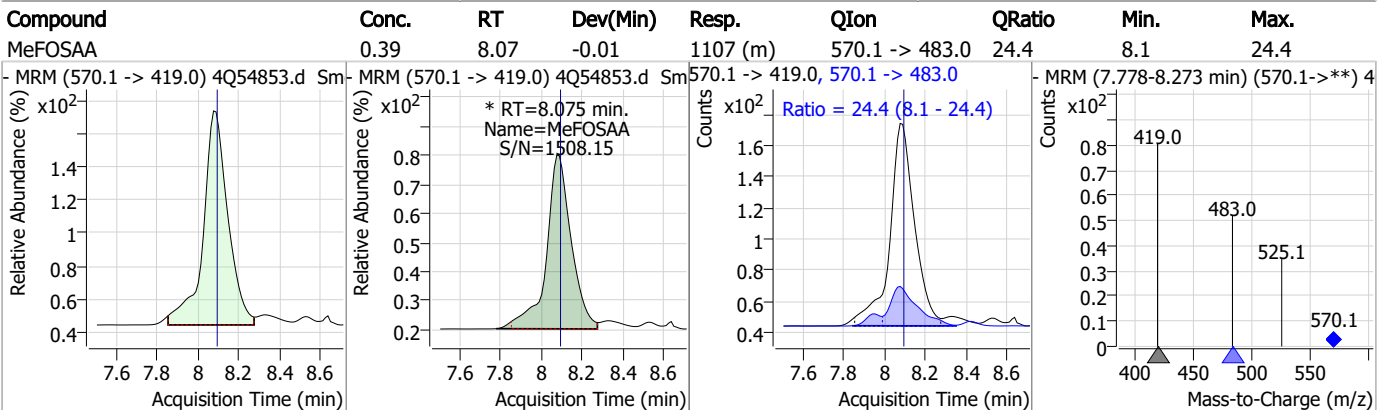
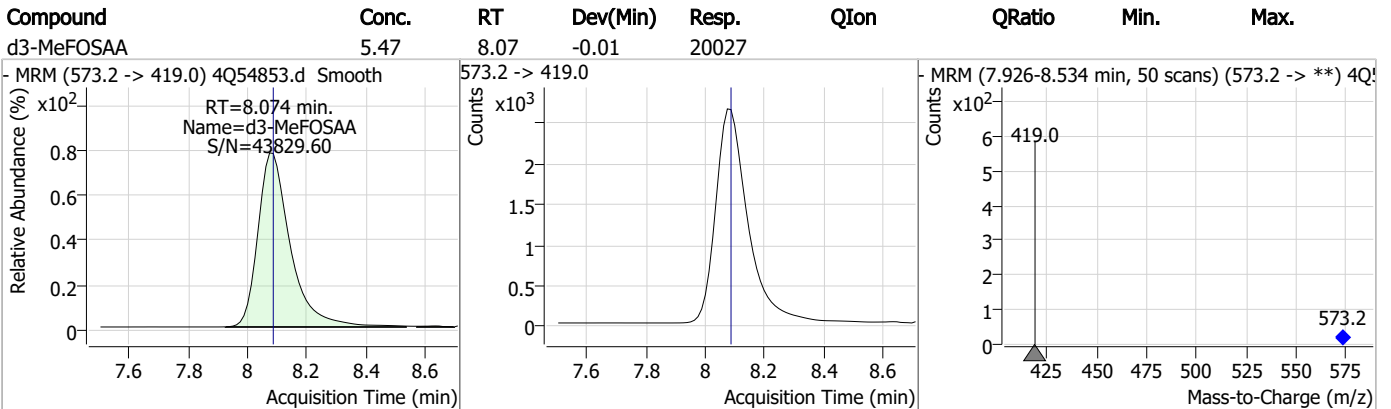
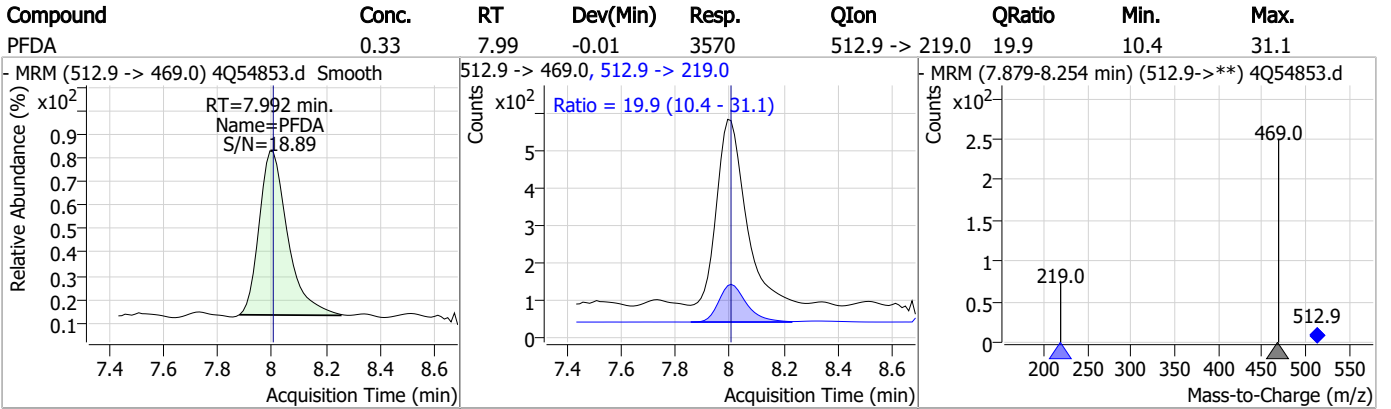
### Perfluorinated Compounds by LC/MS/MS



7.7.3  
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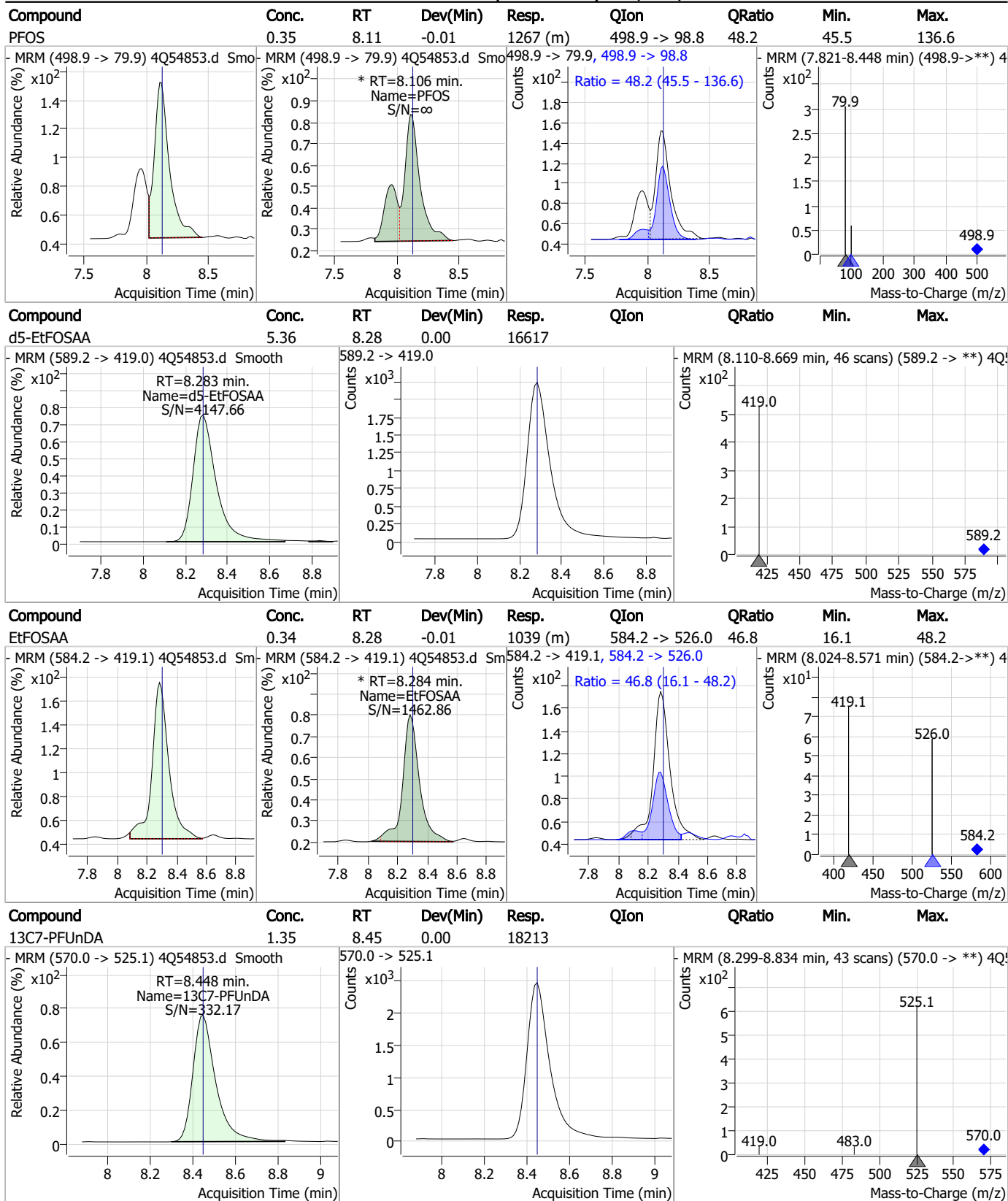
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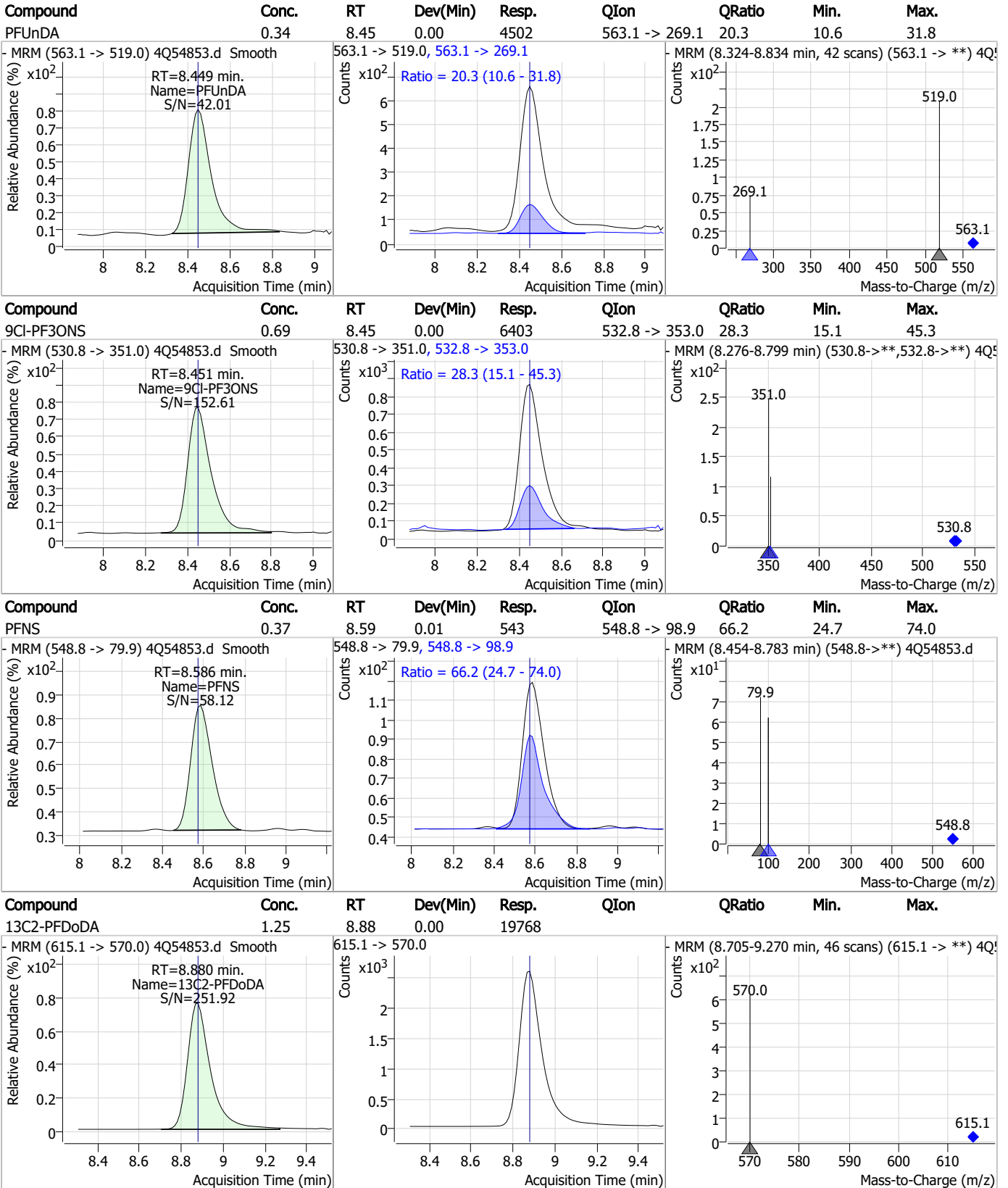
### Perfluorinated Compounds by LC/MS/MS



7.7.3

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### Perfluorinated Compounds by LC/MS/MS

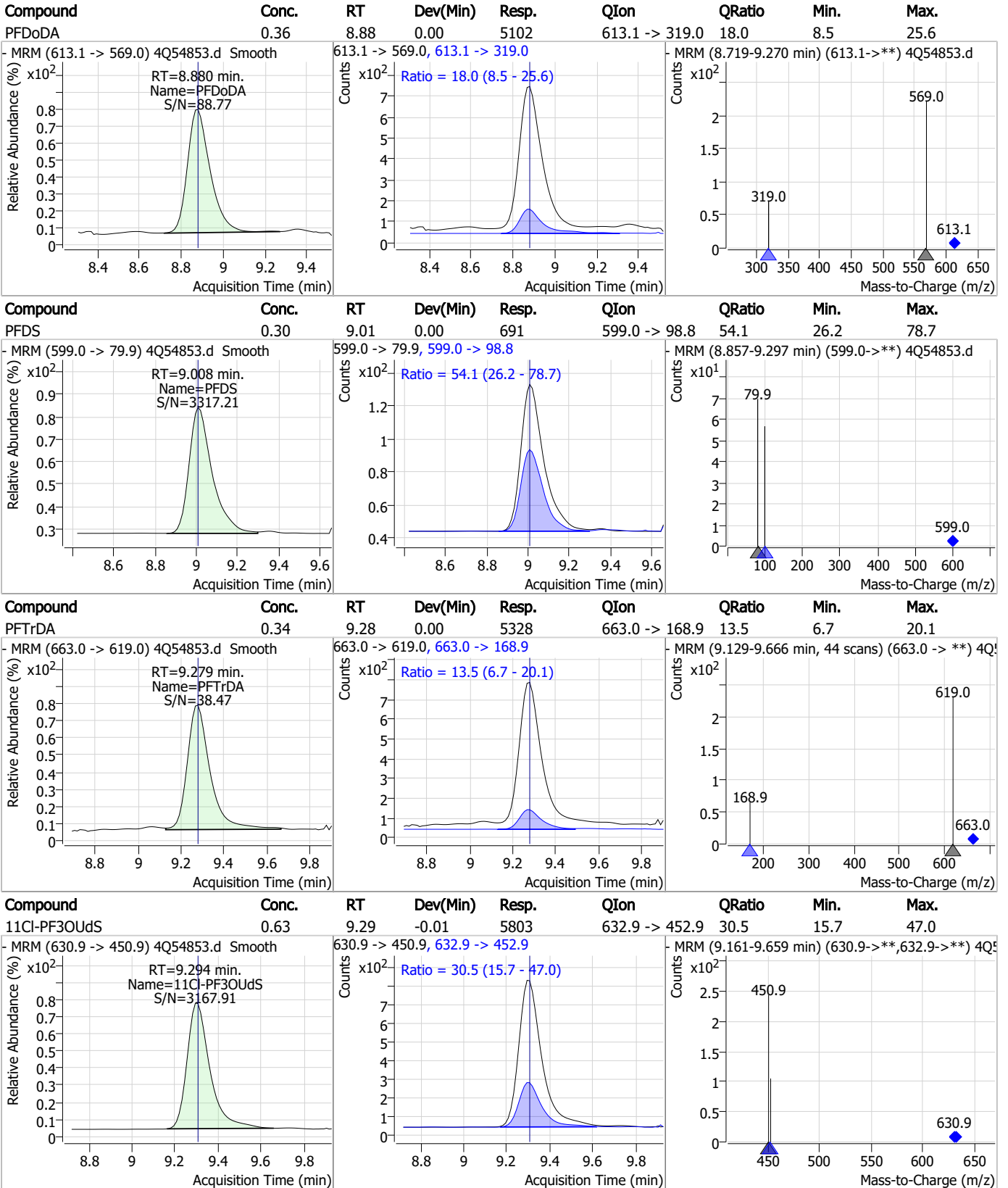


7.7.3

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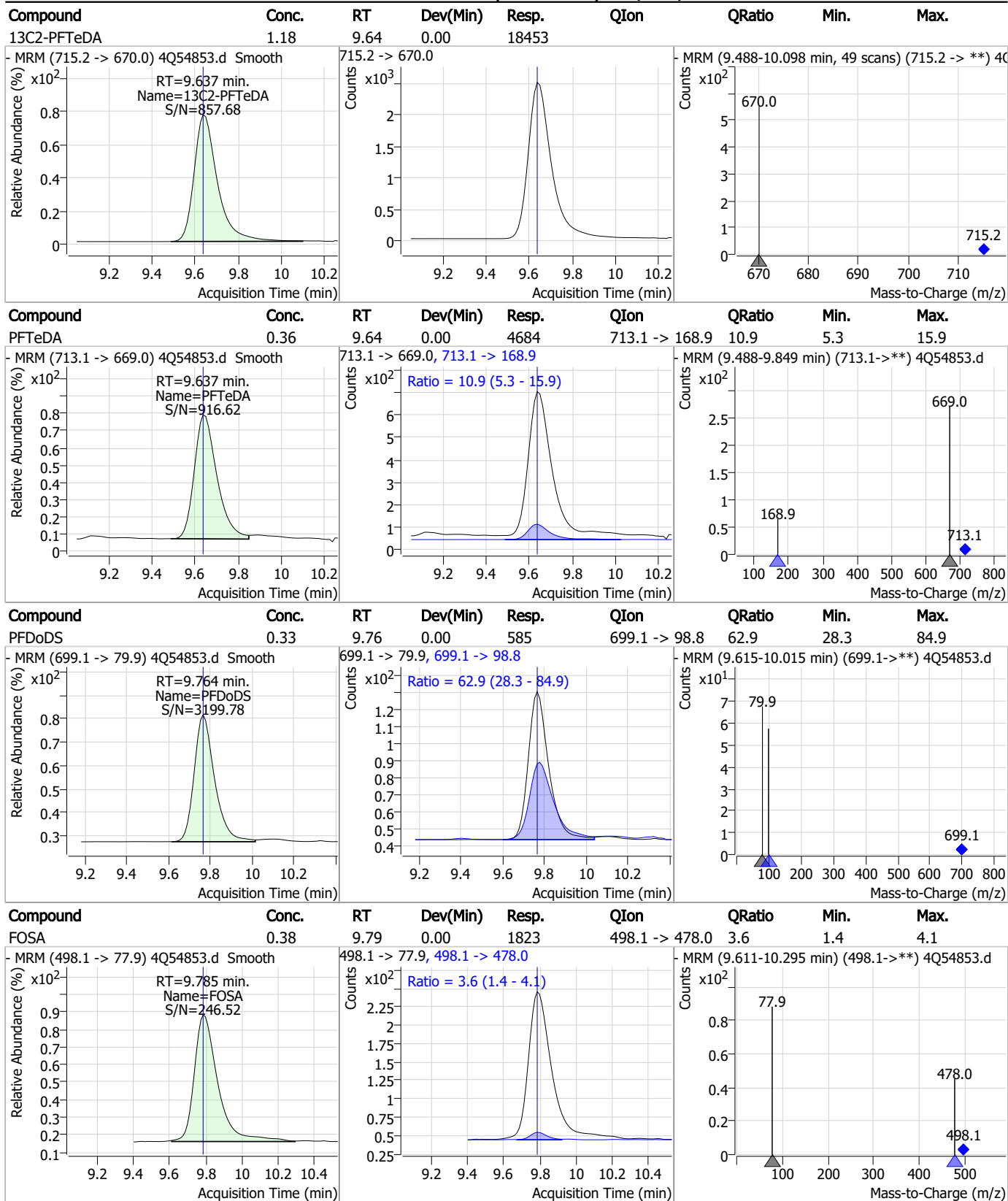
Perfluorinated Compounds by LC/MS/MS



7.7.3

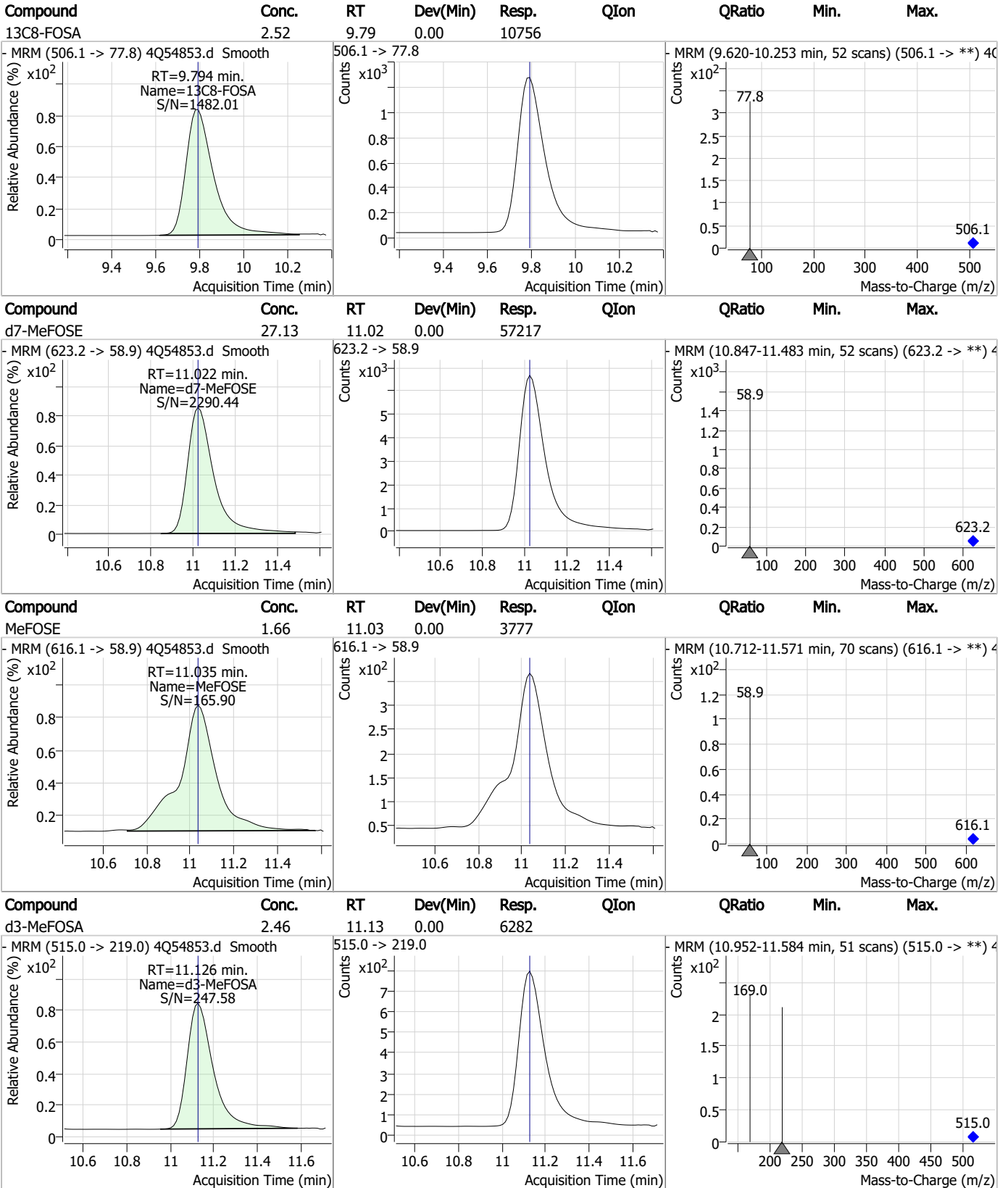
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### Perfluorinated Compounds by LC/MS/MS



7.7.3  
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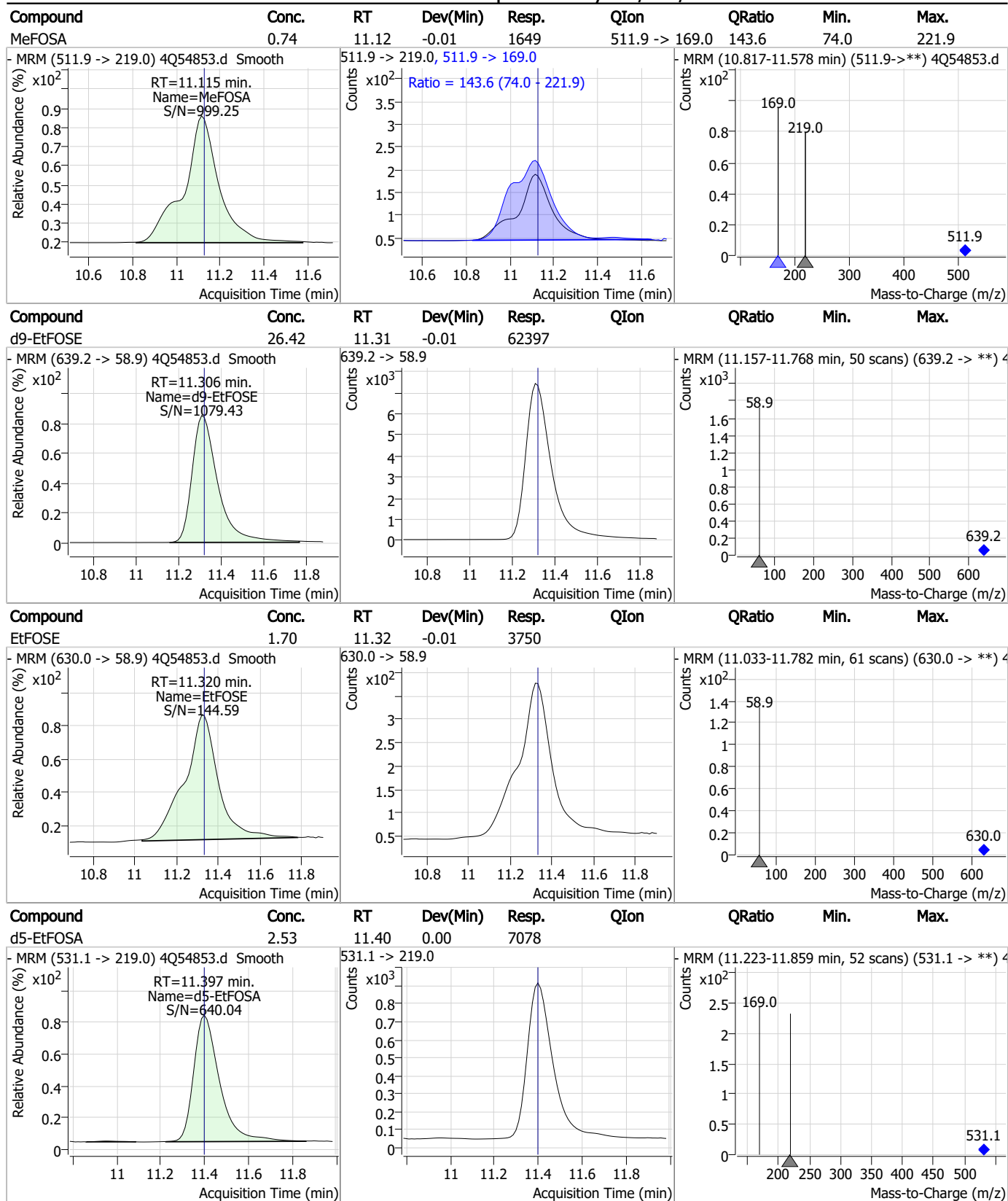
### Perfluorinated Compounds by LC/MS/MS



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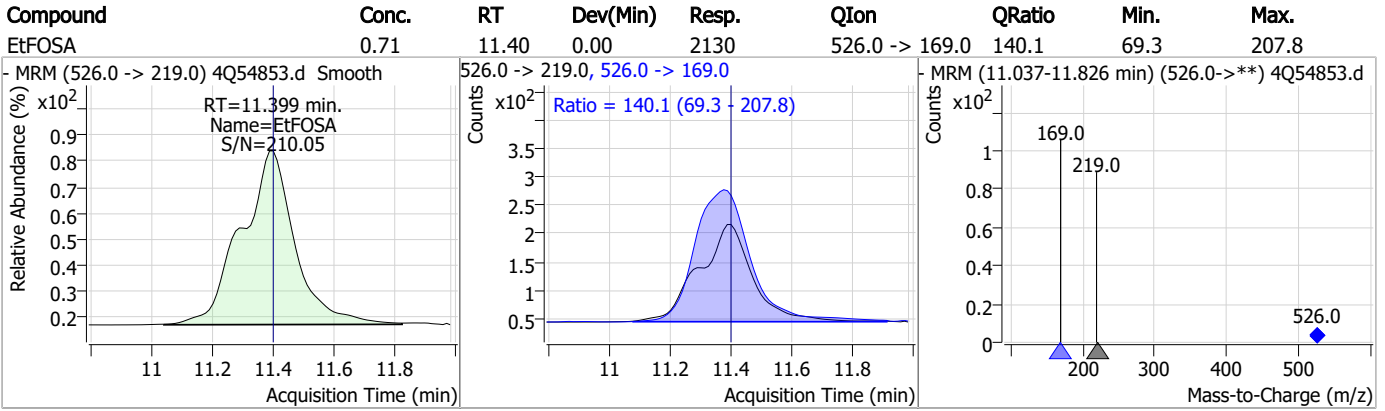
### Perfluorinated Compounds by LC/MS/MS



7.7.3

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### Perfluorinated Compounds by LC/MS/MS



7.7.3

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# Manual Integration Approval Summary

Sample Number: S4Q804-IC804      Method: EPA DRAFT 1633  
Lab FileID: 4Q54853.D      Analyst approved: 12/10/23 12:52 Anna Ludwig  
Injection Time: 12/08/23 11:53      Supervisor approved: 12/11/23 15:42 Natasha Guntie

| Parameter                    | CAS       | Sig# | R.T.<br>(min.) | Reason     |
|------------------------------|-----------|------|----------------|------------|
| Perfluorohexanesulfonic acid | 355-46-4  |      | 7.04           | Split peak |
| MeFOSAA                      | 2355-31-9 |      | 8.07           | Split peak |
| Perfluorooctanesulfonic acid | 1763-23-1 |      | 8.11           | Split peak |
| EtFOSAA                      | 2991-50-6 |      | 8.28           | Split peak |

7.7.3.1

7

## Perfluorinated Compounds by LC/MS/MS

Data File : 4Q54854.d  
 Operator : annal  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 12/8/2023 12:07:50 PM  
 Sample Name : ic804-3  
 Vial : P1-A4  
 DA Method File : 1633\_120823\_S4Q804.quantmethod.xml  
 Batch Name : s4q804.batch.bin  
 Sample Information : OP99999,S4Q804,500,,,5.0,1,water

| Compound                           | RT                   | Transition     | Response          | Conc. Units | Dev(Min) |
|------------------------------------|----------------------|----------------|-------------------|-------------|----------|
| <b>Internal Standards</b>          |                      |                |                   |             |          |
| M4-PFBA                            | 2.711                | 216.8 -> 171.9 | 115774            | 10.00 µg/L  | 0.037    |
| M5-PFPeA                           | 4.175                | 268.3 -> 223.0 | 48552             | 5.00 µg/L   | 0.012    |
| M5-PFHxA                           | 5.347                | 318.0 -> 273.0 | 37901             | 2.50 µg/L   | 0.012    |
| M4-PFHpA                           | 6.292                | 367.1 -> 322.0 | 36865             | 2.50 µg/L   | 0.000    |
| M8-PFOA                            | 6.976                | 421.1 -> 376.0 | 60354             | 2.50 µg/L   | 0.000    |
| M9-PFNA                            | 7.509                | 472.1 -> 427.0 | 22903             | 1.25 µg/L   | -0.012   |
| M6-PFDA                            | 8.004                | 519.1 -> 474.1 | 16089             | 1.25 µg/L   | 0.000    |
| M7-PFUnDA                          | 8.448                | 570.0 -> 525.1 | 21233             | 1.25 µg/L   | 0.000    |
| M2-PFDoDA                          | 8.880                | 615.1 -> 570.0 | 22236             | 1.25 µg/L   | 0.000    |
| M2-PFTeDA                          | 9.637                | 715.2 -> 670.0 | 21528             | 1.25 µg/L   | 0.000    |
| M8-FOSA                            | 9.794                | 506.1 -> 77.8  | 13023             | 2.50 µg/L   | 0.000    |
| M3-PFBS                            | 5.202                | 302.1 -> 79.9  | 10406             | 2.50 µg/L   | 0.013    |
| M3-PFHxS                           | 7.029                | 402.1 -> 79.9  | 8915              | 2.50 µg/L   | 0.000    |
| M8-PFOS                            | 8.117                | 507.1 -> 79.9  | 9820              | 2.50 µg/L   | 0.000    |
| M2-4:2FTS                          | 5.058                | 329.1 -> 80.9  | 1365              | 5.00 µg/L   | 0.012    |
| M2-6:2FTS                          | 6.748                | 429.1 -> 80.9  | 3094              | 5.00 µg/L   | 0.000    |
| M2-8:2FTS                          | 7.804                | 529.1 -> 80.9  | 3996              | 5.00 µg/L   | 0.000    |
| M3-MeFOSAA                         | 8.086                | 573.2 -> 419.0 | 22070             | 5.00 µg/L   | 0.000    |
| M3-HFPO-DA                         | 5.689                | 286.9 -> 168.9 | 37989             | 10.00 µg/L  | 0.000    |
| M5-EtFOSAA                         | 8.283                | 589.2 -> 419.0 | 18209             | 5.00 µg/L   | 0.000    |
| M7-MeFOSE                          | 11.022               | 623.2 -> 58.9  | 64453             | 25.00 µg/L  | 0.000    |
| M9-EtFOSE                          | 11.319               | 639.2 -> 58.9  | 70593             | 25.00 µg/L  | 0.000    |
| M5-EtFOSA                          | 11.398               | 531.1 -> 219.0 | 8062              | 2.50 µg/L   | 0.000    |
| M3-MeFOSA                          | 11.126               | 515.0 -> 219.0 | 7284              | 2.50 µg/L   | 0.000    |
| 13C4-PFOS                          | 8.118                | 502.8 -> 79.9  | 7876              | 2.50 µg/L   | 0.000    |
| 13C3-PFBA                          | 2.703                | 216.0 -> 172.0 | 54728             | 5.00 µg/L   | 0.025    |
| 18O2-PFHxS                         | 7.041                | 403.0 -> 83.9  | 5597              | 2.50 µg/L   | 0.000    |
| 13C4-PFOA                          | 6.977                | 417.1 -> 372.0 | 65274             | 2.50 µg/L   | 0.000    |
| 13C2-PFDA                          | 8.004                | 515.1 -> 470.1 | 17711             | 1.25 µg/L   | 0.000    |
| 13C5-PFNA                          | 7.522                | 468.0 -> 423.0 | 23027             | 1.25 µg/L   | 0.012    |
| 13C2-PFHxA                         | 5.348                | 315.1 -> 270.0 | 41601             | 2.50 µg/L   | 0.012    |
| <b>System Monitoring Compounds</b> |                      |                |                   |             |          |
| 13C2-4:2FTS                        | 5.058                | 329.1 -> 80.9  | 1365              | 5.14 µg/L   | 0.012    |
| Spiked Amount: 5.00                | Range: 50.0 - 150.0% |                | Recovery = 102.8% |             |          |
| 13C2-6:2FTS                        | 6.748                | 429.1 -> 80.9  | 3094              | 5.37 µg/L   | 0.000    |
| Spiked Amount: 5.00                | Range: 50.0 - 150.0% |                | Recovery = 107.4% |             |          |
| 13C2-8:2FTS                        | 7.804                | 529.1 -> 80.9  | 3996              | 5.18 µg/L   | 0.000    |
| Spiked Amount: 5.00                | Range: 50.0 - 150.0% |                | Recovery = 103.6% |             |          |
| 13C2-PFDoDA                        | 8.880                | 615.1 -> 570.0 | 22236             | 1.26 µg/L   | 0.000    |
| Spiked Amount: 1.25                | Range: 50.0 - 150.0% |                | Recovery = 100.5% |             |          |
| 13C2-PFTeDA                        | 9.637                | 715.2 -> 670.0 | 21528             | 1.22 µg/L   | 0.000    |
| Spiked Amount: 1.25                | Range: 50.0 - 150.0% |                | Recovery = 97.9%  |             |          |
| 13C3-PFBS                          | 5.202                | 302.1 -> 79.9  | 10406             | 2.43 µg/L   | 0.013    |
| Spiked Amount: 2.50                | Range: 50.0 - 150.0% |                | Recovery = 97.0%  |             |          |
| 13C3-PFHxS                         | 7.029                | 402.1 -> 79.9  | 8915              | 2.54 µg/L   | 0.000    |

## Perfluorinated Compounds by LC/MS/MS

| Compound                | RT                   | Transition     | Response | Conc. Units       | Dev(Min)      |
|-------------------------|----------------------|----------------|----------|-------------------|---------------|
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 101.6% |               |
| 13C4-PFBA               | 2.711                | 216.8 -> 171.9 | 115774   | 10.07 µg/L        | 0.037         |
| Spiked Amount: 10.00    | Range: 50.0 - 150.0% |                |          | Recovery = 100.7% |               |
| 13C4-PFHpA              | 6.292                | 367.1 -> 322.0 | 36865    | 2.51 µg/L         | 0.000         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 100.6% |               |
| 13C5-PFHxA              | 5.347                | 318.0 -> 273.0 | 37901    | 2.47 µg/L         | 0.012         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 98.9%  |               |
| 13C5-PFPeA              | 4.175                | 268.3 -> 223.0 | 48552    | 5.08 µg/L         | 0.012         |
| Spiked Amount: 5.00     | Range: 50.0 - 150.0% |                |          | Recovery = 101.7% |               |
| 13C6-PFDA               | 8.004                | 519.1 -> 474.1 | 16089    | 1.25 µg/L         | 0.000         |
| Spiked Amount: 1.25     | Range: 50.0 - 150.0% |                |          | Recovery = 99.9%  |               |
| 13C7-PFUnDA             | 8.448                | 570.0 -> 525.1 | 21233    | 1.40 µg/L         | 0.000         |
| Spiked Amount: 1.25     | Range: 50.0 - 150.0% |                |          | Recovery = 111.8% |               |
| 13C8-FOSA               | 9.794                | 506.1 -> 77.8  | 13023    | 2.55 µg/L         | 0.000         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 102.1% |               |
| 13C8-PFOA               | 6.976                | 421.1 -> 376.0 | 60354    | 2.50 µg/L         | 0.000         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 100.1% |               |
| 13C8-PFOS               | 8.117                | 507.1 -> 79.9  | 9820     | 2.46 µg/L         | 0.000         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 98.5%  |               |
| 13C9-PFNA               | 7.509                | 472.1 -> 427.0 | 22903    | 1.24 µg/L         | -0.012        |
| Spiked Amount: 1.25     | Range: 50.0 - 150.0% |                |          | Recovery = 99.3%  |               |
| d3-MeFOSAA              | 8.086                | 573.2 -> 419.0 | 22070    | 5.05 µg/L         | 0.000         |
| Spiked Amount: 5.00     | Range: 50.0 - 150.0% |                |          | Recovery = 101.0% |               |
| 13C3-HFPO-DA            | 5.689                | 286.9 -> 168.9 | 37989    | 9.92 µg/L         | 0.000         |
| Spiked Amount: 10.00    | Range: 50.0 - 150.0% |                |          | Recovery = 99.2%  |               |
| d3-MeFOSA               | 11.126               | 515.0 -> 219.0 | 7284     | 2.39 µg/L         | 0.000         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 95.7%  |               |
| d5-EtFOSAA              | 8.283                | 589.2 -> 419.0 | 18209    | 4.92 µg/L         | 0.000         |
| Spiked Amount: 5.00     | Range: 50.0 - 150.0% |                |          | Recovery = 98.5%  |               |
| d7-MeFOSE               | 11.022               | 623.2 -> 58.9  | 64453    | 25.60 µg/L        | 0.000         |
| Spiked Amount: 25.00    | Range: 50.0 - 150.0% |                |          | Recovery = 102.4% |               |
| d9-EtFOSE               | 11.319               | 639.2 -> 58.9  | 70593    | 25.03 µg/L        | 0.000         |
| Spiked Amount: 25.00    | Range: 50.0 - 150.0% |                |          | Recovery = 100.1% |               |
| d5-EtFOSA               | 11.398               | 531.1 -> 219.0 | 8062     | 2.41 µg/L         | 0.000         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 96.6%  |               |
| <b>Target Compounds</b> |                      |                |          |                   | <b>QValue</b> |
| 4:2FTS                  | 5.059                | 327.1 -> 307.0 | 11983    | 5.10 µg/L         | 97            |
|                         |                      | 327.1 -> 80.9  | 4856     |                   |               |
| 6:2FTS                  | 6.749                | 427.1 -> 407.0 | 15644    | 4.81 µg/L         | 98            |
|                         |                      | 427.1 -> 80.9  | 5891     |                   |               |
| 8:2FTS                  | 7.804                | 527.1 -> 507.0 | 11074    | 5.26 µg/L         | 99            |
|                         |                      | 527.1 -> 80.8  | 4537     |                   |               |
| EtFOSAA                 | 8.284                | 584.2 -> 419.1 | 4267     | 1.28 µg/L         | m 82          |
|                         |                      | 584.2 -> 526.0 | 1796     |                   |               |
| FOSA                    | 9.798                | 498.1 -> 77.9  | 7216     | 1.23 µg/L         | 98            |
|                         |                      | 498.1 -> 478.0 | 246      |                   |               |
| MeFOSAA                 | 8.087                | 570.1 -> 419.0 | 4388     | 1.39 µg/L         | 95            |
|                         |                      | 570.1 -> 483.0 | 811      |                   |               |
| PFBA                    | 2.707                | 212.8 -> 168.9 | 18532    | 5.00 µg/L         | 100           |
| PFBS                    | 5.203                | 298.7 -> 79.9  | 3435     | 1.06 µg/L         | 100           |
|                         |                      | 298.7 -> 98.8  | 1403     |                   |               |
| PFDA                    | 8.005                | 512.9 -> 469.0 | 15282    | 1.29 µg/L         | 98            |
|                         |                      | 512.9 -> 219.0 | 2995     |                   |               |
| PFDODA                  | 8.880                | 613.1 -> 569.0 | 19702    | 1.23 µg/L         | 94            |
|                         |                      | 613.1 -> 319.0 | 3850     |                   |               |
| PFDS                    | 9.020                | 599.0 -> 79.9  | 3148     | 1.20 µg/L         | 95            |

## Perfluorinated Compounds by LC/MS/MS

| Compound     | RT     | Transition     | Response | Conc. | Units | Dev(Min) |
|--------------|--------|----------------|----------|-------|-------|----------|
|              |        | 599.0 -> 98.8  | 1542     |       |       |          |
| PFHpA        | 6.293  | 363.1 -> 319.0 | 25557    | 1.23  | µg/L  | 100      |
|              |        | 363.1 -> 169.0 | 4657     |       |       |          |
| PFHpS        | 7.612  | 449.0 -> 79.9  | 4644     | 1.19  | µg/L  | 95       |
|              |        | 449.0 -> 98.9  | 2268     |       |       |          |
| PFHxA        | 5.350  | 313.0 -> 269.0 | 14645    | 1.21  | µg/L  | 98       |
|              |        | 313.0 -> 118.9 | 516      |       |       |          |
| PFHxS        | 7.043  | 398.7 -> 79.9  | 3103     | 1.08  | µg/L  | m 99     |
|              |        | 398.7 -> 98.9  | 1497     |       |       |          |
| PFNA         | 7.522  | 463.0 -> 419.0 | 17217    | 1.28  | µg/L  | 98       |
|              |        | 463.0 -> 219.0 | 4142     |       |       |          |
| PFNS         | 8.586  | 548.8 -> 79.9  | 2460     | 1.47  | µg/L  | 99       |
|              |        | 548.8 -> 98.9  | 1227     |       |       |          |
| PFOA         | 6.978  | 413.0 -> 369.0 | 30788    | 1.24  | µg/L  | 98       |
|              |        | 413.0 -> 169.0 | 6561     |       |       |          |
| PFOS         | 8.119  | 498.9 -> 79.9  | 4630     | 1.13  | µg/L  | m 59     |
|              |        | 498.9 -> 98.8  | 2427     |       |       |          |
| PFPeA        | 4.177  | 263.0 -> 219.0 | 23497    | 2.46  | µg/L  | 100      |
| PFPeS        | 6.282  | 349.1 -> 79.9  | 3226     | 1.19  | µg/L  | 97       |
|              |        | 349.1 -> 98.9  | 1426     |       |       |          |
| PFTeDA       | 9.637  | 713.1 -> 669.0 | 18174    | 1.21  | µg/L  | 100      |
|              |        | 713.1 -> 168.9 | 1960     |       |       |          |
| PFTrDA       | 9.279  | 663.0 -> 619.0 | 22663    | 1.30  | µg/L  | 98       |
|              |        | 663.0 -> 168.9 | 3179     |       |       |          |
| PFUnDA       | 8.449  | 563.1 -> 519.0 | 17599    | 1.14  | µg/L  | 96       |
|              |        | 563.1 -> 269.1 | 4089     |       |       |          |
| 11CI-PF3OUdS | 9.306  | 630.9 -> 450.9 | 25190    | 2.41  | µg/L  | 97       |
|              |        | 632.9 -> 452.9 | 7448     |       |       |          |
| 9CI-PF3ONS   | 8.451  | 530.8 -> 351.0 | 25966    | 2.46  | µg/L  | 99       |
|              |        | 532.8 -> 353.0 | 7661     |       |       |          |
| ADONA        | 6.568  | 376.9 -> 250.9 | 67226    | 2.62  | µg/L  | 98       |
|              |        | 376.9 -> 84.8  | 15529    |       |       |          |
| HFPO-DA      | 5.703  | 284.9 -> 168.9 | 9302     | 2.56  | µg/L  | 98       |
|              |        | 284.9 -> 184.9 | 813      |       |       |          |
| 3:3FTCA      | 3.630  | 241.0 -> 177.0 | 3503     | 5.94  | µg/L  | 100      |
|              |        | 241.0 -> 117.0 | 308      |       |       |          |
| 5:3FTCA      | 6.020  | 341.0 -> 237.1 | 67567    | 31.32 | µg/L  | 99       |
|              |        | 341.0 -> 217.0 | 47567    |       |       |          |
| 7:3FTCA      | 7.536  | 441.0 -> 316.9 | 35887    | 31.73 | µg/L  | 98       |
|              |        | 441.0 -> 336.9 | 84311    |       |       |          |
| EtFOSA       | 11.399 | 526.0 -> 219.0 | 8782     | 2.56  | µg/L  | 95       |
|              |        | 526.0 -> 169.0 | 11651    |       |       |          |
| EtFOSE       | 11.320 | 630.0 -> 58.9  | 15599    | 6.24  | µg/L  | 100      |
| MeFOSA       | 11.128 | 511.9 -> 219.0 | 6655     | 2.57  | µg/L  | m 99     |
|              |        | 511.9 -> 169.0 | 9937     |       |       |          |
| MeFOSE       | 11.035 | 616.1 -> 58.9  | 15409    | 6.03  | µg/L  | 100      |
| PFDoDS       | 9.764  | 699.1 -> 79.9  | 2409     | 1.21  | µg/L  | 95       |
|              |        | 699.1 -> 98.8  | 1273     |       |       |          |
| NFDHA        | 5.229  | 295.0 -> 201.0 | 2033     | 2.37  | µg/L  | 91       |
|              |        | 295.0 -> 84.9  | 625      |       |       |          |
| PFMBA        | 4.578  | 279.0 -> 85.1  | 13057    | 2.48  | µg/L  | 100      |
| PFMPA        | 3.332  | 229.0 -> 84.9  | 14040    | 2.43  | µg/L  | 100      |
| PFEESA       | 5.722  | 314.8 -> 134.9 | 20009    | 2.24  | µg/L  | 99       |
|              |        | 314.8 -> 82.9  | 688      |       |       |          |

# = Qualifier out of range, m = manually integrated, + = Area summed

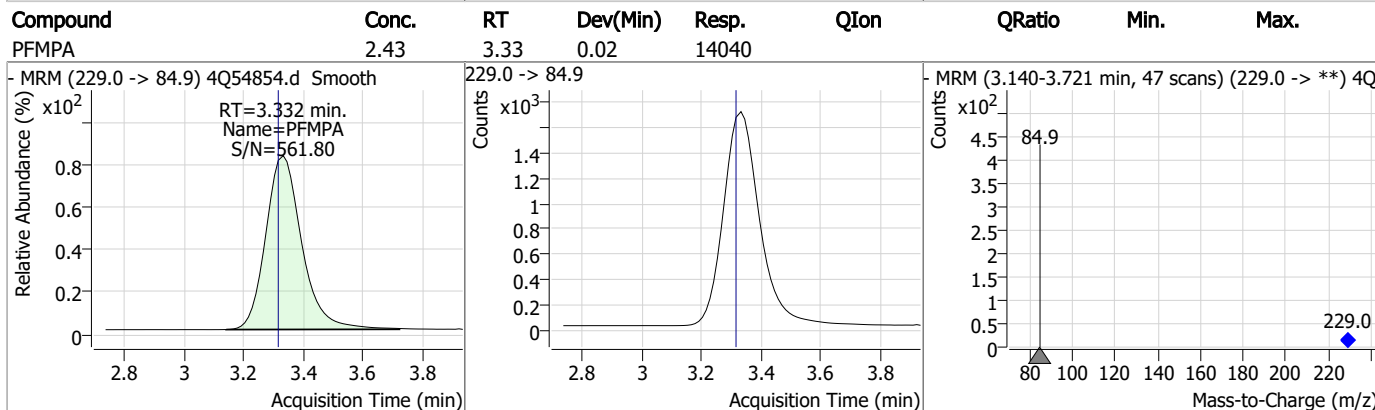
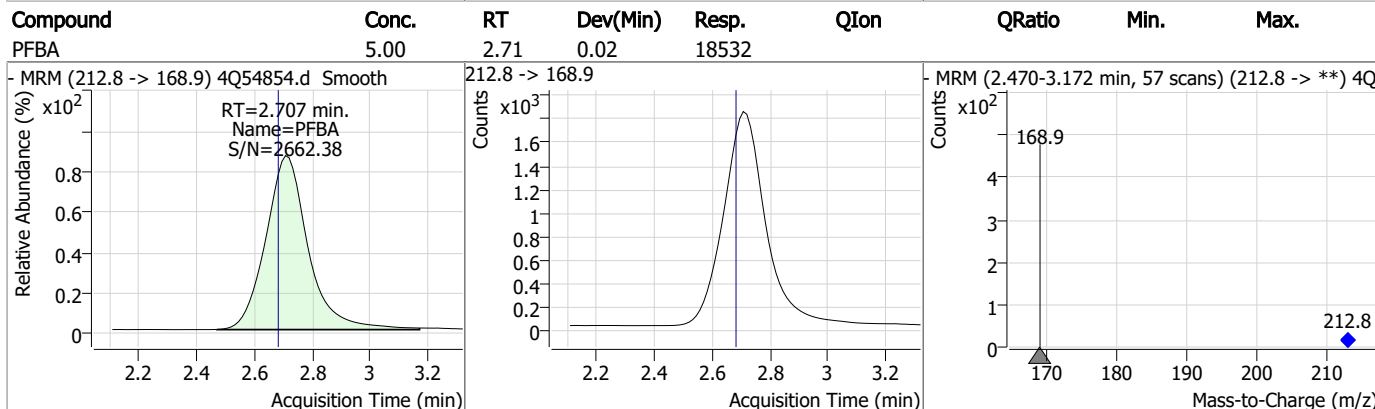
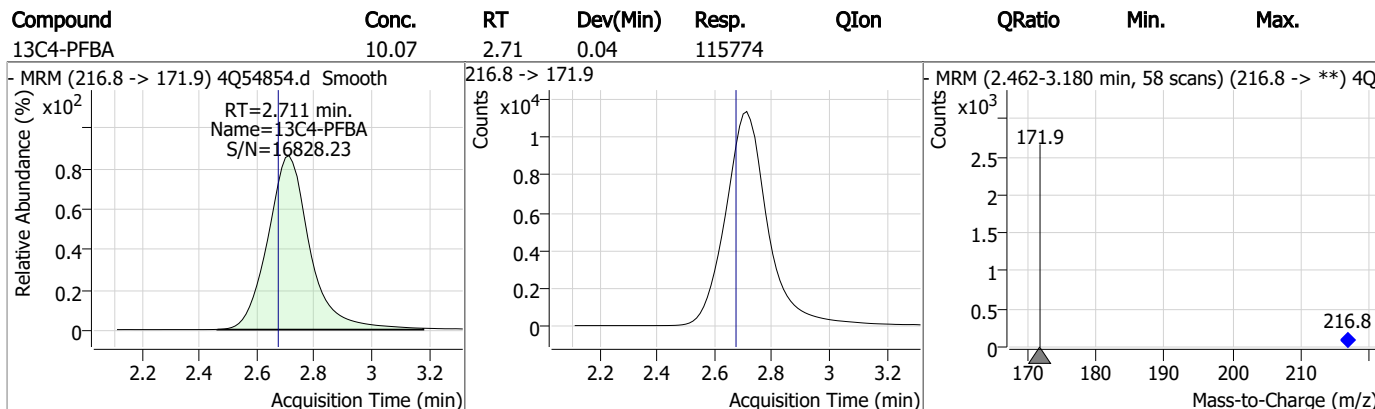
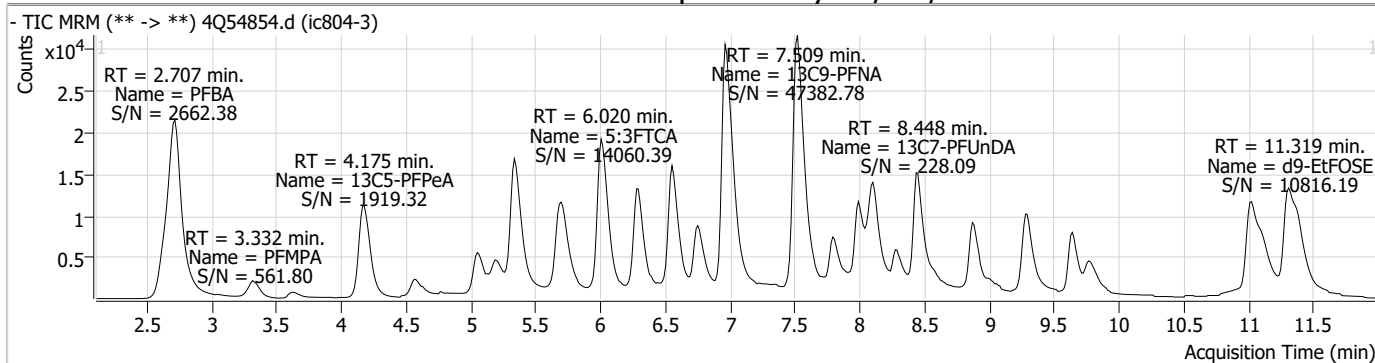
### Perfluorinated Compounds by LC/MS/MS

| Compound | RT | Transition | Response | Conc. Units | Dev(Min) |
|----------|----|------------|----------|-------------|----------|
|----------|----|------------|----------|-------------|----------|

7.7.4

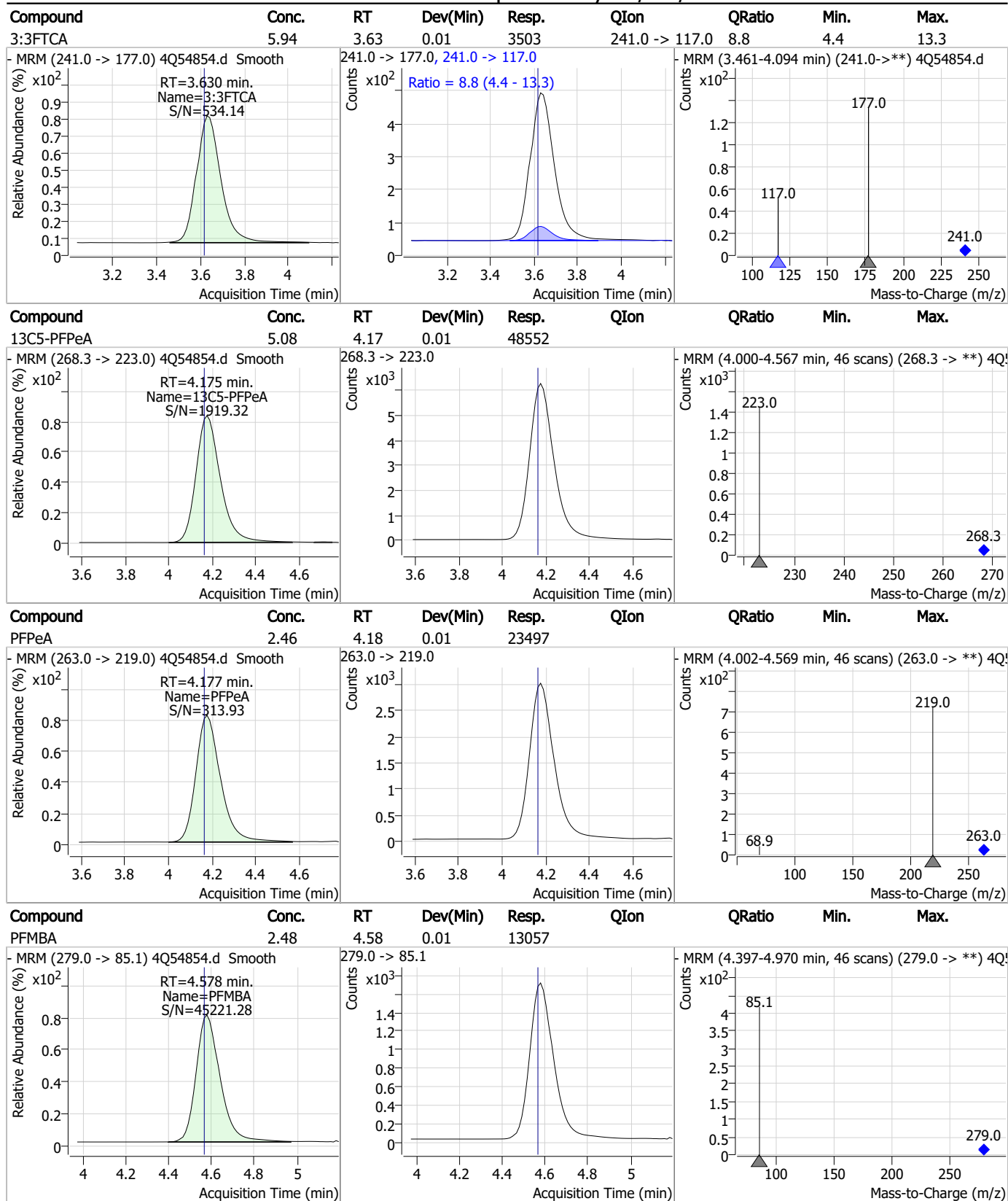
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### Perfluorinated Compounds by LC/MS/MS



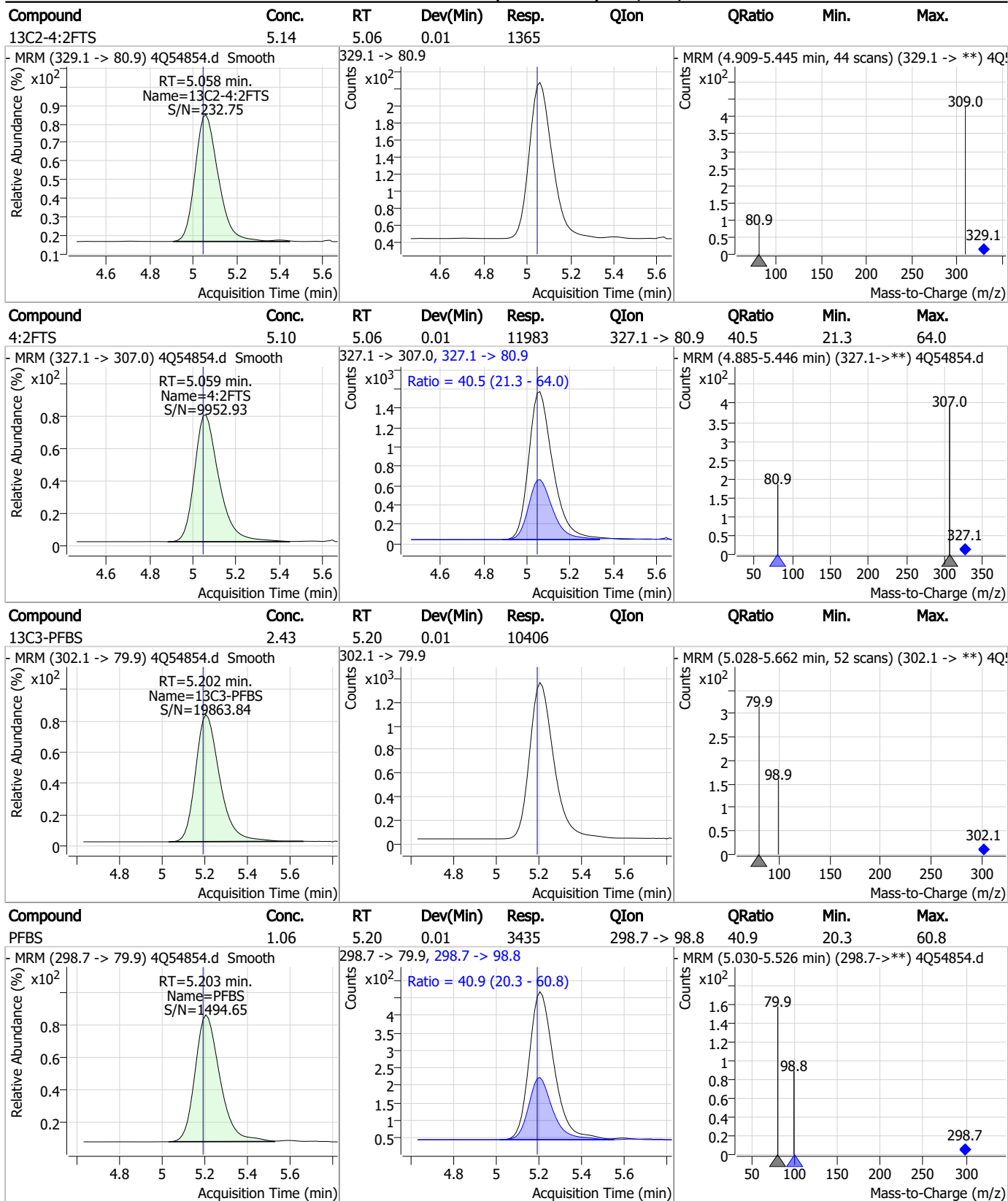
7.7.4  
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### Perfluorinated Compounds by LC/MS/MS



7.7.4  
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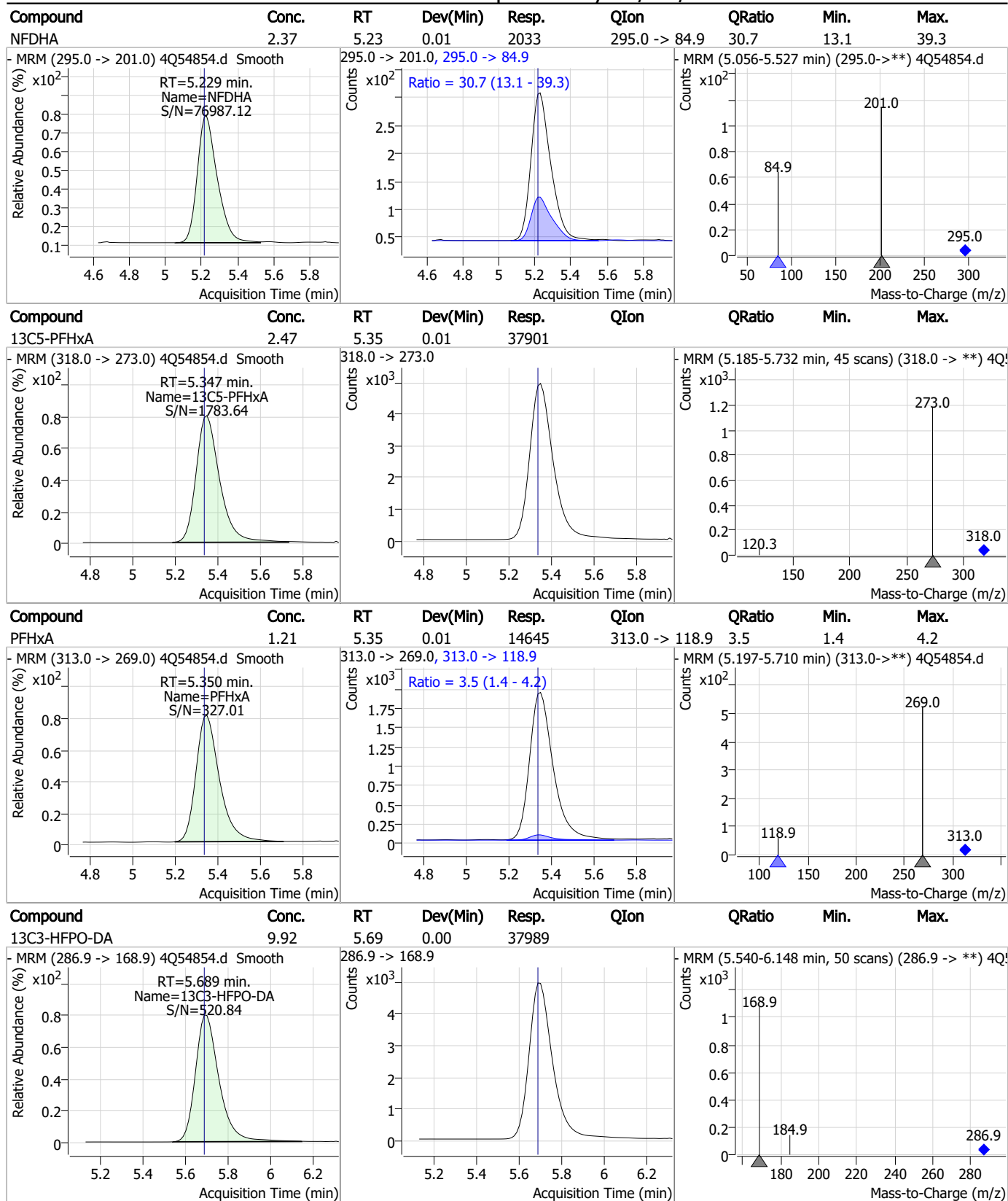
### Perfluorinated Compounds by LC/MS/MS



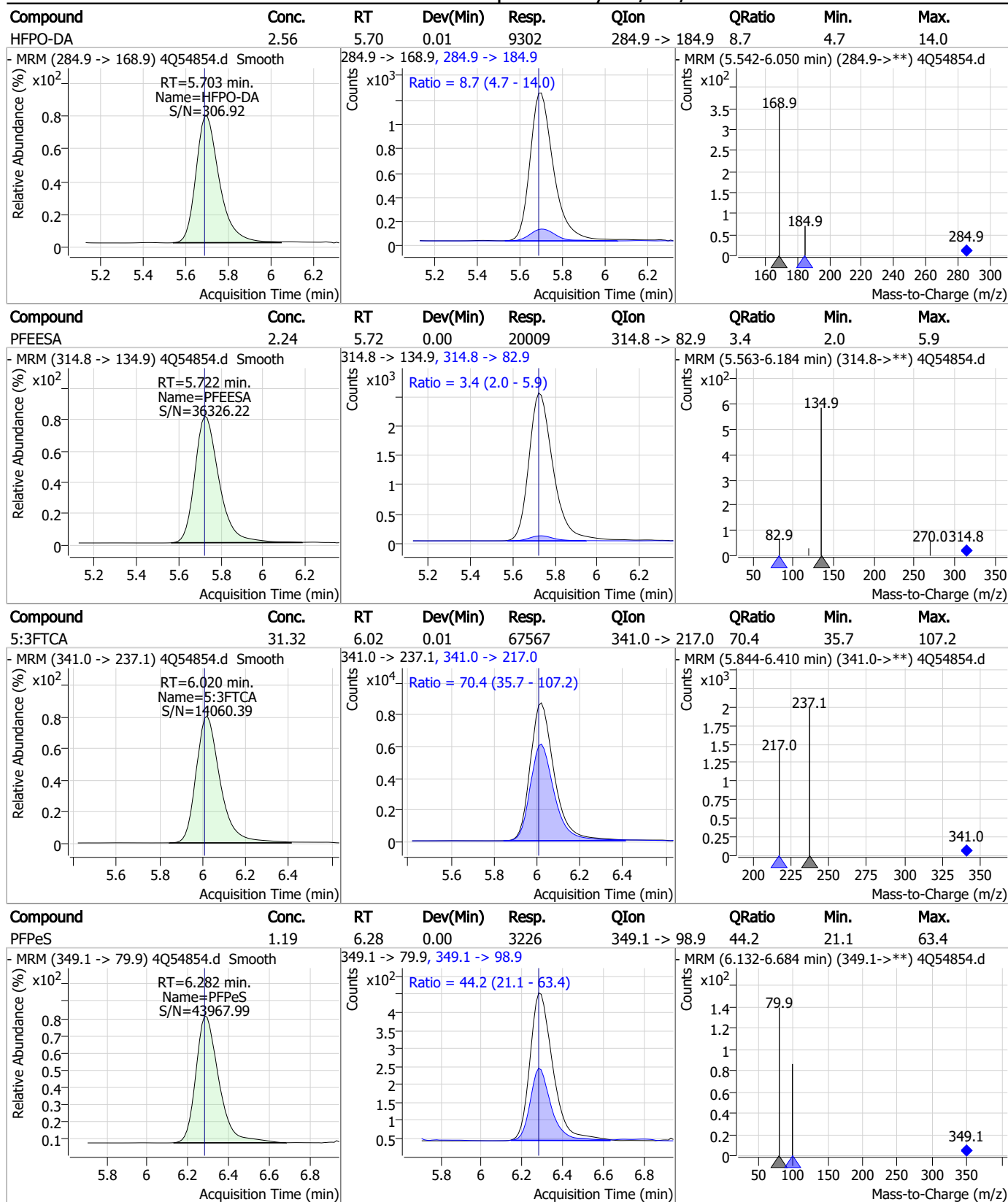
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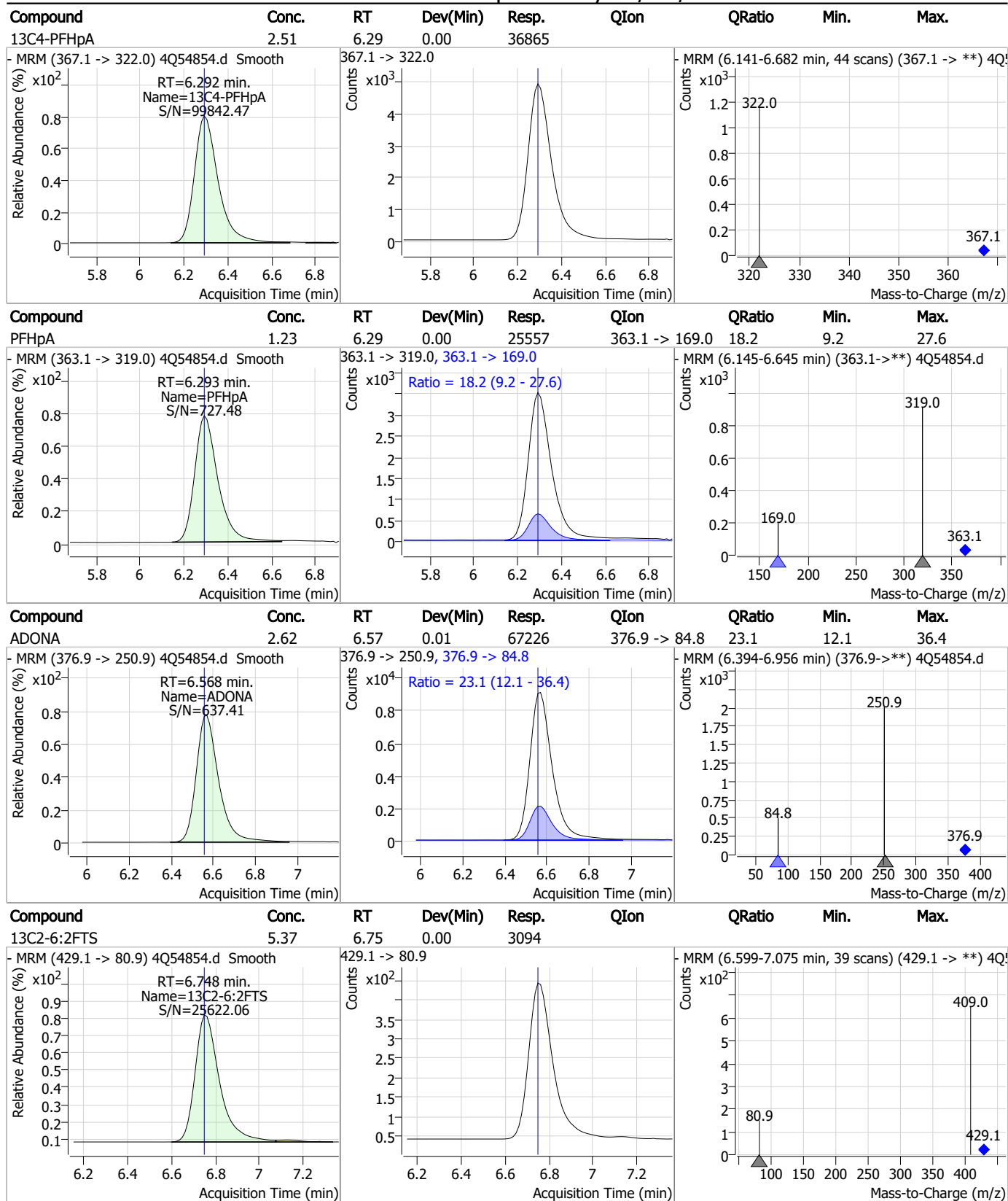


### Perfluorinated Compounds by LC/MS/MS



7.7.4  
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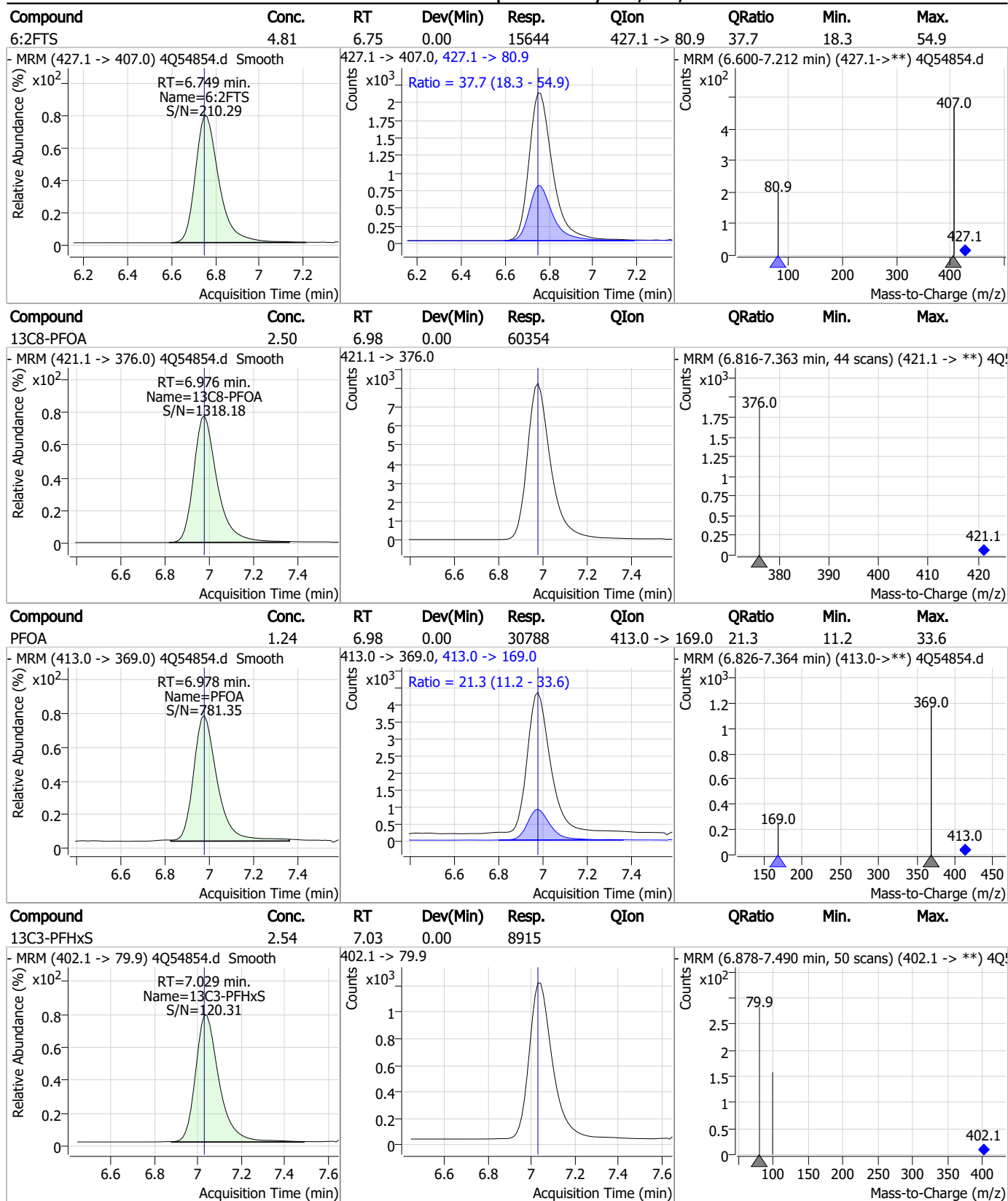
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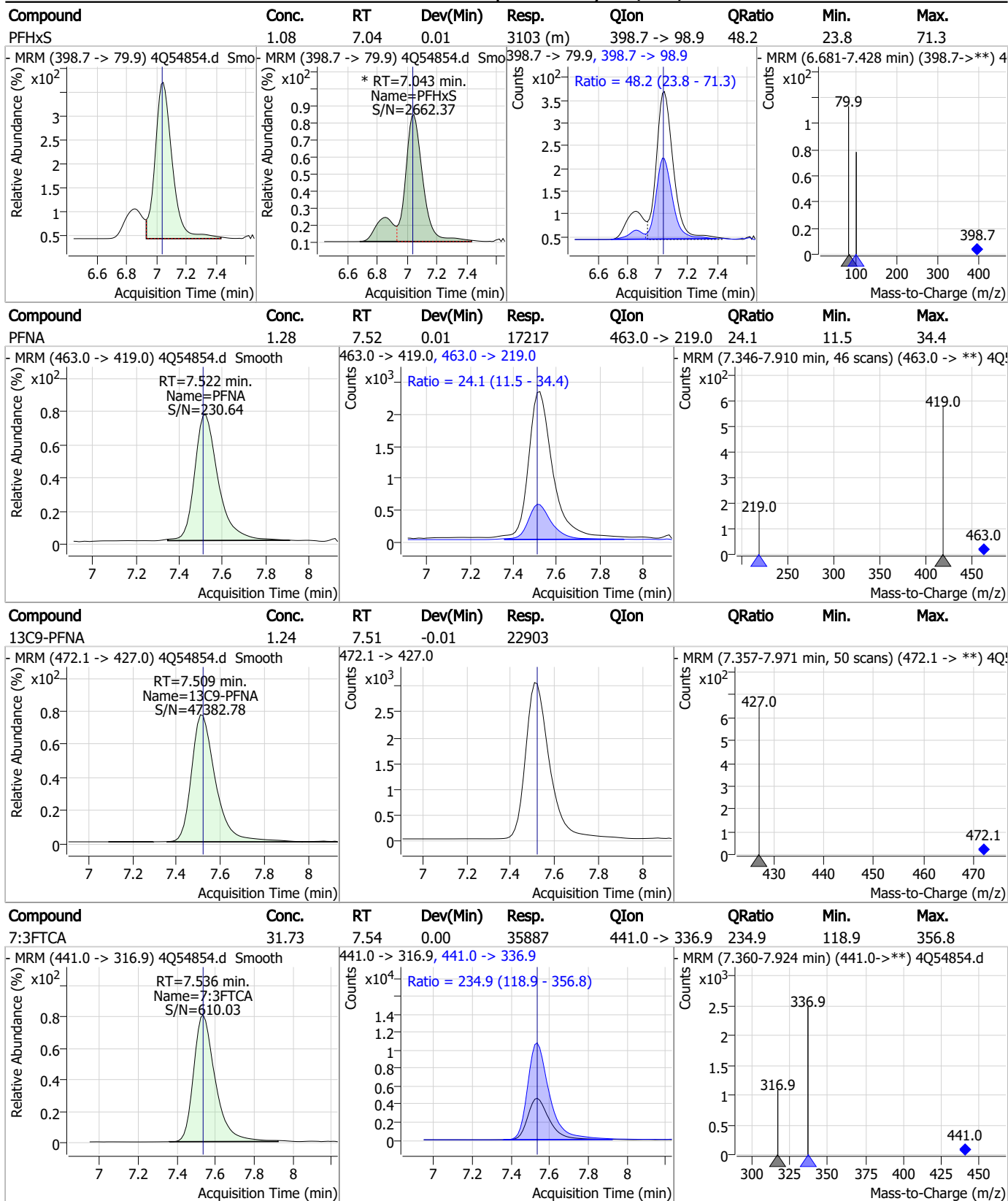
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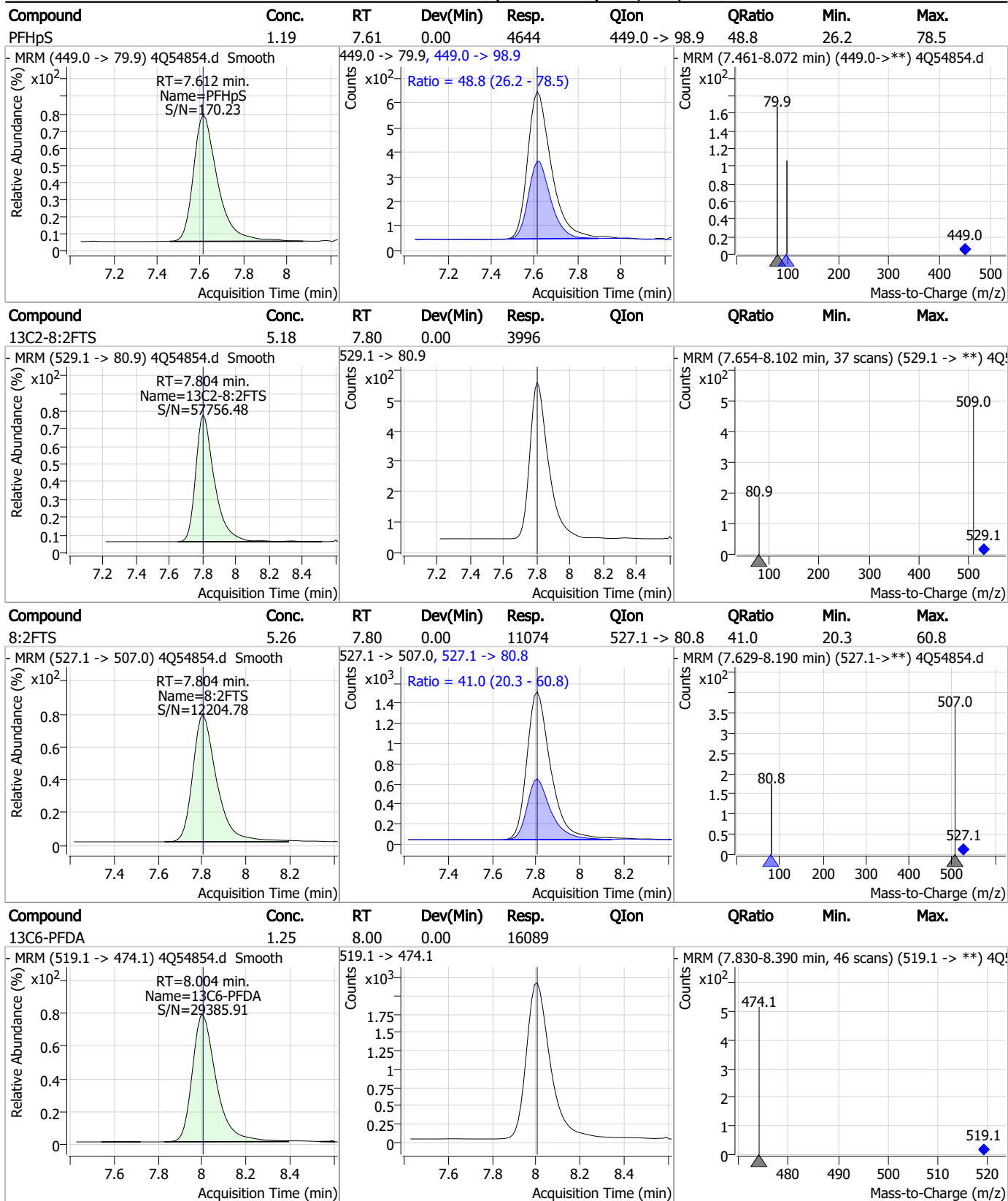


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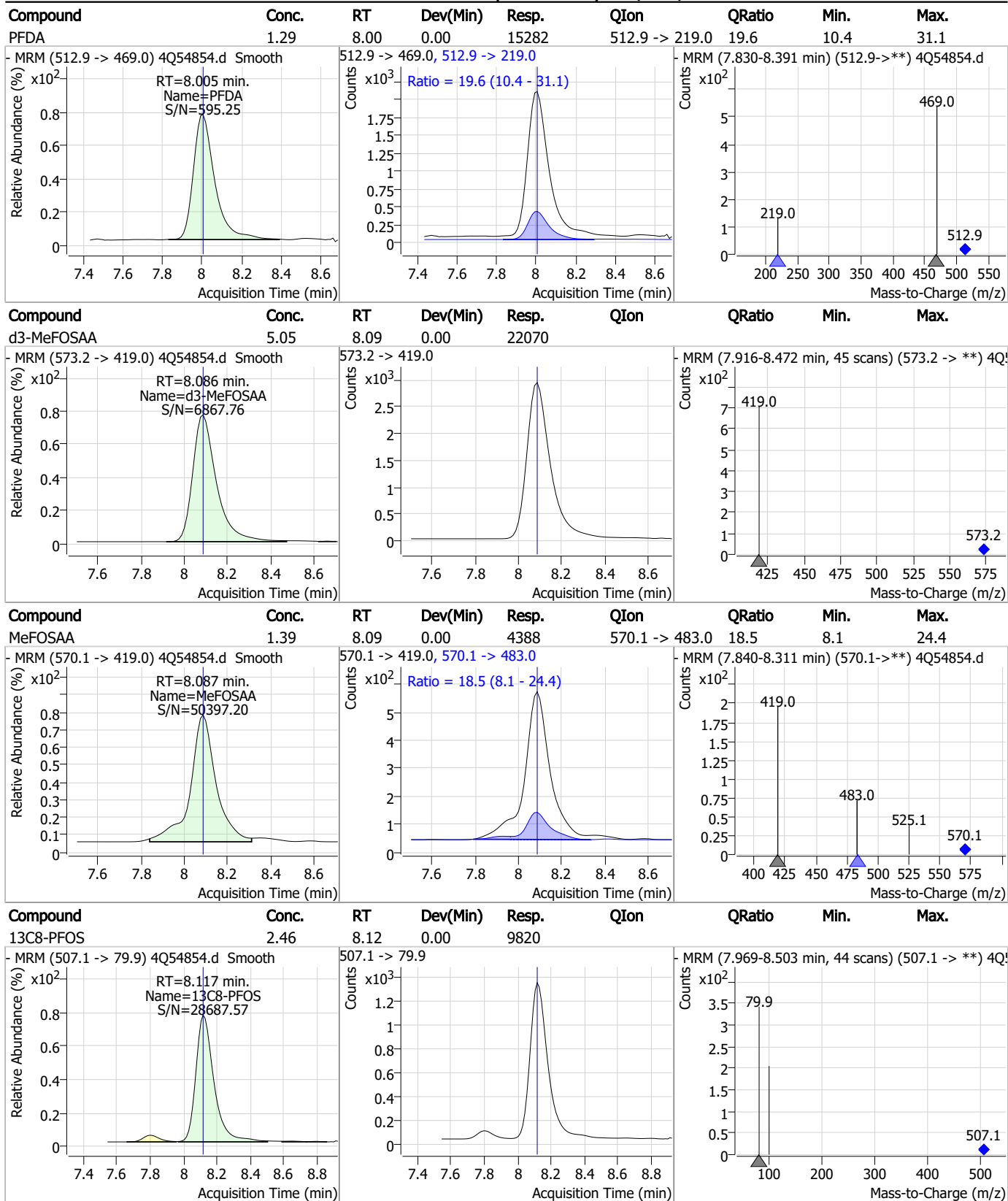
7.7.4  
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### Perfluorinated Compounds by LC/MS/MS



7.7.4  
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### Perfluorinated Compounds by LC/MS/MS

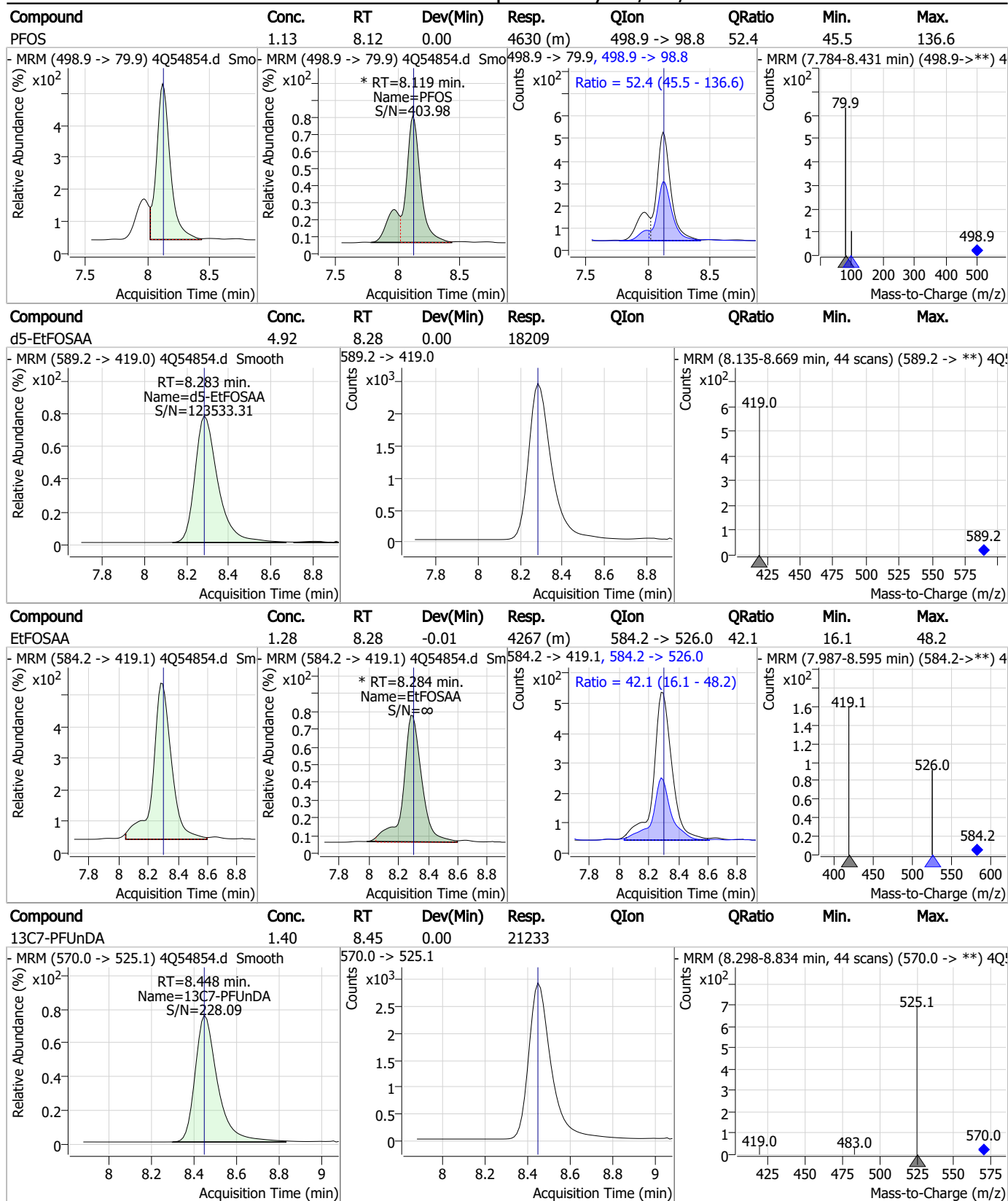


7.7.4

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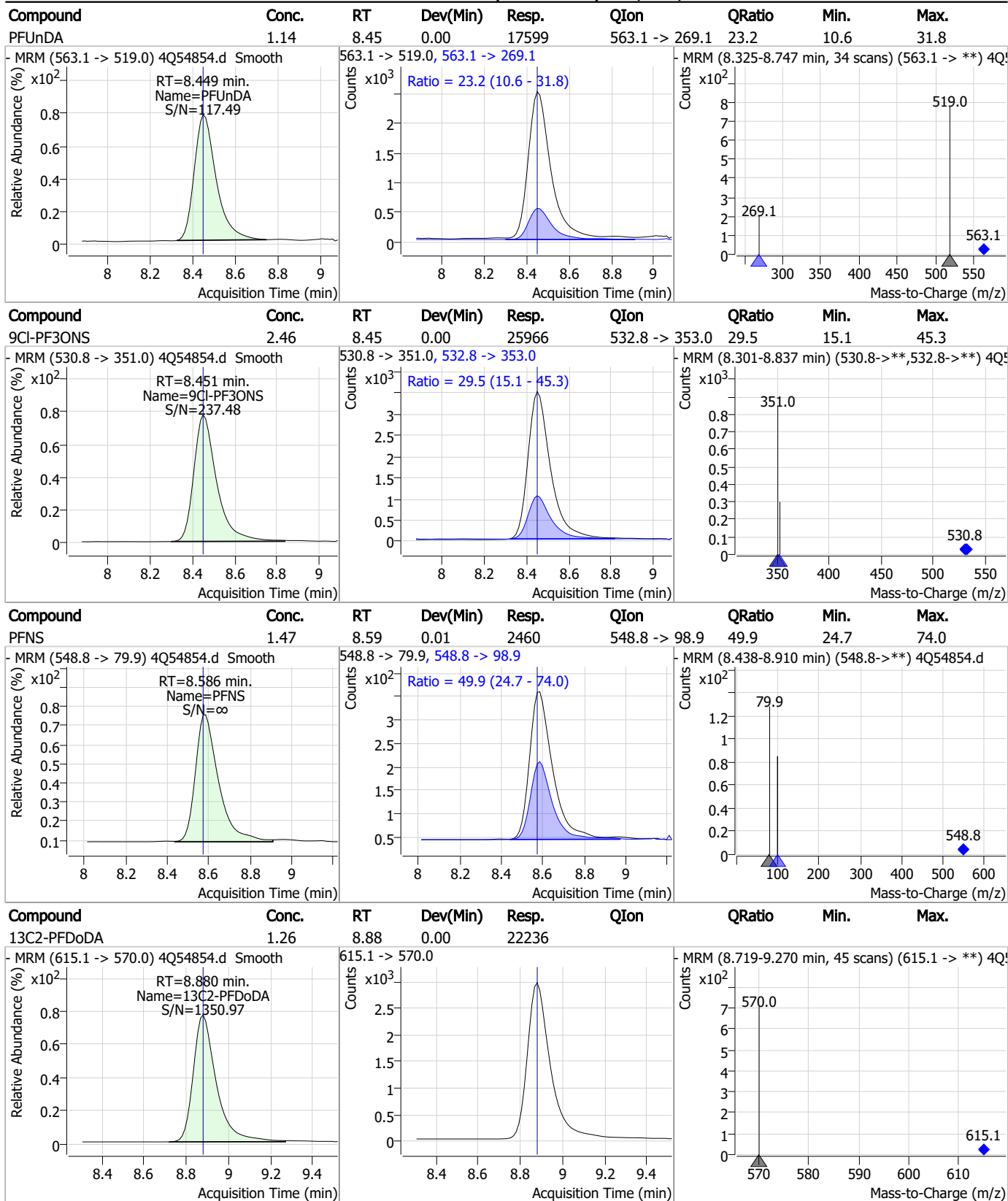
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7.7.4  
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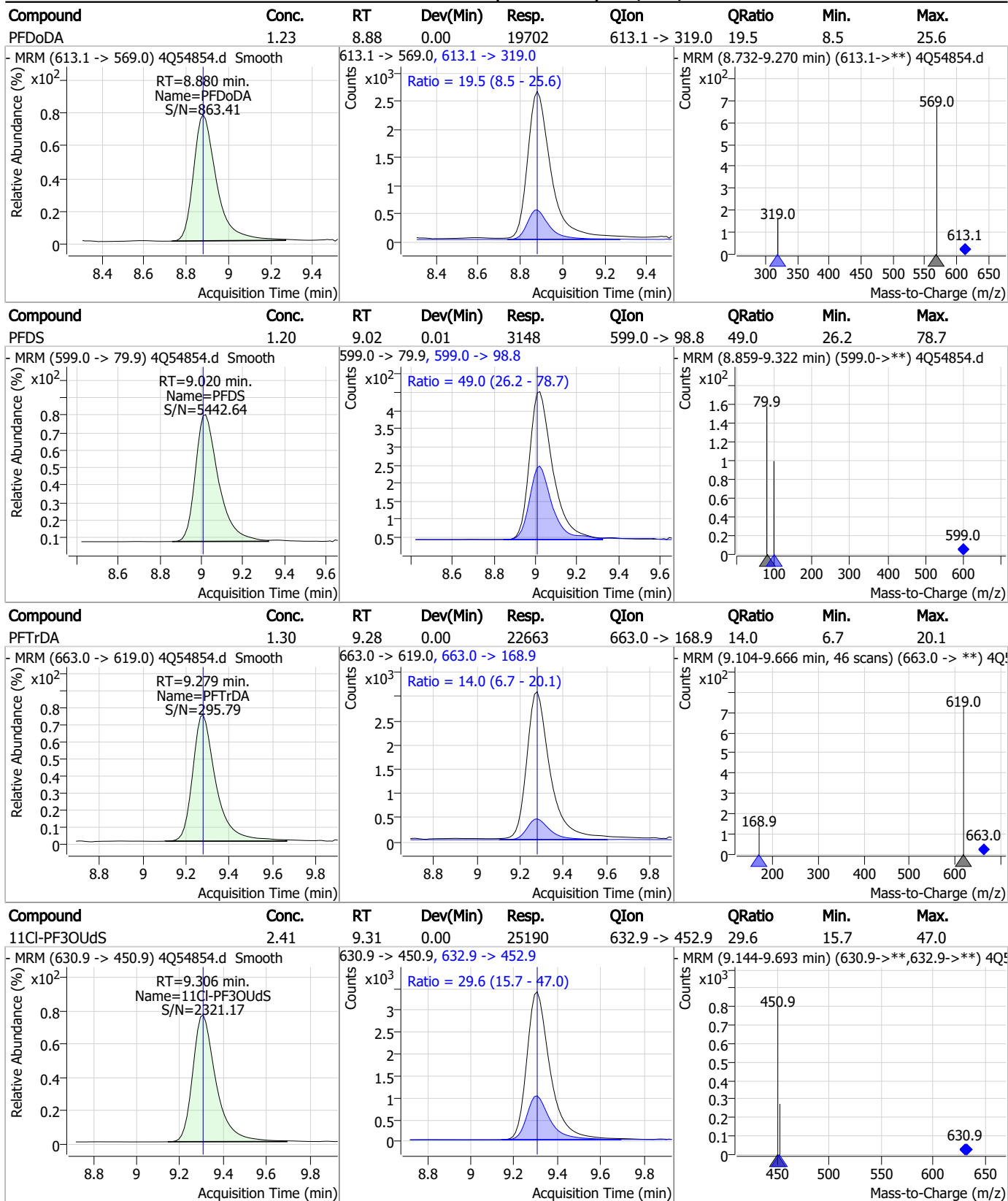


### Perfluorinated Compounds by LC/MS/MS



7.7.4  
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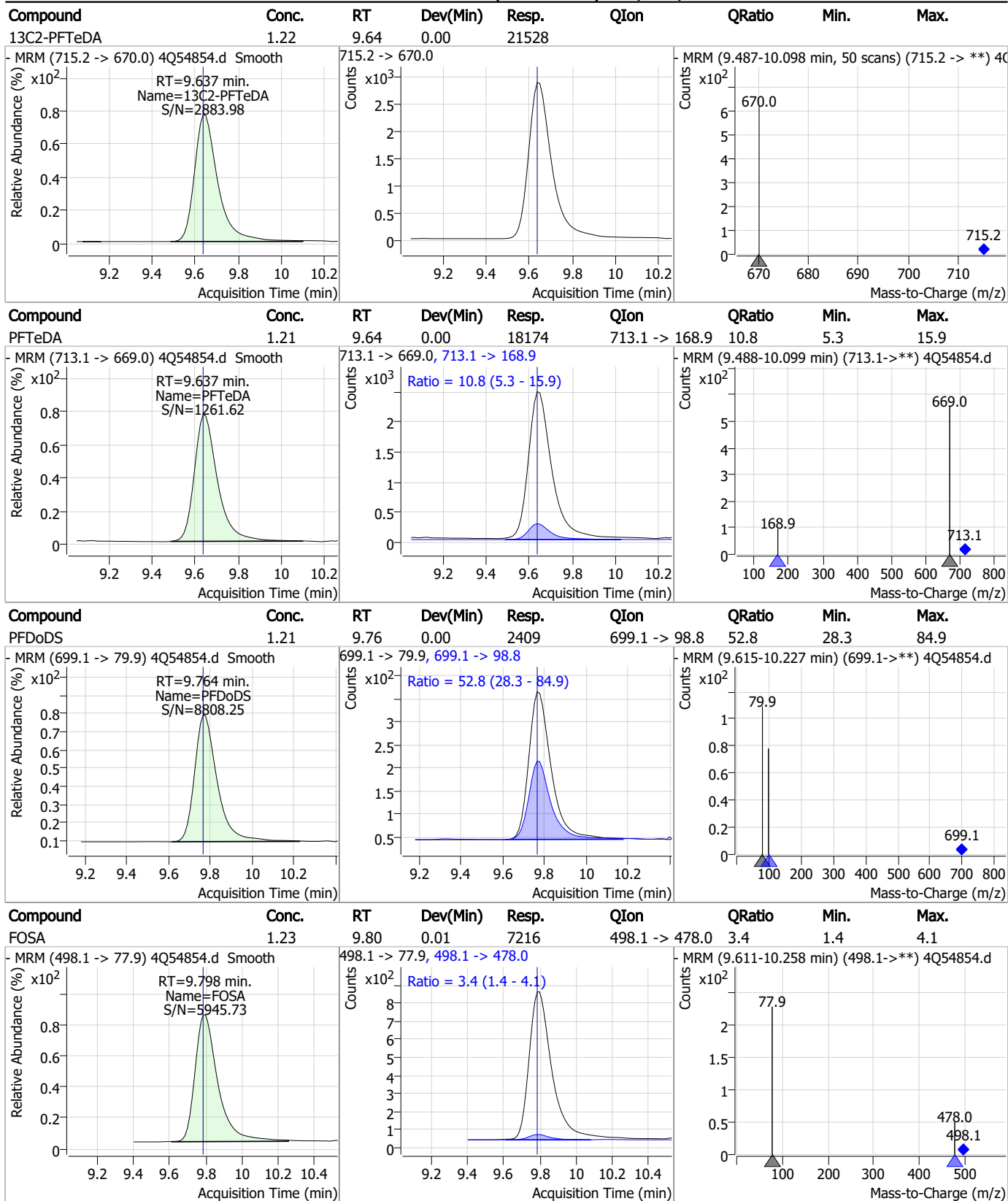
### Perfluorinated Compounds by LC/MS/MS



7.7.4

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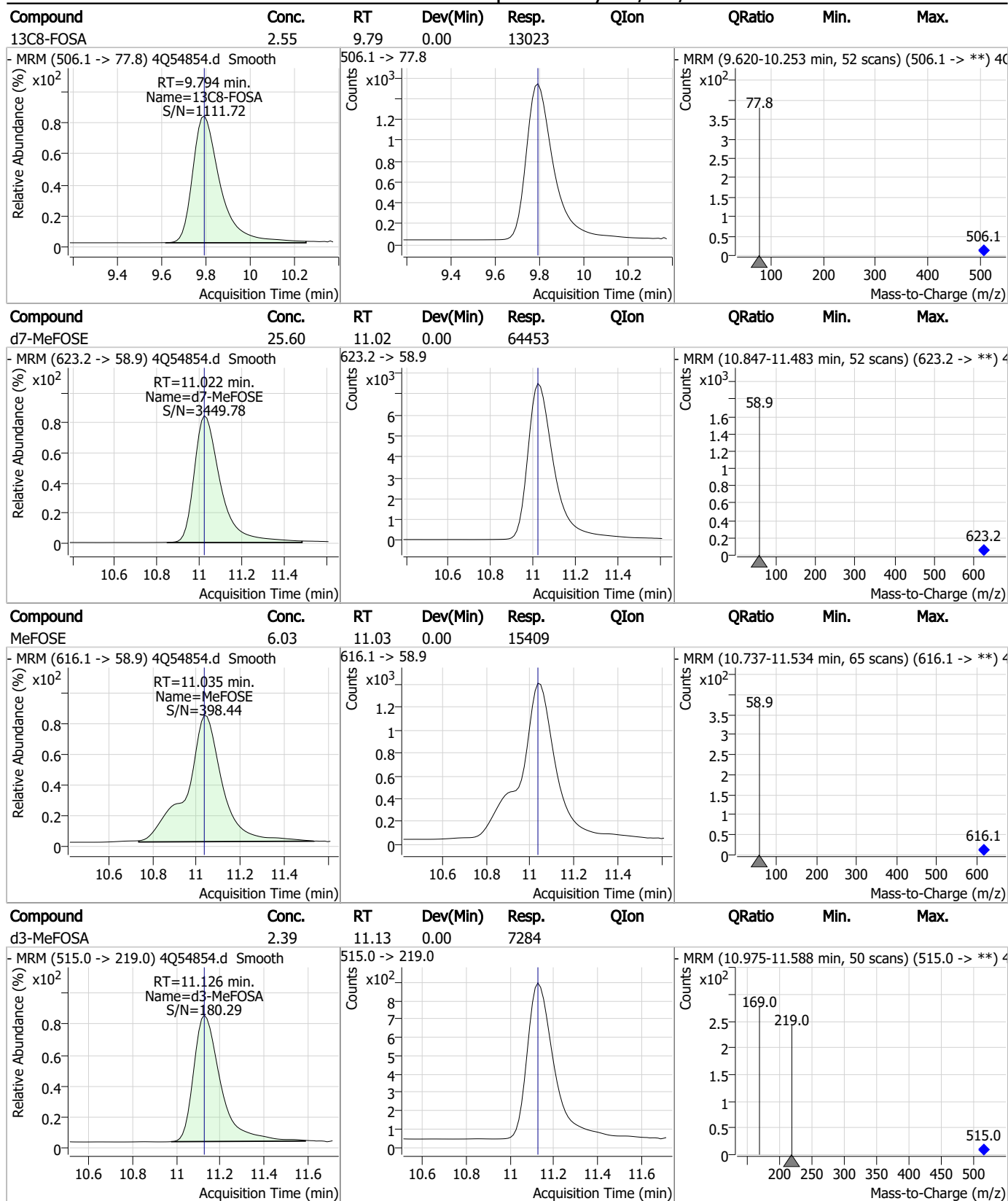
### Perfluorinated Compounds by LC/MS/MS



7.7.4

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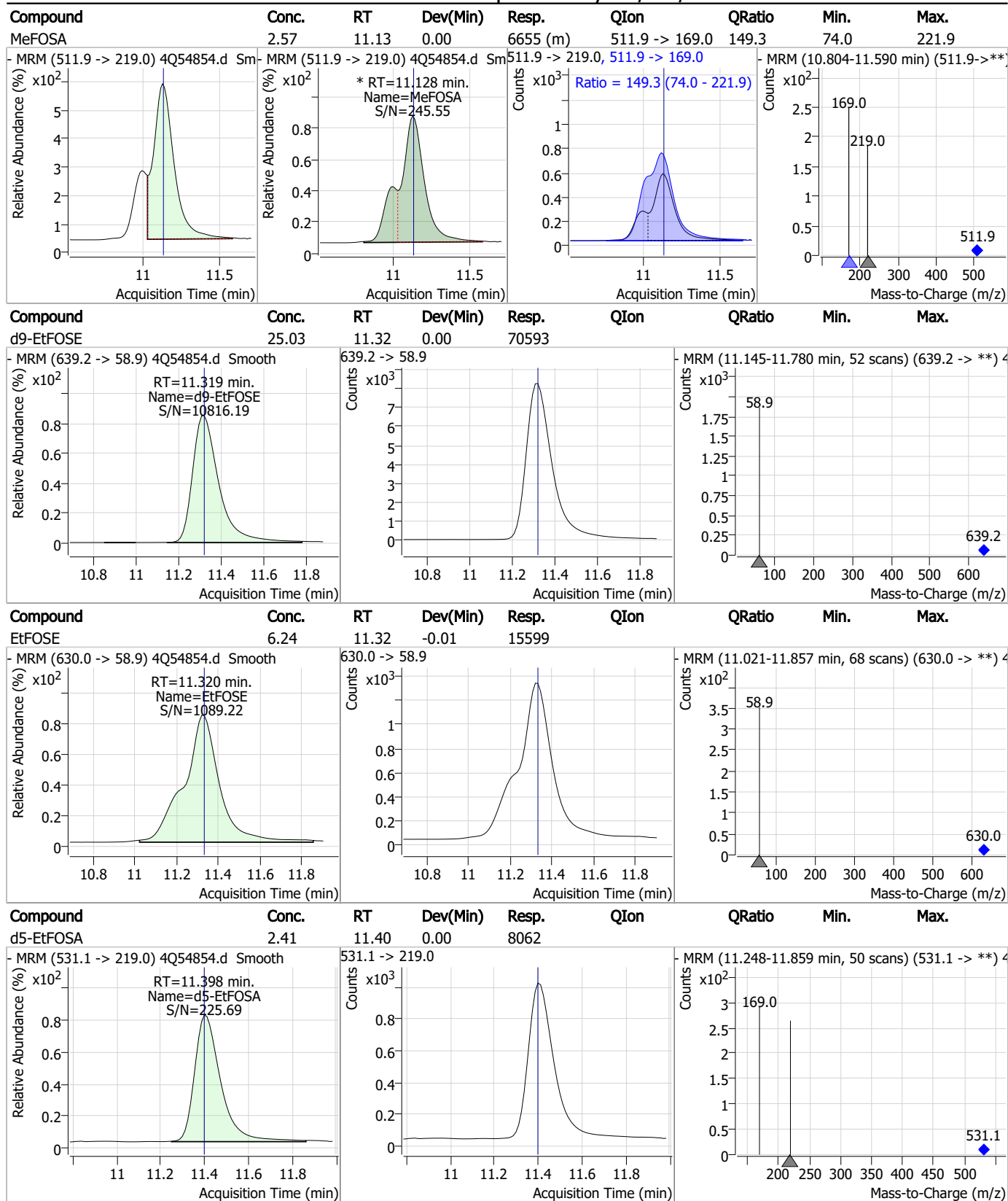
### Perfluorinated Compounds by LC/MS/MS



7.7.4

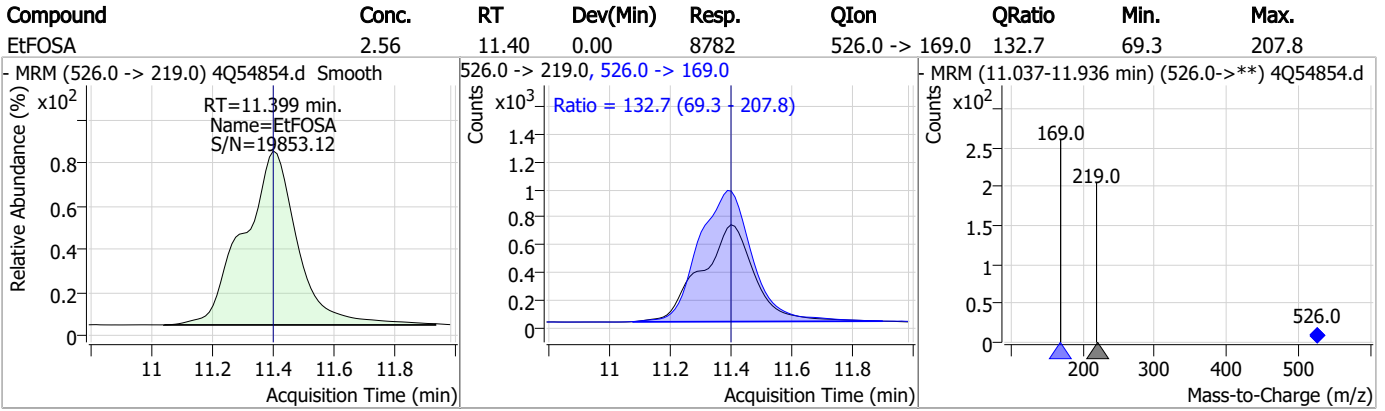
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### Perfluorinated Compounds by LC/MS/MS



7.7.4  
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### Perfluorinated Compounds by LC/MS/MS



7.7.4

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# Manual Integration Approval Summary

Sample Number: S4Q804-IC804      Method: EPA DRAFT 1633  
Lab FileID: 4Q54854.D      Analyst approved: 12/10/23 12:52 Anna Ludwig  
Injection Time: 12/08/23 12:07      Supervisor approved: 12/11/23 15:42 Natasha Guntie

| Parameter                    | CAS        | Sig# | R.T.<br>(min.) | Reason     |
|------------------------------|------------|------|----------------|------------|
| Perfluorohexanesulfonic acid | 355-46-4   |      | 7.04           | Split peak |
| Perfluorooctanesulfonic acid | 1763-23-1  |      | 8.12           | Split peak |
| EtFOSAA                      | 2991-50-6  |      | 8.28           | Split peak |
| MeFOSA                       | 31506-32-8 |      | 11.13          | Split peak |

7.7.4.1

7

## Perfluorinated Compounds by LC/MS/MS

Data File : 4Q54855.d  
 Operator : annal  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 12/8/2023 12:22:33 PM  
 Sample Name : icc804-4  
 Vial : P1-A5  
 DA Method File : 1633\_120823\_S4Q804.quantmethod.xml  
 Batch Name : s4q804.batch.bin  
 Sample Information : OP99999,S4Q804,500,,,5.0,1,water

| Compound                           | RT                   | Transition     | Response          | Conc. Units | Dev(Min) |
|------------------------------------|----------------------|----------------|-------------------|-------------|----------|
| <b>Internal Standards</b>          |                      |                |                   |             |          |
| M4-PFBA                            | 2.674                | 216.8 -> 171.9 | 104245            | 10.00 µg/L  | 0.000    |
| M5-PFPeA                           | 4.162                | 268.3 -> 223.0 | 44219             | 5.00 µg/L   | 0.000    |
| M5-PFHxA                           | 5.334                | 318.0 -> 273.0 | 35384             | 2.50 µg/L   | 0.000    |
| M4-PFHpA                           | 6.292                | 367.1 -> 322.0 | 34383             | 2.50 µg/L   | 0.000    |
| M8-PFOA                            | 6.976                | 421.1 -> 376.0 | 55862             | 2.50 µg/L   | 0.000    |
| M9-PFNA                            | 7.521                | 472.1 -> 427.0 | 22122             | 1.25 µg/L   | 0.000    |
| M6-PFDA                            | 8.004                | 519.1 -> 474.1 | 15377             | 1.25 µg/L   | 0.000    |
| M7-PFUnDA                          | 8.449                | 570.0 -> 525.1 | 19087             | 1.25 µg/L   | 0.000    |
| M2-PFDoDA                          | 8.880                | 615.1 -> 570.0 | 20356             | 1.25 µg/L   | 0.000    |
| M2-PFTeDA                          | 9.637                | 715.2 -> 670.0 | 19306             | 1.25 µg/L   | 0.000    |
| M8-FOSA                            | 9.794                | 506.1 -> 77.8  | 11663             | 2.50 µg/L   | 0.000    |
| M3-PFBS                            | 5.190                | 302.1 -> 79.9  | 9879              | 2.50 µg/L   | 0.000    |
| M3-PFHxS                           | 7.029                | 402.1 -> 79.9  | 8143              | 2.50 µg/L   | 0.000    |
| M8-PFOS                            | 8.117                | 507.1 -> 79.9  | 9284              | 2.50 µg/L   | 0.000    |
| M2-4:2FTS                          | 5.046                | 329.1 -> 80.9  | 1351              | 5.00 µg/L   | 0.000    |
| M2-6:2FTS                          | 6.748                | 429.1 -> 80.9  | 2962              | 5.00 µg/L   | 0.000    |
| M2-8:2FTS                          | 7.804                | 529.1 -> 80.9  | 3863              | 5.00 µg/L   | 0.000    |
| M3-MeFOSAA                         | 8.086                | 573.2 -> 419.0 | 20322             | 5.00 µg/L   | 0.000    |
| M3-HFPO-DA                         | 5.689                | 286.9 -> 168.9 | 34746             | 10.00 µg/L  | 0.000    |
| M5-EtFOSAA                         | 8.283                | 589.2 -> 419.0 | 16962             | 5.00 µg/L   | 0.000    |
| M7-MeFOSE                          | 11.022               | 623.2 -> 58.9  | 54274             | 25.00 µg/L  | 0.000    |
| M9-EtFOSE                          | 11.319               | 639.2 -> 58.9  | 62425             | 25.00 µg/L  | 0.000    |
| M5-EtFOSA                          | 11.398               | 531.1 -> 219.0 | 7194              | 2.50 µg/L   | 0.000    |
| M3-MeFOSA                          | 11.126               | 515.0 -> 219.0 | 6564              | 2.50 µg/L   | 0.000    |
| 13C4-PFOS                          | 8.118                | 502.8 -> 79.9  | 7016              | 2.50 µg/L   | 0.000    |
| 13C3-PFBA                          | 2.678                | 216.0 -> 172.0 | 50259             | 5.00 µg/L   | 0.000    |
| 18O2-PFHxS                         | 7.041                | 403.0 -> 83.9  | 5183              | 2.50 µg/L   | 0.000    |
| 13C4-PFOA                          | 6.977                | 417.1 -> 372.0 | 59791             | 2.50 µg/L   | 0.000    |
| 13C2-PFDA                          | 8.004                | 515.1 -> 470.1 | 16802             | 1.25 µg/L   | 0.000    |
| 13C5-PFNA                          | 7.509                | 468.0 -> 423.0 | 21489             | 1.25 µg/L   | 0.000    |
| 13C2-PFHxA                         | 5.335                | 315.1 -> 270.0 | 38995             | 2.50 µg/L   | 0.000    |
| <b>System Monitoring Compounds</b> |                      |                |                   |             |          |
| 13C2-4:2FTS                        | 5.046                | 329.1 -> 80.9  | 1351              | 5.49 µg/L   | 0.000    |
| Spiked Amount: 5.00                | Range: 50.0 - 150.0% |                | Recovery = 109.8% |             |          |
| 13C2-6:2FTS                        | 6.748                | 429.1 -> 80.9  | 2962              | 5.55 µg/L   | 0.000    |
| Spiked Amount: 5.00                | Range: 50.0 - 150.0% |                | Recovery = 111.0% |             |          |
| 13C2-8:2FTS                        | 7.804                | 529.1 -> 80.9  | 3863              | 5.41 µg/L   | 0.000    |
| Spiked Amount: 5.00                | Range: 50.0 - 150.0% |                | Recovery = 108.1% |             |          |
| 13C2-PFDoDA                        | 8.880                | 615.1 -> 570.0 | 20356             | 1.21 µg/L   | 0.000    |
| Spiked Amount: 1.25                | Range: 50.0 - 150.0% |                | Recovery = 97.0%  |             |          |
| 13C2-PFTeDA                        | 9.637                | 715.2 -> 670.0 | 19306             | 1.16 µg/L   | 0.000    |
| Spiked Amount: 1.25                | Range: 50.0 - 150.0% |                | Recovery = 92.6%  |             |          |
| 13C3-PFBS                          | 5.190                | 302.1 -> 79.9  | 9879              | 2.49 µg/L   | 0.000    |
| Spiked Amount: 2.50                | Range: 50.0 - 150.0% |                | Recovery = 99.5%  |             |          |
| 13C3-PFHxS                         | 7.029                | 402.1 -> 79.9  | 8143              | 2.51 µg/L   | 0.000    |

7.7.5  
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## Perfluorinated Compounds by LC/MS/MS

| Compound                | RT                   | Transition     | Response | Conc. Units       | Dev(Min)      |
|-------------------------|----------------------|----------------|----------|-------------------|---------------|
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 100.2% |               |
| 13C4-PFBA               | 2.674                | 216.8 -> 171.9 | 104245   | 9.88 µg/L         | 0.000         |
| Spiked Amount: 10.00    | Range: 50.0 - 150.0% |                |          | Recovery = 98.8%  |               |
| 13C4-PFHpA              | 6.292                | 367.1 -> 322.0 | 34383    | 2.50 µg/L         | 0.000         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 100.1% |               |
| 13C5-PFHxA              | 5.334                | 318.0 -> 273.0 | 35384    | 2.46 µg/L         | 0.000         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 98.5%  |               |
| 13C5-PFPeA              | 4.162                | 268.3 -> 223.0 | 44219    | 4.94 µg/L         | 0.000         |
| Spiked Amount: 5.00     | Range: 50.0 - 150.0% |                |          | Recovery = 98.8%  |               |
| 13C6-PFDA               | 8.004                | 519.1 -> 474.1 | 15377    | 1.26 µg/L         | 0.000         |
| Spiked Amount: 1.25     | Range: 50.0 - 150.0% |                |          | Recovery = 100.6% |               |
| 13C7-PFUnDA             | 8.449                | 570.0 -> 525.1 | 19087    | 1.32 µg/L         | 0.000         |
| Spiked Amount: 1.25     | Range: 50.0 - 150.0% |                |          | Recovery = 105.9% |               |
| 13C8-FOSA               | 9.794                | 506.1 -> 77.8  | 11663    | 2.57 µg/L         | 0.000         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 102.6% |               |
| 13C8-PFOA               | 6.976                | 421.1 -> 376.0 | 55862    | 2.53 µg/L         | 0.000         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 101.1% |               |
| 13C8-PFOS               | 8.117                | 507.1 -> 79.9  | 9284     | 2.61 µg/L         | 0.000         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 104.5% |               |
| 13C9-PFNA               | 7.521                | 472.1 -> 427.0 | 22122    | 1.28 µg/L         | 0.000         |
| Spiked Amount: 1.25     | Range: 50.0 - 150.0% |                |          | Recovery = 102.8% |               |
| d3-MeFOSAA              | 8.086                | 573.2 -> 419.0 | 20322    | 5.22 µg/L         | 0.000         |
| Spiked Amount: 5.00     | Range: 50.0 - 150.0% |                |          | Recovery = 104.4% |               |
| 13C3-HFPO-DA            | 5.689                | 286.9 -> 168.9 | 34746    | 9.68 µg/L         | 0.000         |
| Spiked Amount: 10.00    | Range: 50.0 - 150.0% |                |          | Recovery = 96.8%  |               |
| d3-MeFOSA               | 11.126               | 515.0 -> 219.0 | 6564     | 2.42 µg/L         | 0.000         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 96.8%  |               |
| d5-EtFOSAA              | 8.283                | 589.2 -> 419.0 | 16962    | 5.15 µg/L         | 0.000         |
| Spiked Amount: 5.00     | Range: 50.0 - 150.0% |                |          | Recovery = 103.0% |               |
| d7-MeFOSE               | 11.022               | 623.2 -> 58.9  | 54274    | 24.20 µg/L        | 0.000         |
| Spiked Amount: 25.00    | Range: 50.0 - 150.0% |                |          | Recovery = 96.8%  |               |
| d9-EtFOSE               | 11.319               | 639.2 -> 58.9  | 62425    | 24.85 µg/L        | 0.000         |
| Spiked Amount: 25.00    | Range: 50.0 - 150.0% |                |          | Recovery = 99.4%  |               |
| d5-EtFOSA               | 11.398               | 531.1 -> 219.0 | 7194     | 2.42 µg/L         | 0.000         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 96.8%  |               |
| <b>Target Compounds</b> |                      |                |          |                   | <b>QValue</b> |
| 4:2FTS                  | 5.047                | 327.1 -> 307.0 | 19922    | 8.56 µg/L         | 100           |
|                         |                      | 327.1 -> 80.9  | 8505     |                   |               |
| 6:2FTS                  | 6.749                | 427.1 -> 407.0 | 26403    | 8.48 µg/L         | 100           |
|                         |                      | 427.1 -> 80.9  | 9662     |                   |               |
| 8:2FTS                  | 7.804                | 527.1 -> 507.0 | 19326    | 9.49 µg/L         | 100           |
|                         |                      | 527.1 -> 80.8  | 7827     |                   |               |
| EtFOSAA                 | 8.297                | 584.2 -> 419.1 | 7623     | 2.46 µg/L         | m 91          |
|                         |                      | 584.2 -> 526.0 | 2812     |                   |               |
| FOSA                    | 9.785                | 498.1 -> 77.9  | 12086    | 2.31 µg/L         | 100           |
|                         |                      | 498.1 -> 478.0 | 333      |                   |               |
| MeFOSAA                 | 8.087                | 570.1 -> 419.0 | 6992     | 2.40 µg/L         | 92            |
|                         |                      | 570.1 -> 483.0 | 1390     |                   |               |
| PFBA                    | 2.682                | 212.8 -> 168.9 | 30601    | 9.17 µg/L         | 100           |
| PFBS                    | 5.191                | 298.7 -> 79.9  | 6030     | 1.97 µg/L         | 100           |
|                         |                      | 298.7 -> 98.8  | 2445     |                   |               |
| PFDA                    | 8.005                | 512.9 -> 469.0 | 24830    | 2.20 µg/L         | 100           |
|                         |                      | 512.9 -> 219.0 | 5147     |                   |               |
| PFDoDA                  | 8.880                | 613.1 -> 569.0 | 34714    | 2.37 µg/L         | 100           |
|                         |                      | 613.1 -> 319.0 | 5925     |                   |               |
| PFDS                    | 9.008                | 599.0 -> 79.9  | 5445     | 2.20 µg/L         | 100           |

## Perfluorinated Compounds by LC/MS/MS

| Compound     | RT     | Transition     | Response | Conc. | Units | Dev(Min) |
|--------------|--------|----------------|----------|-------|-------|----------|
| PFHpA        | 6.293  | 599.0 -> 98.8  | 2857     | 2.32  | µg/L  | 100      |
|              |        | 363.1 -> 319.0 | 44937    |       |       |          |
| PFHpS        | 7.612  | 363.1 -> 169.0 | 8278     | 2.12  | µg/L  | 100      |
|              |        | 449.0 -> 79.9  | 7822     |       |       |          |
| PFHxA        | 5.337  | 449.0 -> 98.9  | 4093     | 2.33  | µg/L  | 100      |
|              |        | 313.0 -> 269.0 | 26261    |       |       |          |
| PFHxS        | 7.030  | 313.0 -> 118.9 | 730      | 2.20  | µg/L  | 96       |
|              |        | 398.7 -> 79.9  | 5766     |       |       |          |
| PFNA         | 7.510  | 398.7 -> 98.9  | 2584     | 2.28  | µg/L  | 100      |
|              |        | 463.0 -> 419.0 | 29605    |       |       |          |
| PFNS         | 8.574  | 463.0 -> 219.0 | 6796     | 2.53  | µg/L  | 100      |
|              |        | 548.8 -> 79.9  | 4011     |       |       |          |
| PFOA         | 6.978  | 548.8 -> 98.9  | 1979     | 2.19  | µg/L  | 100      |
|              |        | 413.0 -> 369.0 | 50224    |       |       |          |
| PFOS         | 8.119  | 413.0 -> 169.0 | 11244    | 1.82  | µg/L  | 59       |
|              |        | 498.9 -> 79.9  | 7040     |       |       |          |
| PFPeA        | 4.164  | 498.9 -> 98.8  | 3689     | 4.63  | µg/L  | 100      |
|              |        | 263.0 -> 219.0 | 40246    |       |       |          |
| PFPeS        | 6.282  | 349.1 -> 79.9  | 5390     | 2.18  | µg/L  | 100      |
|              |        | 349.1 -> 98.9  | 2279     |       |       |          |
| PFTeDA       | 9.637  | 713.1 -> 669.0 | 31768    | 2.36  | µg/L  | 100      |
|              |        | 713.1 -> 168.9 | 3365     |       |       |          |
| PFTrDA       | 9.279  | 663.0 -> 619.0 | 38368    | 2.41  | µg/L  | 100      |
|              |        | 663.0 -> 168.9 | 5134     |       |       |          |
| PFUnDA       | 8.449  | 563.1 -> 519.0 | 32076    | 2.31  | µg/L  | 100      |
|              |        | 563.1 -> 269.1 | 6801     |       |       |          |
| 11Cl-PF3OUdS | 9.306  | 630.9 -> 450.9 | 43604    | 4.56  | µg/L  | 100      |
|              |        | 632.9 -> 452.9 | 13667    |       |       |          |
| 9Cl-PF3ONS   | 8.451  | 530.8 -> 351.0 | 45789    | 4.74  | µg/L  | 100      |
|              |        | 532.8 -> 353.0 | 13838    |       |       |          |
| ADONA        | 6.556  | 376.9 -> 250.9 | 116329   | 4.96  | µg/L  | 100      |
|              |        | 376.9 -> 84.8  | 28200    |       |       |          |
| HFPO-DA      | 5.690  | 284.9 -> 168.9 | 15785    | 4.75  | µg/L  | 100      |
|              |        | 284.9 -> 184.9 | 1478     |       |       |          |
| 3:3FTCA      | 3.617  | 241.0 -> 177.0 | 6043     | 11.39 | µg/L  | 100      |
|              |        | 241.0 -> 117.0 | 536      |       |       |          |
| 5:3FTCA      | 6.008  | 341.0 -> 237.1 | 115879   | 57.54 | µg/L  | 100      |
|              |        | 341.0 -> 217.0 | 82812    |       |       |          |
| 7:3FTCA      | 7.536  | 441.0 -> 316.9 | 61800    | 58.52 | µg/L  | 100      |
|              |        | 441.0 -> 336.9 | 147017   |       |       |          |
| EtFOSA       | 11.399 | 526.0 -> 219.0 | 14515    | 4.74  | µg/L  | 100      |
|              |        | 526.0 -> 169.0 | 20110    |       |       |          |
| EtFOSE       | 11.332 | 630.0 -> 58.9  | 26385    | 11.94 | µg/L  | 100      |
|              |        | 511.9 -> 219.0 | 11060    |       |       |          |
| MeFOSA       | 11.128 | 511.9 -> 169.0 | 16360    | 4.73  | µg/L  | 100      |
|              |        | 616.1 -> 58.9  | 25303    |       |       |          |
| MeFOSE       | 11.035 | 699.1 -> 79.9  | 4090     | 11.75 | µg/L  | 100      |
|              |        | 699.1 -> 98.8  | 2314     |       |       |          |
| PFDoDS       | 9.764  | 295.0 -> 201.0 | 3689     | 2.17  | µg/L  | 100      |
|              |        | 295.0 -> 84.9  | 968      |       |       |          |
| NFDHA        | 5.216  | 279.0 -> 85.1  | 22314    | 4.66  | µg/L  | 100      |
|              |        | 229.0 -> 84.9  | 23979    |       |       |          |
| PFMBA        | 3.315  | 314.8 -> 134.9 | 34478    | 4.55  | µg/L  | 100      |
|              |        | 314.8 -> 82.9  | 1352     |       |       |          |
| PFEESA       | 5.722  |                |          | 4.13  | µg/L  | 100      |
|              |        |                |          |       |       |          |

# = Qualifier out of range, m = manually integrated, + = Area summed

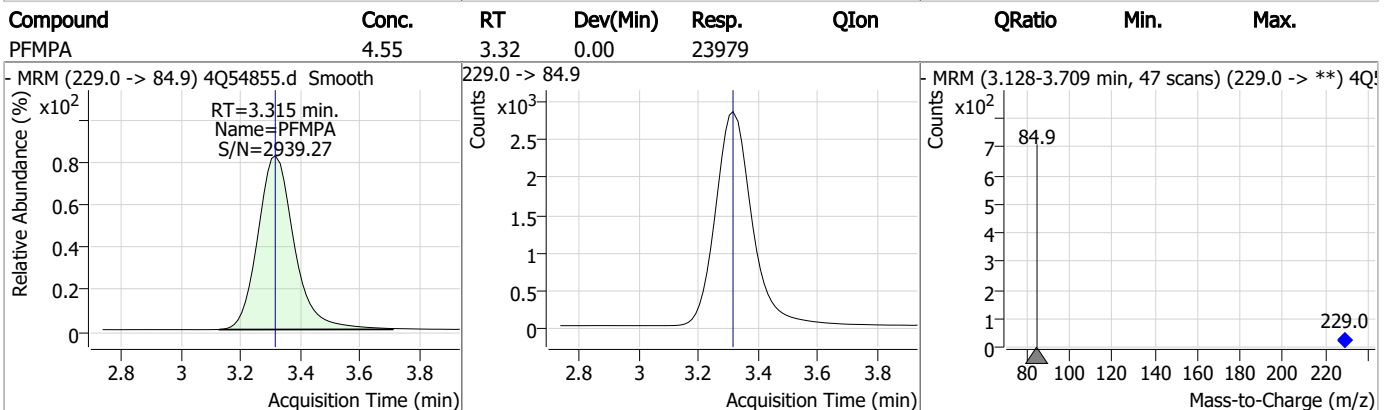
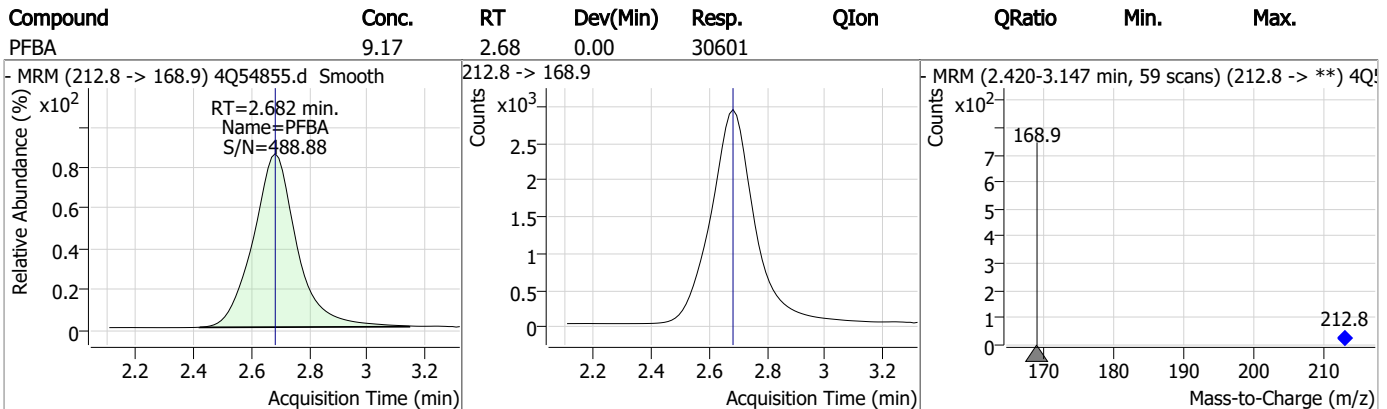
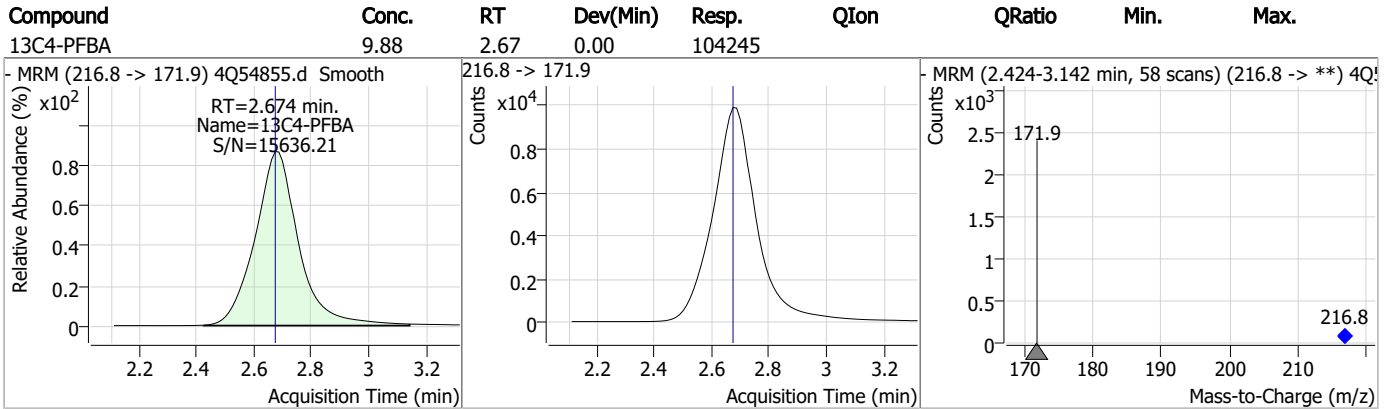
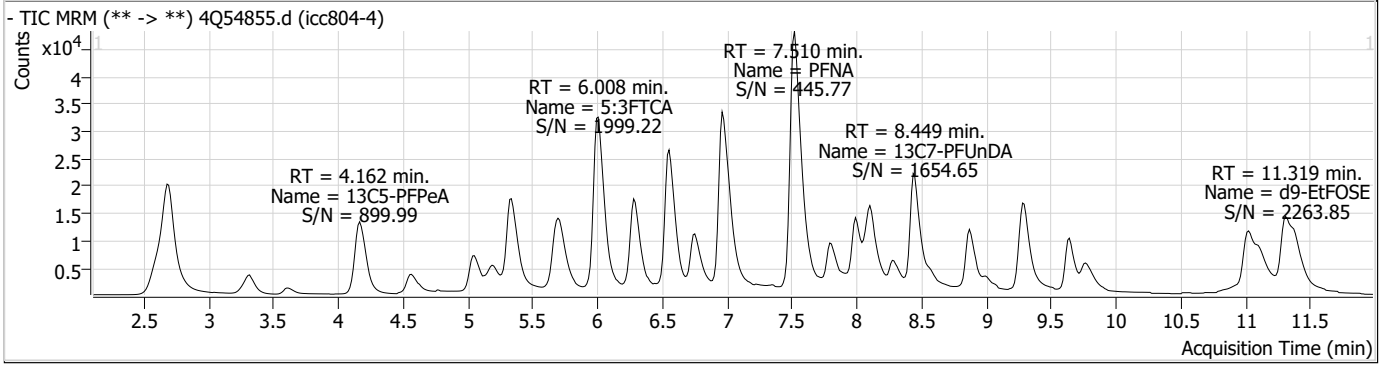
### Perfluorinated Compounds by LC/MS/MS

| Compound | RT | Transition | Response | Conc. | Units | Dev(Min) |
|----------|----|------------|----------|-------|-------|----------|
|----------|----|------------|----------|-------|-------|----------|

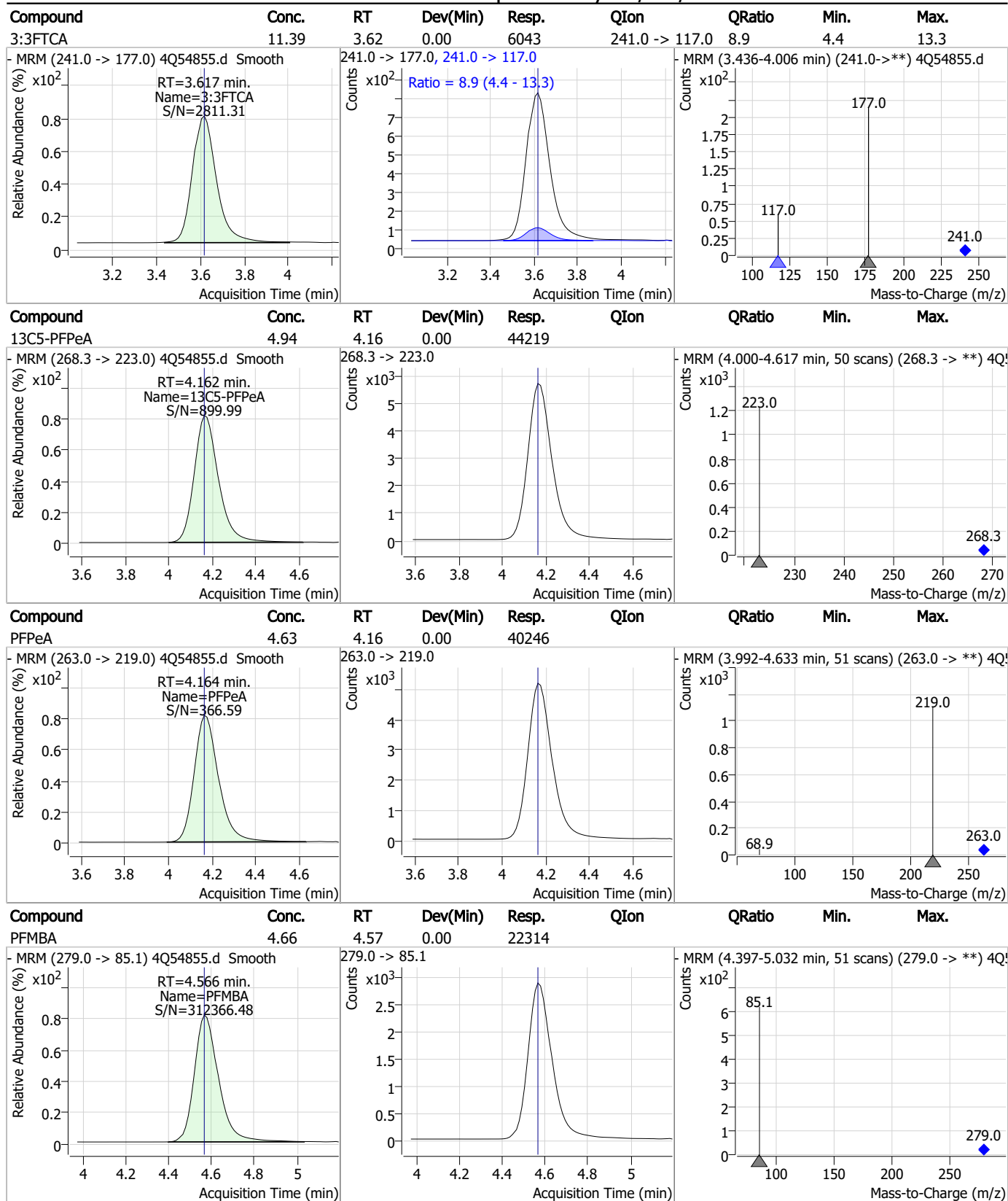
7.7.5

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### Perfluorinated Compounds by LC/MS/MS

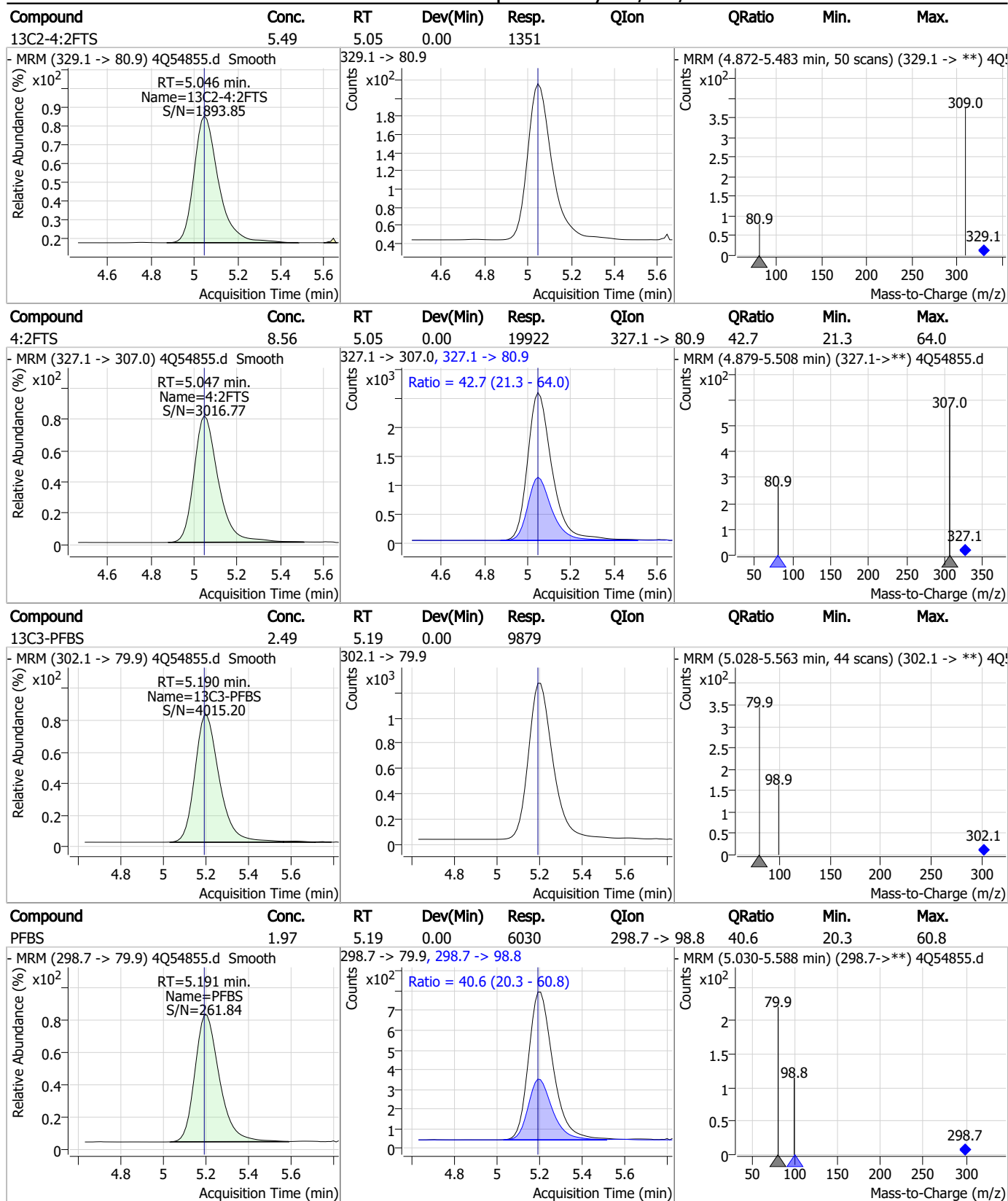


### Perfluorinated Compounds by LC/MS/MS



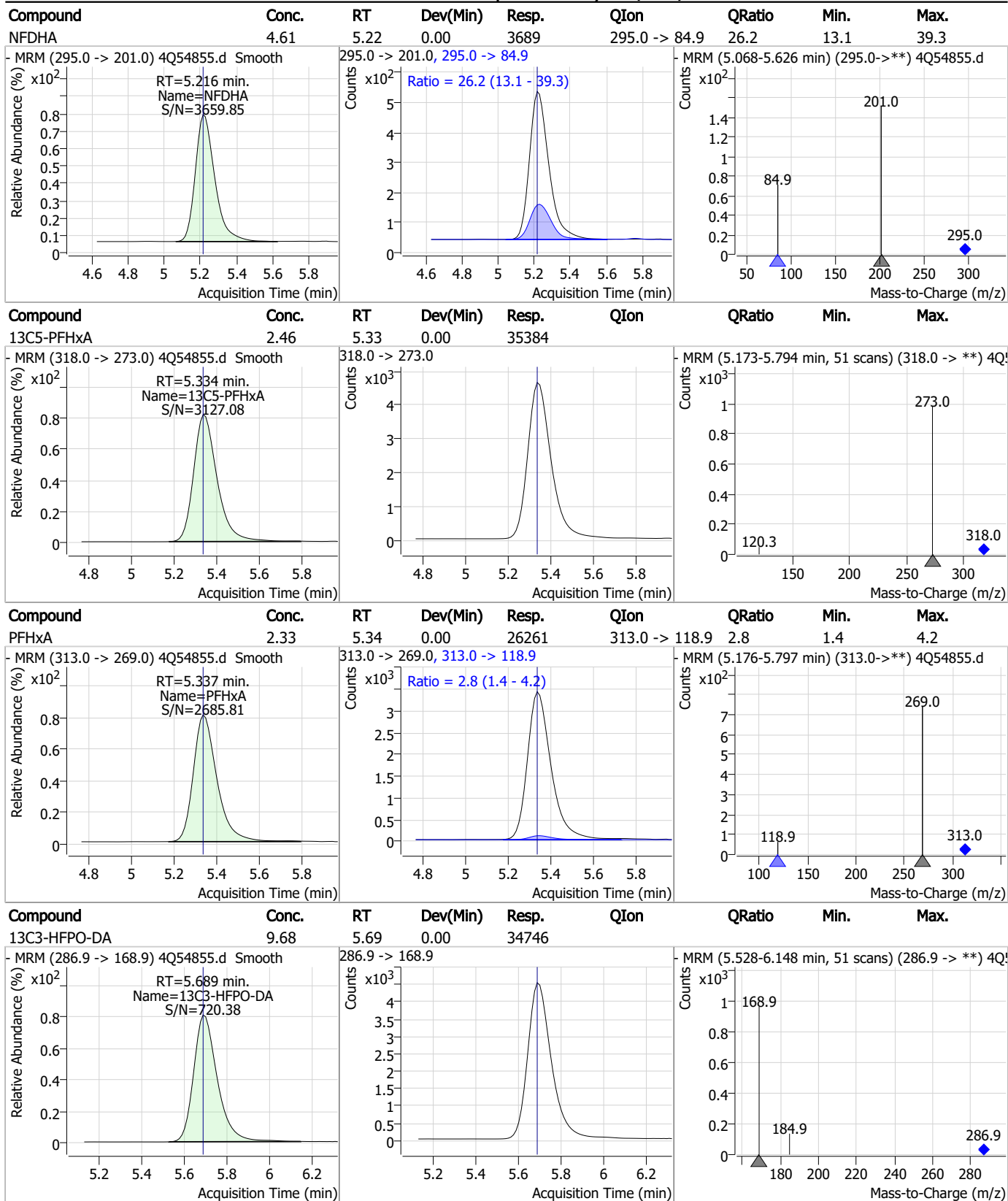
7.7.5  
7

### Perfluorinated Compounds by LC/MS/MS



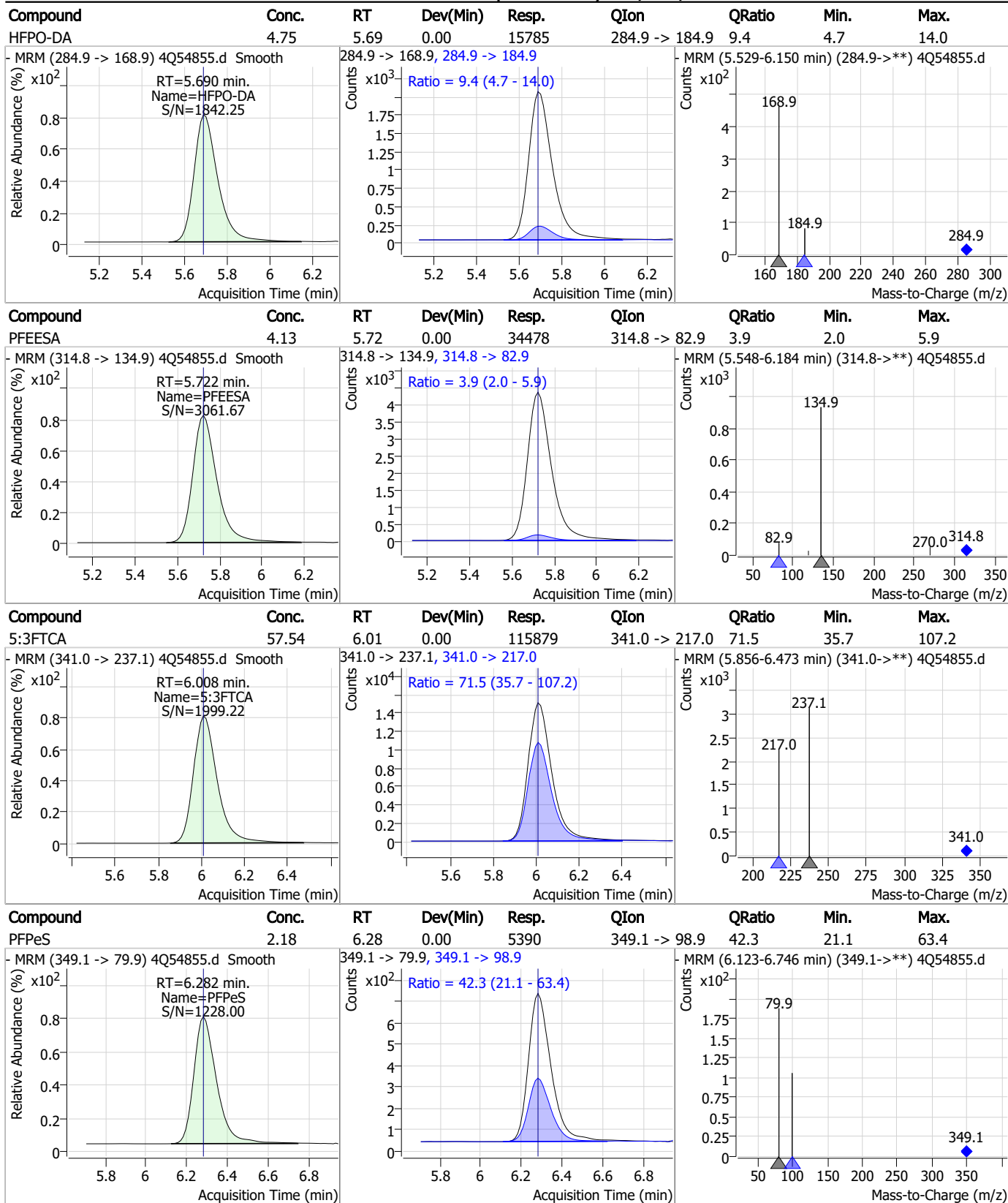
7.7.5  
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### Perfluorinated Compounds by LC/MS/MS



7.7.5  
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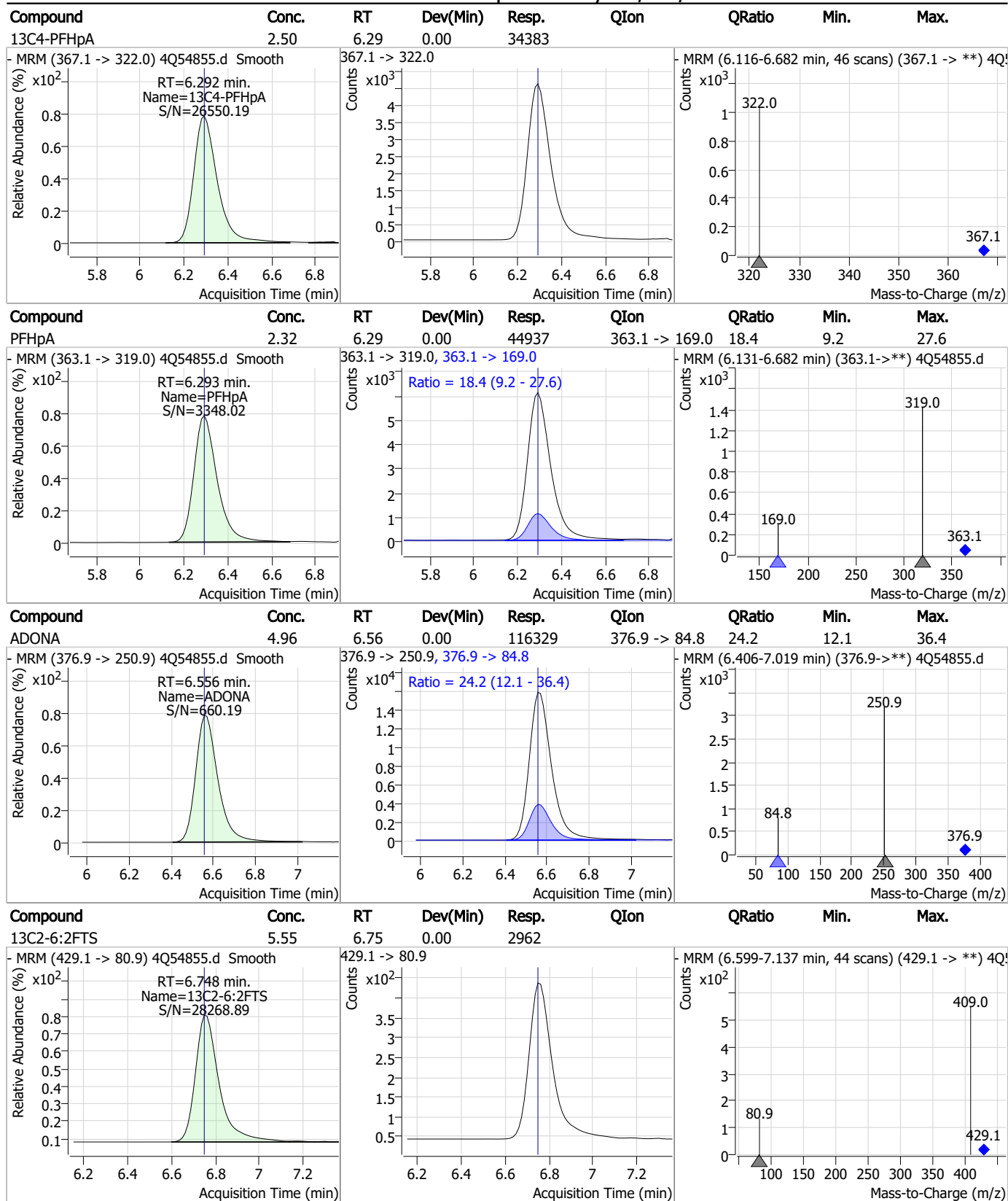
### Perfluorinated Compounds by LC/MS/MS



7.7.5  
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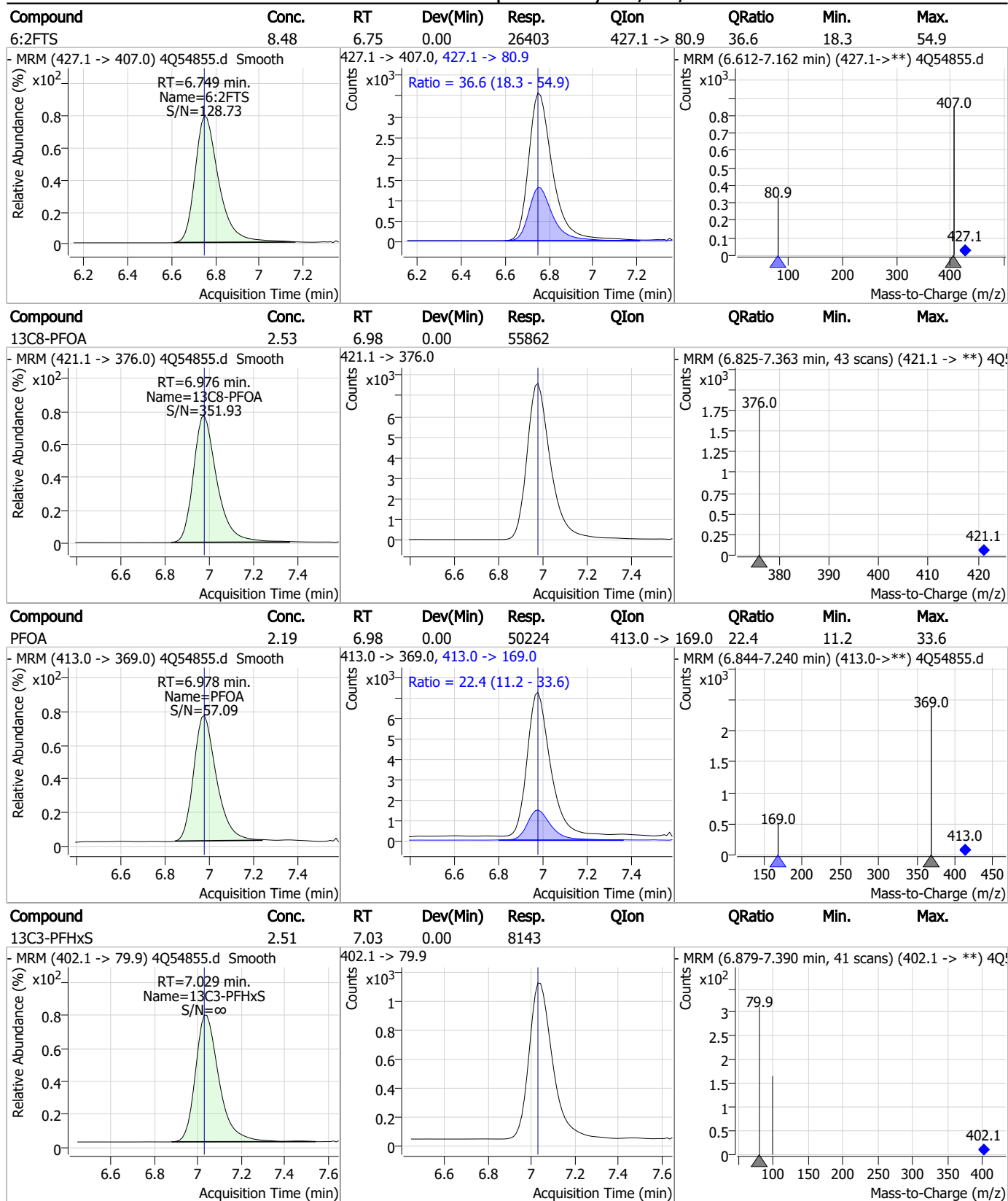


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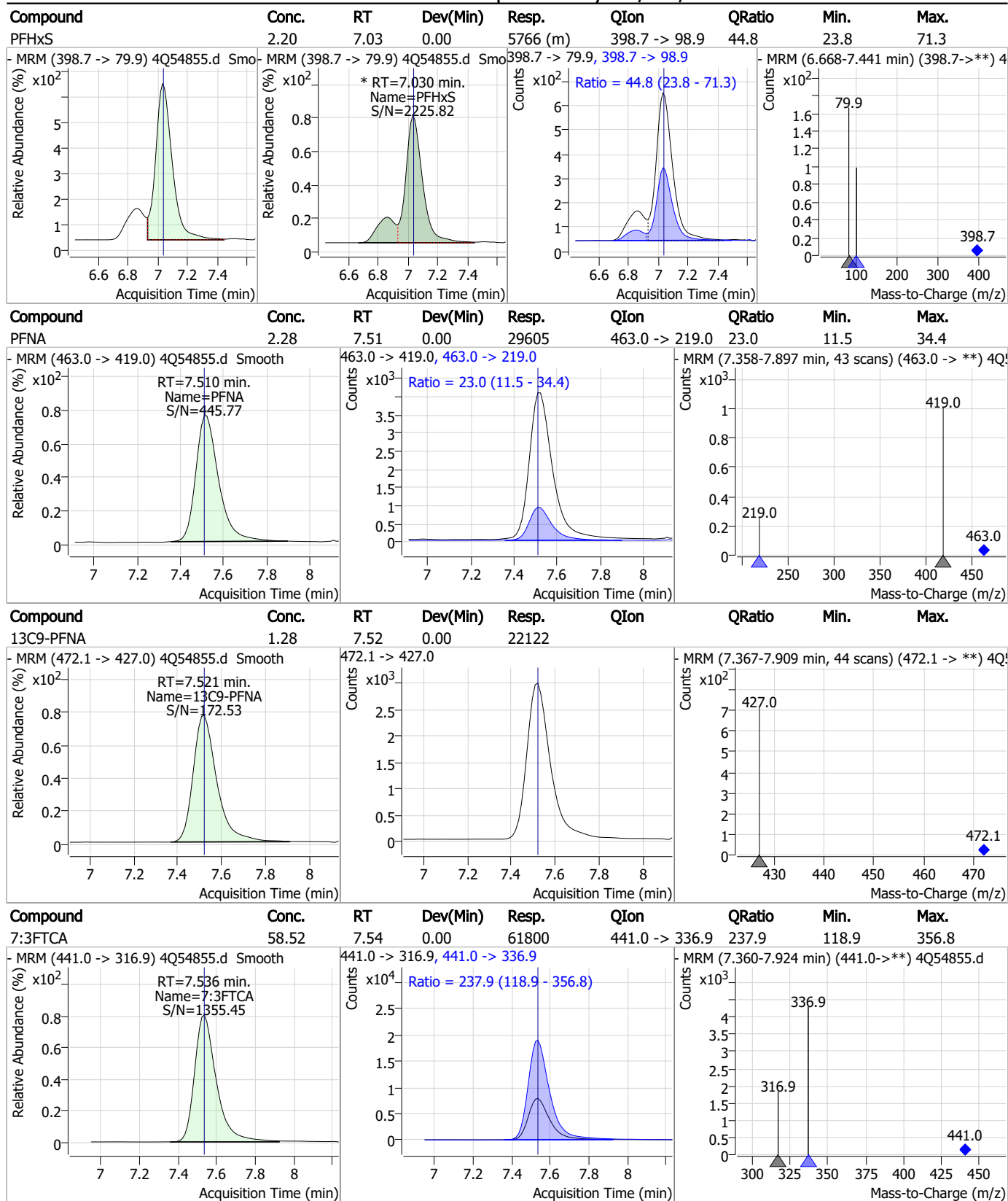
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### Perfluorinated Compounds by LC/MS/MS



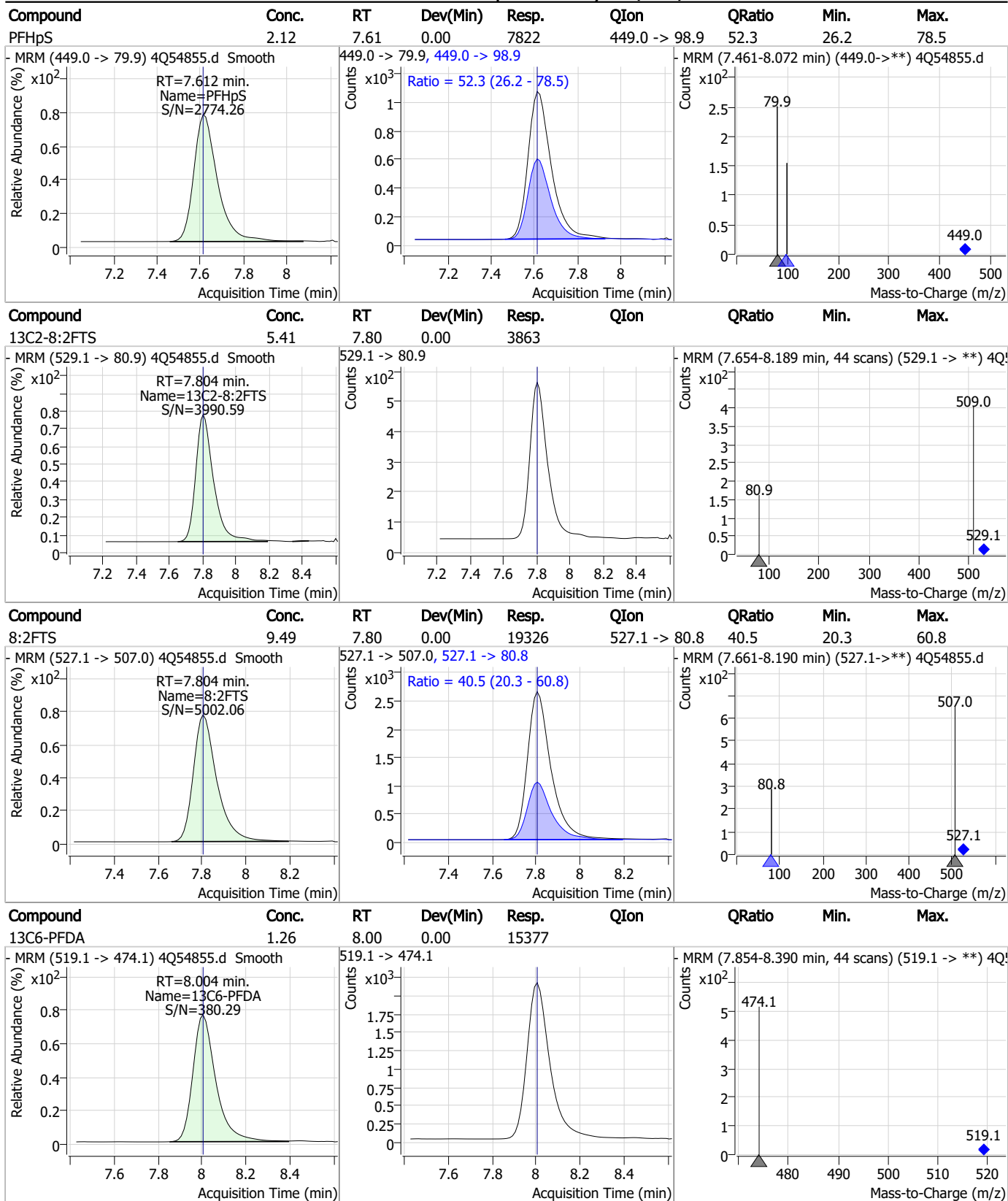
7.7.5  
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### Perfluorinated Compounds by LC/MS/MS



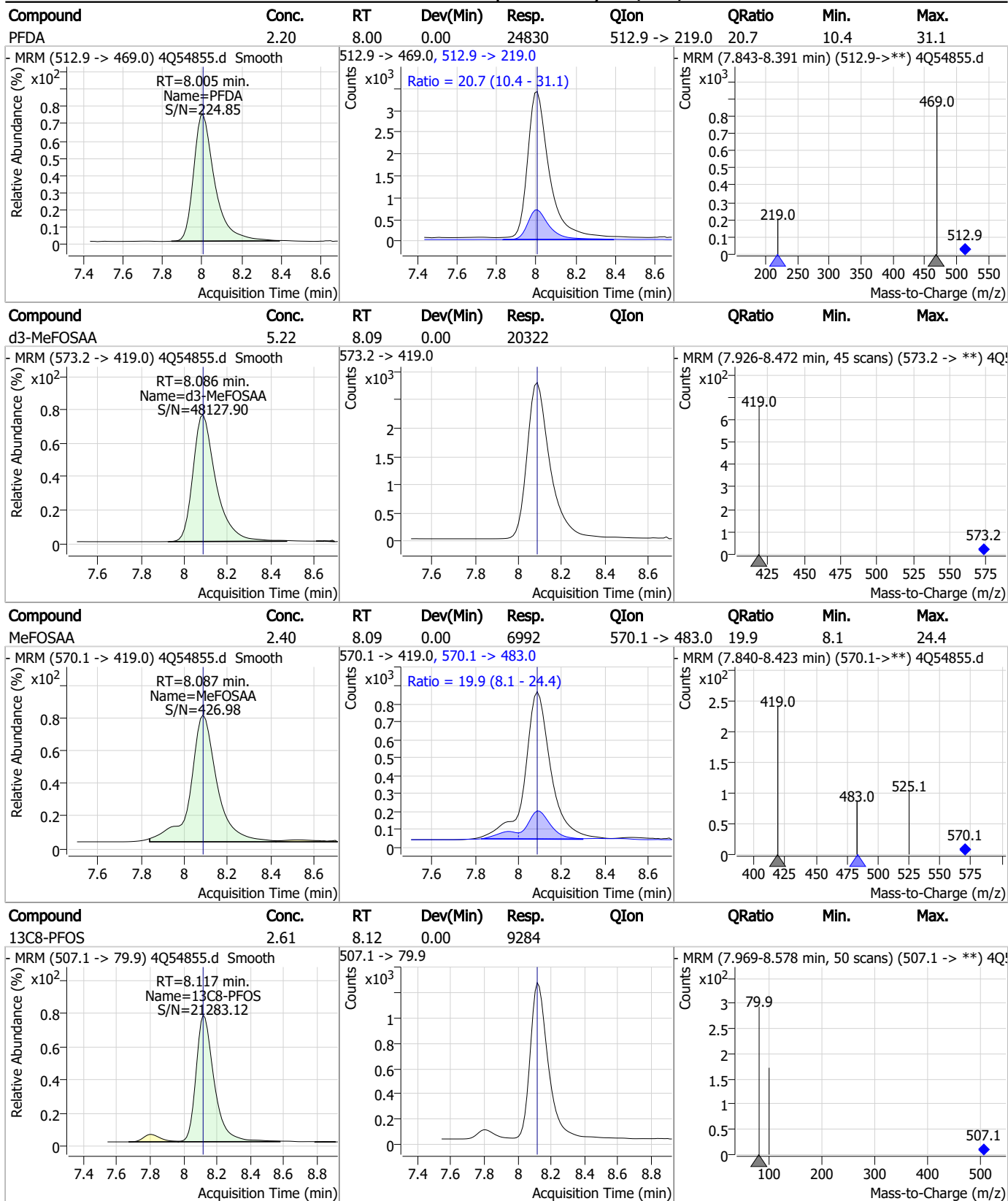
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### Perfluorinated Compounds by LC/MS/MS



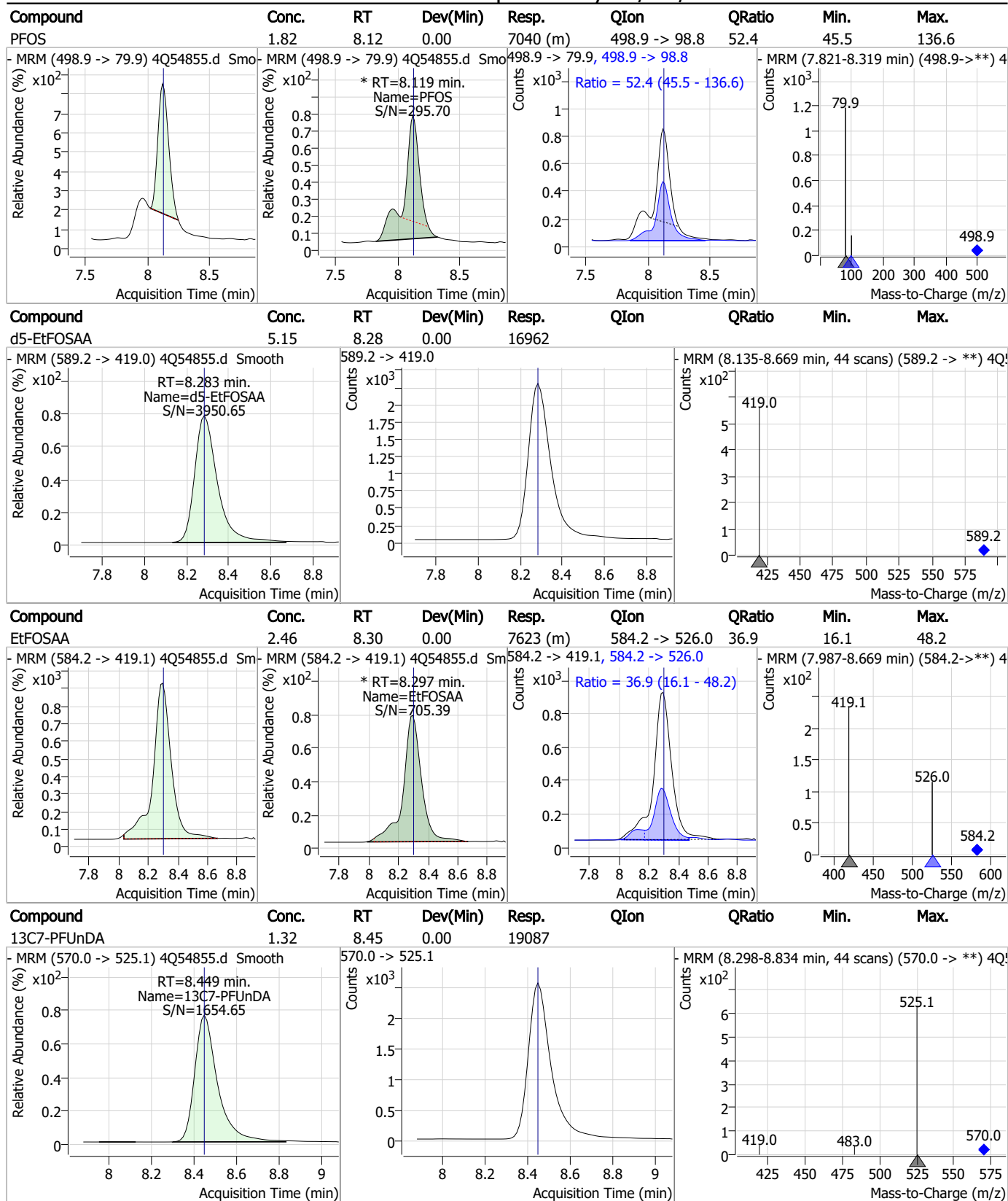
7.7.5  
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### Perfluorinated Compounds by LC/MS/MS



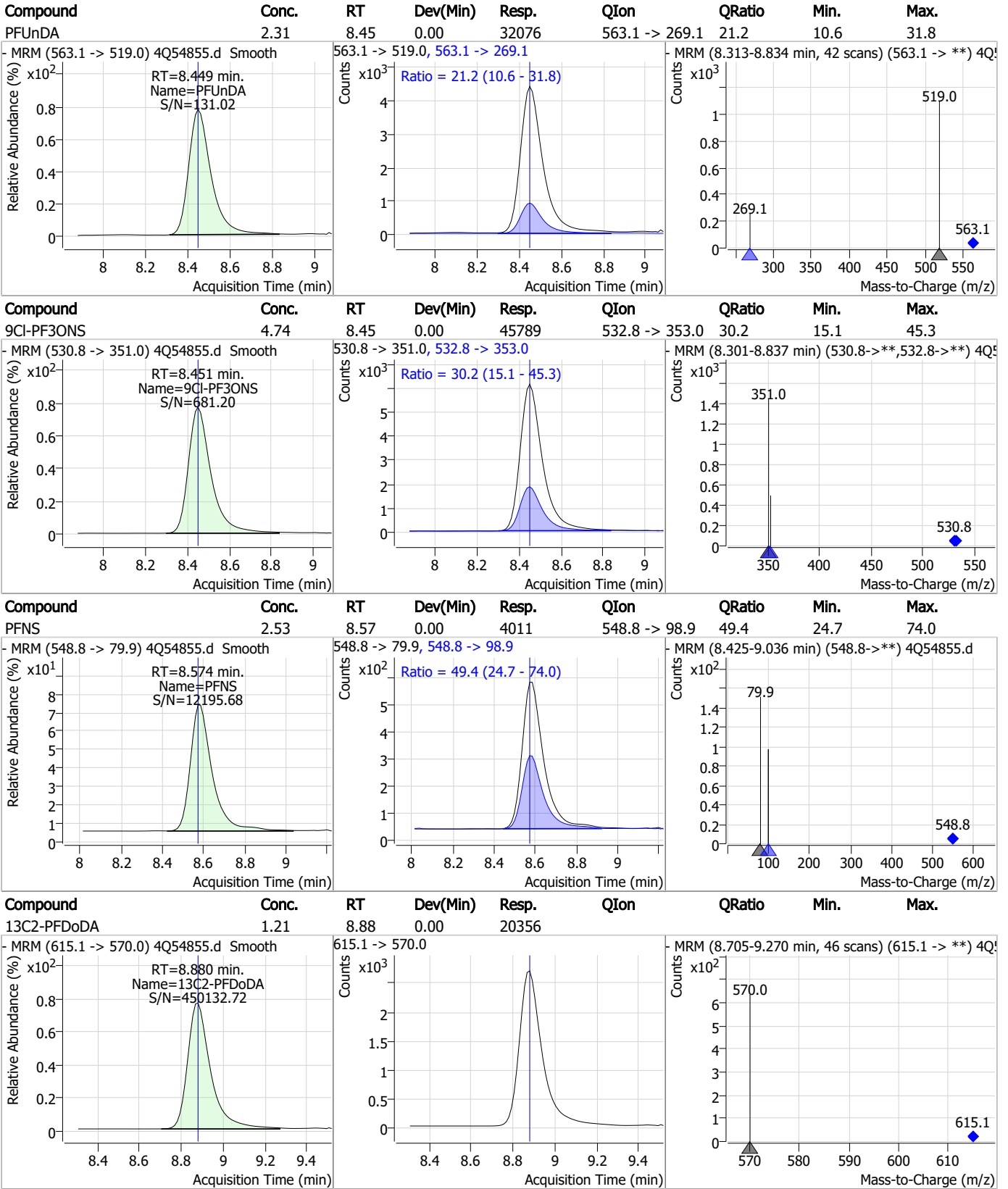
7.7.5  
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### Perfluorinated Compounds by LC/MS/MS



7.7.5  
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### Perfluorinated Compounds by LC/MS/MS

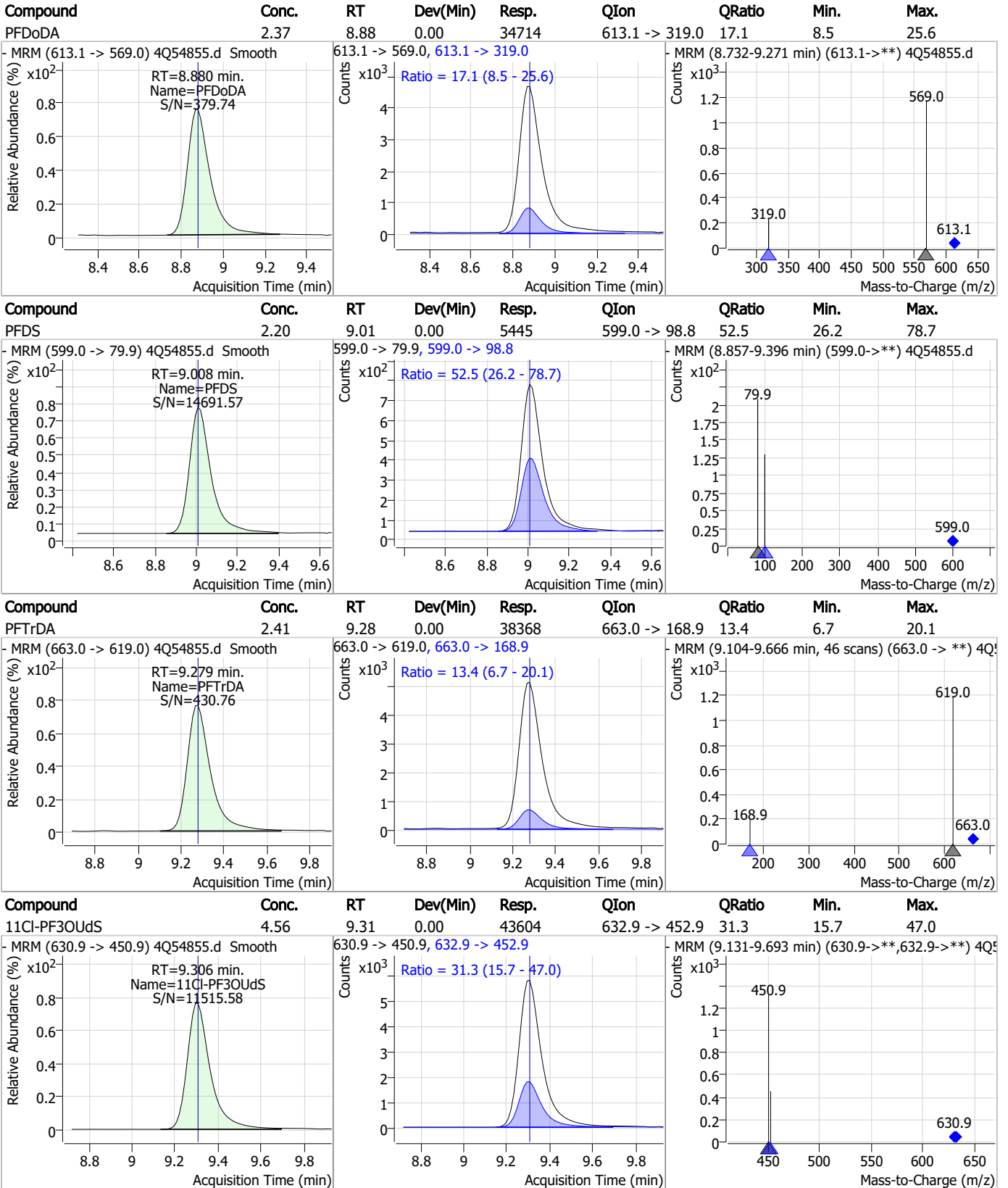


7.7.5

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### Perfluorinated Compounds by LC/MS/MS

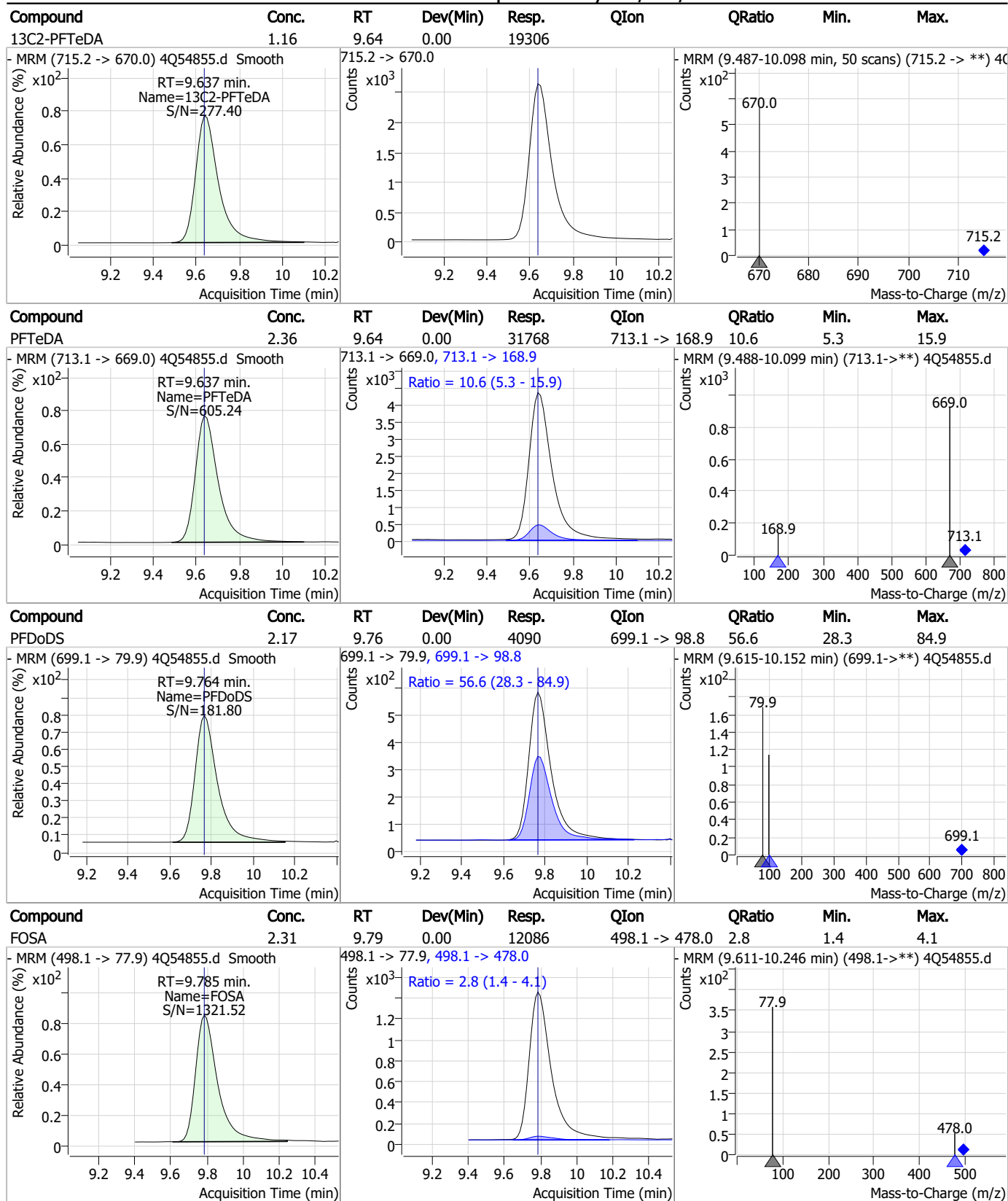


7.7.5

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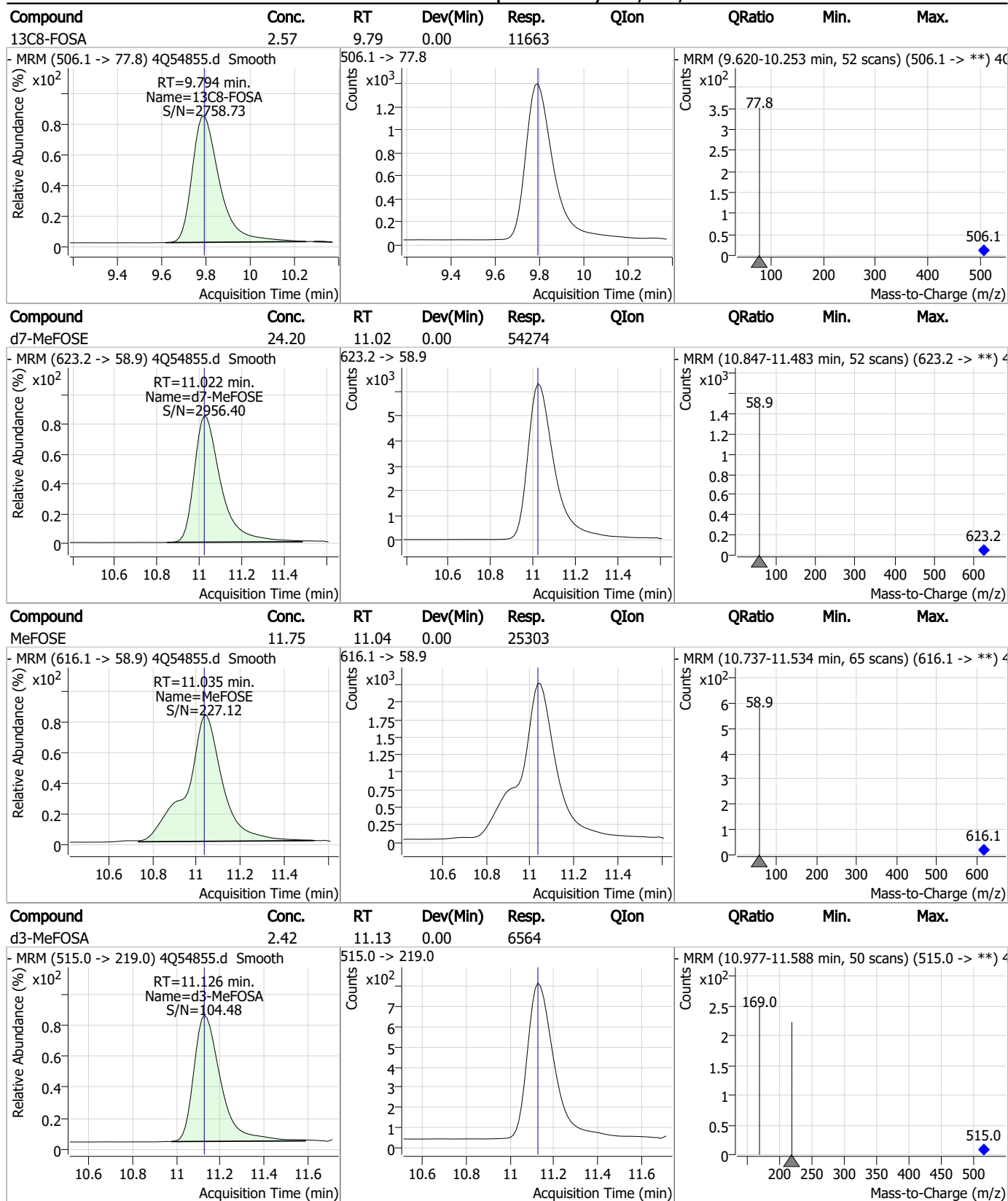
### Perfluorinated Compounds by LC/MS/MS



7.7.5

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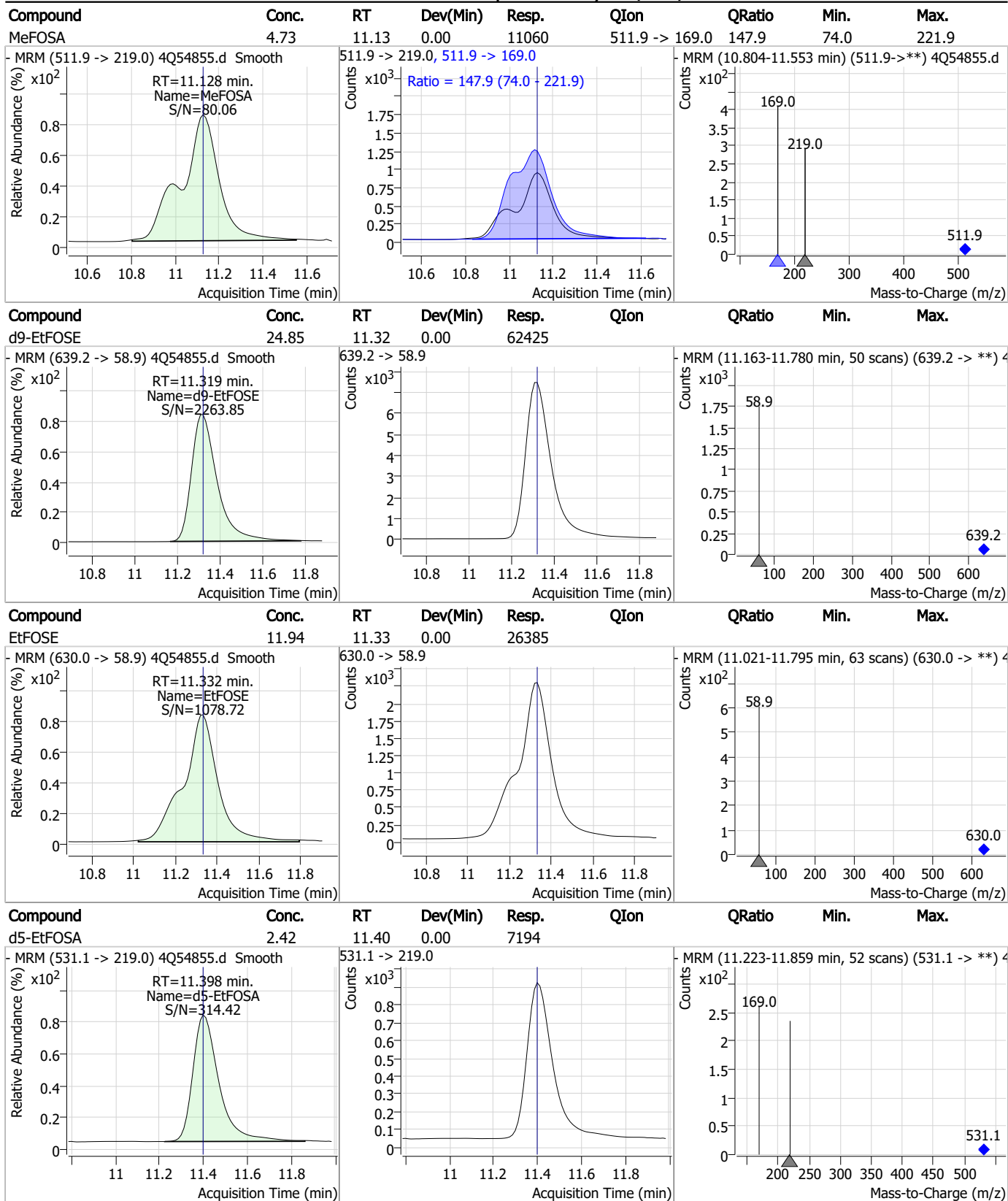
### Perfluorinated Compounds by LC/MS/MS



7.7.5

7

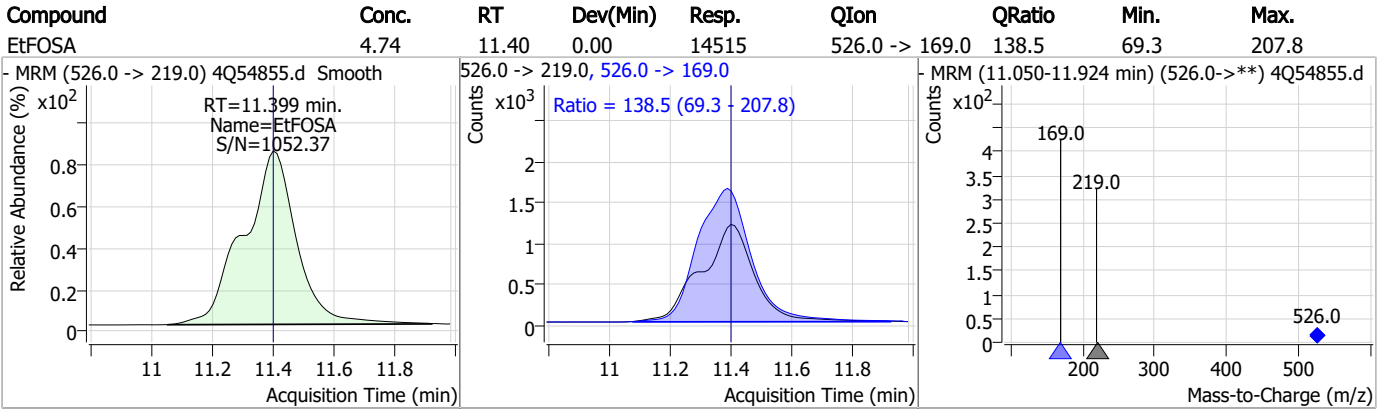
### Perfluorinated Compounds by LC/MS/MS



7.7.5

7

Perfluorinated Compounds by LC/MS/MS



7.7.5

7

# Manual Integration Approval Summary

Sample Number: S4Q804-ICC804      Method: EPA DRAFT 1633  
Lab FileID: 4Q54855.D      Analyst approved: 12/10/23 12:52 Anna Ludwig  
Injection Time: 12/08/23 12:22      Supervisor approved: 12/11/23 15:42 Natasha Gumtie

| Parameter                    | CAS       | Sig# | R.T.<br>(min.) | Reason     |
|------------------------------|-----------|------|----------------|------------|
| Perfluorohexanesulfonic acid | 355-46-4  |      | 7.03           | Split peak |
| Perfluorooctanesulfonic acid | 1763-23-1 |      | 8.12           | Split peak |
| EtFOSAA                      | 2991-50-6 |      | 8.30           | Split peak |

7.7.5.1

7

## Perfluorinated Compounds by LC/MS/MS

Data File : 4Q54856.d  
 Operator : annal  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 12/8/2023 12:37:18 PM  
 Sample Name : ic804-5  
 Vial : P1-A6  
 DA Method File : 1633\_120823\_S4Q804.quantmethod.xml  
 Batch Name : s4q804.batch.bin  
 Sample Information : OP99999,S4Q804,500,,,5.0,1,water

| Compound                           | RT                   | Transition     | Response          | Conc. Units | Dev(Min) |
|------------------------------------|----------------------|----------------|-------------------|-------------|----------|
| <b>Internal Standards</b>          |                      |                |                   |             |          |
| M4-PFBA                            | 2.699                | 216.8 -> 171.9 | 115726            | 10.00 µg/L  | 0.025    |
| M5-PFPeA                           | 4.175                | 268.3 -> 223.0 | 47986             | 5.00 µg/L   | 0.012    |
| M5-PFHxA                           | 5.347                | 318.0 -> 273.0 | 38296             | 2.50 µg/L   | 0.012    |
| M4-PFHpA                           | 6.292                | 367.1 -> 322.0 | 36844             | 2.50 µg/L   | 0.000    |
| M8-PFOA                            | 6.976                | 421.1 -> 376.0 | 59183             | 2.50 µg/L   | 0.000    |
| M9-PFNA                            | 7.521                | 472.1 -> 427.0 | 23873             | 1.25 µg/L   | 0.000    |
| M6-PFDA                            | 8.004                | 519.1 -> 474.1 | 15881             | 1.25 µg/L   | 0.000    |
| M7-PFUnDA                          | 8.448                | 570.0 -> 525.1 | 18876             | 1.25 µg/L   | 0.000    |
| M2-PFDoDA                          | 8.880                | 615.1 -> 570.0 | 21448             | 1.25 µg/L   | 0.000    |
| M2-PFTeDA                          | 9.649                | 715.2 -> 670.0 | 22005             | 1.25 µg/L   | 0.012    |
| M8-FOSA                            | 9.794                | 506.1 -> 77.8  | 12630             | 2.50 µg/L   | 0.000    |
| M3-PFBS                            | 5.202                | 302.1 -> 79.9  | 10776             | 2.50 µg/L   | 0.013    |
| M3-PFHxS                           | 7.042                | 402.1 -> 79.9  | 8597              | 2.50 µg/L   | 0.012    |
| M8-PFOS                            | 8.130                | 507.1 -> 79.9  | 9441              | 2.50 µg/L   | 0.012    |
| M2-4:2FTS                          | 5.046                | 329.1 -> 80.9  | 1273              | 5.00 µg/L   | 0.000    |
| M2-6:2FTS                          | 6.761                | 429.1 -> 80.9  | 2987              | 5.00 µg/L   | 0.012    |
| M2-8:2FTS                          | 7.804                | 529.1 -> 80.9  | 3770              | 5.00 µg/L   | 0.000    |
| M3-MeFOSAA                         | 8.086                | 573.2 -> 419.0 | 21416             | 5.00 µg/L   | 0.000    |
| M3-HFPO-DA                         | 5.689                | 286.9 -> 168.9 | 38099             | 10.00 µg/L  | 0.000    |
| M5-EtFOSAA                         | 8.283                | 589.2 -> 419.0 | 18419             | 5.00 µg/L   | 0.000    |
| M7-MeFOSE                          | 11.022               | 623.2 -> 58.9  | 65137             | 25.00 µg/L  | 0.000    |
| M9-EtFOSE                          | 11.319               | 639.2 -> 58.9  | 73150             | 25.00 µg/L  | 0.000    |
| M5-EtFOSA                          | 11.398               | 531.1 -> 219.0 | 8372              | 2.50 µg/L   | 0.000    |
| M3-MeFOSA                          | 11.126               | 515.0 -> 219.0 | 7137              | 2.50 µg/L   | 0.000    |
| 13C4-PFOS                          | 8.118                | 502.8 -> 79.9  | 8365              | 2.50 µg/L   | 0.000    |
| 13C3-PFBA                          | 2.703                | 216.0 -> 172.0 | 54543             | 5.00 µg/L   | 0.025    |
| 18O2-PFHxS                         | 7.041                | 403.0 -> 83.9  | 5470              | 2.50 µg/L   | 0.000    |
| 13C4-PFOA                          | 6.977                | 417.1 -> 372.0 | 64086             | 2.50 µg/L   | 0.000    |
| 13C2-PFDA                          | 8.004                | 515.1 -> 470.1 | 17777             | 1.25 µg/L   | 0.000    |
| 13C5-PFNA                          | 7.522                | 468.0 -> 423.0 | 22949             | 1.25 µg/L   | 0.012    |
| 13C2-PFHxA                         | 5.348                | 315.1 -> 270.0 | 40737             | 2.50 µg/L   | 0.012    |
| <b>System Monitoring Compounds</b> |                      |                |                   |             |          |
| 13C2-4:2FTS                        | 5.046                | 329.1 -> 80.9  | 1273              | 4.90 µg/L   | 0.000    |
| Spiked Amount: 5.00                | Range: 50.0 - 150.0% |                | Recovery = 98.1%  |             |          |
| 13C2-6:2FTS                        | 6.761                | 429.1 -> 80.9  | 2987              | 5.30 µg/L   | 0.012    |
| Spiked Amount: 5.00                | Range: 50.0 - 150.0% |                | Recovery = 106.1% |             |          |
| 13C2-8:2FTS                        | 7.804                | 529.1 -> 80.9  | 3770              | 5.00 µg/L   | 0.000    |
| Spiked Amount: 5.00                | Range: 50.0 - 150.0% |                | Recovery = 100.0% |             |          |
| 13C2-PFDoDA                        | 8.880                | 615.1 -> 570.0 | 21448             | 1.21 µg/L   | 0.000    |
| Spiked Amount: 1.25                | Range: 50.0 - 150.0% |                | Recovery = 96.6%  |             |          |
| 13C2-PFTeDA                        | 9.649                | 715.2 -> 670.0 | 22005             | 1.25 µg/L   | 0.012    |
| Spiked Amount: 1.25                | Range: 50.0 - 150.0% |                | Recovery = 99.7%  |             |          |
| 13C3-PFBS                          | 5.202                | 302.1 -> 79.9  | 10776             | 2.57 µg/L   | 0.013    |
| Spiked Amount: 2.50                | Range: 50.0 - 150.0% |                | Recovery = 102.8% |             |          |
| 13C3-PFHxS                         | 7.042                | 402.1 -> 79.9  | 8597              | 2.51 µg/L   | 0.012    |

## Perfluorinated Compounds by LC/MS/MS

| Compound                | RT                   | Transition     | Response | Conc. Units       | Dev(Min)      |
|-------------------------|----------------------|----------------|----------|-------------------|---------------|
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 100.3% |               |
| 13C4-PFBA               | 2.699                | 216.8 -> 171.9 | 115726   | 10.10 µg/L        | 0.025         |
| Spiked Amount: 10.00    | Range: 50.0 - 150.0% |                |          | Recovery = 101.0% |               |
| 13C4-PFHpA              | 6.292                | 367.1 -> 322.0 | 36844    | 2.57 µg/L         | 0.000         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 102.6% |               |
| 13C5-PFHxA              | 5.347                | 318.0 -> 273.0 | 38296    | 2.55 µg/L         | 0.012         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 102.1% |               |
| 13C5-PFPeA              | 4.175                | 268.3 -> 223.0 | 47986    | 5.13 µg/L         | 0.012         |
| Spiked Amount: 5.00     | Range: 50.0 - 150.0% |                |          | Recovery = 102.6% |               |
| 13C6-PFDA               | 8.004                | 519.1 -> 474.1 | 15881    | 1.23 µg/L         | 0.000         |
| Spiked Amount: 1.25     | Range: 50.0 - 150.0% |                |          | Recovery = 98.2%  |               |
| 13C7-PFUnDA             | 8.448                | 570.0 -> 525.1 | 18876    | 1.24 µg/L         | 0.000         |
| Spiked Amount: 1.25     | Range: 50.0 - 150.0% |                |          | Recovery = 99.0%  |               |
| 13C8-FOSA               | 9.794                | 506.1 -> 77.8  | 12630    | 2.33 µg/L         | 0.000         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 93.2%  |               |
| 13C8-PFOA               | 6.976                | 421.1 -> 376.0 | 59183    | 2.50 µg/L         | 0.000         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 100.0% |               |
| 13C8-PFOS               | 8.130                | 507.1 -> 79.9  | 9441     | 2.23 µg/L         | 0.012         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 89.2%  |               |
| 13C9-PFNA               | 7.521                | 472.1 -> 427.0 | 23873    | 1.30 µg/L         | 0.000         |
| Spiked Amount: 1.25     | Range: 50.0 - 150.0% |                |          | Recovery = 103.9% |               |
| d3-MeFOSAA              | 8.086                | 573.2 -> 419.0 | 21416    | 4.61 µg/L         | 0.000         |
| Spiked Amount: 5.00     | Range: 50.0 - 150.0% |                |          | Recovery = 92.2%  |               |
| 13C3-HFPO-DA            | 5.689                | 286.9 -> 168.9 | 38099    | 10.16 µg/L        | 0.000         |
| Spiked Amount: 10.00    | Range: 50.0 - 150.0% |                |          | Recovery = 101.6% |               |
| d3-MeFOSA               | 11.126               | 515.0 -> 219.0 | 7137     | 2.21 µg/L         | 0.000         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 88.3%  |               |
| d5-EtFOSAA              | 8.283                | 589.2 -> 419.0 | 18419    | 4.69 µg/L         | 0.000         |
| Spiked Amount: 5.00     | Range: 50.0 - 150.0% |                |          | Recovery = 93.8%  |               |
| d7-MeFOSE               | 11.022               | 623.2 -> 58.9  | 65137    | 24.35 µg/L        | 0.000         |
| Spiked Amount: 25.00    | Range: 50.0 - 150.0% |                |          | Recovery = 97.4%  |               |
| d9-EtFOSE               | 11.319               | 639.2 -> 58.9  | 73150    | 24.42 µg/L        | 0.000         |
| Spiked Amount: 25.00    | Range: 50.0 - 150.0% |                |          | Recovery = 97.7%  |               |
| d5-EtFOSA               | 11.398               | 531.1 -> 219.0 | 8372     | 2.36 µg/L         | 0.000         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 94.4%  |               |
| <b>Target Compounds</b> |                      |                |          |                   | <b>QValue</b> |
| 4:2FTS                  | 5.059                | 327.1 -> 307.0 | 43767    | 19.96 µg/L        | 100           |
|                         |                      | 327.1 -> 80.9  | 18556    |                   |               |
| 6:2FTS                  | 6.761                | 427.1 -> 407.0 | 60624    | 19.31 µg/L        | 99            |
|                         |                      | 427.1 -> 80.9  | 21764    |                   |               |
| 8:2FTS                  | 7.804                | 527.1 -> 507.0 | 43403    | 21.84 µg/L        | 96            |
|                         |                      | 527.1 -> 80.8  | 16556    |                   |               |
| EtFOSAA                 | 8.297                | 584.2 -> 419.1 | 16233    | 4.83 µg/L         | 84            |
|                         |                      | 584.2 -> 526.0 | 6652     |                   |               |
| FOSA                    | 9.798                | 498.1 -> 77.9  | 28011    | 4.93 µg/L         | 99            |
|                         |                      | 498.1 -> 478.0 | 862      |                   |               |
| MeFOSAA                 | 8.087                | 570.1 -> 419.0 | 17325    | 5.64 µg/L         | 95            |
|                         |                      | 570.1 -> 483.0 | 3214     |                   |               |
| PFBA                    | 2.707                | 212.8 -> 168.9 | 75189    | 20.29 µg/L        | 100           |
| PFBS                    | 5.203                | 298.7 -> 79.9  | 14321    | 4.28 µg/L         | 96            |
|                         |                      | 298.7 -> 98.8  | 5421     |                   |               |
| PFDA                    | 8.005                | 512.9 -> 469.0 | 58938    | 5.05 µg/L         | 99            |
|                         |                      | 512.9 -> 219.0 | 12040    |                   |               |
| PFDODA                  | 8.880                | 613.1 -> 569.0 | 81092    | 5.25 µg/L         | 98            |
|                         |                      | 613.1 -> 319.0 | 14458    |                   |               |
| PFDS                    | 9.020                | 599.0 -> 79.9  | 12720    | 5.06 µg/L         | 95            |

## Perfluorinated Compounds by LC/MS/MS

| Compound     | RT     | Transition     | Response | Conc.  | Units | Dev(Min) |
|--------------|--------|----------------|----------|--------|-------|----------|
|              |        | 599.0 -> 98.8  | 6206     |        |       |          |
| PFHpA        | 6.293  | 363.1 -> 319.0 | 106074   | 5.11   | µg/L  | 99       |
|              |        | 363.1 -> 169.0 | 19185    |        |       |          |
| PFHpS        | 7.624  | 449.0 -> 79.9  | 19003    | 5.07   | µg/L  | 97       |
|              |        | 449.0 -> 98.9  | 9558     |        |       |          |
| PFHxA        | 5.350  | 313.0 -> 269.0 | 60669    | 4.96   | µg/L  | 99       |
|              |        | 313.0 -> 118.9 | 1879     |        |       |          |
| PFHxS        | 7.043  | 398.7 -> 79.9  | 12975    | 4.68   | µg/L  | m 93     |
|              |        | 398.7 -> 98.9  | 6777     |        |       |          |
| PFNA         | 7.522  | 463.0 -> 419.0 | 67735    | 4.83   | µg/L  | 99       |
|              |        | 463.0 -> 219.0 | 15992    |        |       |          |
| PFNS         | 8.586  | 548.8 -> 79.9  | 9182     | 5.70   | µg/L  | 97       |
|              |        | 548.8 -> 98.9  | 4702     |        |       |          |
| PFOA         | 6.978  | 413.0 -> 369.0 | 123853   | 5.09   | µg/L  | 96       |
|              |        | 413.0 -> 169.0 | 25527    |        |       |          |
| PFOS         | 8.119  | 498.9 -> 79.9  | 17969    | 4.57   | µg/L  | m 56     |
|              |        | 498.9 -> 98.8  | 8931     |        |       |          |
| PFPeA        | 4.177  | 263.0 -> 219.0 | 95420    | 10.11  | µg/L  | 100      |
| PFPeS        | 6.282  | 349.1 -> 79.9  | 12775    | 4.89   | µg/L  | 96       |
|              |        | 349.1 -> 98.9  | 5704     |        |       |          |
| PFTeDA       | 9.650  | 713.1 -> 669.0 | 78056    | 5.10   | µg/L  | 100      |
|              |        | 713.1 -> 168.9 | 8142     |        |       |          |
| PFTrDA       | 9.279  | 663.0 -> 619.0 | 89935    | 5.36   | µg/L  | 98       |
|              |        | 663.0 -> 168.9 | 12659    |        |       |          |
| PFUnDA       | 8.449  | 563.1 -> 519.0 | 73145    | 5.33   | µg/L  | 100      |
|              |        | 563.1 -> 269.1 | 15643    |        |       |          |
| 11Cl-PF3OUdS | 9.306  | 630.9 -> 450.9 | 103918   | 9.91   | µg/L  | 99       |
|              |        | 632.9 -> 452.9 | 31700    |        |       |          |
| 9Cl-PF3ONS   | 8.451  | 530.8 -> 351.0 | 106727   | 10.07  | µg/L  | 99       |
|              |        | 532.8 -> 353.0 | 31589    |        |       |          |
| ADONA        | 6.568  | 376.9 -> 250.9 | 276896   | 10.76  | µg/L  | 100      |
|              |        | 376.9 -> 84.8  | 66459    |        |       |          |
| HFPO-DA      | 5.703  | 284.9 -> 168.9 | 37346    | 10.24  | µg/L  | 100      |
|              |        | 284.9 -> 184.9 | 3523     |        |       |          |
| 3:3FTCA      | 3.630  | 241.0 -> 177.0 | 14438    | 24.50  | µg/L  | 100      |
|              |        | 241.0 -> 117.0 | 1281     |        |       |          |
| 5:3FTCA      | 6.020  | 341.0 -> 237.1 | 278851   | 127.94 | µg/L  | 99       |
|              |        | 341.0 -> 217.0 | 196397   |        |       |          |
| 7:3FTCA      | 7.536  | 441.0 -> 316.9 | 147863   | 129.37 | µg/L  | 99       |
|              |        | 441.0 -> 336.9 | 349156   |        |       |          |
| EtFOSA       | 11.399 | 526.0 -> 219.0 | 34857    | 9.78   | µg/L  | 99       |
|              |        | 526.0 -> 169.0 | 47749    |        |       |          |
| EtFOSE       | 11.332 | 630.0 -> 58.9  | 63268    | 24.44  | µg/L  | 100      |
| MeFOSA       | 11.128 | 511.9 -> 219.0 | 27417    | 10.79  | µg/L  | m 96     |
|              |        | 511.9 -> 169.0 | 39213    |        |       |          |
| MeFOSE       | 11.035 | 616.1 -> 58.9  | 62759    | 24.28  | µg/L  | 100      |
| PFDoDS       | 9.777  | 699.1 -> 79.9  | 9723     | 5.07   | µg/L  | 97       |
|              |        | 699.1 -> 98.8  | 5323     |        |       |          |
| NFDHA        | 5.229  | 295.0 -> 201.0 | 8221     | 9.50   | µg/L  | 96       |
|              |        | 295.0 -> 84.9  | 2314     |        |       |          |
| PFMBA        | 4.578  | 279.0 -> 85.1  | 52322    | 10.06  | µg/L  | 100      |
| PFMPA        | 3.332  | 229.0 -> 84.9  | 57711    | 10.10  | µg/L  | 100      |
| PFEESA       | 5.722  | 314.8 -> 134.9 | 83341    | 9.23   | µg/L  | 98       |
|              |        | 314.8 -> 82.9  | 2820     |        |       |          |

# = Qualifier out of range, m = manually integrated, + = Area summed



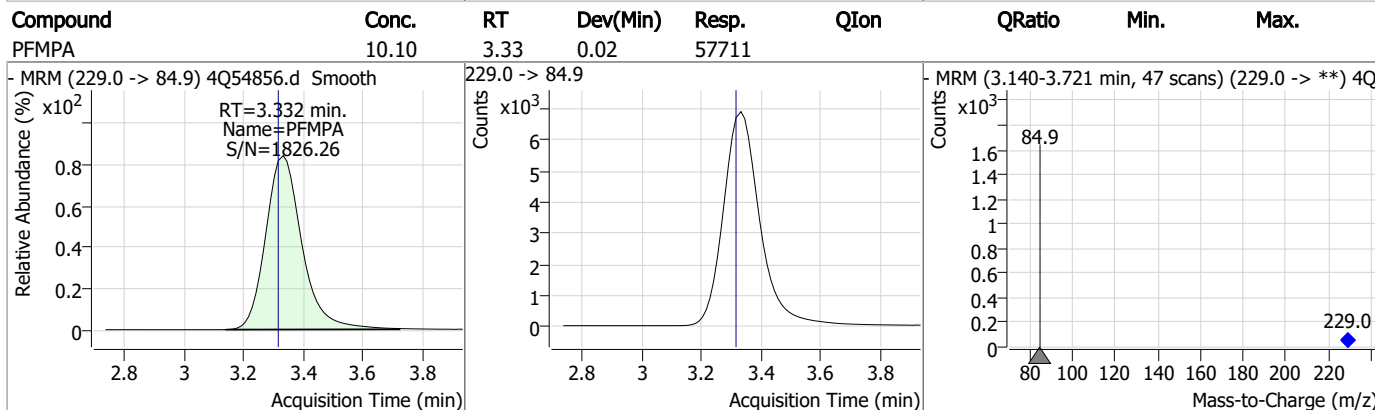
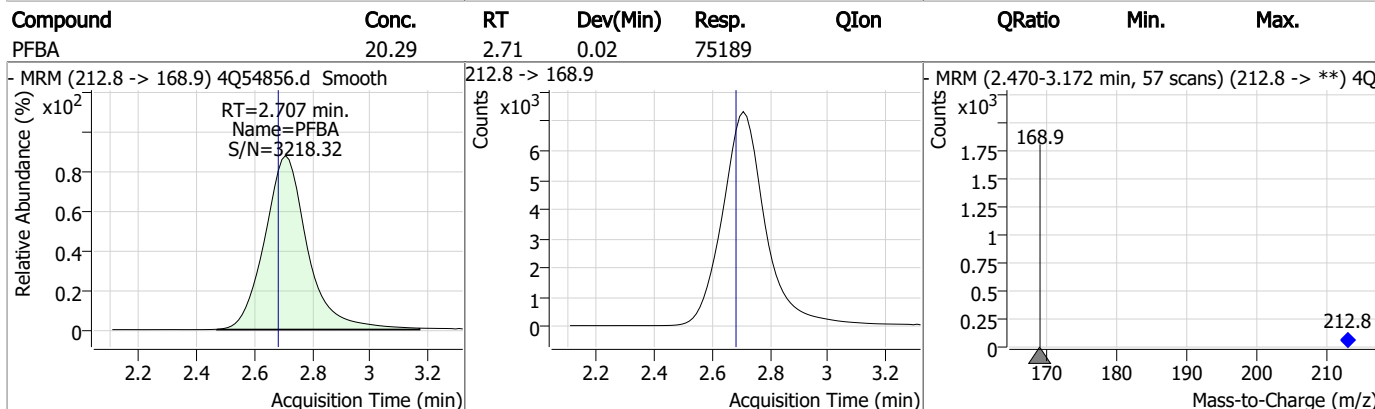
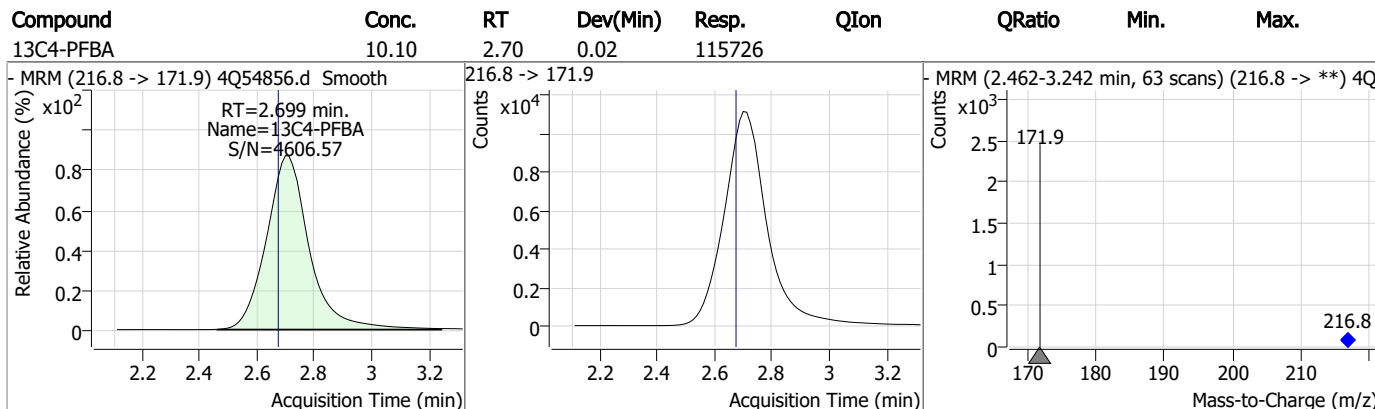
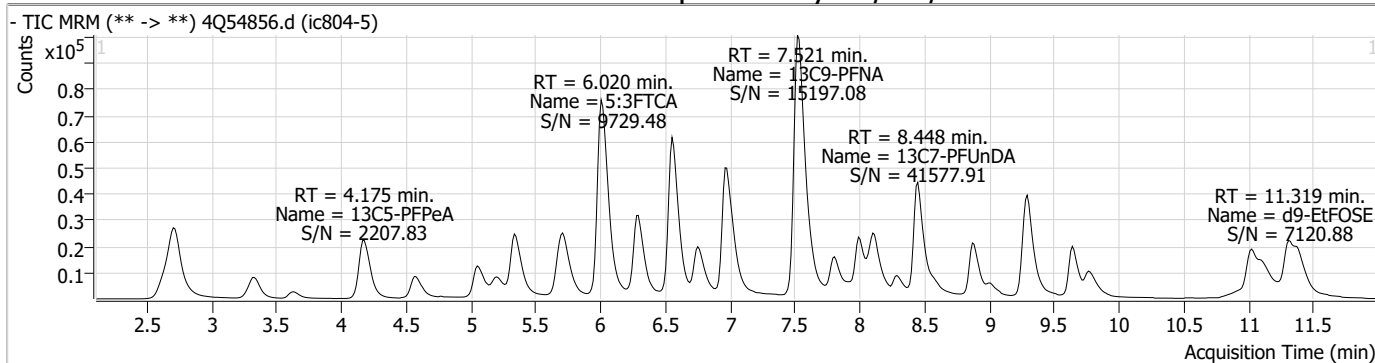
### Perfluorinated Compounds by LC/MS/MS

| Compound | RT | Transition | Response | Conc. Units | Dev(Min) |
|----------|----|------------|----------|-------------|----------|
|----------|----|------------|----------|-------------|----------|

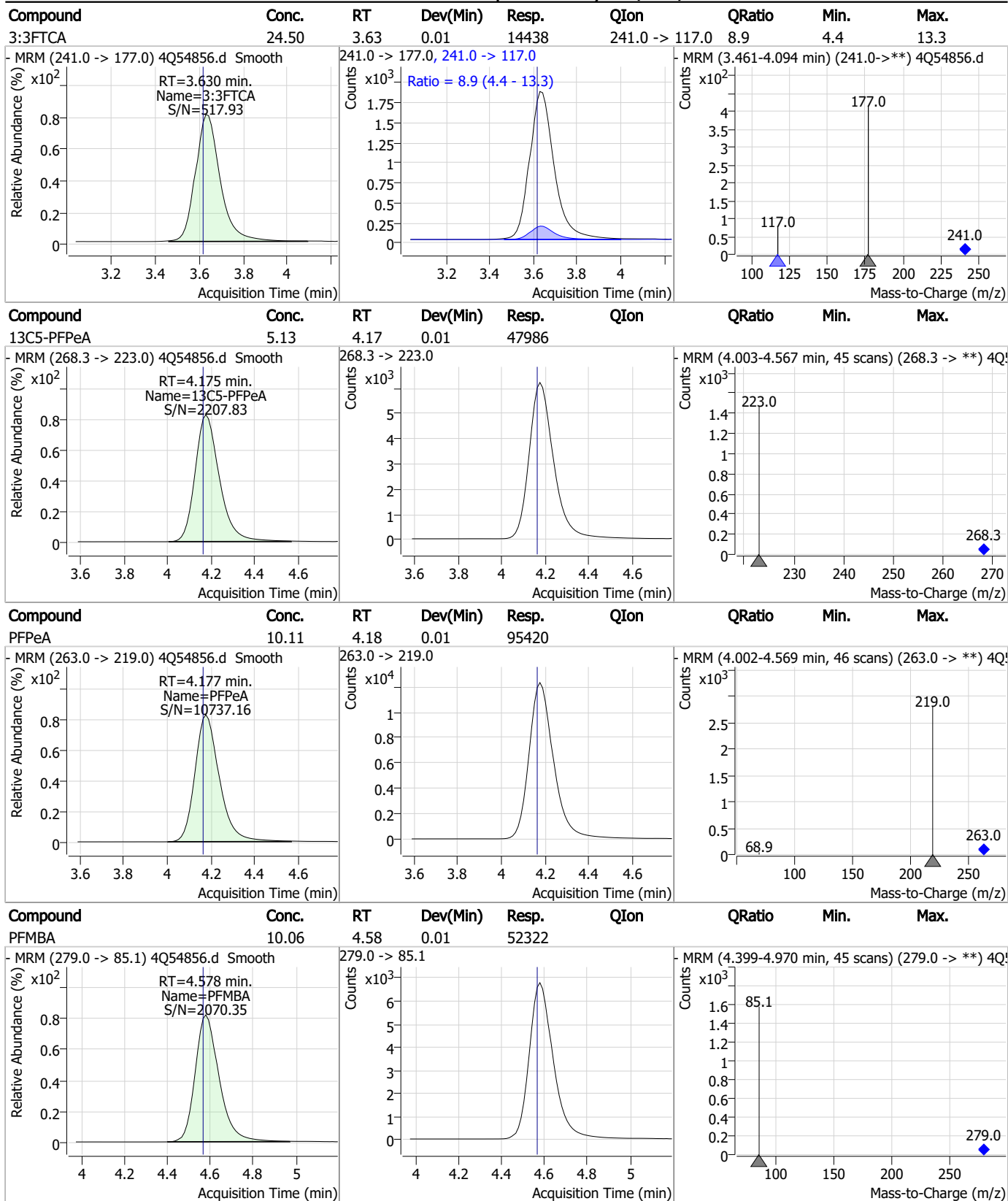
7.7.6

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### Perfluorinated Compounds by LC/MS/MS

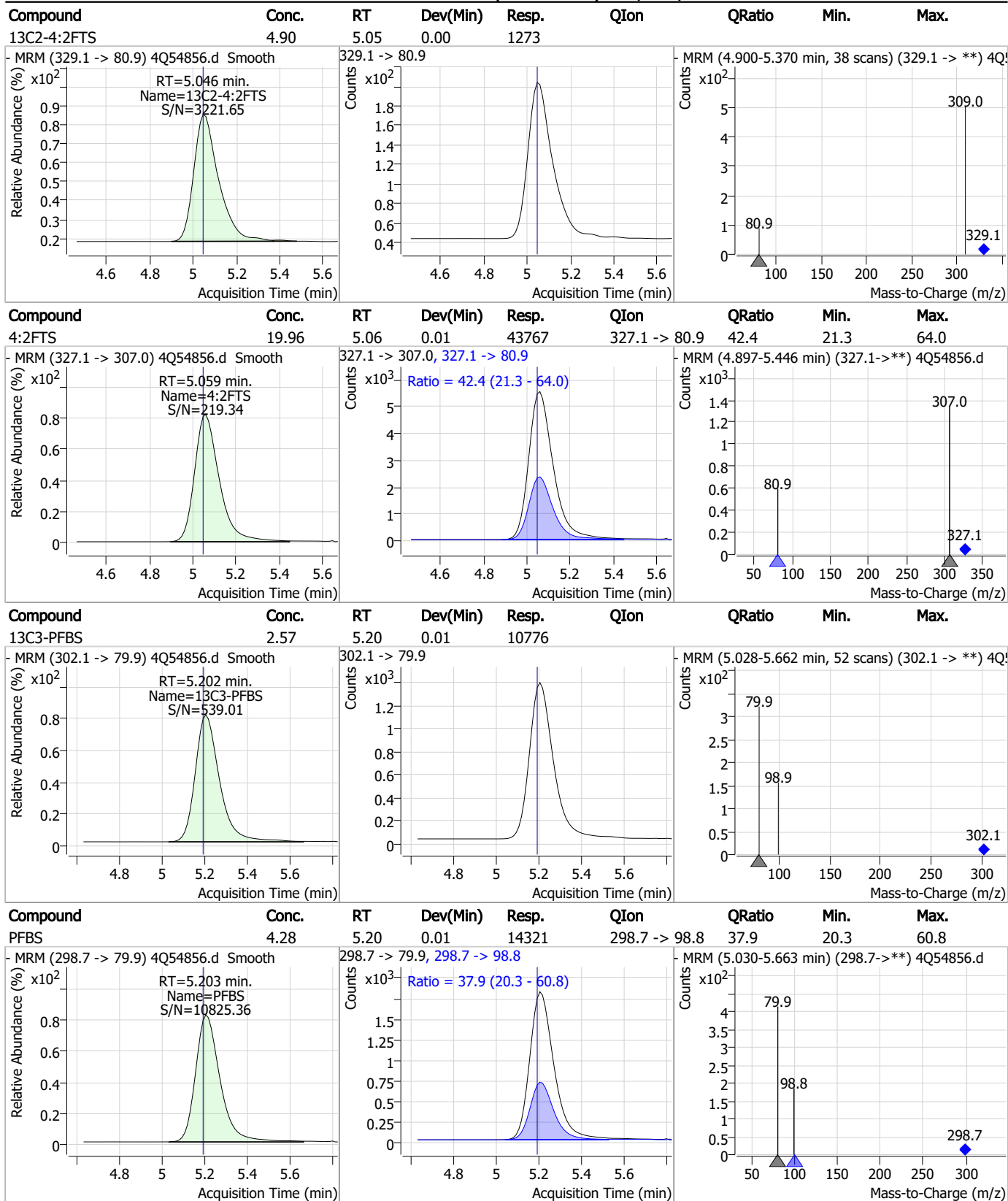


### Perfluorinated Compounds by LC/MS/MS



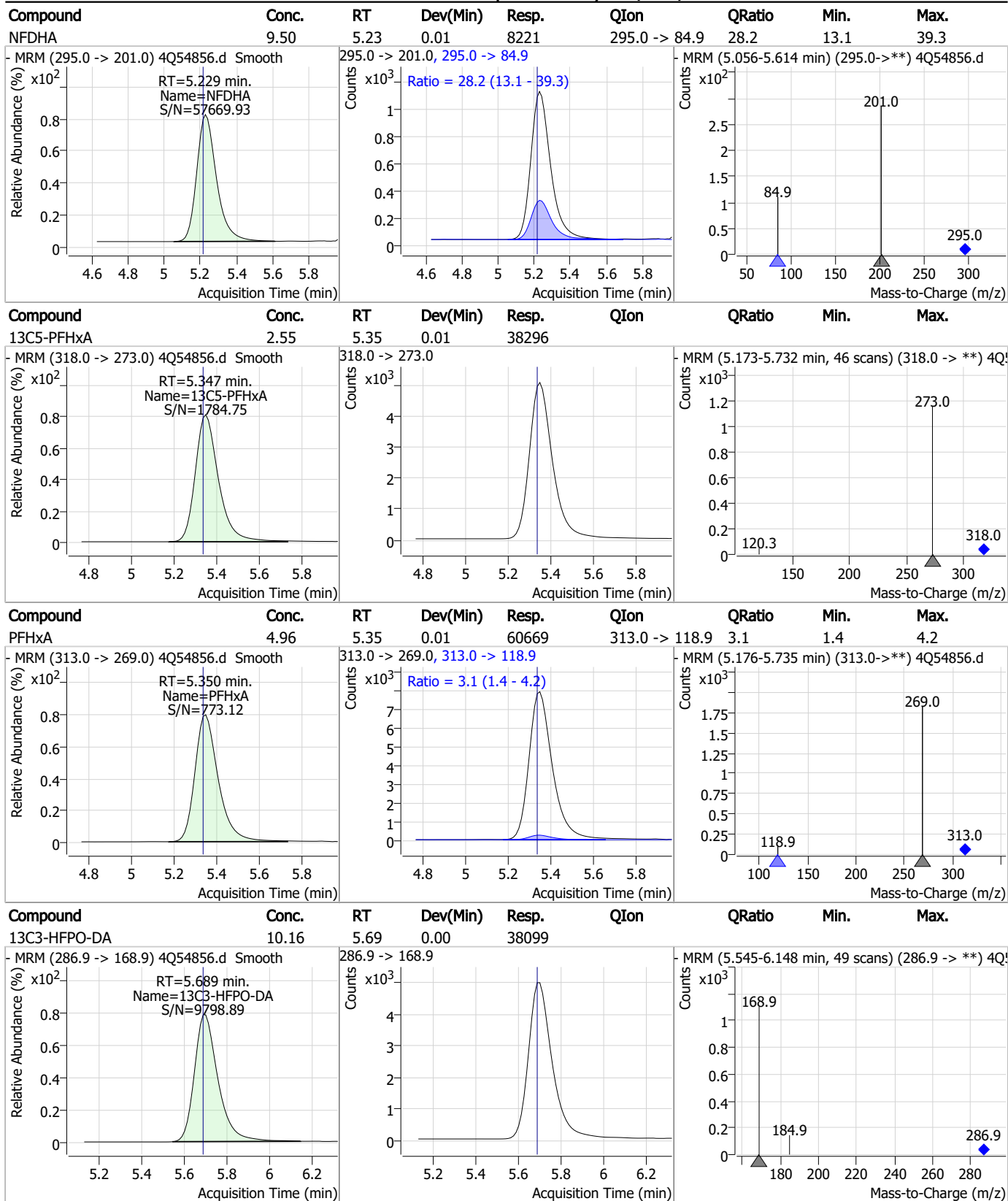
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### Perfluorinated Compounds by LC/MS/MS



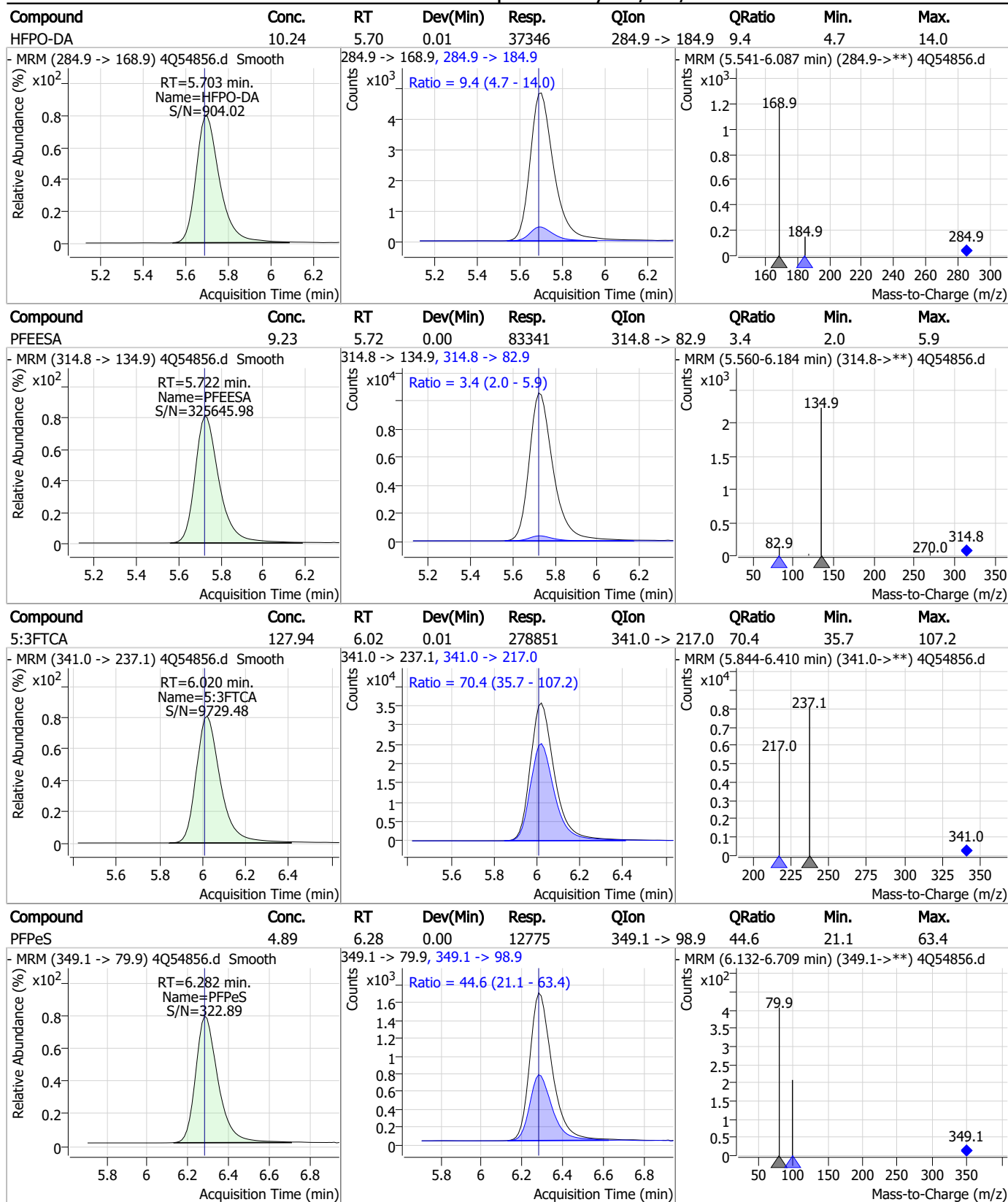
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### Perfluorinated Compounds by LC/MS/MS



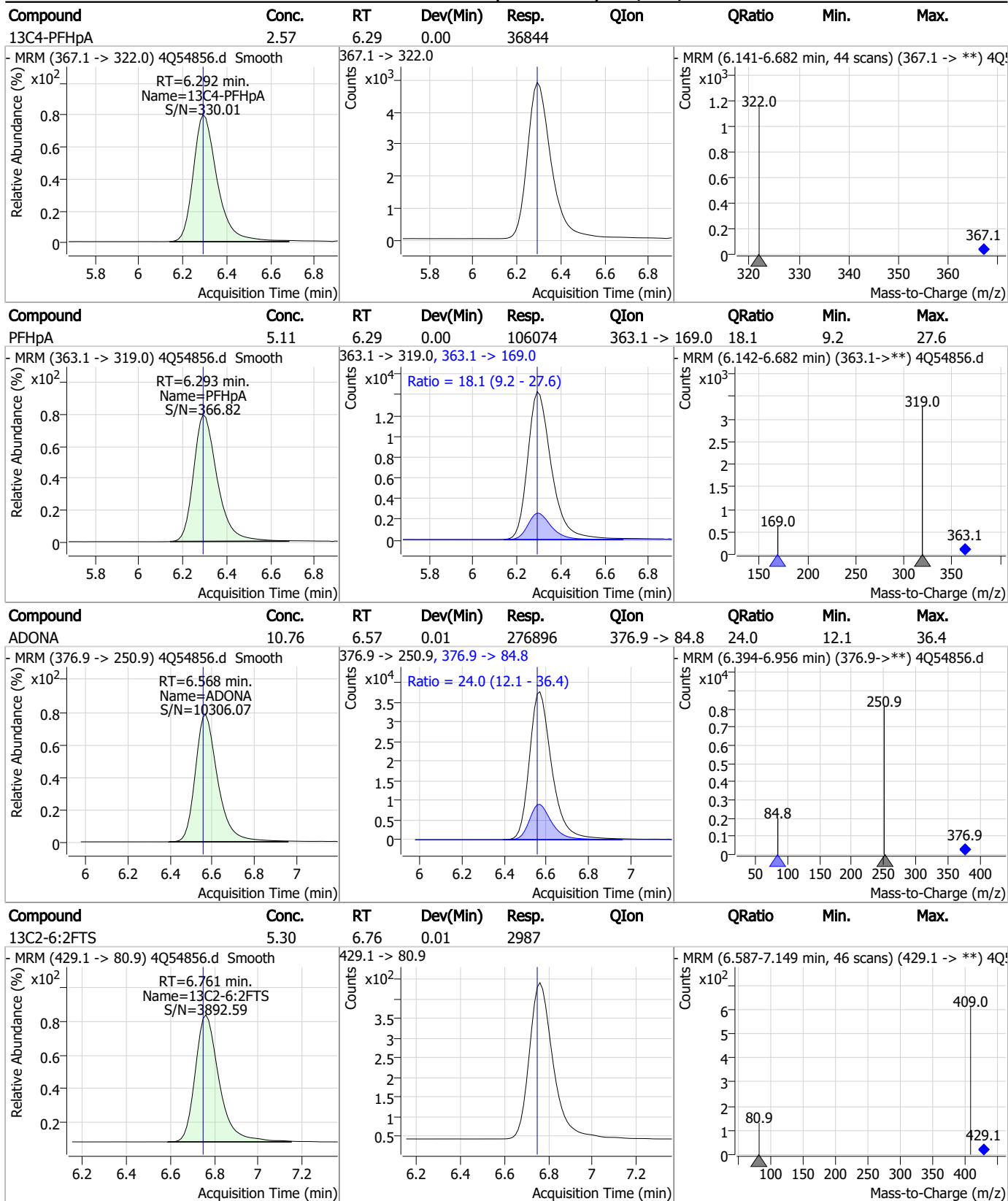
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### Perfluorinated Compounds by LC/MS/MS



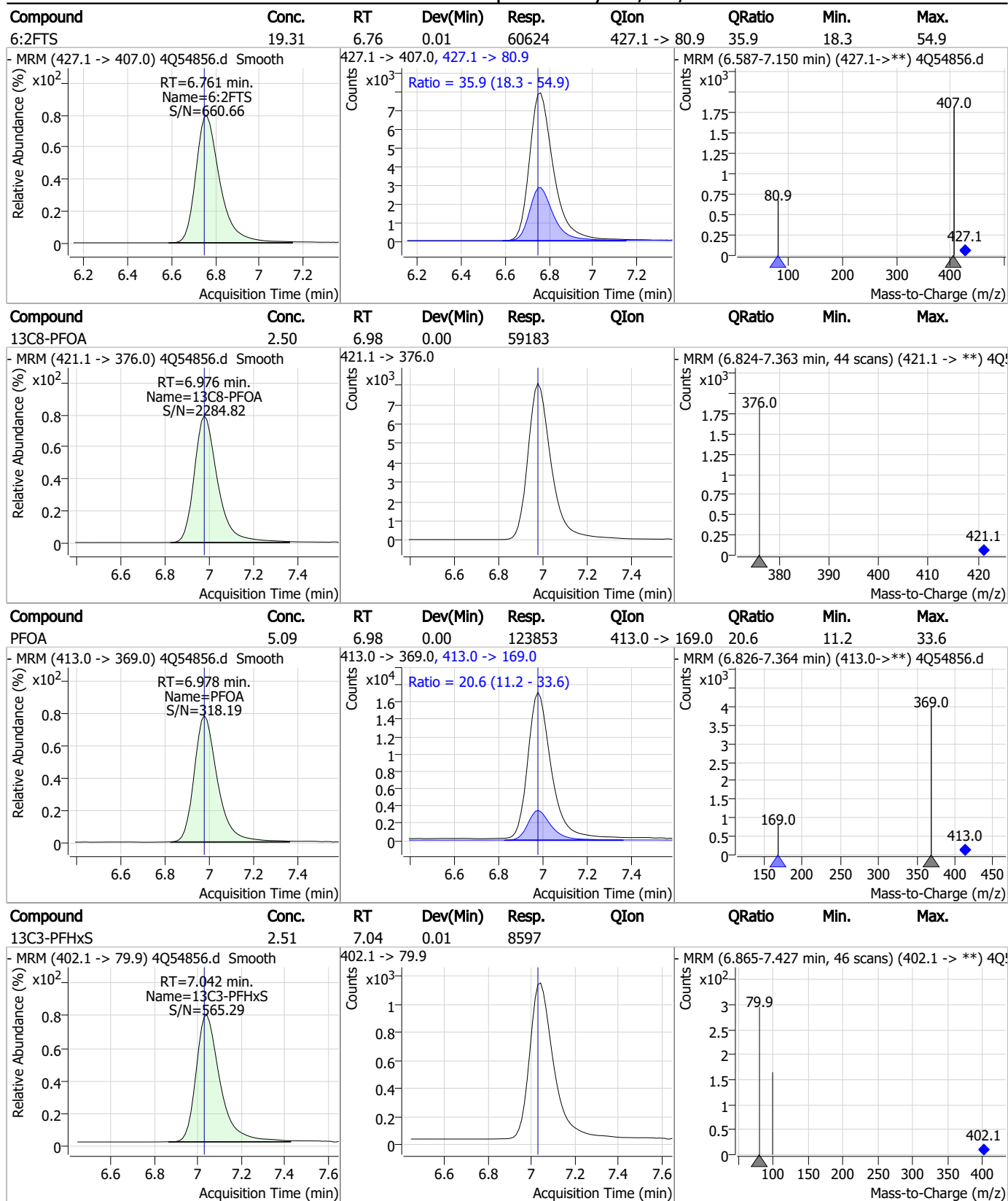
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### Perfluorinated Compounds by LC/MS/MS



7.7.6  
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### Perfluorinated Compounds by LC/MS/MS

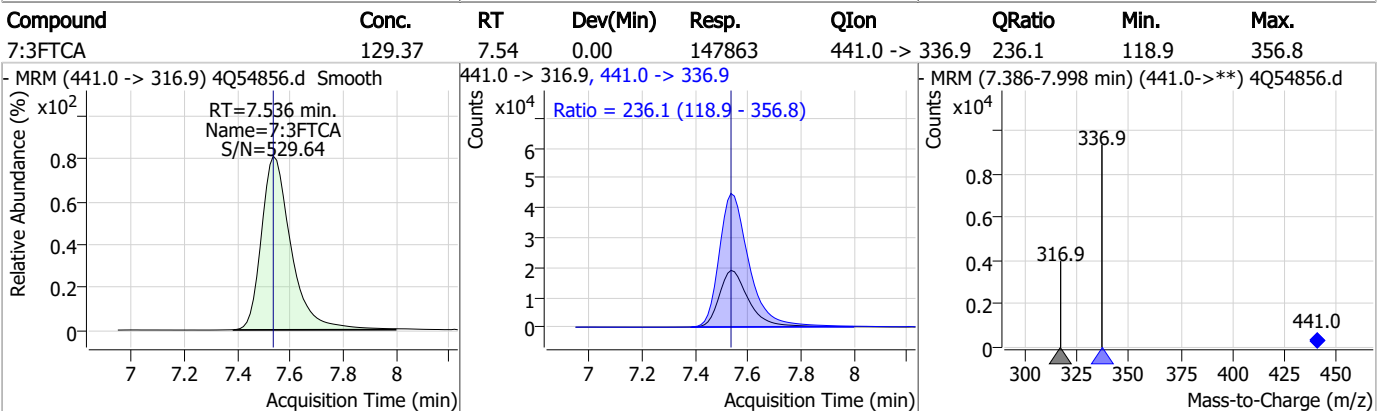
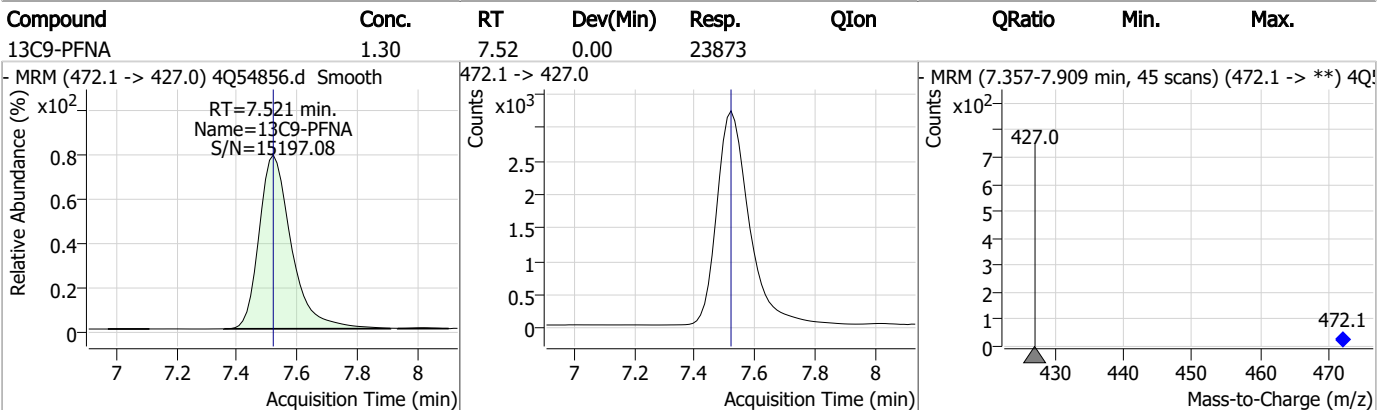
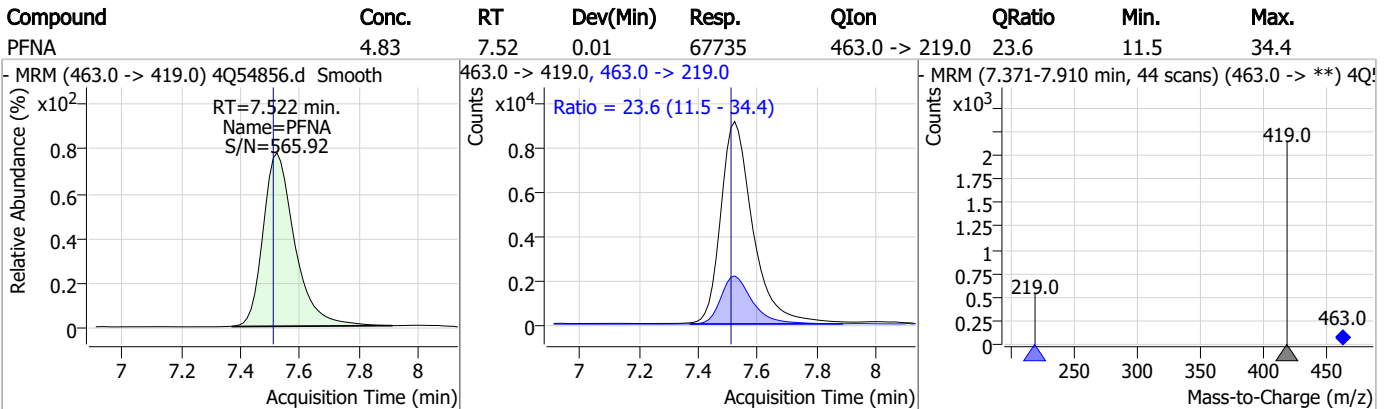
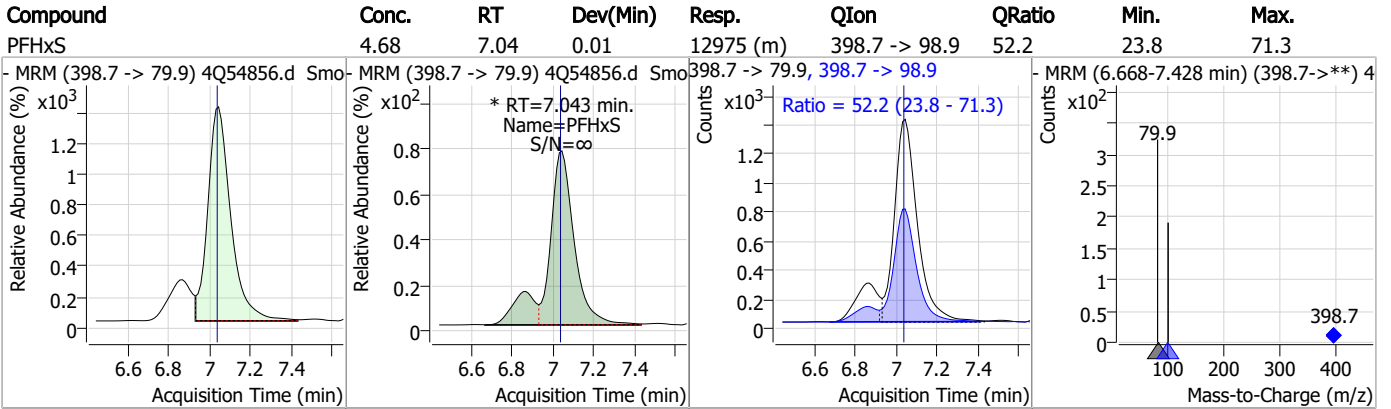


7.7.6

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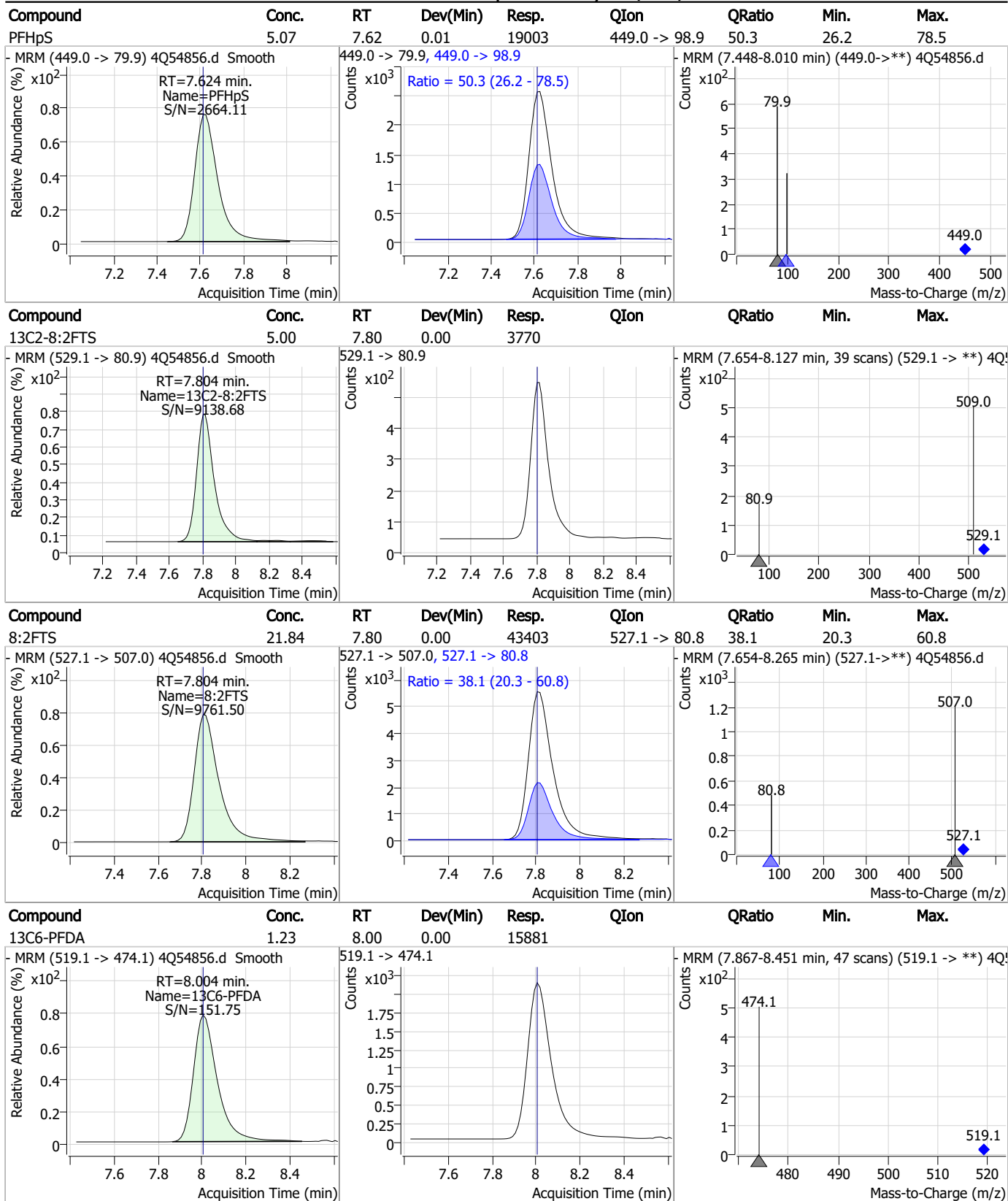
### Perfluorinated Compounds by LC/MS/MS



7.7.6

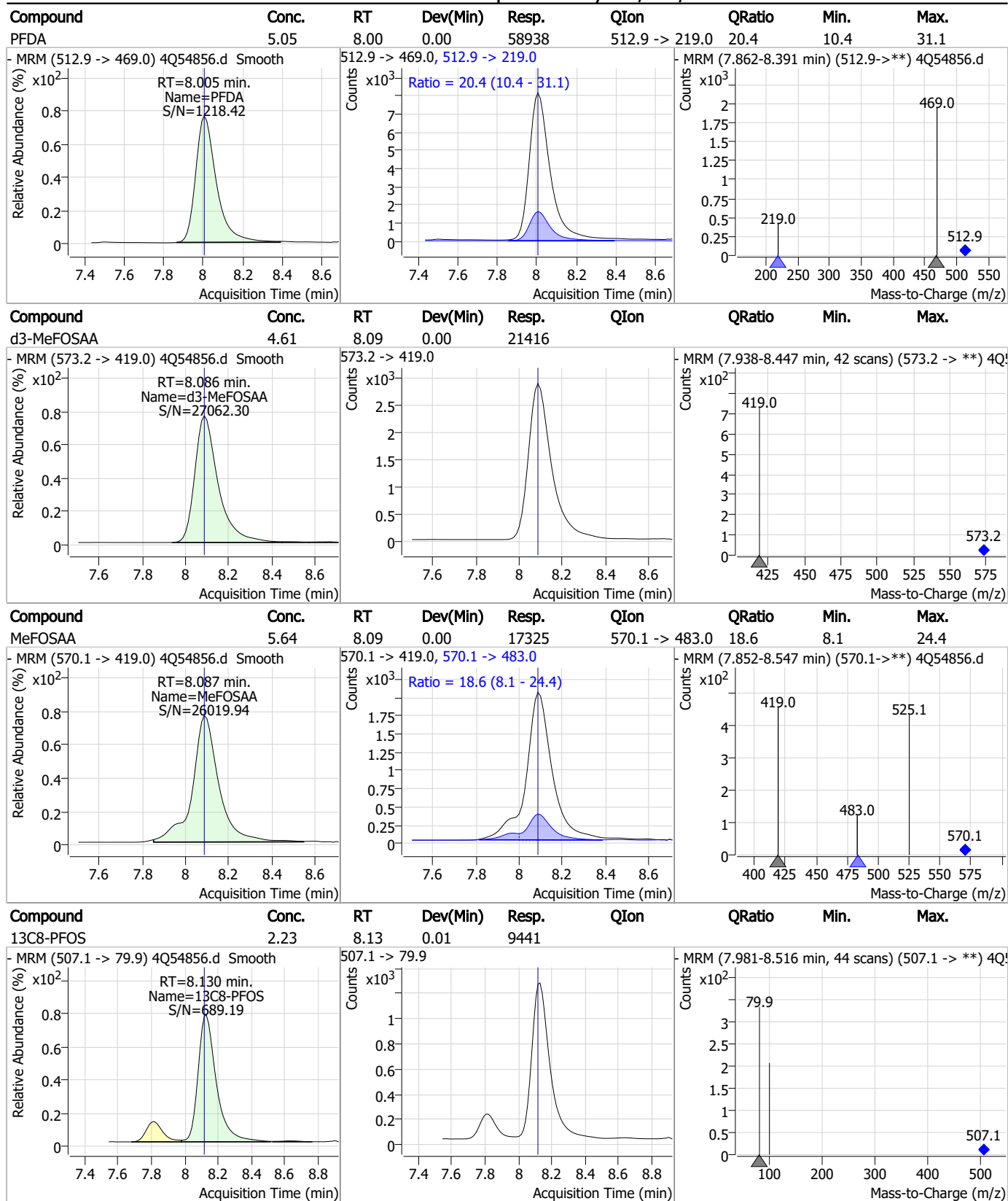
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### Perfluorinated Compounds by LC/MS/MS



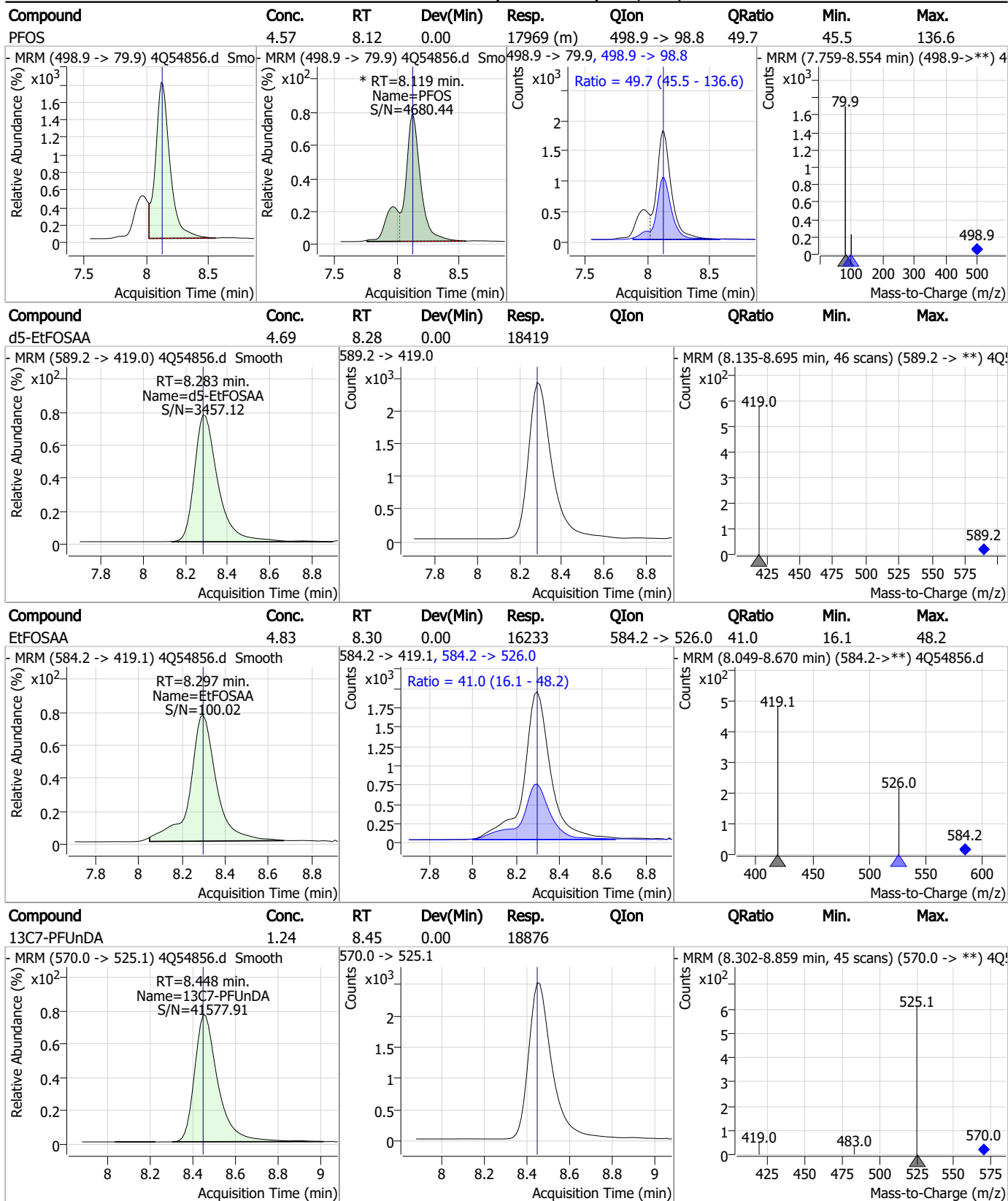
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### Perfluorinated Compounds by LC/MS/MS



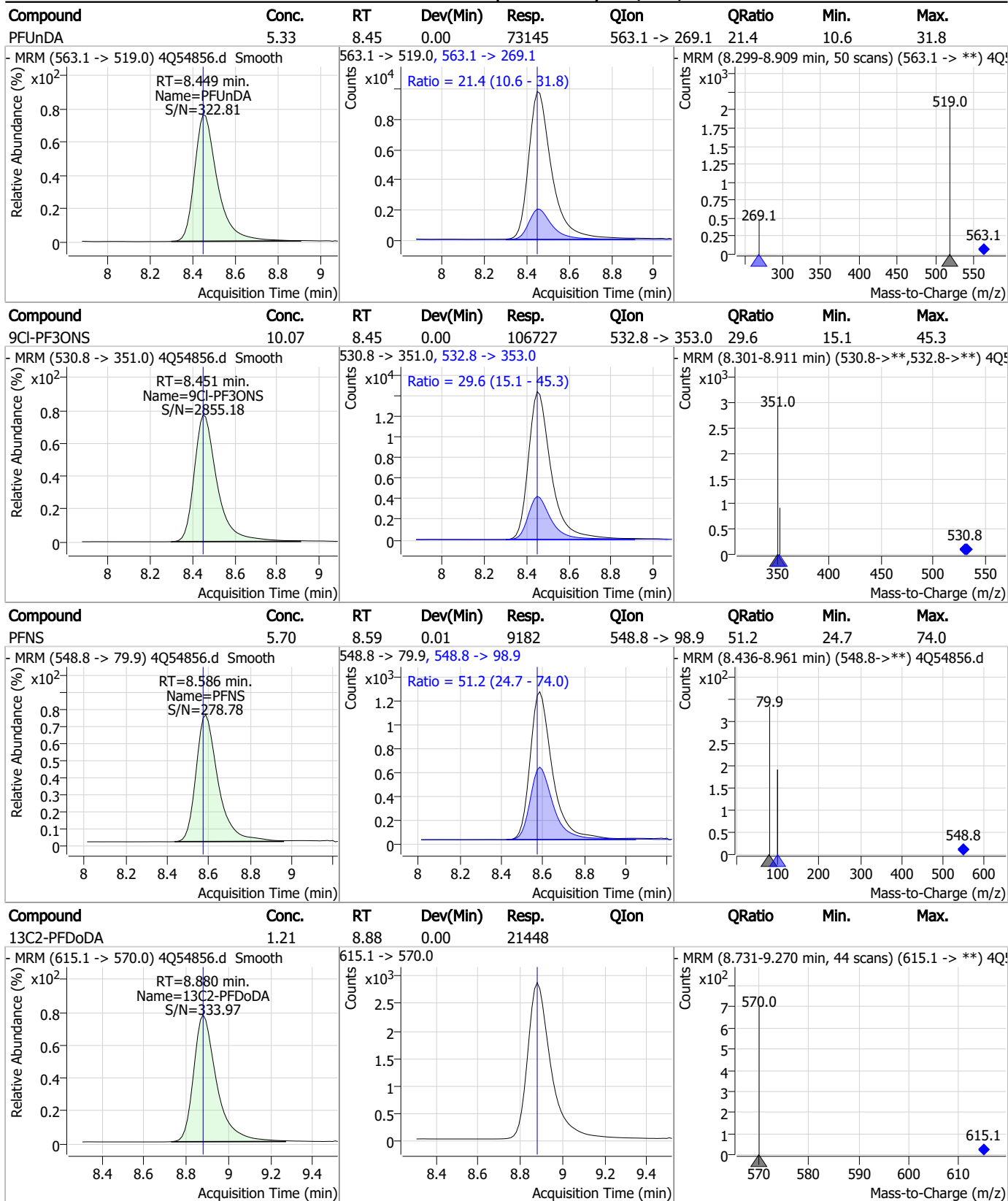
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### Perfluorinated Compounds by LC/MS/MS



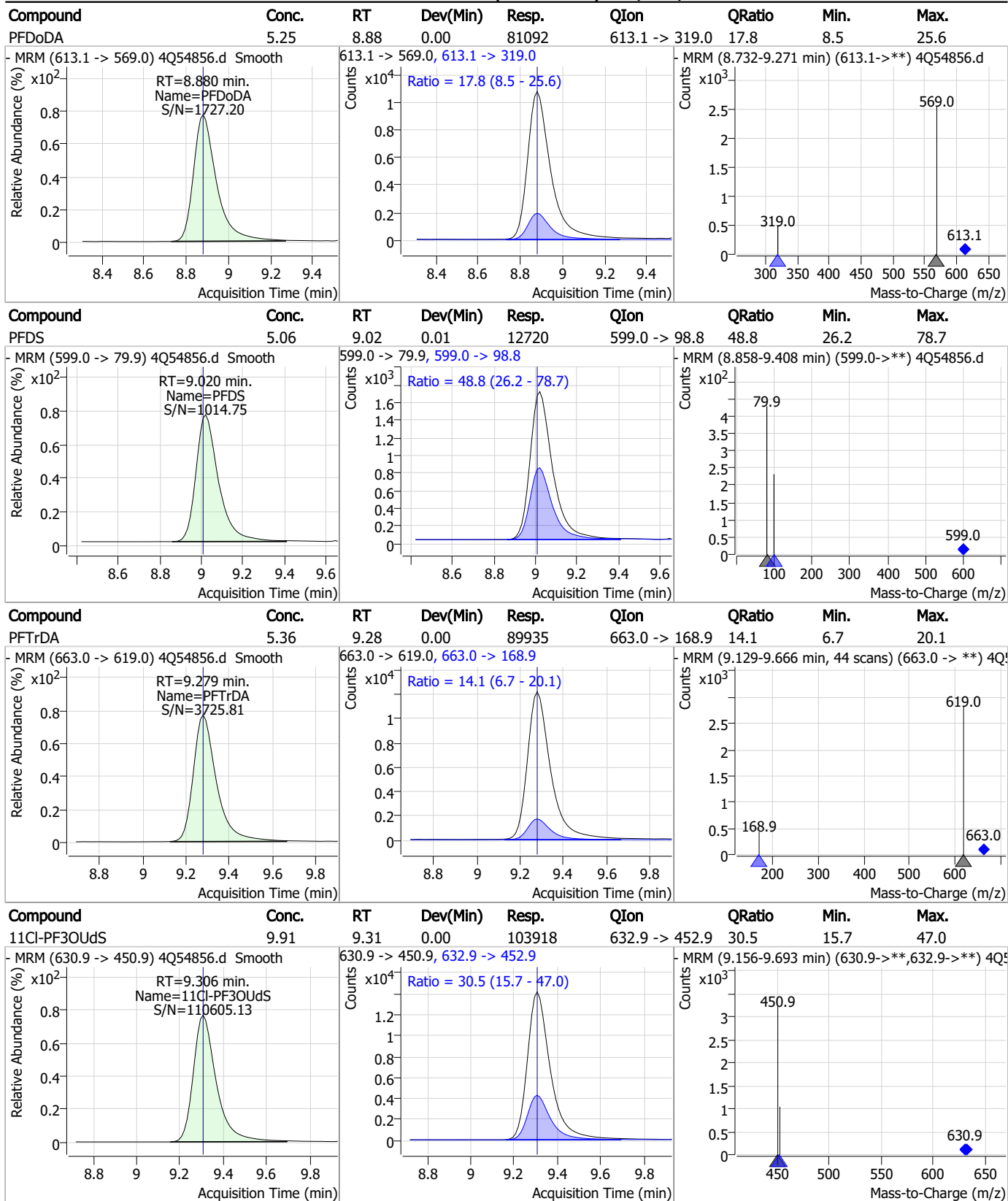
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### Perfluorinated Compounds by LC/MS/MS



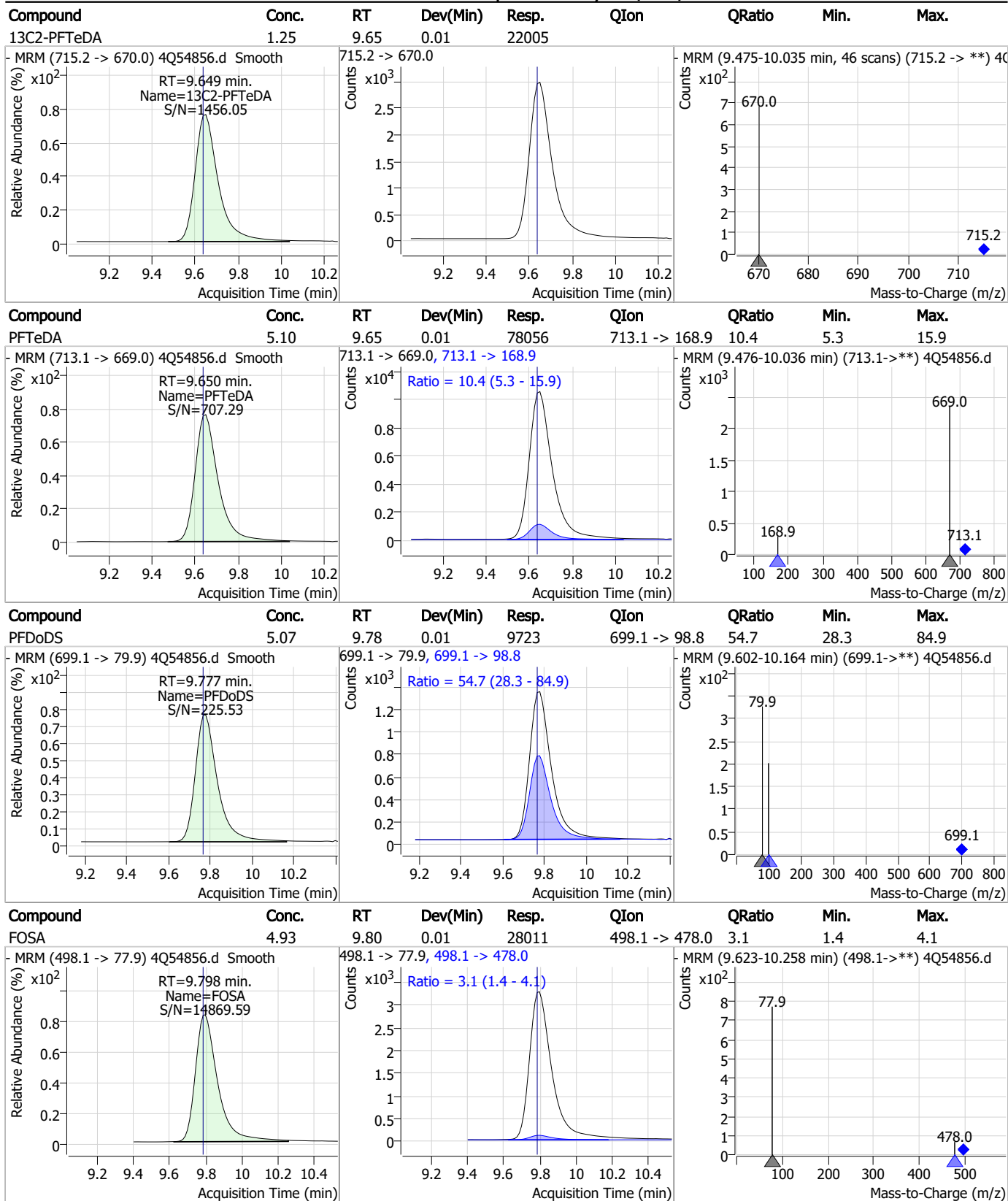
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### Perfluorinated Compounds by LC/MS/MS



7.7.6  
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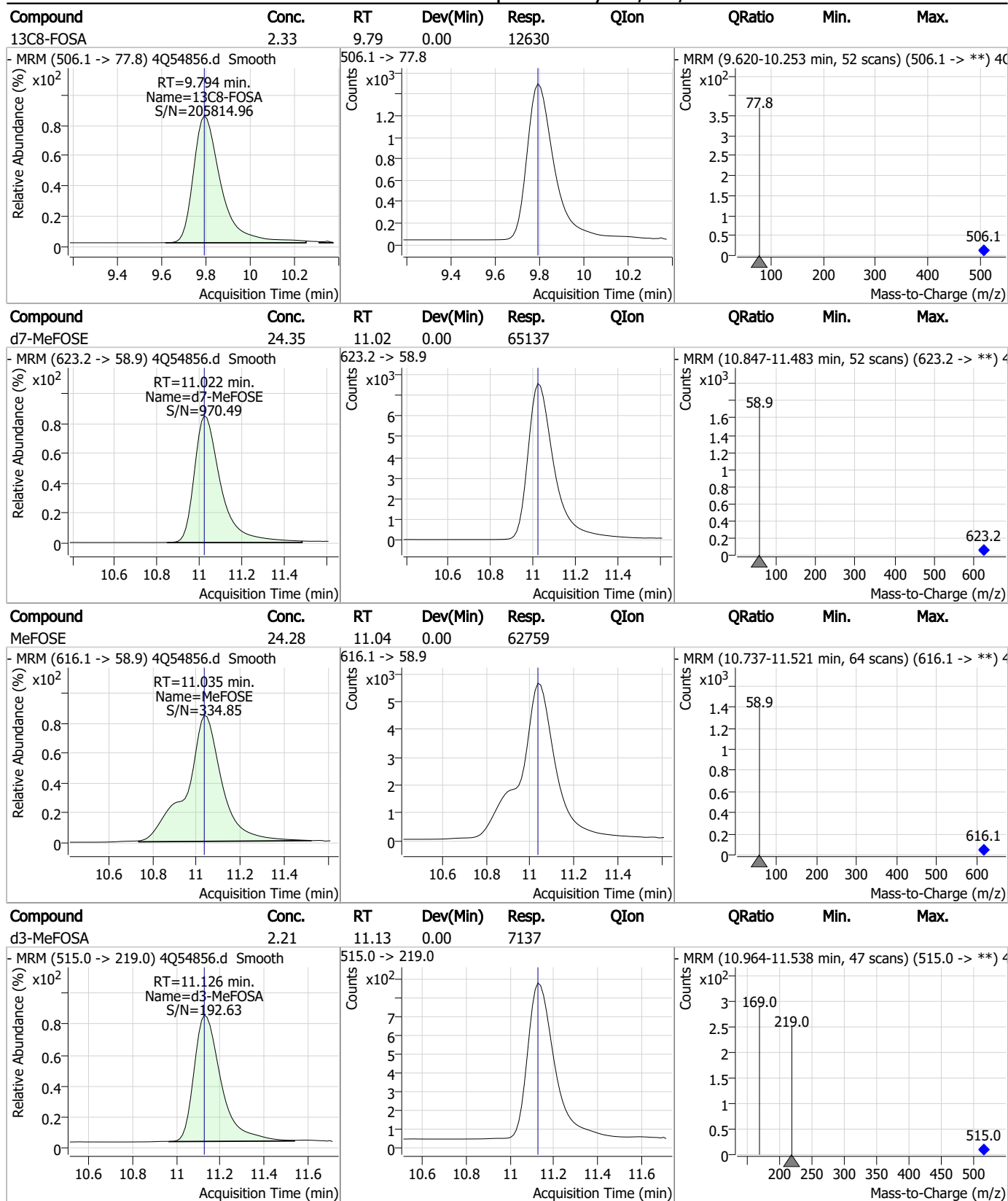
### Perfluorinated Compounds by LC/MS/MS



7.7.6  
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### Perfluorinated Compounds by LC/MS/MS



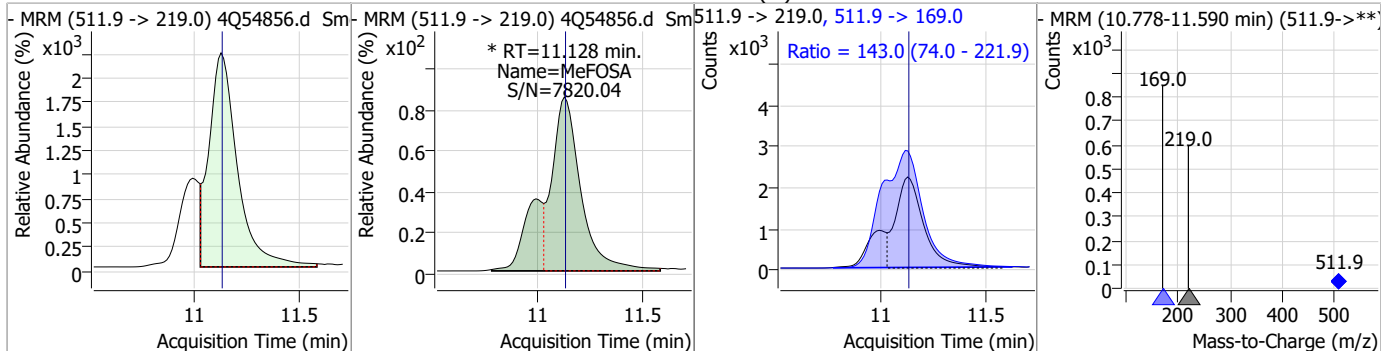
7.7.6

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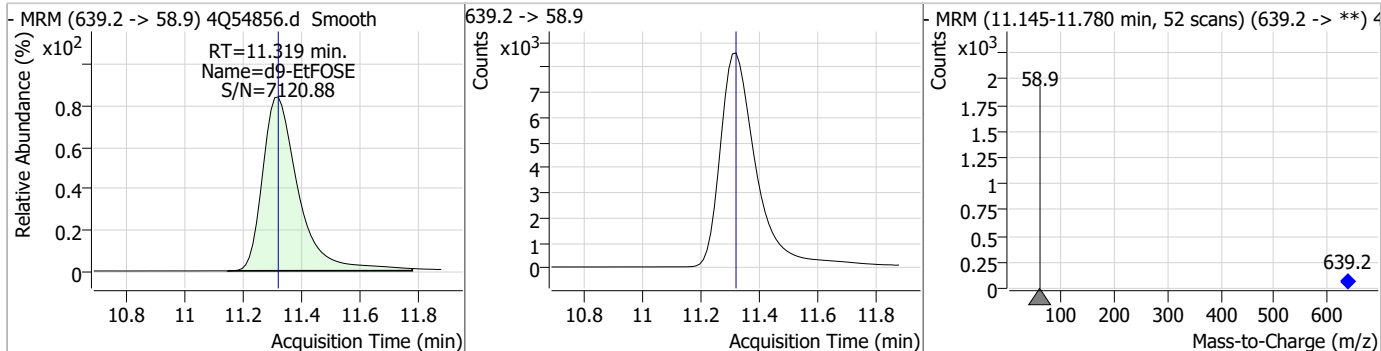


### Perfluorinated Compounds by LC/MS/MS

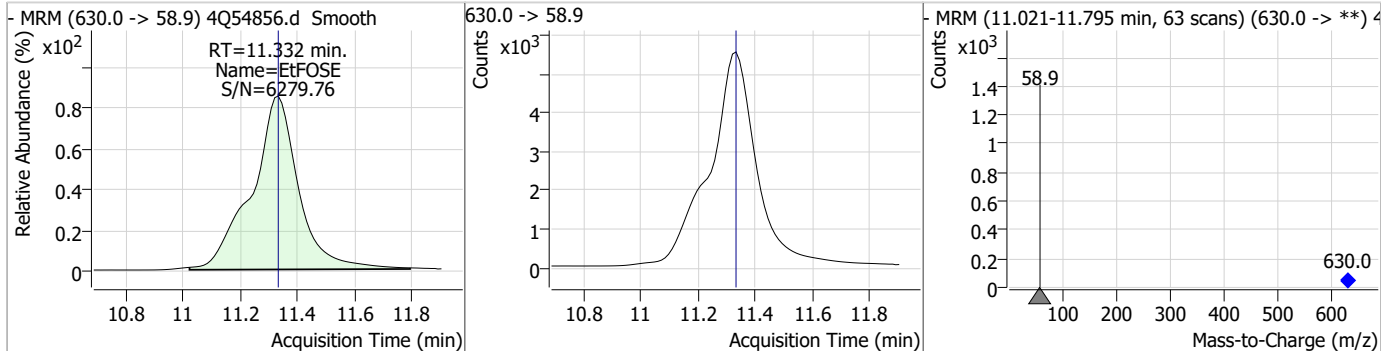
| Compound | Conc. | RT    | Dev(Min) | Resp.     | QIon           | QRatio | Min. | Max.  |
|----------|-------|-------|----------|-----------|----------------|--------|------|-------|
| MeFOSA   | 10.79 | 11.13 | 0.00     | 27417 (m) | 511.9 -> 169.0 | 143.0  | 74.0 | 221.9 |



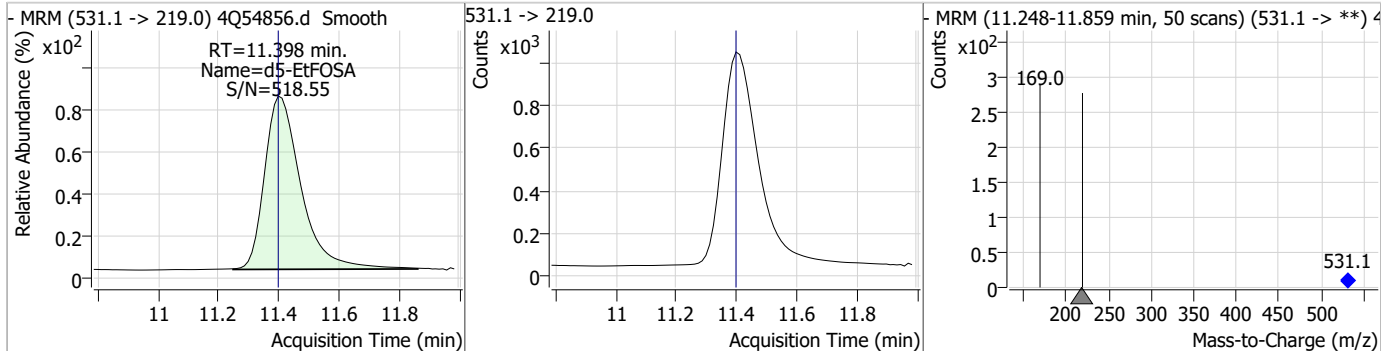
| Compound  | Conc. | RT    | Dev(Min) | Resp. | QIon | QRatio | Min. | Max. |
|-----------|-------|-------|----------|-------|------|--------|------|------|
| d9-EtFOSE | 24.42 | 11.32 | 0.00     | 73150 |      |        |      |      |



| Compound | Conc. | RT    | Dev(Min) | Resp. | QIon | QRatio | Min. | Max. |
|----------|-------|-------|----------|-------|------|--------|------|------|
| EtFOSE   | 24.44 | 11.33 | 0.00     | 63268 |      |        |      |      |



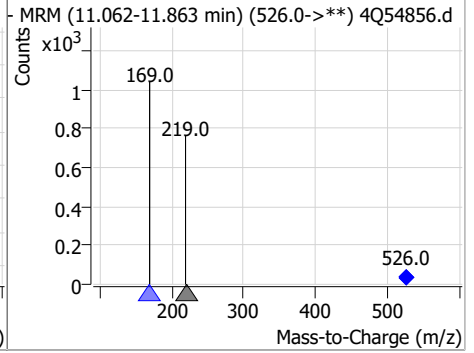
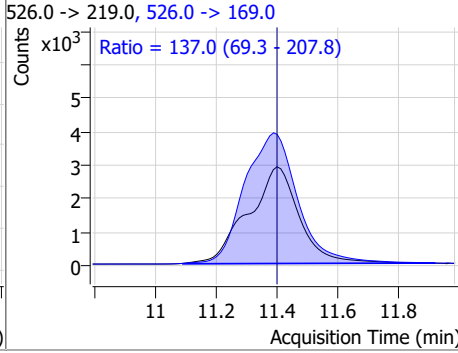
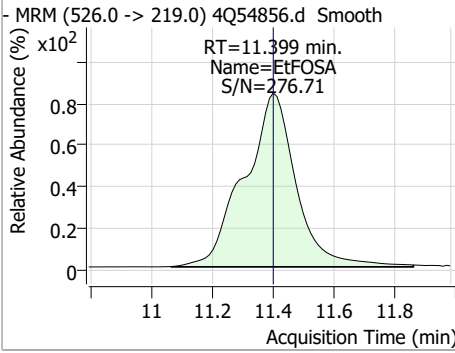
| Compound  | Conc. | RT    | Dev(Min) | Resp. | QIon | QRatio | Min. | Max. |
|-----------|-------|-------|----------|-------|------|--------|------|------|
| d5-EtFOSA | 2.36  | 11.40 | 0.00     | 8372  |      |        |      |      |



7.7.6  
7

Perfluorinated Compounds by LC/MS/MS

| Compound | Conc. | RT    | Dev(Min) | Resp. | QIon           | QRatio | Min. | Max.  |
|----------|-------|-------|----------|-------|----------------|--------|------|-------|
| EtFOSA   | 9.78  | 11.40 | 0.00     | 34857 | 526.0 -> 169.0 | 137.0  | 69.3 | 207.8 |



7.7.6

7

# Manual Integration Approval Summary

Sample Number: S4Q804-IC804      Method: EPA DRAFT 1633  
Lab FileID: 4Q54856.D      Analyst approved: 12/10/23 12:52 Anna Ludwig  
Injection Time: 12/08/23 12:37      Supervisor approved: 12/11/23 15:42 Natasha Gumtie

| Parameter                    | CAS        | Sig# | R.T.<br>(min.) | Reason     |
|------------------------------|------------|------|----------------|------------|
| Perfluorohexanesulfonic acid | 355-46-4   |      | 7.04           | Split peak |
| Perfluorooctanesulfonic acid | 1763-23-1  |      | 8.12           | Split peak |
| MeFOSA                       | 31506-32-8 |      | 11.13          | Split peak |

7.7.6.1

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## Perfluorinated Compounds by LC/MS/MS

Data File : 4Q54857.d  
 Operator : annal  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 12/8/2023 12:52:03 PM  
 Sample Name : ic804-6  
 Vial : P1-A7  
 DA Method File : 1633\_120823\_S4Q804.quantmethod.xml  
 Batch Name : s4q804.batch.bin  
 Sample Information : OP99999,S4Q804,500,,,5.0,1,water

| Compound                           | RT                   | Transition     | Response          | Conc. Units | Dev(Min) |
|------------------------------------|----------------------|----------------|-------------------|-------------|----------|
| <b>Internal Standards</b>          |                      |                |                   |             |          |
| M4-PFBA                            | 2.686                | 216.8 -> 171.9 | 94330             | 10.00 µg/L  | 0.012    |
| M5-PFPeA                           | 4.175                | 268.3 -> 223.0 | 40921             | 5.00 µg/L   | 0.012    |
| M5-PFHxA                           | 5.347                | 318.0 -> 273.0 | 32657             | 2.50 µg/L   | 0.012    |
| M4-PFHpA                           | 6.292                | 367.1 -> 322.0 | 30520             | 2.50 µg/L   | 0.000    |
| M8-PFOA                            | 6.976                | 421.1 -> 376.0 | 49387             | 2.50 µg/L   | 0.000    |
| M9-PFNA                            | 7.521                | 472.1 -> 427.0 | 19782             | 1.25 µg/L   | 0.000    |
| M6-PFDA                            | 8.004                | 519.1 -> 474.1 | 13327             | 1.25 µg/L   | 0.000    |
| M7-PFUnDA                          | 8.461                | 570.0 -> 525.1 | 15728             | 1.25 µg/L   | 0.012    |
| M2-PFDoDA                          | 8.880                | 615.1 -> 570.0 | 17955             | 1.25 µg/L   | 0.000    |
| M2-PFTeDA                          | 9.649                | 715.2 -> 670.0 | 19109             | 1.25 µg/L   | 0.012    |
| M8-FOSA                            | 9.794                | 506.1 -> 77.8  | 10519             | 2.50 µg/L   | 0.000    |
| M3-PFBS                            | 5.202                | 302.1 -> 79.9  | 8893              | 2.50 µg/L   | 0.013    |
| M3-PFHxS                           | 7.042                | 402.1 -> 79.9  | 7195              | 2.50 µg/L   | 0.012    |
| M8-PFOS                            | 8.117                | 507.1 -> 79.9  | 8393              | 2.50 µg/L   | 0.000    |
| M2-4:2FTS                          | 5.058                | 329.1 -> 80.9  | 1044              | 5.00 µg/L   | 0.012    |
| M2-6:2FTS                          | 6.761                | 429.1 -> 80.9  | 2242              | 5.00 µg/L   | 0.012    |
| M2-8:2FTS                          | 7.804                | 529.1 -> 80.9  | 3175              | 5.00 µg/L   | 0.000    |
| M3-MeFOSAA                         | 8.086                | 573.2 -> 419.0 | 17644             | 5.00 µg/L   | 0.000    |
| M3-HFPO-DA                         | 5.702                | 286.9 -> 168.9 | 31785             | 10.00 µg/L  | 0.012    |
| M5-EtFOSAA                         | 8.283                | 589.2 -> 419.0 | 15530             | 5.00 µg/L   | 0.000    |
| M7-MeFOSE                          | 11.034               | 623.2 -> 58.9  | 52624             | 25.00 µg/L  | 0.012    |
| M9-EtFOSE                          | 11.319               | 639.2 -> 58.9  | 56976             | 25.00 µg/L  | 0.000    |
| M5-EtFOSA                          | 11.397               | 531.1 -> 219.0 | 6847              | 2.50 µg/L   | 0.000    |
| M3-MeFOSA                          | 11.126               | 515.0 -> 219.0 | 6125              | 2.50 µg/L   | 0.000    |
| 13C4-PFOS                          | 8.130                | 502.8 -> 79.9  | 6543              | 2.50 µg/L   | 0.012    |
| 13C3-PFBA                          | 2.678                | 216.0 -> 172.0 | 44798             | 5.00 µg/L   | 0.000    |
| 18O2-PFHxS                         | 7.041                | 403.0 -> 83.9  | 4649              | 2.50 µg/L   | 0.000    |
| 13C4-PFOA                          | 6.977                | 417.1 -> 372.0 | 54011             | 2.50 µg/L   | 0.000    |
| 13C2-PFDA                          | 8.004                | 515.1 -> 470.1 | 14483             | 1.25 µg/L   | 0.000    |
| 13C5-PFNA                          | 7.522                | 468.0 -> 423.0 | 18818             | 1.25 µg/L   | 0.012    |
| 13C2-PFHxA                         | 5.348                | 315.1 -> 270.0 | 35183             | 2.50 µg/L   | 0.012    |
| <b>System Monitoring Compounds</b> |                      |                |                   |             |          |
| 13C2-4:2FTS                        | 5.058                | 329.1 -> 80.9  | 1044              | 4.73 µg/L   | 0.012    |
| Spiked Amount: 5.00                | Range: 50.0 - 150.0% |                | Recovery = 94.6%  |             |          |
| 13C2-6:2FTS                        | 6.761                | 429.1 -> 80.9  | 2242              | 4.68 µg/L   | 0.012    |
| Spiked Amount: 5.00                | Range: 50.0 - 150.0% |                | Recovery = 93.7%  |             |          |
| 13C2-8:2FTS                        | 7.804                | 529.1 -> 80.9  | 3175              | 4.95 µg/L   | 0.000    |
| Spiked Amount: 5.00                | Range: 50.0 - 150.0% |                | Recovery = 99.1%  |             |          |
| 13C2-PFDoDA                        | 8.880                | 615.1 -> 570.0 | 17955             | 1.24 µg/L   | 0.000    |
| Spiked Amount: 1.25                | Range: 50.0 - 150.0% |                | Recovery = 99.2%  |             |          |
| 13C2-PFTeDA                        | 9.649                | 715.2 -> 670.0 | 19109             | 1.33 µg/L   | 0.012    |
| Spiked Amount: 1.25                | Range: 50.0 - 150.0% |                | Recovery = 106.3% |             |          |
| 13C3-PFBS                          | 5.202                | 302.1 -> 79.9  | 8893              | 2.50 µg/L   | 0.013    |
| Spiked Amount: 2.50                | Range: 50.0 - 150.0% |                | Recovery = 99.8%  |             |          |
| 13C3-PFHxS                         | 7.042                | 402.1 -> 79.9  | 7195              | 2.47 µg/L   | 0.012    |

## Perfluorinated Compounds by LC/MS/MS

| Compound                | RT                   | Transition     | Response | Conc. Units       | Dev(Min)      |
|-------------------------|----------------------|----------------|----------|-------------------|---------------|
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 98.7%  |               |
| 13C4-PFBA               | 2.686                | 216.8 -> 171.9 | 94330    | 10.03 µg/L        | 0.012         |
| Spiked Amount: 10.00    | Range: 50.0 - 150.0% |                |          | Recovery = 100.3% |               |
| 13C4-PFHpA              | 6.292                | 367.1 -> 322.0 | 30520    | 2.46 µg/L         | 0.000         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 98.4%  |               |
| 13C5-PFHxA              | 5.347                | 318.0 -> 273.0 | 32657    | 2.52 µg/L         | 0.012         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 100.8% |               |
| 13C5-PFPeA              | 4.175                | 268.3 -> 223.0 | 40921    | 5.07 µg/L         | 0.012         |
| Spiked Amount: 5.00     | Range: 50.0 - 150.0% |                |          | Recovery = 101.3% |               |
| 13C6-PFDA               | 8.004                | 519.1 -> 474.1 | 13327    | 1.26 µg/L         | 0.000         |
| Spiked Amount: 1.25     | Range: 50.0 - 150.0% |                |          | Recovery = 101.2% |               |
| 13C7-PFUnDA             | 8.461                | 570.0 -> 525.1 | 15728    | 1.27 µg/L         | 0.012         |
| Spiked Amount: 1.25     | Range: 50.0 - 150.0% |                |          | Recovery = 101.3% |               |
| 13C8-FOSA               | 9.794                | 506.1 -> 77.8  | 10519    | 2.48 µg/L         | 0.000         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 99.2%  |               |
| 13C8-PFOA               | 6.976                | 421.1 -> 376.0 | 49387    | 2.47 µg/L         | 0.000         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 99.0%  |               |
| 13C8-PFOS               | 8.117                | 507.1 -> 79.9  | 8393     | 2.53 µg/L         | 0.000         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 101.3% |               |
| 13C9-PFNA               | 7.521                | 472.1 -> 427.0 | 19782    | 1.31 µg/L         | 0.000         |
| Spiked Amount: 1.25     | Range: 50.0 - 150.0% |                |          | Recovery = 105.0% |               |
| d3-MeFOSAA              | 8.086                | 573.2 -> 419.0 | 17644    | 4.86 µg/L         | 0.000         |
| Spiked Amount: 5.00     | Range: 50.0 - 150.0% |                |          | Recovery = 97.2%  |               |
| 13C3-HFPO-DA            | 5.702                | 286.9 -> 168.9 | 31785    | 9.81 µg/L         | 0.012         |
| Spiked Amount: 10.00    | Range: 50.0 - 150.0% |                |          | Recovery = 98.1%  |               |
| d3-MeFOSA               | 11.126               | 515.0 -> 219.0 | 6125     | 2.42 µg/L         | 0.000         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 96.9%  |               |
| d5-EtFOSAA              | 8.283                | 589.2 -> 419.0 | 15530    | 5.05 µg/L         | 0.000         |
| Spiked Amount: 5.00     | Range: 50.0 - 150.0% |                |          | Recovery = 101.1% |               |
| d7-MeFOSE               | 11.034               | 623.2 -> 58.9  | 52624    | 25.16 µg/L        | 0.012         |
| Spiked Amount: 25.00    | Range: 50.0 - 150.0% |                |          | Recovery = 100.6% |               |
| d9-EtFOSE               | 11.319               | 639.2 -> 58.9  | 56976    | 24.32 µg/L        | 0.000         |
| Spiked Amount: 25.00    | Range: 50.0 - 150.0% |                |          | Recovery = 97.3%  |               |
| d5-EtFOSA               | 11.397               | 531.1 -> 219.0 | 6847     | 2.47 µg/L         | 0.000         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 98.8%  |               |
| <b>Target Compounds</b> |                      |                |          |                   | <b>QValue</b> |
| 4:2FTS                  | 5.059                | 327.1 -> 307.0 | 88024    | 48.97 µg/L        | 99            |
|                         |                      | 327.1 -> 80.9  | 37102    |                   |               |
| 6:2FTS                  | 6.761                | 427.1 -> 407.0 | 121720   | 51.65 µg/L        | 98            |
|                         |                      | 427.1 -> 80.9  | 42870    |                   |               |
| 8:2FTS                  | 7.804                | 527.1 -> 507.0 | 84315    | 50.39 µg/L        | 99            |
|                         |                      | 527.1 -> 80.8  | 33462    |                   |               |
| EtFOSAA                 | 8.297                | 584.2 -> 419.1 | 35526    | 12.54 µg/L        | 87            |
|                         |                      | 584.2 -> 526.0 | 13964    |                   |               |
| FOSA                    | 9.798                | 498.1 -> 77.9  | 59384    | 12.56 µg/L        | 99            |
|                         |                      | 498.1 -> 478.0 | 1802     |                   |               |
| MeFOSAA                 | 8.087                | 570.1 -> 419.0 | 35809    | 14.16 µg/L        | 90            |
|                         |                      | 570.1 -> 483.0 | 7309     |                   |               |
| PFBA                    | 2.682                | 212.8 -> 168.9 | 156501   | 51.80 µg/L        | 100           |
| PFBS                    | 5.203                | 298.7 -> 79.9  | 31936    | 11.58 µg/L        | 97            |
|                         |                      | 298.7 -> 98.8  | 12389    |                   |               |
| PFDA                    | 8.005                | 512.9 -> 469.0 | 124626   | 12.73 µg/L        | 99            |
|                         |                      | 512.9 -> 219.0 | 25358    |                   |               |
| PFDoDA                  | 8.880                | 613.1 -> 569.0 | 175425   | 13.57 µg/L        | 99            |
|                         |                      | 613.1 -> 319.0 | 30723    |                   |               |
| PFDS                    | 9.020                | 599.0 -> 79.9  | 26875    | 12.03 µg/L        | 95            |

## Perfluorinated Compounds by LC/MS/MS

| Compound     | RT     | Transition     | Response | Conc.  | Units | Dev(Min) |
|--------------|--------|----------------|----------|--------|-------|----------|
| PFHpA        | 6.293  | 599.0 -> 98.8  | 13164    | 13.27  | µg/L  | 100      |
|              |        | 363.1 -> 319.0 | 227994   |        |       |          |
| PFHpS        | 7.624  | 363.1 -> 169.0 | 41453    | 11.69  | µg/L  | 98       |
|              |        | 449.0 -> 79.9  | 38943    |        |       |          |
| PFHxA        | 5.350  | 449.0 -> 98.9  | 19940    | 12.82  | µg/L  | 99       |
|              |        | 313.0 -> 269.0 | 133602   |        |       |          |
| PFHxS        | 7.043  | 313.0 -> 118.9 | 4010     | 11.84  | µg/L  | 91       |
|              |        | 398.7 -> 79.9  | 27487    |        |       |          |
| PFNA         | 7.522  | 398.7 -> 98.9  | 14719    | 13.00  | µg/L  | 99       |
|              |        | 463.0 -> 419.0 | 151051   |        |       |          |
| PFNS         | 8.586  | 463.0 -> 219.0 | 35288    | 13.27  | µg/L  | 100      |
|              |        | 548.8 -> 79.9  | 19001    |        |       |          |
| PFOA         | 6.978  | 548.8 -> 98.9  | 9439     | 13.06  | µg/L  | 95       |
|              |        | 413.0 -> 369.0 | 265296   |        |       |          |
| PFOS         | 8.119  | 413.0 -> 169.0 | 52916    | 10.92  | µg/L  | 54       |
|              |        | 498.9 -> 79.9  | 38142    |        |       |          |
| PFPeA        | 4.164  | 498.9 -> 98.8  | 18194    | 25.93  | µg/L  | 100      |
|              |        | 263.0 -> 219.0 | 208797   |        |       |          |
| PFPeS        | 6.282  | 349.1 -> 79.9  | 27378    | 12.53  | µg/L  | 93       |
|              |        | 349.1 -> 98.9  | 12744    |        |       |          |
| PFTeDA       | 9.650  | 713.1 -> 669.0 | 167961   | 12.63  | µg/L  | 100      |
|              |        | 713.1 -> 168.9 | 17868    |        |       |          |
| PFTrDA       | 9.279  | 663.0 -> 619.0 | 194692   | 13.86  | µg/L  | 100      |
|              |        | 663.0 -> 168.9 | 26435    |        |       |          |
| PFUnDA       | 8.461  | 563.1 -> 519.0 | 151981   | 13.29  | µg/L  | 100      |
|              |        | 563.1 -> 269.1 | 32452    |        |       |          |
| 11Cl-PF3OUdS | 9.306  | 630.9 -> 450.9 | 226944   | 25.93  | µg/L  | 100      |
|              |        | 632.9 -> 452.9 | 70717    |        |       |          |
| 9Cl-PF3ONS   | 8.451  | 530.8 -> 351.0 | 220931   | 24.98  | µg/L  | 99       |
|              |        | 532.8 -> 353.0 | 68319    |        |       |          |
| ADONA        | 6.568  | 376.9 -> 250.9 | 596187   | 27.77  | µg/L  | 100      |
|              |        | 376.9 -> 84.8  | 142948   |        |       |          |
| HFPO-DA      | 5.703  | 284.9 -> 168.9 | 80430    | 26.45  | µg/L  | 99       |
|              |        | 284.9 -> 184.9 | 7848     |        |       |          |
| 3:3FTCA      | 3.617  | 241.0 -> 177.0 | 30876    | 64.29  | µg/L  | 99       |
|              |        | 241.0 -> 117.0 | 2685     |        |       |          |
| 5:3FTCA      | 6.020  | 341.0 -> 237.1 | 608405   | 327.34 | µg/L  | 99       |
|              |        | 341.0 -> 217.0 | 427777   |        |       |          |
| 7:3FTCA      | 7.536  | 441.0 -> 316.9 | 315105   | 323.29 | µg/L  | 100      |
|              |        | 441.0 -> 336.9 | 752252   |        |       |          |
| EtFOSA       | 11.399 | 526.0 -> 219.0 | 74708    | 25.63  | µg/L  | 99       |
|              |        | 526.0 -> 169.0 | 102456   |        |       |          |
| EtFOSE       | 11.332 | 630.0 -> 58.9  | 129152   | 64.05  | µg/L  | 100      |
|              |        | 511.9 -> 219.0 | 55657    |        |       |          |
| MeFOSA       | 11.128 | 511.9 -> 169.0 | 84269    | 25.52  | µg/L  | 97       |
|              |        | 616.1 -> 58.9  | 134706   |        |       |          |
| MeFOSE       | 11.047 | 699.1 -> 79.9  | 21005    | 64.51  | µg/L  | 100      |
|              |        | 699.1 -> 98.8  | 11764    |        |       |          |
| PFDoDS       | 9.777  | 295.0 -> 201.0 | 18100    | 12.33  | µg/L  | 99       |
|              |        | 295.0 -> 84.9  | 4691     |        |       |          |
| NFDHA        | 5.229  | 279.0 -> 85.1  | 113109   | 24.52  | µg/L  | 99       |
|              |        | 229.0 -> 84.9  | 124273   |        |       |          |
| PFMBA        | 4.578  | 314.8 -> 134.9 | 181944   | 25.51  | µg/L  | 100      |
|              |        | 314.8 -> 82.9  | 5894     |        |       |          |
| PFMPA        | 3.315  |                |          | 23.62  | µg/L  | 98       |
|              |        |                |          |        |       |          |
| PFEESA       | 5.722  |                |          |        |       |          |
|              |        |                |          |        |       |          |

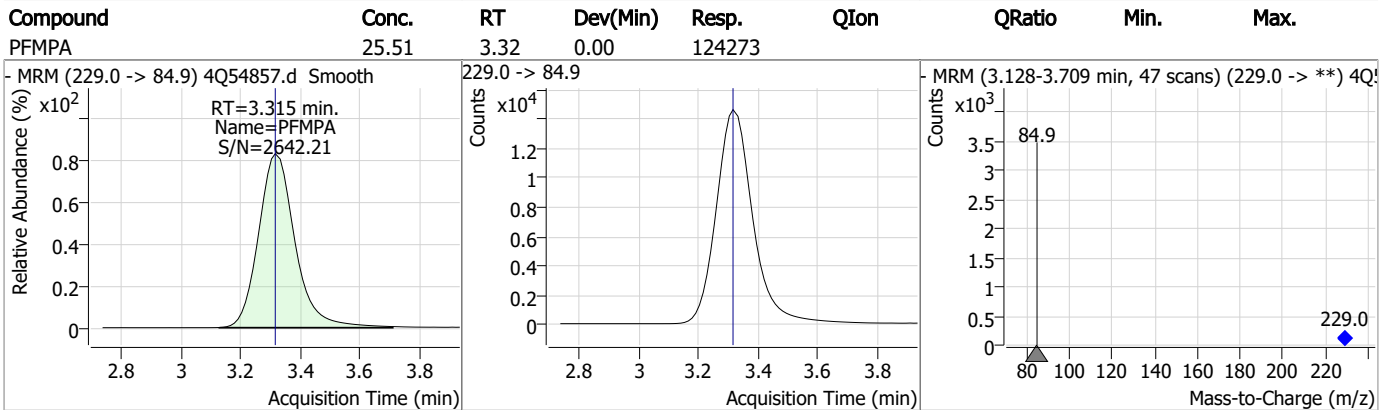
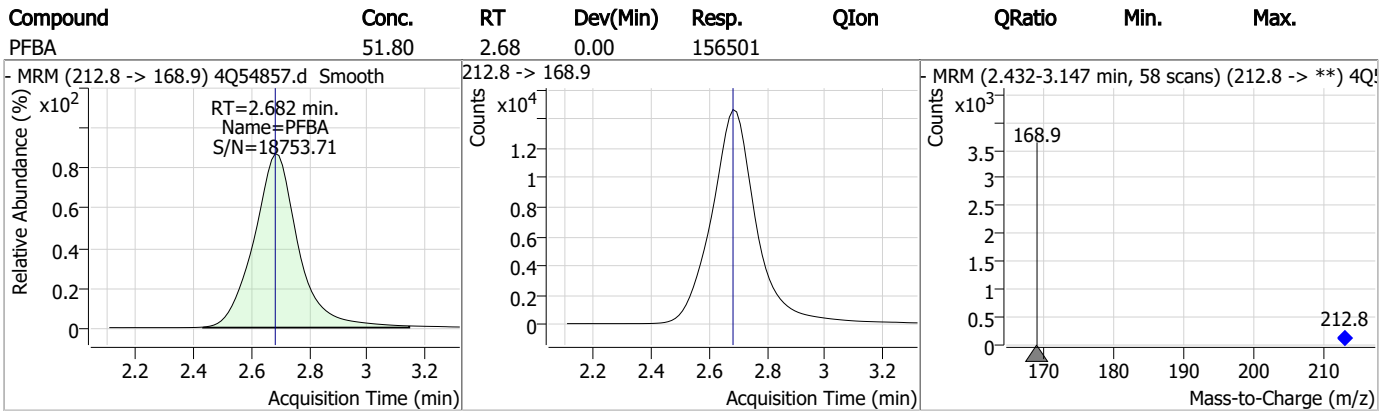
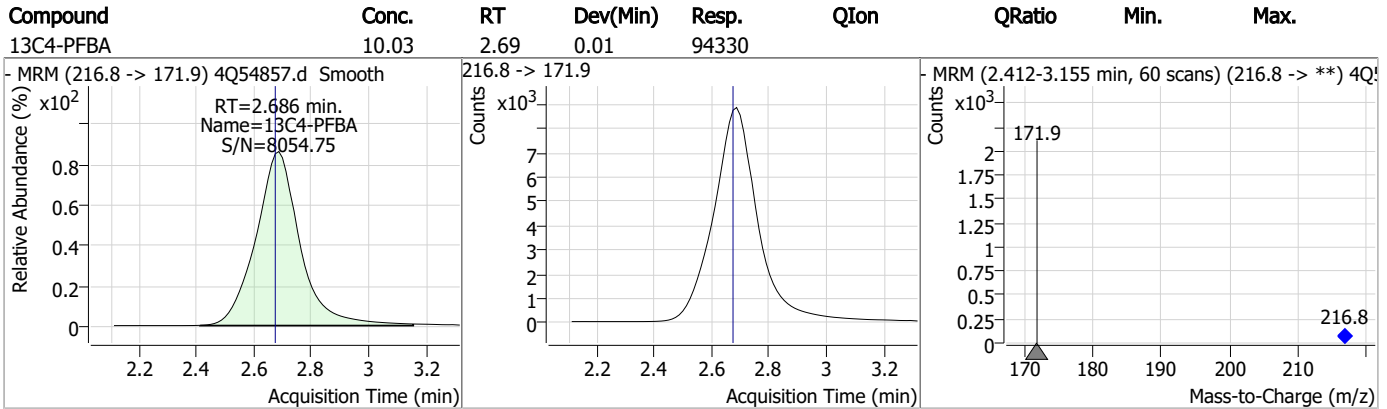
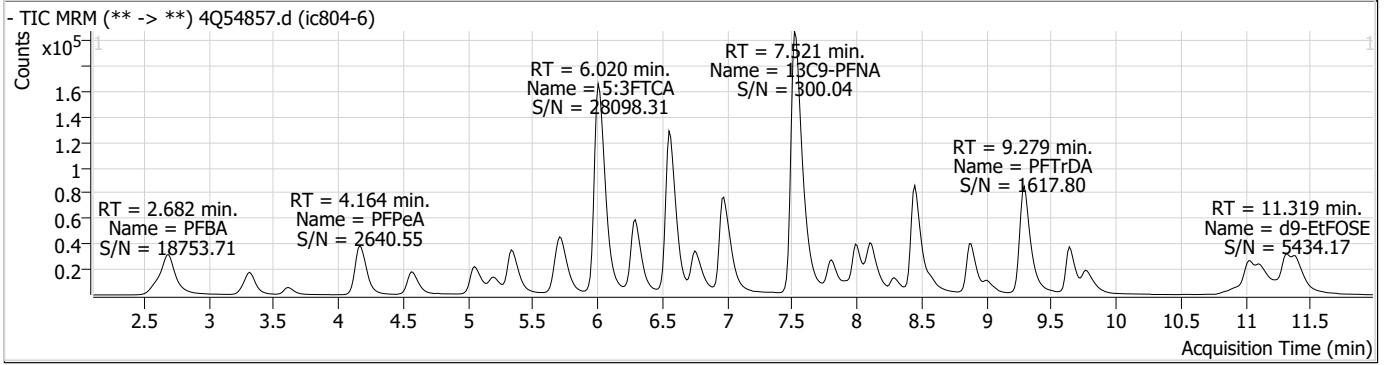
# = Qualifier out of range, m = manually integrated, + = Area summed

### Perfluorinated Compounds by LC/MS/MS

| Compound | RT | Transition | Response | Conc. Units | Dev(Min) |
|----------|----|------------|----------|-------------|----------|
|----------|----|------------|----------|-------------|----------|

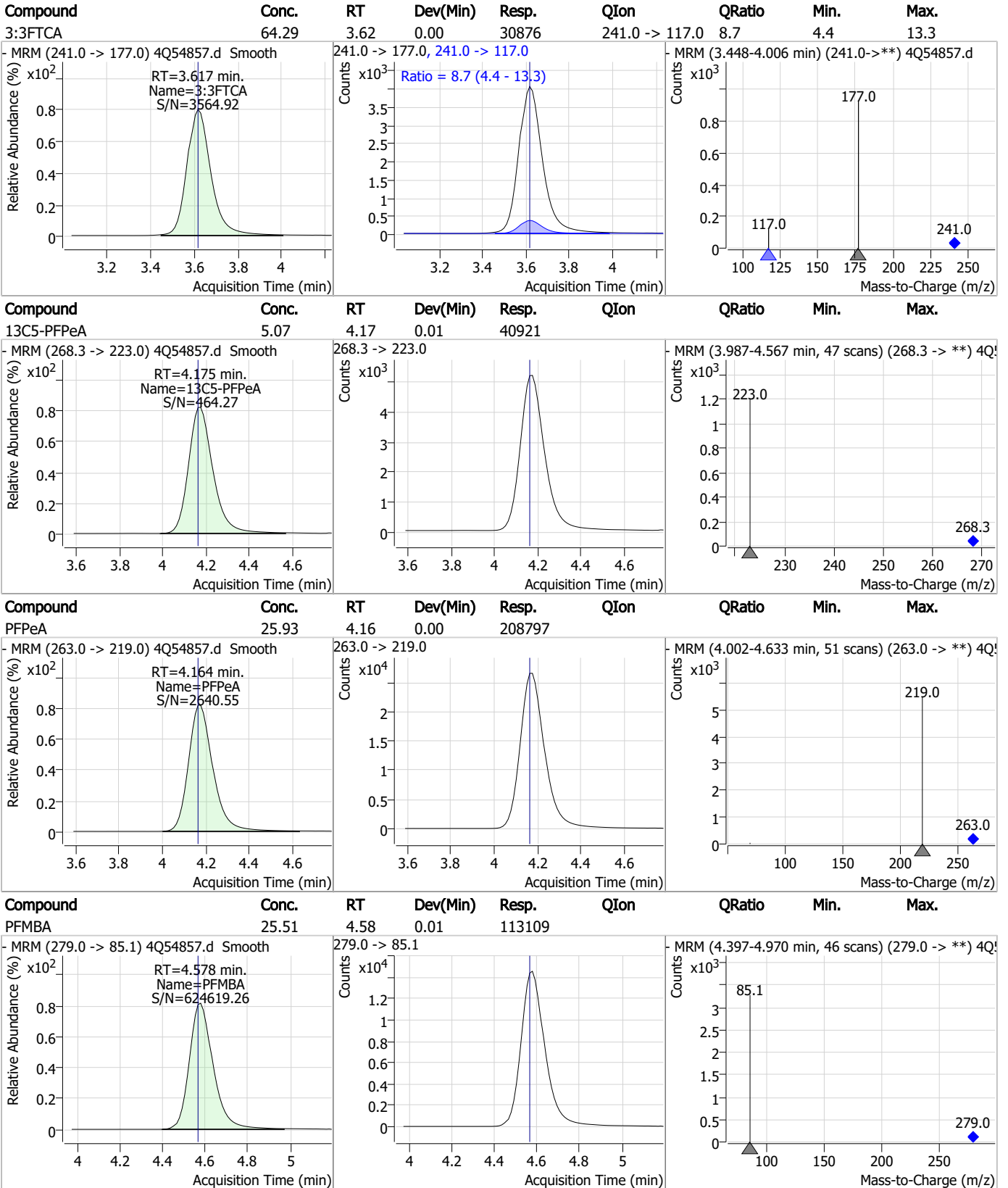
7.7.7  
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### Perfluorinated Compounds by LC/MS/MS



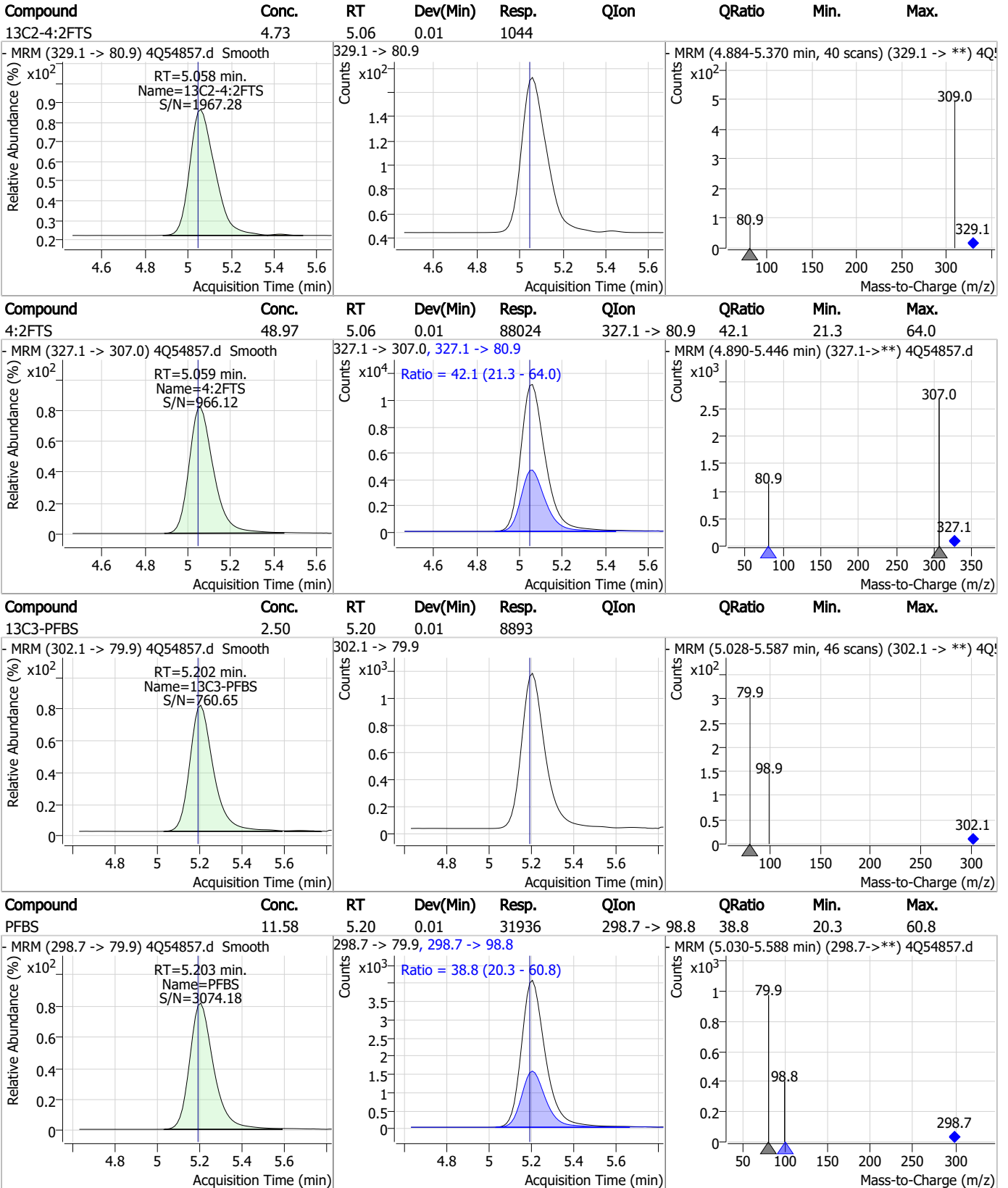


### Perfluorinated Compounds by LC/MS/MS



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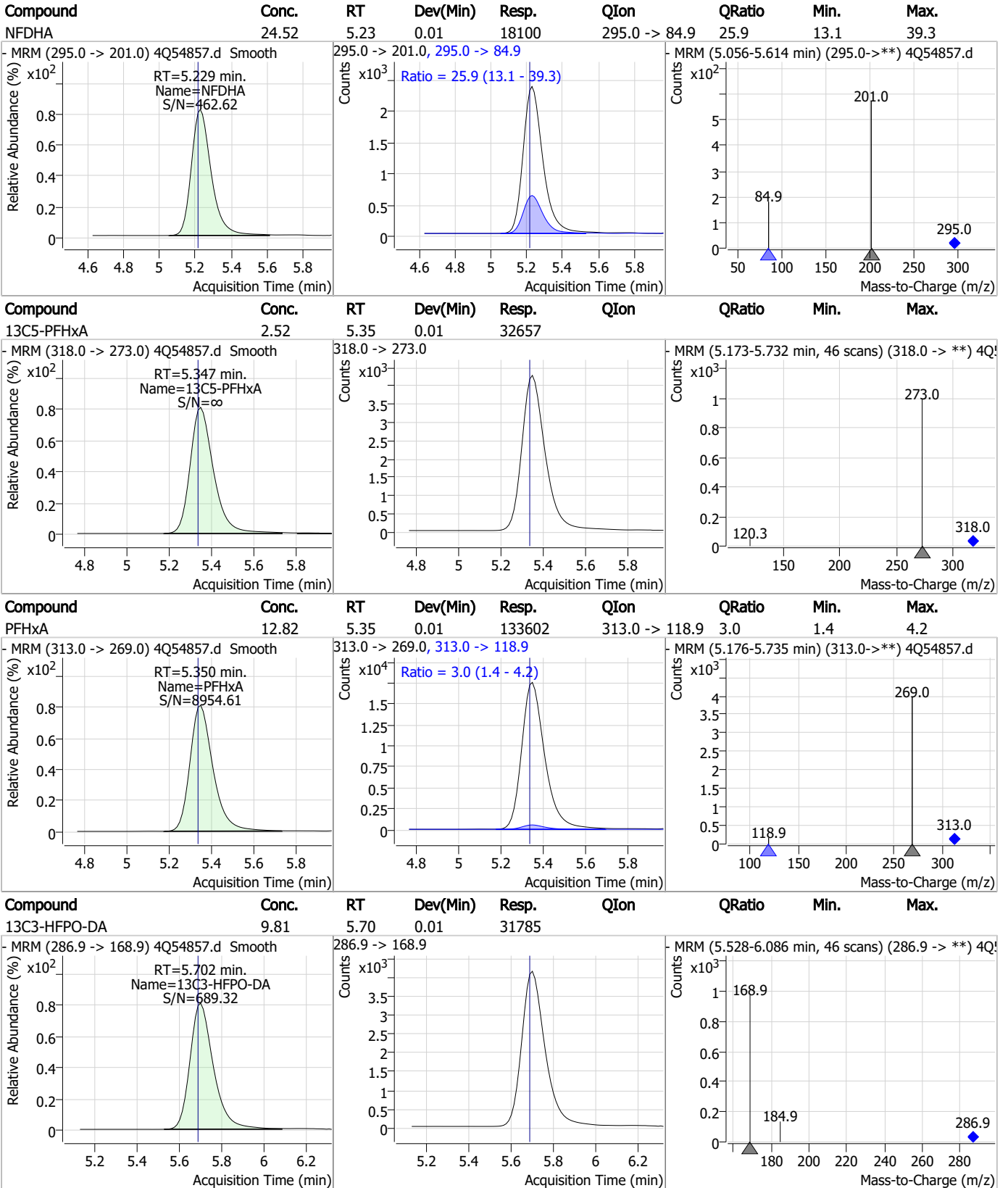
### Perfluorinated Compounds by LC/MS/MS



7.7.7

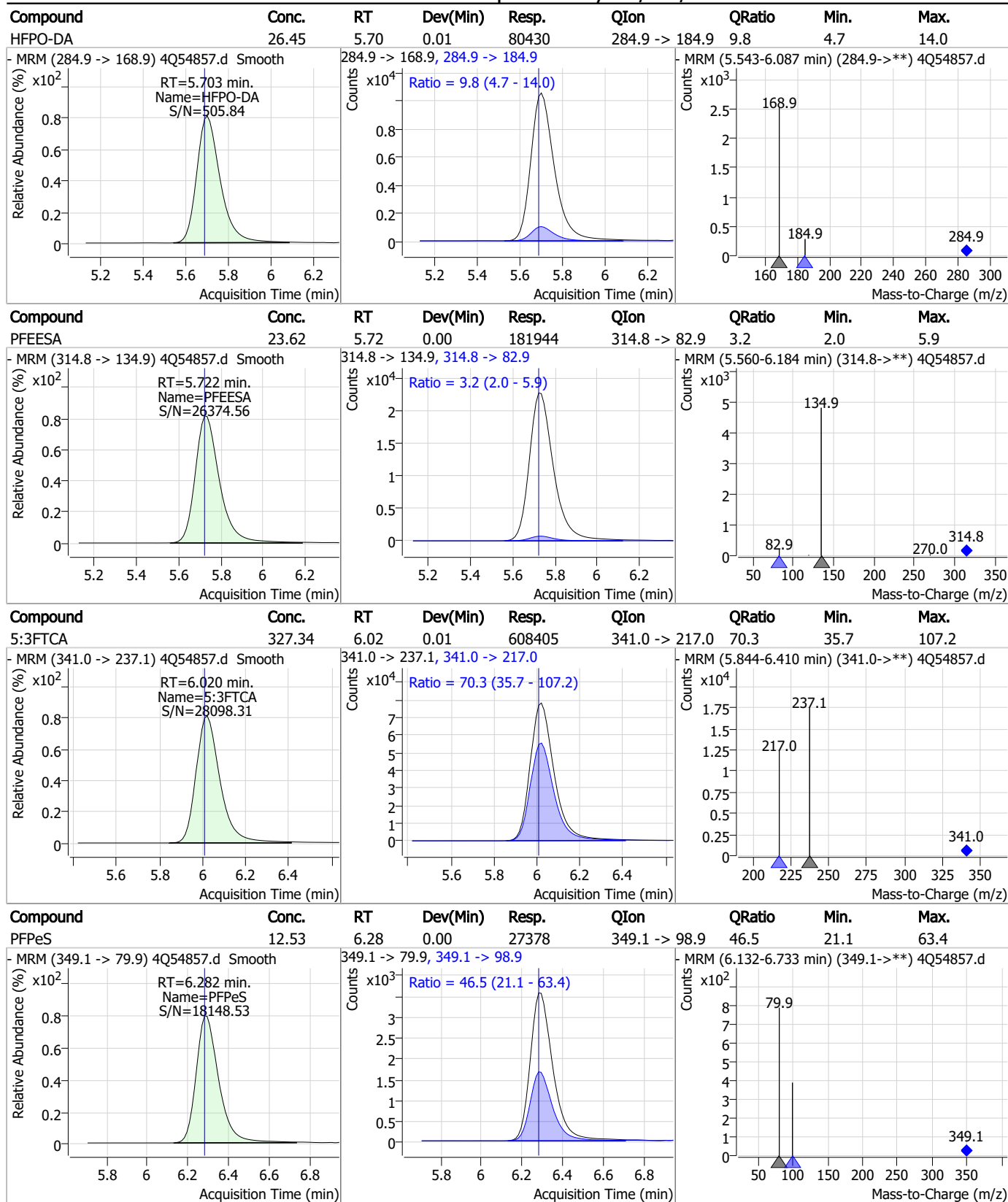
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### Perfluorinated Compounds by LC/MS/MS



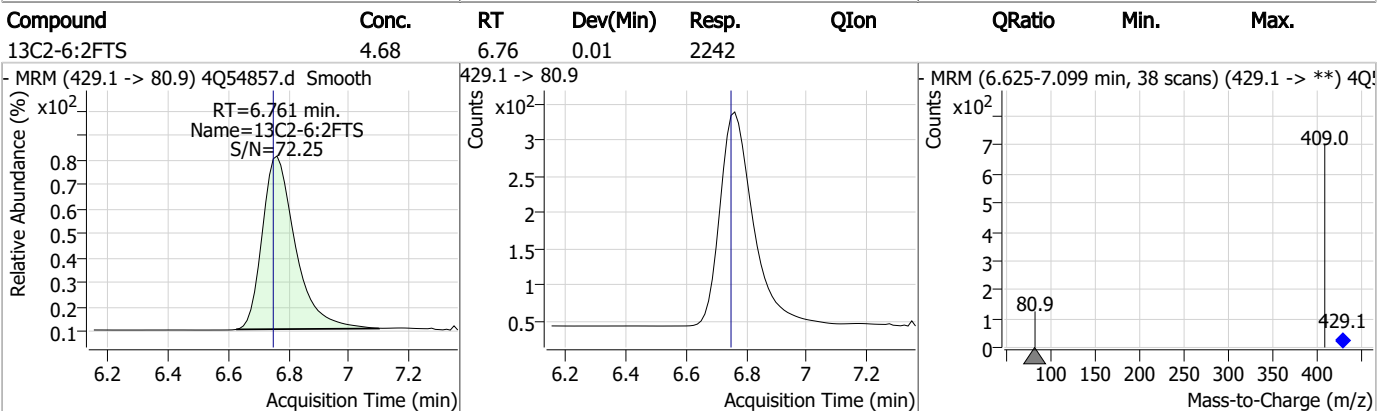
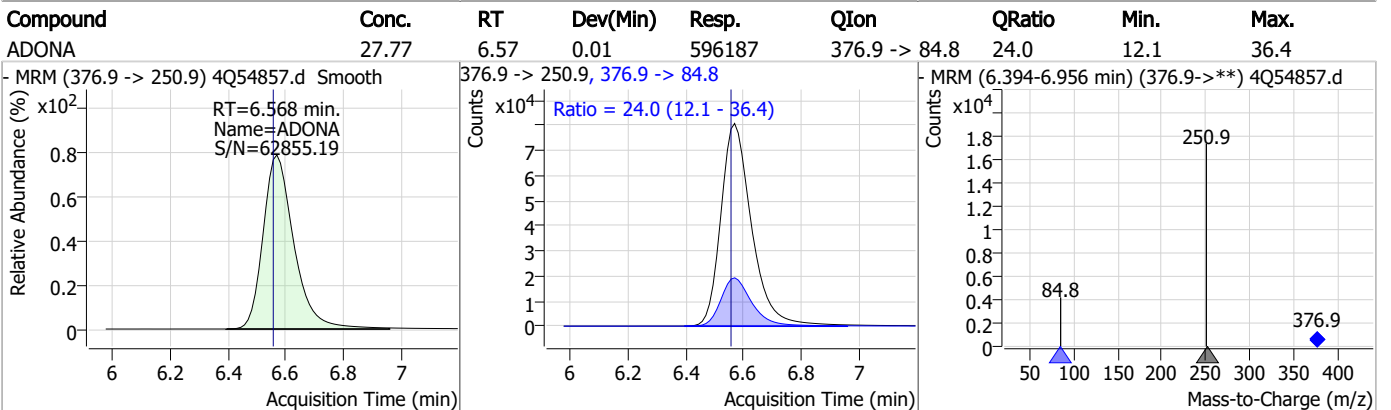
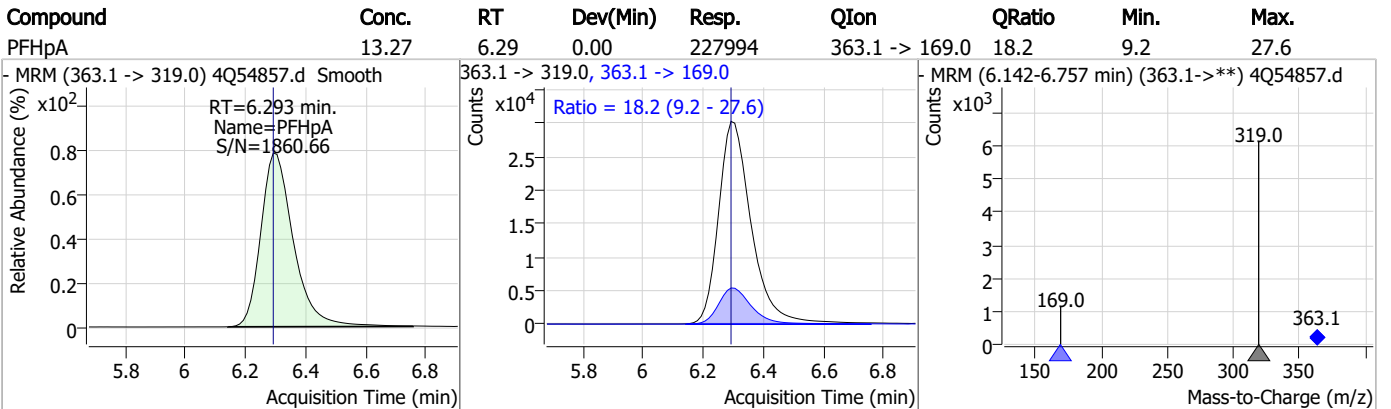
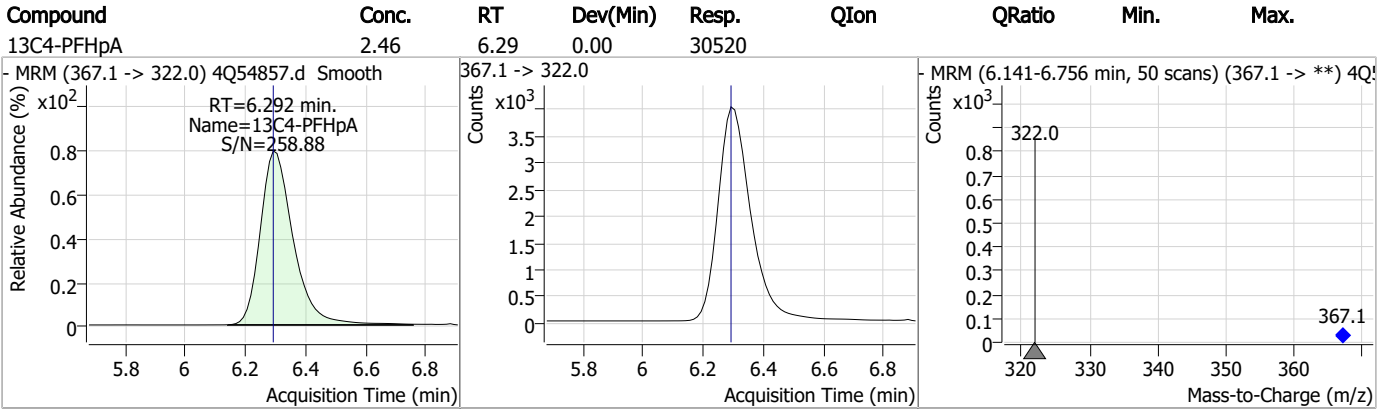
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### Perfluorinated Compounds by LC/MS/MS

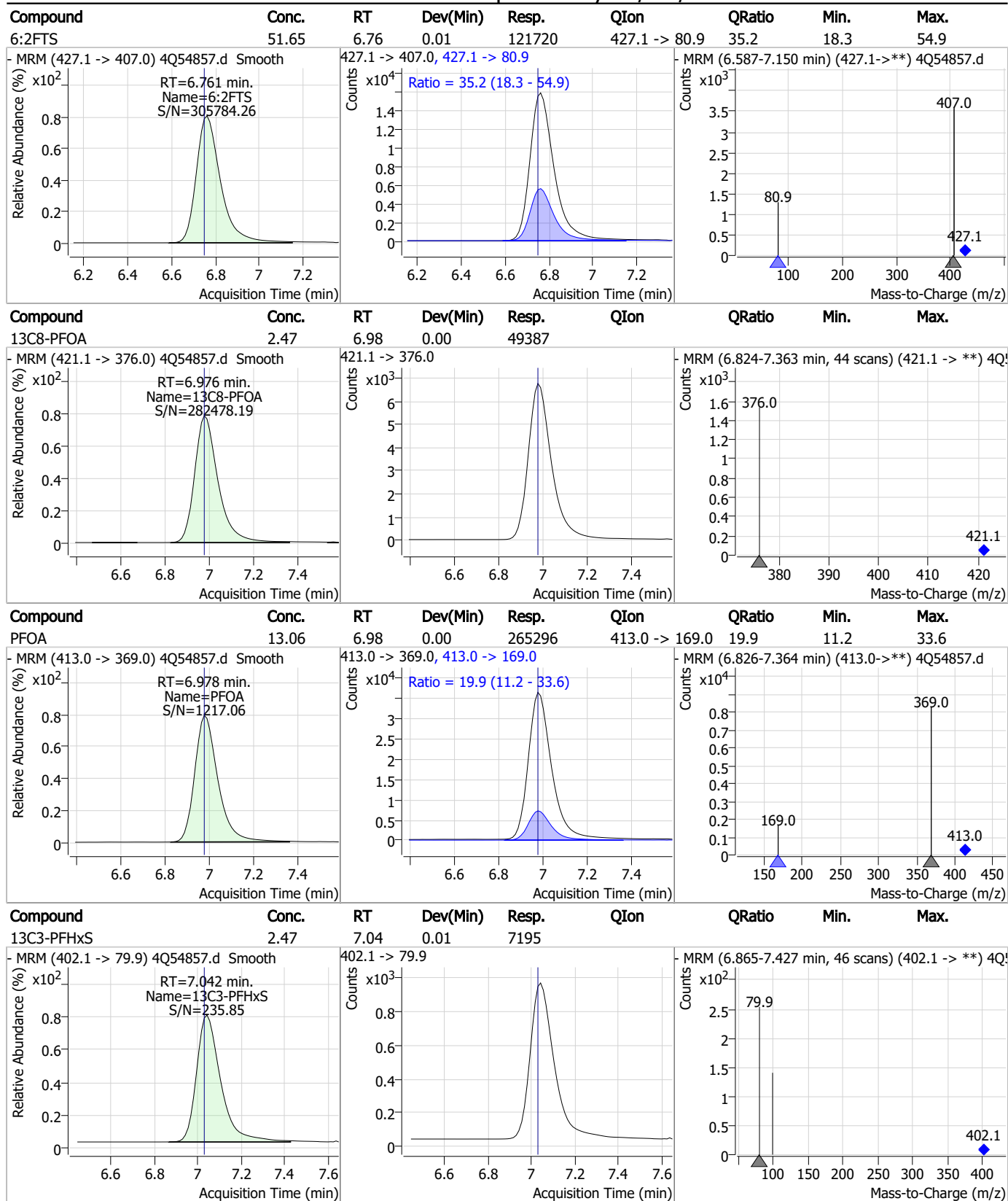


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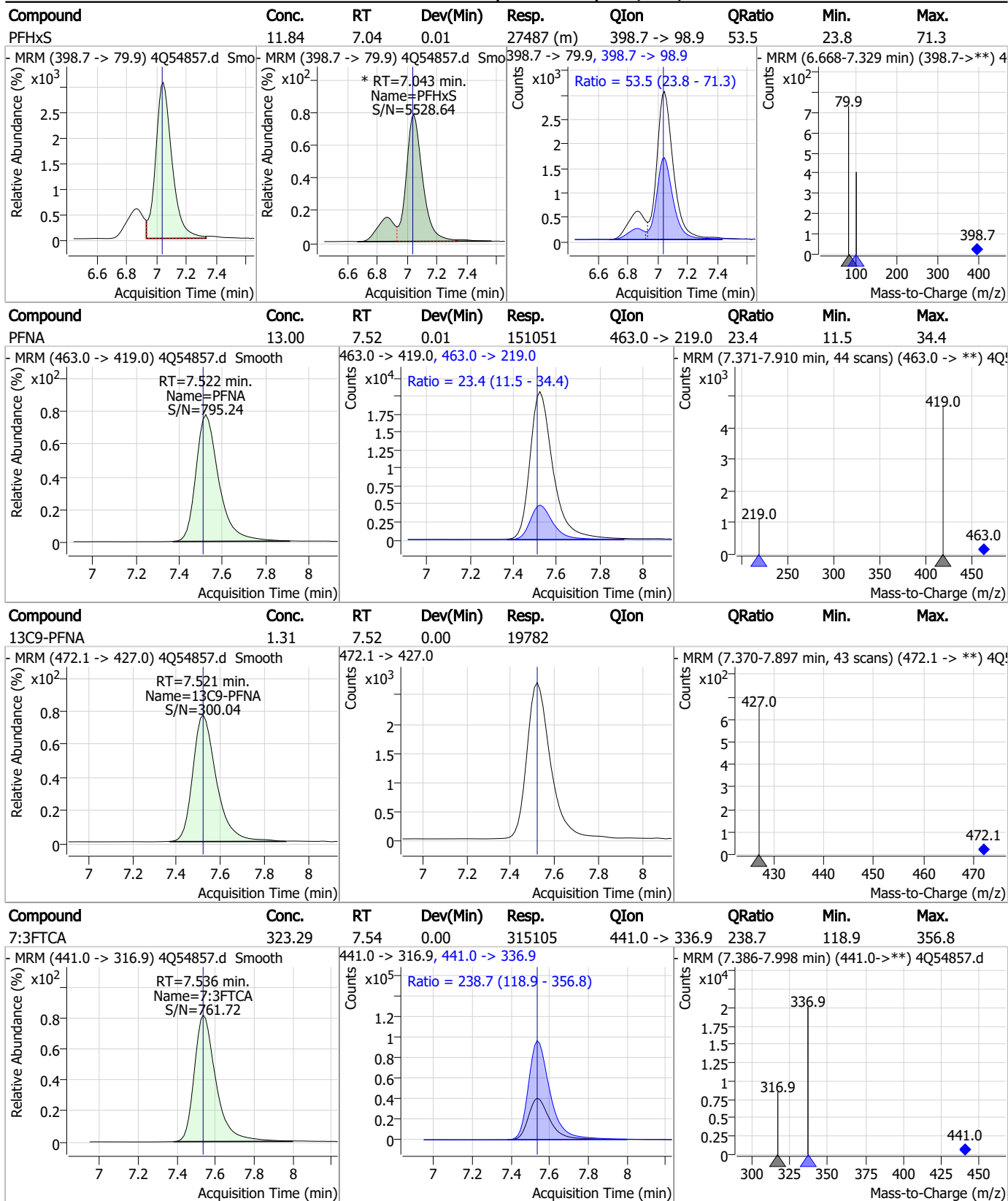


### Perfluorinated Compounds by LC/MS/MS



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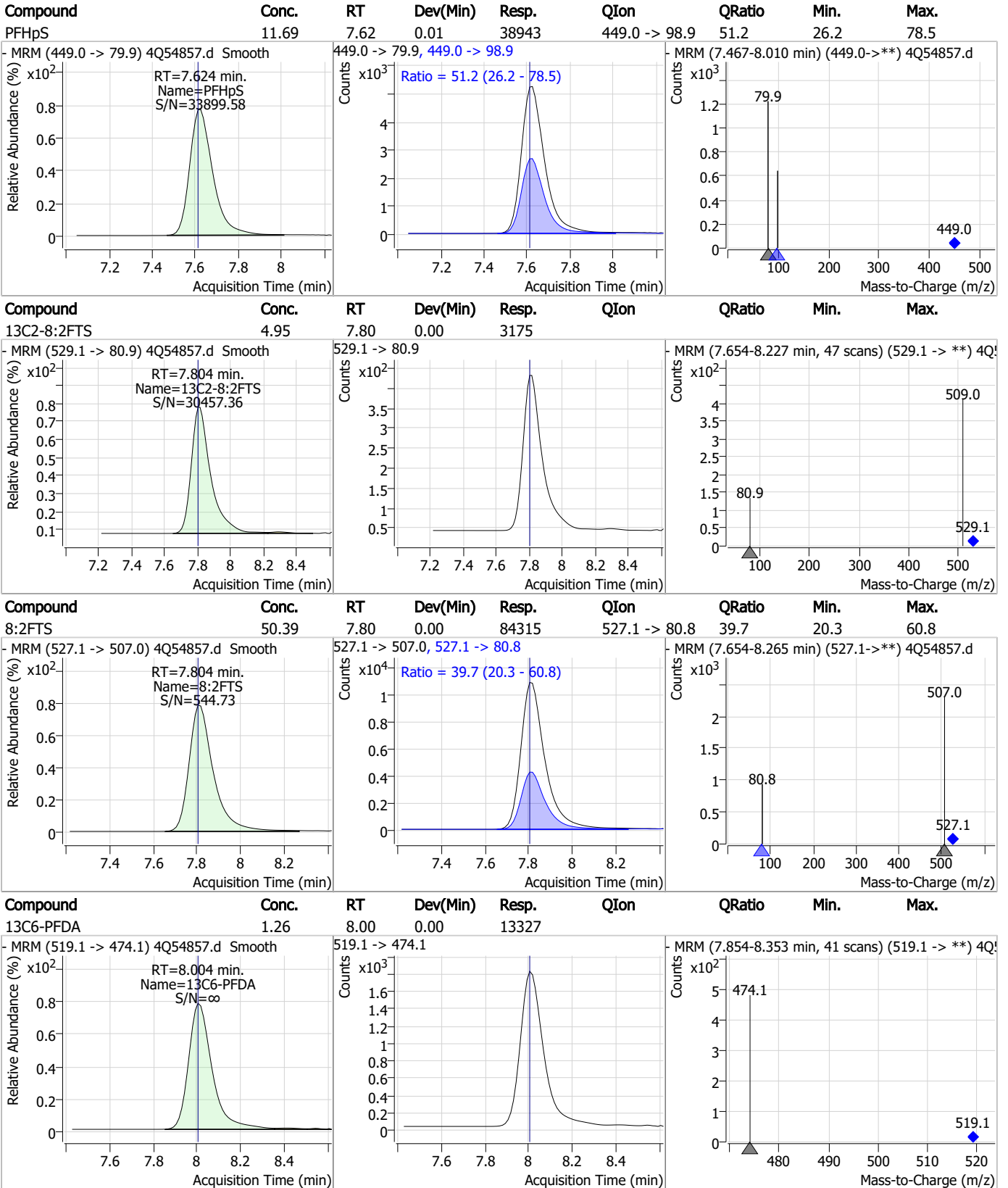
### Perfluorinated Compounds by LC/MS/MS



7.7.7



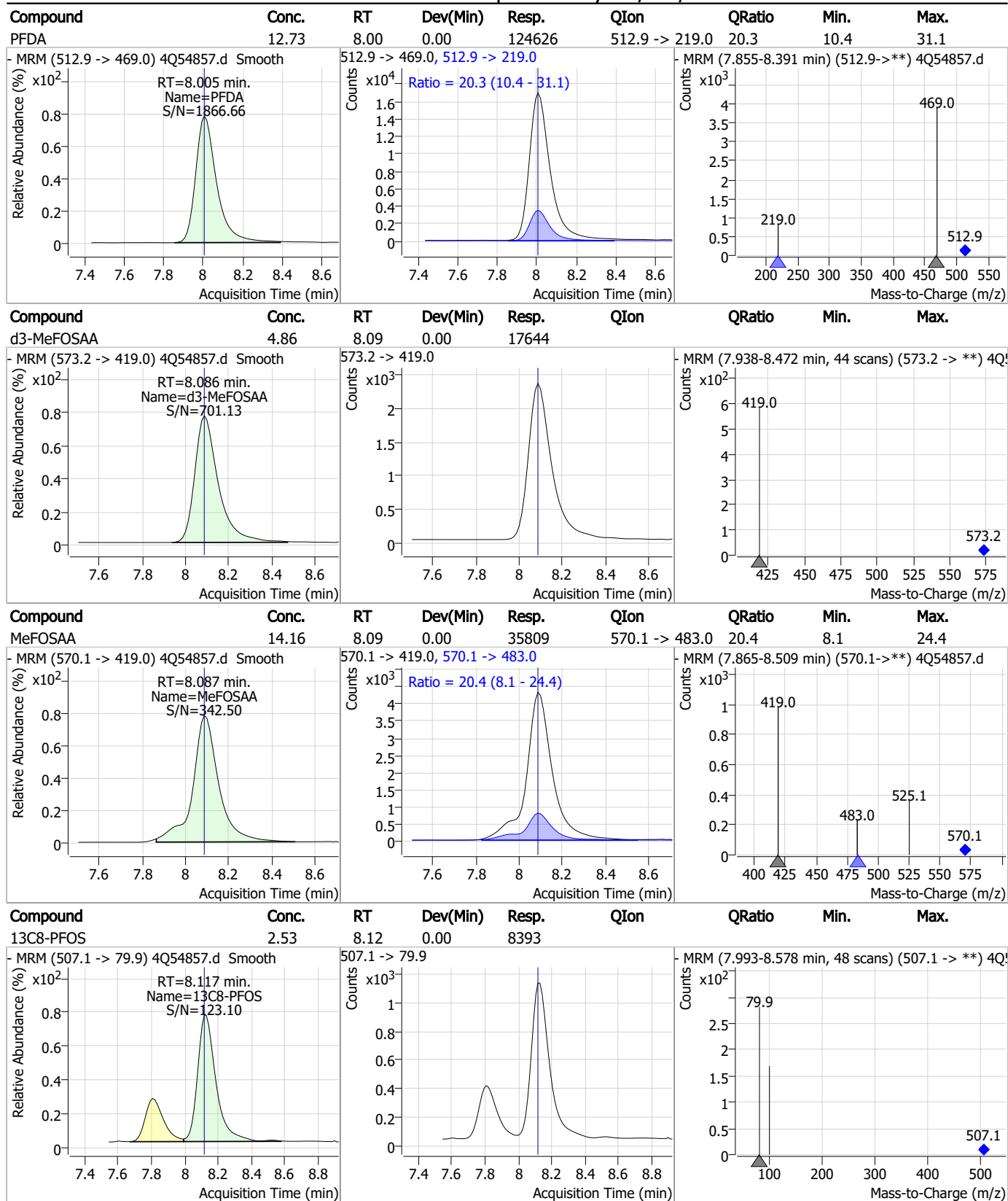
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7.7.7  
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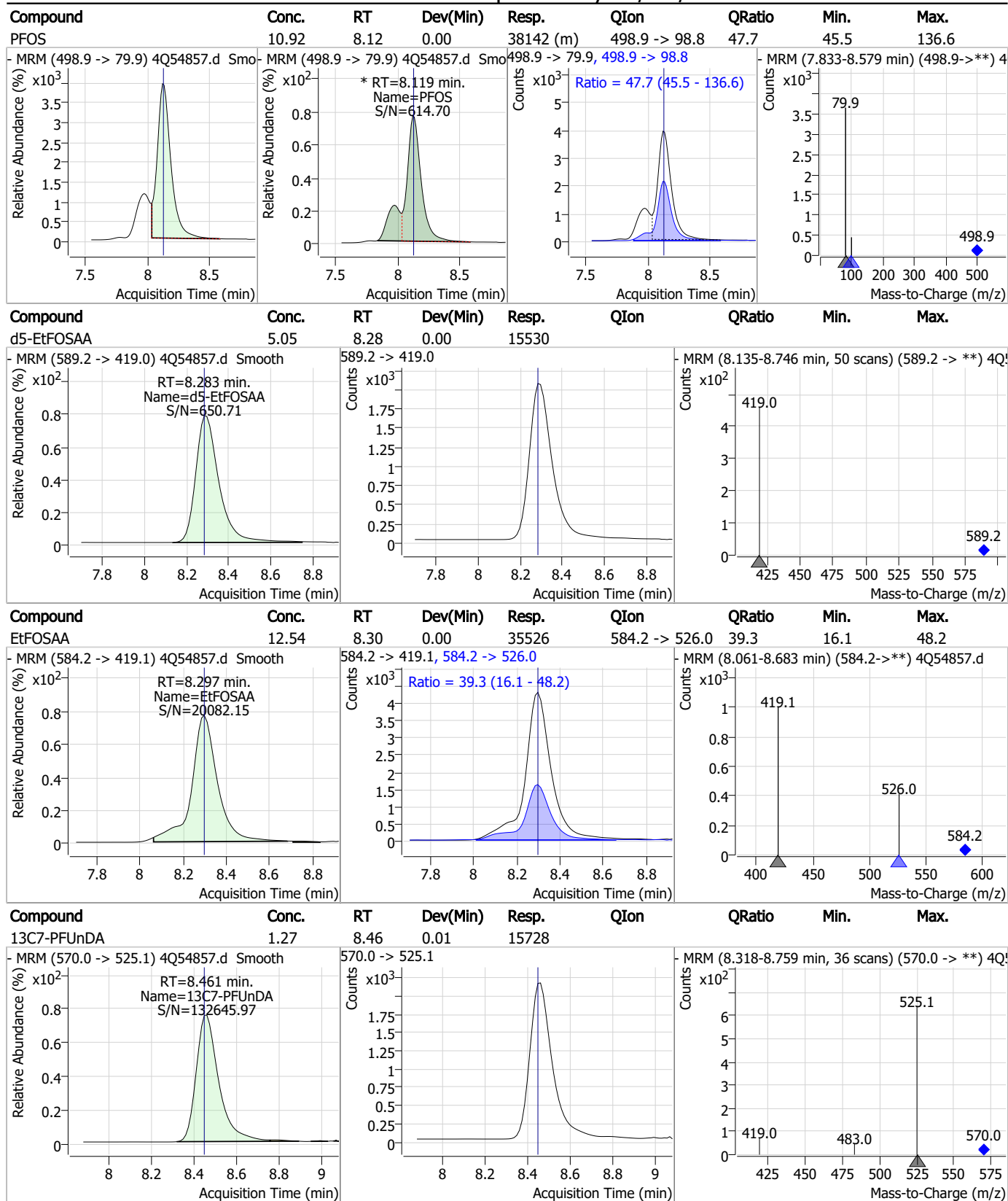


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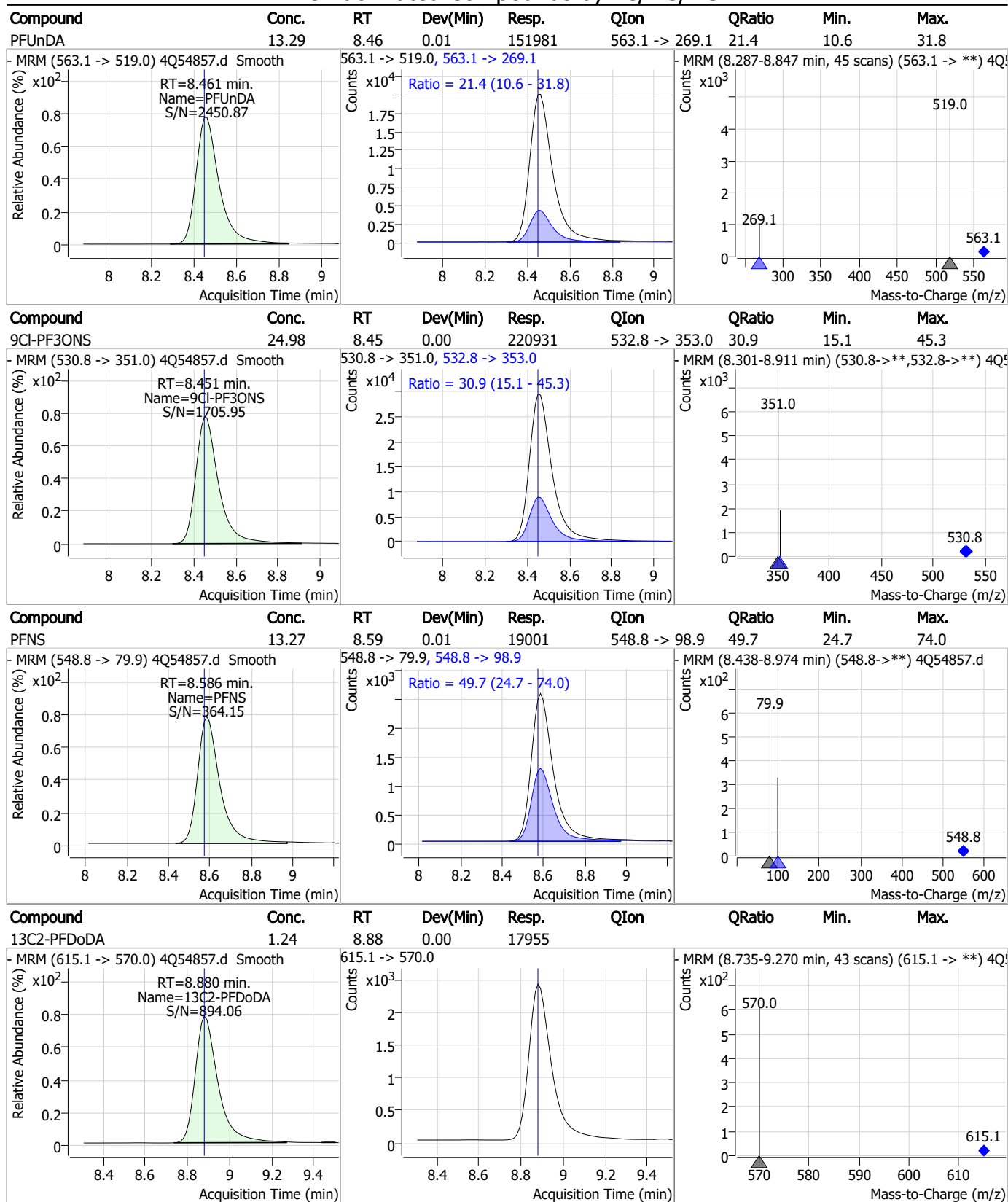
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### Perfluorinated Compounds by LC/MS/MS



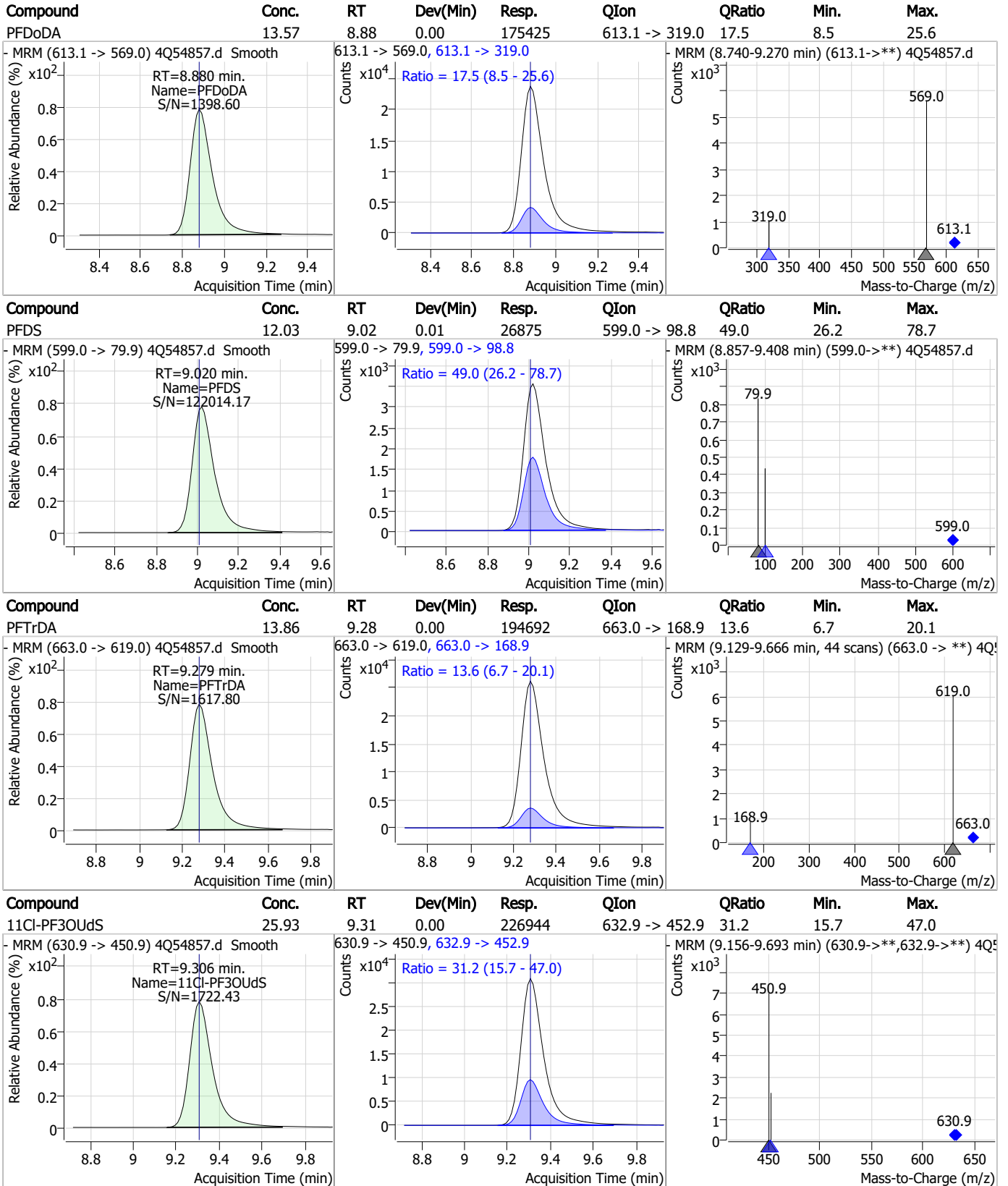
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### Perfluorinated Compounds by LC/MS/MS



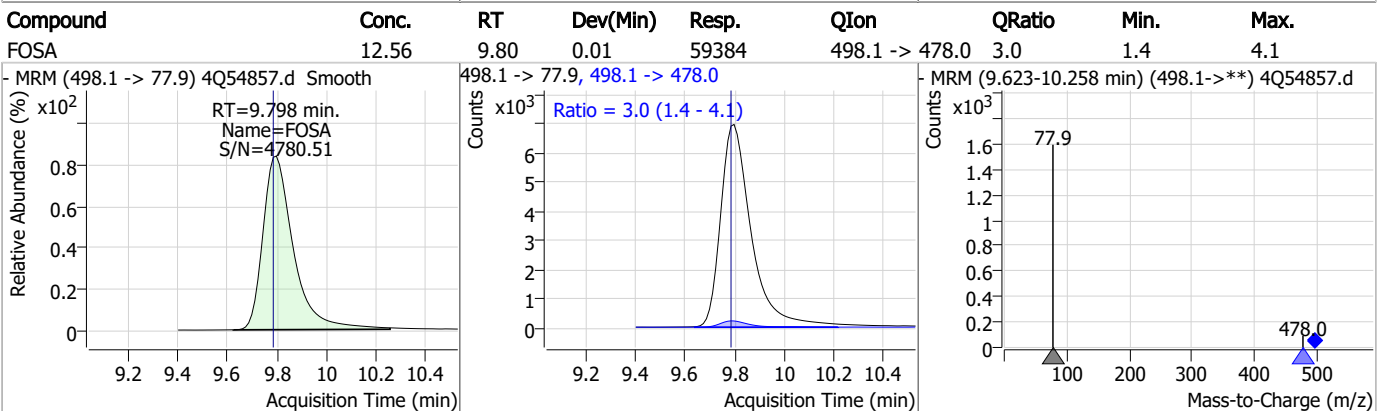
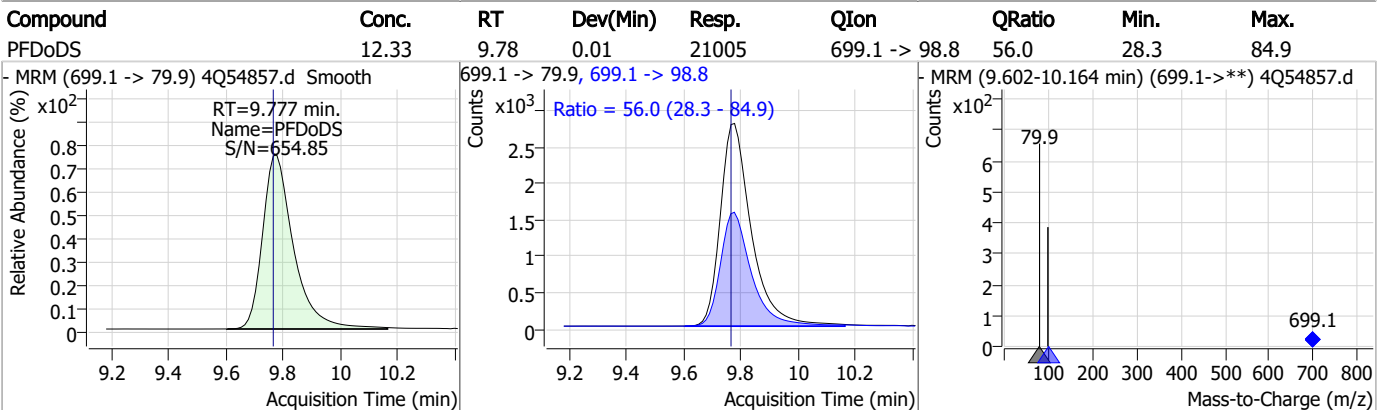
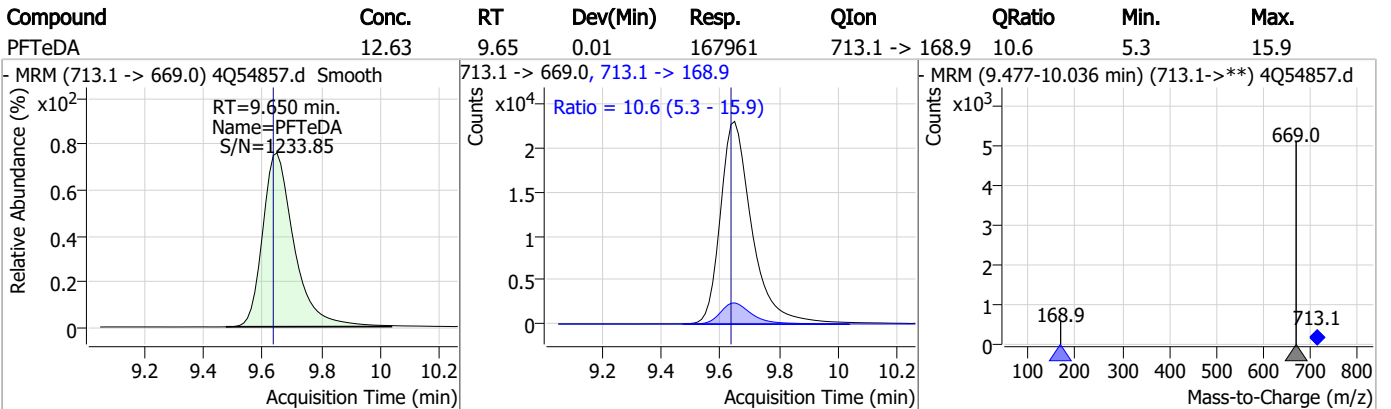
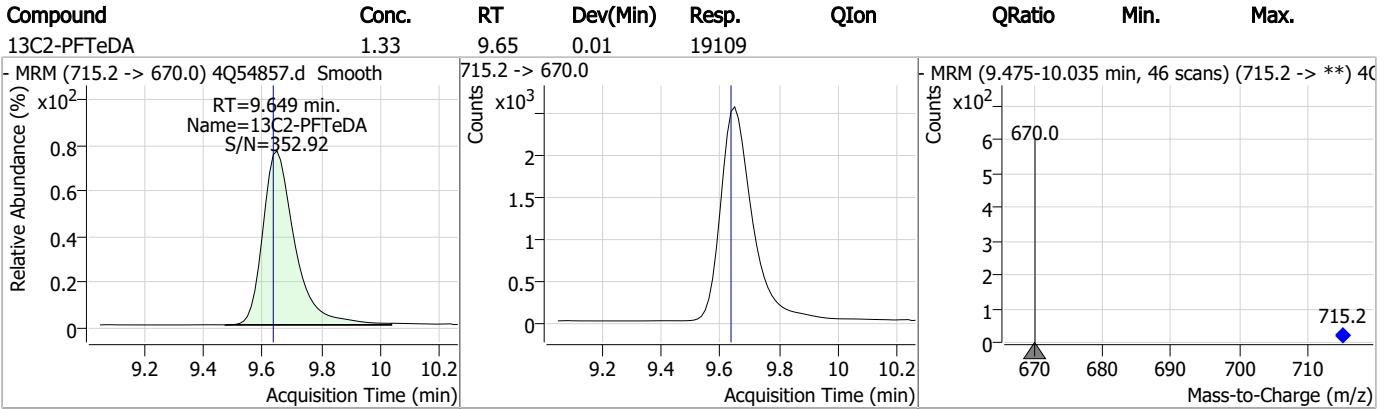
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### Perfluorinated Compounds by LC/MS/MS

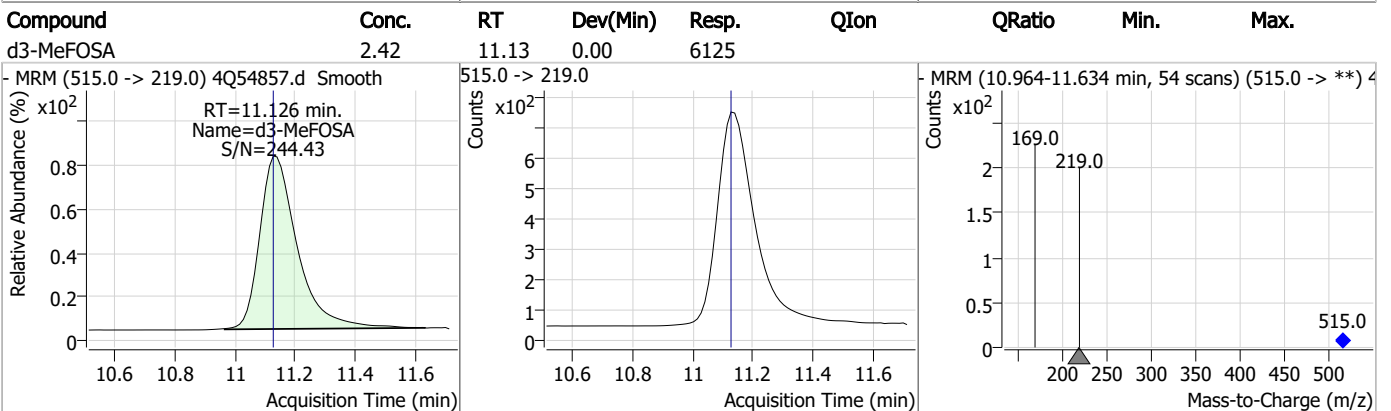
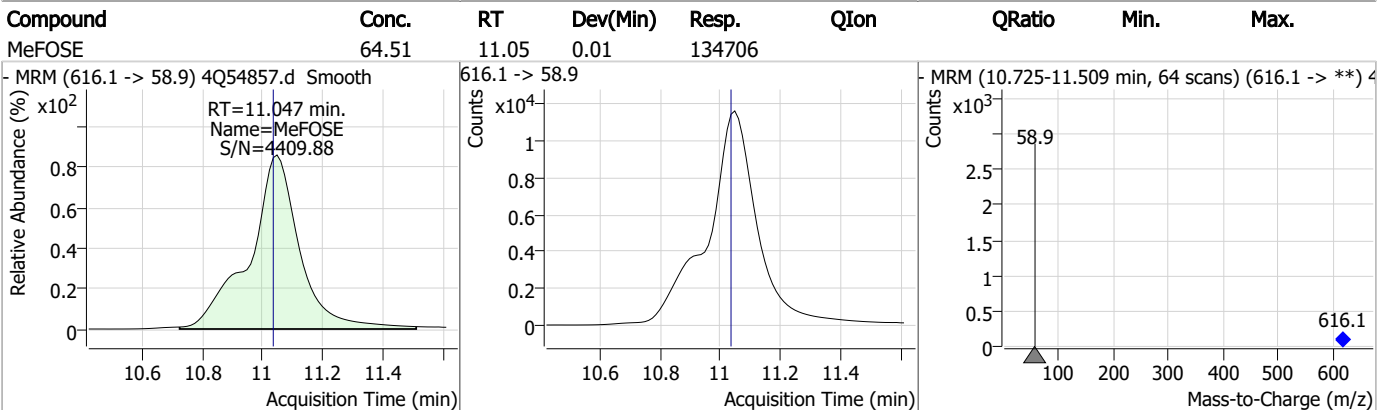
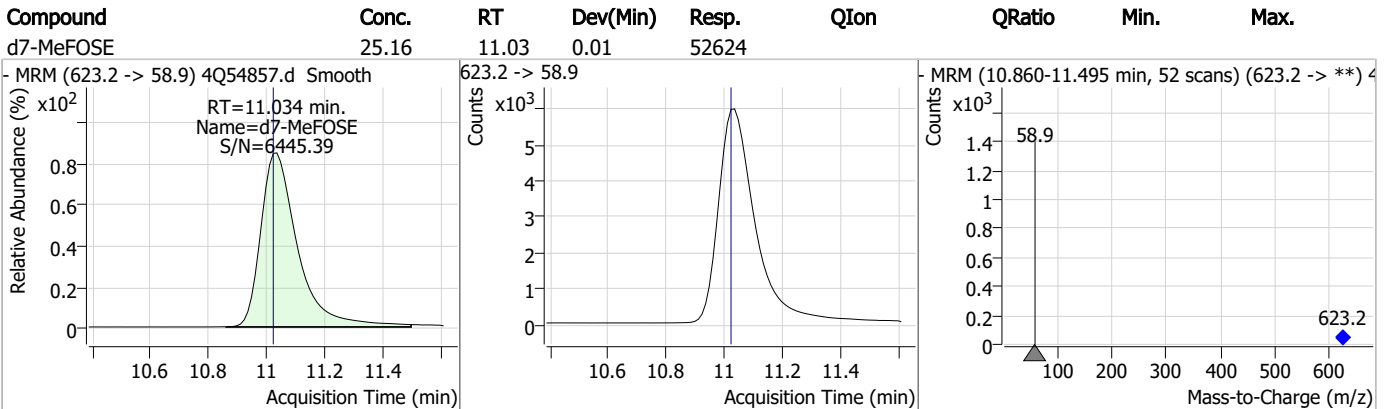
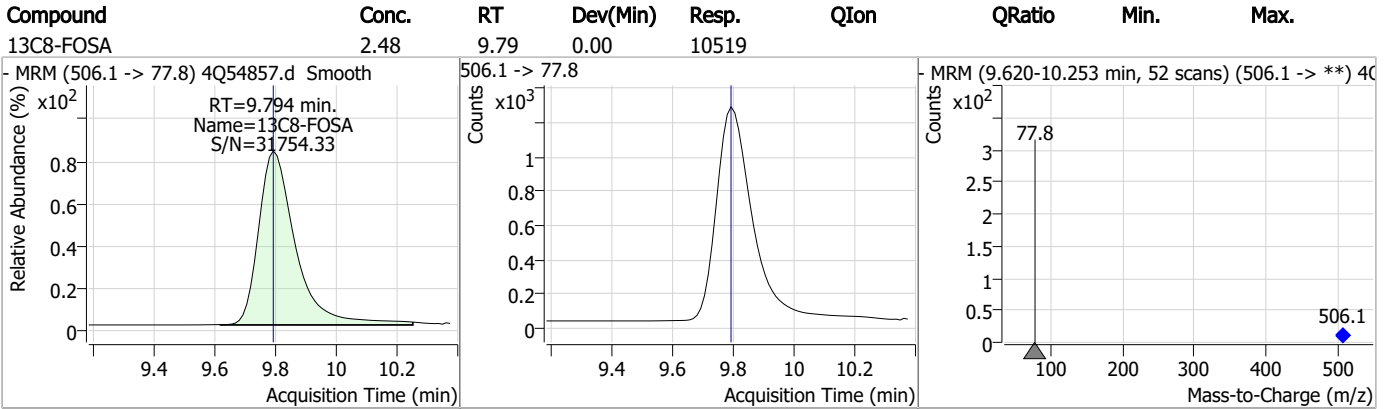


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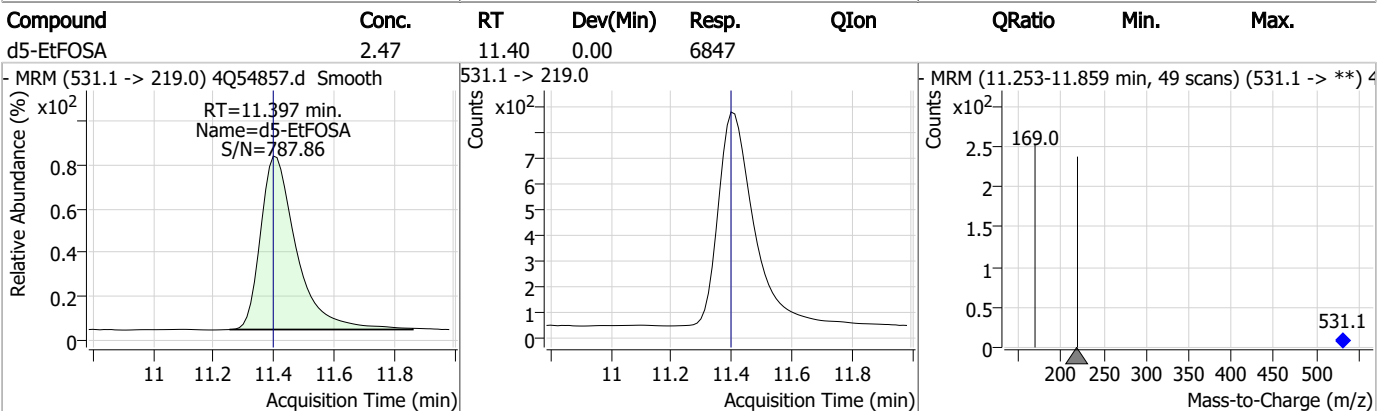
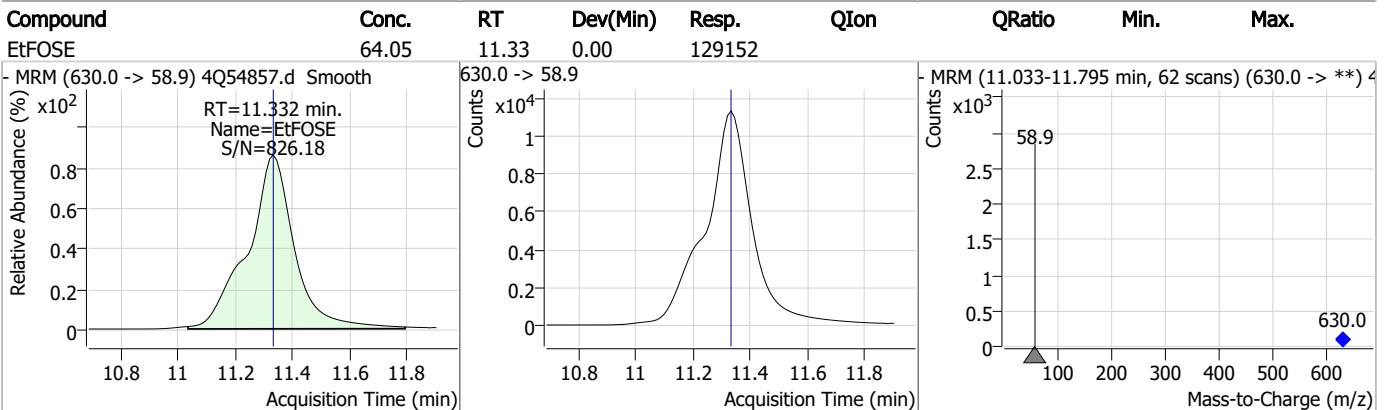
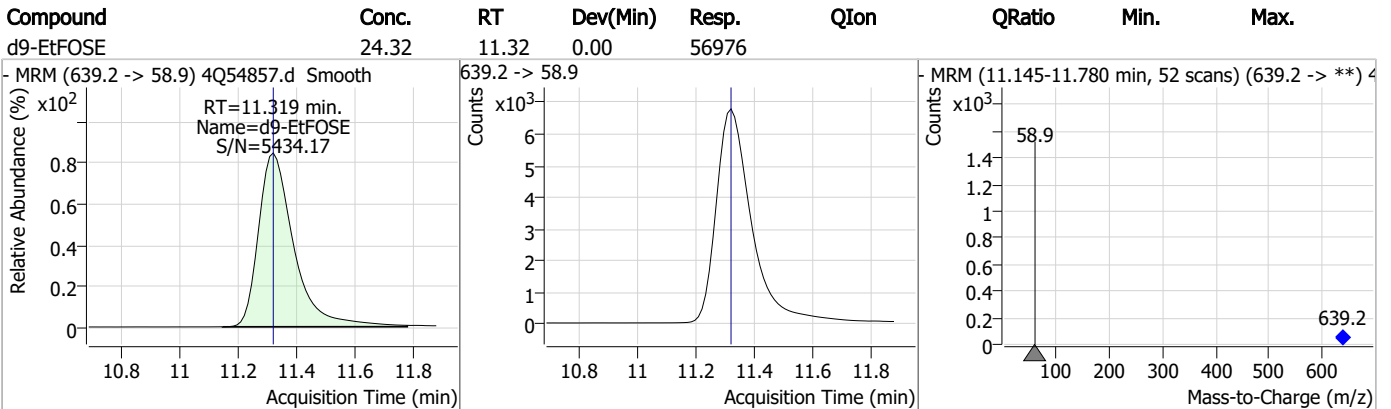
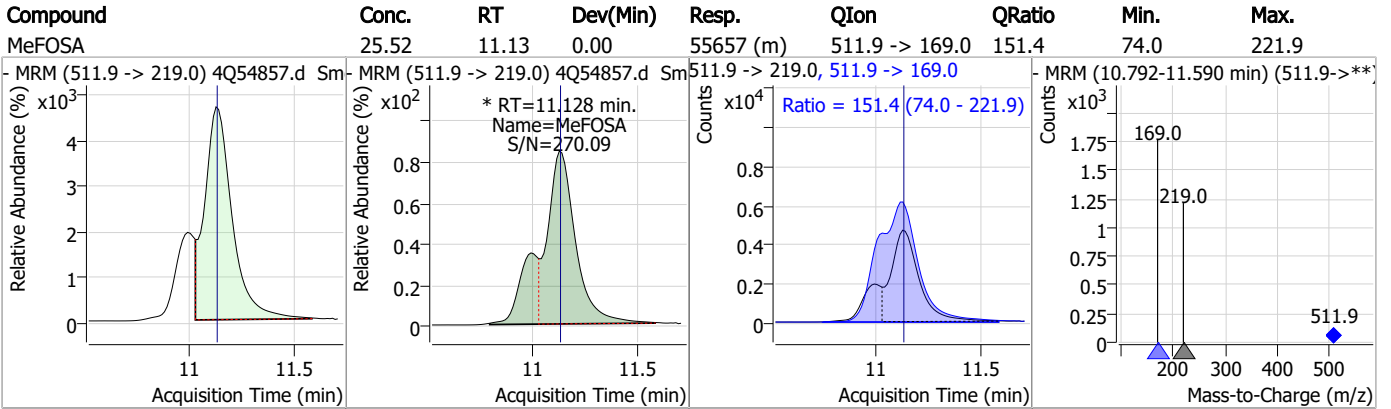
### Perfluorinated Compounds by LC/MS/MS



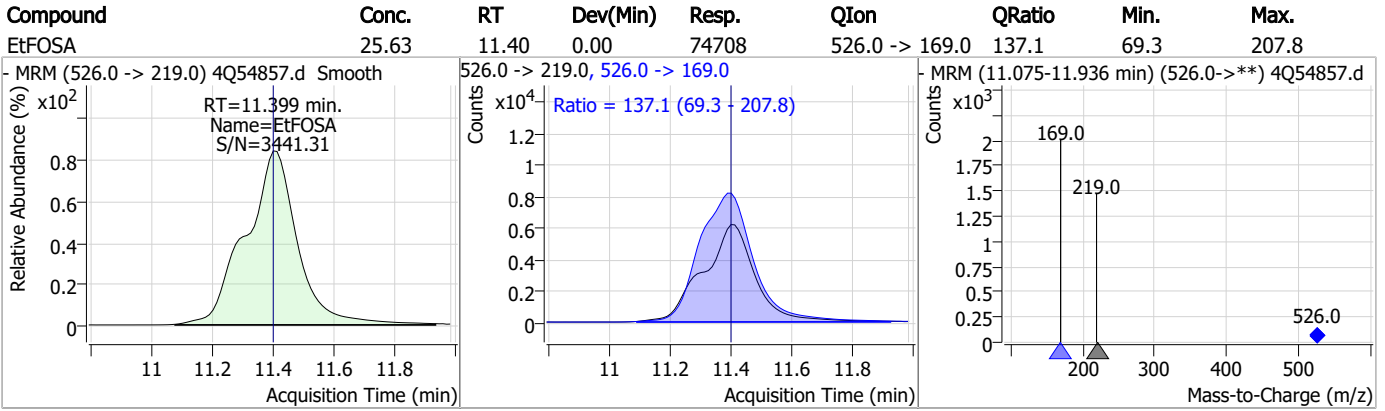
### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS



7.7.7

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# Manual Integration Approval Summary

Sample Number: S4Q804-IC804      Method: EPA DRAFT 1633  
Lab FileID: 4Q54857.D      Analyst approved: 12/10/23 12:52 Anna Ludwig  
Injection Time: 12/08/23 12:52      Supervisor approved: 12/11/23 15:42 Natasha Gumtie

| Parameter                    | CAS        | Sig# | R.T.<br>(min.) | Reason     |
|------------------------------|------------|------|----------------|------------|
| Perfluorohexanesulfonic acid | 355-46-4   |      | 7.04           | Split peak |
| Perfluorooctanesulfonic acid | 1763-23-1  |      | 8.12           | Split peak |
| MeFOSA                       | 31506-32-8 |      | 11.13          | Split peak |

7.7.7.1

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Manual Integrations  
APPROVED  
(compounds with "m" flag)

Natasha Gumtje  
12/11/23 15:42

## Perfluorinated Compounds by LC/MS/MS

Data File : 4Q54858.d  
Operator : annal  
Acq. Method : 1633full\_4Q.m  
Acq. Date-Time : 12/8/2023 1:06:48 PM  
Sample Name : ic804-7  
Vial : P1-A8  
DA Method File : 1633\_120823\_S4Q804.quantmethod.xml  
Batch Name : s4q804.batch.bin  
Sample Information : OP99999,S4Q804,500,,,5.0,1,water

| Compound                           | RT                   | Transition     | Response          | Conc. Units | Dev(Min) |
|------------------------------------|----------------------|----------------|-------------------|-------------|----------|
| <b>Internal Standards</b>          |                      |                |                   |             |          |
| M4-PFBA                            | 2.686                | 216.8 -> 171.9 | 87354             | 10.00 µg/L  | 0.012    |
| M5-PFPeA                           | 4.175                | 268.3 -> 223.0 | 38177             | 5.00 µg/L   | 0.012    |
| M5-PFHxA                           | 5.347                | 318.0 -> 273.0 | 31540             | 2.50 µg/L   | 0.012    |
| M4-PFHpA                           | 6.304                | 367.1 -> 322.0 | 29075             | 2.50 µg/L   | 0.012    |
| M8-PFOA                            | 6.989                | 421.1 -> 376.0 | 45171             | 2.50 µg/L   | 0.012    |
| M9-PFNA                            | 7.521                | 472.1 -> 427.0 | 17839             | 1.25 µg/L   | 0.000    |
| M6-PFDA                            | 8.004                | 519.1 -> 474.1 | 12956             | 1.25 µg/L   | 0.000    |
| M7-PFUnDA                          | 8.461                | 570.0 -> 525.1 | 13655             | 1.25 µg/L   | 0.012    |
| M2-PFDoDA                          | 8.880                | 615.1 -> 570.0 | 17614             | 1.25 µg/L   | 0.000    |
| M2-PFTeDA                          | 9.649                | 715.2 -> 670.0 | 17401             | 1.25 µg/L   | 0.012    |
| M8-FOSA                            | 9.794                | 506.1 -> 77.8  | 9545              | 2.50 µg/L   | 0.000    |
| M3-PFBS                            | 5.202                | 302.1 -> 79.9  | 8388              | 2.50 µg/L   | 0.013    |
| M3-PFHxS                           | 7.042                | 402.1 -> 79.9  | 6986              | 2.50 µg/L   | 0.012    |
| M8-PFOS                            | 8.130                | 507.1 -> 79.9  | 7625              | 2.50 µg/L   | 0.012    |
| M2-4:2FTS                          | 5.058                | 329.1 -> 80.9  | 910               | 5.00 µg/L   | 0.012    |
| M2-6:2FTS                          | 6.773                | 429.1 -> 80.9  | 1824              | 5.00 µg/L   | 0.025    |
| M2-8:2FTS                          | 7.816                | 529.1 -> 80.9  | 2782              | 5.00 µg/L   | 0.012    |
| M3-MeFOSAA                         | 8.086                | 573.2 -> 419.0 | 16209             | 5.00 µg/L   | 0.000    |
| M3-HFPO-DA                         | 5.702                | 286.9 -> 168.9 | 31362             | 10.00 µg/L  | 0.012    |
| M5-EtFOSAA                         | 8.296                | 589.2 -> 419.0 | 13653             | 5.00 µg/L   | 0.012    |
| M7-MeFOSE                          | 11.022               | 623.2 -> 58.9  | 47430             | 25.00 µg/L  | 0.000    |
| M9-EtFOSE                          | 11.319               | 639.2 -> 58.9  | 52473             | 25.00 µg/L  | 0.000    |
| M5-EtFOSA                          | 11.397               | 531.1 -> 219.0 | 6812              | 2.50 µg/L   | 0.000    |
| M3-MeFOSA                          | 11.139               | 515.0 -> 219.0 | 6327              | 2.50 µg/L   | 0.012    |
| 13C4-PFOS                          | 8.130                | 502.8 -> 79.9  | 5905              | 2.50 µg/L   | 0.012    |
| 13C3-PFBA                          | 2.691                | 216.0 -> 172.0 | 41866             | 5.00 µg/L   | 0.013    |
| 18O2-PFHxS                         | 7.041                | 403.0 -> 83.9  | 4305              | 2.50 µg/L   | 0.000    |
| 13C4-PFOA                          | 6.989                | 417.1 -> 372.0 | 50091             | 2.50 µg/L   | 0.012    |
| 13C2-PFDA                          | 8.004                | 515.1 -> 470.1 | 14220             | 1.25 µg/L   | 0.000    |
| 13C5-PFNA                          | 7.522                | 468.0 -> 423.0 | 18843             | 1.25 µg/L   | 0.012    |
| 13C2-PFHxA                         | 5.348                | 315.1 -> 270.0 | 33172             | 2.50 µg/L   | 0.012    |
| <b>System Monitoring Compounds</b> |                      |                |                   |             |          |
| 13C2-4:2FTS                        | 5.058                | 329.1 -> 80.9  | 910               | 4.45 µg/L   | 0.012    |
| Spiked Amount: 5.00                | Range: 50.0 - 150.0% |                | Recovery = 89.1%  |             |          |
| 13C2-6:2FTS                        | 6.773                | 429.1 -> 80.9  | 1824              | 4.11 µg/L   | 0.025    |
| Spiked Amount: 5.00                | Range: 50.0 - 150.0% |                | Recovery = 82.3%  |             |          |
| 13C2-8:2FTS                        | 7.816                | 529.1 -> 80.9  | 2782              | 4.69 µg/L   | 0.012    |
| Spiked Amount: 5.00                | Range: 50.0 - 150.0% |                | Recovery = 93.8%  |             |          |
| 13C2-PFDoDA                        | 8.880                | 615.1 -> 570.0 | 17614             | 1.24 µg/L   | 0.000    |
| Spiked Amount: 1.25                | Range: 50.0 - 150.0% |                | Recovery = 99.1%  |             |          |
| 13C2-PFTeDA                        | 9.649                | 715.2 -> 670.0 | 17401             | 1.23 µg/L   | 0.012    |
| Spiked Amount: 1.25                | Range: 50.0 - 150.0% |                | Recovery = 98.6%  |             |          |
| 13C3-PFBS                          | 5.202                | 302.1 -> 79.9  | 8388              | 2.54 µg/L   | 0.013    |
| Spiked Amount: 2.50                | Range: 50.0 - 150.0% |                | Recovery = 101.7% |             |          |
| 13C3-PFHxS                         | 7.042                | 402.1 -> 79.9  | 6986              | 2.59 µg/L   | 0.012    |

## Perfluorinated Compounds by LC/MS/MS

| Compound                | RT                   | Transition     | Response          | Conc. Units | Dev(Min)      |
|-------------------------|----------------------|----------------|-------------------|-------------|---------------|
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                | Recovery = 103.5% |             |               |
| 13C4-PFBA               | 2.686                | 216.8 -> 171.9 | 87354             | 9.94 µg/L   | 0.012         |
| Spiked Amount: 10.00    | Range: 50.0 - 150.0% |                | Recovery = 99.4%  |             |               |
| 13C4-PFHpA              | 6.304                | 367.1 -> 322.0 | 29075             | 2.49 µg/L   | 0.012         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                | Recovery = 99.5%  |             |               |
| 13C5-PFHxA              | 5.347                | 318.0 -> 273.0 | 31540             | 2.58 µg/L   | 0.012         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                | Recovery = 103.2% |             |               |
| 13C5-PFPeA              | 4.175                | 268.3 -> 223.0 | 38177             | 5.01 µg/L   | 0.012         |
| Spiked Amount: 5.00     | Range: 50.0 - 150.0% |                | Recovery = 100.3% |             |               |
| 13C6-PFDA               | 8.004                | 519.1 -> 474.1 | 12956             | 1.25 µg/L   | 0.000         |
| Spiked Amount: 1.25     | Range: 50.0 - 150.0% |                | Recovery = 100.2% |             |               |
| 13C7-PFUnDA             | 8.461                | 570.0 -> 525.1 | 13655             | 1.12 µg/L   | 0.012         |
| Spiked Amount: 1.25     | Range: 50.0 - 150.0% |                | Recovery = 89.5%  |             |               |
| 13C8-FOSA               | 9.794                | 506.1 -> 77.8  | 9545              | 2.49 µg/L   | 0.000         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                | Recovery = 99.8%  |             |               |
| 13C8-PFOA               | 6.989                | 421.1 -> 376.0 | 45171             | 2.44 µg/L   | 0.012         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                | Recovery = 97.6%  |             |               |
| 13C8-PFOS               | 8.130                | 507.1 -> 79.9  | 7625              | 2.55 µg/L   | 0.012         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                | Recovery = 102.0% |             |               |
| 13C9-PFNA               | 7.521                | 472.1 -> 427.0 | 17839             | 1.18 µg/L   | 0.000         |
| Spiked Amount: 1.25     | Range: 50.0 - 150.0% |                | Recovery = 94.5%  |             |               |
| d3-MeFOSAA              | 8.086                | 573.2 -> 419.0 | 16209             | 4.94 µg/L   | 0.000         |
| Spiked Amount: 5.00     | Range: 50.0 - 150.0% |                | Recovery = 98.9%  |             |               |
| 13C3-HFPO-DA            | 5.702                | 286.9 -> 168.9 | 31362             | 10.27 µg/L  | 0.012         |
| Spiked Amount: 10.00    | Range: 50.0 - 150.0% |                | Recovery = 102.7% |             |               |
| d3-MeFOSA               | 11.139               | 515.0 -> 219.0 | 6327              | 2.77 µg/L   | 0.012         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                | Recovery = 110.9% |             |               |
| d5-EtFOSAA              | 8.296                | 589.2 -> 419.0 | 13653             | 4.92 µg/L   | 0.012         |
| Spiked Amount: 5.00     | Range: 50.0 - 150.0% |                | Recovery = 98.5%  |             |               |
| d7-MeFOSE               | 11.022               | 623.2 -> 58.9  | 47430             | 25.12 µg/L  | 0.000         |
| Spiked Amount: 25.00    | Range: 50.0 - 150.0% |                | Recovery = 100.5% |             |               |
| d9-EtFOSE               | 11.319               | 639.2 -> 58.9  | 52473             | 24.82 µg/L  | 0.000         |
| Spiked Amount: 25.00    | Range: 50.0 - 150.0% |                | Recovery = 99.3%  |             |               |
| d5-EtFOSA               | 11.397               | 531.1 -> 219.0 | 6812              | 2.72 µg/L   | 0.000         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                | Recovery = 108.9% |             |               |
| <b>Target Compounds</b> |                      |                |                   |             | <b>QValue</b> |
| 4:2FTS                  | 5.059                | 327.1 -> 307.0 | 156049            | 99.56 µg/L  | 97            |
|                         |                      | 327.1 -> 80.9  | 64039             |             |               |
| 6:2FTS                  | 6.761                | 427.1 -> 407.0 | 213255            | 111.24 µg/L | 96            |
|                         |                      | 427.1 -> 80.9  | 73444             |             |               |
| 8:2FTS                  | 7.816                | 527.1 -> 507.0 | 150566            | 102.68 µg/L | 97            |
|                         |                      | 527.1 -> 80.8  | 57915             |             |               |
| EtFOSAA                 | 8.297                | 584.2 -> 419.1 | 66954             | 26.88 µg/L  | m 88          |
|                         |                      | 584.2 -> 526.0 | 26157             |             |               |
| FOSA                    | 9.798                | 498.1 -> 77.9  | 113100            | 26.36 µg/L  | 99            |
|                         |                      | 498.1 -> 478.0 | 3609              |             |               |
| MeFOSAA                 | 8.087                | 570.1 -> 419.0 | 69981             | 30.11 µg/L  | 95            |
|                         |                      | 570.1 -> 483.0 | 12849             |             |               |
| PFBA                    | 2.682                | 212.8 -> 168.9 | 300524            | 107.42 µg/L | 100           |
| PFBS                    | 5.203                | 298.7 -> 79.9  | 61484             | 23.63 µg/L  | 98            |
|                         |                      | 298.7 -> 98.8  | 24288             |             |               |
| PFDA                    | 8.005                | 512.9 -> 469.0 | 237667            | 24.97 µg/L  | 98            |
|                         |                      | 512.9 -> 219.0 | 46893             |             |               |
| PFDoDA                  | 8.880                | 613.1 -> 569.0 | 337475            | 26.60 µg/L  | 99            |
|                         |                      | 613.1 -> 319.0 | 59206             |             |               |
| PFDS                    | 9.020                | 599.0 -> 79.9  | 51524             | 25.39 µg/L  | 97            |

## Perfluorinated Compounds by LC/MS/MS

| Compound     | RT     | Transition     | Response | Conc.  | Units | Dev(Min) |
|--------------|--------|----------------|----------|--------|-------|----------|
|              |        | 599.0 -> 98.8  | 26101    |        |       |          |
| PFHpA        | 6.305  | 363.1 -> 319.0 | 446479   | 27.28  | µg/L  | 99       |
|              |        | 363.1 -> 169.0 | 79342    |        |       |          |
| PFHpS        | 7.624  | 449.0 -> 79.9  | 77955    | 25.77  | µg/L  | 100      |
|              |        | 449.0 -> 98.9  | 40719    |        |       |          |
| PFHxA        | 5.350  | 313.0 -> 269.0 | 263757   | 26.21  | µg/L  | 99       |
|              |        | 313.0 -> 118.9 | 8077     |        |       |          |
| PFHxS        | 7.043  | 398.7 -> 79.9  | 51447    | 22.83  | µg/L  | m 97     |
|              |        | 398.7 -> 98.9  | 25465    |        |       |          |
| PFNA         | 7.522  | 463.0 -> 419.0 | 287697   | 27.45  | µg/L  | 98       |
|              |        | 463.0 -> 219.0 | 68946    |        |       |          |
| PFNS         | 8.586  | 548.8 -> 79.9  | 35851    | 27.56  | µg/L  | 97       |
|              |        | 548.8 -> 98.9  | 18559    |        |       |          |
| PFOA         | 6.990  | 413.0 -> 369.0 | 495670   | 26.68  | µg/L  | 96       |
|              |        | 413.0 -> 169.0 | 101555   |        |       |          |
| PFOS         | 8.131  | 498.9 -> 79.9  | 74590    | 23.50  | µg/L  | m 52     |
|              |        | 498.9 -> 98.8  | 34238    |        |       |          |
| PFPeA        | 4.177  | 263.0 -> 219.0 | 402705   | 53.61  | µg/L  | 100      |
| PFPeS        | 6.294  | 349.1 -> 79.9  | 52797    | 24.88  | µg/L  | 95       |
|              |        | 349.1 -> 98.9  | 24033    |        |       |          |
| PFTeDA       | 9.650  | 713.1 -> 669.0 | 323093   | 26.68  | µg/L  | 99       |
|              |        | 713.1 -> 168.9 | 32906    |        |       |          |
| PFTrDA       | 9.279  | 663.0 -> 619.0 | 360692   | 26.17  | µg/L  | 99       |
|              |        | 663.0 -> 168.9 | 49646    |        |       |          |
| PFUnDA       | 8.461  | 563.1 -> 519.0 | 275616   | 27.75  | µg/L  | 99       |
|              |        | 563.1 -> 269.1 | 59539    |        |       |          |
| 11Cl-PF3OUdS | 9.306  | 630.9 -> 450.9 | 428216   | 49.59  | µg/L  | 99       |
|              |        | 632.9 -> 452.9 | 132787   |        |       |          |
| 9Cl-PF3ONS   | 8.463  | 530.8 -> 351.0 | 407311   | 46.66  | µg/L  | 100      |
|              |        | 532.8 -> 353.0 | 122254   |        |       |          |
| ADONA        | 6.568  | 376.9 -> 250.9 | 1151101  | 54.35  | µg/L  | 100      |
|              |        | 376.9 -> 84.8  | 277421   |        |       |          |
| HFPO-DA      | 5.703  | 284.9 -> 168.9 | 158726   | 52.89  | µg/L  | 99       |
|              |        | 284.9 -> 184.9 | 15251    |        |       |          |
| 3:3FTCA      | 3.617  | 241.0 -> 177.0 | 60644    | 136.36 | µg/L  | 100      |
|              |        | 241.0 -> 117.0 | 5330     |        |       |          |
| 5:3FTCA      | 6.020  | 341.0 -> 237.1 | 1177771  | 656.12 | µg/L  | 98       |
|              |        | 341.0 -> 217.0 | 825148   |        |       |          |
| 7:3FTCA      | 7.536  | 441.0 -> 316.9 | 606563   | 644.37 | µg/L  | 99       |
|              |        | 441.0 -> 336.9 | 1431693  |        |       |          |
| EtFOSA       | 11.399 | 526.0 -> 219.0 | 143025   | 49.31  | µg/L  | 100      |
|              |        | 526.0 -> 169.0 | 198112   |        |       |          |
| EtFOSE       | 11.332 | 630.0 -> 58.9  | 245376   | 132.13 | µg/L  | 100      |
| MeFOSA       | 11.128 | 511.9 -> 219.0 | 112208   | 49.81  | µg/L  | m 96     |
|              |        | 511.9 -> 169.0 | 159992   |        |       |          |
| MeFOSE       | 11.047 | 616.1 -> 58.9  | 251819   | 133.81 | µg/L  | 100      |
| PFDoS        | 9.777  | 699.1 -> 79.9  | 40747    | 26.33  | µg/L  | 98       |
|              |        | 699.1 -> 98.8  | 22426    |        |       |          |
| NFDHA        | 5.229  | 295.0 -> 201.0 | 34793    | 48.80  | µg/L  | 99       |
|              |        | 295.0 -> 84.9  | 8855     |        |       |          |
| PFMBA        | 4.578  | 279.0 -> 85.1  | 219615   | 53.10  | µg/L  | 100      |
| PFMPA        | 3.315  | 229.0 -> 84.9  | 243276   | 53.53  | µg/L  | 100      |
| PFEESA       | 5.734  | 314.8 -> 134.9 | 349223   | 46.95  | µg/L  | 98       |
|              |        | 314.8 -> 82.9  | 11549    |        |       |          |

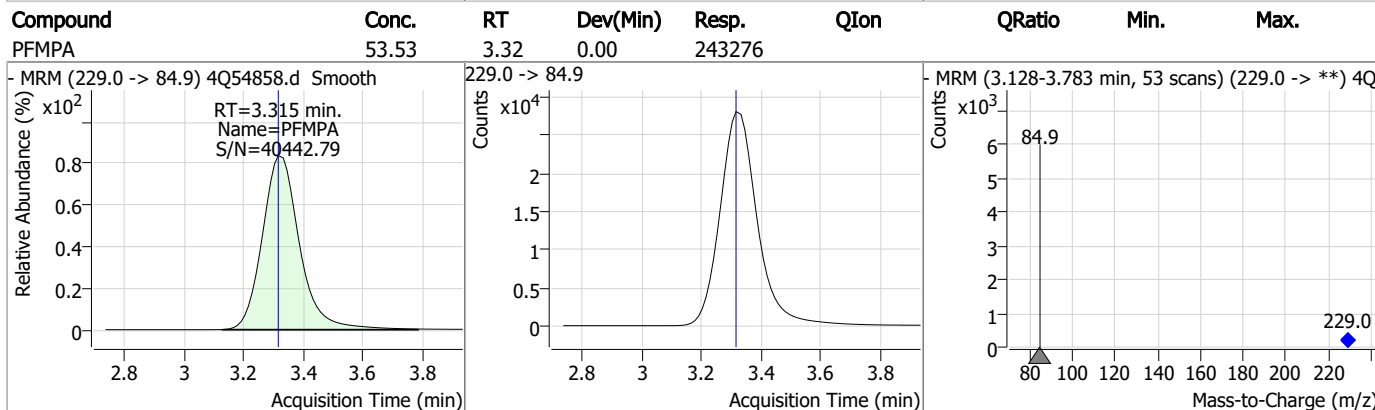
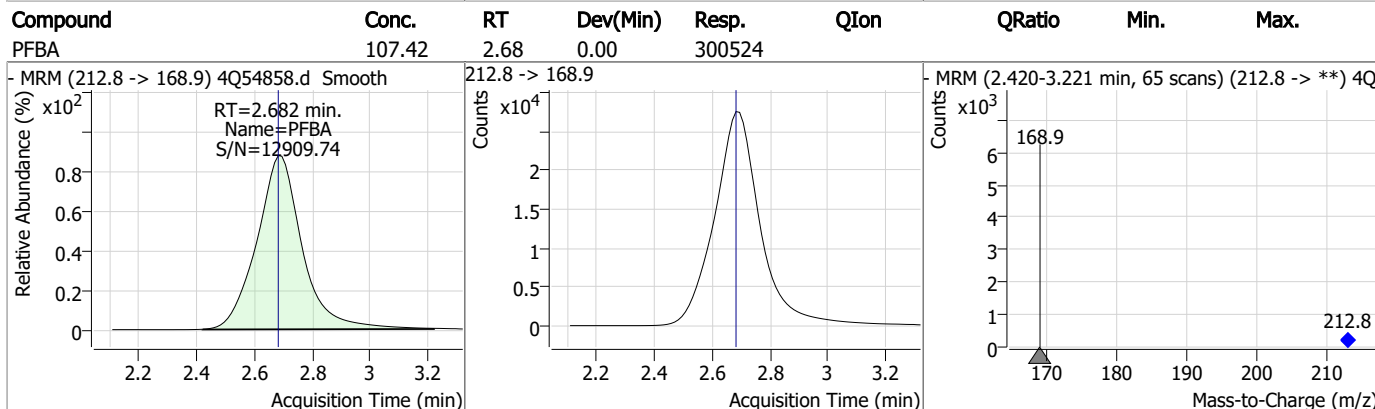
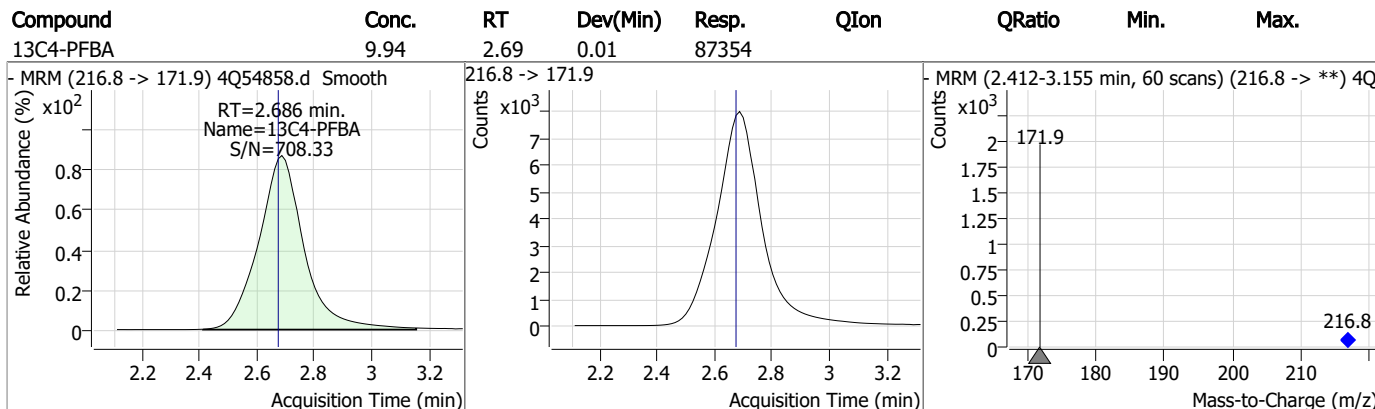
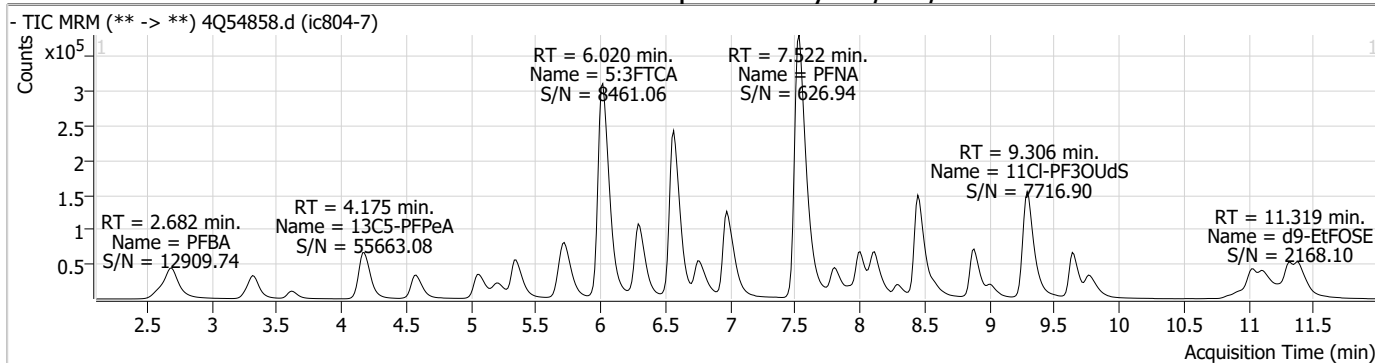
# = Qualifier out of range, m = manually integrated, + = Area summed

### Perfluorinated Compounds by LC/MS/MS

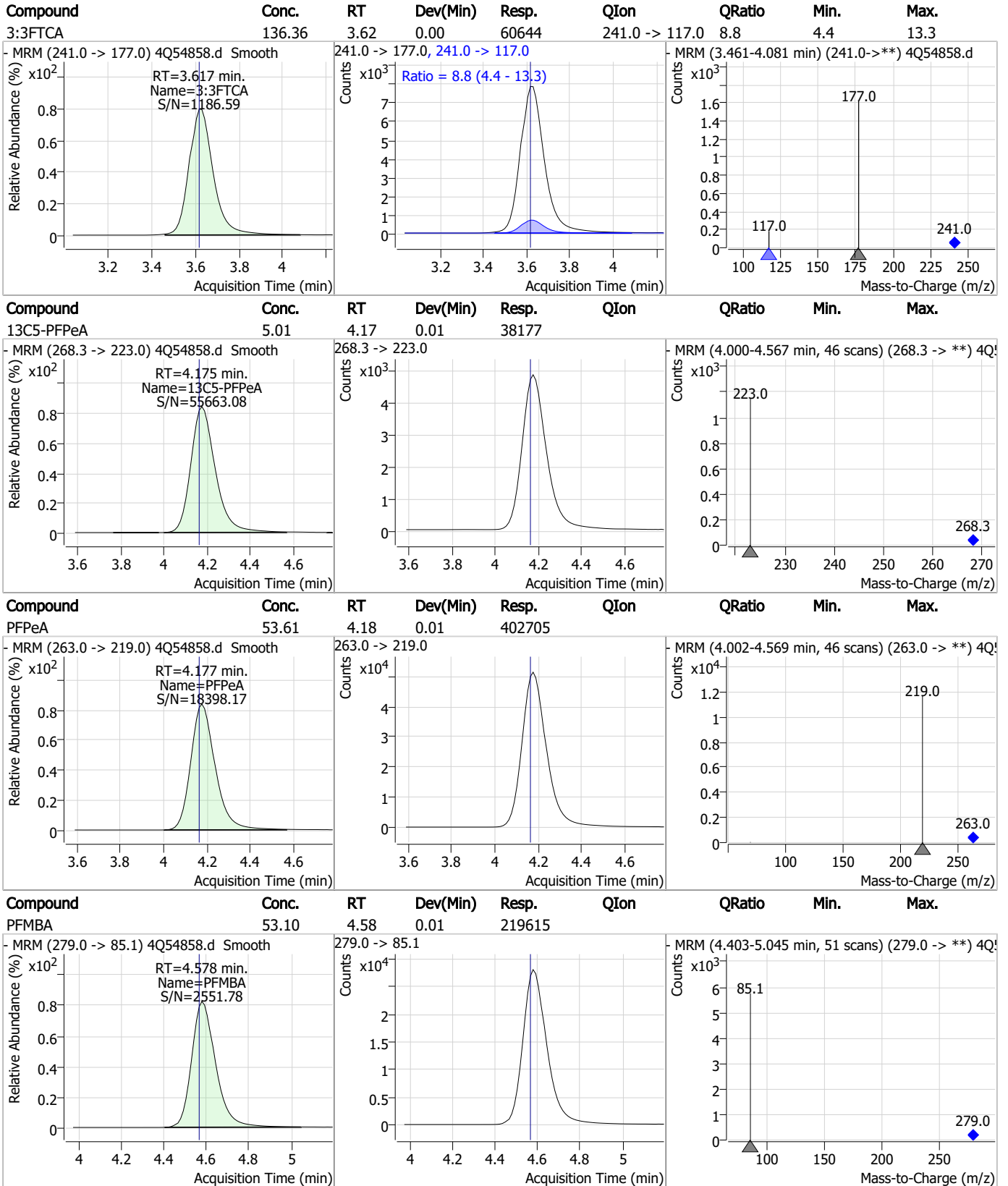
| Compound | RT | Transition | Response | Conc. Units | Dev(Min) |
|----------|----|------------|----------|-------------|----------|
|----------|----|------------|----------|-------------|----------|

7.7.8  
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### Perfluorinated Compounds by LC/MS/MS



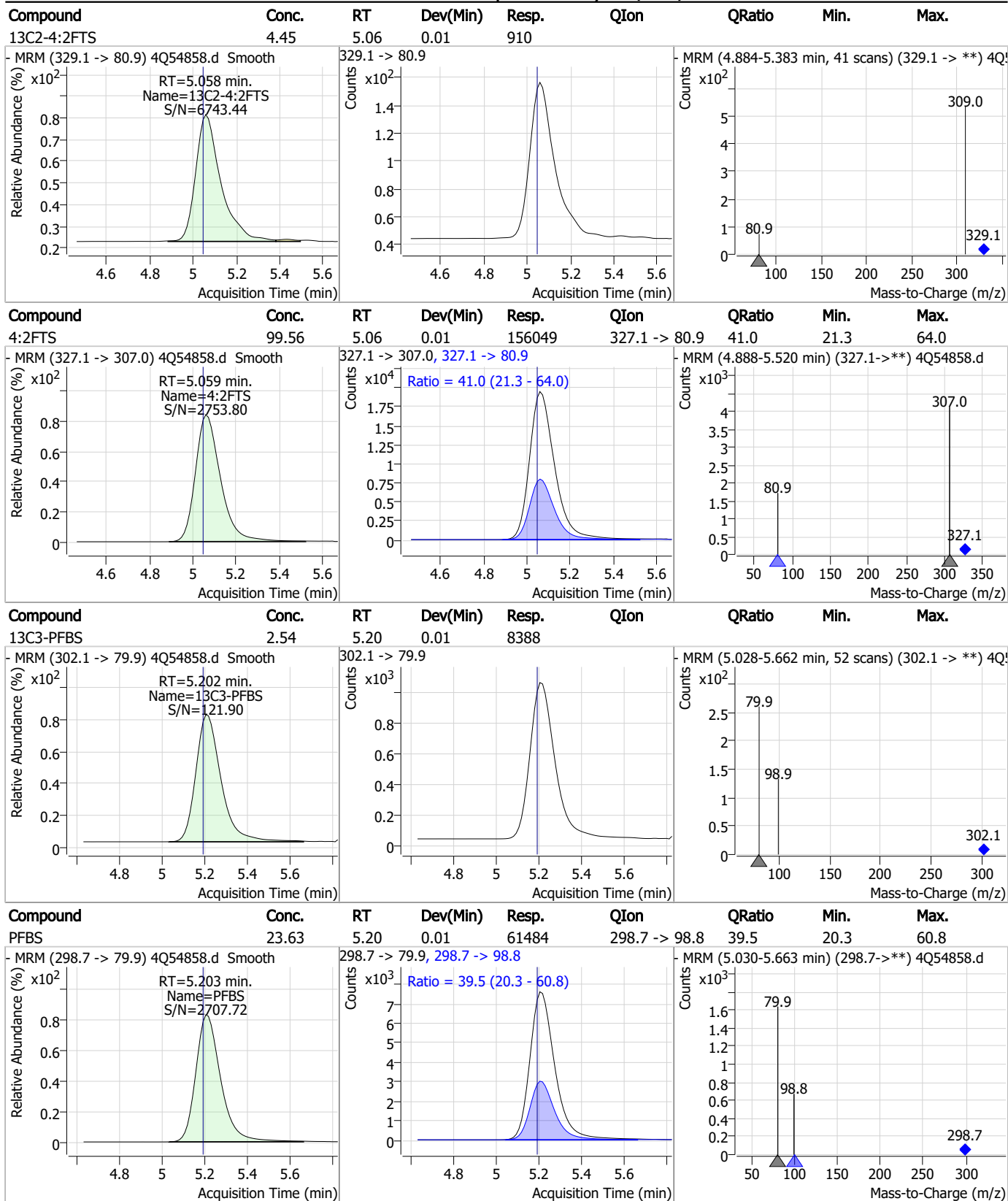
### Perfluorinated Compounds by LC/MS/MS



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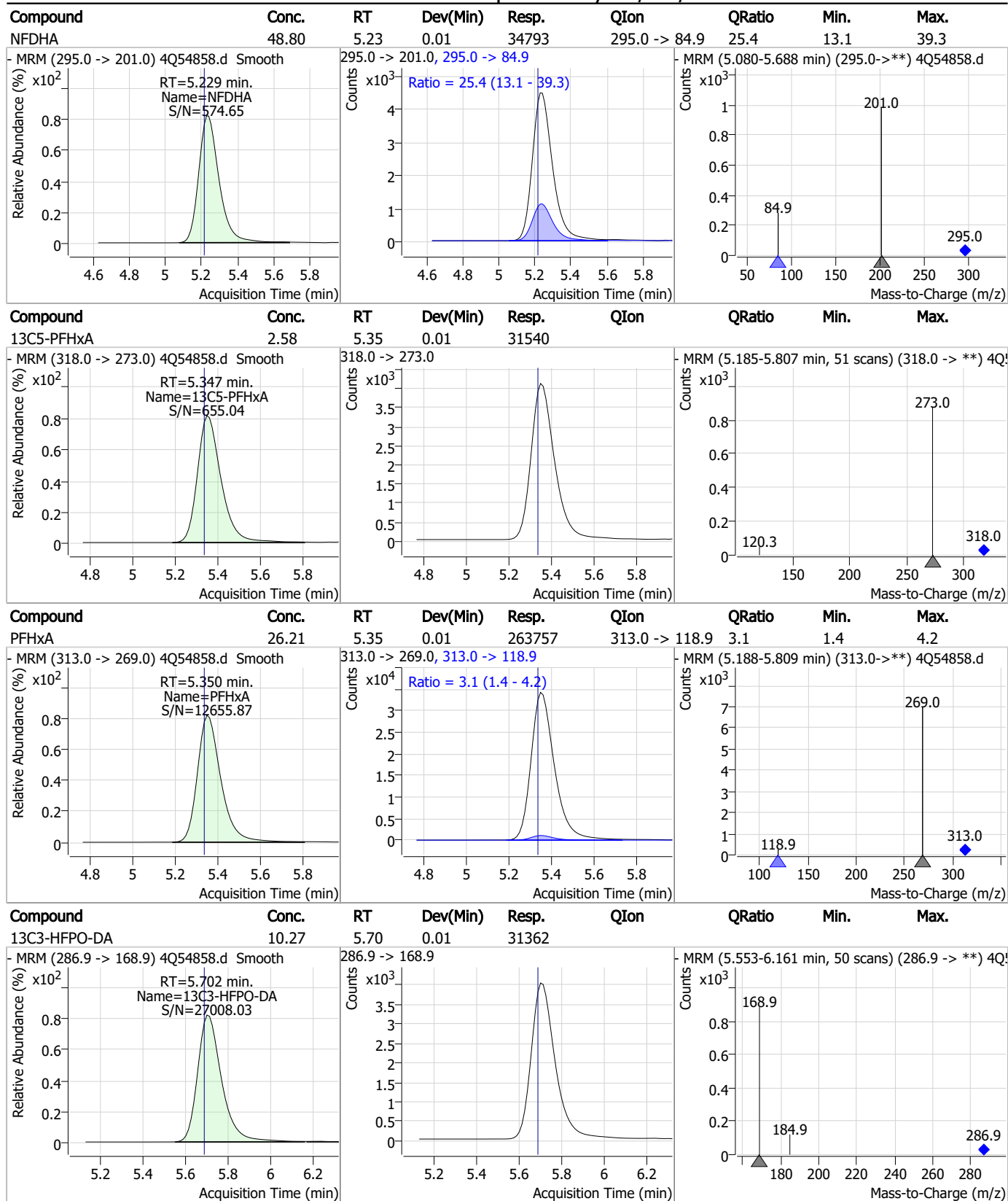
### Perfluorinated Compounds by LC/MS/MS



7.7.8  
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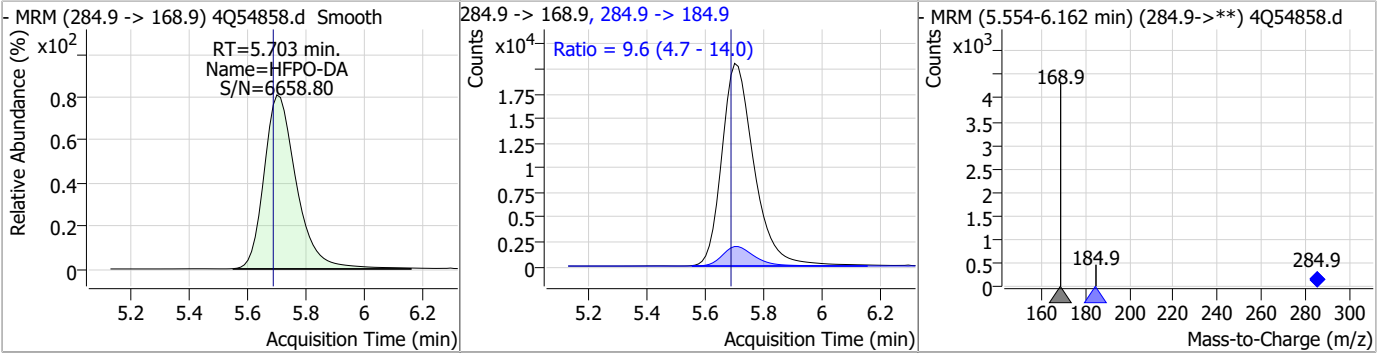
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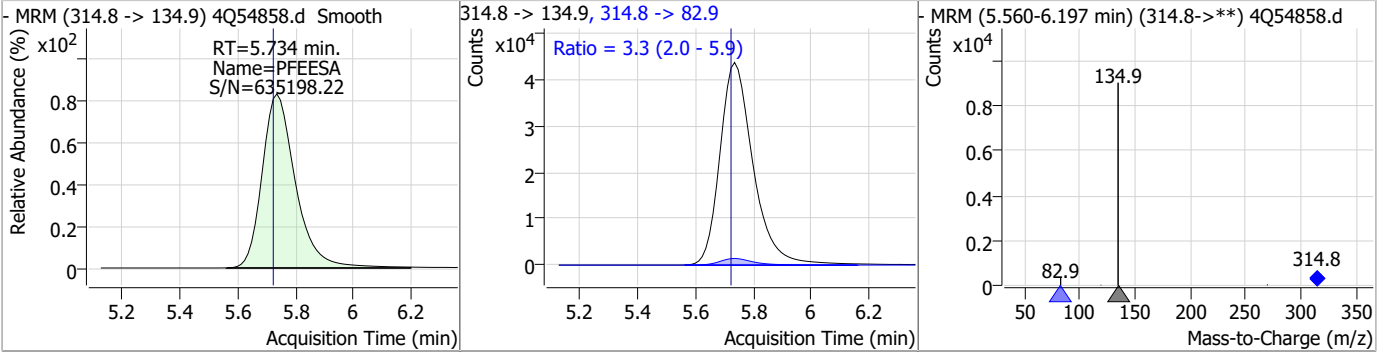
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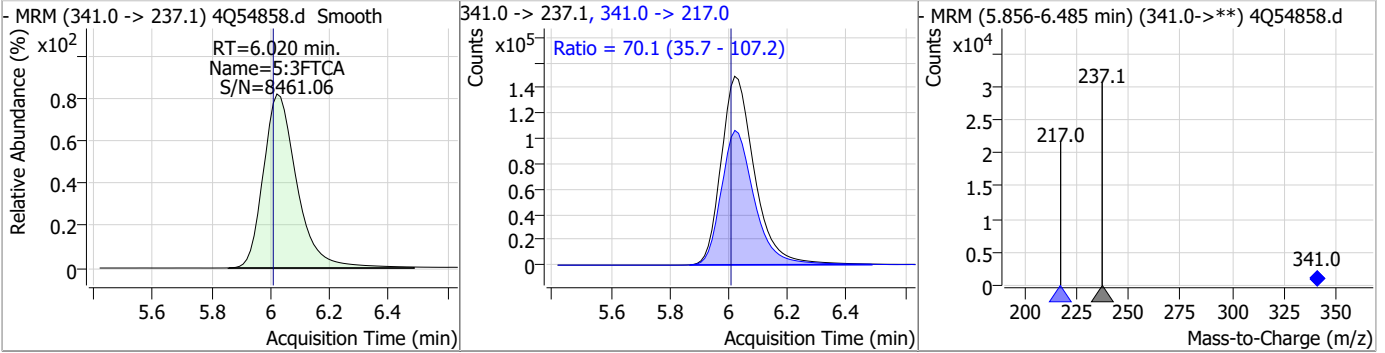
| Compound | Conc. | RT   | Dev(Min) | Resp.  | QIon           | QRatio | Min. | Max. |
|----------|-------|------|----------|--------|----------------|--------|------|------|
| HFPO-DA  | 52.89 | 5.70 | 0.01     | 158726 | 284.9 -> 184.9 | 9.6    | 4.7  | 14.0 |



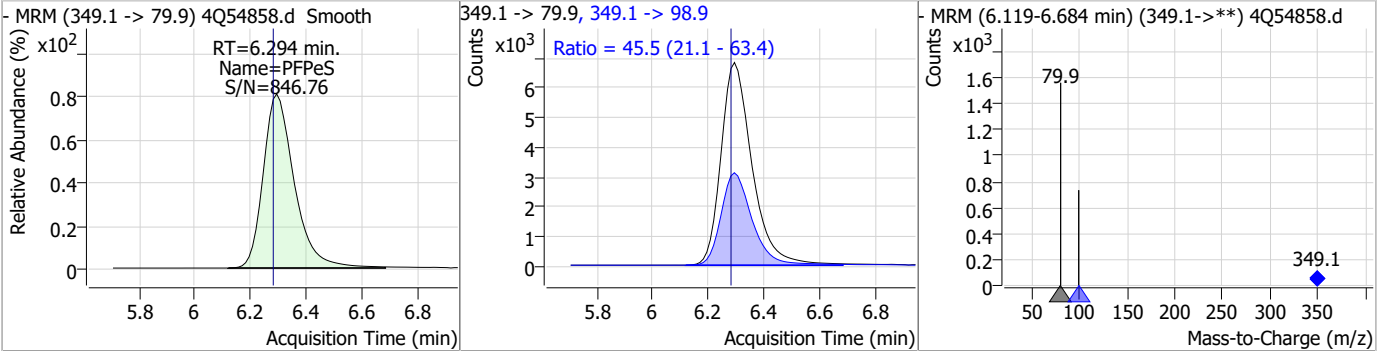
| Compound | Conc. | RT   | Dev(Min) | Resp.  | QIon          | QRatio | Min. | Max. |
|----------|-------|------|----------|--------|---------------|--------|------|------|
| PFEESA   | 46.95 | 5.73 | 0.01     | 349223 | 314.8 -> 82.9 | 3.3    | 2.0  | 5.9  |



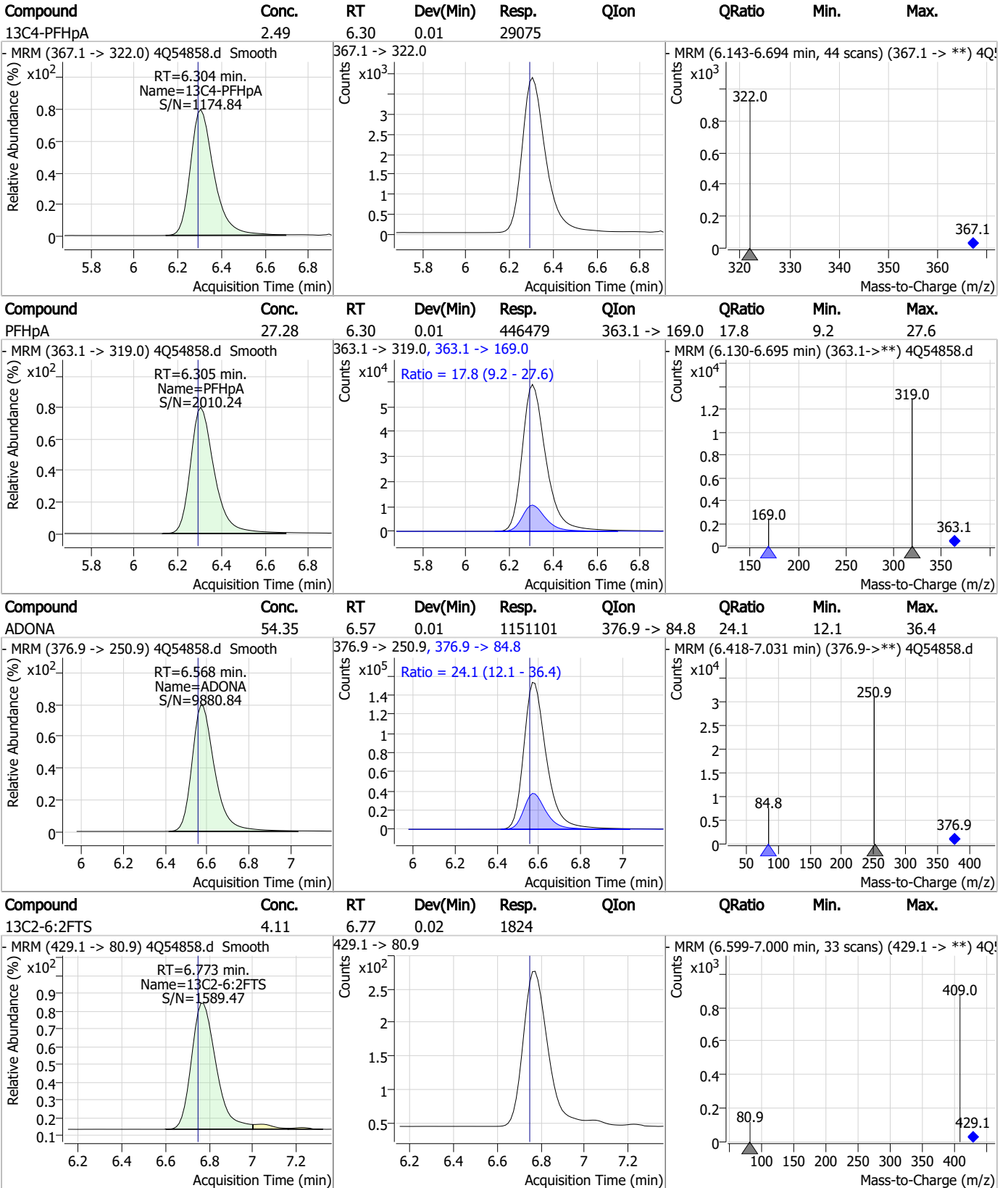
| Compound | Conc.  | RT   | Dev(Min) | Resp.   | QIon           | QRatio | Min. | Max.  |
|----------|--------|------|----------|---------|----------------|--------|------|-------|
| 5:3FTCA  | 656.12 | 6.02 | 0.01     | 1177771 | 341.0 -> 217.0 | 70.1   | 35.7 | 107.2 |



| Compound | Conc. | RT   | Dev(Min) | Resp. | QIon          | QRatio | Min. | Max. |
|----------|-------|------|----------|-------|---------------|--------|------|------|
| PFPeS    | 24.88 | 6.29 | 0.01     | 52797 | 349.1 -> 98.9 | 45.5   | 21.1 | 63.4 |



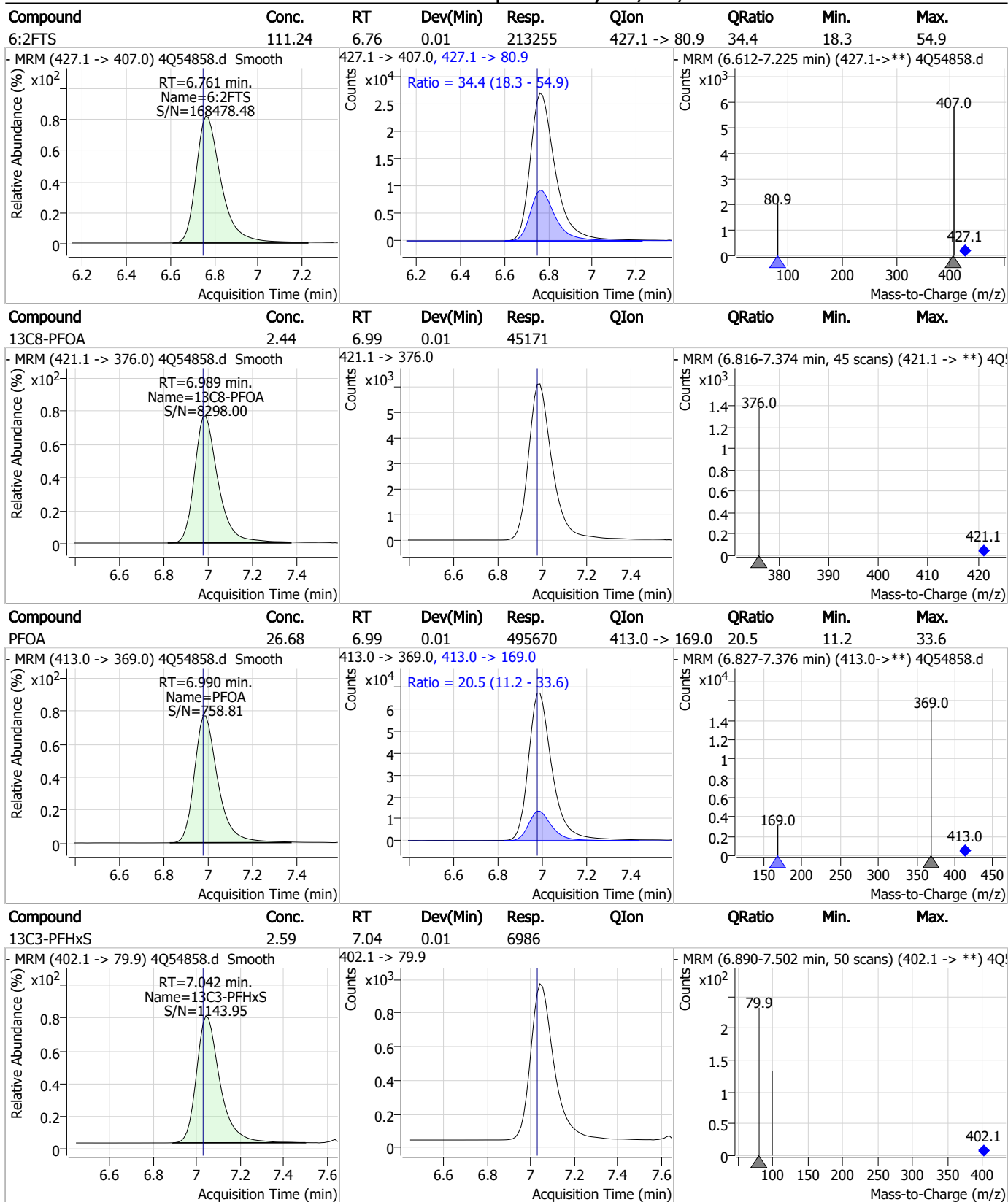
### Perfluorinated Compounds by LC/MS/MS



7.7.8

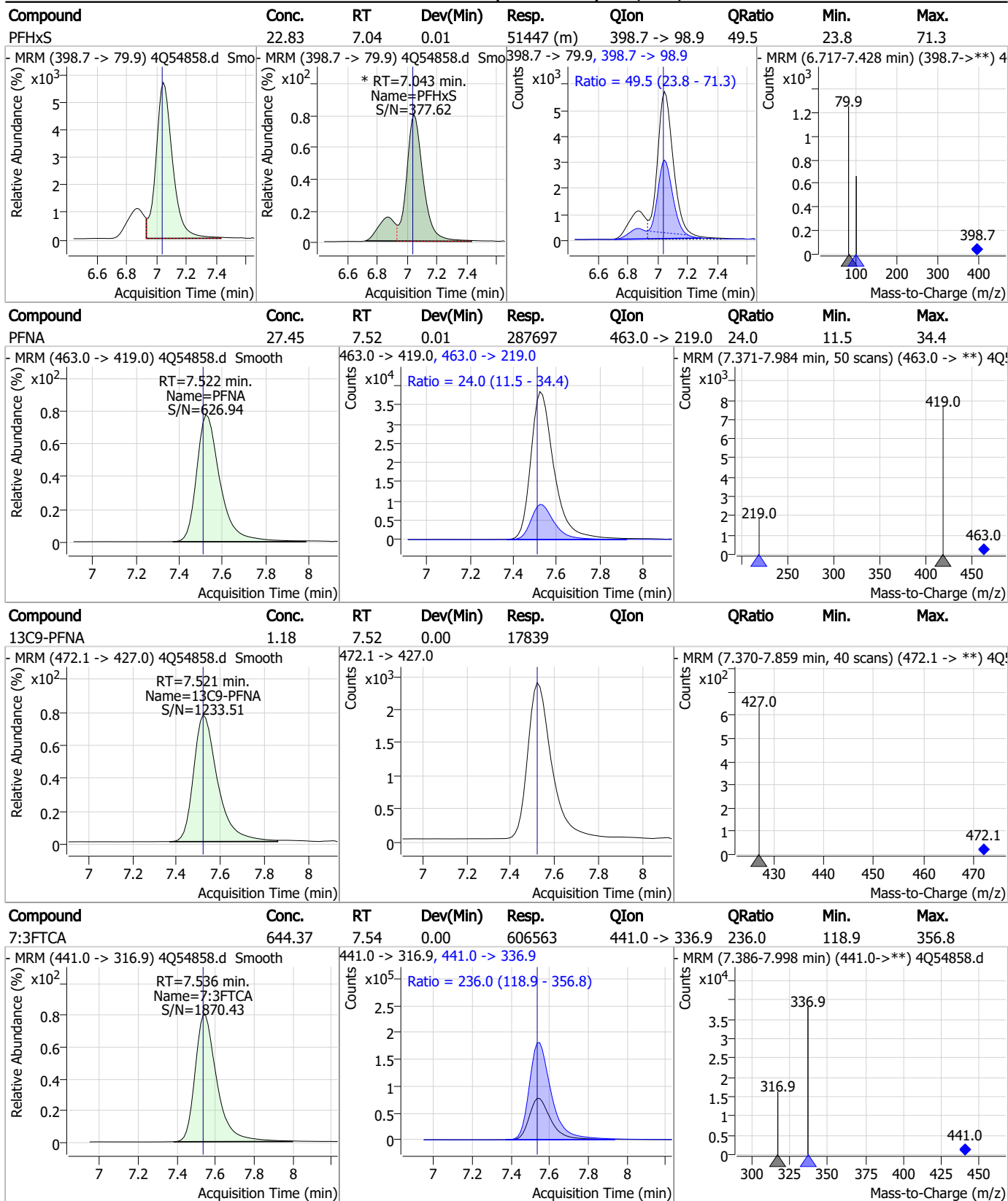
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### Perfluorinated Compounds by LC/MS/MS



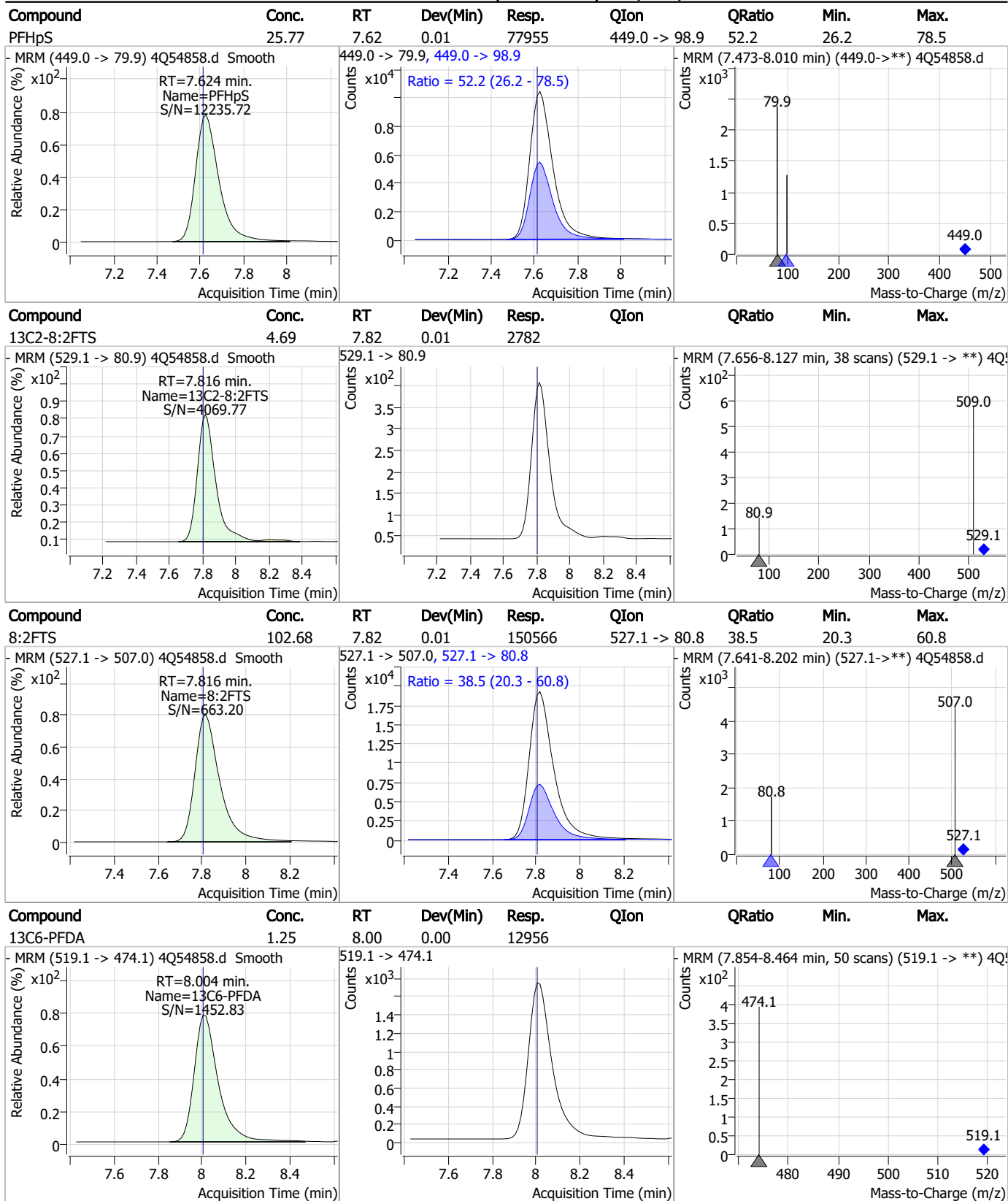
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### Perfluorinated Compounds by LC/MS/MS



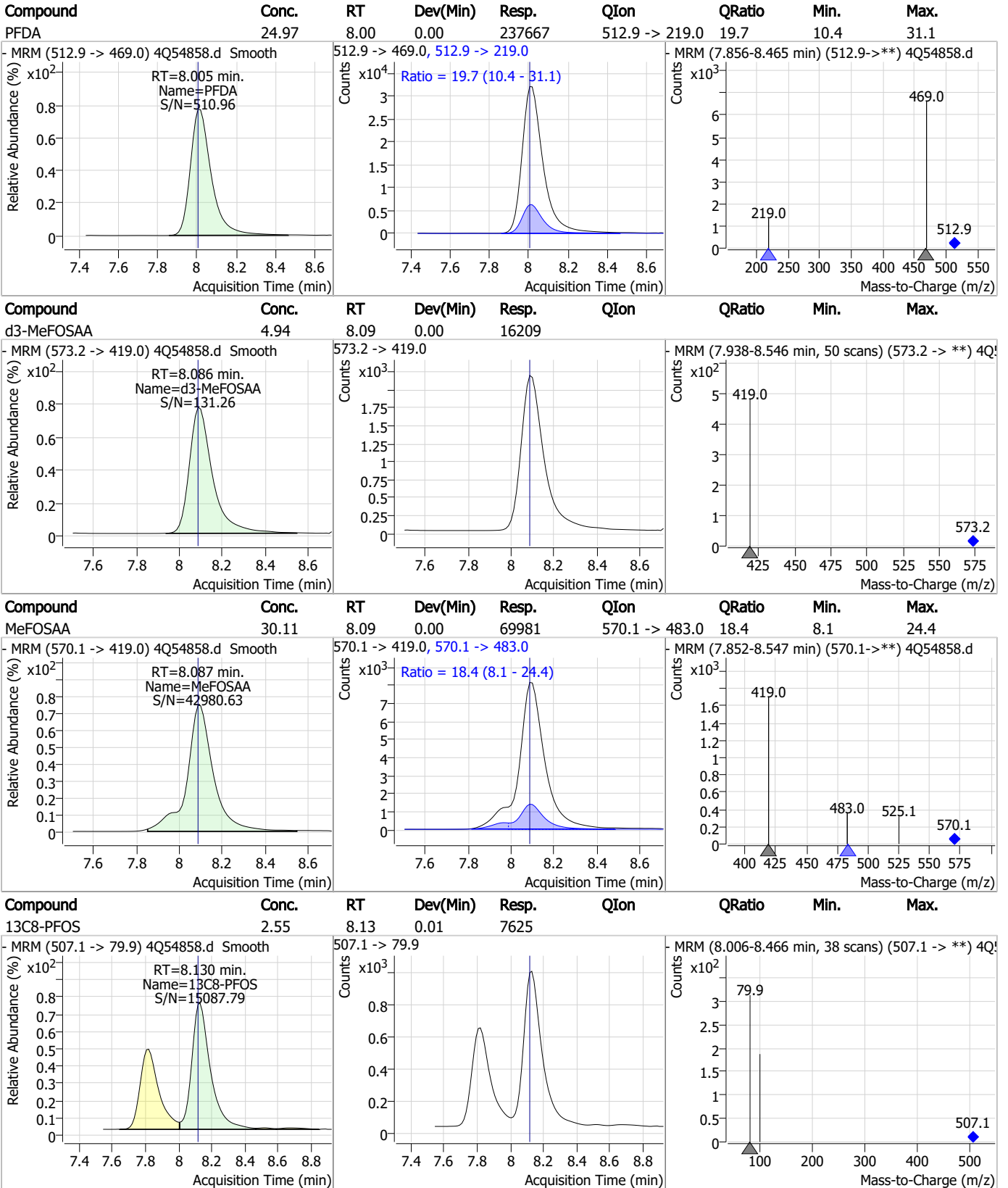
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### Perfluorinated Compounds by LC/MS/MS



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### Perfluorinated Compounds by LC/MS/MS

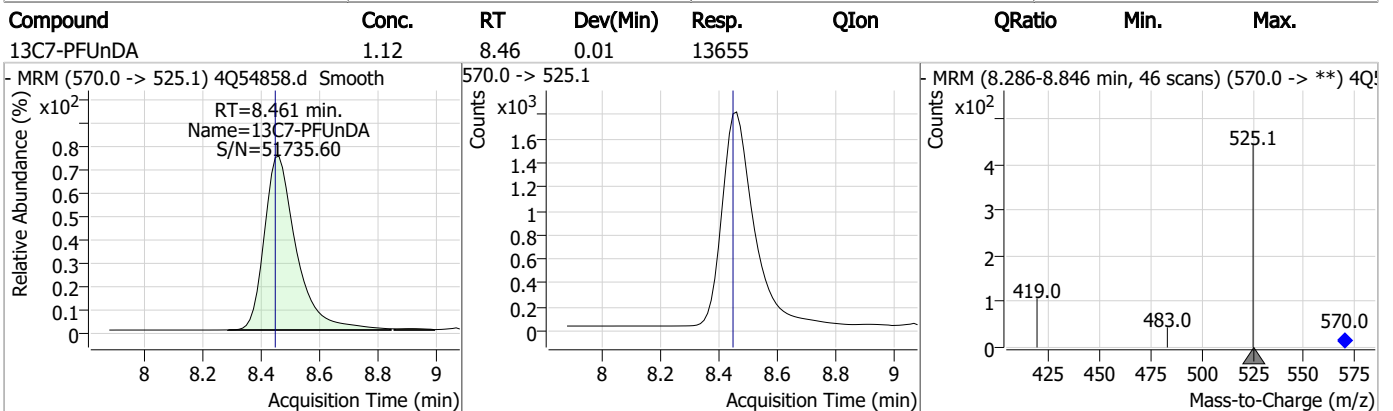
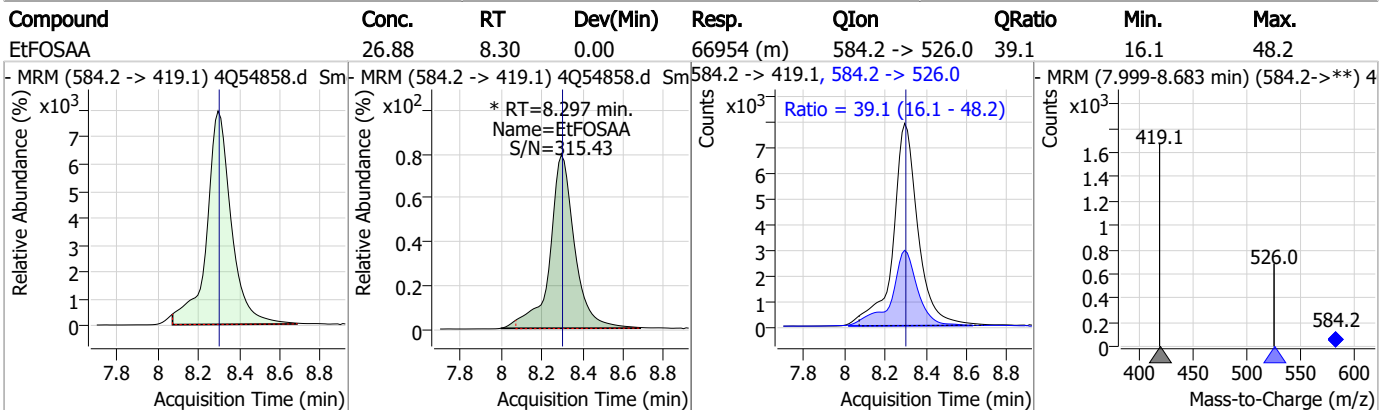
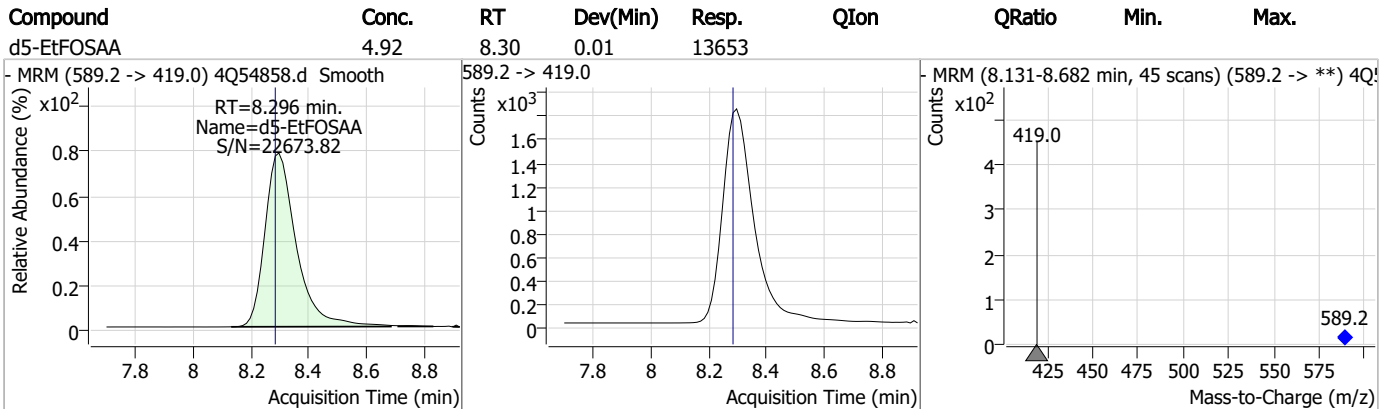
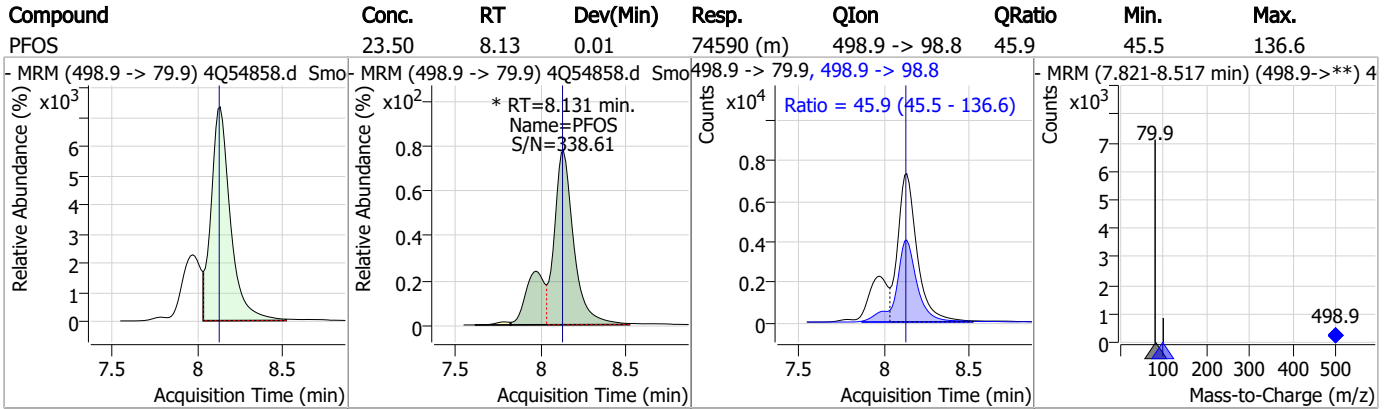


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### Perfluorinated Compounds by LC/MS/MS

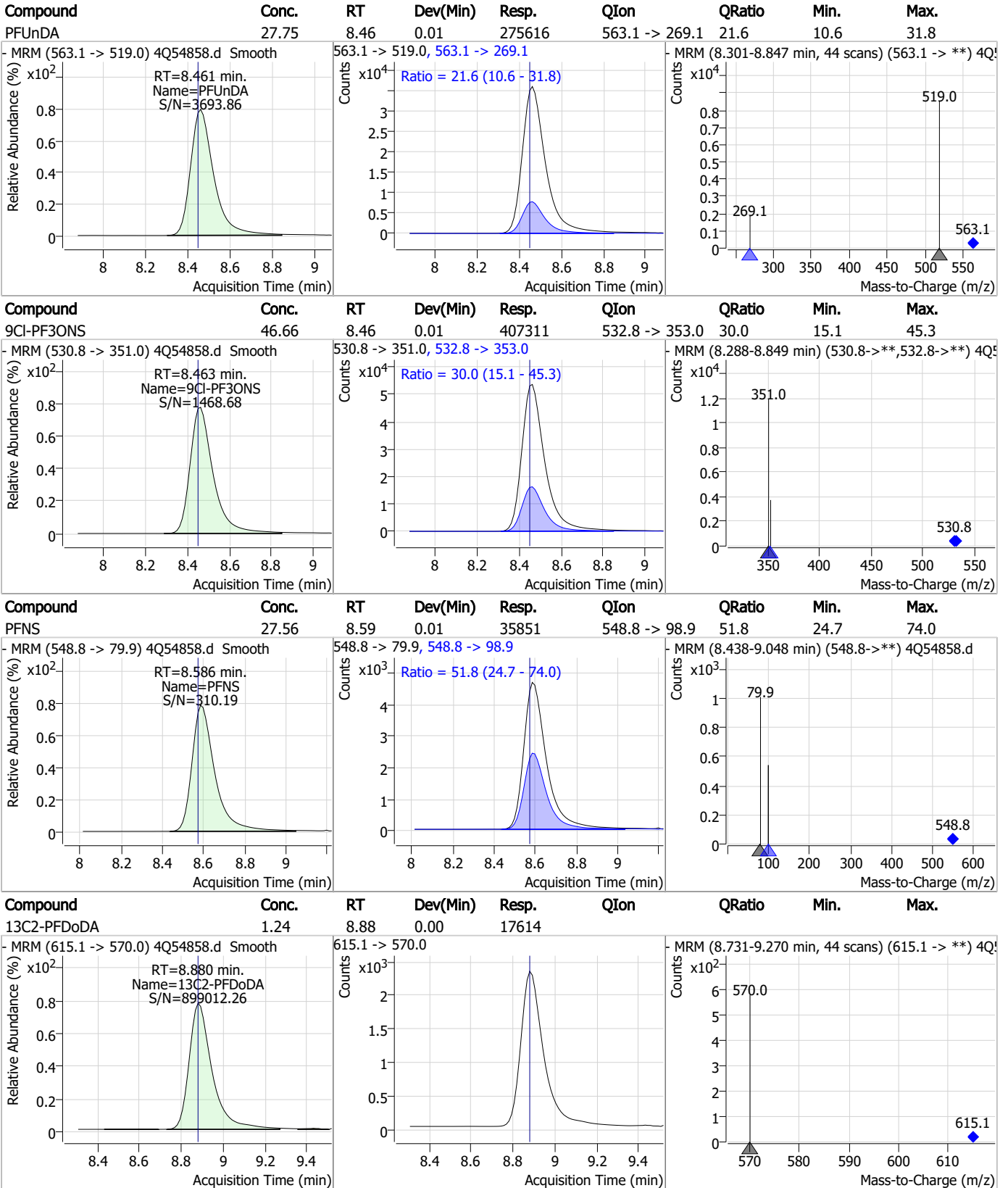


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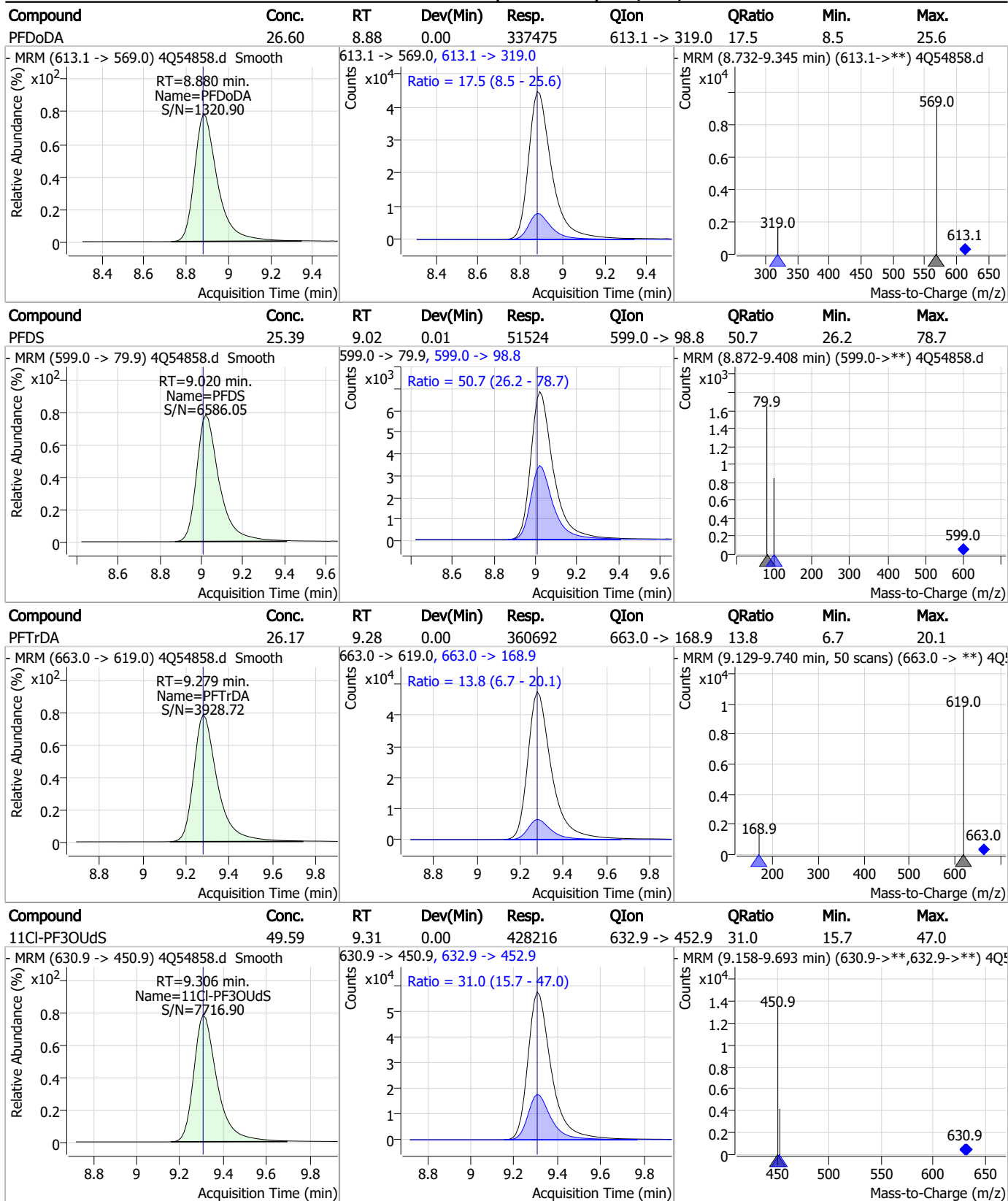
### Perfluorinated Compounds by LC/MS/MS



7.7.8

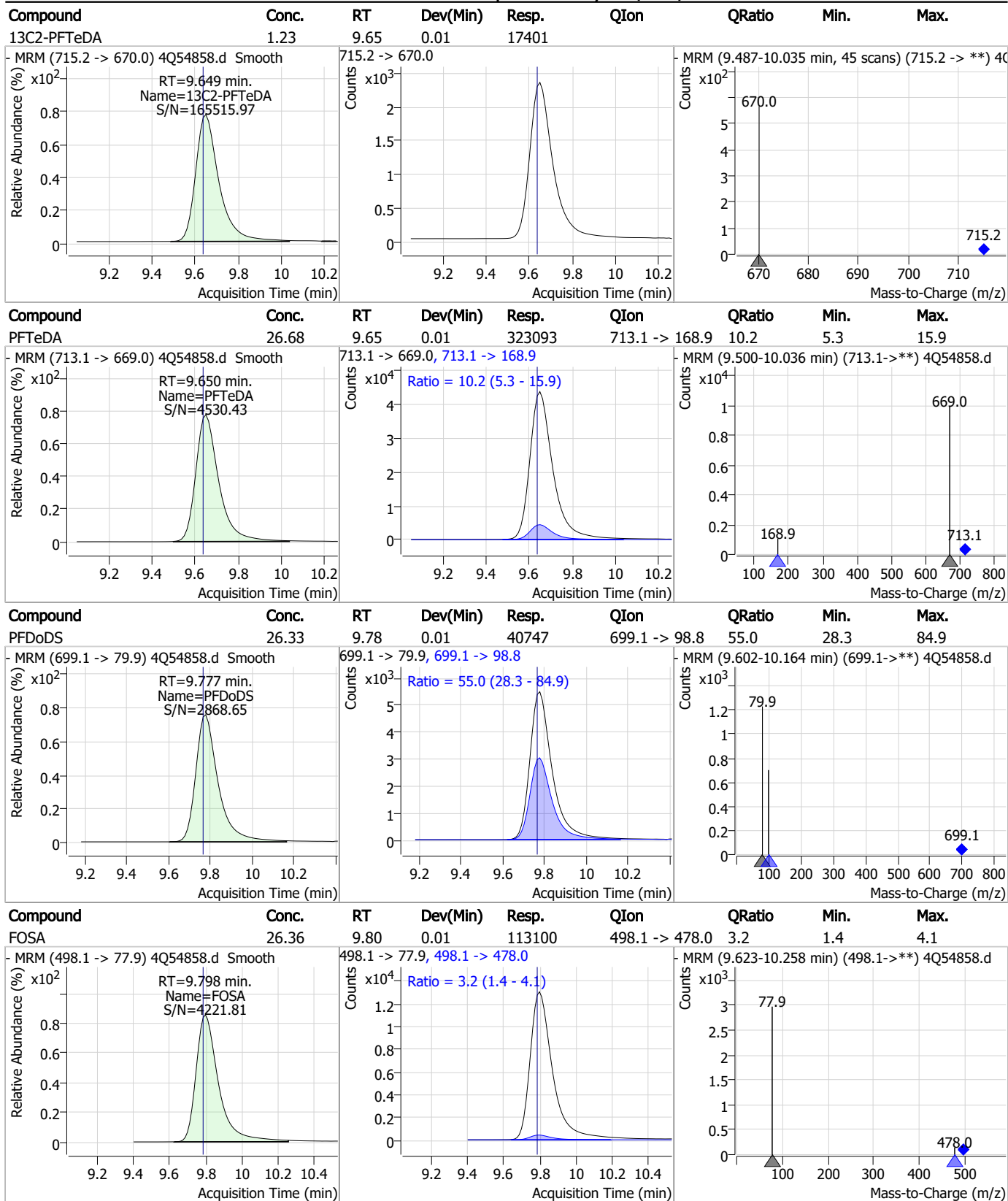
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### Perfluorinated Compounds by LC/MS/MS



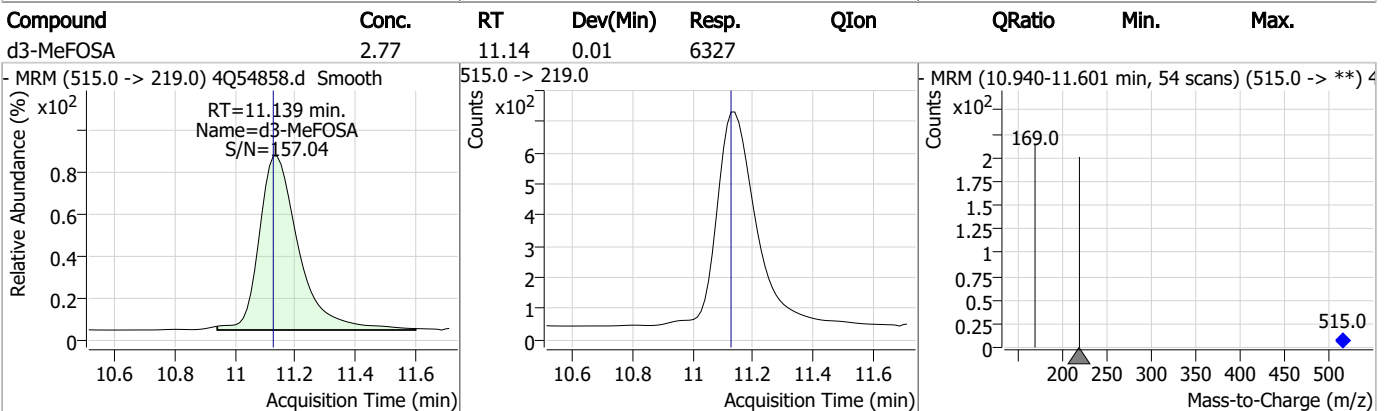
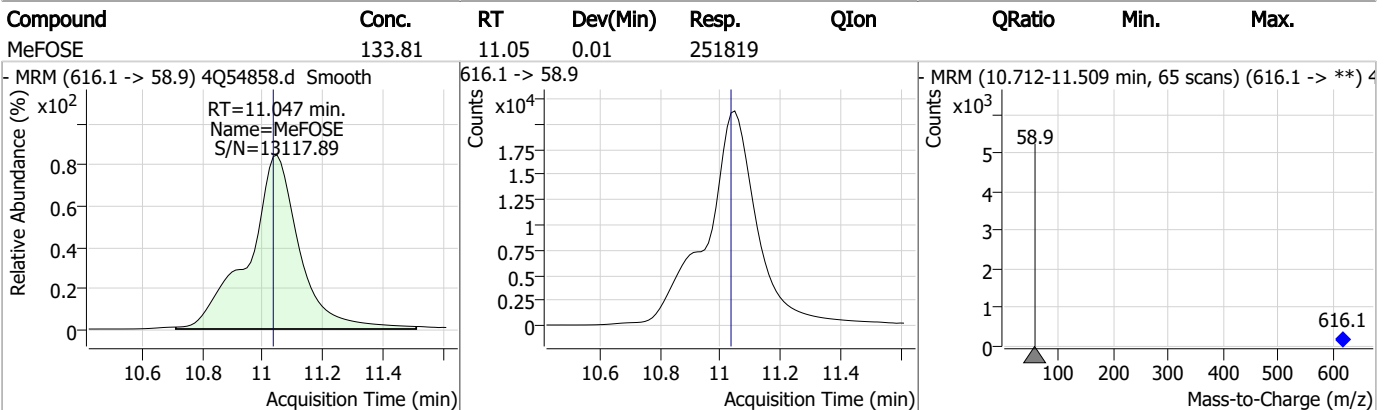
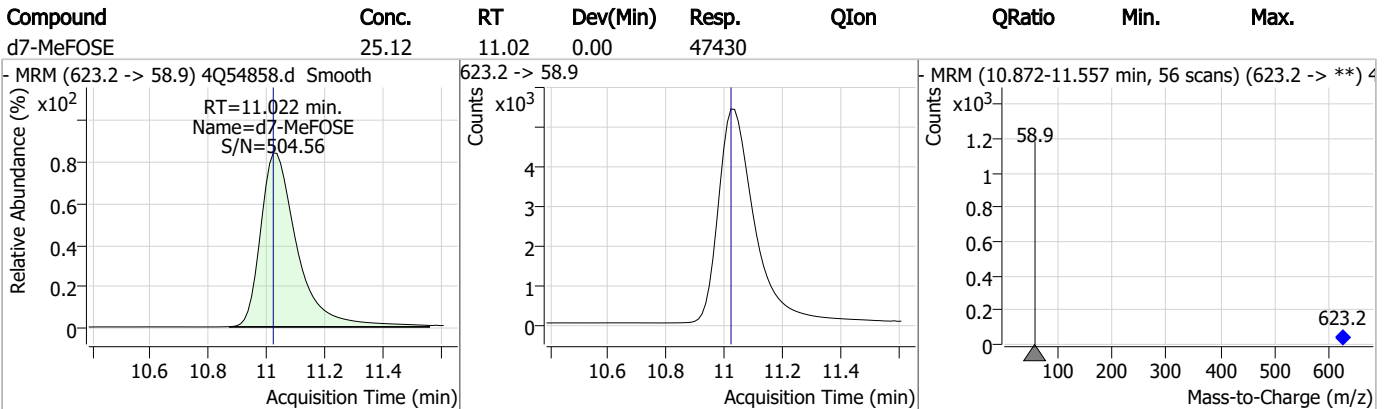
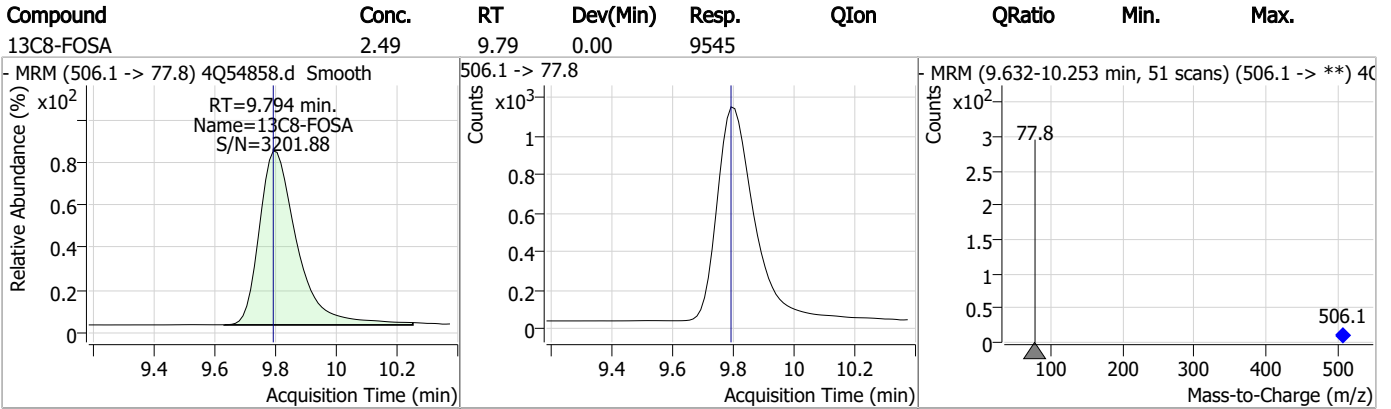
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### Perfluorinated Compounds by LC/MS/MS

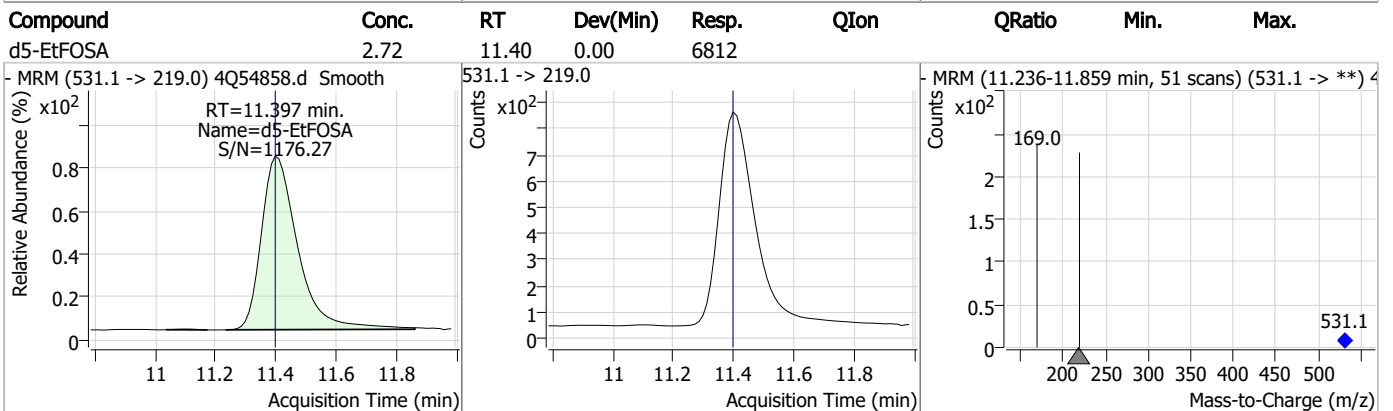
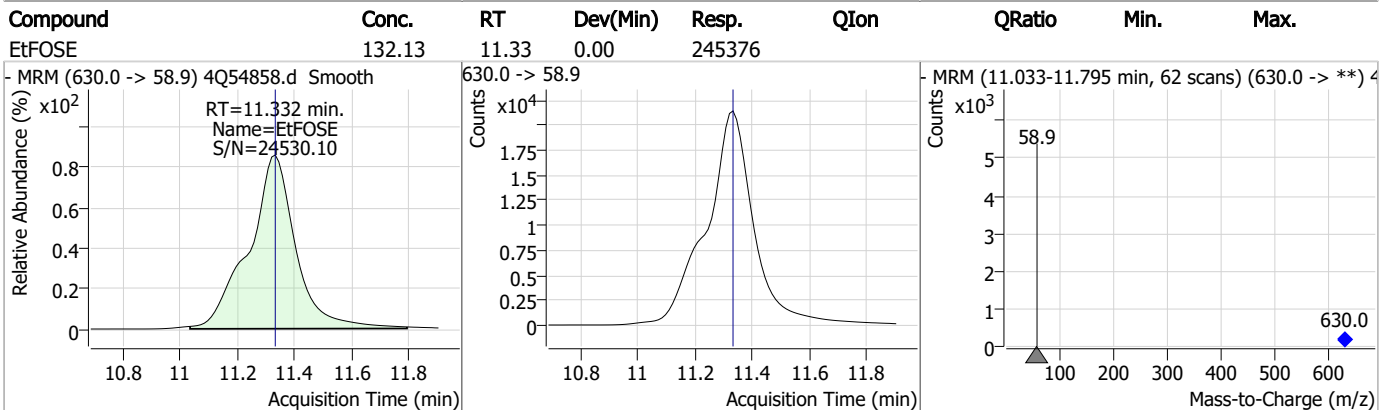
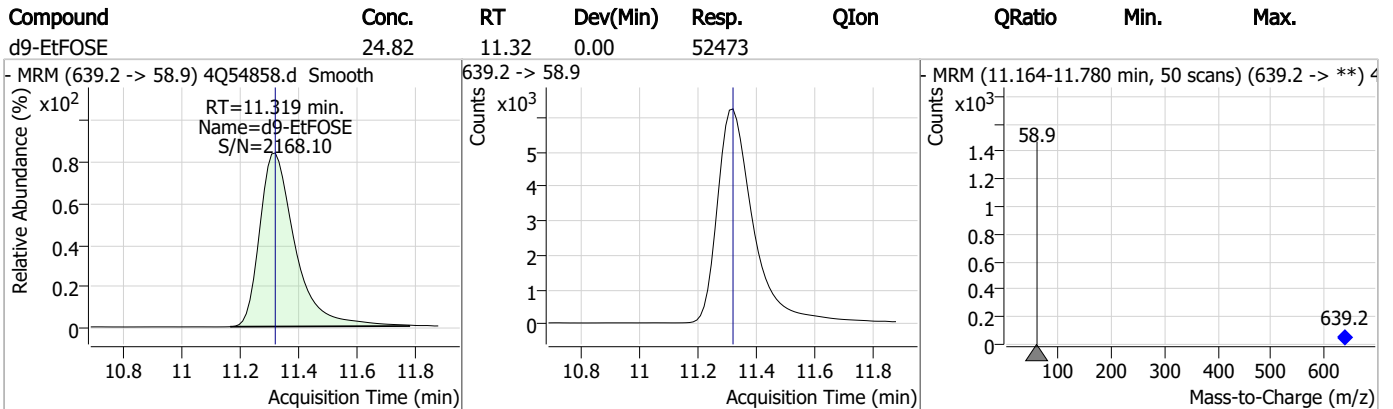
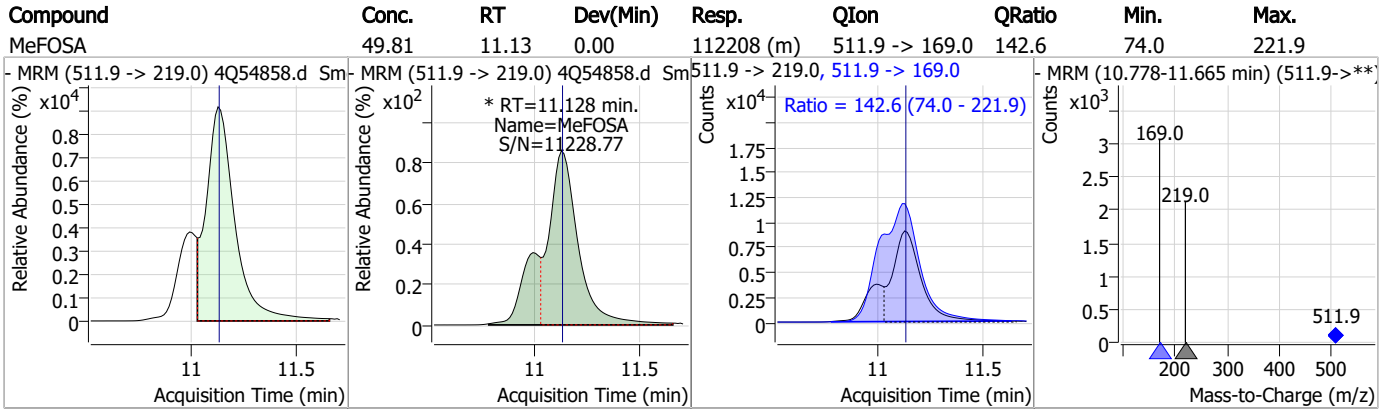


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### Perfluorinated Compounds by LC/MS/MS



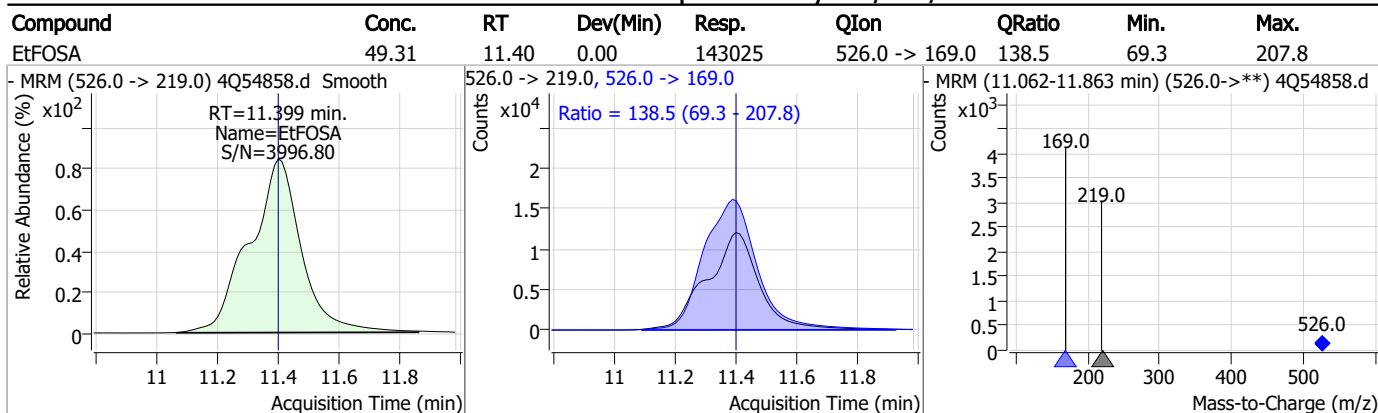
### Perfluorinated Compounds by LC/MS/MS



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### Perfluorinated Compounds by LC/MS/MS



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# Manual Integration Approval Summary

Sample Number: S4Q804-IC804      Method: EPA DRAFT 1633  
Lab FileID: 4Q54858.D      Analyst approved: 12/10/23 12:52 Anna Ludwig  
Injection Time: 12/08/23 13:06      Supervisor approved: 12/11/23 15:42 Natasha Guntie

| Parameter                    | CAS        | Sig# | R.T.<br>(min.) | Reason     |
|------------------------------|------------|------|----------------|------------|
| Perfluorohexanesulfonic acid | 355-46-4   |      | 7.04           | Split peak |
| Perfluorooctanesulfonic acid | 1763-23-1  |      | 8.13           | Split peak |
| EtFOSAA                      | 2991-50-6  |      | 8.30           | Split peak |
| MeFOSA                       | 31506-32-8 |      | 11.13          | Split peak |

7.7.8.1  
7

### Perfluorinated Compounds by LC/MS/MS

Data File : 4Q54859.d  
 Operator : annal  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 12/8/2023 1:21:34 PM  
 Sample Name : ic804-8  
 Vial : P1-A9  
 DA Method File : 1633\_120823\_S4Q804.quantmethod.xml  
 Batch Name : s4q804.batch.bin  
 Sample Information : OP99999,S4Q804,500,,,5.0,1,water

| Compound                           | RT                   | Transition     | Response          | Conc. Units | Dev(Min) |
|------------------------------------|----------------------|----------------|-------------------|-------------|----------|
| <b>Internal Standards</b>          |                      |                |                   |             |          |
| M4-PFBA                            | 2.686                | 216.8 -> 171.9 | 80421             | 10.00 µg/L  | 0.012    |
| M5-PFPeA                           | 4.175                | 268.3 -> 223.0 | 36882             | 5.00 µg/L   | 0.012    |
| M5-PFHxA                           | 5.347                | 318.0 -> 273.0 | 29785             | 2.50 µg/L   | 0.012    |
| M4-PFHpA                           | 6.304                | 367.1 -> 322.0 | 28286             | 2.50 µg/L   | 0.012    |
| M8-PFOA                            | 6.976                | 421.1 -> 376.0 | 41635             | 2.50 µg/L   | 0.000    |
| M9-PFNA                            | 7.521                | 472.1 -> 427.0 | 16711             | 1.25 µg/L   | 0.000    |
| M6-PFDA                            | 8.004                | 519.1 -> 474.1 | 11727             | 1.25 µg/L   | 0.000    |
| M7-PFUnDA                          | 8.461                | 570.0 -> 525.1 | 10494             | 1.25 µg/L   | 0.012    |
| M2-PFDoDA                          | 8.880                | 615.1 -> 570.0 | 17256             | 1.25 µg/L   | 0.000    |
| M2-PFTeDA                          | 9.649                | 715.2 -> 670.0 | 17801             | 1.25 µg/L   | 0.012    |
| M8-FOSA                            | 9.794                | 506.1 -> 77.8  | 8957              | 2.50 µg/L   | 0.000    |
| M3-PFBS                            | 5.202                | 302.1 -> 79.9  | 8154              | 2.50 µg/L   | 0.013    |
| M3-PFHxS                           | 7.042                | 402.1 -> 79.9  | 6475              | 2.50 µg/L   | 0.012    |
| M8-PFOS                            | 8.130                | 507.1 -> 79.9  | 7220              | 2.50 µg/L   | 0.012    |
| M2-4:2FTS                          | 5.071                | 329.1 -> 80.9  | 802               | 5.00 µg/L   | 0.025    |
| M2-6:2FTS                          | 6.761                | 429.1 -> 80.9  | 1794              | 5.00 µg/L   | 0.012    |
| M2-8:2FTS                          | 7.816                | 529.1 -> 80.9  | 2600              | 5.00 µg/L   | 0.012    |
| M3-MeFOSAA                         | 8.086                | 573.2 -> 419.0 | 14553             | 5.00 µg/L   | 0.000    |
| M3-HFPO-DA                         | 5.702                | 286.9 -> 168.9 | 30531             | 10.00 µg/L  | 0.012    |
| M5-EtFOSAA                         | 8.296                | 589.2 -> 419.0 | 12985             | 5.00 µg/L   | 0.012    |
| M7-MeFOSE                          | 11.034               | 623.2 -> 58.9  | 42706             | 25.00 µg/L  | 0.012    |
| M9-EtFOSE                          | 11.319               | 639.2 -> 58.9  | 49501             | 25.00 µg/L  | 0.000    |
| M5-EtFOSA                          | 11.397               | 531.1 -> 219.0 | 6219              | 2.50 µg/L   | 0.000    |
| M3-MeFOSA                          | 11.126               | 515.0 -> 219.0 | 6251              | 2.50 µg/L   | 0.000    |
| 13C4-PFOS                          | 8.130                | 502.8 -> 79.9  | 5506              | 2.50 µg/L   | 0.012    |
| 13C3-PFBA                          | 2.691                | 216.0 -> 172.0 | 38780             | 5.00 µg/L   | 0.013    |
| 18O2-PFHxS                         | 7.041                | 403.0 -> 83.9  | 4082              | 2.50 µg/L   | 0.000    |
| 13C4-PFOA                          | 6.977                | 417.1 -> 372.0 | 45401             | 2.50 µg/L   | 0.000    |
| 13C2-PFDA                          | 8.004                | 515.1 -> 470.1 | 12291             | 1.25 µg/L   | 0.000    |
| 13C5-PFNA                          | 7.522                | 468.0 -> 423.0 | 16952             | 1.25 µg/L   | 0.012    |
| 13C2-PFHxA                         | 5.348                | 315.1 -> 270.0 | 33713             | 2.50 µg/L   | 0.012    |
| <b>System Monitoring Compounds</b> |                      |                |                   |             |          |
| 13C2-4:2FTS                        | 5.071                | 329.1 -> 80.9  | 802               | 4.14 µg/L   | 0.025    |
| Spiked Amount: 5.00                | Range: 50.0 - 150.0% |                | Recovery = 82.7%  |             |          |
| 13C2-6:2FTS                        | 6.761                | 429.1 -> 80.9  | 1794              | 4.27 µg/L   | 0.012    |
| Spiked Amount: 5.00                | Range: 50.0 - 150.0% |                | Recovery = 85.4%  |             |          |
| 13C2-8:2FTS                        | 7.816                | 529.1 -> 80.9  | 2600              | 4.62 µg/L   | 0.012    |
| Spiked Amount: 5.00                | Range: 50.0 - 150.0% |                | Recovery = 92.4%  |             |          |
| 13C2-PFDoDA                        | 8.880                | 615.1 -> 570.0 | 17256             | 1.40 µg/L   | 0.000    |
| Spiked Amount: 1.25                | Range: 50.0 - 150.0% |                | Recovery = 112.4% |             |          |
| 13C2-PFTeDA                        | 9.649                | 715.2 -> 670.0 | 17801             | 1.46 µg/L   | 0.012    |
| Spiked Amount: 1.25                | Range: 50.0 - 150.0% |                | Recovery = 116.7% |             |          |
| 13C3-PFBS                          | 5.202                | 302.1 -> 79.9  | 8154              | 2.61 µg/L   | 0.013    |
| Spiked Amount: 2.50                | Range: 50.0 - 150.0% |                | Recovery = 104.2% |             |          |
| 13C3-PFHxS                         | 7.042                | 402.1 -> 79.9  | 6475              | 2.53 µg/L   | 0.012    |

7.7.9  
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### Perfluorinated Compounds by LC/MS/MS

| Compound                | RT                   | Transition     | Response | Conc. Units       | Dev(Min)      |
|-------------------------|----------------------|----------------|----------|-------------------|---------------|
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 101.2% |               |
| 13C4-PFBA               | 2.686                | 216.8 -> 171.9 | 80421    | 9.88 µg/L         | 0.012         |
| Spiked Amount: 10.00    | Range: 50.0 - 150.0% |                |          | Recovery = 98.8%  |               |
| 13C4-PFHpA              | 6.304                | 367.1 -> 322.0 | 28286    | 2.38 µg/L         | 0.012         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 95.2%  |               |
| 13C5-PFHxA              | 5.347                | 318.0 -> 273.0 | 29785    | 2.40 µg/L         | 0.012         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 95.9%  |               |
| 13C5-PFPeA              | 4.175                | 268.3 -> 223.0 | 36882    | 4.77 µg/L         | 0.012         |
| Spiked Amount: 5.00     | Range: 50.0 - 150.0% |                |          | Recovery = 95.3%  |               |
| 13C6-PFDA               | 8.004                | 519.1 -> 474.1 | 11727    | 1.31 µg/L         | 0.000         |
| Spiked Amount: 1.25     | Range: 50.0 - 150.0% |                |          | Recovery = 104.9% |               |
| 13C7-PFUnDA             | 8.461                | 570.0 -> 525.1 | 10494    | 1.00 µg/L         | 0.012         |
| Spiked Amount: 1.25     | Range: 50.0 - 150.0% |                |          | Recovery = 79.6%  |               |
| 13C8-FOSA               | 9.794                | 506.1 -> 77.8  | 8957     | 2.51 µg/L         | 0.000         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 100.4% |               |
| 13C8-PFOA               | 6.976                | 421.1 -> 376.0 | 41635    | 2.48 µg/L         | 0.000         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 99.3%  |               |
| 13C8-PFOS               | 8.130                | 507.1 -> 79.9  | 7220     | 2.59 µg/L         | 0.012         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 103.6% |               |
| 13C9-PFNA               | 7.521                | 472.1 -> 427.0 | 16711    | 1.23 µg/L         | 0.000         |
| Spiked Amount: 1.25     | Range: 50.0 - 150.0% |                |          | Recovery = 98.4%  |               |
| d3-MeFOSAA              | 8.086                | 573.2 -> 419.0 | 14553    | 4.76 µg/L         | 0.000         |
| Spiked Amount: 5.00     | Range: 50.0 - 150.0% |                |          | Recovery = 95.2%  |               |
| 13C3-HFPO-DA            | 5.702                | 286.9 -> 168.9 | 30531    | 9.84 µg/L         | 0.012         |
| Spiked Amount: 10.00    | Range: 50.0 - 150.0% |                |          | Recovery = 98.4%  |               |
| d3-MeFOSA               | 11.126               | 515.0 -> 219.0 | 6251     | 2.94 µg/L         | 0.000         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 117.5% |               |
| d5-EtFOSAA              | 8.296                | 589.2 -> 419.0 | 12985    | 5.02 µg/L         | 0.012         |
| Spiked Amount: 5.00     | Range: 50.0 - 150.0% |                |          | Recovery = 100.5% |               |
| d7-MeFOSE               | 11.034               | 623.2 -> 58.9  | 42706    | 24.26 µg/L        | 0.012         |
| Spiked Amount: 25.00    | Range: 50.0 - 150.0% |                |          | Recovery = 97.0%  |               |
| d9-EtFOSE               | 11.319               | 639.2 -> 58.9  | 49501    | 25.11 µg/L        | 0.000         |
| Spiked Amount: 25.00    | Range: 50.0 - 150.0% |                |          | Recovery = 100.4% |               |
| d5-EtFOSA               | 11.397               | 531.1 -> 219.0 | 6219     | 2.66 µg/L         | 0.000         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 106.6% |               |
| <b>Target Compounds</b> |                      |                |          |                   | <b>QValue</b> |
| 4:2FTS                  | 5.059                | 327.1 -> 307.0 | 343778   | 249.01 µg/L       | 96            |
|                         |                      | 327.1 -> 80.9  | 138158   |                   |               |
| 6:2FTS                  | 6.761                | 427.1 -> 407.0 | 451229   | 239.24 µg/L       | 98            |
|                         |                      | 427.1 -> 80.9  | 159618   |                   |               |
| 8:2FTS                  | 7.816                | 527.1 -> 507.0 | 335876   | 245.10 µg/L       | 93            |
|                         |                      | 527.1 -> 80.8  | 122424   |                   |               |
| EtFOSAA                 | 8.297                | 584.2 -> 419.1 | 164432   | 69.41 µg/L        | m 87          |
|                         |                      | 584.2 -> 526.0 | 64387    |                   |               |
| FOSA                    | 9.798                | 498.1 -> 77.9  | 286320   | 71.11 µg/L        | 99            |
|                         |                      | 498.1 -> 478.0 | 8726     |                   |               |
| MeFOSAA                 | 8.087                | 570.1 -> 419.0 | 161252   | 77.28 µg/L        | 94            |
|                         |                      | 570.1 -> 483.0 | 30157    |                   |               |
| PFBA                    | 2.695                | 212.8 -> 168.9 | 755879   | 293.47 µg/L       | 100           |
| PFBS                    | 5.203                | 298.7 -> 79.9  | 156188   | 61.74 µg/L        | 96            |
|                         |                      | 298.7 -> 98.8  | 59587    |                   |               |
| PFDA                    | 8.005                | 512.9 -> 469.0 | 569637   | 66.12 µg/L        | 99            |
|                         |                      | 512.9 -> 219.0 | 114800   |                   |               |
| PFDoDA                  | 8.880                | 613.1 -> 569.0 | 857930   | 69.04 µg/L        | 99            |
|                         |                      | 613.1 -> 319.0 | 151294   |                   |               |
| PFDS                    | 9.020                | 599.0 -> 79.9  | 136754   | 71.17 µg/L        | 95            |

7.7.9  
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Perfluorinated Compounds by LC/MS/MS

| Compound     | RT     | Transition     | Response | Conc.   | Units | Dev(Min) |
|--------------|--------|----------------|----------|---------|-------|----------|
| PFHpA        | 6.305  | 599.0 -> 98.8  | 67378    | 71.72   | µg/L  | 99       |
|              |        | 363.1 -> 319.0 | 1142171  |         |       |          |
| PFHpS        | 7.624  | 363.1 -> 169.0 | 207156   | 70.17   | µg/L  | 98       |
|              |        | 449.0 -> 79.9  | 201054   |         |       |          |
| PFHxA        | 5.350  | 449.0 -> 98.9  | 102719   | 72.86   | µg/L  | 99       |
|              |        | 313.0 -> 269.0 | 692521   |         |       |          |
| PFHxS        | 7.043  | 313.0 -> 118.9 | 20840    | 62.77   | µg/L  | m        |
|              |        | 398.7 -> 79.9  | 131102   |         |       |          |
| PFNA         | 7.522  | 398.7 -> 98.9  | 66020    | 74.37   | µg/L  | 98       |
|              |        | 463.0 -> 419.0 | 730193   |         |       |          |
| PFNS         | 8.586  | 463.0 -> 219.0 | 173369   | 68.45   | µg/L  | 98       |
|              |        | 548.8 -> 79.9  | 84324    |         |       |          |
| PFOA         | 6.978  | 548.8 -> 98.9  | 42622    | 71.80   | µg/L  | 95       |
|              |        | 413.0 -> 369.0 | 1229376  |         |       |          |
| PFOS         | 8.131  | 413.0 -> 169.0 | 247650   | 62.11   | µg/L  | m        |
|              |        | 498.9 -> 79.9  | 186662   |         |       |          |
| PFPeA        | 4.177  | 498.9 -> 98.8  | 86406    | 142.99  | µg/L  | 100      |
|              |        | 263.0 -> 219.0 | 1037607  |         |       |          |
| PFPeS        | 6.294  | 349.1 -> 79.9  | 139528   | 70.93   | µg/L  | 97       |
|              |        | 349.1 -> 98.9  | 61353    |         |       |          |
| PFTeDA       | 9.650  | 713.1 -> 669.0 | 815800   | 65.85   | µg/L  | 100      |
|              |        | 713.1 -> 168.9 | 85092    |         |       |          |
| PFTrDA       | 9.279  | 663.0 -> 619.0 | 846605   | 62.70   | µg/L  | 99       |
|              |        | 663.0 -> 168.9 | 116524   |         |       |          |
| PFUnDA       | 8.461  | 563.1 -> 519.0 | 599583   | 78.55   | µg/L  | 99       |
|              |        | 563.1 -> 269.1 | 125665   |         |       |          |
| 11Cl-PF3OUdS | 9.306  | 630.9 -> 450.9 | 1059526  | 126.03  | µg/L  | 100      |
|              |        | 632.9 -> 452.9 | 331689   |         |       |          |
| 9Cl-PF3ONS   | 8.463  | 530.8 -> 351.0 | 923927   | 108.73  | µg/L  | 100      |
|              |        | 532.8 -> 353.0 | 278966   |         |       |          |
| ADONA        | 6.568  | 376.9 -> 250.9 | 2971732  | 144.12  | µg/L  | 99       |
|              |        | 376.9 -> 84.8  | 704639   |         |       |          |
| HFPO-DA      | 5.703  | 284.9 -> 168.9 | 413965   | 141.70  | µg/L  | 99       |
|              |        | 284.9 -> 184.9 | 40451    |         |       |          |
| 3:3FTCA      | 3.630  | 241.0 -> 177.0 | 169213   | 413.28  | µg/L  | 99       |
|              |        | 241.0 -> 117.0 | 14743    |         |       |          |
| 5:3FTCA      | 6.020  | 341.0 -> 237.1 | 3089388  | 1822.43 | µg/L  | 100      |
|              |        | 341.0 -> 217.0 | 2207363  |         |       |          |
| 7:3FTCA      | 7.549  | 441.0 -> 316.9 | 1555794  | 1750.12 | µg/L  | 99       |
|              |        | 441.0 -> 336.9 | 3672355  |         |       |          |
| EtFOSA       | 11.399 | 526.0 -> 219.0 | 380913   | 143.87  | µg/L  | 99       |
|              |        | 526.0 -> 169.0 | 530061   |         |       |          |
| EtFOSE       | 11.332 | 630.0 -> 58.9  | 613834   | 350.39  | µg/L  | 100      |
|              |        | 511.9 -> 219.0 | 296242   |         |       |          |
| MeFOSA       | 11.128 | 511.9 -> 169.0 | 433007   | 133.09  | µg/L  | m        |
|              |        | 616.1 -> 58.9  | 609091   |         |       |          |
| MeFOSE       | 11.047 | 699.1 -> 79.9  | 103059   | 359.46  | µg/L  | 100      |
|              |        | 699.1 -> 98.8  | 58977    |         |       |          |
| PFDoDS       | 9.777  | 295.0 -> 201.0 | 79128    | 70.32   | µg/L  | 99       |
|              |        | 295.0 -> 84.9  | 20077    |         |       |          |
| NFDHA        | 5.241  | 279.0 -> 85.1  | 577375   | 117.53  | µg/L  | 98       |
|              |        | 229.0 -> 84.9  | 644647   |         |       |          |
| PFMBA        | 4.578  | 314.8 -> 134.9 | 866197   | 144.50  | µg/L  | 100      |
| PFMPA        | 3.315  | 314.8 -> 82.9  | 28941    | 146.82  | µg/L  | 100      |
| PFEESA       | 5.734  |                |          | 123.31  | µg/L  | 98       |

# = Qualifier out of range, m = manually integrated, + = Area summed



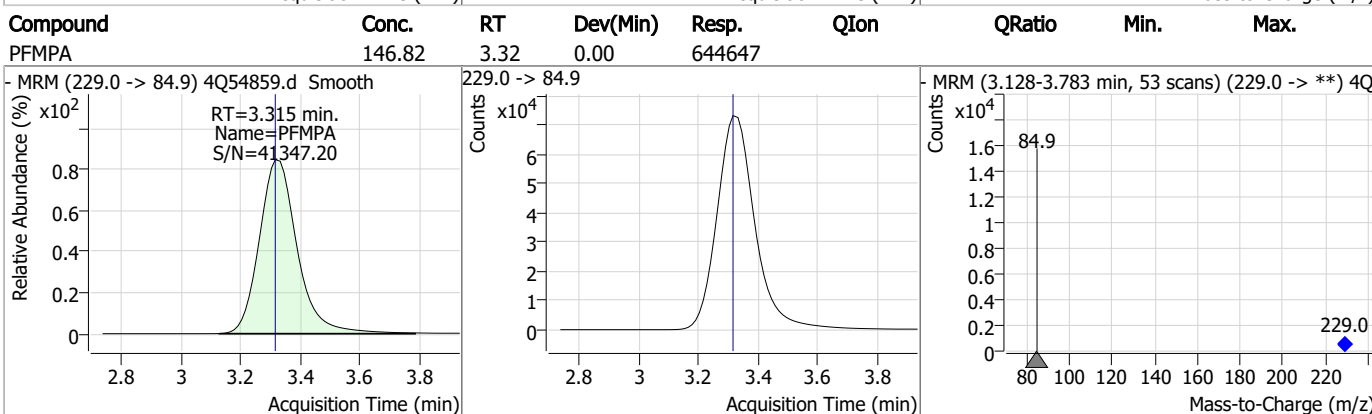
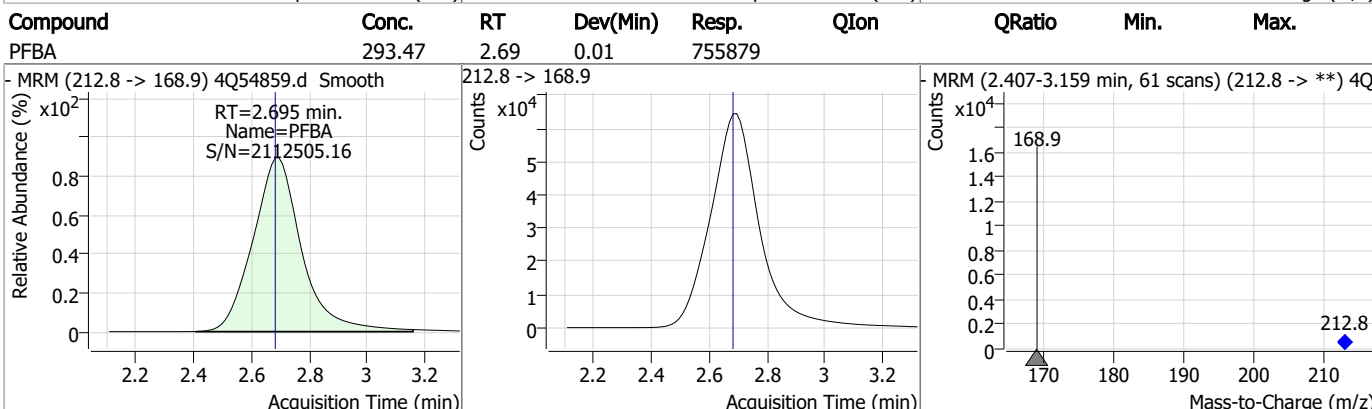
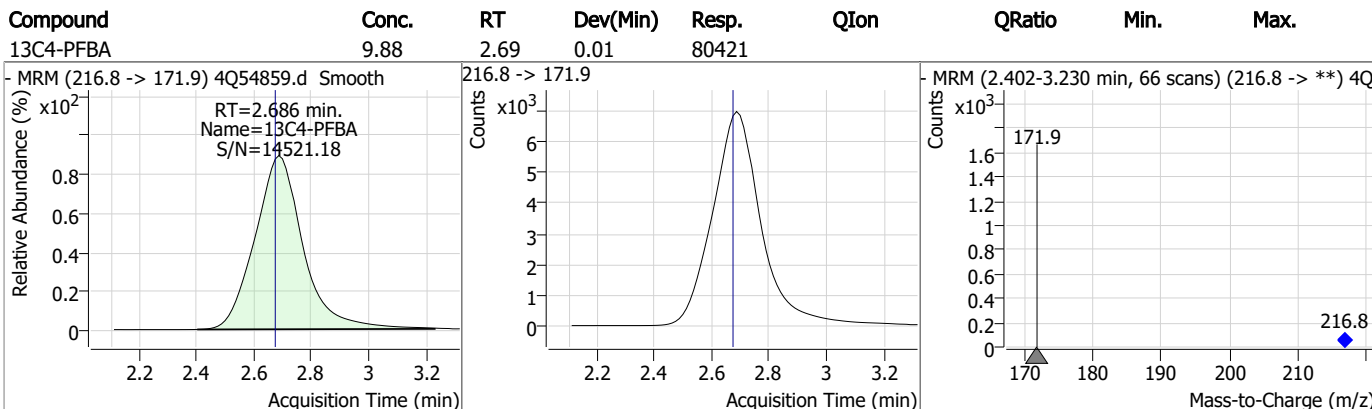
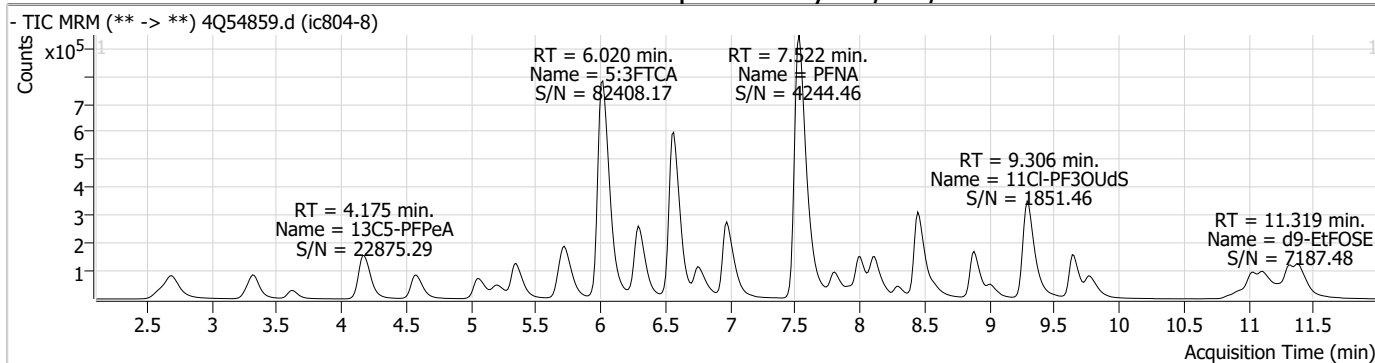
### Perfluorinated Compounds by LC/MS/MS

| Compound | RT | Transition | Response | Conc. Units | Dev(Min) |
|----------|----|------------|----------|-------------|----------|
|----------|----|------------|----------|-------------|----------|

7.7.9

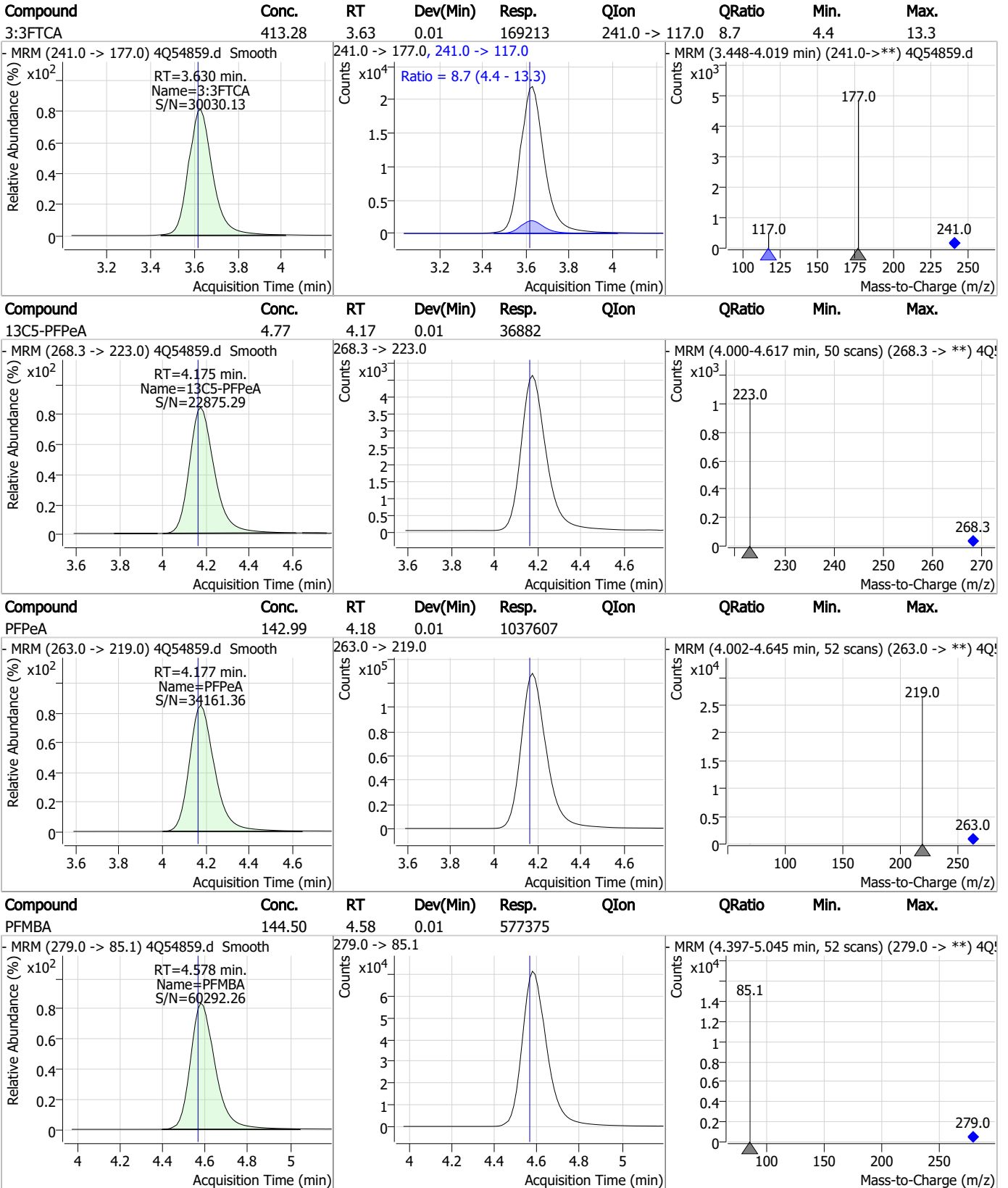
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### Perfluorinated Compounds by LC/MS/MS



7.7.9  
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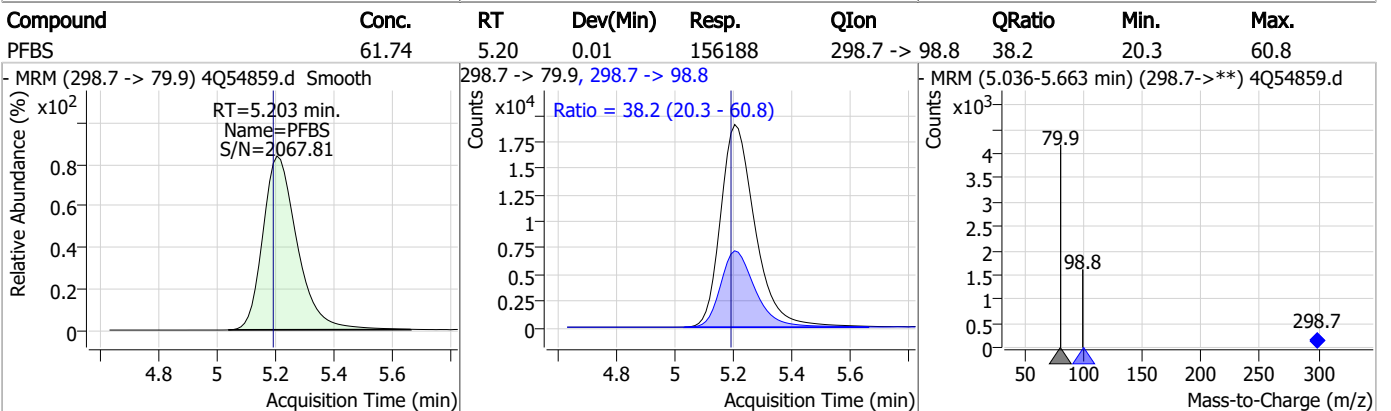
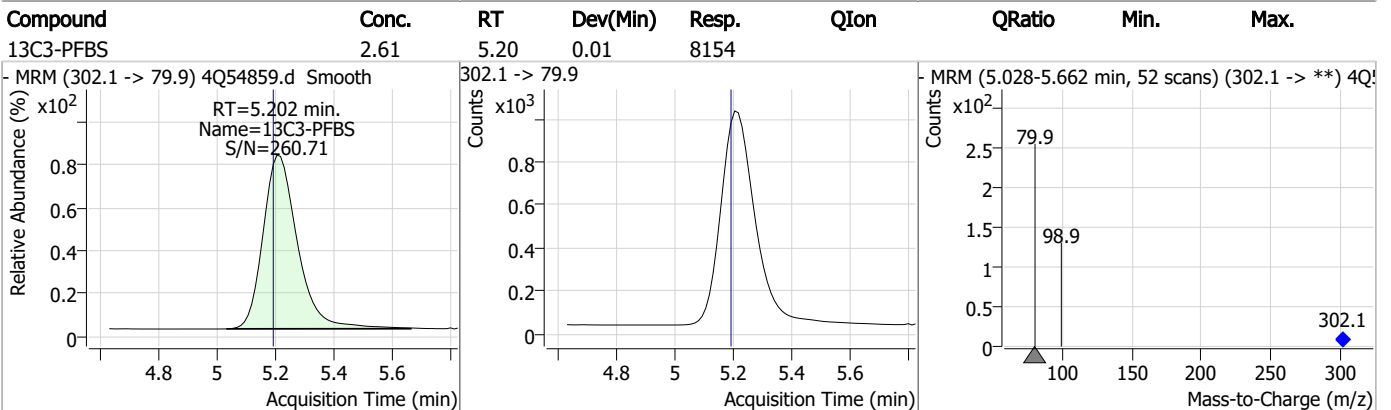
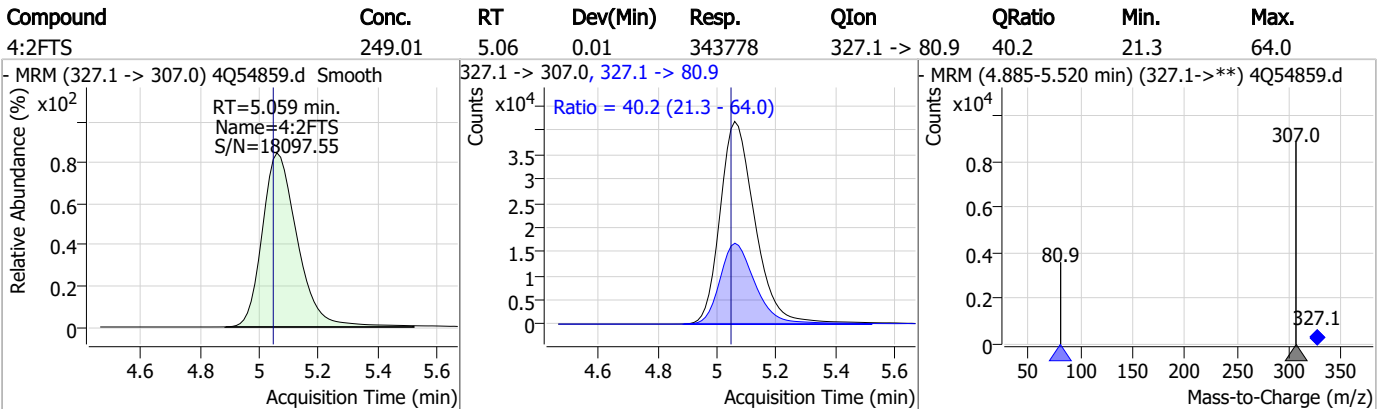
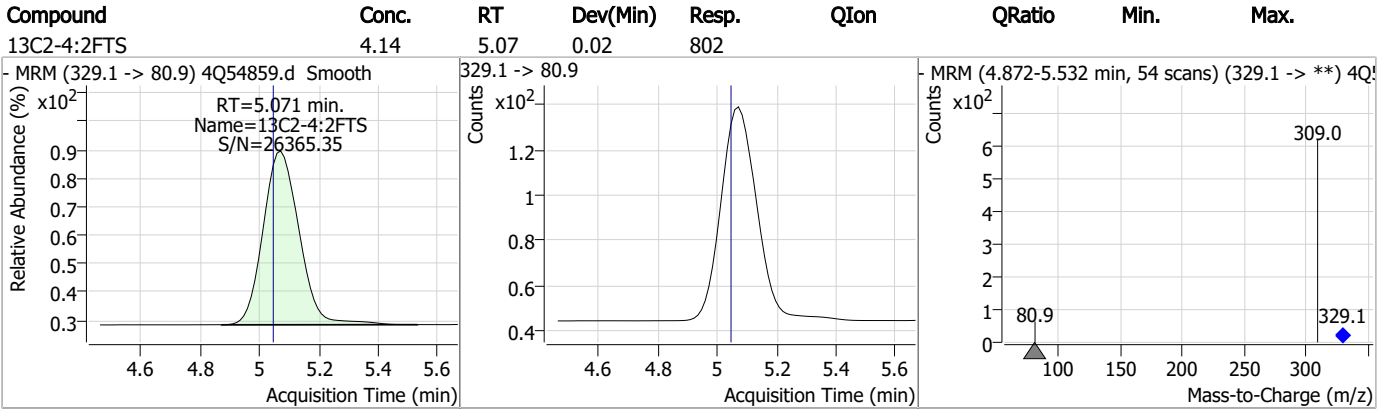
### Perfluorinated Compounds by LC/MS/MS



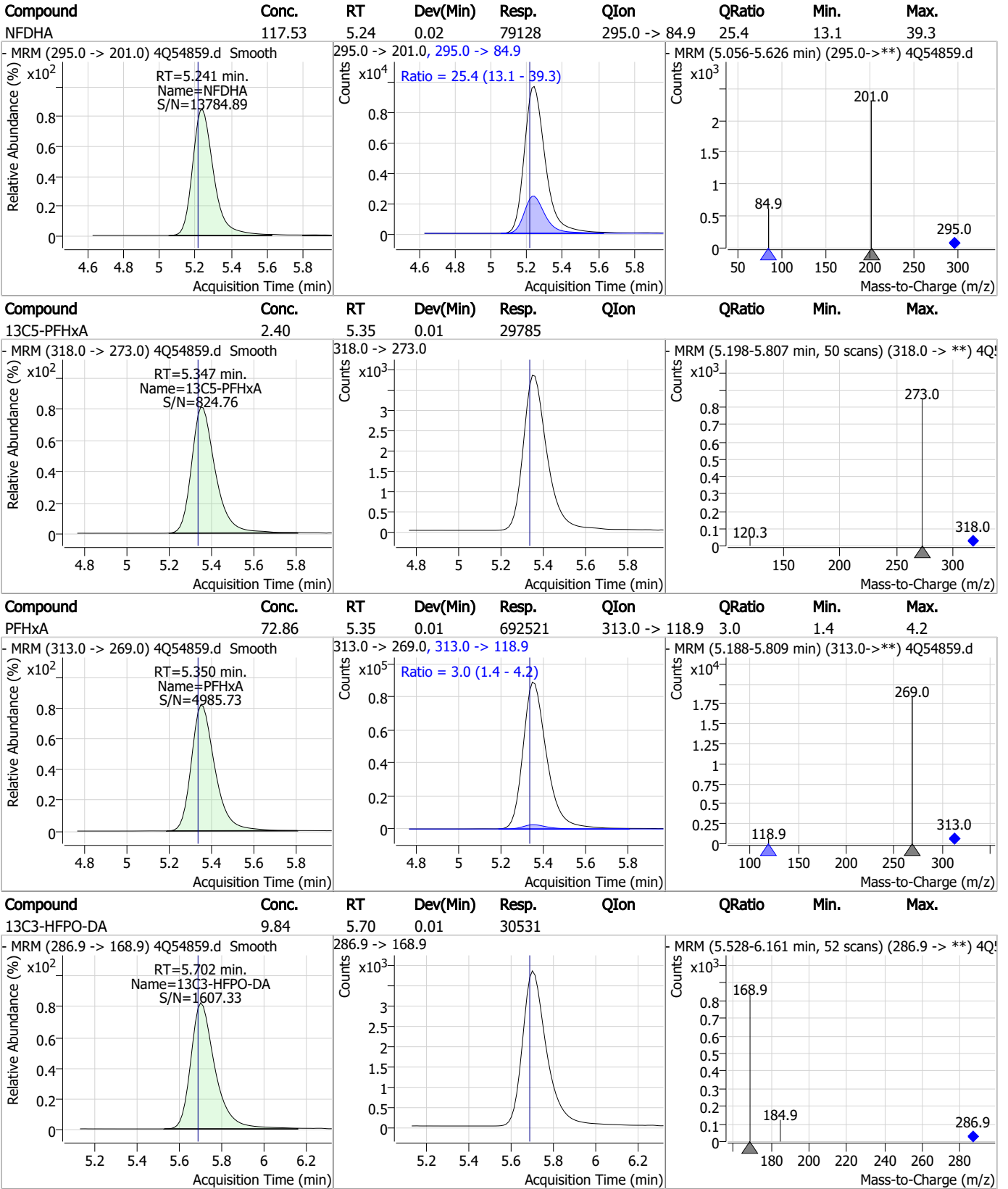
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### Perfluorinated Compounds by LC/MS/MS



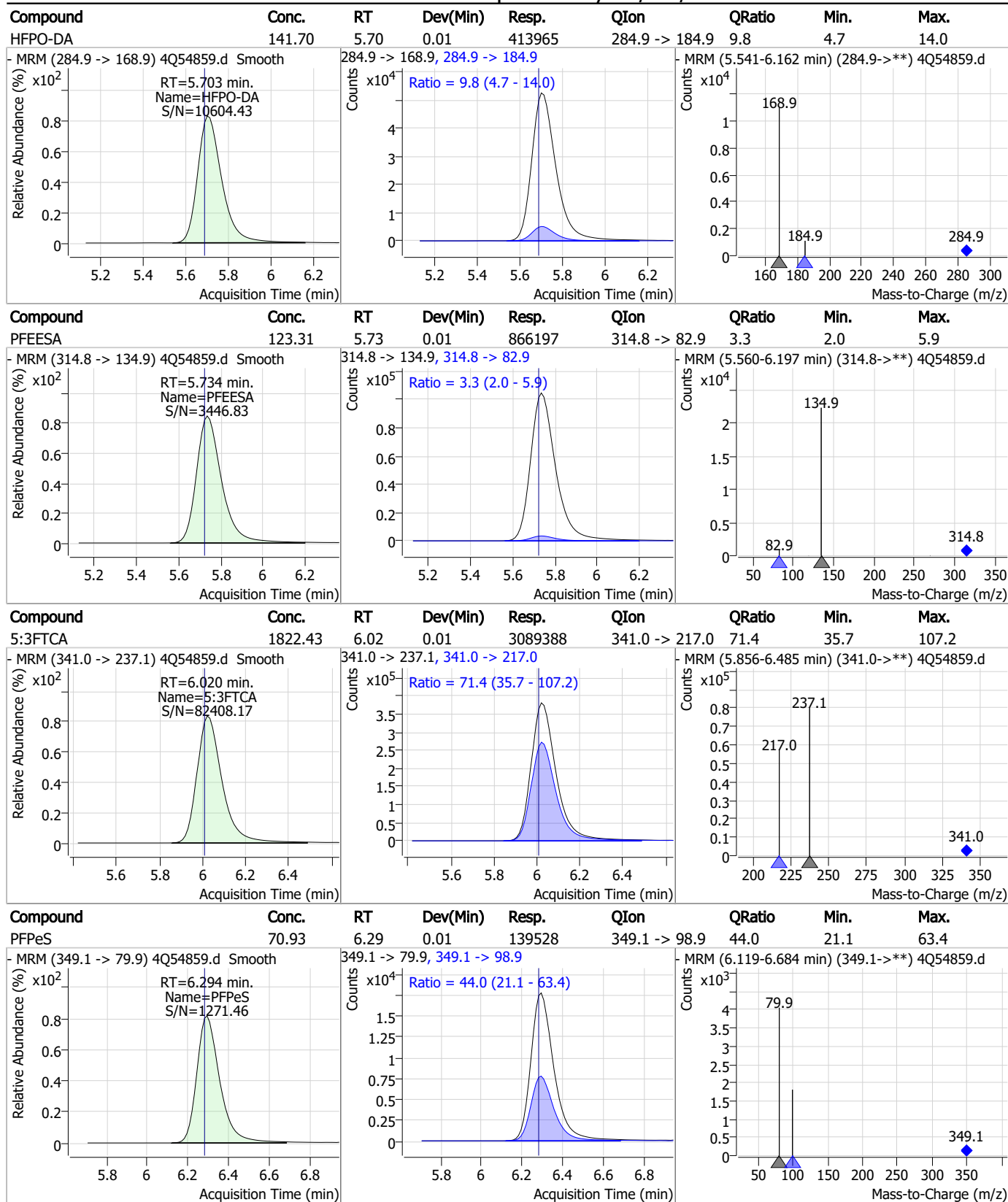
### Perfluorinated Compounds by LC/MS/MS



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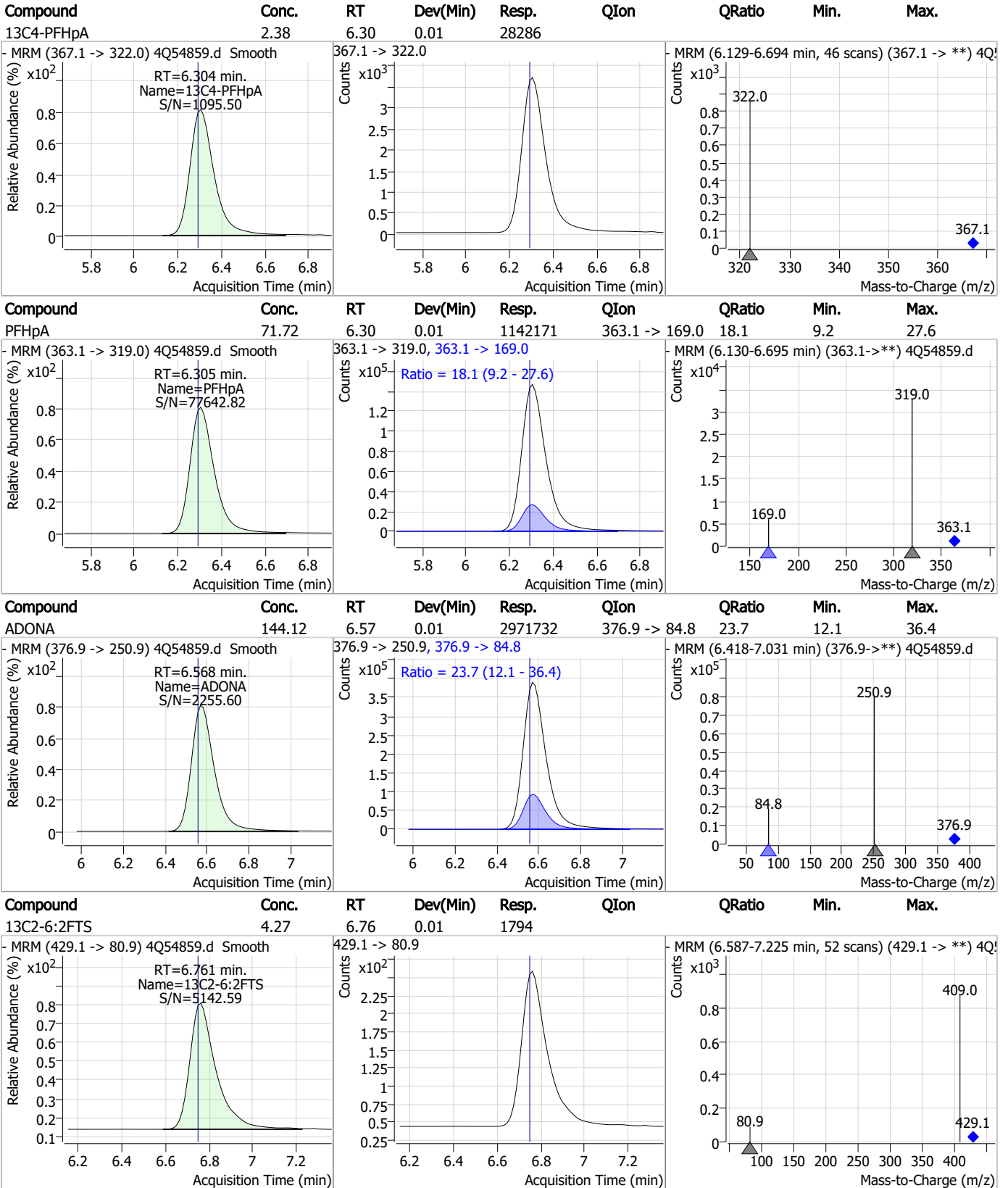
### Perfluorinated Compounds by LC/MS/MS



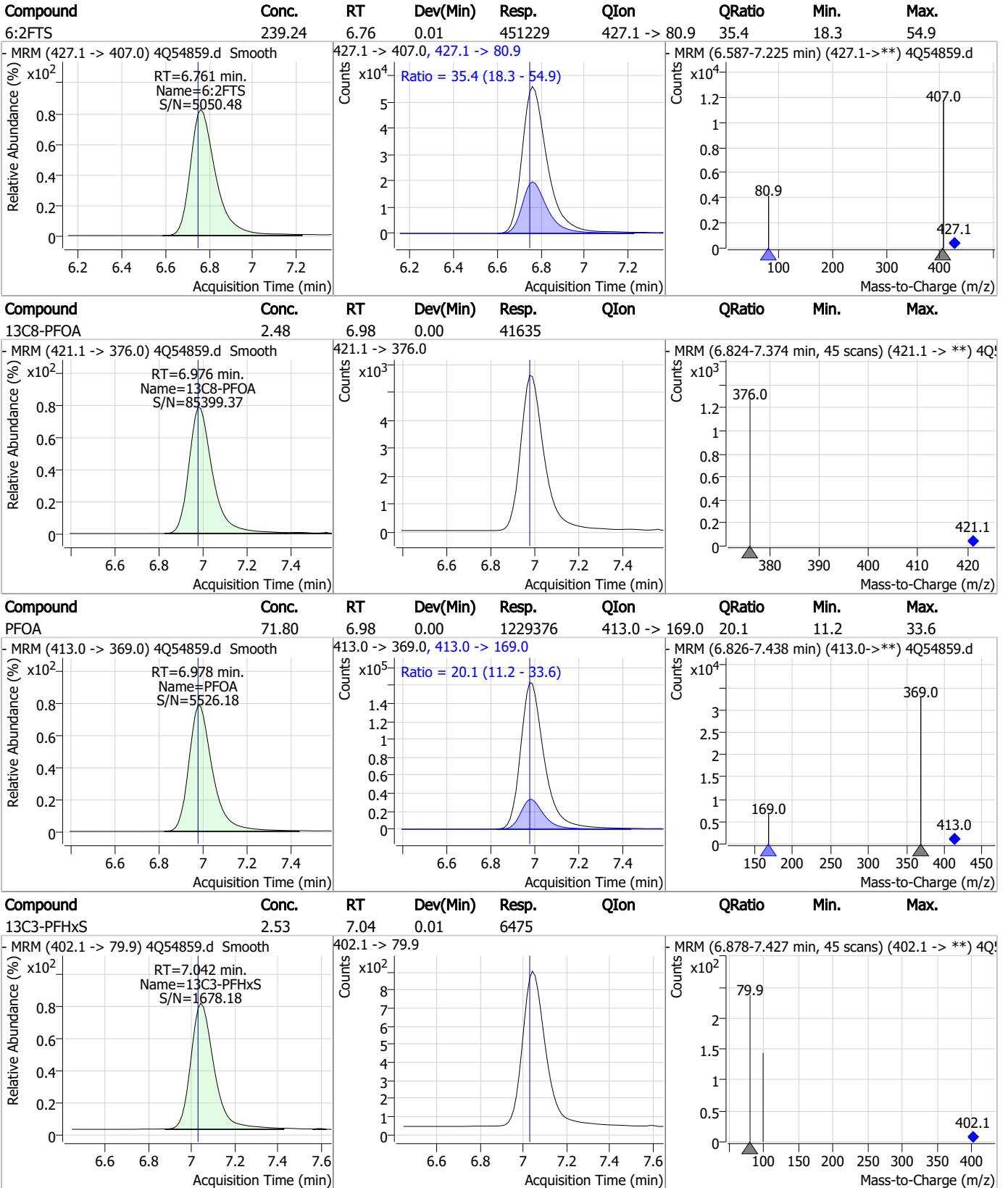
7.7.9  
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### Perfluorinated Compounds by LC/MS/MS



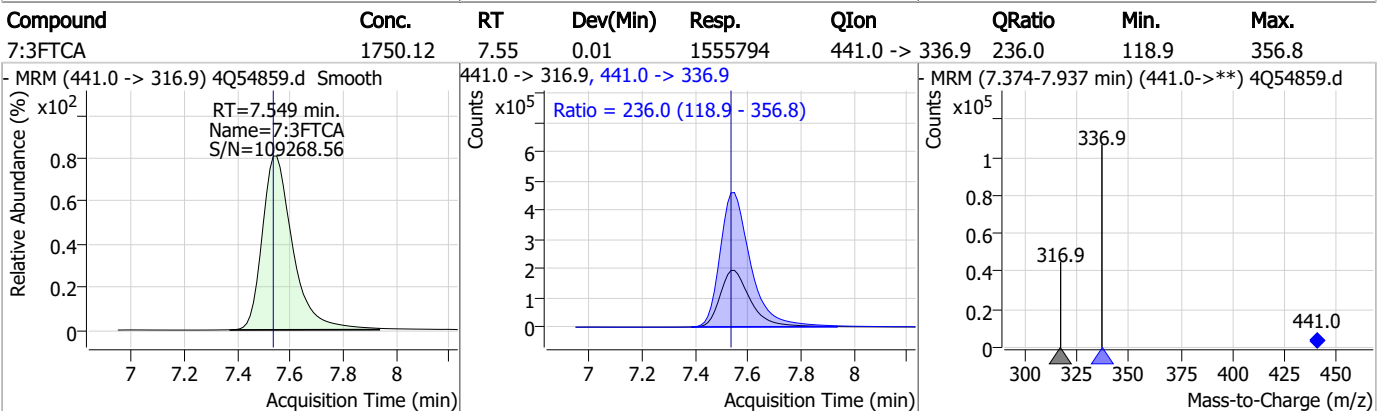
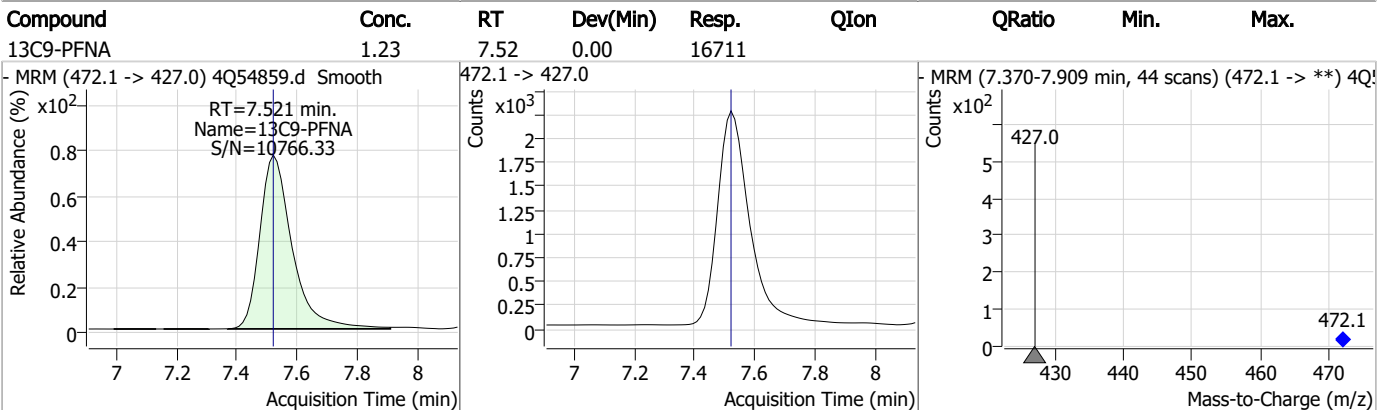
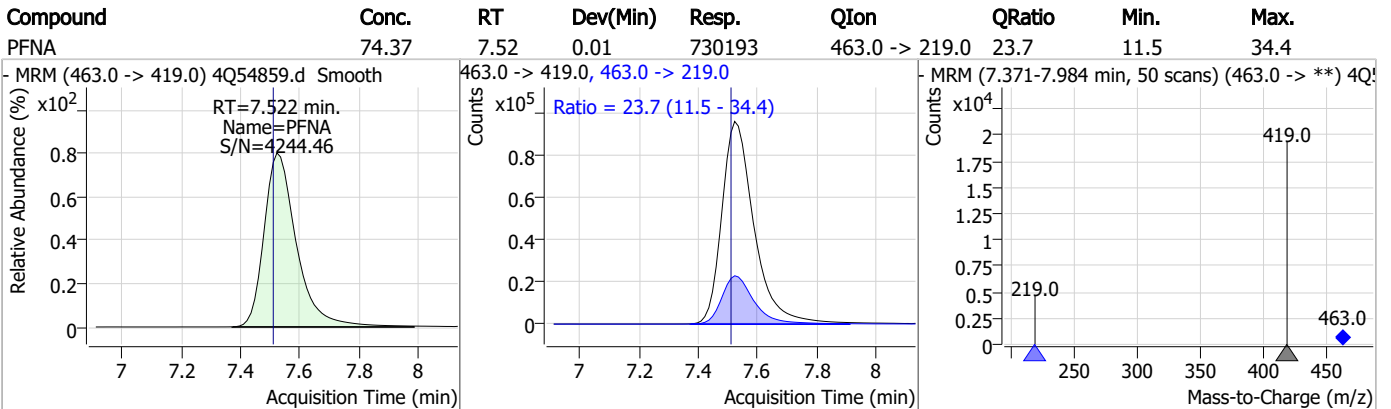
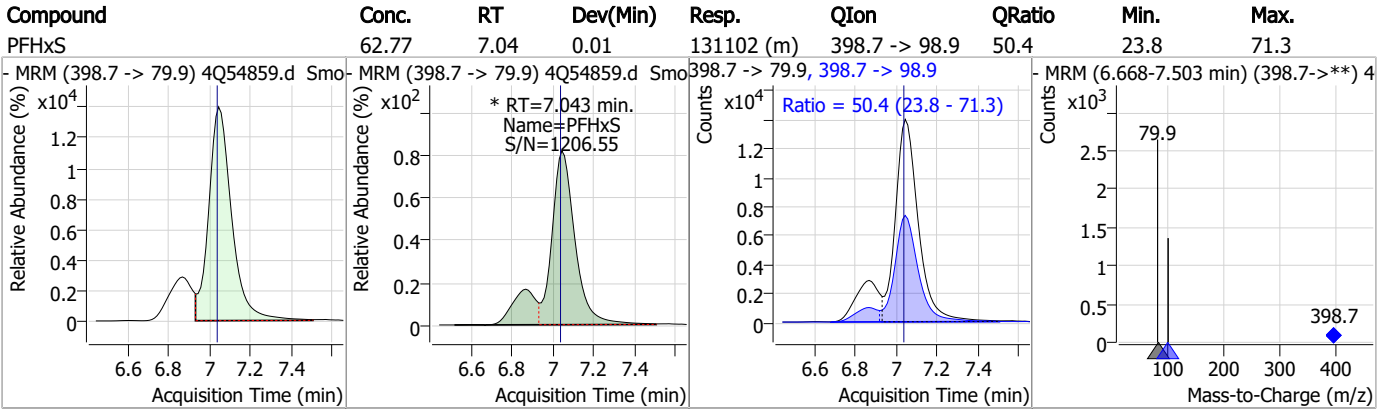
### Perfluorinated Compounds by LC/MS/MS



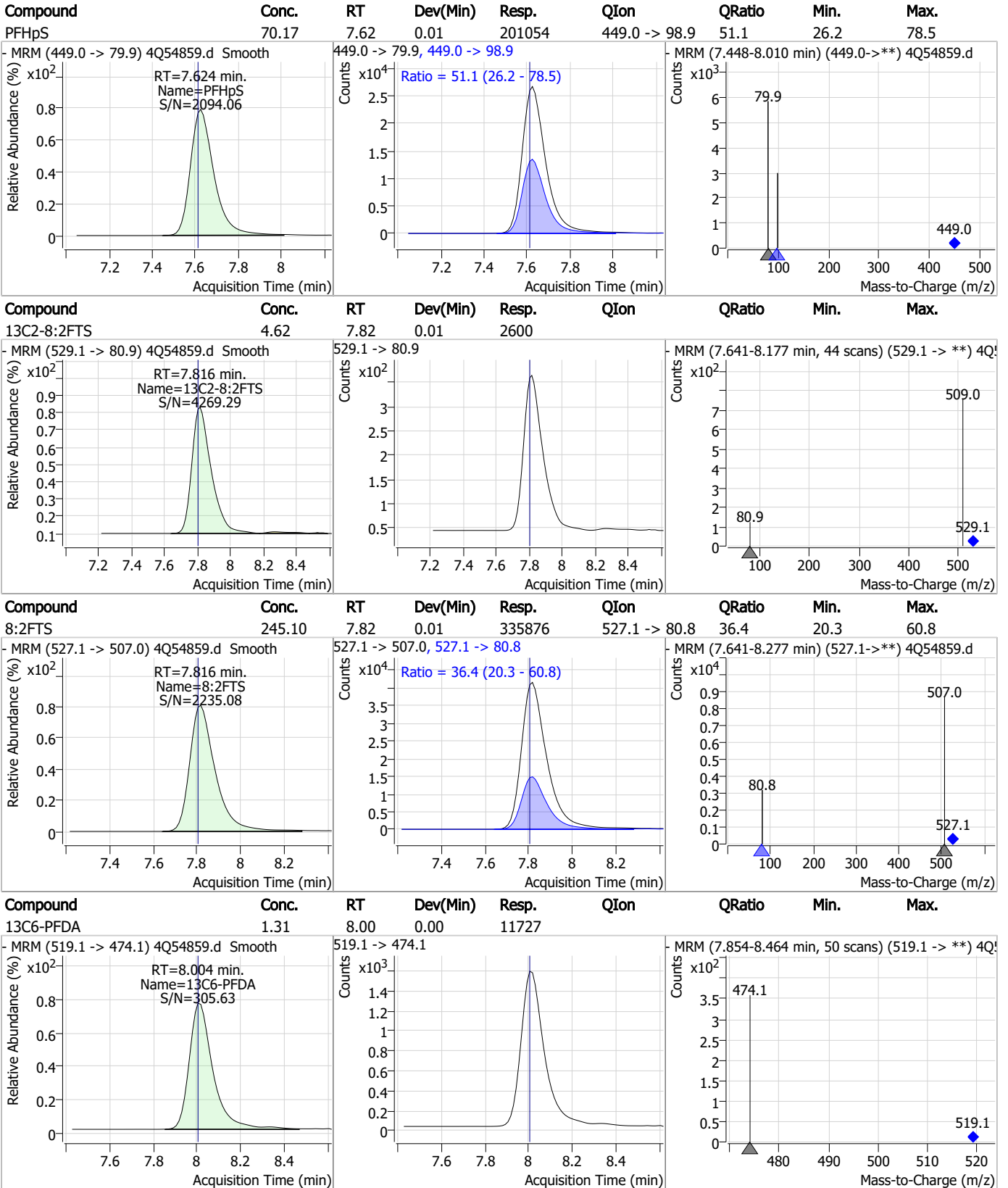
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### Perfluorinated Compounds by LC/MS/MS



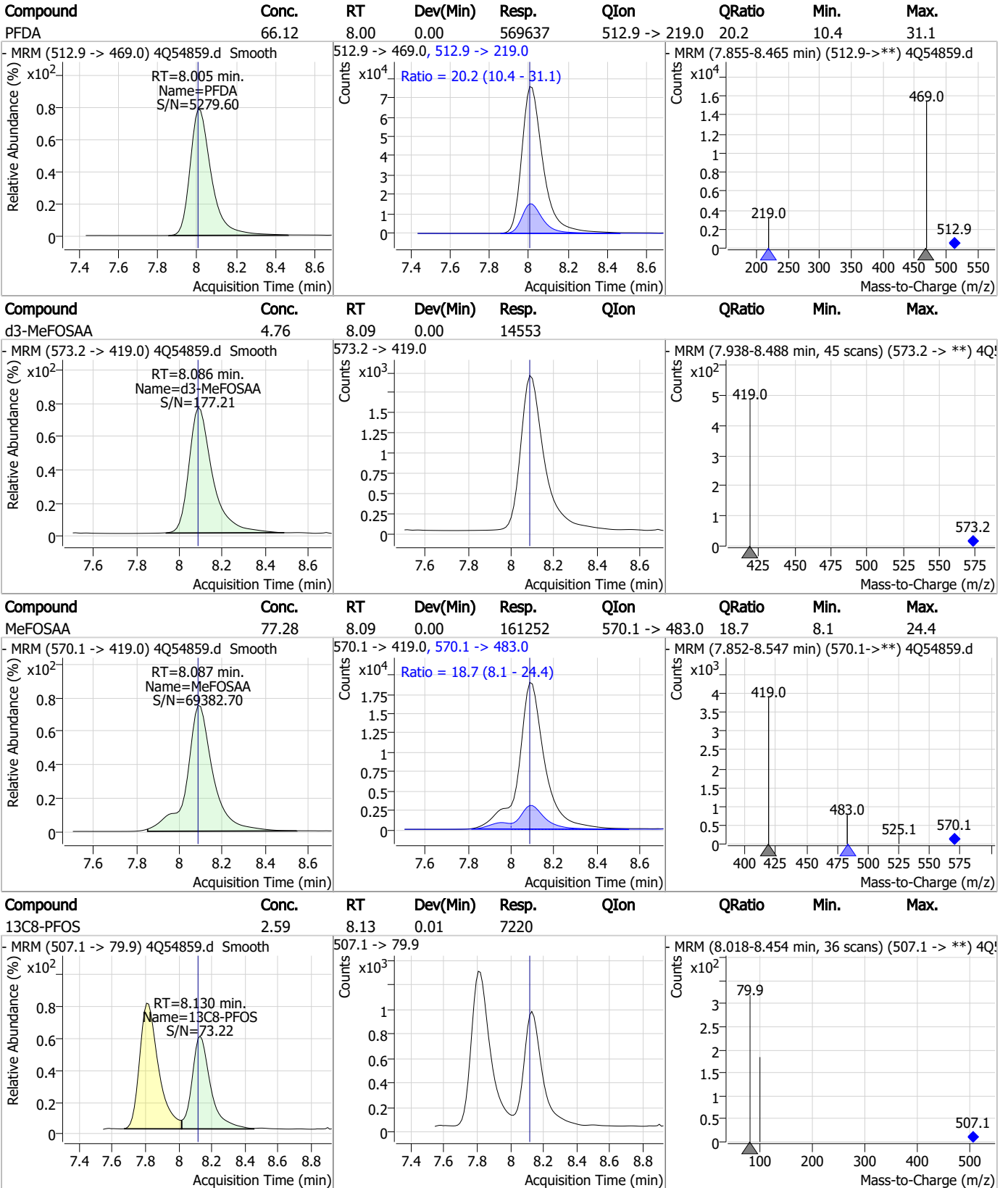
### Perfluorinated Compounds by LC/MS/MS



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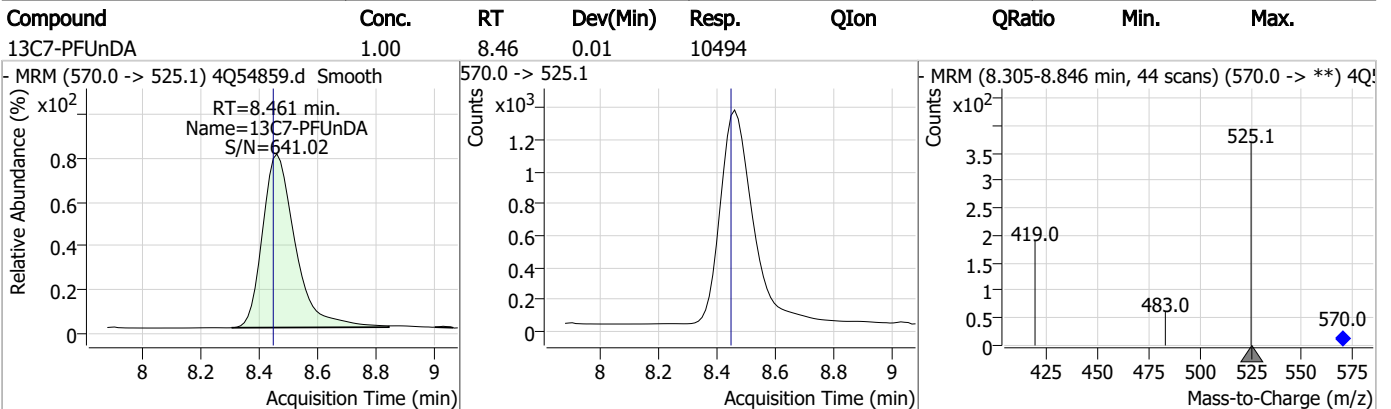
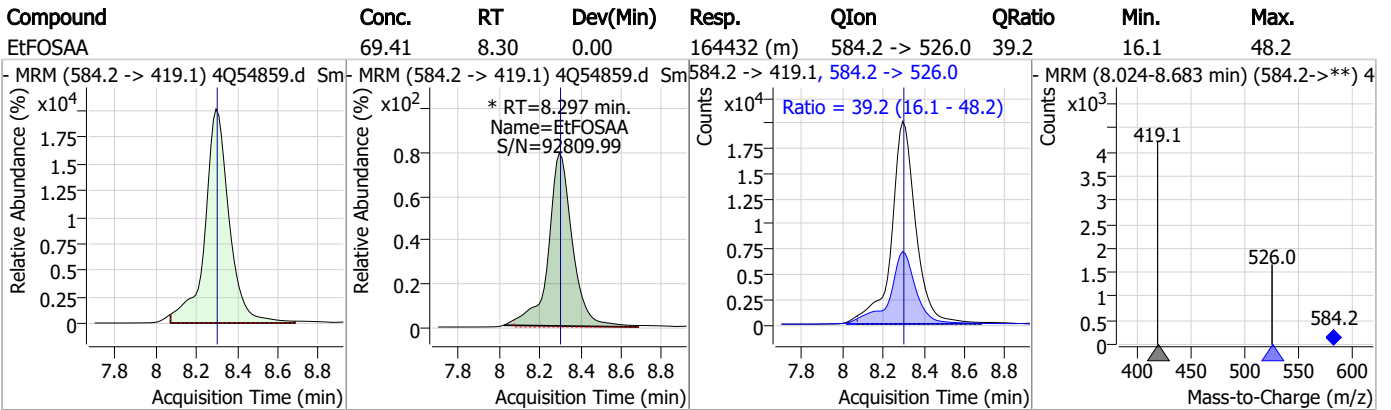
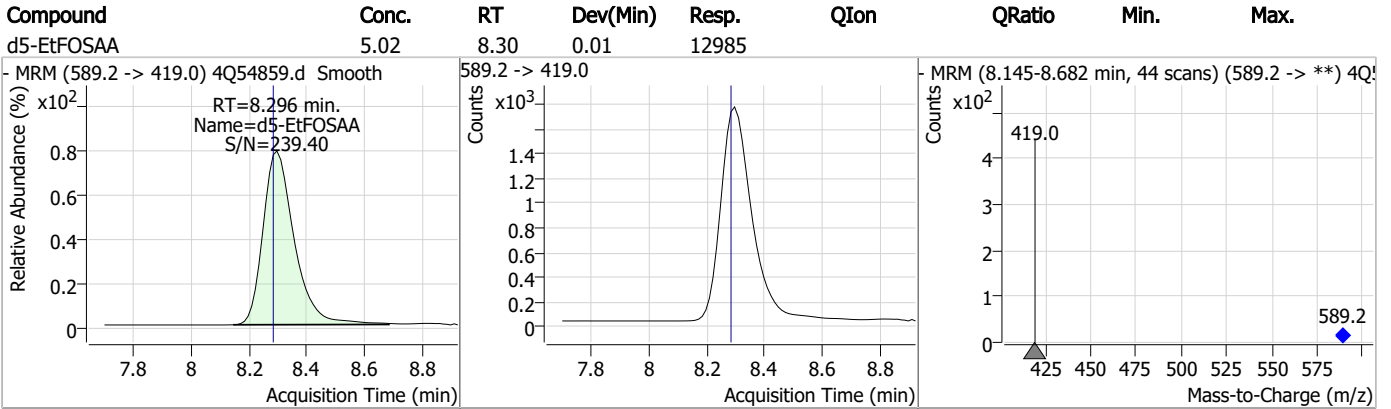
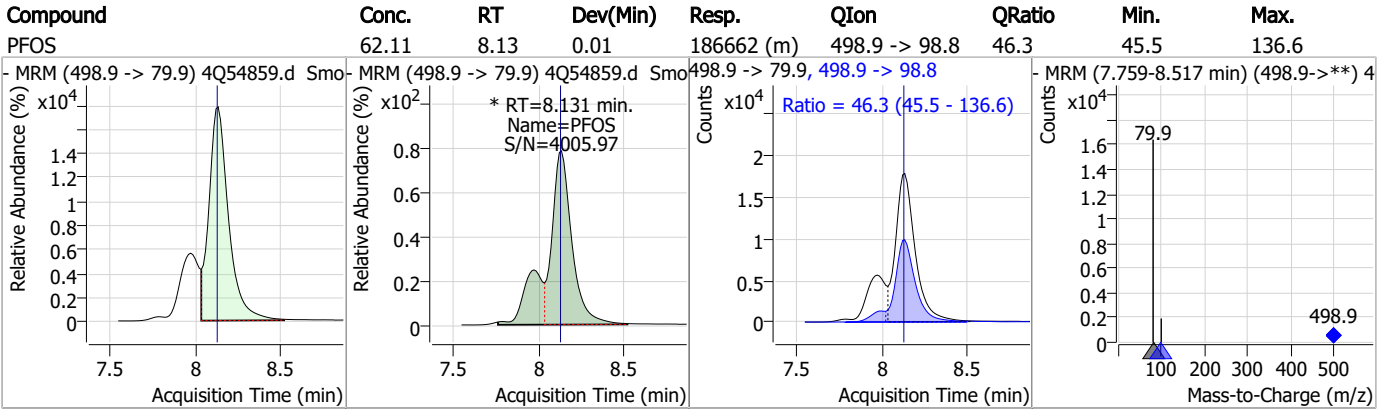
### Perfluorinated Compounds by LC/MS/MS



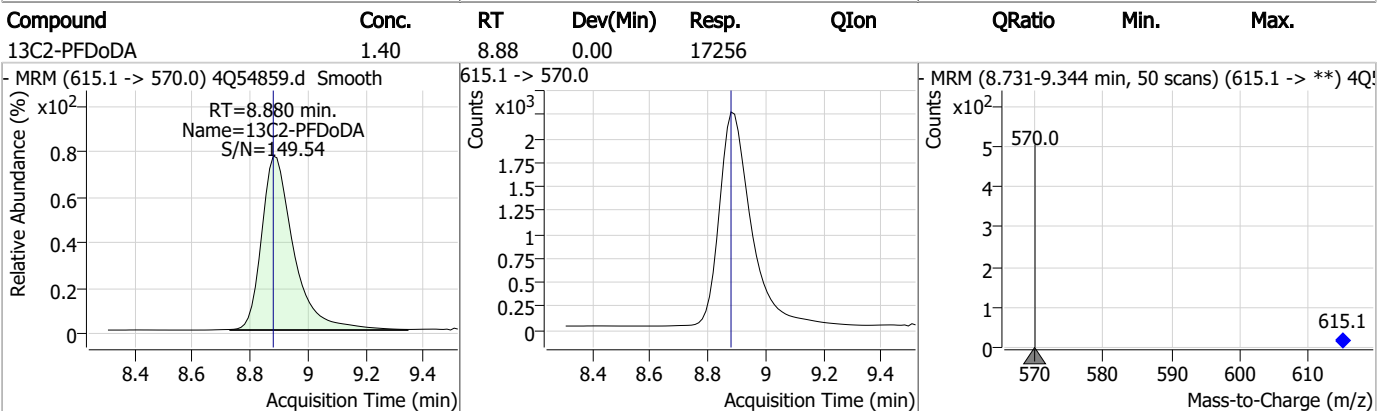
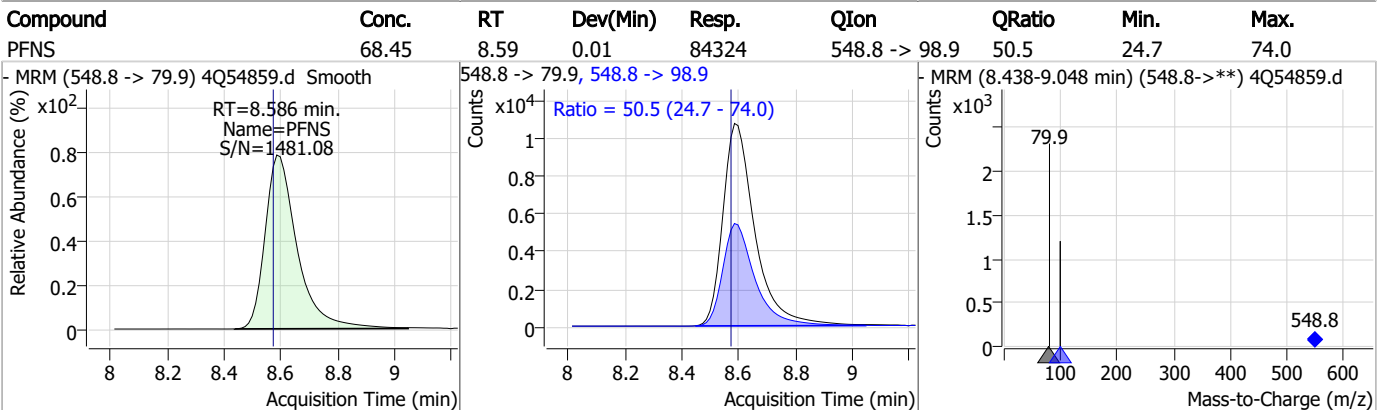
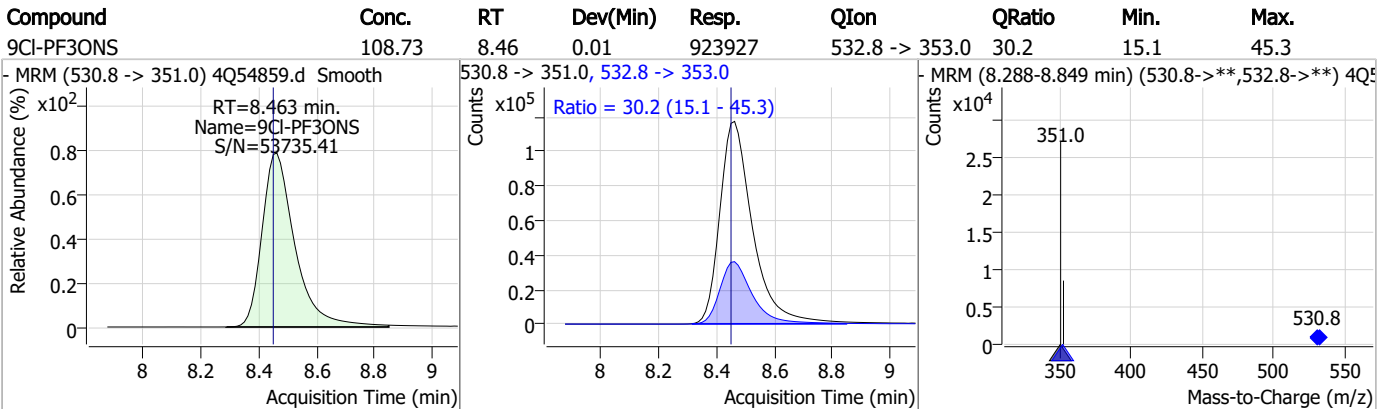
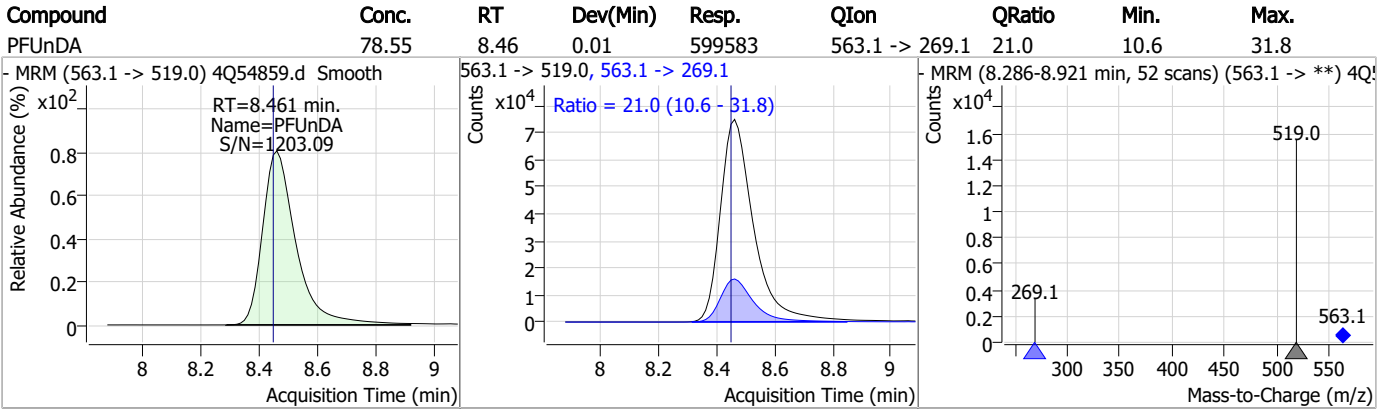
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## Perfluorinated Compounds by LC/MS/MS

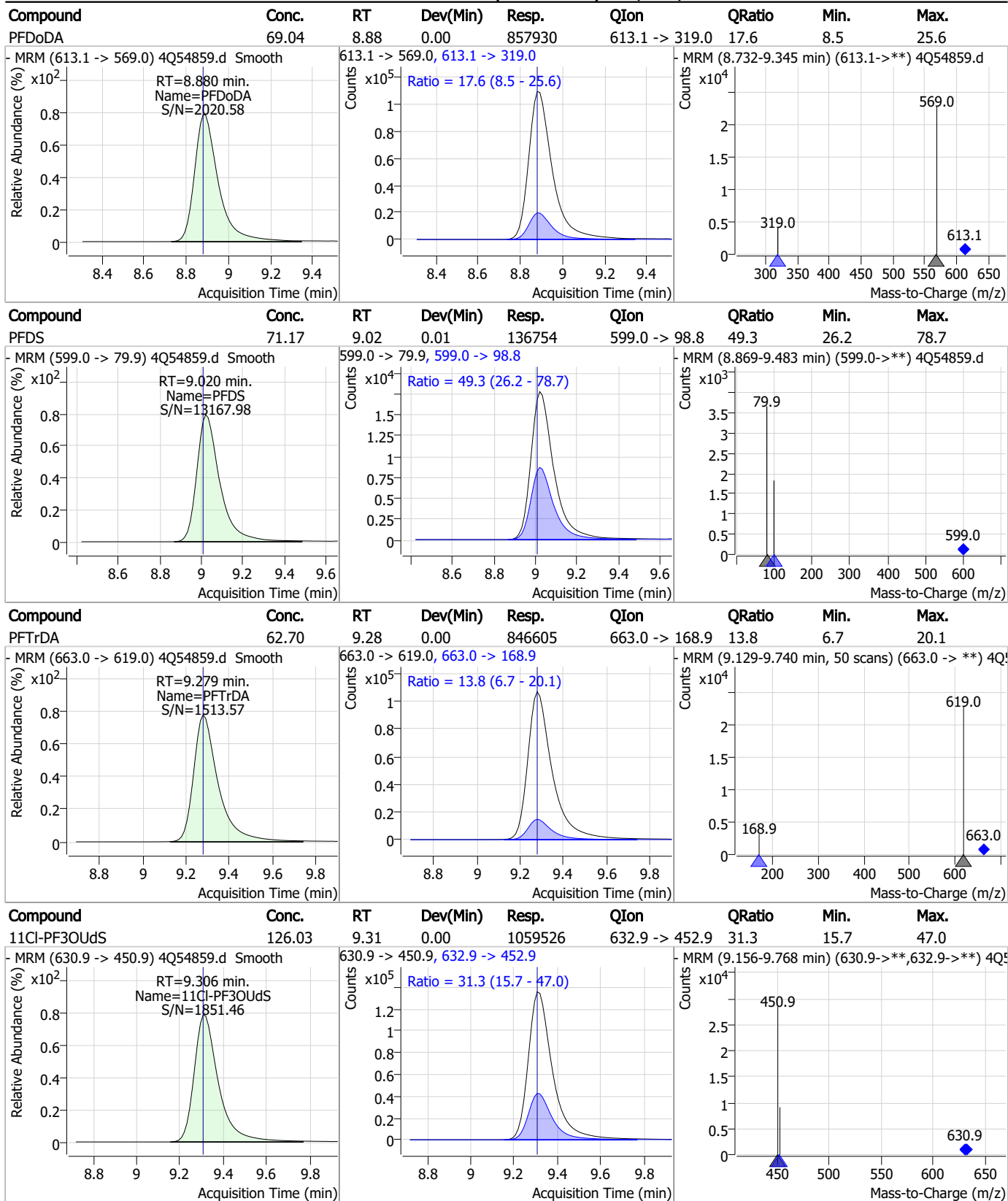


### Perfluorinated Compounds by LC/MS/MS





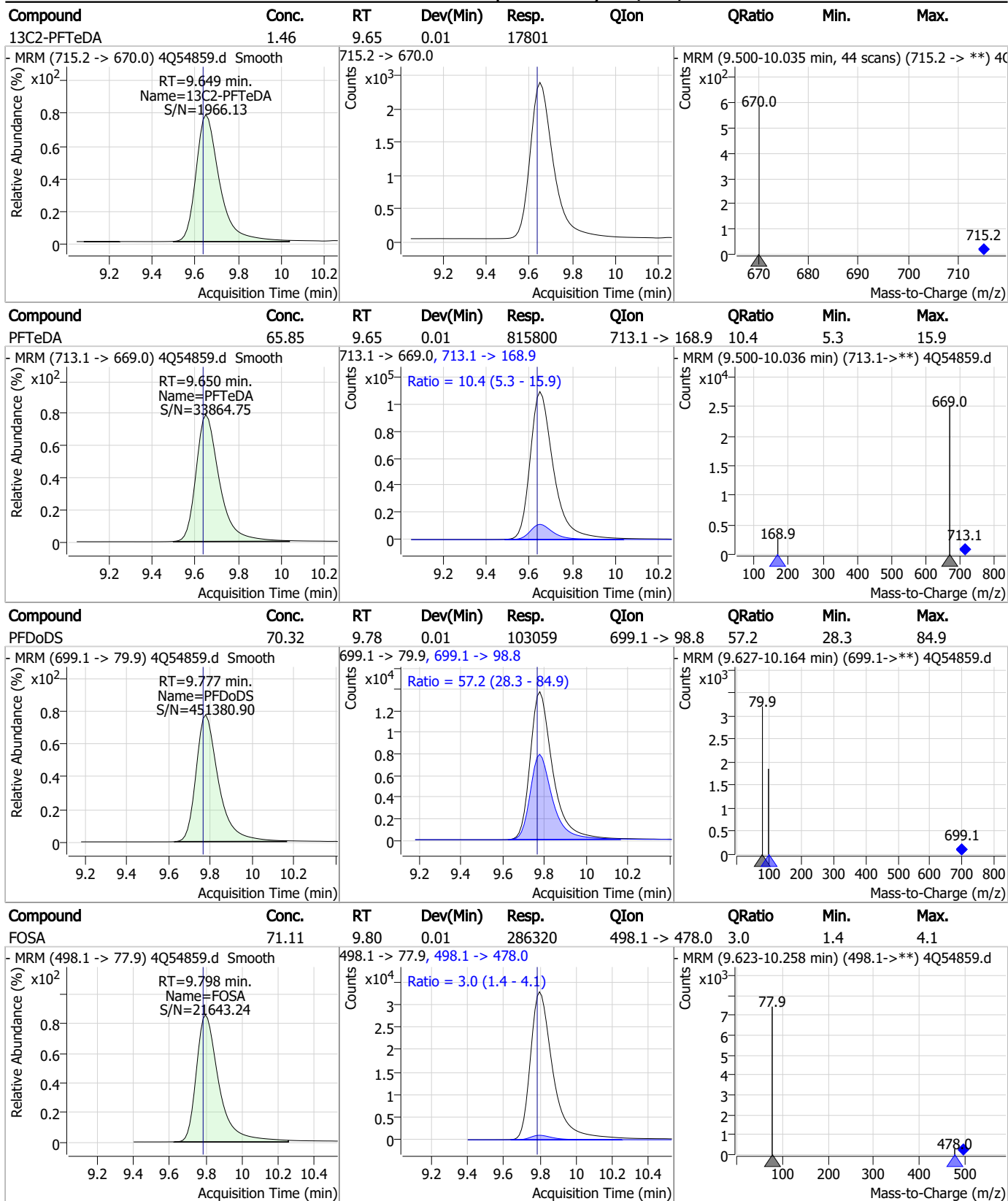
### Perfluorinated Compounds by LC/MS/MS



7.7.9  
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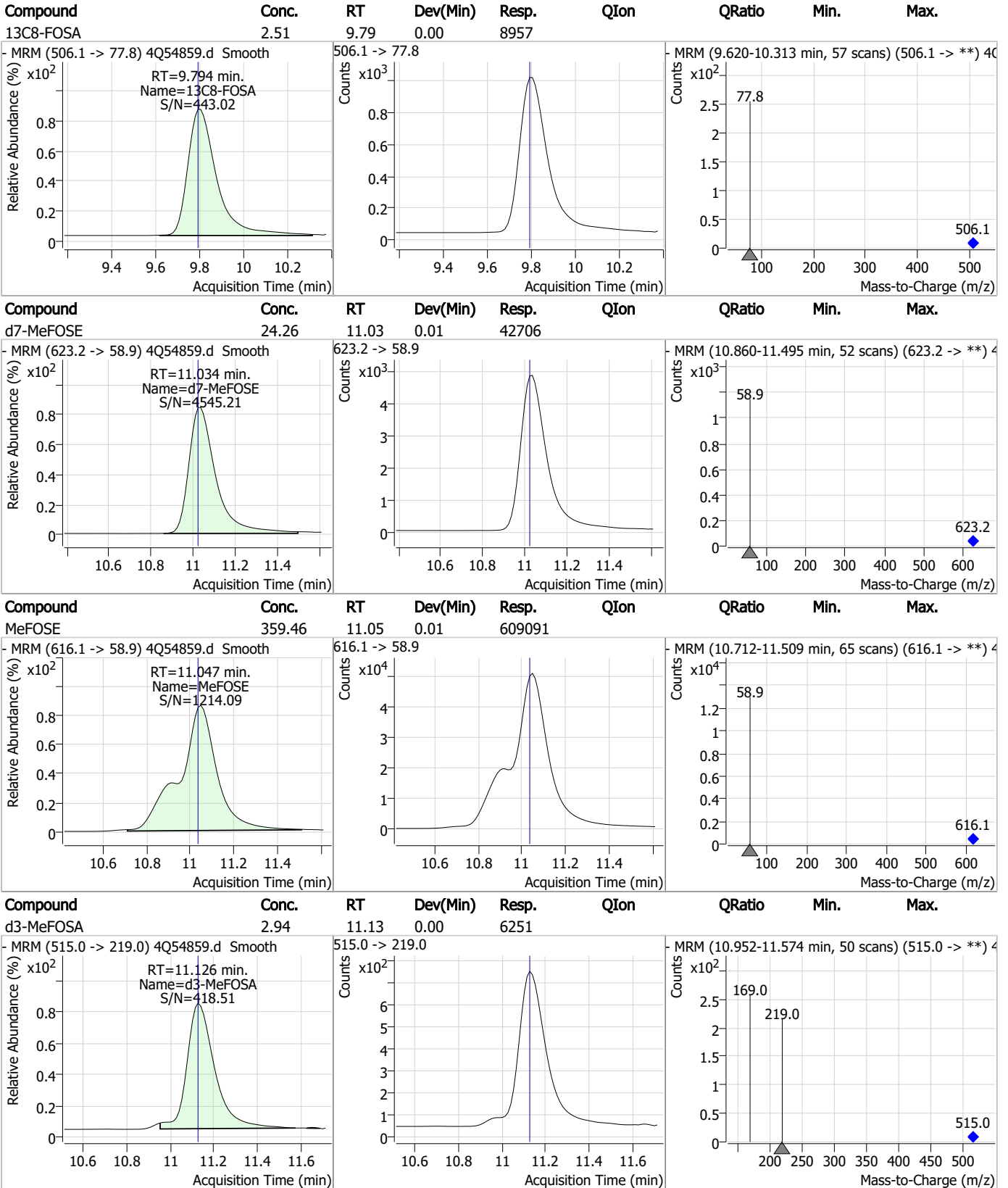
### Perfluorinated Compounds by LC/MS/MS



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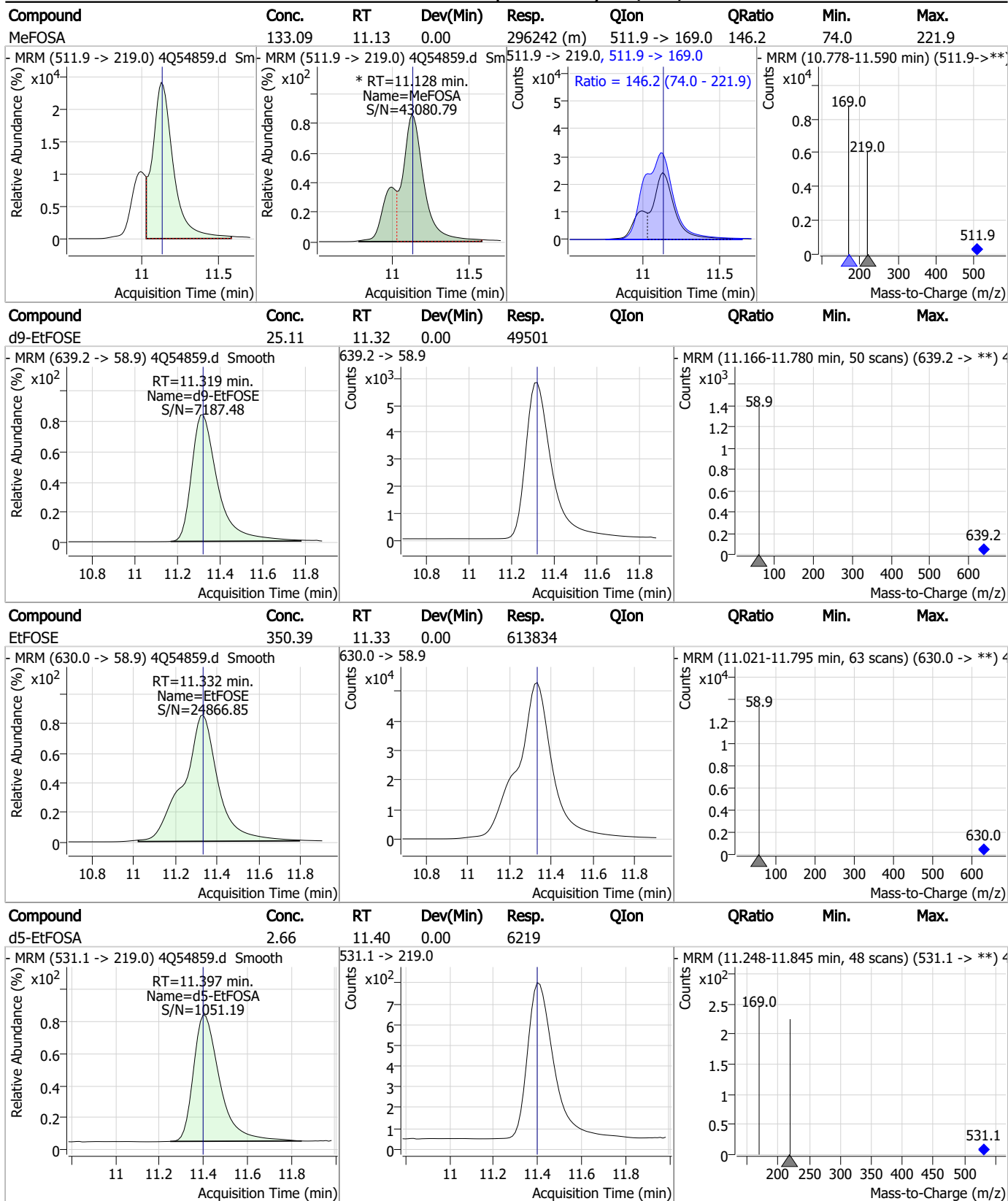
### Perfluorinated Compounds by LC/MS/MS



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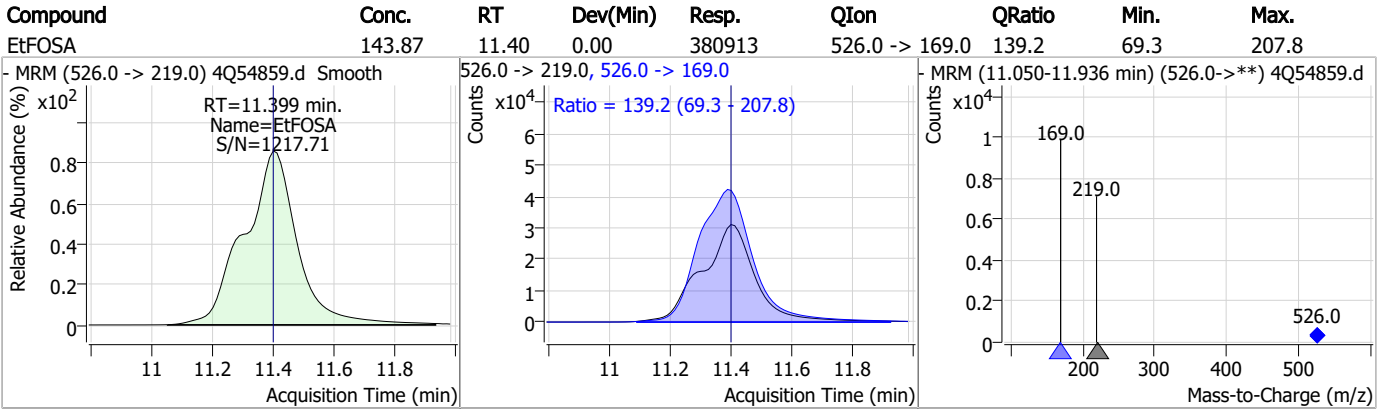
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### Perfluorinated Compounds by LC/MS/MS



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### Perfluorinated Compounds by LC/MS/MS



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# Manual Integration Approval Summary

Sample Number: S4Q804-IC804                      Method: EPA DRAFT 1633  
Lab FileID: 4Q54859.D                      Analyst approved: 12/10/23 12:52 Anna Ludwig  
Injection Time: 12/08/23 13:21                      Supervisor approved: 12/11/23 15:42 Natasha Gumtie

| Parameter                    | CAS        | Sig# | R.T.<br>(min.) | Reason     |
|------------------------------|------------|------|----------------|------------|
| Perfluorohexanesulfonic acid | 355-46-4   |      | 7.04           | Split peak |
| Perfluorooctanesulfonic acid | 1763-23-1  |      | 8.13           | Split peak |
| EtFOSAA                      | 2991-50-6  |      | 8.30           | Split peak |
| MeFOSA                       | 31506-32-8 |      | 11.13          | Split peak |

7.7.9.1

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### Perfluorinated Compounds by LC/MS/MS

Data File : 4Q54861.d  
 Operator : annal  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 12/8/2023 1:51:04 PM  
 Sample Name : icv804-4  
 Vial : P1-B3  
 DA Method File : 1633\_120823\_S4Q804.quantmethod.xml  
 Batch Name : s4q804.batch.bin  
 Sample Information : OP99999,S4Q804,500,,,5.0,1,water

| Compound                           | RT                   | Transition     | Response          | Conc. Units | Dev(Min) |
|------------------------------------|----------------------|----------------|-------------------|-------------|----------|
| <b>Internal Standards</b>          |                      |                |                   |             |          |
| M4-PFBA                            | 2.686                | 216.8 -> 171.9 | 97277             | 10.00 µg/L  | 0.012    |
| M5-PFPeA                           | 4.175                | 268.3 -> 223.0 | 40979             | 5.00 µg/L   | 0.012    |
| M5-PFHxA                           | 5.359                | 318.0 -> 273.0 | 31396             | 2.50 µg/L   | 0.025    |
| M4-PFHpA                           | 6.304                | 367.1 -> 322.0 | 31363             | 2.50 µg/L   | 0.012    |
| M8-PFOA                            | 6.989                | 421.1 -> 376.0 | 50412             | 2.50 µg/L   | 0.012    |
| M9-PFNA                            | 7.521                | 472.1 -> 427.0 | 19771             | 1.25 µg/L   | 0.000    |
| M6-PFDA                            | 8.017                | 519.1 -> 474.1 | 13441             | 1.25 µg/L   | 0.013    |
| M7-PFUnDA                          | 8.461                | 570.0 -> 525.1 | 16784             | 1.25 µg/L   | 0.012    |
| M2-PFDoDA                          | 8.892                | 615.1 -> 570.0 | 18074             | 1.25 µg/L   | 0.012    |
| M2-PFTeDA                          | 9.649                | 715.2 -> 670.0 | 18182             | 1.25 µg/L   | 0.012    |
| M8-FOSA                            | 9.806                | 506.1 -> 77.8  | 10944             | 2.50 µg/L   | 0.012    |
| M3-PFBS                            | 5.215                | 302.1 -> 79.9  | 9120              | 2.50 µg/L   | 0.025    |
| M3-PFHxS                           | 7.054                | 402.1 -> 79.9  | 7670              | 2.50 µg/L   | 0.025    |
| M8-PFOS                            | 8.130                | 507.1 -> 79.9  | 7937              | 2.50 µg/L   | 0.012    |
| M2-4:2FTS                          | 5.058                | 329.1 -> 80.9  | 1122              | 5.00 µg/L   | 0.012    |
| M2-6:2FTS                          | 6.773                | 429.1 -> 80.9  | 2490              | 5.00 µg/L   | 0.025    |
| M2-8:2FTS                          | 7.816                | 529.1 -> 80.9  | 3234              | 5.00 µg/L   | 0.012    |
| M3-MeFOSAA                         | 8.099                | 573.2 -> 419.0 | 17761             | 5.00 µg/L   | 0.012    |
| M3-HFPO-DA                         | 5.714                | 286.9 -> 168.9 | 31663             | 10.00 µg/L  | 0.025    |
| M5-EtFOSAA                         | 8.296                | 589.2 -> 419.0 | 15184             | 5.00 µg/L   | 0.012    |
| M7-MeFOSE                          | 11.034               | 623.2 -> 58.9  | 51763             | 25.00 µg/L  | 0.012    |
| M9-EtFOSE                          | 11.319               | 639.2 -> 58.9  | 60457             | 25.00 µg/L  | 0.000    |
| M5-EtFOSA                          | 11.410               | 531.1 -> 219.0 | 6927              | 2.50 µg/L   | 0.012    |
| M3-MeFOSA                          | 11.139               | 515.0 -> 219.0 | 6458              | 2.50 µg/L   | 0.012    |
| 13C4-PFOS                          | 8.130                | 502.8 -> 79.9  | 6755              | 2.50 µg/L   | 0.012    |
| 13C3-PFBA                          | 2.691                | 216.0 -> 172.0 | 46185             | 5.00 µg/L   | 0.013    |
| 18O2-PFHxS                         | 7.041                | 403.0 -> 83.9  | 4799              | 2.50 µg/L   | 0.000    |
| 13C4-PFOA                          | 6.989                | 417.1 -> 372.0 | 55697             | 2.50 µg/L   | 0.012    |
| 13C2-PFDA                          | 8.017                | 515.1 -> 470.1 | 15265             | 1.25 µg/L   | 0.013    |
| 13C5-PFNA                          | 7.534                | 468.0 -> 423.0 | 20143             | 1.25 µg/L   | 0.025    |
| 13C2-PFHxA                         | 5.360                | 315.1 -> 270.0 | 35338             | 2.50 µg/L   | 0.025    |
| <b>System Monitoring Compounds</b> |                      |                |                   |             |          |
| 13C2-4:2FTS                        | 5.058                | 329.1 -> 80.9  | 1122              | 4.93 µg/L   | 0.012    |
| Spiked Amount: 5.00                | Range: 50.0 - 150.0% |                | Recovery = 98.5%  |             |          |
| 13C2-6:2FTS                        | 6.773                | 429.1 -> 80.9  | 2490              | 5.04 µg/L   | 0.025    |
| Spiked Amount: 5.00                | Range: 50.0 - 150.0% |                | Recovery = 100.8% |             |          |
| 13C2-8:2FTS                        | 7.816                | 529.1 -> 80.9  | 3234              | 4.89 µg/L   | 0.012    |
| Spiked Amount: 5.00                | Range: 50.0 - 150.0% |                | Recovery = 97.8%  |             |          |
| 13C2-PFDoDA                        | 8.892                | 615.1 -> 570.0 | 18074             | 1.18 µg/L   | 0.012    |
| Spiked Amount: 1.25                | Range: 50.0 - 150.0% |                | Recovery = 94.8%  |             |          |
| 13C2-PFTeDA                        | 9.649                | 715.2 -> 670.0 | 18182             | 1.20 µg/L   | 0.012    |
| Spiked Amount: 1.25                | Range: 50.0 - 150.0% |                | Recovery = 96.0%  |             |          |
| 13C3-PFBS                          | 5.215                | 302.1 -> 79.9  | 9120              | 2.48 µg/L   | 0.025    |
| Spiked Amount: 2.50                | Range: 50.0 - 150.0% |                | Recovery = 99.2%  |             |          |
| 13C3-PFHxS                         | 7.054                | 402.1 -> 79.9  | 7670              | 2.55 µg/L   | 0.025    |

7.7.10  
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### Perfluorinated Compounds by LC/MS/MS

| Compound                | RT                   | Transition     | Response          | Conc. Units | Dev(Min)      |
|-------------------------|----------------------|----------------|-------------------|-------------|---------------|
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                | Recovery = 102.0% |             |               |
| 13C4-PFBA               | 2.686                | 216.8 -> 171.9 | 97277             | 10.03 µg/L  | 0.012         |
| Spiked Amount: 10.00    | Range: 50.0 - 150.0% |                | Recovery = 100.3% |             |               |
| 13C4-PFHpA              | 6.304                | 367.1 -> 322.0 | 31363             | 2.52 µg/L   | 0.012         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                | Recovery = 100.7% |             |               |
| 13C5-PFHxA              | 5.359                | 318.0 -> 273.0 | 31396             | 2.41 µg/L   | 0.025         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                | Recovery = 96.5%  |             |               |
| 13C5-PFPeA              | 4.175                | 268.3 -> 223.0 | 40979             | 5.05 µg/L   | 0.012         |
| Spiked Amount: 5.00     | Range: 50.0 - 150.0% |                | Recovery = 101.0% |             |               |
| 13C6-PFDA               | 8.017                | 519.1 -> 474.1 | 13441             | 1.21 µg/L   | 0.013         |
| Spiked Amount: 1.25     | Range: 50.0 - 150.0% |                | Recovery = 96.8%  |             |               |
| 13C7-PFUnDA             | 8.461                | 570.0 -> 525.1 | 16784             | 1.28 µg/L   | 0.012         |
| Spiked Amount: 1.25     | Range: 50.0 - 150.0% |                | Recovery = 102.5% |             |               |
| 13C8-FOSA               | 9.806                | 506.1 -> 77.8  | 10944             | 2.50 µg/L   | 0.012         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                | Recovery = 100.0% |             |               |
| 13C8-PFOA               | 6.989                | 421.1 -> 376.0 | 50412             | 2.45 µg/L   | 0.012         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                | Recovery = 98.0%  |             |               |
| 13C8-PFOS               | 8.130                | 507.1 -> 79.9  | 7937              | 2.32 µg/L   | 0.012         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                | Recovery = 92.8%  |             |               |
| 13C9-PFNA               | 7.521                | 472.1 -> 427.0 | 19771             | 1.23 µg/L   | 0.000         |
| Spiked Amount: 1.25     | Range: 50.0 - 150.0% |                | Recovery = 98.0%  |             |               |
| d3-MeFOSAA              | 8.099                | 573.2 -> 419.0 | 17761             | 4.74 µg/L   | 0.012         |
| Spiked Amount: 5.00     | Range: 50.0 - 150.0% |                | Recovery = 94.7%  |             |               |
| 13C3-HFPO-DA            | 5.714                | 286.9 -> 168.9 | 31663             | 9.73 µg/L   | 0.025         |
| Spiked Amount: 10.00    | Range: 50.0 - 150.0% |                | Recovery = 97.3%  |             |               |
| d3-MeFOSA               | 11.139               | 515.0 -> 219.0 | 6458              | 2.47 µg/L   | 0.012         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                | Recovery = 98.9%  |             |               |
| d5-EtFOSAA              | 8.296                | 589.2 -> 419.0 | 15184             | 4.79 µg/L   | 0.012         |
| Spiked Amount: 5.00     | Range: 50.0 - 150.0% |                | Recovery = 95.7%  |             |               |
| d7-MeFOSE               | 11.034               | 623.2 -> 58.9  | 51763             | 23.97 µg/L  | 0.012         |
| Spiked Amount: 25.00    | Range: 50.0 - 150.0% |                | Recovery = 95.9%  |             |               |
| d9-EtFOSE               | 11.319               | 639.2 -> 58.9  | 60457             | 25.00 µg/L  | 0.000         |
| Spiked Amount: 25.00    | Range: 50.0 - 150.0% |                | Recovery = 100.0% |             |               |
| d5-EtFOSA               | 11.410               | 531.1 -> 219.0 | 6927              | 2.42 µg/L   | 0.012         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                | Recovery = 96.8%  |             |               |
| <b>Target Compounds</b> |                      |                |                   |             | <b>QValue</b> |
| 4:2FTS                  | 5.059                | 327.1 -> 307.0 | 17219             | 8.91 µg/L   | 99            |
|                         |                      | 327.1 -> 80.9  | 7499              |             |               |
| 6:2FTS                  | 6.774                | 427.1 -> 407.0 | 24030             | 9.18 µg/L   | 98            |
|                         |                      | 427.1 -> 80.9  | 8478              |             |               |
| 8:2FTS                  | 7.816                | 527.1 -> 507.0 | 16791             | 9.85 µg/L   | 98            |
|                         |                      | 527.1 -> 80.8  | 7038              |             |               |
| EtFOSAA                 | 8.297                | 584.2 -> 419.1 | 6568              | 2.37 µg/L   | m 91          |
|                         |                      | 584.2 -> 526.0 | 2450              |             |               |
| FOSA                    | 9.798                | 498.1 -> 77.9  | 11729             | 2.38 µg/L   | 99            |
|                         |                      | 498.1 -> 478.0 | 365               |             |               |
| MeFOSAA                 | 8.099                | 570.1 -> 419.0 | 7212              | 2.83 µg/L   | 92            |
|                         |                      | 570.1 -> 483.0 | 1425              |             |               |
| PFBA                    | 2.695                | 212.8 -> 168.9 | 29656             | 9.52 µg/L   | 100           |
| PFBS                    | 5.216                | 298.7 -> 79.9  | 5843              | 2.07 µg/L   | 97            |
|                         |                      | 298.7 -> 98.8  | 2259              |             |               |
| PFDA                    | 8.017                | 512.9 -> 469.0 | 23055             | 2.34 µg/L   | 99            |
|                         |                      | 512.9 -> 219.0 | 4654              |             |               |
| PFDODA                  | 8.893                | 613.1 -> 569.0 | 32230             | 2.48 µg/L   | 97            |
|                         |                      | 613.1 -> 319.0 | 5876              |             |               |
| PFDS                    | 9.020                | 599.0 -> 79.9  | 5077              | 2.40 µg/L   | 94            |

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Perfluorinated Compounds by LC/MS/MS

| Compound     | RT     | Transition     | Response | Conc. | Units | Dev(Min) |
|--------------|--------|----------------|----------|-------|-------|----------|
| PFHpA        | 6.305  | 599.0 -> 98.8  | 2462     | 2.37  | µg/L  | 99       |
|              |        | 363.1 -> 319.0 | 41778    |       |       |          |
| PFHpS        | 7.624  | 363.1 -> 169.0 | 7824     | 2.26  | µg/L  | 94       |
|              |        | 449.0 -> 79.9  | 7107     |       |       |          |
| PFHxA        | 5.362  | 449.0 -> 98.9  | 4023     | 2.37  | µg/L  | 99       |
|              |        | 313.0 -> 269.0 | 23780    |       |       |          |
| PFHxS        | 7.055  | 313.0 -> 118.9 | 751      | 1.93  | µg/L  | 83       |
|              |        | 398.7 -> 79.9  | 4778     |       |       |          |
| PFNA         | 7.534  | 398.7 -> 98.9  | 2822     | 2.30  | µg/L  | 94       |
|              |        | 463.0 -> 419.0 | 26663    |       |       |          |
| PFNS         | 8.598  | 463.0 -> 219.0 | 6936     | 2.55  | µg/L  | 87       |
|              |        | 548.8 -> 79.9  | 3455     |       |       |          |
| PFOA         | 6.990  | 548.8 -> 98.9  | 2025     | 2.32  | µg/L  | 97       |
|              |        | 413.0 -> 369.0 | 48113    |       |       |          |
| PFOS         | 8.131  | 413.0 -> 169.0 | 10043    | 2.24  | µg/L  | 57       |
|              |        | 498.9 -> 79.9  | 7388     |       |       |          |
| PFPeA        | 4.177  | 498.9 -> 98.8  | 3730     | 4.58  | µg/L  | 100      |
|              |        | 263.0 -> 219.0 | 36895    |       |       |          |
| PFPeS        | 6.294  | 349.1 -> 79.9  | 5136     | 2.20  | µg/L  | 97       |
|              |        | 349.1 -> 98.9  | 2261     |       |       |          |
| PFTeDA       | 9.650  | 713.1 -> 669.0 | 30770    | 2.43  | µg/L  | 100      |
|              |        | 713.1 -> 168.9 | 3296     |       |       |          |
| PFTrDA       | 9.292  | 663.0 -> 619.0 | 36931    | 2.61  | µg/L  | 98       |
|              |        | 663.0 -> 168.9 | 5315     |       |       |          |
| PFUnDA       | 8.461  | 563.1 -> 519.0 | 29861    | 2.45  | µg/L  | 96       |
|              |        | 563.1 -> 269.1 | 6833     |       |       |          |
| 11CI-PF3OUdS | 9.319  | 630.9 -> 450.9 | 42161    | 4.84  | µg/L  | 99       |
|              |        | 632.9 -> 452.9 | 12973    |       |       |          |
| 9CI-PF3ONS   | 8.463  | 530.8 -> 351.0 | 41617    | 4.72  | µg/L  | 100      |
|              |        | 532.8 -> 353.0 | 12486    |       |       |          |
| ADONA        | 6.581  | 376.9 -> 250.9 | 109312   | 5.11  | µg/L  | 98       |
|              |        | 376.9 -> 84.8  | 25411    |       |       |          |
| HFPO-DA      | 5.715  | 284.9 -> 168.9 | 14585    | 4.81  | µg/L  | 99       |
|              |        | 284.9 -> 184.9 | 1401     |       |       |          |
| 3:3FTCA      | 3.630  | 241.0 -> 177.0 | 5719     | 11.55 | µg/L  | 100      |
|              |        | 241.0 -> 117.0 | 502      |       |       |          |
| 5:3FTCA      | 6.033  | 341.0 -> 237.1 | 109670   | 61.37 | µg/L  | 99       |
|              |        | 341.0 -> 217.0 | 77198    |       |       |          |
| 7:3FTCA      | 7.549  | 441.0 -> 316.9 | 57240    | 61.08 | µg/L  | 97       |
|              |        | 441.0 -> 336.9 | 139284   |       |       |          |
| EtFOSA       | 11.412 | 526.0 -> 219.0 | 13781    | 4.67  | µg/L  | 100      |
|              |        | 526.0 -> 169.0 | 19005    |       |       |          |
| EtFOSE       | 11.332 | 630.0 -> 58.9  | 25128    | 11.74 | µg/L  | 100      |
|              |        | 511.9 -> 219.0 | 10425    |       |       |          |
| MeFOSA       | 11.128 | 511.9 -> 169.0 | 14931    | 4.53  | µg/L  | 96       |
|              |        | 616.1 -> 58.9  | 24373    |       |       |          |
| MeFOSE       | 11.047 | 699.1 -> 79.9  | 3985     | 11.87 | µg/L  | 100      |
|              |        | 699.1 -> 98.8  | 2117     |       |       |          |
| PFDoDS       | 9.777  | 295.0 -> 201.0 | 3581     | 2.47  | µg/L  | 95       |
|              |        | 295.0 -> 84.9  | 905      |       |       |          |
| NFDHA        | 5.241  | 279.0 -> 85.1  | 21065    | 5.05  | µg/L  | 98       |
|              |        | 229.0 -> 84.9  | 22799    |       |       |          |
| PFMBA        | 4.578  | 314.8 -> 134.9 | 33047    | 4.67  | µg/L  | 100      |
|              |        | 314.8 -> 82.9  | 1135     |       |       |          |
| PFMPA        | 3.332  |                |          | 4.46  | µg/L  | 99       |
|              |        |                |          |       |       |          |
| PFEESA       | 5.734  |                |          |       |       |          |
|              |        |                |          |       |       |          |

# = Qualifier out of range, m = manually integrated, + = Area summed





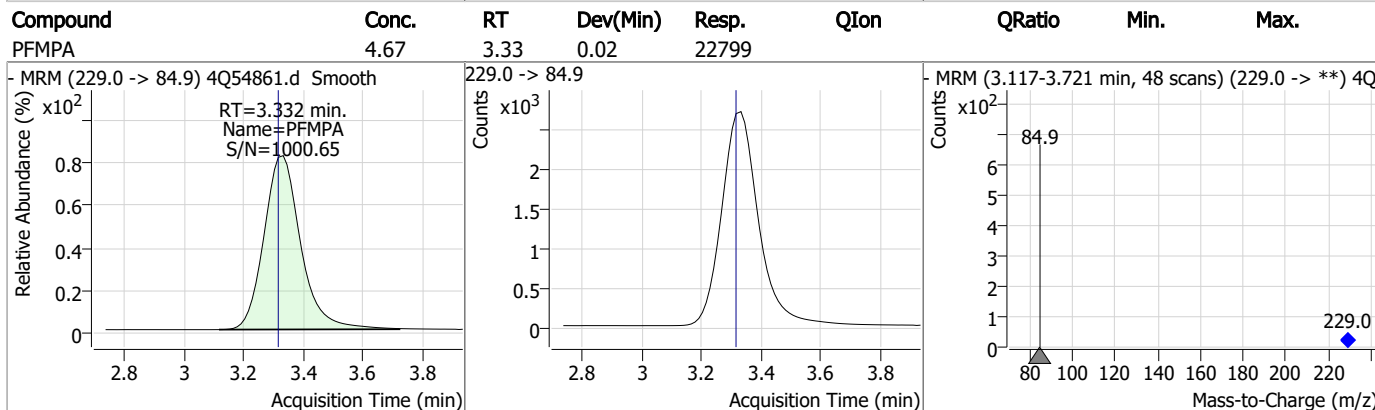
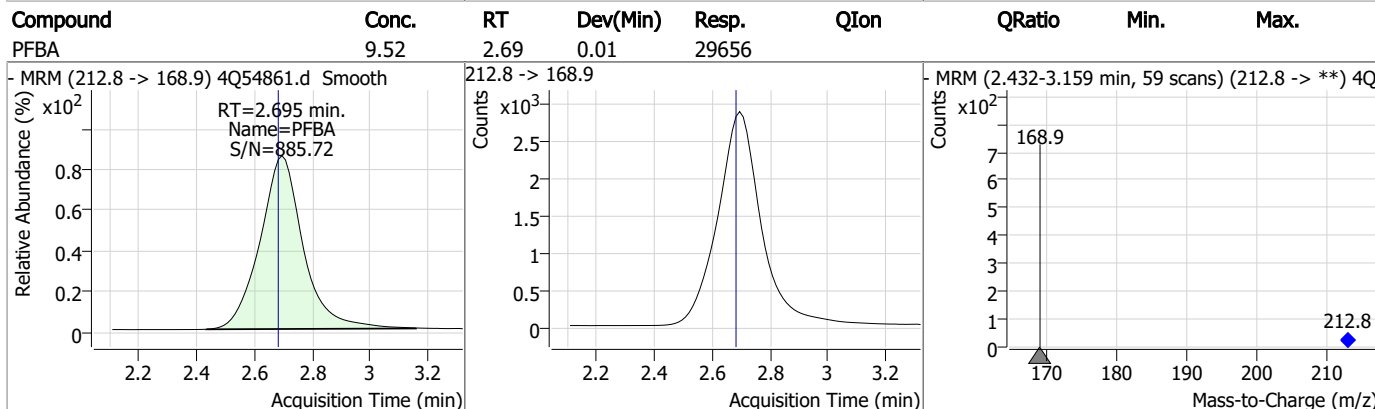
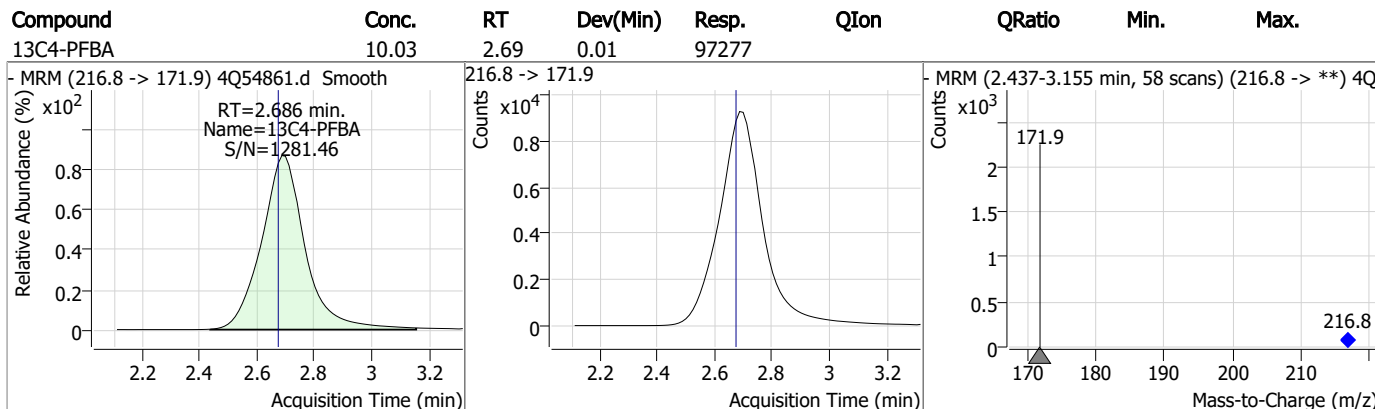
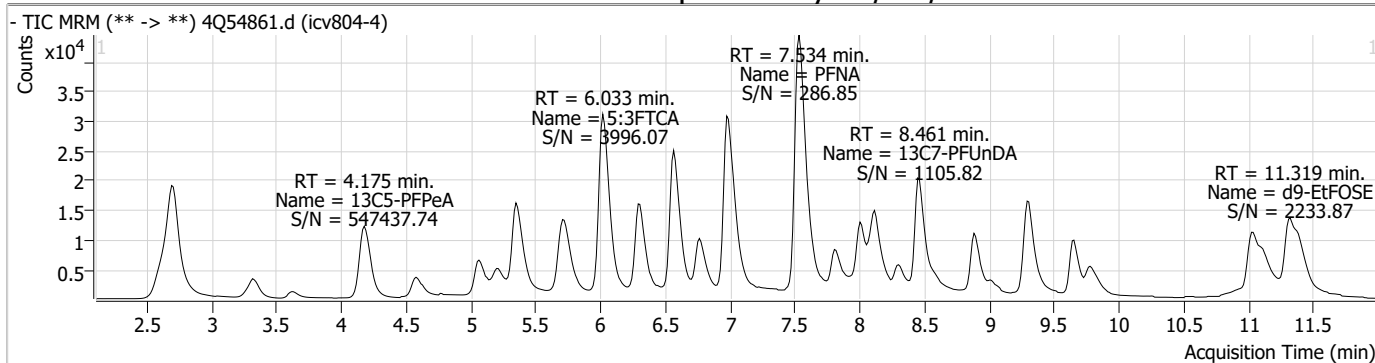
### Perfluorinated Compounds by LC/MS/MS

| Compound | RT | Transition | Response | Conc. Units | Dev(Min) |
|----------|----|------------|----------|-------------|----------|
|----------|----|------------|----------|-------------|----------|

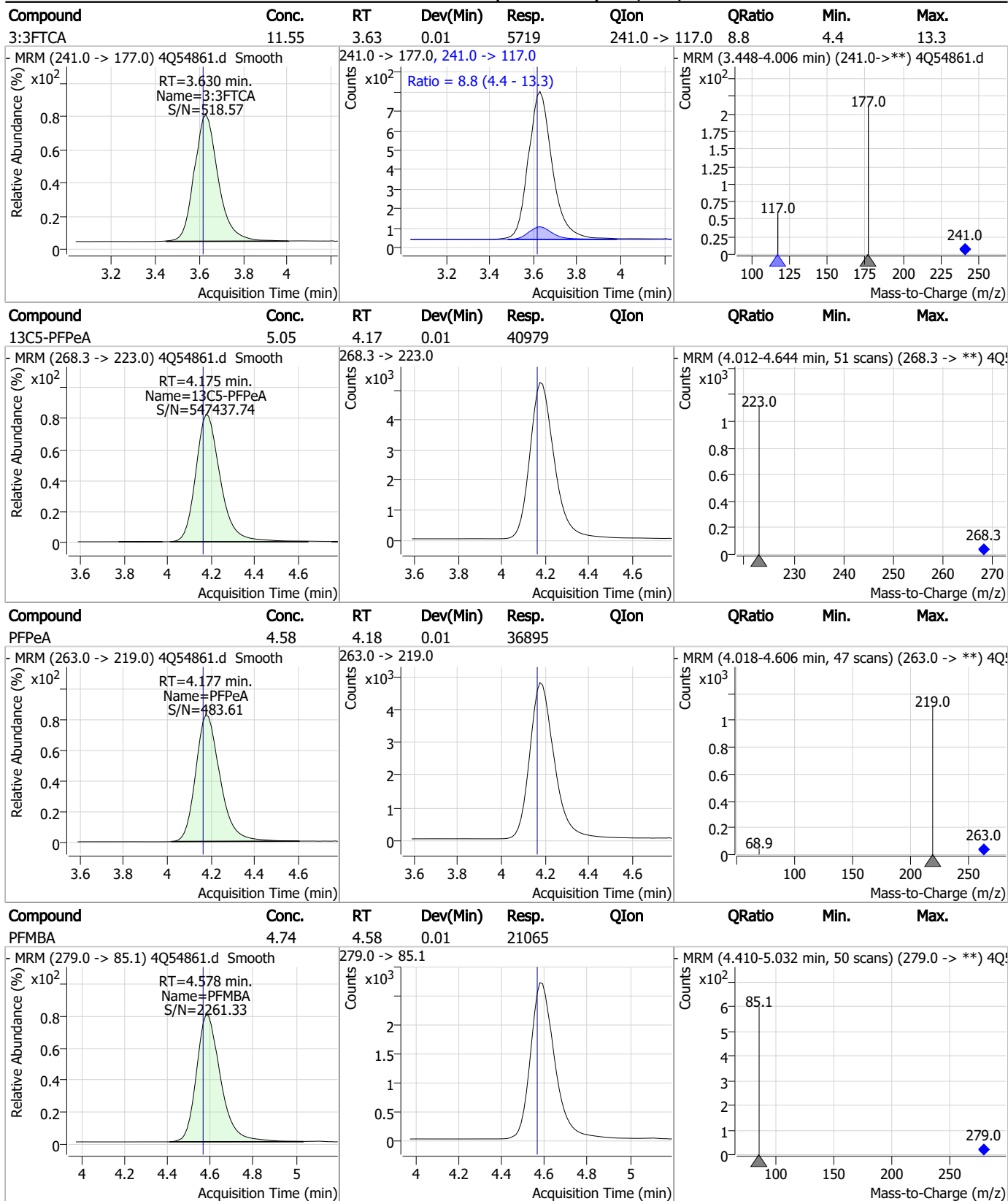
7.7.10

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### Perfluorinated Compounds by LC/MS/MS

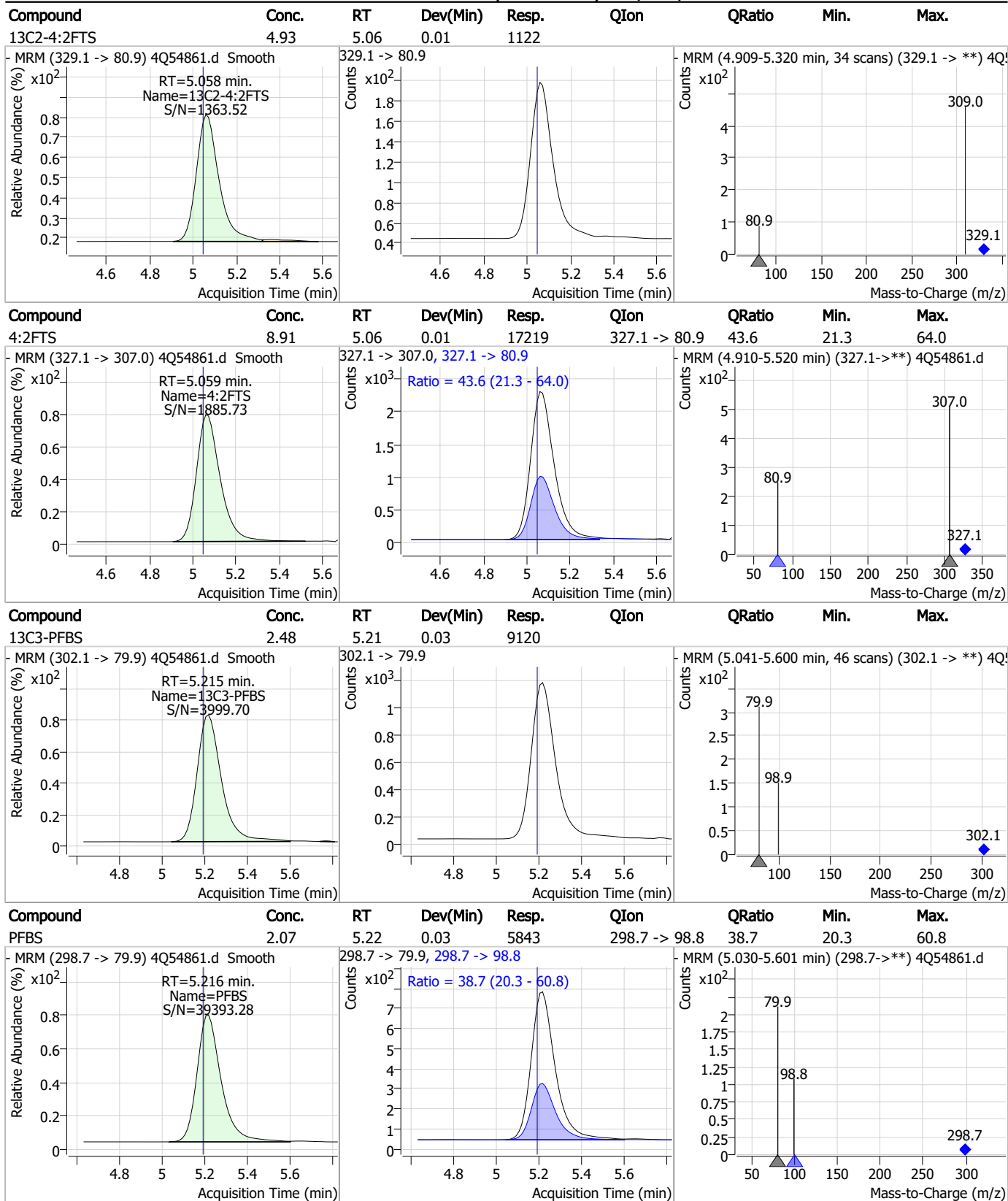


### Perfluorinated Compounds by LC/MS/MS



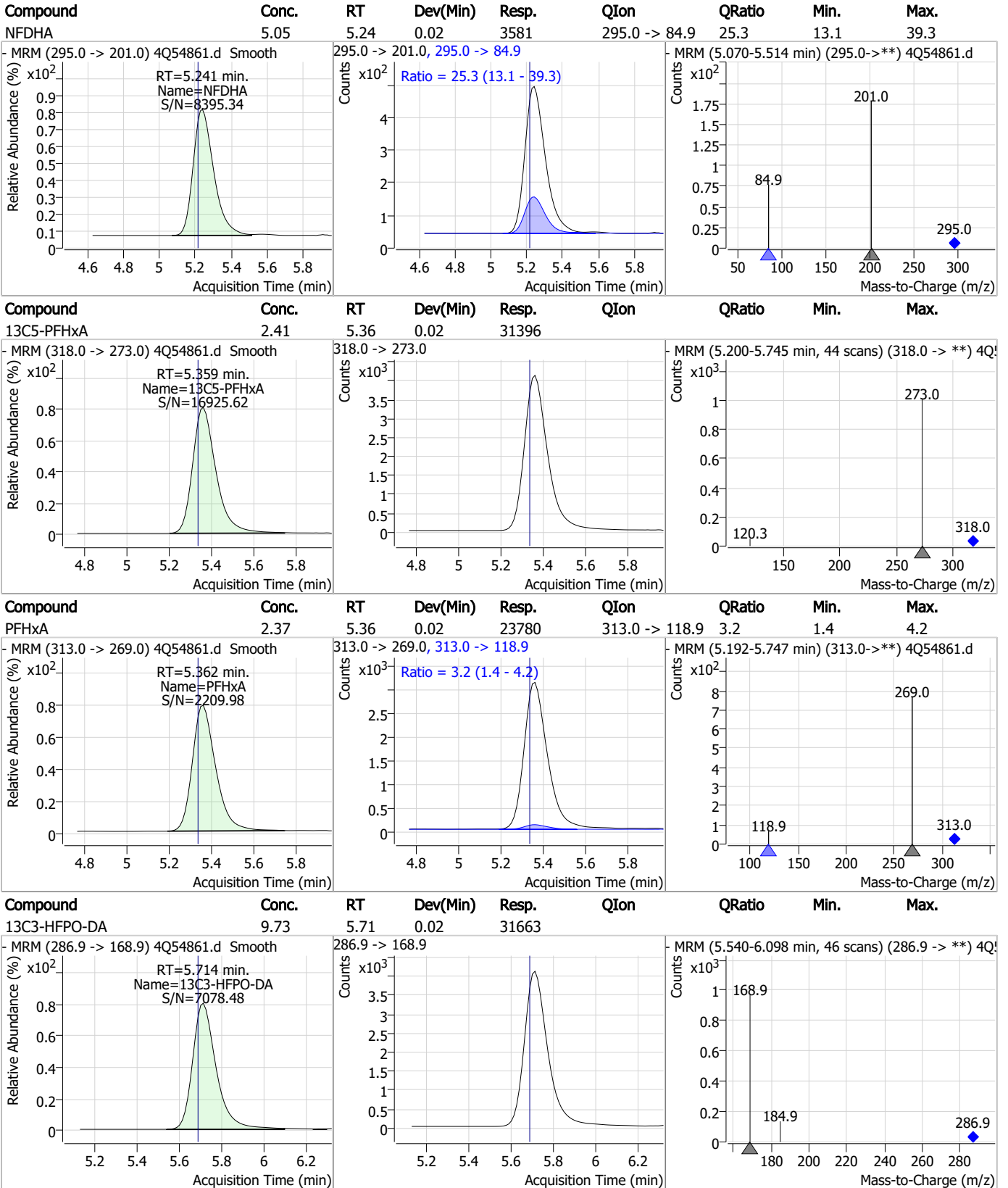
7.7.10 7

### Perfluorinated Compounds by LC/MS/MS



7.7.10  
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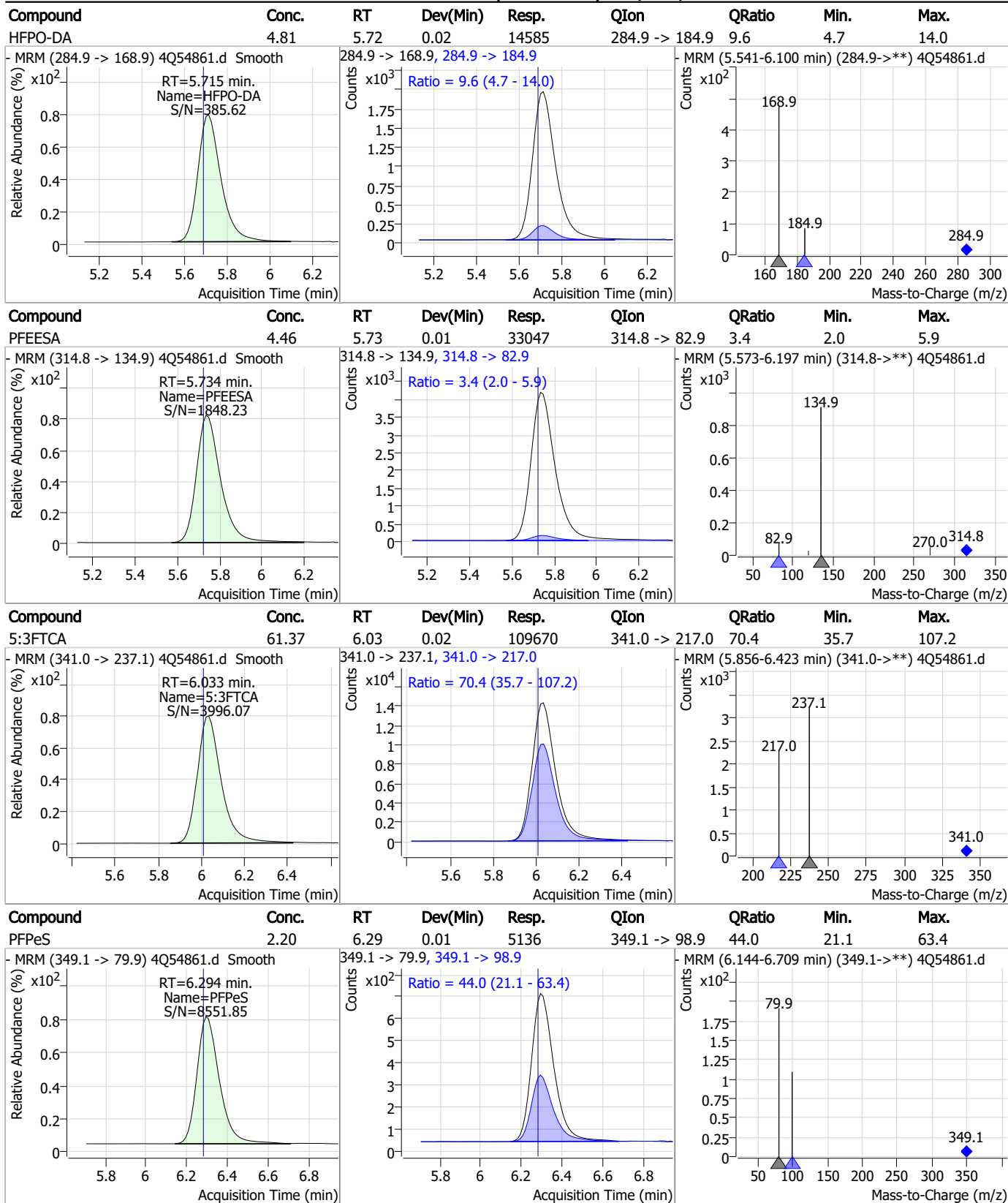
### Perfluorinated Compounds by LC/MS/MS



7.7.10 7

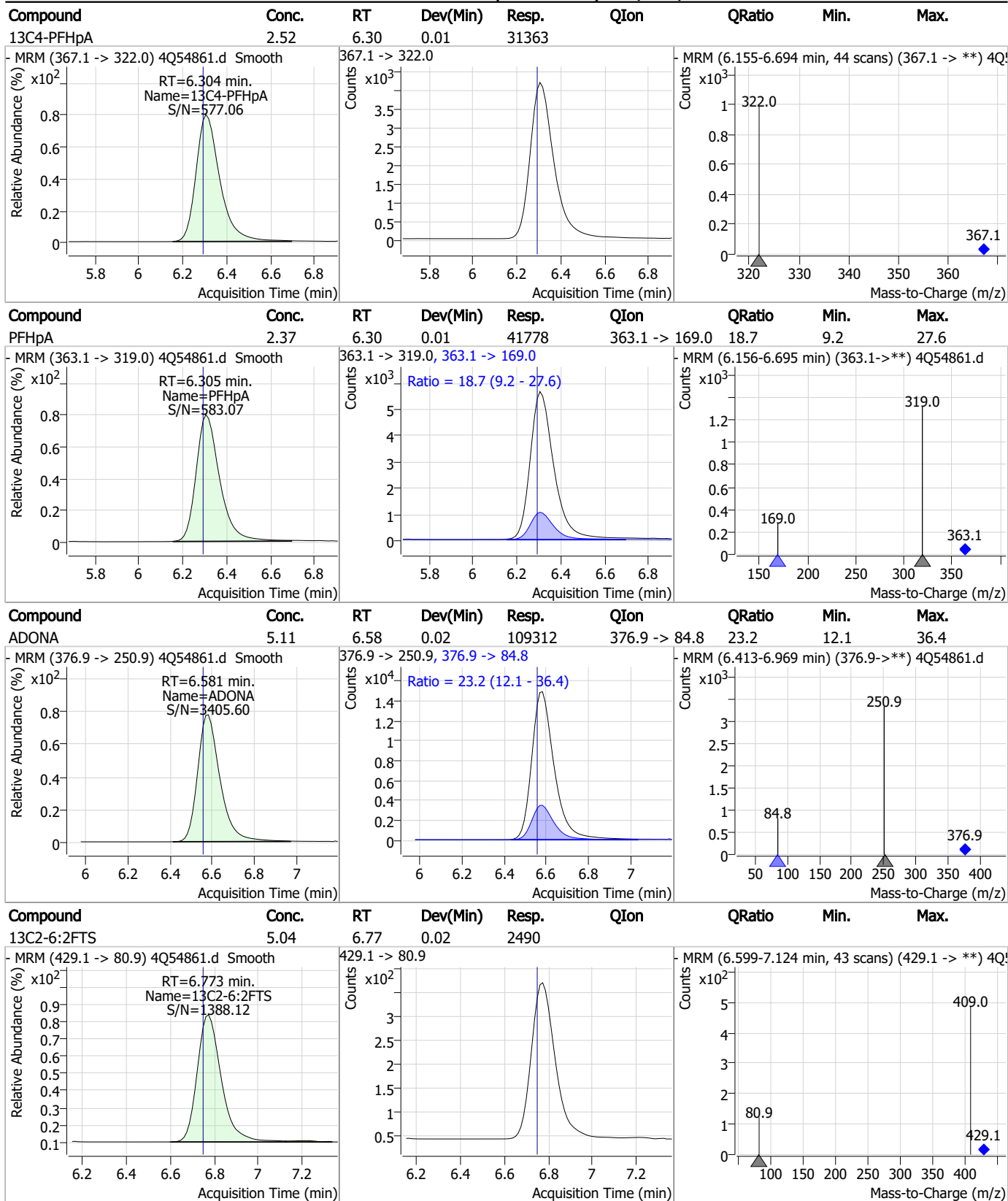


### Perfluorinated Compounds by LC/MS/MS



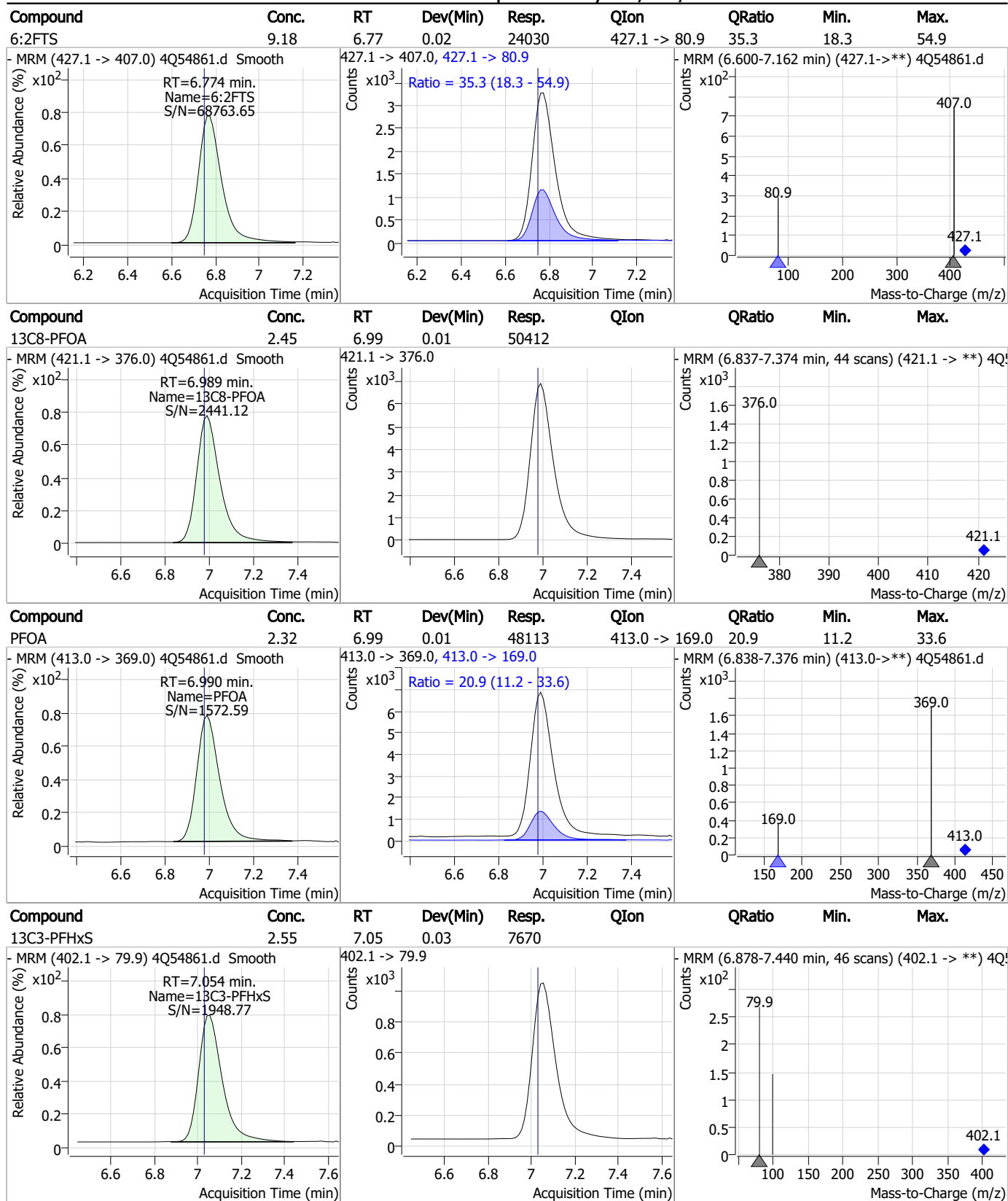
7.7.10 7

### Perfluorinated Compounds by LC/MS/MS



7.7.10  
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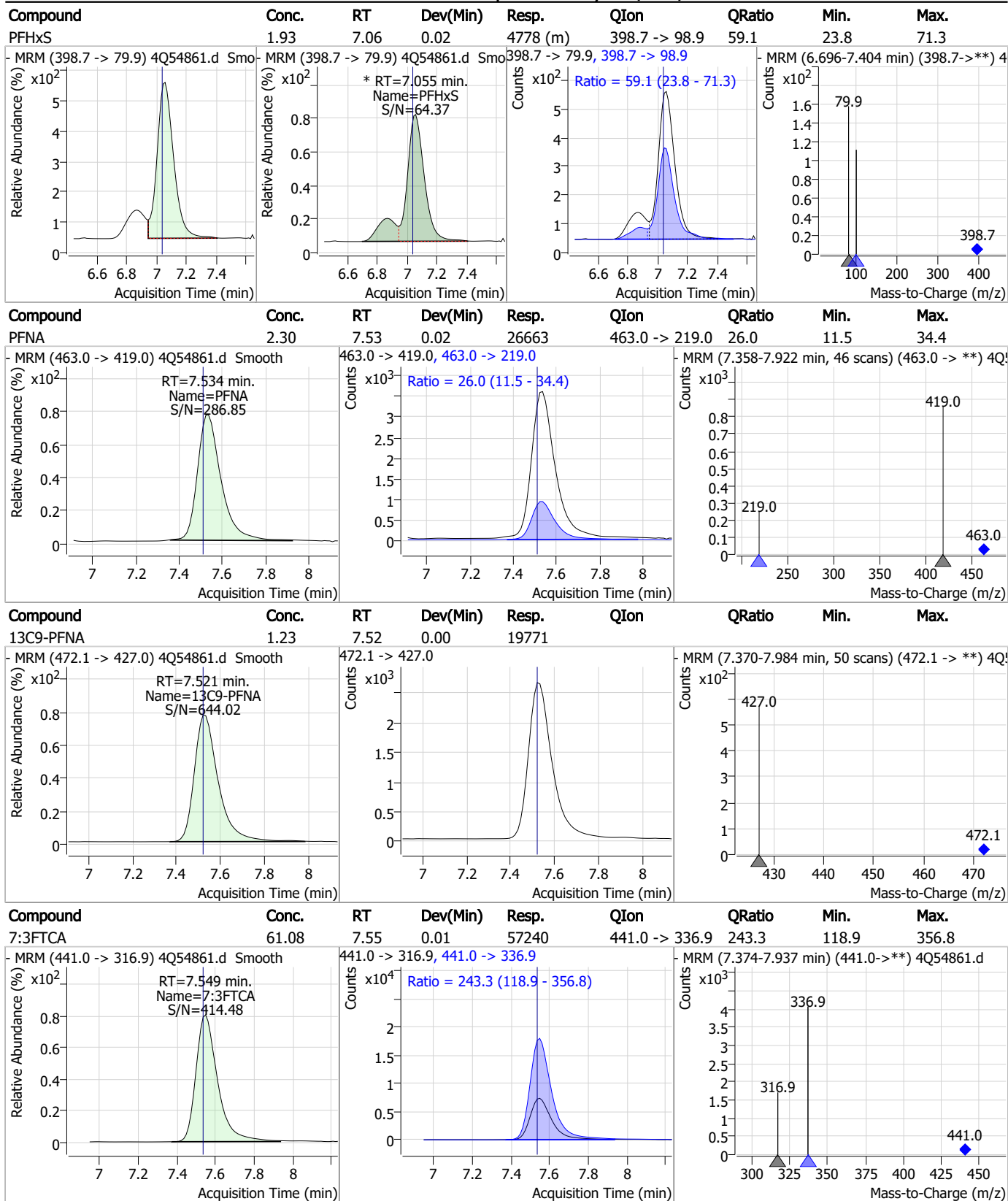
### Perfluorinated Compounds by LC/MS/MS



7.7.10 7

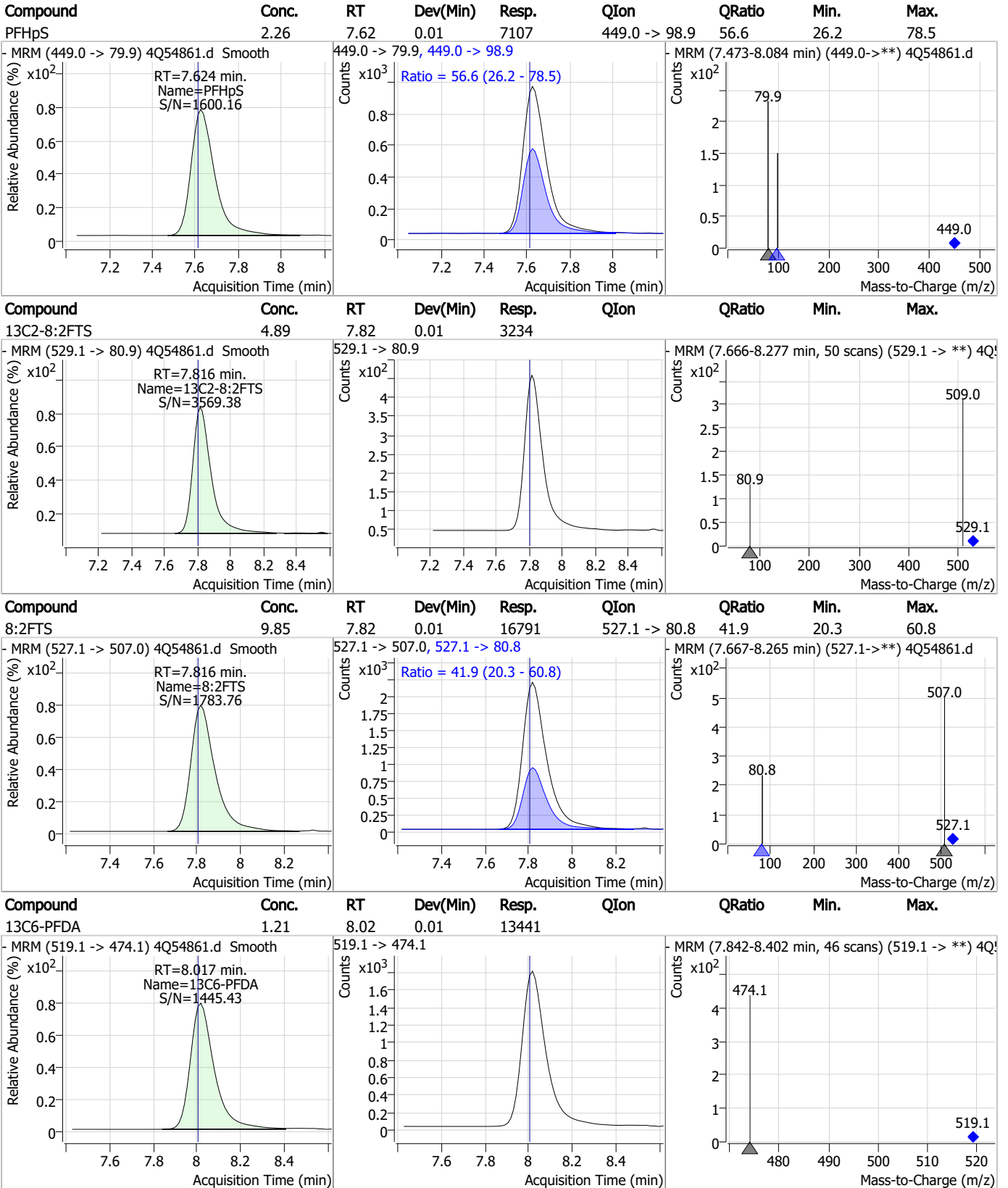


### Perfluorinated Compounds by LC/MS/MS



7.7.10 7

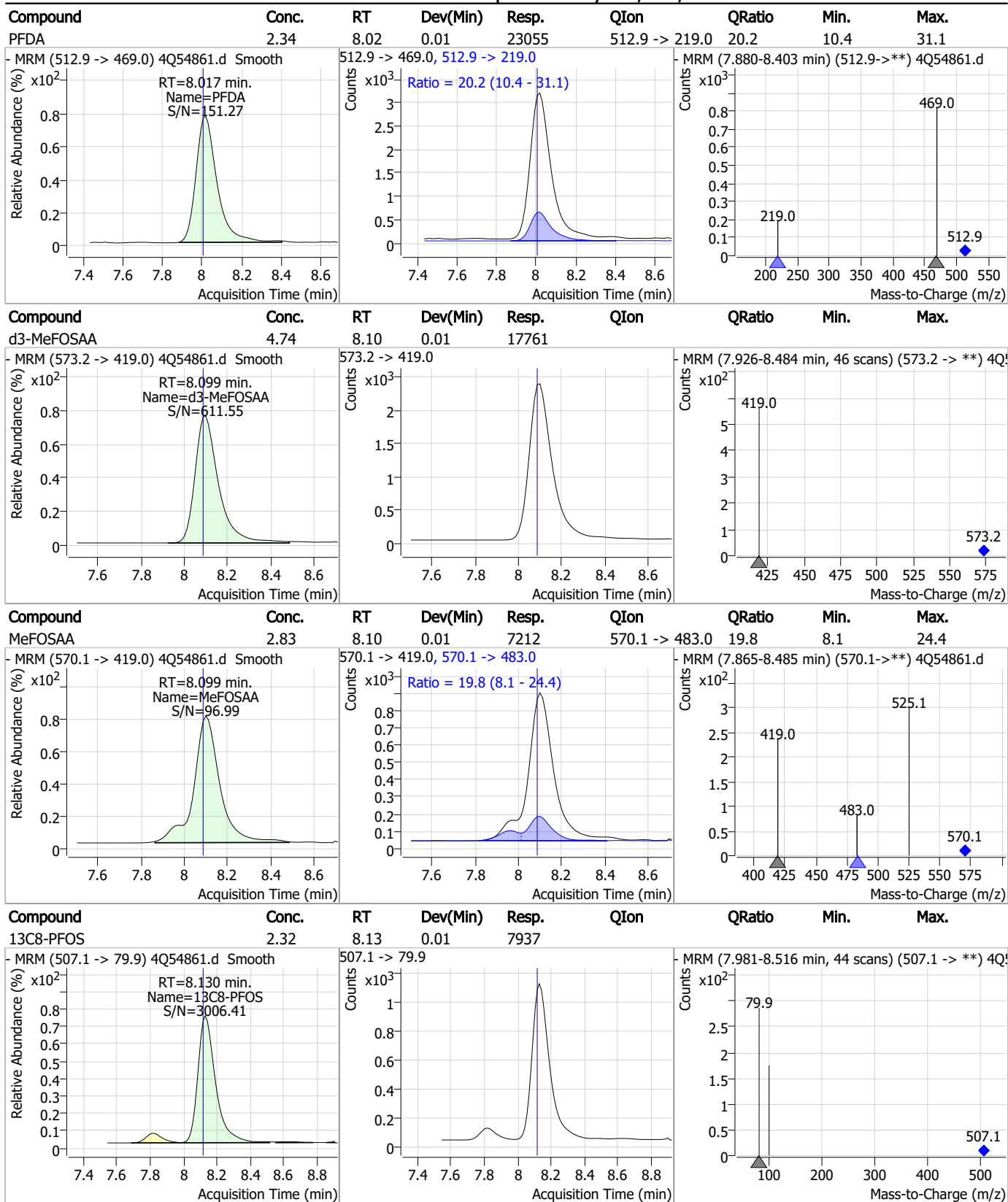
### Perfluorinated Compounds by LC/MS/MS



7.7.10 7

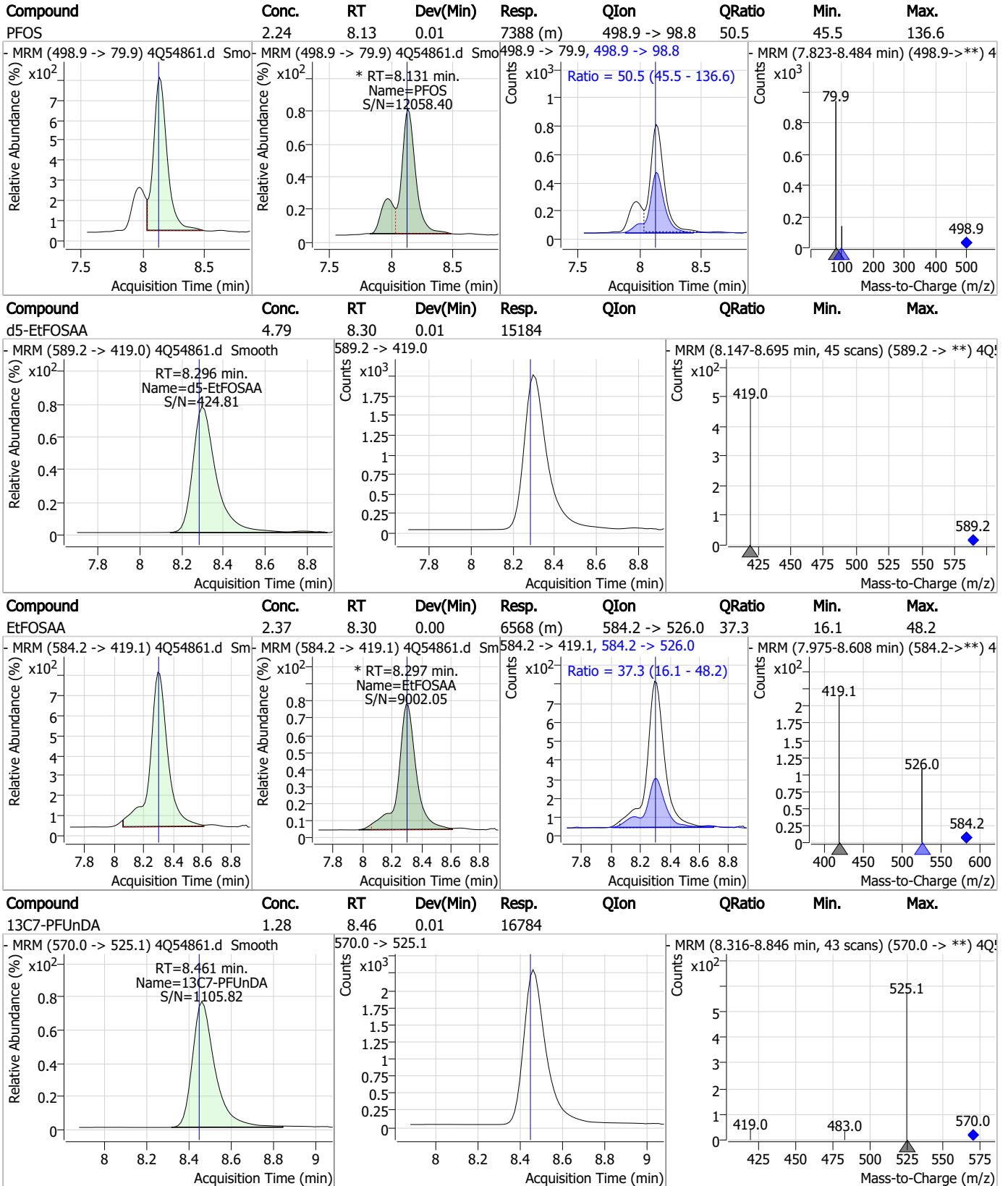


### Perfluorinated Compounds by LC/MS/MS



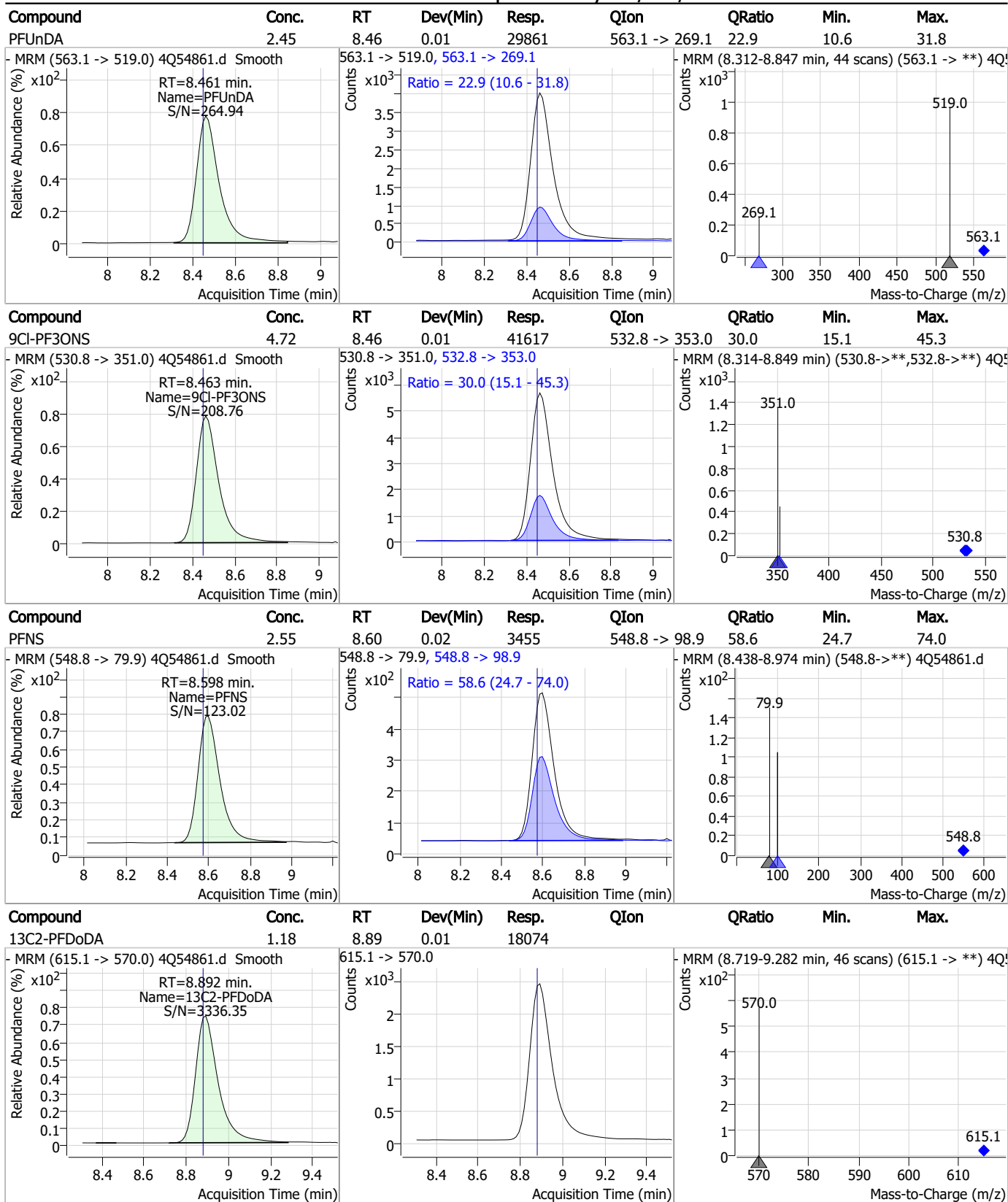
7.7.10  
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### Perfluorinated Compounds by LC/MS/MS



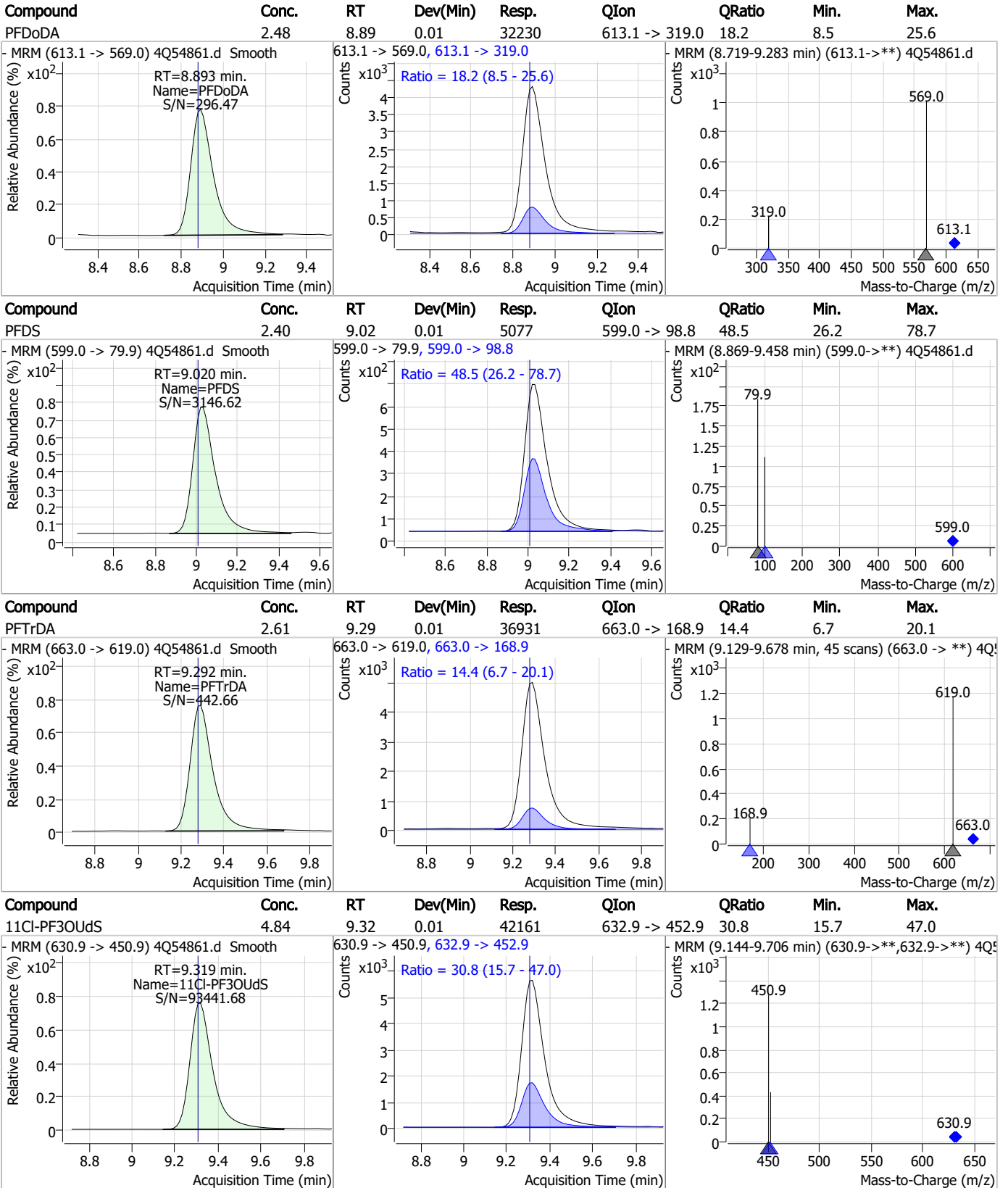
7.7.10 7

### Perfluorinated Compounds by LC/MS/MS



7.7.10  
7

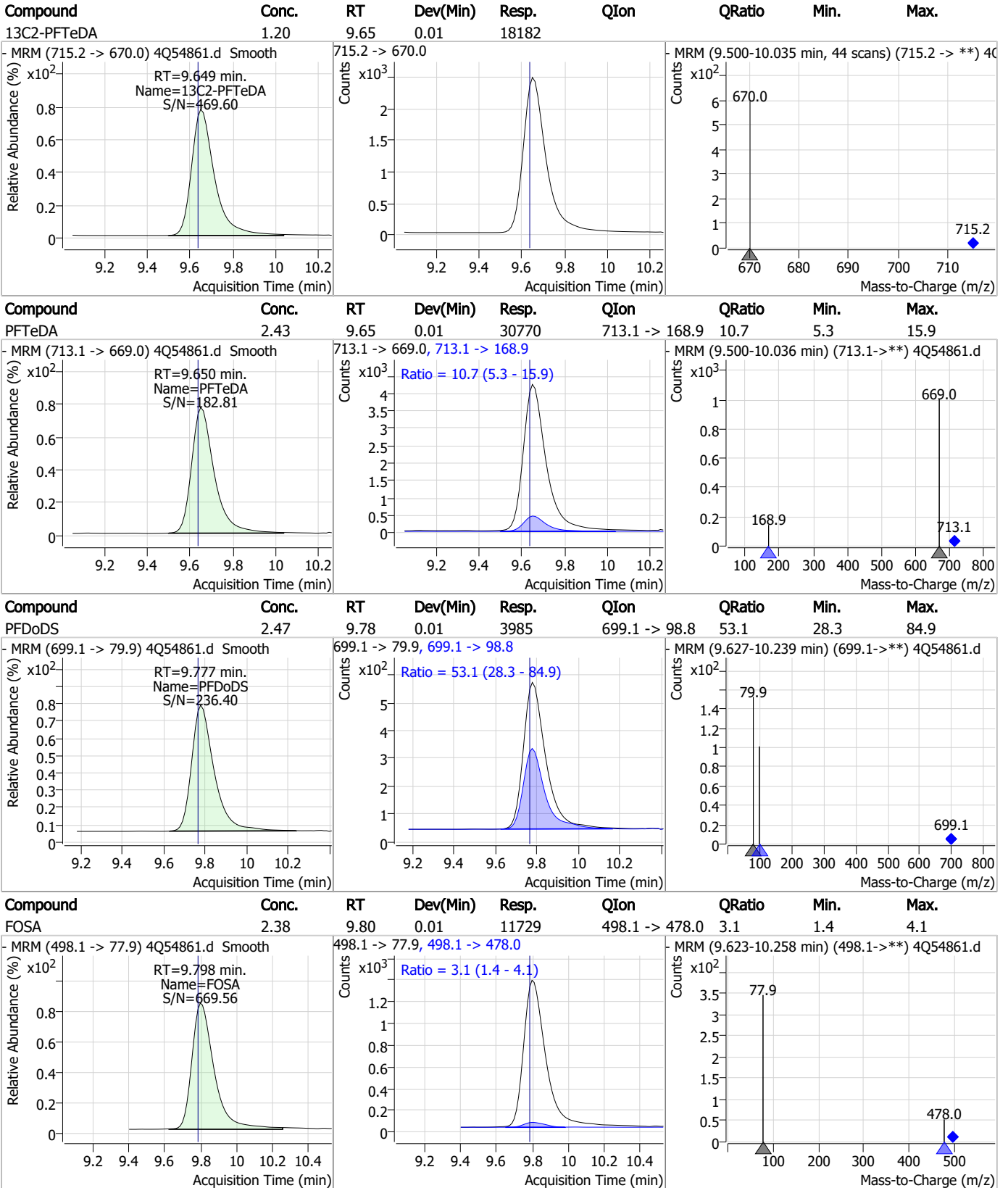
### Perfluorinated Compounds by LC/MS/MS



7.7.10 7



### Perfluorinated Compounds by LC/MS/MS

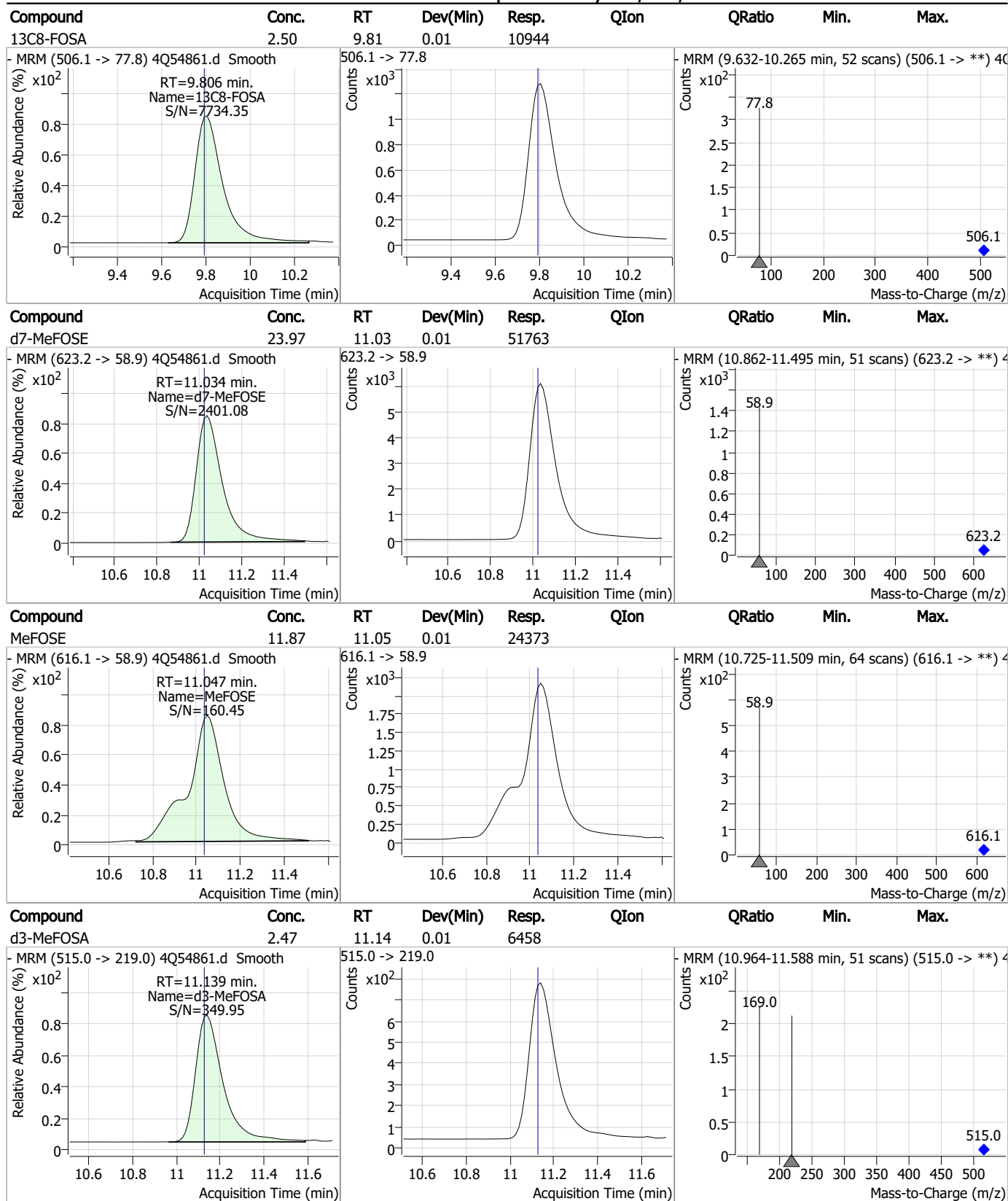


7.7.10 7





### Perfluorinated Compounds by LC/MS/MS

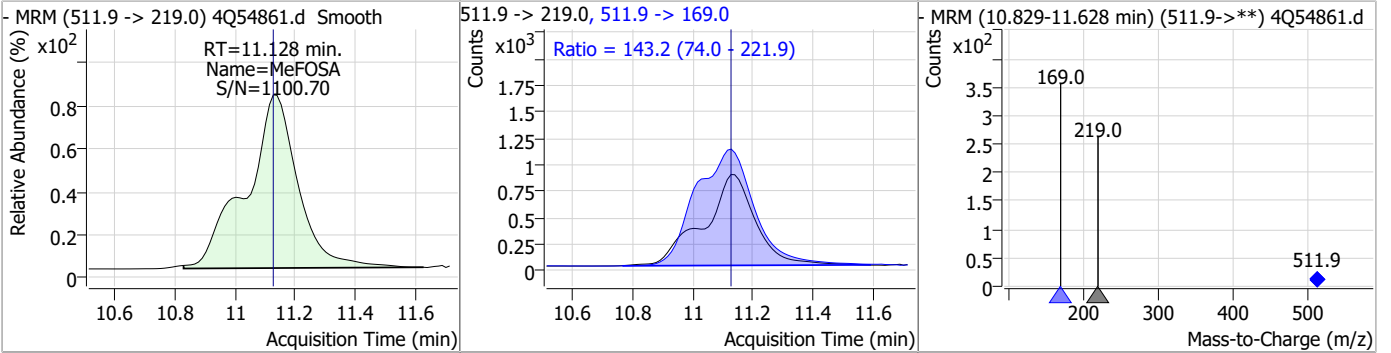


7.7.10  
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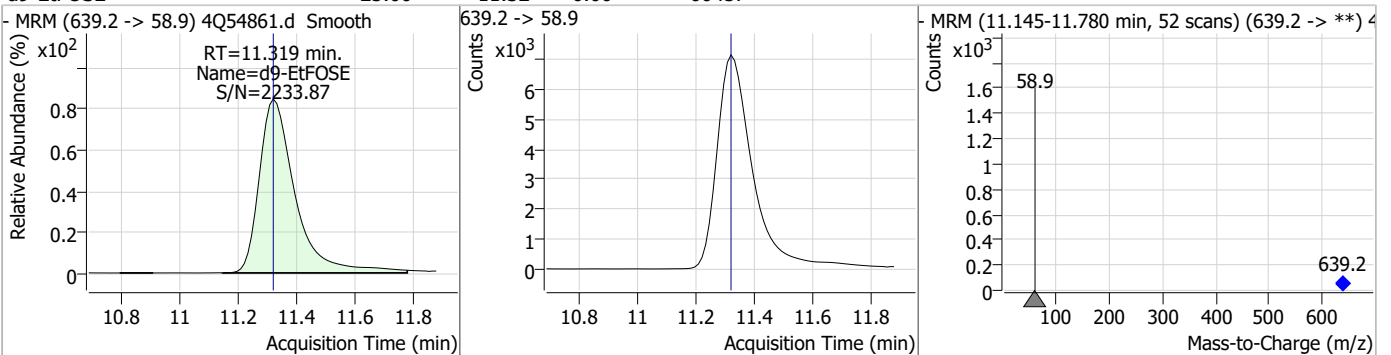


### Perfluorinated Compounds by LC/MS/MS

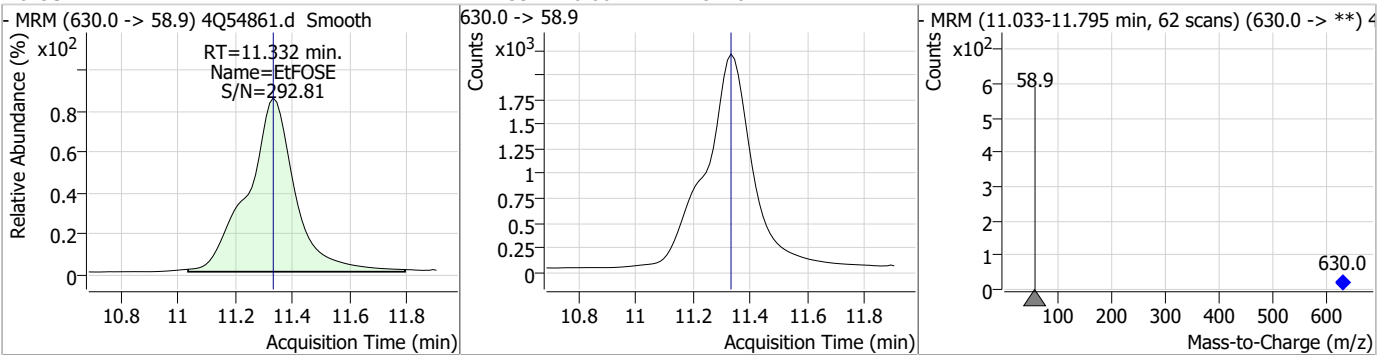
| Compound | Conc. | RT    | Dev(Min) | Resp. | QIon           | QRatio | Min. | Max.  |
|----------|-------|-------|----------|-------|----------------|--------|------|-------|
| MeFOSA   | 4.53  | 11.13 | 0.00     | 10425 | 511.9 -> 169.0 | 143.2  | 74.0 | 221.9 |



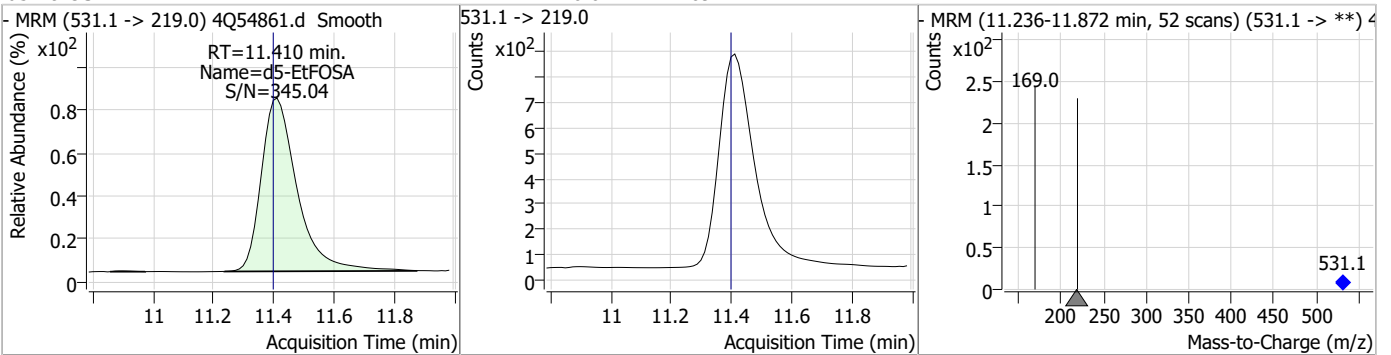
| Compound  | Conc. | RT    | Dev(Min) | Resp. | QIon | QRatio | Min. | Max. |
|-----------|-------|-------|----------|-------|------|--------|------|------|
| d9-EtFOSE | 25.00 | 11.32 | 0.00     | 60457 |      |        |      |      |



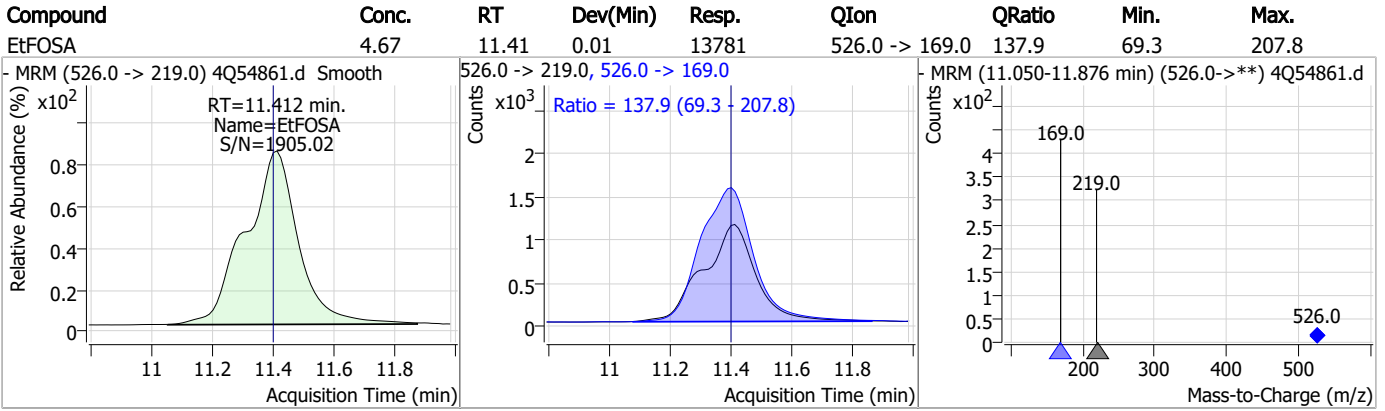
| Compound | Conc. | RT    | Dev(Min) | Resp. | QIon | QRatio | Min. | Max. |
|----------|-------|-------|----------|-------|------|--------|------|------|
| EtFOSE   | 11.74 | 11.33 | 0.00     | 25128 |      |        |      |      |



| Compound  | Conc. | RT    | Dev(Min) | Resp. | QIon | QRatio | Min. | Max. |
|-----------|-------|-------|----------|-------|------|--------|------|------|
| d5-EtFOSA | 2.42  | 11.41 | 0.01     | 6927  |      |        |      |      |



### Perfluorinated Compounds by LC/MS/MS



7.7.10  
7

# Manual Integration Approval Summary

Sample Number: S4Q804-ICV804      Method: EPA DRAFT 1633  
Lab FileID: 4Q54861.D      Analyst approved: 12/10/23 12:52 Anna Ludwig  
Injection Time: 12/08/23 13:51      Supervisor approved: 12/11/23 15:42 Natasha Gumtie

| Parameter                    | CAS       | Sig# | R.T.<br>(min.) | Reason     |
|------------------------------|-----------|------|----------------|------------|
| Perfluorohexanesulfonic acid | 355-46-4  |      | 7.05           | Split peak |
| Perfluorooctanesulfonic acid | 1763-23-1 |      | 8.13           | Split peak |
| EtFOSAA                      | 2991-50-6 |      | 8.30           | Split peak |

7.7.10.1

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### Perfluorinated Compounds by LC/MS/MS

Data File : 4Q54862.d  
 Operator : annal  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 12/8/2023 2:05:49 PM  
 Sample Name : icv804-20  
 Vial : P1-B4  
 DA Method File : 1633\_120823\_S4Q804.quantmethod.xml  
 Batch Name : s4q804.batch.bin  
 Sample Information : OP99999,S4Q804,500,,,5.0,1,water

| Compound                           | RT                   | Transition     | Response          | Conc. Units | Dev(Min) |
|------------------------------------|----------------------|----------------|-------------------|-------------|----------|
| <b>Internal Standards</b>          |                      |                |                   |             |          |
| M4-PFBA                            | 2.686                | 216.8 -> 171.9 | 101781            | 10.00 µg/L  | 0.012    |
| M5-PFPeA                           | 4.175                | 268.3 -> 223.0 | 42215             | 5.00 µg/L   | 0.012    |
| M5-PFHxA                           | 5.359                | 318.0 -> 273.0 | 32530             | 2.50 µg/L   | 0.025    |
| M4-PFHpA                           | 6.304                | 367.1 -> 322.0 | 31586             | 2.50 µg/L   | 0.012    |
| M8-PFOA                            | 6.989                | 421.1 -> 376.0 | 50492             | 2.50 µg/L   | 0.012    |
| M9-PFNA                            | 7.521                | 472.1 -> 427.0 | 20056             | 1.25 µg/L   | 0.000    |
| M6-PFDA                            | 8.017                | 519.1 -> 474.1 | 14427             | 1.25 µg/L   | 0.013    |
| M7-PFUnDA                          | 8.461                | 570.0 -> 525.1 | 15810             | 1.25 µg/L   | 0.012    |
| M2-PFDoDA                          | 8.892                | 615.1 -> 570.0 | 18974             | 1.25 µg/L   | 0.012    |
| M2-PFTeDA                          | 9.649                | 715.2 -> 670.0 | 18902             | 1.25 µg/L   | 0.012    |
| M8-FOSA                            | 9.806                | 506.1 -> 77.8  | 10206             | 2.50 µg/L   | 0.012    |
| M3-PFBS                            | 5.215                | 302.1 -> 79.9  | 9077              | 2.50 µg/L   | 0.025    |
| M3-PFHxS                           | 7.042                | 402.1 -> 79.9  | 7629              | 2.50 µg/L   | 0.012    |
| M8-PFOS                            | 8.130                | 507.1 -> 79.9  | 8811              | 2.50 µg/L   | 0.012    |
| M2-4:2FTS                          | 5.071                | 329.1 -> 80.9  | 1092              | 5.00 µg/L   | 0.025    |
| M2-6:2FTS                          | 6.761                | 429.1 -> 80.9  | 2434              | 5.00 µg/L   | 0.012    |
| M2-8:2FTS                          | 7.816                | 529.1 -> 80.9  | 3241              | 5.00 µg/L   | 0.012    |
| M3-MeFOSAA                         | 8.099                | 573.2 -> 419.0 | 18370             | 5.00 µg/L   | 0.012    |
| M3-HFPO-DA                         | 5.714                | 286.9 -> 168.9 | 34086             | 10.00 µg/L  | 0.025    |
| M5-EtFOSAA                         | 8.296                | 589.2 -> 419.0 | 15250             | 5.00 µg/L   | 0.012    |
| M7-MeFOSE                          | 11.034               | 623.2 -> 58.9  | 52980             | 25.00 µg/L  | 0.012    |
| M9-EtFOSE                          | 11.319               | 639.2 -> 58.9  | 58926             | 25.00 µg/L  | 0.000    |
| M5-EtFOSA                          | 11.410               | 531.1 -> 219.0 | 6948              | 2.50 µg/L   | 0.012    |
| M3-MeFOSA                          | 11.139               | 515.0 -> 219.0 | 6801              | 2.50 µg/L   | 0.012    |
| 13C4-PFOS                          | 8.130                | 502.8 -> 79.9  | 6698              | 2.50 µg/L   | 0.012    |
| 13C3-PFBA                          | 2.691                | 216.0 -> 172.0 | 48350             | 5.00 µg/L   | 0.013    |
| 18O2-PFHxS                         | 7.054                | 403.0 -> 83.9  | 4724              | 2.50 µg/L   | 0.013    |
| 13C4-PFOA                          | 6.989                | 417.1 -> 372.0 | 55296             | 2.50 µg/L   | 0.012    |
| 13C2-PFDA                          | 8.017                | 515.1 -> 470.1 | 15417             | 1.25 µg/L   | 0.013    |
| 13C5-PFNA                          | 7.522                | 468.0 -> 423.0 | 19563             | 1.25 µg/L   | 0.012    |
| 13C2-PFHxA                         | 5.360                | 315.1 -> 270.0 | 36994             | 2.50 µg/L   | 0.025    |
| <b>System Monitoring Compounds</b> |                      |                |                   |             |          |
| 13C2-4:2FTS                        | 5.071                | 329.1 -> 80.9  | 1092              | 4.87 µg/L   | 0.025    |
| Spiked Amount: 5.00                | Range: 50.0 - 150.0% |                | Recovery = 97.4%  |             |          |
| 13C2-6:2FTS                        | 6.761                | 429.1 -> 80.9  | 2434              | 5.00 µg/L   | 0.012    |
| Spiked Amount: 5.00                | Range: 50.0 - 150.0% |                | Recovery = 100.1% |             |          |
| 13C2-8:2FTS                        | 7.816                | 529.1 -> 80.9  | 3241              | 4.98 µg/L   | 0.012    |
| Spiked Amount: 5.00                | Range: 50.0 - 150.0% |                | Recovery = 99.6%  |             |          |
| 13C2-PFDoDA                        | 8.892                | 615.1 -> 570.0 | 18974             | 1.23 µg/L   | 0.012    |
| Spiked Amount: 1.25                | Range: 50.0 - 150.0% |                | Recovery = 98.5%  |             |          |
| 13C2-PFTeDA                        | 9.649                | 715.2 -> 670.0 | 18902             | 1.24 µg/L   | 0.012    |
| Spiked Amount: 1.25                | Range: 50.0 - 150.0% |                | Recovery = 98.8%  |             |          |
| 13C3-PFBS                          | 5.215                | 302.1 -> 79.9  | 9077              | 2.51 µg/L   | 0.025    |
| Spiked Amount: 2.50                | Range: 50.0 - 150.0% |                | Recovery = 100.3% |             |          |
| 13C3-PFHxS                         | 7.042                | 402.1 -> 79.9  | 7629              | 2.58 µg/L   | 0.012    |

7.7.11  
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### Perfluorinated Compounds by LC/MS/MS

| Compound                | RT                   | Transition     | Response | Conc. Units       | Dev(Min)      |
|-------------------------|----------------------|----------------|----------|-------------------|---------------|
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 103.0% |               |
| 13C4-PFBA               | 2.686                | 216.8 -> 171.9 | 101781   | 10.03 µg/L        | 0.012         |
| Spiked Amount: 10.00    | Range: 50.0 - 150.0% |                |          | Recovery = 100.3% |               |
| 13C4-PFHpA              | 6.304                | 367.1 -> 322.0 | 31586    | 2.42 µg/L         | 0.012         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 96.9%  |               |
| 13C5-PFHxA              | 5.359                | 318.0 -> 273.0 | 32530    | 2.39 µg/L         | 0.025         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 95.5%  |               |
| 13C5-PFPeA              | 4.175                | 268.3 -> 223.0 | 42215    | 4.97 µg/L         | 0.012         |
| Spiked Amount: 5.00     | Range: 50.0 - 150.0% |                |          | Recovery = 99.4%  |               |
| 13C6-PFDA               | 8.017                | 519.1 -> 474.1 | 14427    | 1.29 µg/L         | 0.013         |
| Spiked Amount: 1.25     | Range: 50.0 - 150.0% |                |          | Recovery = 102.9% |               |
| 13C7-PFUnDA             | 8.461                | 570.0 -> 525.1 | 15810    | 1.20 µg/L         | 0.012         |
| Spiked Amount: 1.25     | Range: 50.0 - 150.0% |                |          | Recovery = 95.6%  |               |
| 13C8-FOSA               | 9.806                | 506.1 -> 77.8  | 10206    | 2.35 µg/L         | 0.012         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 94.0%  |               |
| 13C8-PFOA               | 6.989                | 421.1 -> 376.0 | 50492    | 2.47 µg/L         | 0.012         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 98.8%  |               |
| 13C8-PFOS               | 8.130                | 507.1 -> 79.9  | 8811     | 2.60 µg/L         | 0.012         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 103.9% |               |
| 13C9-PFNA               | 7.521                | 472.1 -> 427.0 | 20056    | 1.28 µg/L         | 0.000         |
| Spiked Amount: 1.25     | Range: 50.0 - 150.0% |                |          | Recovery = 102.4% |               |
| d3-MeFOSAA              | 8.099                | 573.2 -> 419.0 | 18370    | 4.94 µg/L         | 0.012         |
| Spiked Amount: 5.00     | Range: 50.0 - 150.0% |                |          | Recovery = 98.8%  |               |
| 13C3-HFPO-DA            | 5.714                | 286.9 -> 168.9 | 34086    | 10.01 µg/L        | 0.025         |
| Spiked Amount: 10.00    | Range: 50.0 - 150.0% |                |          | Recovery = 100.1% |               |
| d3-MeFOSA               | 11.139               | 515.0 -> 219.0 | 6801     | 2.63 µg/L         | 0.012         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 105.0% |               |
| d5-EtFOSAA              | 8.296                | 589.2 -> 419.0 | 15250    | 4.85 µg/L         | 0.012         |
| Spiked Amount: 5.00     | Range: 50.0 - 150.0% |                |          | Recovery = 97.0%  |               |
| d7-MeFOSE               | 11.034               | 623.2 -> 58.9  | 52980    | 24.74 µg/L        | 0.012         |
| Spiked Amount: 25.00    | Range: 50.0 - 150.0% |                |          | Recovery = 99.0%  |               |
| d9-EtFOSE               | 11.319               | 639.2 -> 58.9  | 58926    | 24.57 µg/L        | 0.000         |
| Spiked Amount: 25.00    | Range: 50.0 - 150.0% |                |          | Recovery = 98.3%  |               |
| d5-EtFOSA               | 11.410               | 531.1 -> 219.0 | 6948     | 2.45 µg/L         | 0.012         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 97.9%  |               |
| <b>Target Compounds</b> |                      |                |          |                   | <b>QValue</b> |
| 4:2FTS                  | 5.059                | 327.1 -> 307.0 | 37172    | 19.76 µg/L        | 99            |
|                         |                      | 327.1 -> 80.9  | 16008    |                   |               |
| 6:2FTS                  | 6.761                | 427.1 -> 407.0 | 51737    | 20.22 µg/L        | 99            |
|                         |                      | 427.1 -> 80.9  | 18541    |                   |               |
| 8:2FTS                  | 7.816                | 527.1 -> 507.0 | 32179    | 18.84 µg/L        | 99            |
|                         |                      | 527.1 -> 80.8  | 12849    |                   |               |
| EtFOSAA                 | 8.297                | 584.2 -> 419.1 | 52493    | 18.87 µg/L        | 86            |
|                         |                      | 584.2 -> 526.0 | 20880    |                   |               |
| FOSA                    | 9.798                | 498.1 -> 77.9  | 85040    | 18.54 µg/L        | 99            |
|                         |                      | 498.1 -> 478.0 | 2721     |                   |               |
| MeFOSAA                 | 8.099                | 570.1 -> 419.0 | 53868    | 20.45 µg/L        | 92            |
|                         |                      | 570.1 -> 483.0 | 10660    |                   |               |
| PFBA                    | 2.695                | 212.8 -> 168.9 | 59022    | 18.11 µg/L        | 100           |
| PFBS                    | 5.216                | 298.7 -> 79.9  | 53494    | 19.00 µg/L        | 96            |
|                         |                      | 298.7 -> 98.8  | 20335    |                   |               |
| PFDA                    | 8.017                | 512.9 -> 469.0 | 194270   | 18.33 µg/L        | 99            |
|                         |                      | 512.9 -> 219.0 | 39089    |                   |               |
| PFDoDA                  | 8.893                | 613.1 -> 569.0 | 239635   | 17.54 µg/L        | 99            |
|                         |                      | 613.1 -> 319.0 | 41582    |                   |               |
| PFDS                    | 9.020                | 599.0 -> 79.9  | 42841    | 18.27 µg/L        | 96            |

7.7.11  
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Perfluorinated Compounds by LC/MS/MS

| Compound     | RT     | Transition     | Response | Conc.  | Units | Dev(Min) |
|--------------|--------|----------------|----------|--------|-------|----------|
| PFHpA        | 6.305  | 599.0 -> 98.8  | 21323    | 19.26  | µg/L  | 98       |
|              |        | 363.1 -> 319.0 | 342573   |        |       |          |
| PFHpS        | 7.624  | 363.1 -> 169.0 | 60415    | 17.83  | µg/L  | 98       |
|              |        | 449.0 -> 79.9  | 62357    |        |       |          |
| PFHxA        | 5.362  | 449.0 -> 98.9  | 31850    | 20.78  | µg/L  | 99       |
|              |        | 313.0 -> 269.0 | 215751   |        |       |          |
| PFHxS        | 7.043  | 313.0 -> 118.9 | 6422     | 19.69  | µg/L  | 99       |
|              |        | 398.7 -> 79.9  | 48440    |        |       |          |
| PFNA         | 7.534  | 398.7 -> 98.9  | 23389    | 19.87  | µg/L  | 99       |
|              |        | 463.0 -> 419.0 | 234109   |        |       |          |
| PFNS         | 8.598  | 463.0 -> 219.0 | 54990    | 19.10  | µg/L  | 95       |
|              |        | 548.8 -> 79.9  | 28708    |        |       |          |
| PFOA         | 6.990  | 548.8 -> 98.9  | 15106    | 19.08  | µg/L  | 96       |
|              |        | 413.0 -> 369.0 | 396269   |        |       |          |
| PFOS         | 8.131  | 413.0 -> 169.0 | 81598    | 15.95  | µg/L  | 50       |
|              |        | 498.9 -> 79.9  | 58487    |        |       |          |
| PFPeA        | 4.177  | 498.9 -> 98.8  | 25463    | 18.73  | µg/L  | 100      |
|              |        | 263.0 -> 219.0 | 155608   |        |       |          |
| PFPeS        | 6.294  | 349.1 -> 79.9  | 46622    | 20.12  | µg/L  | 97       |
|              |        | 349.1 -> 98.9  | 20746    |        |       |          |
| PFTeDA       | 9.650  | 713.1 -> 669.0 | 272338   | 20.70  | µg/L  | 99       |
|              |        | 713.1 -> 168.9 | 28147    |        |       |          |
| PFTrDA       | 9.292  | 663.0 -> 619.0 | 275521   | 18.56  | µg/L  | 99       |
|              |        | 663.0 -> 168.9 | 38050    |        |       |          |
| PFUnDA       | 8.461  | 563.1 -> 519.0 | 223580   | 19.44  | µg/L  | 99       |
|              |        | 563.1 -> 269.1 | 46531    |        |       |          |
| 11CI-PF3OUdS | 9.319  | 630.9 -> 450.9 | 181022   | 19.29  | µg/L  | 99       |
|              |        | 632.9 -> 452.9 | 55928    |        |       |          |
| 9CI-PF3ONS   | 8.463  | 530.8 -> 351.0 | 177189   | 18.68  | µg/L  | 100      |
|              |        | 532.8 -> 353.0 | 53407    |        |       |          |
| ADONA        | 6.568  | 376.9 -> 250.9 | 484269   | 21.04  | µg/L  | 99       |
|              |        | 376.9 -> 84.8  | 115482   |        |       |          |
| HFPO-DA      | 5.715  | 284.9 -> 168.9 | 60120    | 18.43  | µg/L  | 97       |
|              |        | 284.9 -> 184.9 | 6239     |        |       |          |
| 3:3FTCA      | 3.630  | 241.0 -> 177.0 | 9495     | 18.32  | µg/L  | 99       |
|              |        | 241.0 -> 117.0 | 893      |        |       |          |
| 5:3FTCA      | 6.020  | 341.0 -> 237.1 | 38497    | 20.79  | µg/L  | 99       |
|              |        | 341.0 -> 217.0 | 27164    |        |       |          |
| 7:3FTCA      | 7.549  | 441.0 -> 316.9 | 18761    | 19.32  | µg/L  | 91       |
|              |        | 441.0 -> 336.9 | 41930    |        |       |          |
| EtFOSA       | 11.412 | 526.0 -> 219.0 | 52039    | 17.59  | µg/L  | 78       |
|              |        | 526.0 -> 169.0 | 57998    |        |       |          |
| EtFOSE       | 11.345 | 630.0 -> 58.9  | 204459   | 98.04  | µg/L  | 100      |
|              |        | 511.9 -> 219.0 | 43350    |        |       |          |
| MeFOSA       | 11.140 | 511.9 -> 169.0 | 49296    | 17.90  | µg/L  | 73       |
|              |        | 616.1 -> 58.9  | 217476   |        |       |          |
| MeFOSE       | 11.047 | 699.1 -> 79.9  | 31515    | 103.46 | µg/L  | 100      |
|              |        | 699.1 -> 98.8  | 17491    |        |       |          |
| PFDoDS       | 9.777  | 295.0 -> 201.0 | 13592    | 17.62  | µg/L  | 99       |
|              |        | 295.0 -> 84.9  | 3599     |        |       |          |
| NFDHA        | 5.241  | 279.0 -> 85.1  | 87069    | 18.48  | µg/L  | 99       |
|              |        | 229.0 -> 84.9  | 96445    |        |       |          |
| PFMBA        | 4.578  | 314.8 -> 134.9 | 135646   | 19.04  | µg/L  | 100      |
|              |        | 314.8 -> 82.9  | 4597     |        |       |          |
| PFMPA        | 3.332  |                |          | 19.19  | µg/L  | 100      |
|              |        |                |          |        |       |          |
| PFEESA       | 5.734  |                |          | 17.68  | µg/L  | 98       |
|              |        |                |          |        |       |          |

# = Qualifier out of range, m = manually integrated, + = Area summed



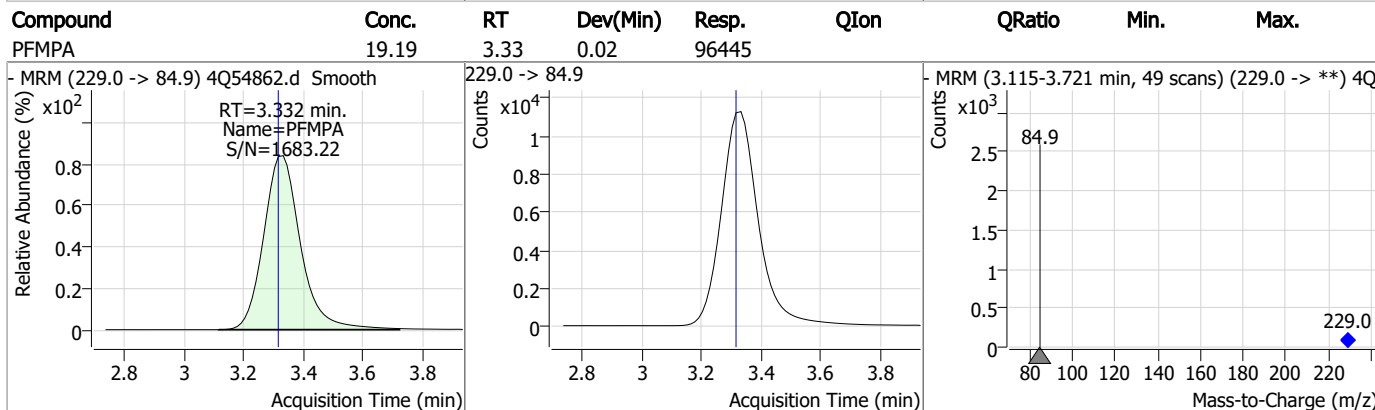
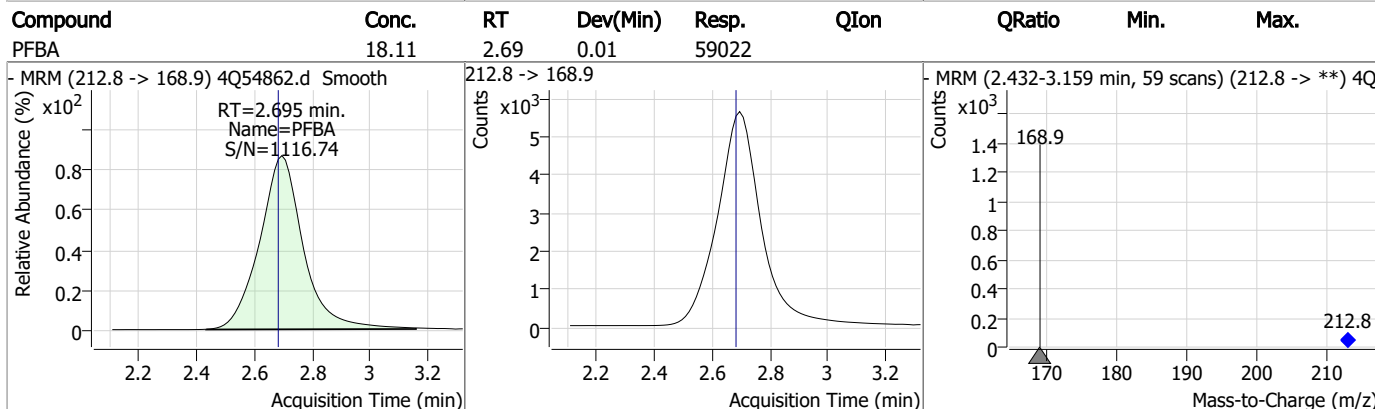
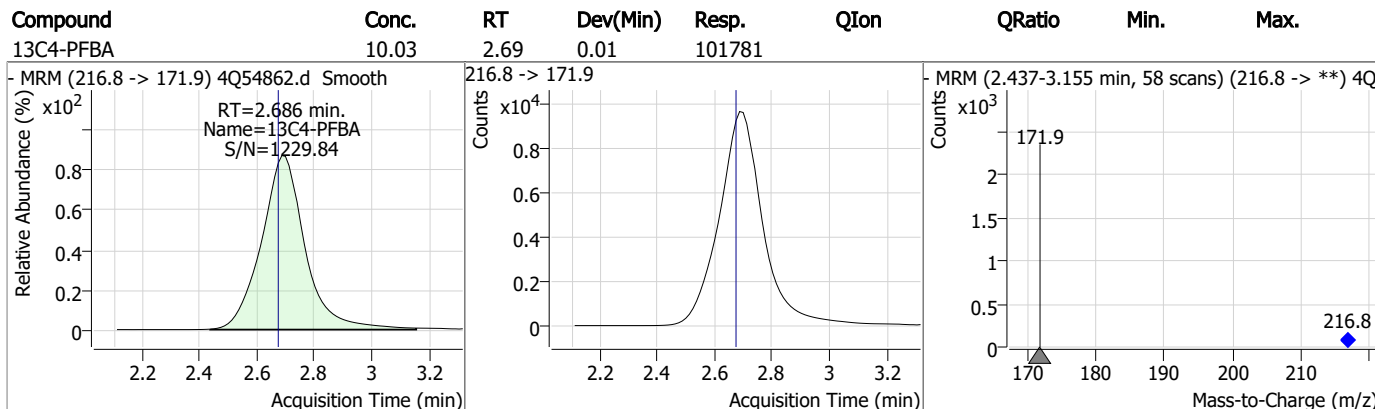
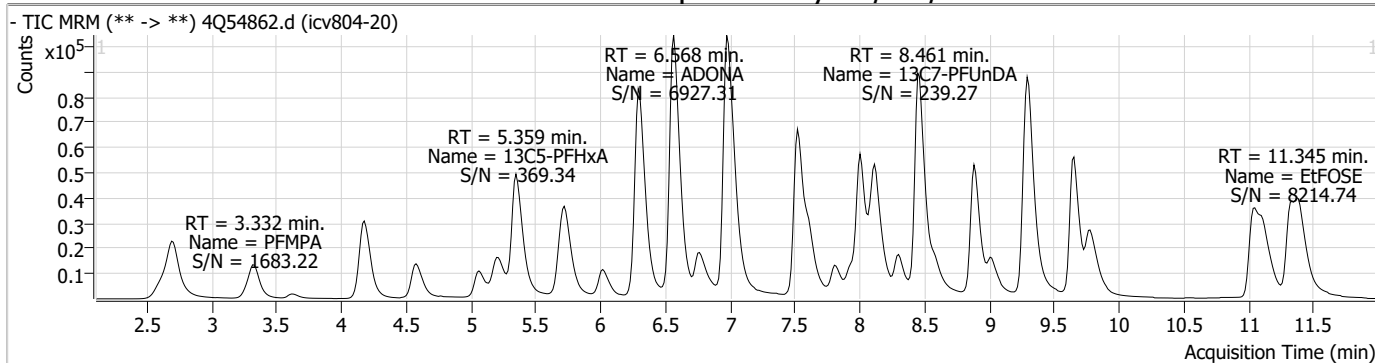
### Perfluorinated Compounds by LC/MS/MS

| Compound | RT | Transition | Response | Conc. Units | Dev(Min) |
|----------|----|------------|----------|-------------|----------|
|----------|----|------------|----------|-------------|----------|

7.7.11

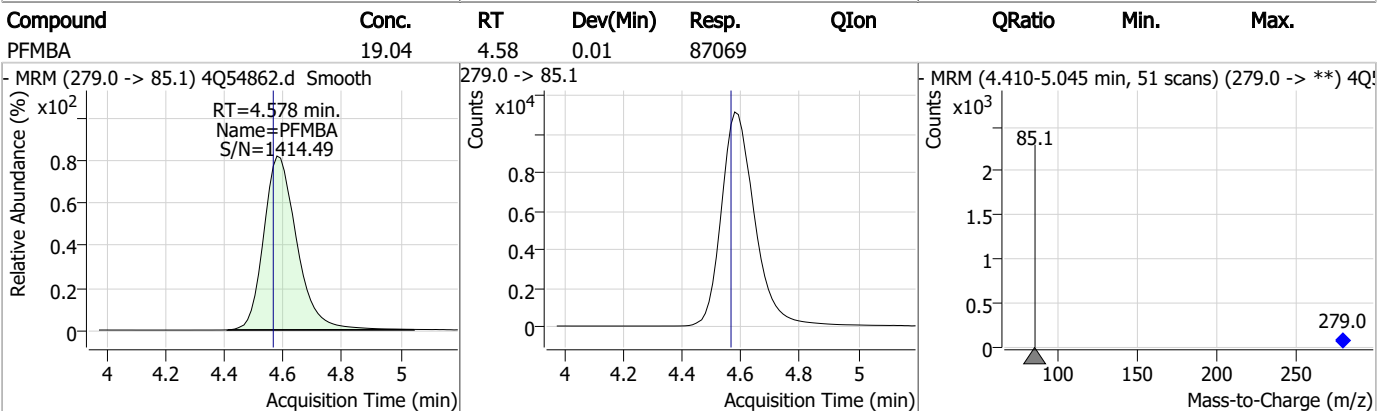
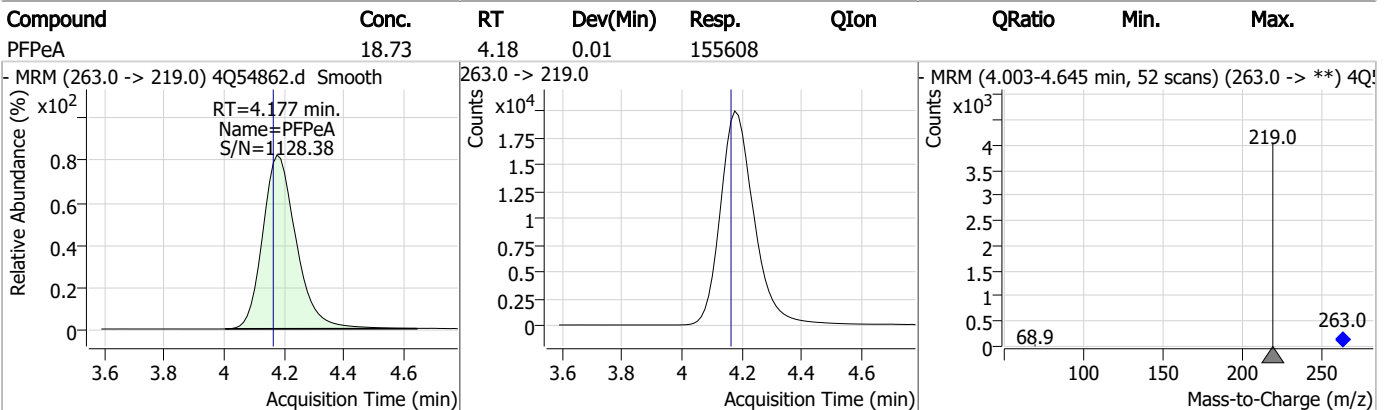
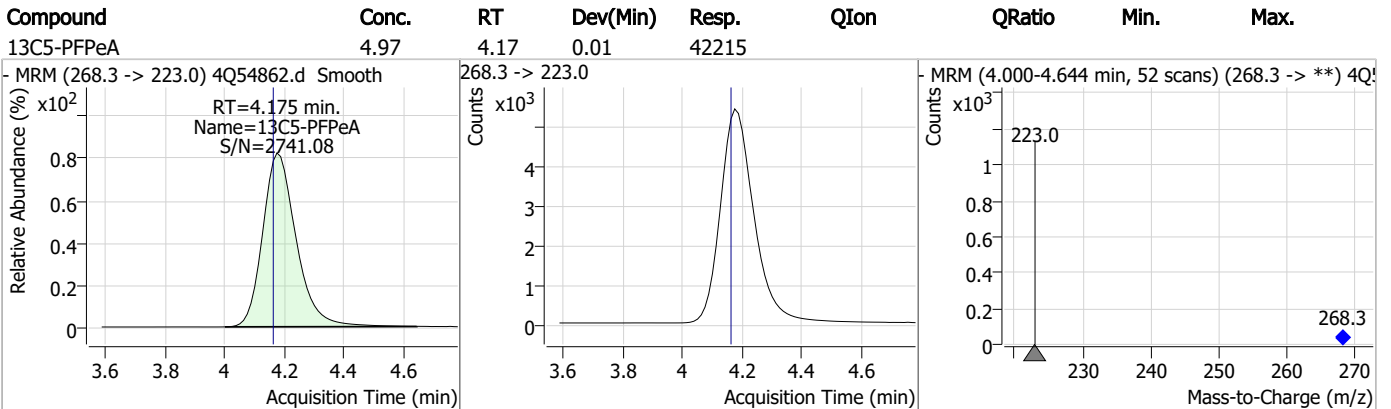
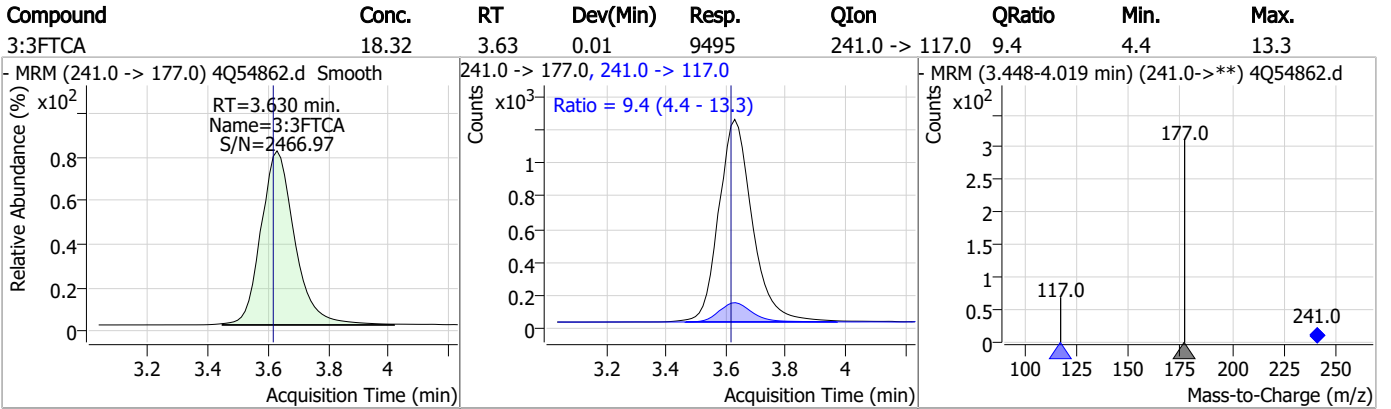
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### Perfluorinated Compounds by LC/MS/MS

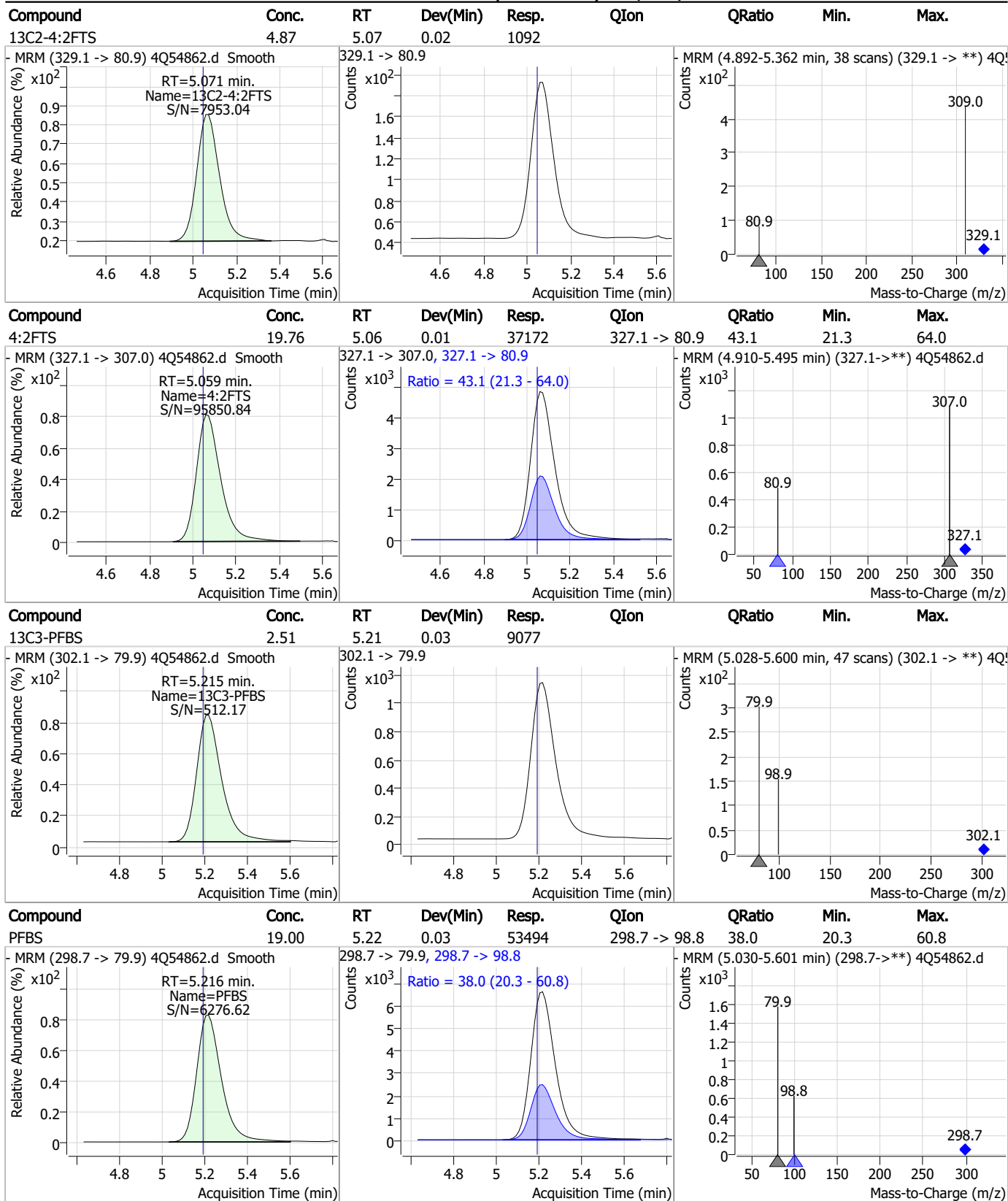




### Perfluorinated Compounds by LC/MS/MS

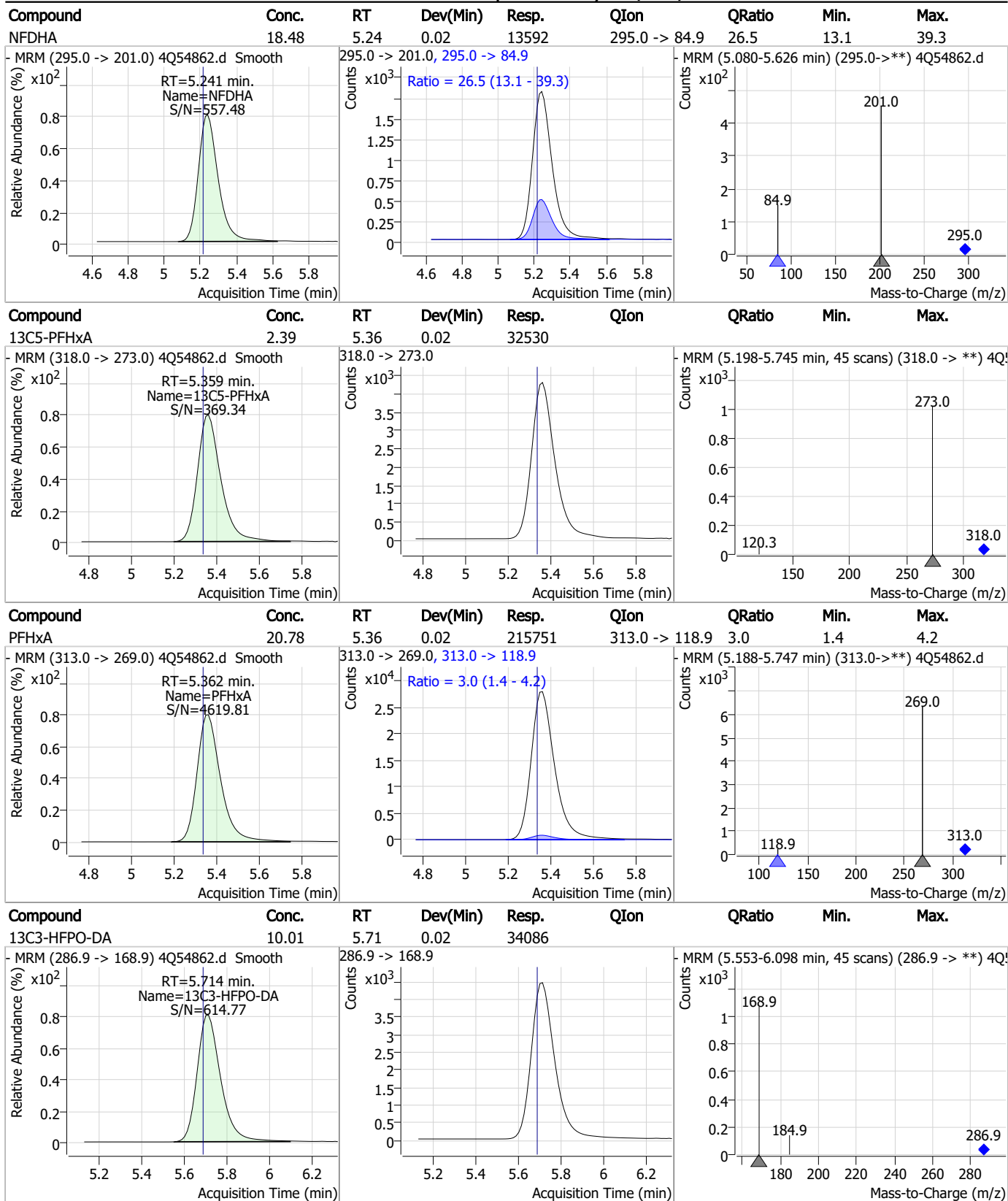


### Perfluorinated Compounds by LC/MS/MS



7.7.11  
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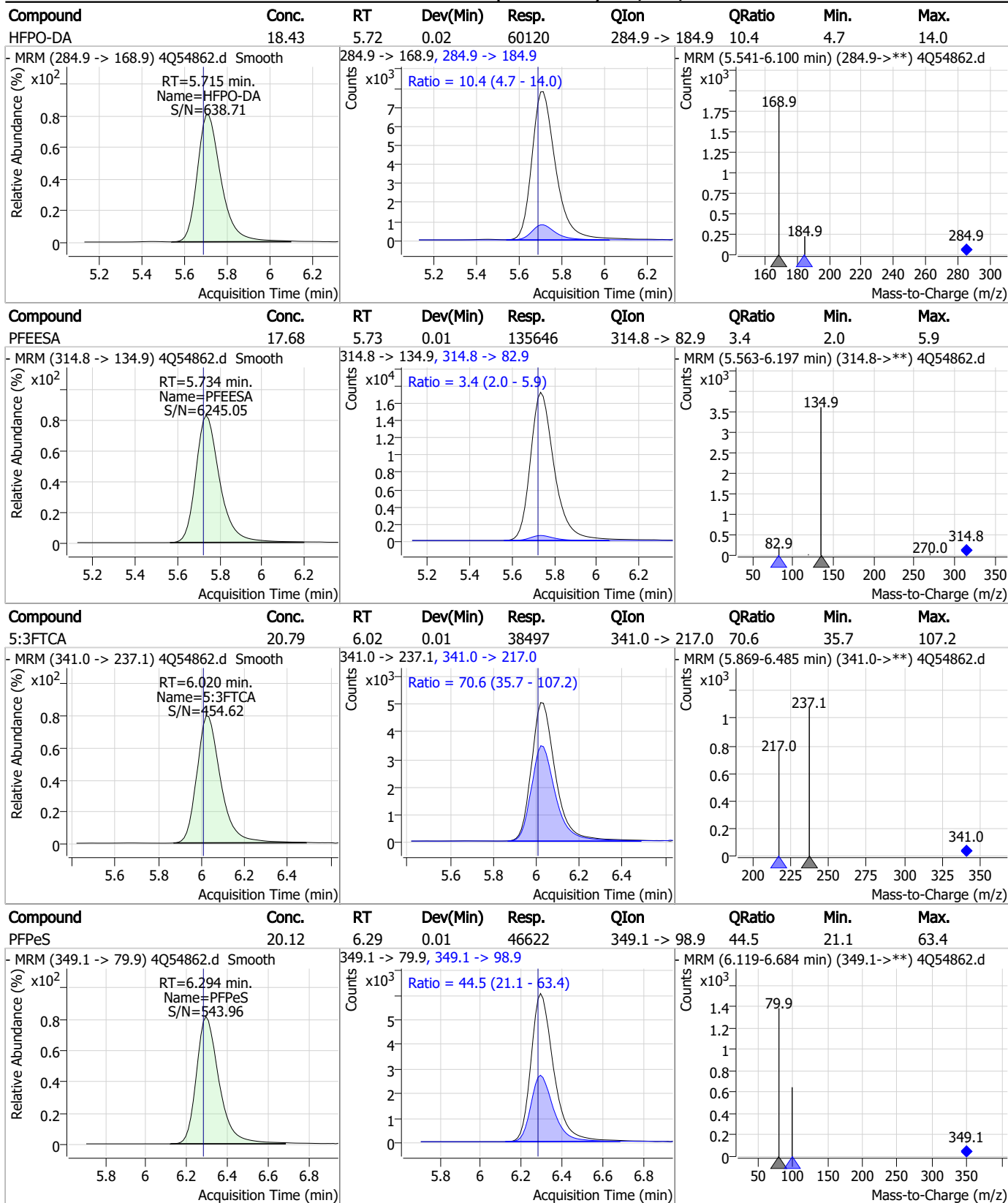
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7.7.11

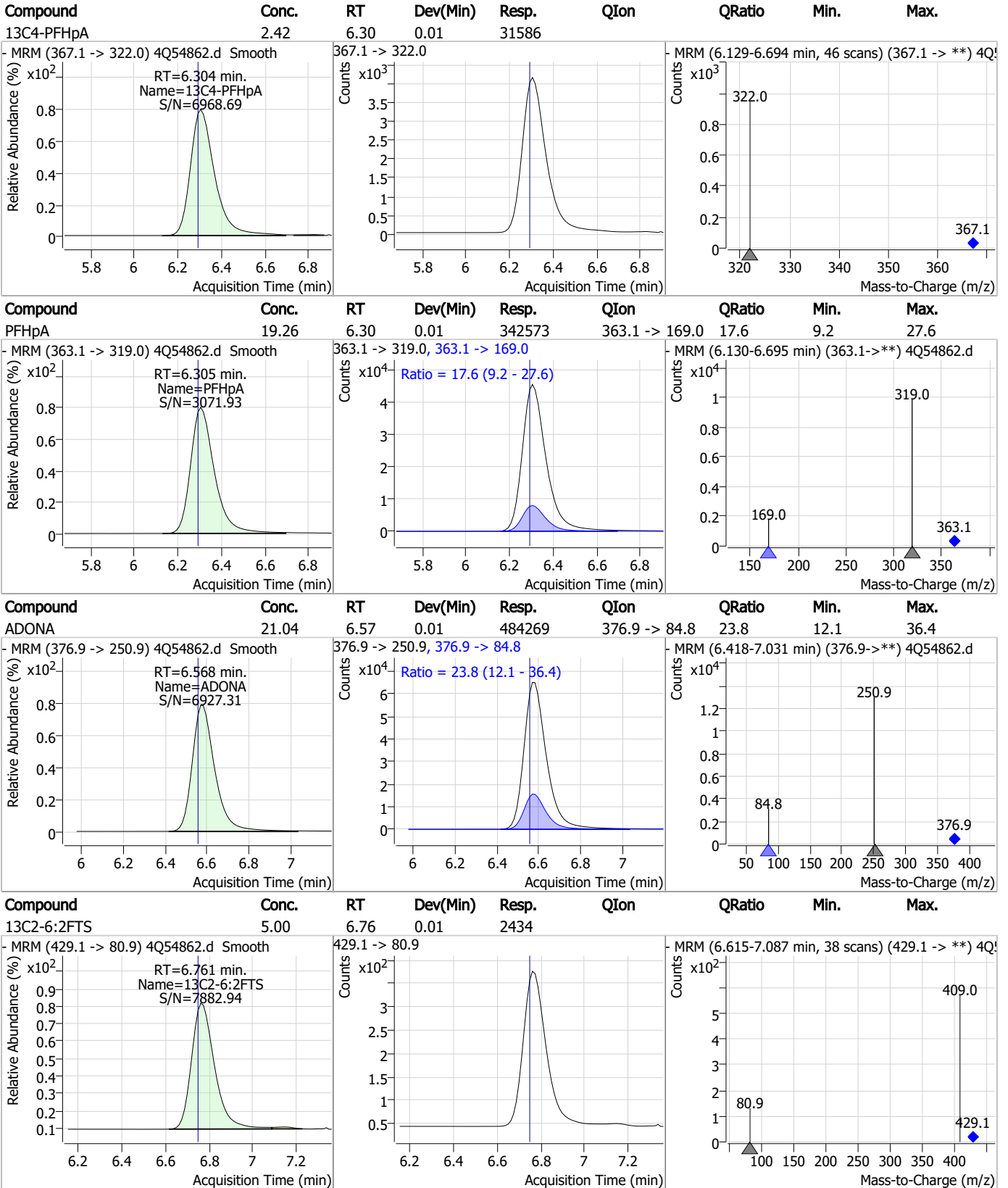
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### Perfluorinated Compounds by LC/MS/MS



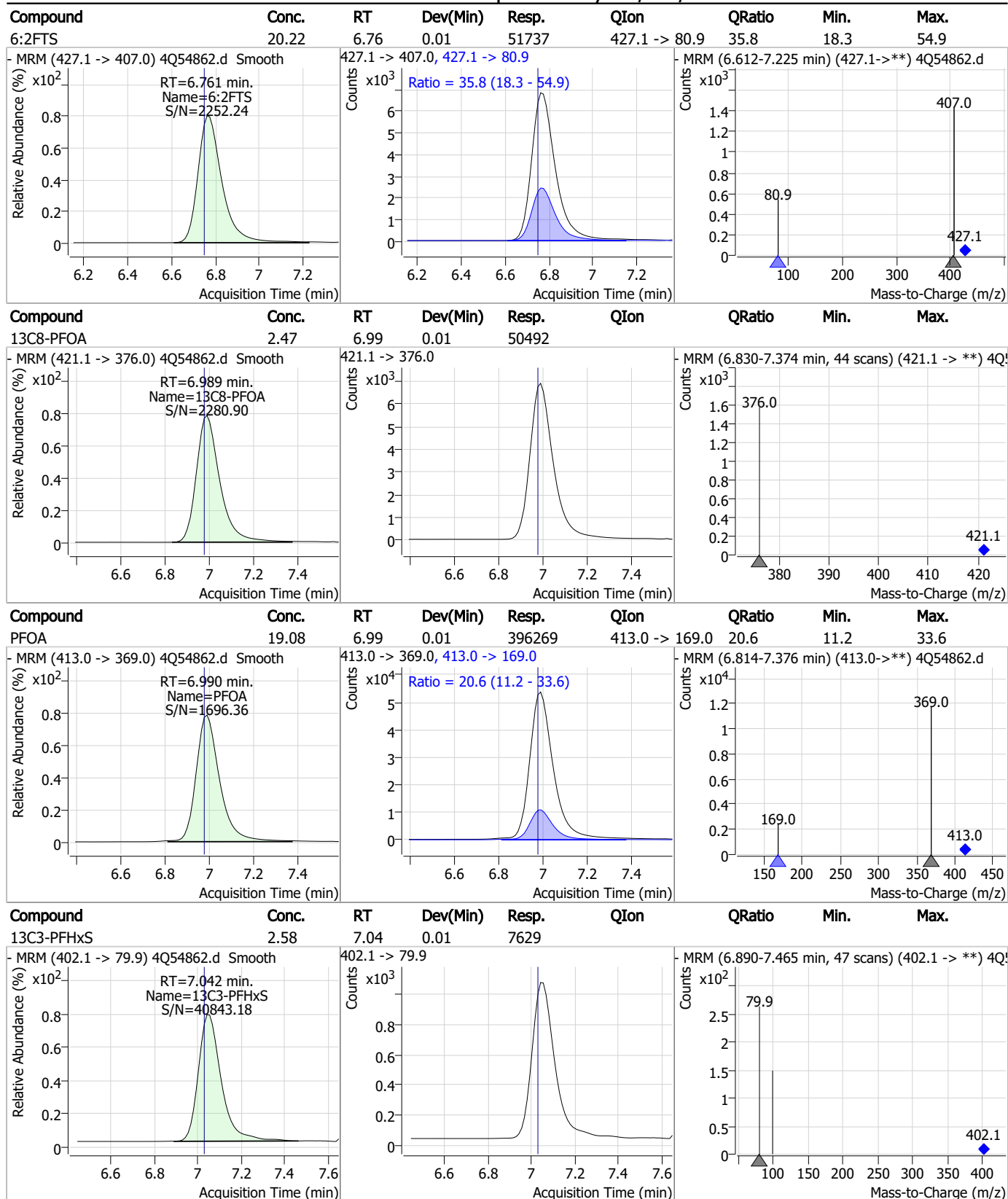
7.7.11  
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### Perfluorinated Compounds by LC/MS/MS



7.7.11  
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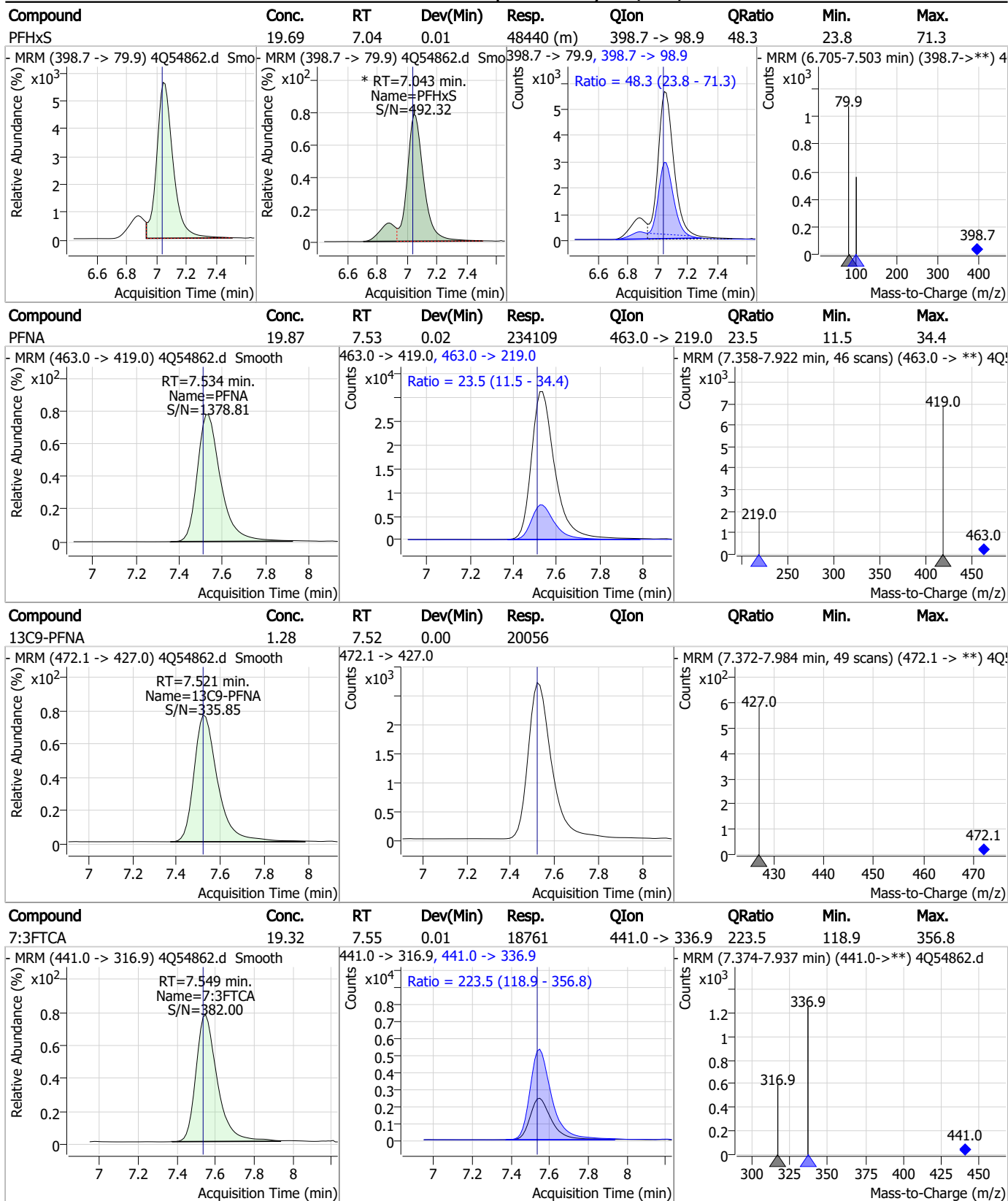
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7.7.11

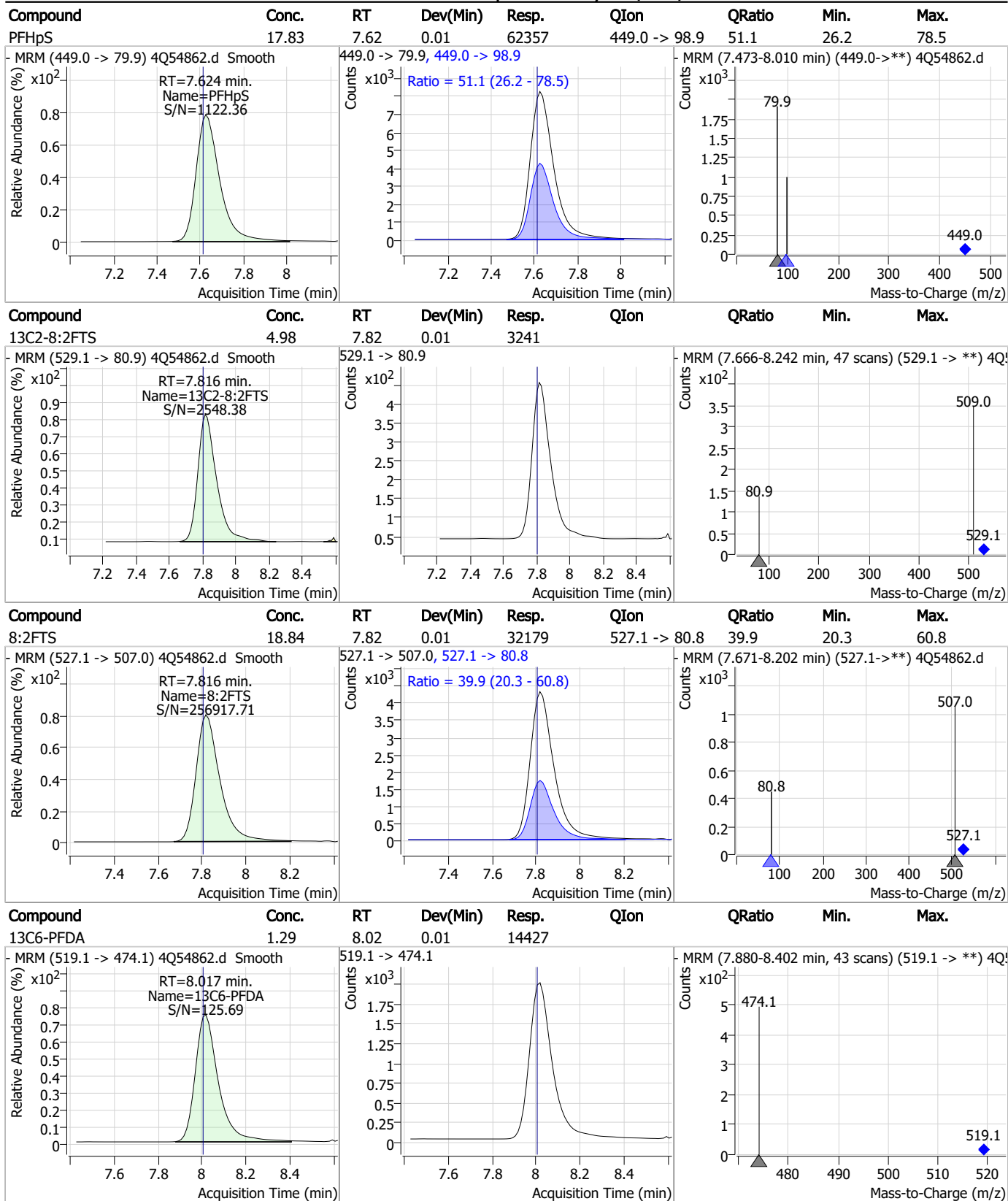
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### Perfluorinated Compounds by LC/MS/MS





### Perfluorinated Compounds by LC/MS/MS

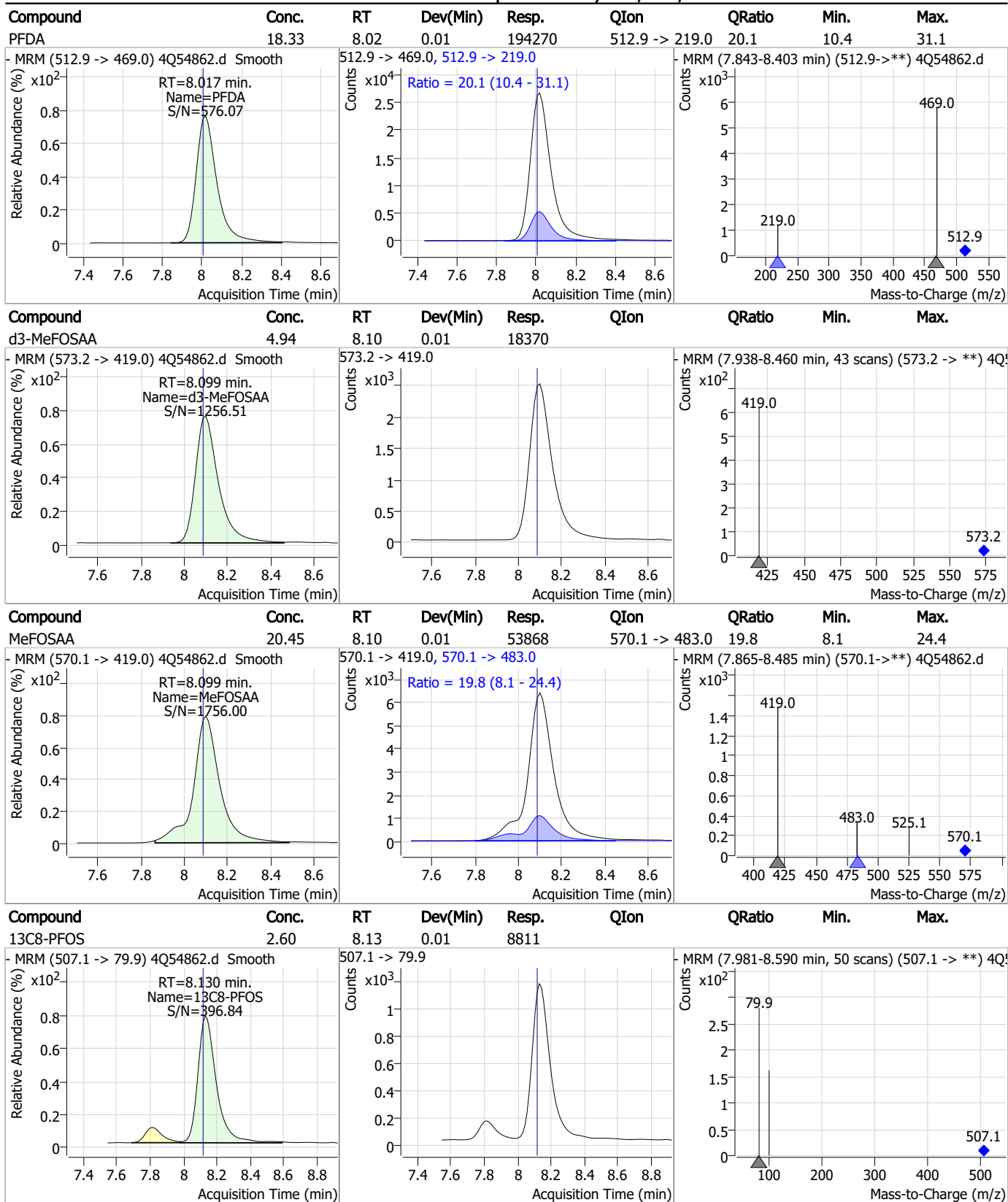


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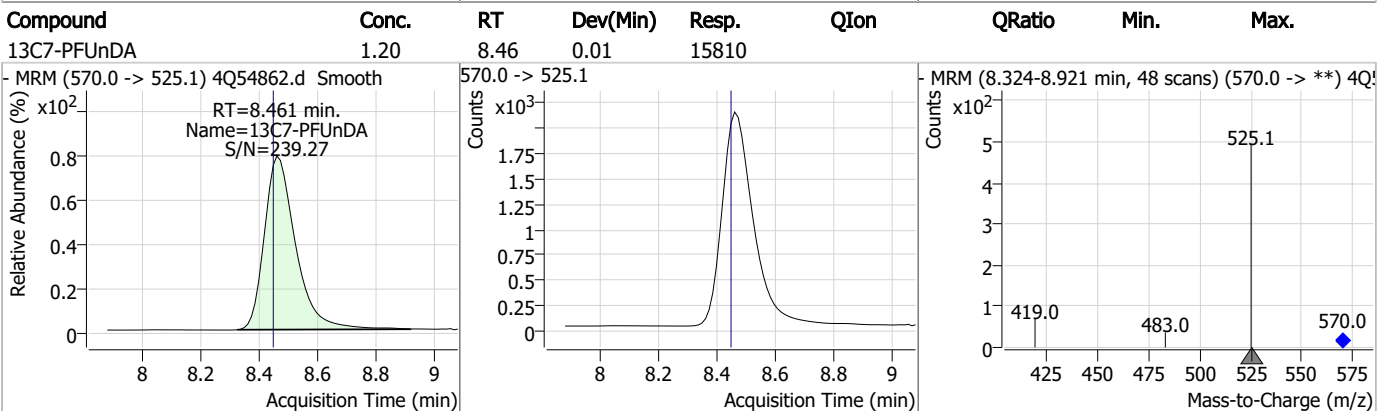
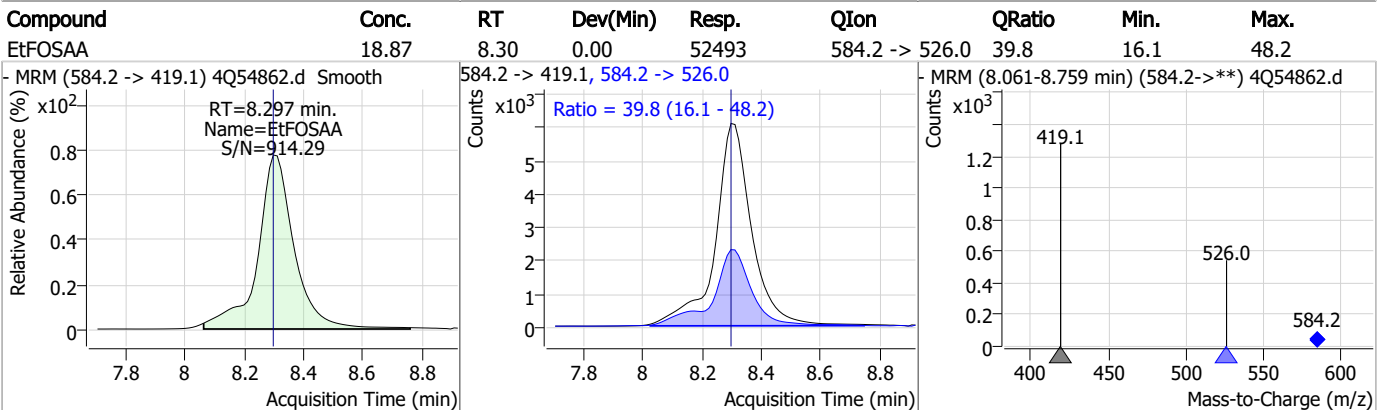
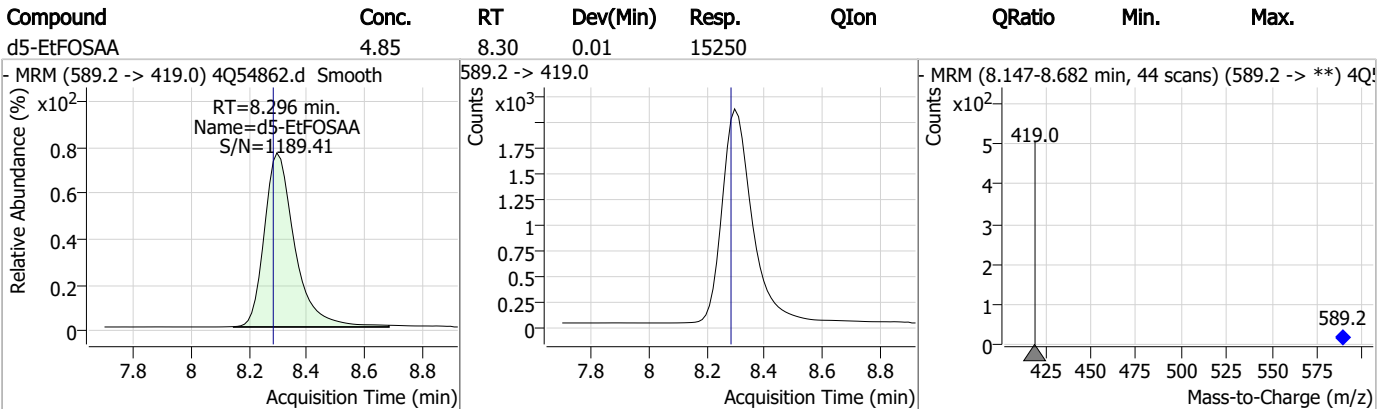
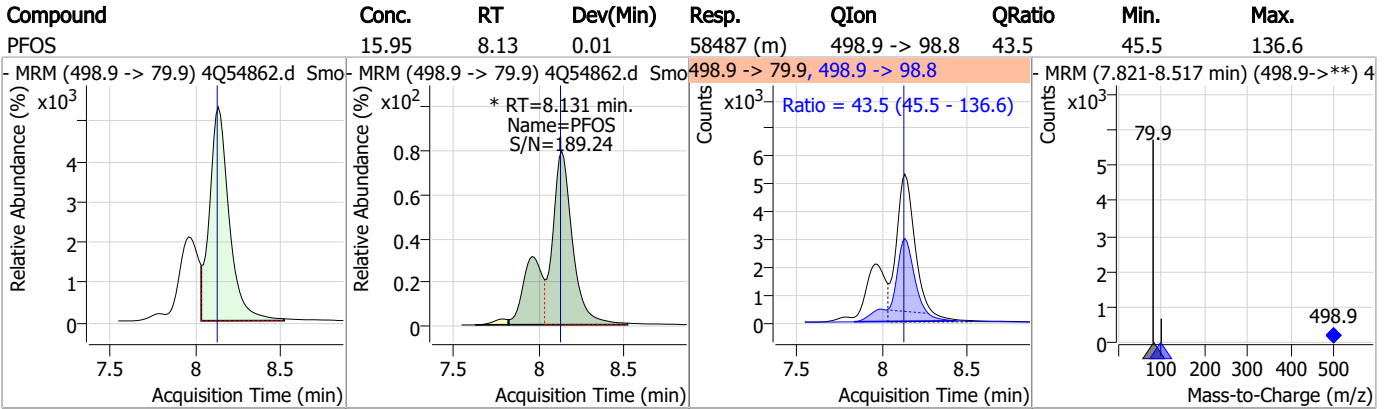


### Perfluorinated Compounds by LC/MS/MS



7.7.11  
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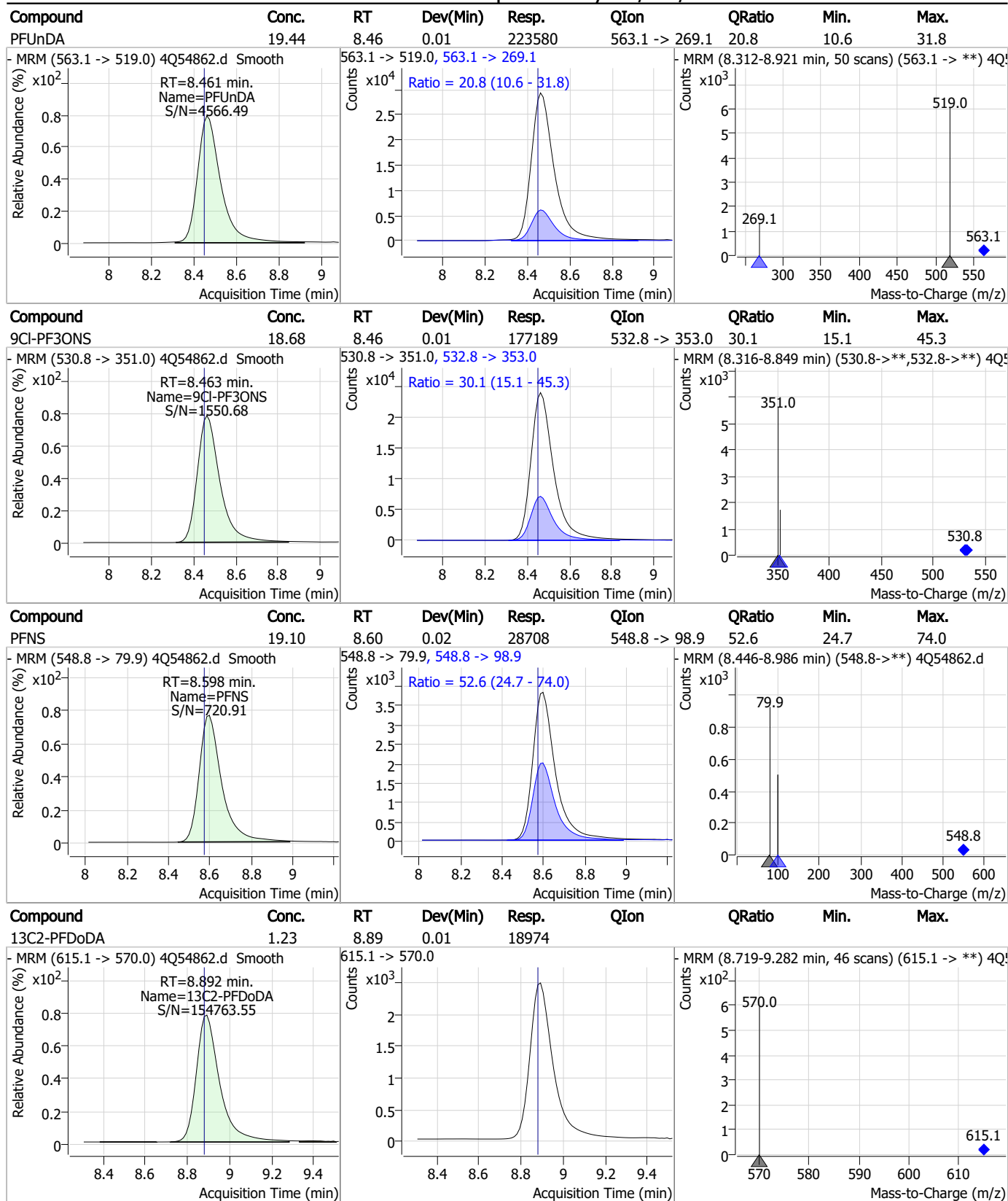
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7.7.11  
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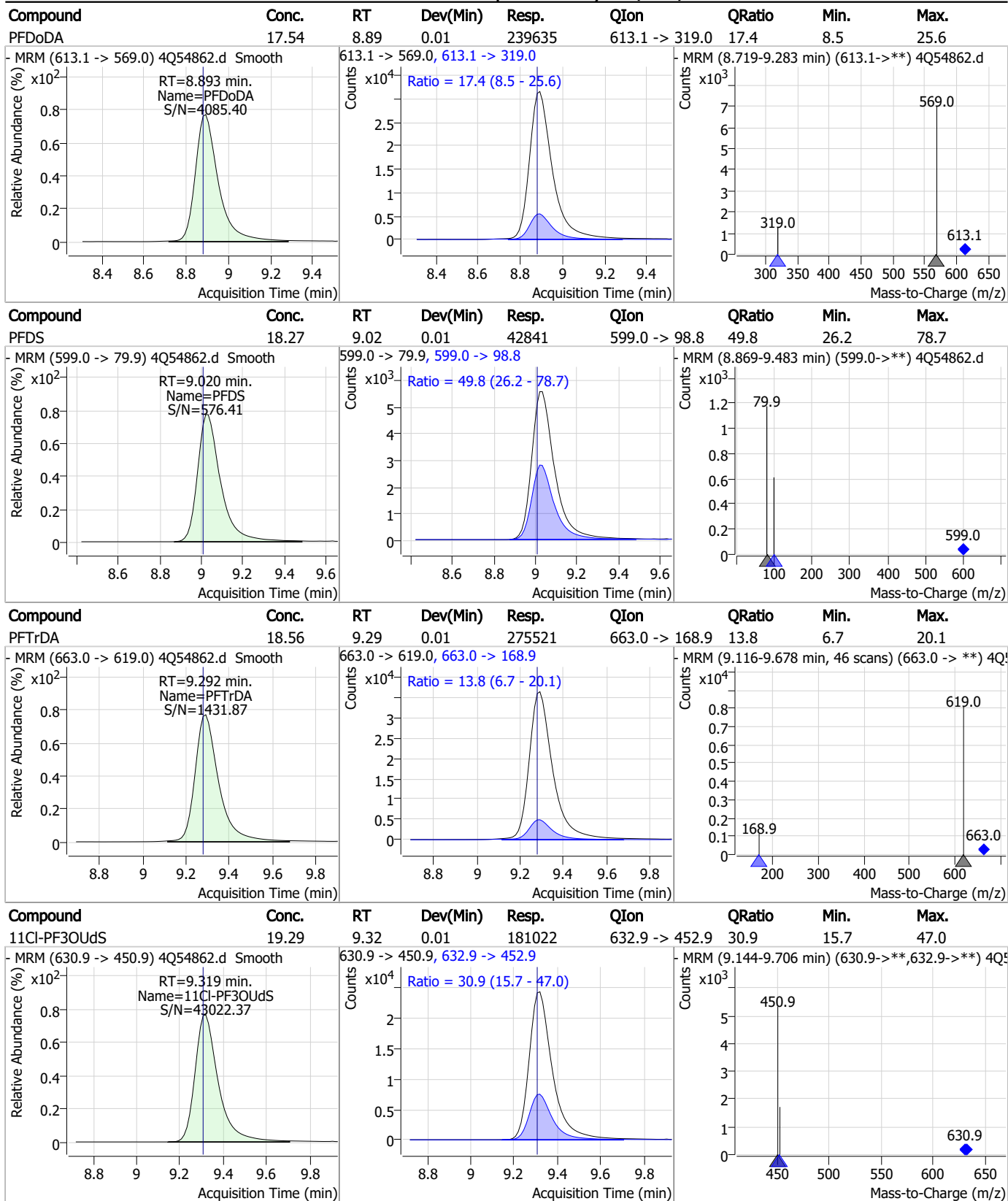
### Perfluorinated Compounds by LC/MS/MS



7.7.11  
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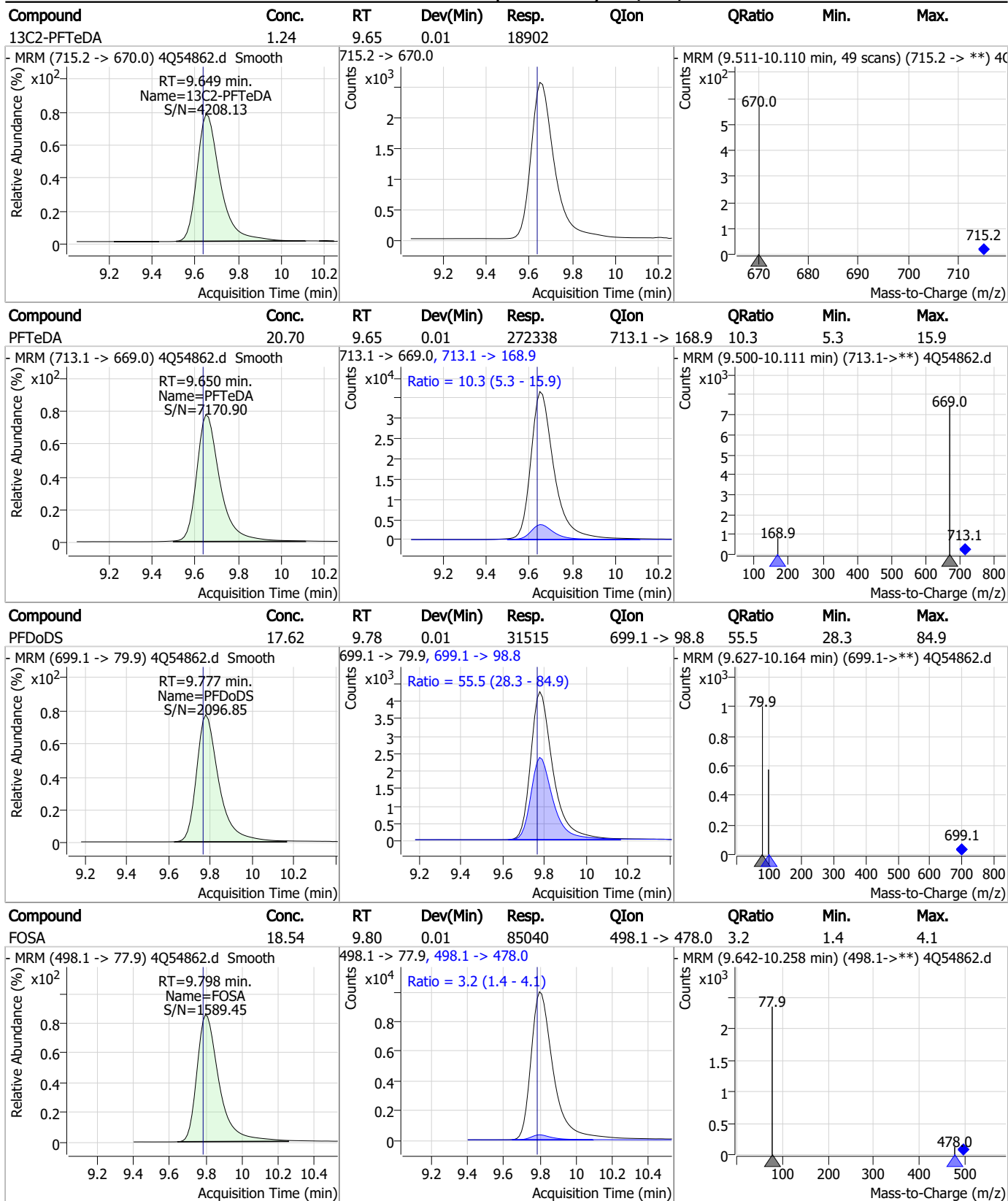


### Perfluorinated Compounds by LC/MS/MS



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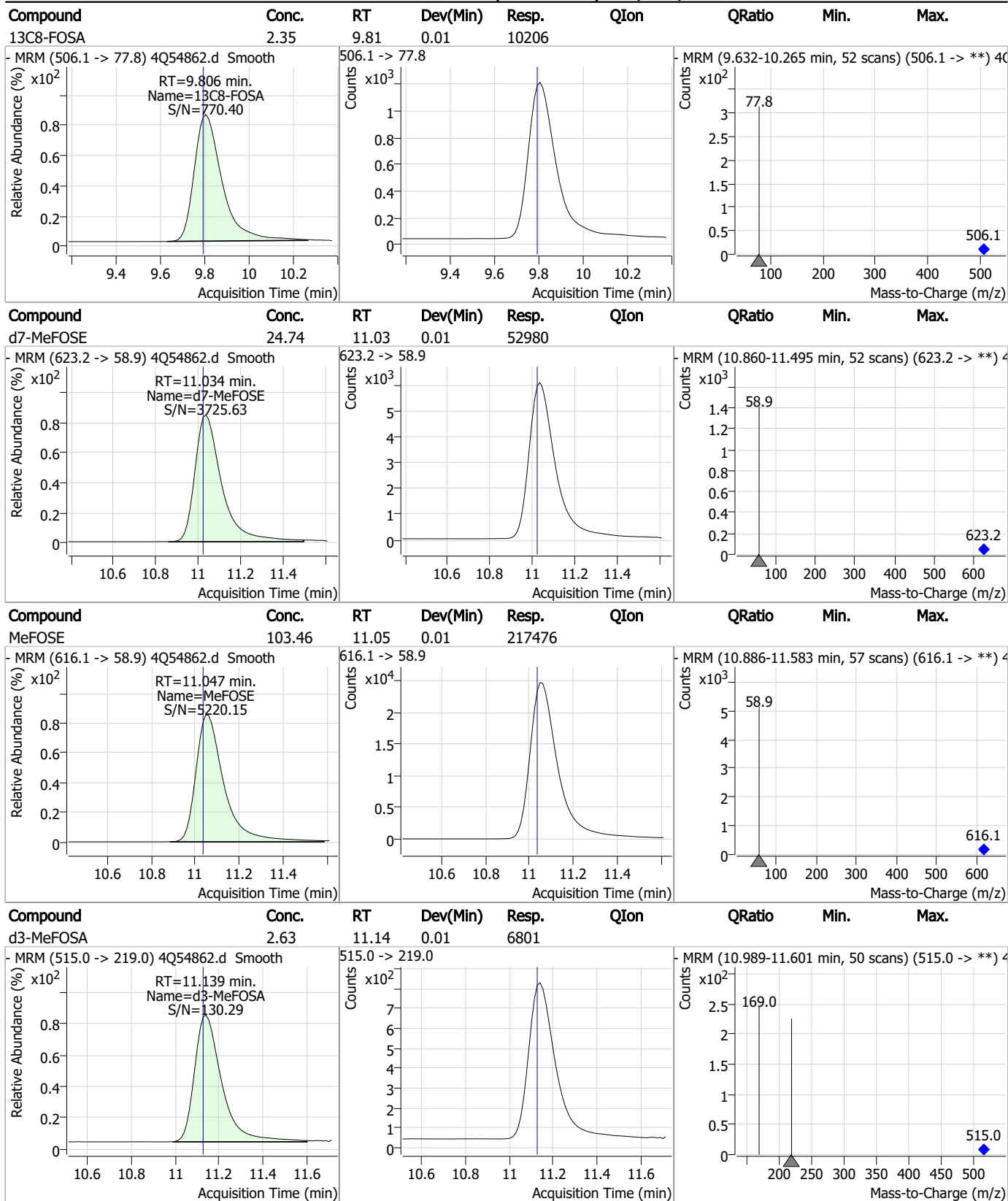
### Perfluorinated Compounds by LC/MS/MS



7.7.11

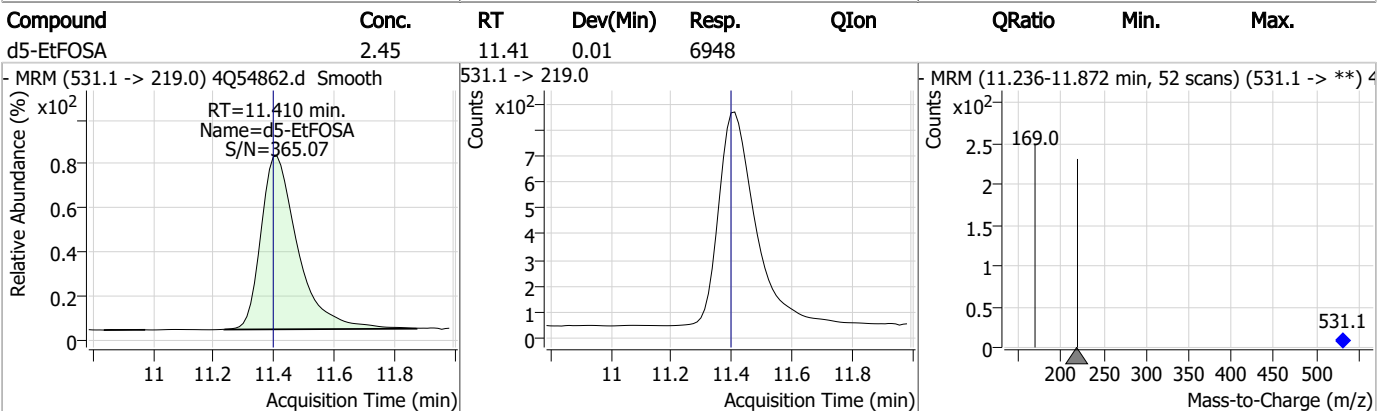
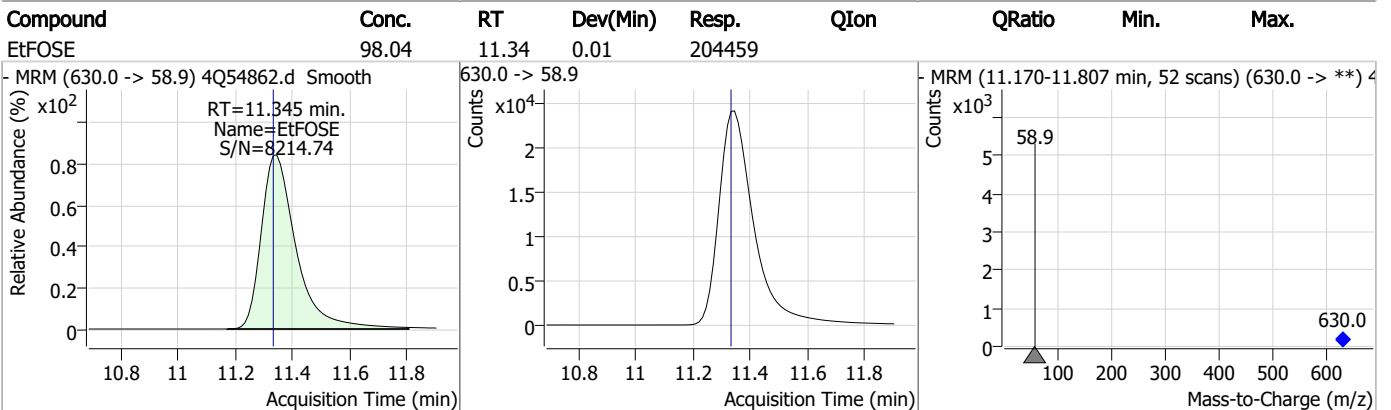
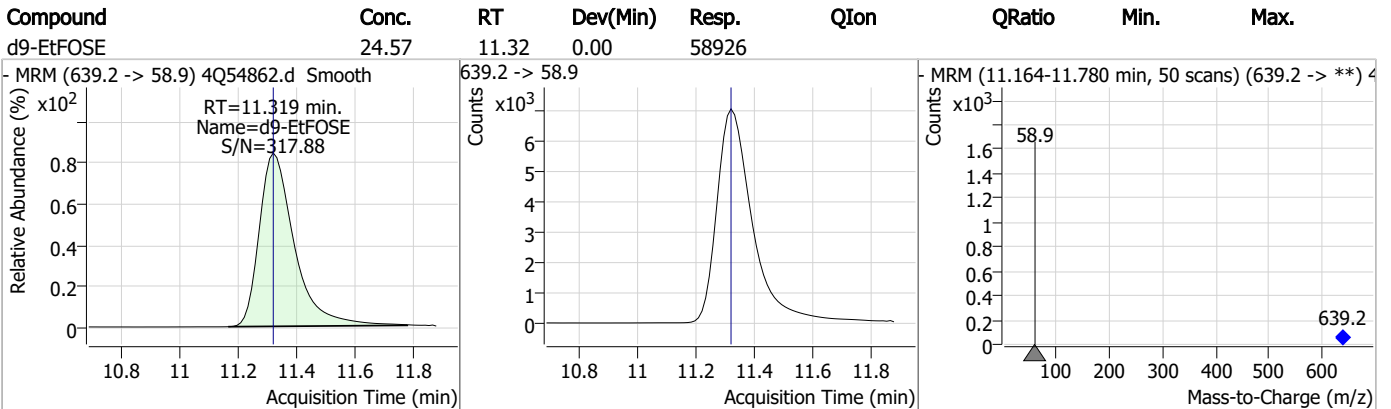
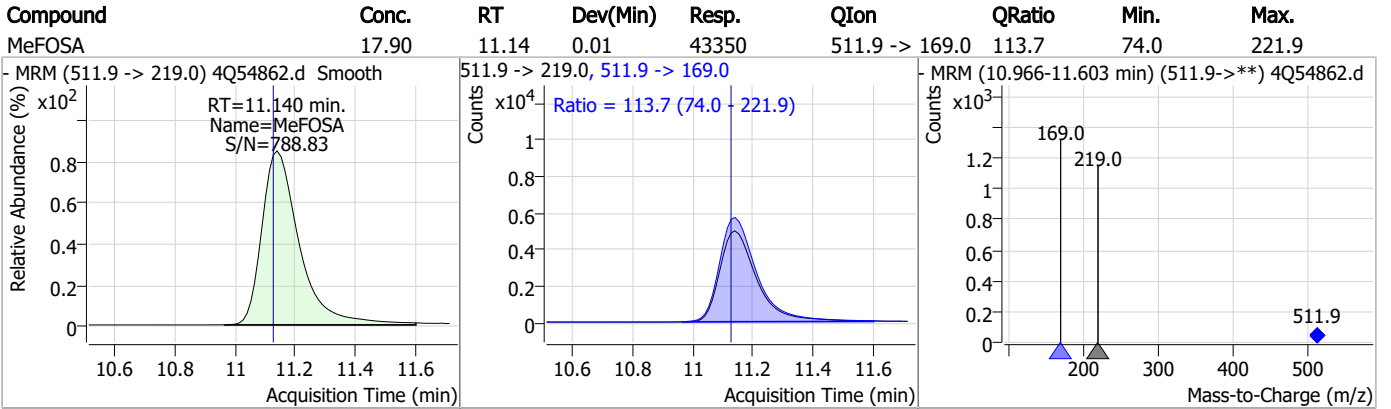
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### Perfluorinated Compounds by LC/MS/MS

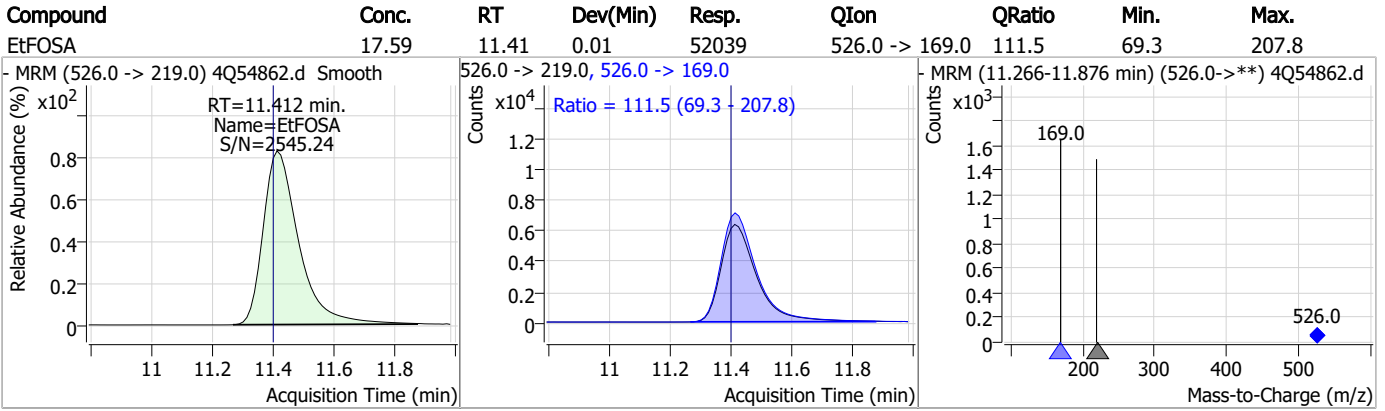


7.7.11  
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### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS



7.7.11

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# Manual Integration Approval Summary

Sample Number: S4Q804-ICV804      Method: EPA DRAFT 1633  
Lab FileID: 4Q54862.D      Analyst approved: 12/10/23 12:52 Anna Ludwig  
Injection Time: 12/08/23 14:05      Supervisor approved: 12/11/23 15:42 Natasha Gumtie

| Parameter                    | CAS       | Sig# | R.T.<br>(min.) | Reason     |
|------------------------------|-----------|------|----------------|------------|
| Perfluorohexanesulfonic acid | 355-46-4  |      | 7.04           | Split peak |
| Perfluorooctanesulfonic acid | 1763-23-1 |      | 8.13           | Split peak |

7.7.11.1

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Perfluorinated Compounds by LC/MS/MS

Data File : 4Q54863.d  
 Operator : annal  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 12/8/2023 2:20:35 PM  
 Sample Name : cc804-4  
 Vial : P1-A5  
 DA Method File : 1633\_120823\_S4Q804.quantmethod.xml  
 Batch Name : s4q804.batch.bin  
 Sample Information : OP99999,S4Q804,500,,,5.0,1,water

| Compound                           | RT                   | Transition     | Response          | Conc. Units | Dev(Min) |
|------------------------------------|----------------------|----------------|-------------------|-------------|----------|
| <b>Internal Standards</b>          |                      |                |                   |             |          |
| M4-PFBA                            | 2.686                | 216.8 -> 171.9 | 105309            | 10.00 µg/L  | 0.012    |
| M5-PFPeA                           | 4.187                | 268.3 -> 223.0 | 43937             | 5.00 µg/L   | 0.025    |
| M5-PFHxA                           | 5.359                | 318.0 -> 273.0 | 35543             | 2.50 µg/L   | 0.025    |
| M4-PFHpA                           | 6.317                | 367.1 -> 322.0 | 33805             | 2.50 µg/L   | 0.025    |
| M8-PFOA                            | 6.989                | 421.1 -> 376.0 | 55265             | 2.50 µg/L   | 0.012    |
| M9-PFNA                            | 7.534                | 472.1 -> 427.0 | 21661             | 1.25 µg/L   | 0.012    |
| M6-PFDA                            | 8.017                | 519.1 -> 474.1 | 14711             | 1.25 µg/L   | 0.013    |
| M7-PFUnDA                          | 8.461                | 570.0 -> 525.1 | 17591             | 1.25 µg/L   | 0.012    |
| M2-PFDoDA                          | 8.892                | 615.1 -> 570.0 | 19935             | 1.25 µg/L   | 0.012    |
| M2-PFTeDA                          | 9.662                | 715.2 -> 670.0 | 20155             | 1.25 µg/L   | 0.025    |
| M8-FOSA                            | 9.806                | 506.1 -> 77.8  | 11643             | 2.50 µg/L   | 0.012    |
| M3-PFBS                            | 5.215                | 302.1 -> 79.9  | 9589              | 2.50 µg/L   | 0.025    |
| M3-PFHxS                           | 7.054                | 402.1 -> 79.9  | 8054              | 2.50 µg/L   | 0.025    |
| M8-PFOS                            | 8.130                | 507.1 -> 79.9  | 8614              | 2.50 µg/L   | 0.012    |
| M2-4:2FTS                          | 5.071                | 329.1 -> 80.9  | 1093              | 5.00 µg/L   | 0.025    |
| M2-6:2FTS                          | 6.773                | 429.1 -> 80.9  | 2584              | 5.00 µg/L   | 0.025    |
| M2-8:2FTS                          | 7.816                | 529.1 -> 80.9  | 3400              | 5.00 µg/L   | 0.012    |
| M3-MeFOSAA                         | 8.099                | 573.2 -> 419.0 | 20198             | 5.00 µg/L   | 0.012    |
| M3-HFPO-DA                         | 5.714                | 286.9 -> 168.9 | 34368             | 10.00 µg/L  | 0.025    |
| M5-EtFOSAA                         | 8.296                | 589.2 -> 419.0 | 16724             | 5.00 µg/L   | 0.012    |
| M7-MeFOSE                          | 11.034               | 623.2 -> 58.9  | 54021             | 25.00 µg/L  | 0.012    |
| M9-EtFOSE                          | 11.319               | 639.2 -> 58.9  | 61184             | 25.00 µg/L  | 0.000    |
| M5-EtFOSA                          | 11.410               | 531.1 -> 219.0 | 6988              | 2.50 µg/L   | 0.012    |
| M3-MeFOSA                          | 11.139               | 515.0 -> 219.0 | 6601              | 2.50 µg/L   | 0.012    |
| 13C4-PFOS                          | 8.130                | 502.8 -> 79.9  | 7117              | 2.50 µg/L   | 0.012    |
| 13C3-PFBA                          | 2.691                | 216.0 -> 172.0 | 50694             | 5.00 µg/L   | 0.013    |
| 18O2-PFHxS                         | 7.054                | 403.0 -> 83.9  | 5111              | 2.50 µg/L   | 0.013    |
| 13C4-PFOA                          | 6.989                | 417.1 -> 372.0 | 60953             | 2.50 µg/L   | 0.012    |
| 13C2-PFDA                          | 8.017                | 515.1 -> 470.1 | 15943             | 1.25 µg/L   | 0.013    |
| 13C5-PFNA                          | 7.534                | 468.0 -> 423.0 | 22252             | 1.25 µg/L   | 0.025    |
| 13C2-PFHxA                         | 5.360                | 315.1 -> 270.0 | 38783             | 2.50 µg/L   | 0.025    |
| <b>System Monitoring Compounds</b> |                      |                |                   |             |          |
| 13C2-4:2FTS                        | 5.071                | 329.1 -> 80.9  | 1093              | 4.50 µg/L   | 0.025    |
| Spiked Amount: 5.00                | Range: 50.0 - 150.0% |                | Recovery = 90.1%  |             |          |
| 13C2-6:2FTS                        | 6.773                | 429.1 -> 80.9  | 2584              | 4.91 µg/L   | 0.025    |
| Spiked Amount: 5.00                | Range: 50.0 - 150.0% |                | Recovery = 98.2%  |             |          |
| 13C2-8:2FTS                        | 7.816                | 529.1 -> 80.9  | 3400              | 4.83 µg/L   | 0.012    |
| Spiked Amount: 5.00                | Range: 50.0 - 150.0% |                | Recovery = 96.5%  |             |          |
| 13C2-PFDoDA                        | 8.892                | 615.1 -> 570.0 | 19935             | 1.25 µg/L   | 0.012    |
| Spiked Amount: 1.25                | Range: 50.0 - 150.0% |                | Recovery = 100.1% |             |          |
| 13C2-PFTeDA                        | 9.662                | 715.2 -> 670.0 | 20155             | 1.27 µg/L   | 0.025    |
| Spiked Amount: 1.25                | Range: 50.0 - 150.0% |                | Recovery = 101.9% |             |          |
| 13C3-PFBS                          | 5.215                | 302.1 -> 79.9  | 9589              | 2.45 µg/L   | 0.025    |
| Spiked Amount: 2.50                | Range: 50.0 - 150.0% |                | Recovery = 97.9%  |             |          |
| 13C3-PFHxS                         | 7.054                | 402.1 -> 79.9  | 8054              | 2.51 µg/L   | 0.025    |

7.7.12  
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### Perfluorinated Compounds by LC/MS/MS

| Compound                | RT                   | Transition     | Response | Conc. Units       | Dev(Min)      |
|-------------------------|----------------------|----------------|----------|-------------------|---------------|
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 100.5% |               |
| 13C4-PFBA               | 2.686                | 216.8 -> 171.9 | 105309   | 9.89 µg/L         | 0.012         |
| Spiked Amount: 10.00    | Range: 50.0 - 150.0% |                |          | Recovery = 98.9%  |               |
| 13C4-PFHpA              | 6.317                | 367.1 -> 322.0 | 33805    | 2.47 µg/L         | 0.025         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 98.9%  |               |
| 13C5-PFHxA              | 5.359                | 318.0 -> 273.0 | 35543    | 2.49 µg/L         | 0.025         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 99.5%  |               |
| 13C5-PFPeA              | 4.187                | 268.3 -> 223.0 | 43937    | 4.94 µg/L         | 0.025         |
| Spiked Amount: 5.00     | Range: 50.0 - 150.0% |                |          | Recovery = 98.7%  |               |
| 13C6-PFDA               | 8.017                | 519.1 -> 474.1 | 14711    | 1.27 µg/L         | 0.013         |
| Spiked Amount: 1.25     | Range: 50.0 - 150.0% |                |          | Recovery = 101.5% |               |
| 13C7-PFUnDA             | 8.461                | 570.0 -> 525.1 | 17591    | 1.29 µg/L         | 0.012         |
| Spiked Amount: 1.25     | Range: 50.0 - 150.0% |                |          | Recovery = 102.9% |               |
| 13C8-FOSA               | 9.806                | 506.1 -> 77.8  | 11643    | 2.52 µg/L         | 0.012         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 101.0% |               |
| 13C8-PFOA               | 6.989                | 421.1 -> 376.0 | 55265    | 2.45 µg/L         | 0.012         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 98.1%  |               |
| 13C8-PFOS               | 8.130                | 507.1 -> 79.9  | 8614     | 2.39 µg/L         | 0.012         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 95.6%  |               |
| 13C9-PFNA               | 7.534                | 472.1 -> 427.0 | 21661    | 1.21 µg/L         | 0.012         |
| Spiked Amount: 1.25     | Range: 50.0 - 150.0% |                |          | Recovery = 97.2%  |               |
| d3-MeFOSAA              | 8.099                | 573.2 -> 419.0 | 20198    | 5.11 µg/L         | 0.012         |
| Spiked Amount: 5.00     | Range: 50.0 - 150.0% |                |          | Recovery = 102.2% |               |
| 13C3-HFPO-DA            | 5.714                | 286.9 -> 168.9 | 34368    | 9.63 µg/L         | 0.025         |
| Spiked Amount: 10.00    | Range: 50.0 - 150.0% |                |          | Recovery = 96.3%  |               |
| d3-MeFOSA               | 11.139               | 515.0 -> 219.0 | 6601     | 2.40 µg/L         | 0.012         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 96.0%  |               |
| d5-EtFOSAA              | 8.296                | 589.2 -> 419.0 | 16724    | 5.00 µg/L         | 0.012         |
| Spiked Amount: 5.00     | Range: 50.0 - 150.0% |                |          | Recovery = 100.1% |               |
| d7-MeFOSE               | 11.034               | 623.2 -> 58.9  | 54021    | 23.74 µg/L        | 0.012         |
| Spiked Amount: 25.00    | Range: 50.0 - 150.0% |                |          | Recovery = 95.0%  |               |
| d9-EtFOSE               | 11.319               | 639.2 -> 58.9  | 61184    | 24.01 µg/L        | 0.000         |
| Spiked Amount: 25.00    | Range: 50.0 - 150.0% |                |          | Recovery = 96.0%  |               |
| d5-EtFOSA               | 11.410               | 531.1 -> 219.0 | 6988     | 2.32 µg/L         | 0.012         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 92.7%  |               |
| <b>Target Compounds</b> |                      |                |          |                   | <b>QValue</b> |
| 4:2FTS                  | 5.072                | 327.1 -> 307.0 | 18341    | 9.75 µg/L         | 97            |
|                         |                      | 327.1 -> 80.9  | 7498     |                   |               |
| 6:2FTS                  | 6.774                | 427.1 -> 407.0 | 24730    | 9.11 µg/L         | 97            |
|                         |                      | 427.1 -> 80.9  | 8651     |                   |               |
| 8:2FTS                  | 7.816                | 527.1 -> 507.0 | 17227    | 9.61 µg/L         | 99            |
|                         |                      | 527.1 -> 80.8  | 7072     |                   |               |
| EtFOSAA                 | 8.310                | 584.2 -> 419.1 | 6616     | 2.17 µg/L         | m 79          |
|                         |                      | 584.2 -> 526.0 | 2914     |                   |               |
| FOSA                    | 9.798                | 498.1 -> 77.9  | 12078    | 2.31 µg/L         | 98            |
|                         |                      | 498.1 -> 478.0 | 400      |                   |               |
| MeFOSAA                 | 8.099                | 570.1 -> 419.0 | 7124     | 2.46 µg/L         | 87            |
|                         |                      | 570.1 -> 483.0 | 1565     |                   |               |
| PFBA                    | 2.695                | 212.8 -> 168.9 | 31624    | 9.38 µg/L         | 100           |
| PFBS                    | 5.216                | 298.7 -> 79.9  | 6221     | 2.09 µg/L         | 97            |
|                         |                      | 298.7 -> 98.8  | 2407     |                   |               |
| PFDA                    | 8.017                | 512.9 -> 469.0 | 24588    | 2.28 µg/L         | 99            |
|                         |                      | 512.9 -> 219.0 | 5153     |                   |               |
| PFDoDA                  | 8.893                | 613.1 -> 569.0 | 35195    | 2.45 µg/L         | 100           |
|                         |                      | 613.1 -> 319.0 | 5967     |                   |               |
| PFDS                    | 9.032                | 599.0 -> 79.9  | 5411     | 2.36 µg/L         | 89            |

7.7.12  
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Perfluorinated Compounds by LC/MS/MS

| Compound     | RT     | Transition     | Response | Conc. | Units | Dev(Min) |
|--------------|--------|----------------|----------|-------|-------|----------|
| PFHpA        | 6.317  | 599.0 -> 98.8  | 2424     | 2.31  | µg/L  | 99       |
|              |        | 363.1 -> 319.0 | 43986    |       |       |          |
| PFHpS        | 7.624  | 363.1 -> 169.0 | 7917     | 2.44  | µg/L  | 99       |
|              |        | 449.0 -> 79.9  | 8328     |       |       |          |
| PFHxA        | 5.362  | 449.0 -> 98.9  | 4306     | 2.18  | µg/L  | 100      |
|              |        | 313.0 -> 269.0 | 24751    |       |       |          |
| PFHxS        | 7.055  | 313.0 -> 118.9 | 691      | 2.15  | µg/L  | 97       |
|              |        | 398.7 -> 79.9  | 5590     |       |       |          |
| PFNA         | 7.534  | 398.7 -> 98.9  | 2776     | 2.27  | µg/L  | 99       |
|              |        | 463.0 -> 419.0 | 28899    |       |       |          |
| PFNS         | 8.598  | 463.0 -> 219.0 | 6529     | 2.59  | µg/L  | 81       |
|              |        | 548.8 -> 79.9  | 3810     |       |       |          |
| PFOA         | 6.990  | 548.8 -> 98.9  | 2385     | 2.31  | µg/L  | 95       |
|              |        | 413.0 -> 369.0 | 52599    |       |       |          |
| PFOS         | 8.131  | 413.0 -> 169.0 | 10498    | 2.17  | µg/L  | 55       |
|              |        | 498.9 -> 79.9  | 7783     |       |       |          |
| PFPeA        | 4.189  | 498.9 -> 98.8  | 3785     | 4.59  | µg/L  | 100      |
|              |        | 263.0 -> 219.0 | 39689    |       |       |          |
| PFPeS        | 6.307  | 349.1 -> 79.9  | 5454     | 2.23  | µg/L  | 96       |
|              |        | 349.1 -> 98.9  | 2439     |       |       |          |
| PFTeDA       | 9.650  | 713.1 -> 669.0 | 31380    | 2.24  | µg/L  | 99       |
|              |        | 713.1 -> 168.9 | 3461     |       |       |          |
| PFTrDA       | 9.292  | 663.0 -> 619.0 | 38216    | 2.45  | µg/L  | 98       |
|              |        | 663.0 -> 168.9 | 5384     |       |       |          |
| PFUnDA       | 8.461  | 563.1 -> 519.0 | 30739    | 2.40  | µg/L  | 97       |
|              |        | 563.1 -> 269.1 | 6930     |       |       |          |
| 11CI-PF3OUdS | 9.319  | 630.9 -> 450.9 | 42309    | 4.47  | µg/L  | 99       |
|              |        | 632.9 -> 452.9 | 13544    |       |       |          |
| 9CI-PF3ONS   | 8.463  | 530.8 -> 351.0 | 45852    | 4.79  | µg/L  | 99       |
|              |        | 532.8 -> 353.0 | 13536    |       |       |          |
| ADONA        | 6.581  | 376.9 -> 250.9 | 112106   | 4.83  | µg/L  | 99       |
|              |        | 376.9 -> 84.8  | 27566    |       |       |          |
| HFPO-DA      | 5.715  | 284.9 -> 168.9 | 15523    | 4.72  | µg/L  | 99       |
|              |        | 284.9 -> 184.9 | 1427     |       |       |          |
| 3:3FTCA      | 3.630  | 241.0 -> 177.0 | 5994     | 11.18 | µg/L  | 99       |
|              |        | 241.0 -> 117.0 | 519      |       |       |          |
| 5:3FTCA      | 6.033  | 341.0 -> 237.1 | 116305   | 57.49 | µg/L  | 99       |
|              |        | 341.0 -> 217.0 | 82451    |       |       |          |
| 7:3FTCA      | 7.549  | 441.0 -> 316.9 | 61291    | 57.78 | µg/L  | 97       |
|              |        | 441.0 -> 336.9 | 149045   |       |       |          |
| EtFOSA       | 11.412 | 526.0 -> 219.0 | 14505    | 4.88  | µg/L  | 99       |
|              |        | 526.0 -> 169.0 | 20196    |       |       |          |
| EtFOSE       | 11.332 | 630.0 -> 58.9  | 25226    | 11.65 | µg/L  | 100      |
|              |        | 511.9 -> 219.0 | 11148    |       |       |          |
| MeFOSA       | 11.128 | 511.9 -> 169.0 | 16237    | 4.74  | µg/L  | 98       |
|              |        | 616.1 -> 58.9  | 25666    |       |       |          |
| MeFOSE       | 11.047 | 699.1 -> 79.9  | 4166     | 11.97 | µg/L  | 100      |
|              |        | 699.1 -> 98.8  | 2268     |       |       |          |
| PFDoDS       | 9.777  | 295.0 -> 201.0 | 3746     | 2.38  | µg/L  | 97       |
|              |        | 295.0 -> 84.9  | 906      |       |       |          |
| NFDHA        | 5.241  | 279.0 -> 85.1  | 22216    | 4.67  | µg/L  | 100      |
|              |        | 229.0 -> 84.9  | 24047    |       |       |          |
| PFMBA        | 3.332  | 314.8 -> 134.9 | 34736    | 4.60  | µg/L  | 100      |
|              |        | 314.8 -> 82.9  | 1231     |       |       |          |
| PFEESA       | 5.747  |                |          | 4.14  | µg/L  | 99       |
|              |        |                |          |       |       |          |

# = Qualifier out of range, m = manually integrated, + = Area summed



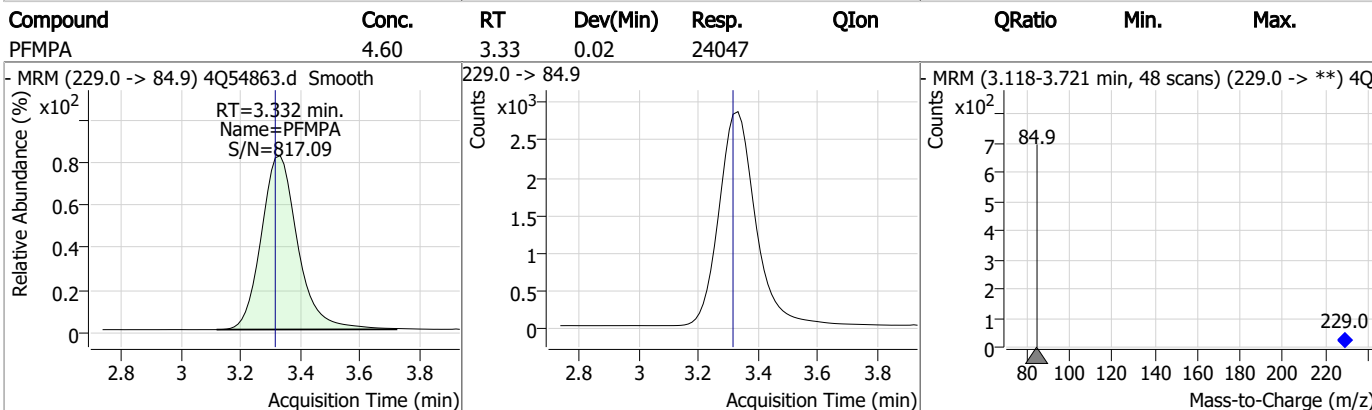
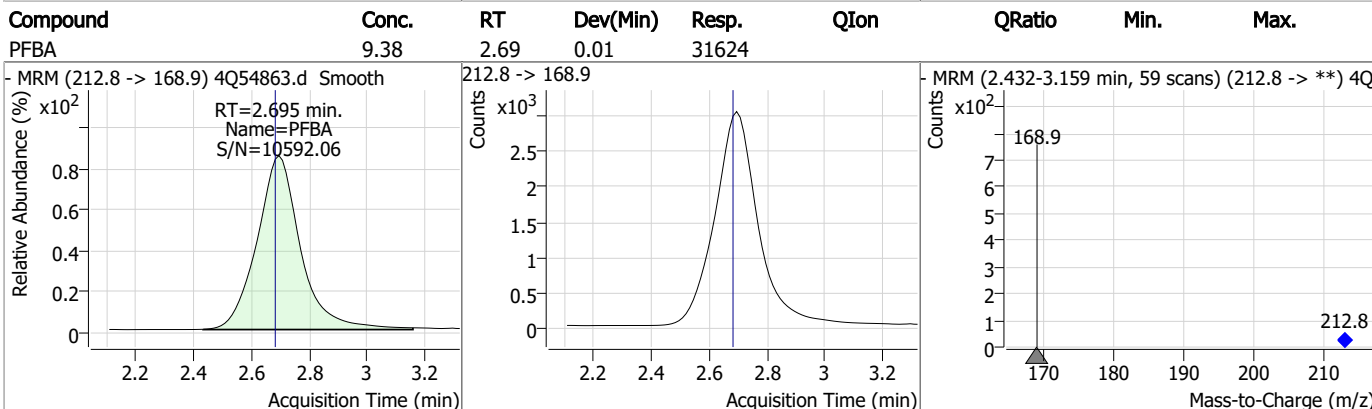
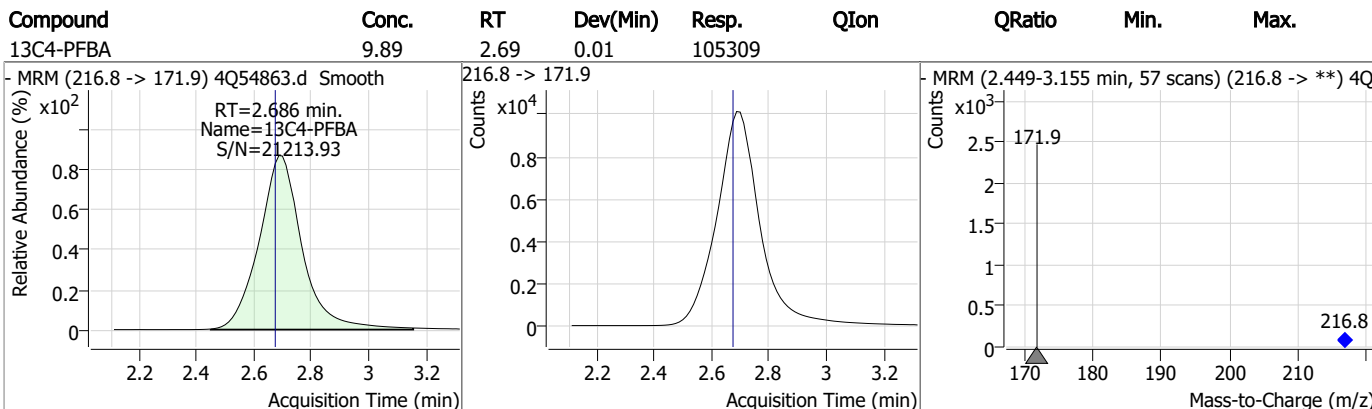
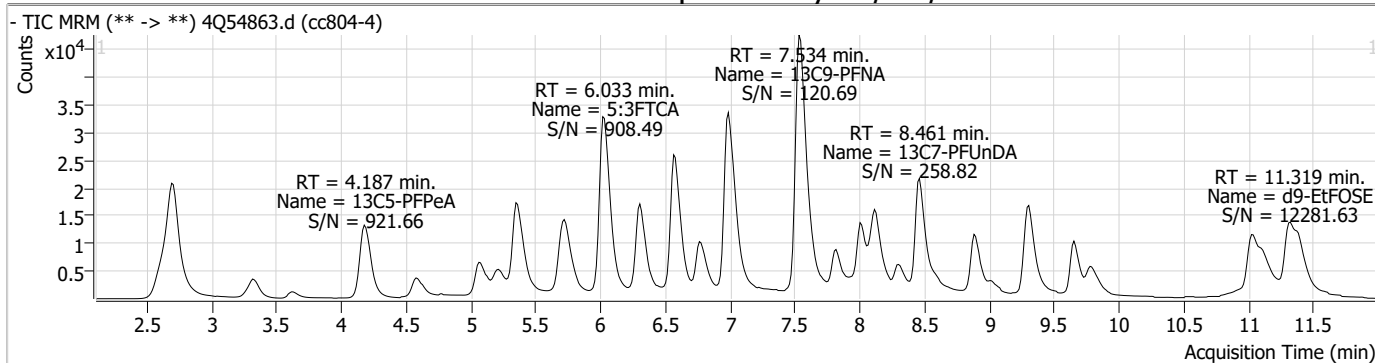
### Perfluorinated Compounds by LC/MS/MS

| Compound | RT | Transition | Response | Conc. Units | Dev(Min) |
|----------|----|------------|----------|-------------|----------|
|----------|----|------------|----------|-------------|----------|

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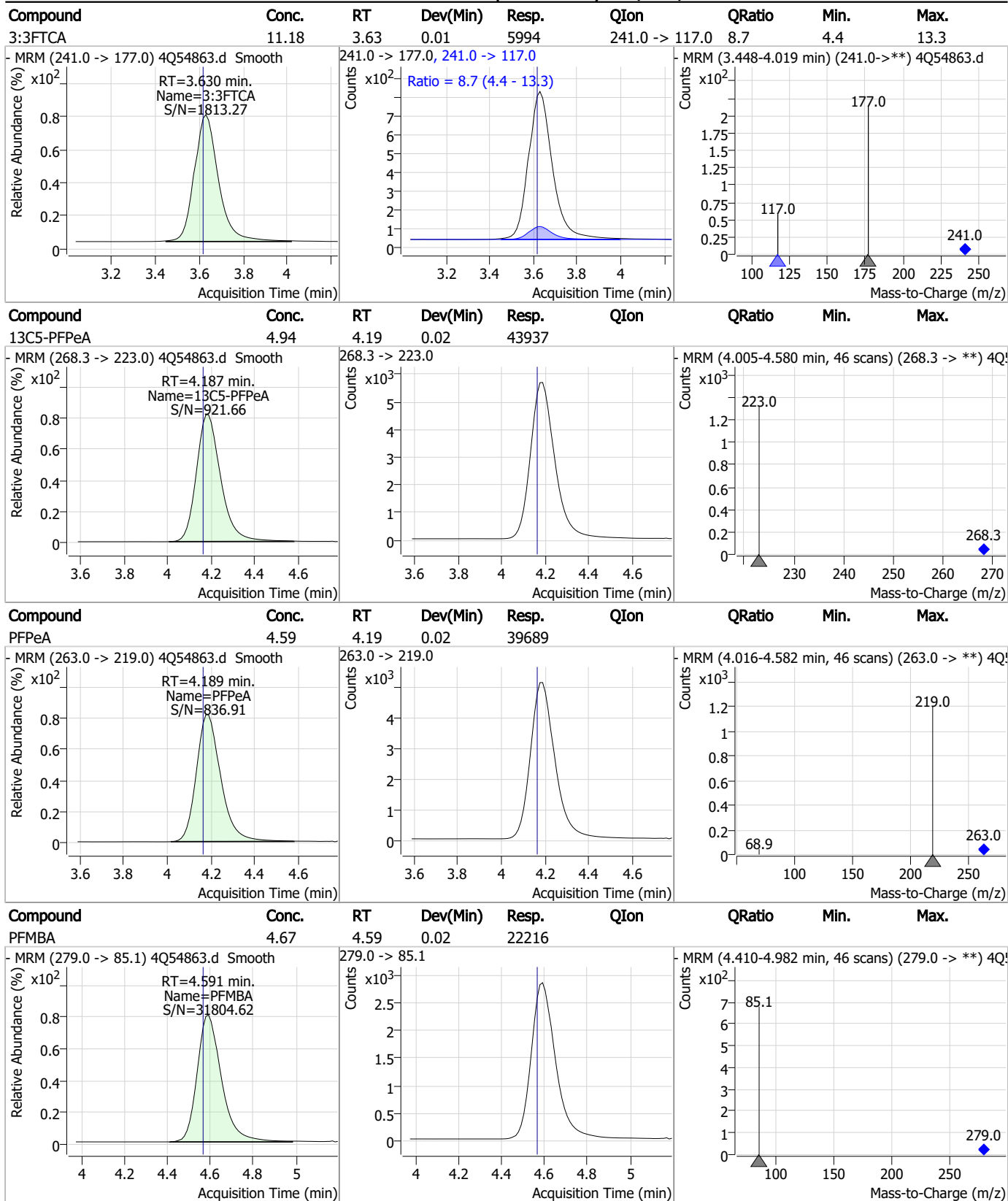
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### Perfluorinated Compounds by LC/MS/MS



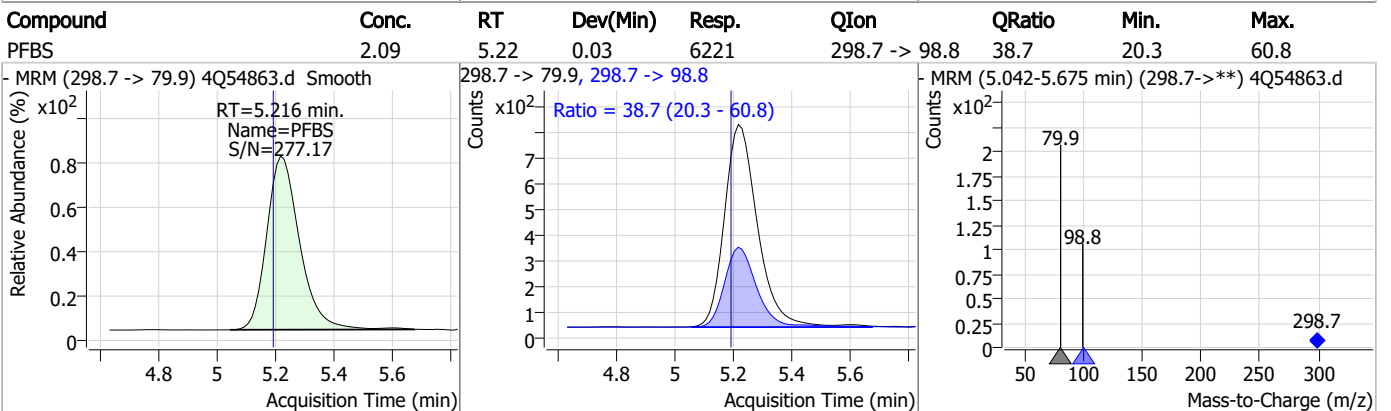
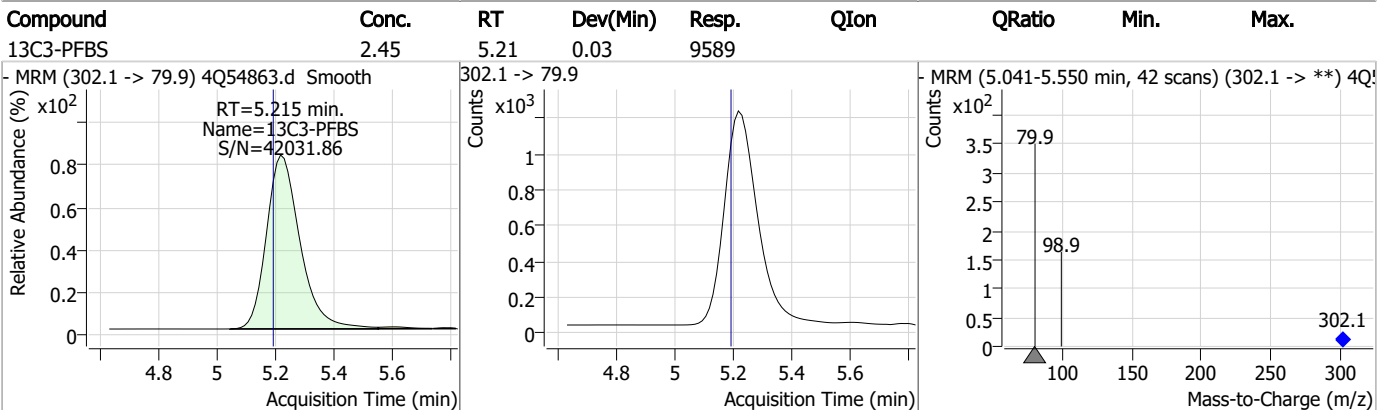
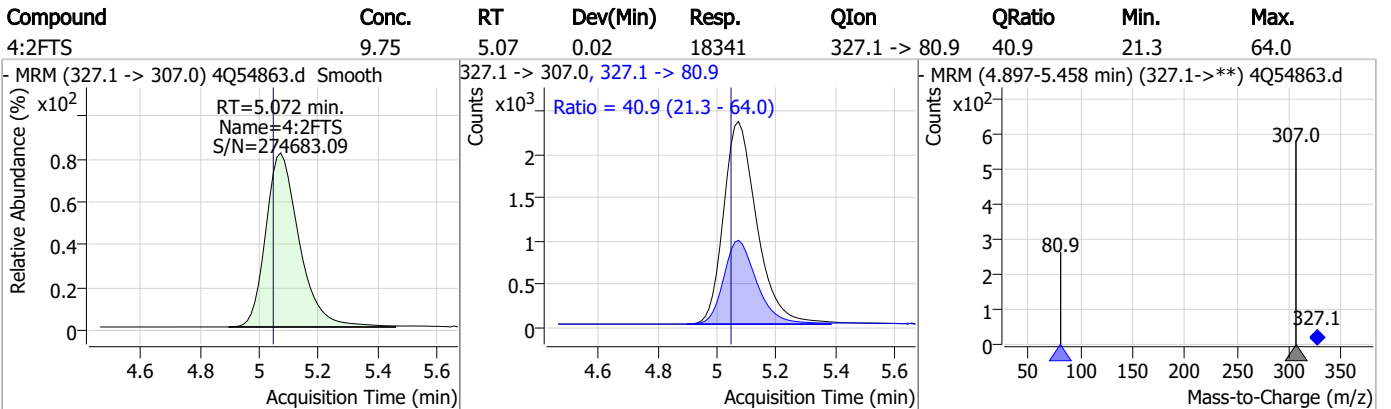
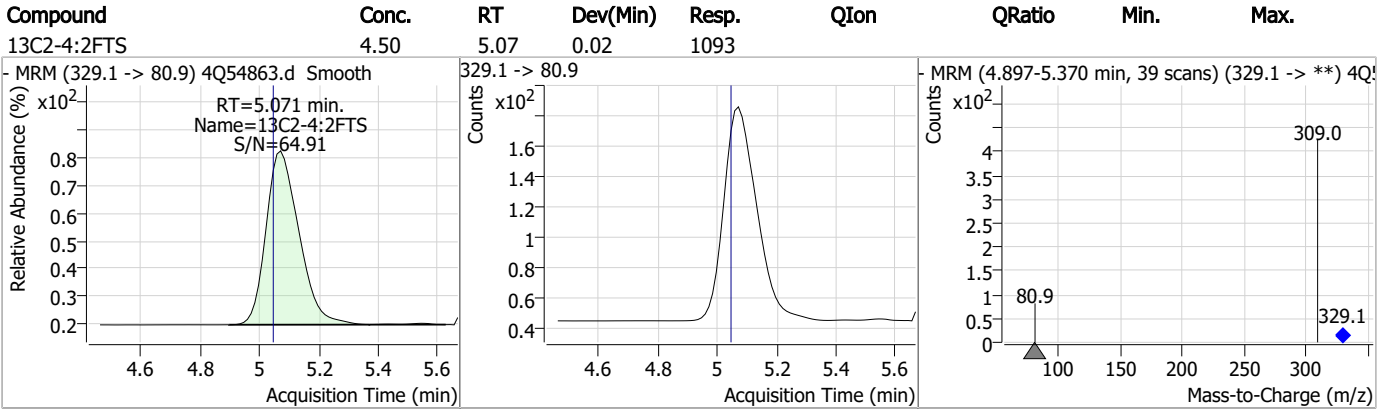
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### Perfluorinated Compounds by LC/MS/MS



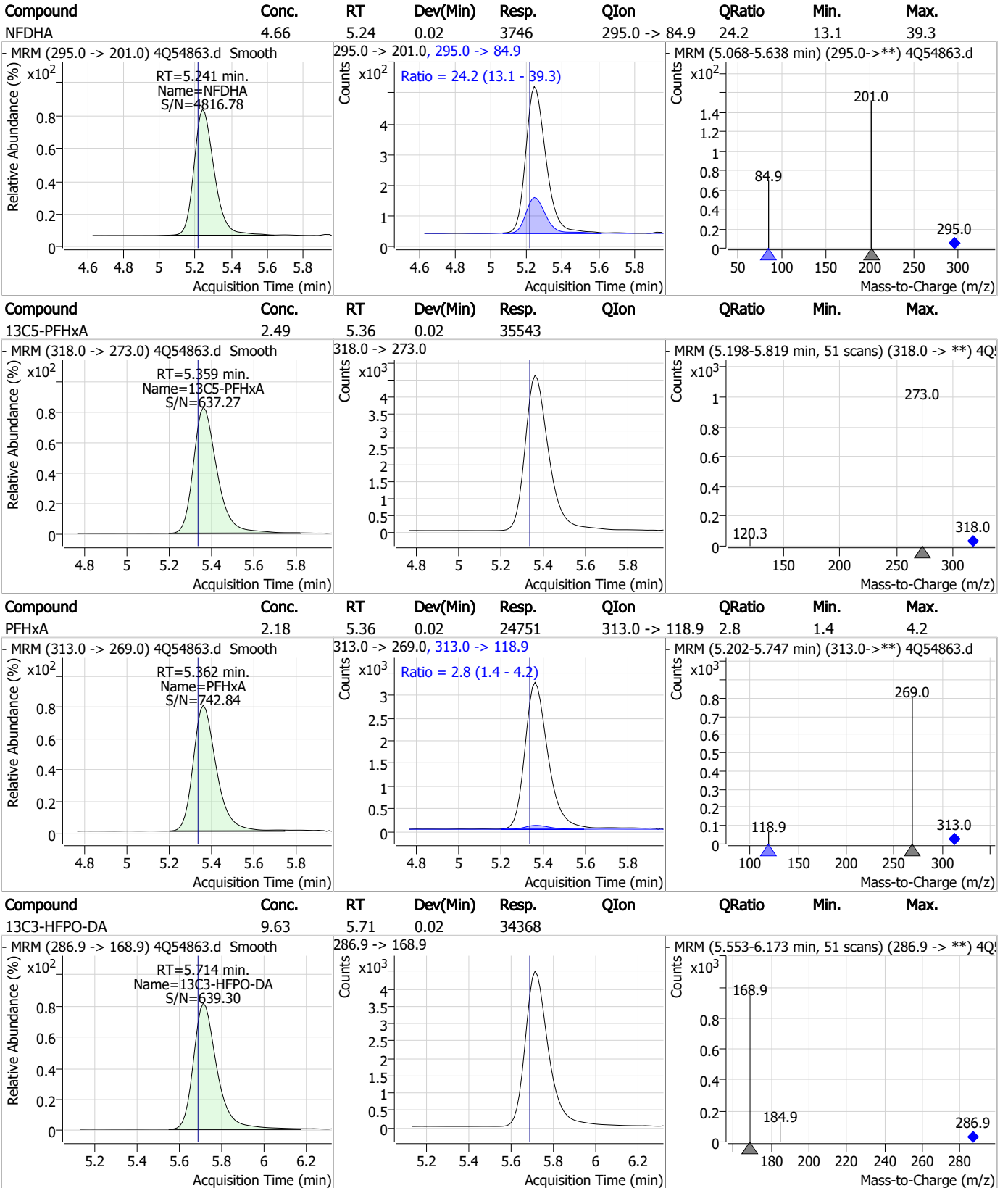
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### Perfluorinated Compounds by LC/MS/MS





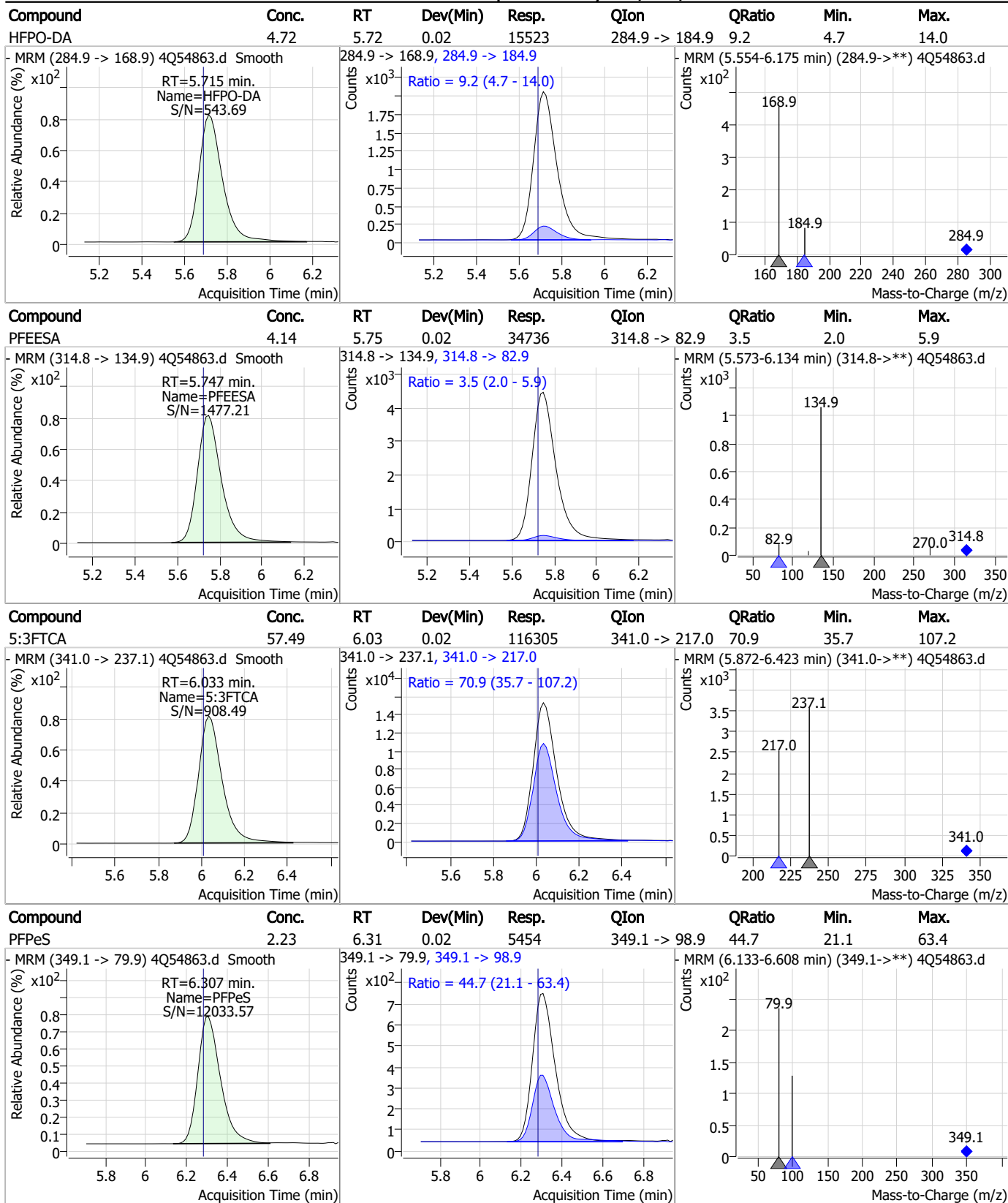
### Perfluorinated Compounds by LC/MS/MS



7.7.12 7

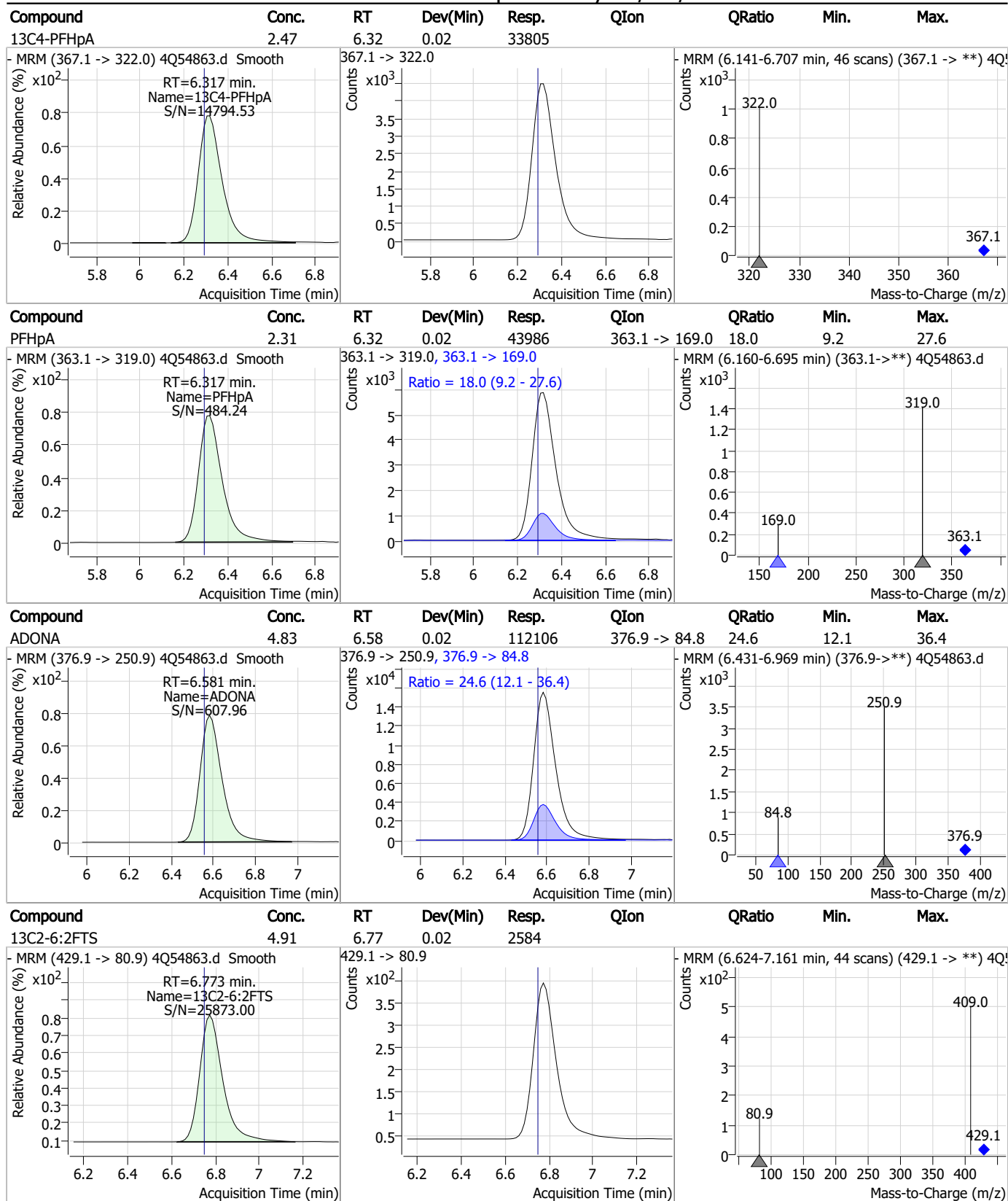


### Perfluorinated Compounds by LC/MS/MS



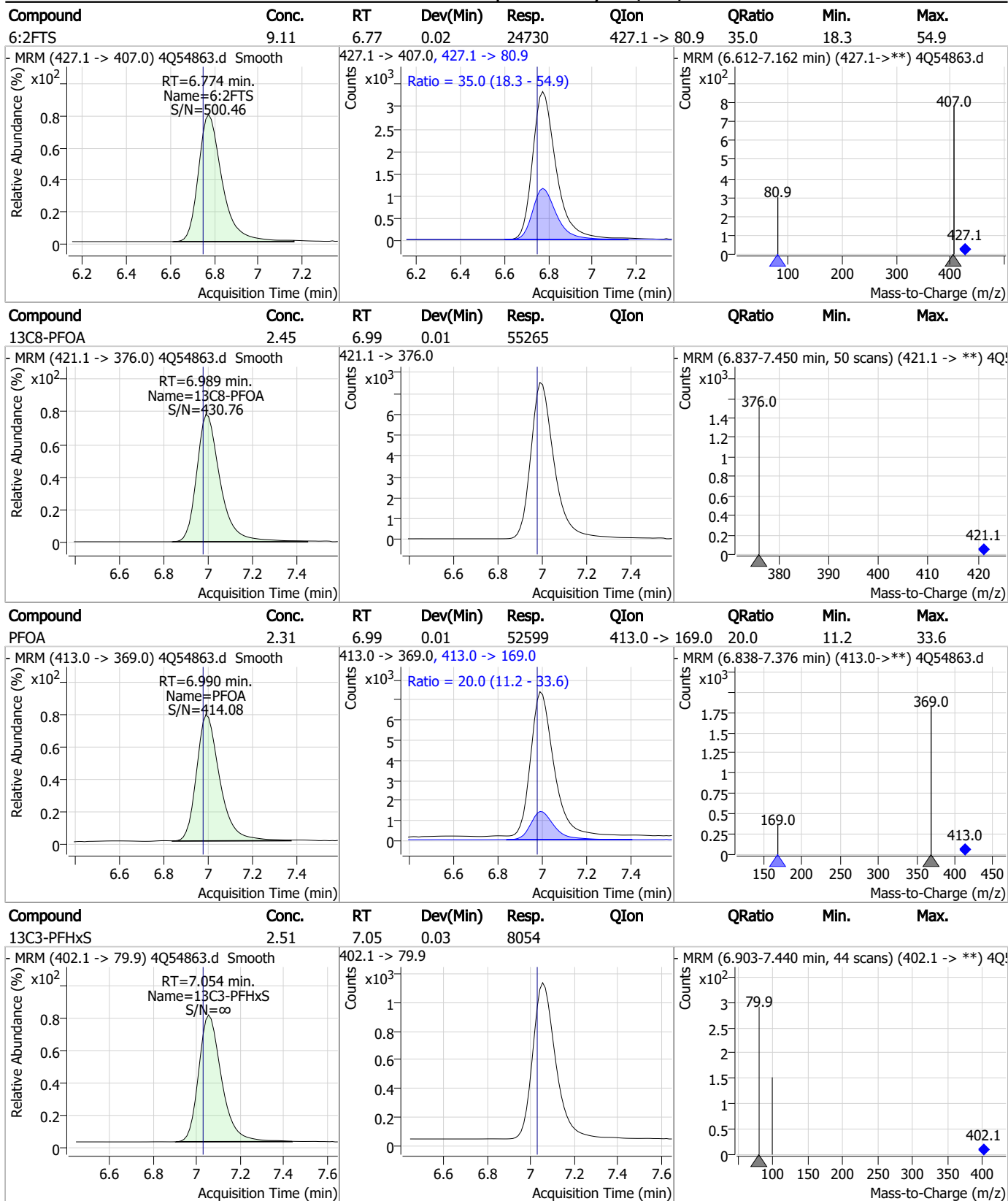
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### Perfluorinated Compounds by LC/MS/MS



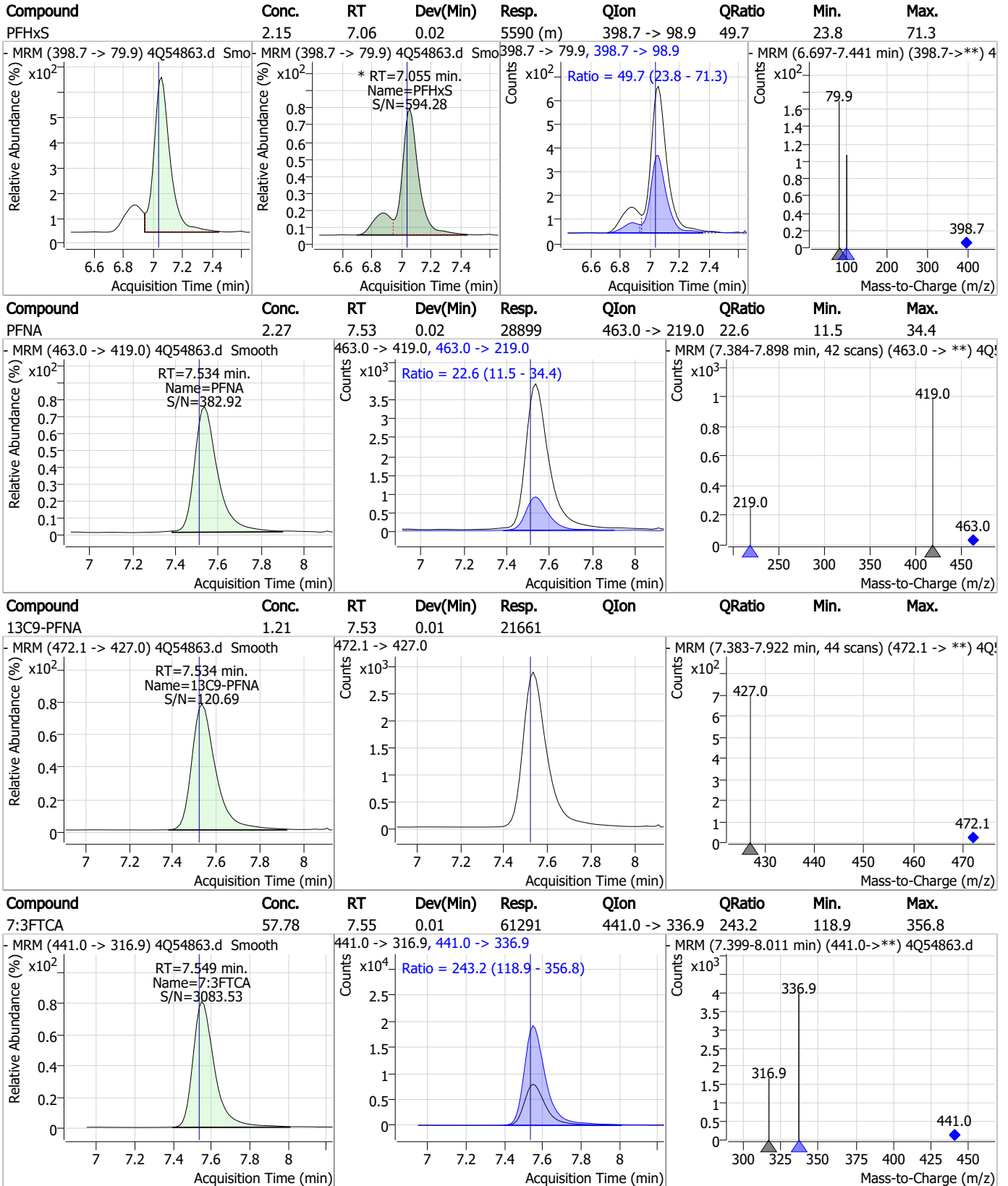
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### Perfluorinated Compounds by LC/MS/MS



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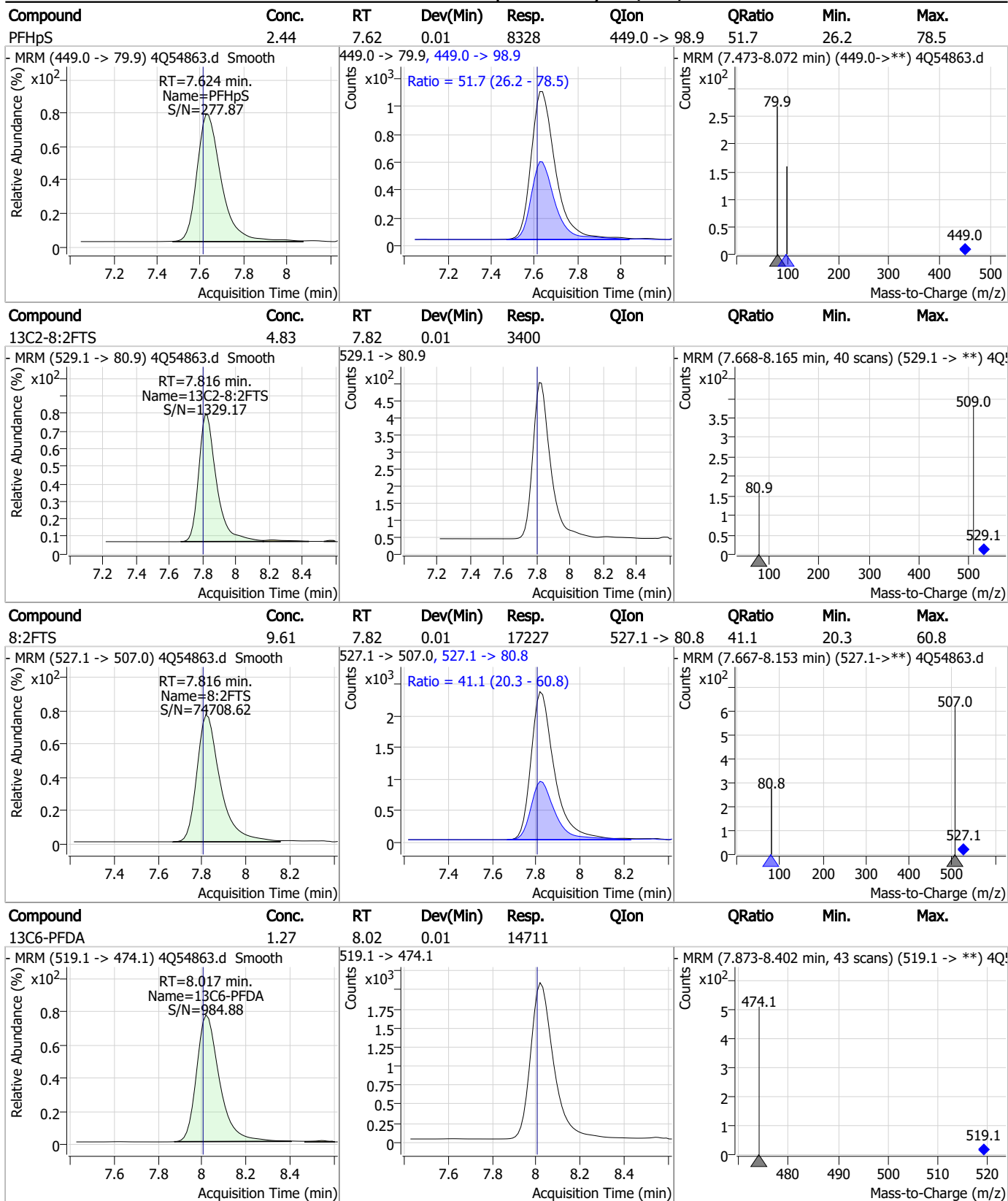
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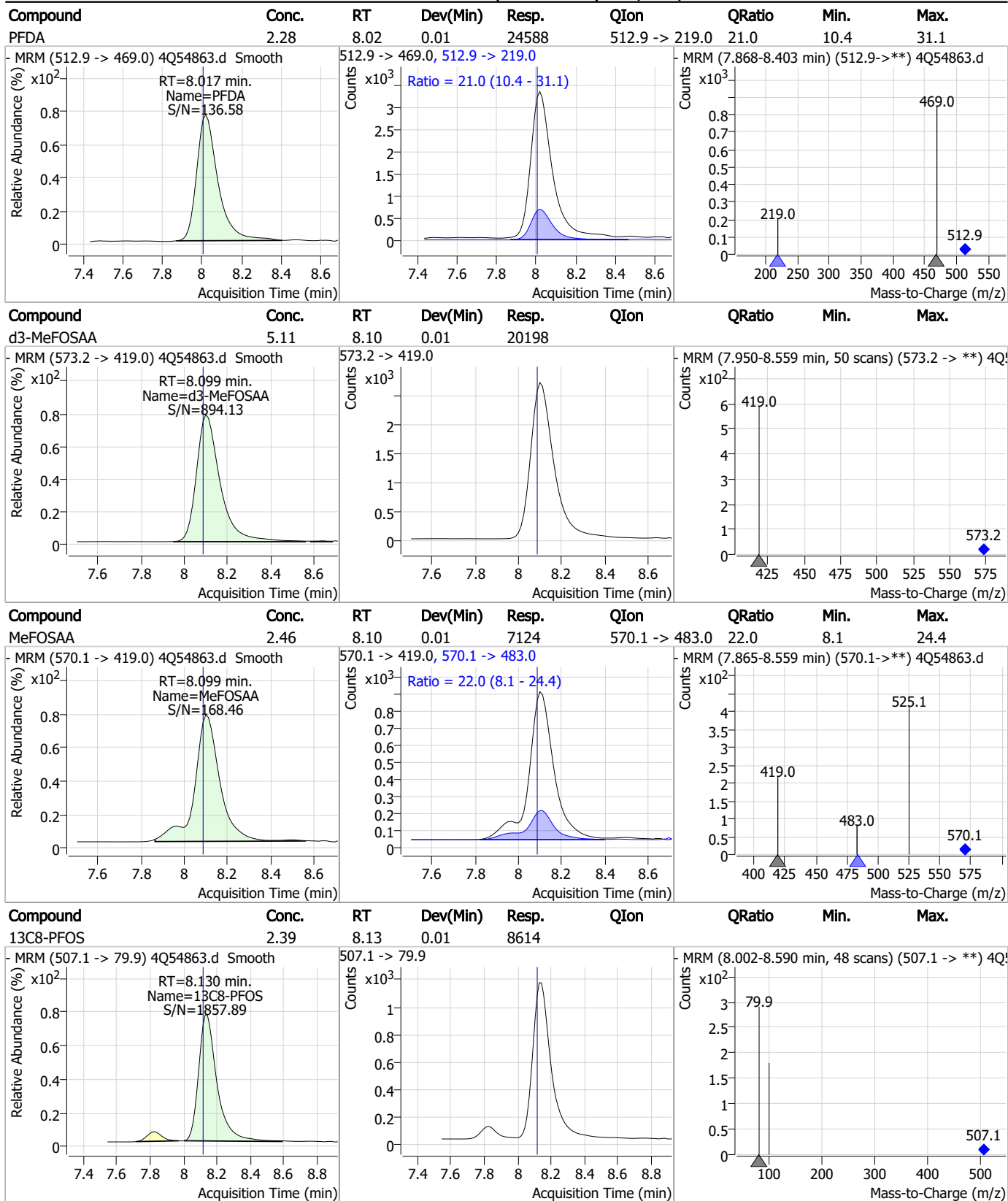
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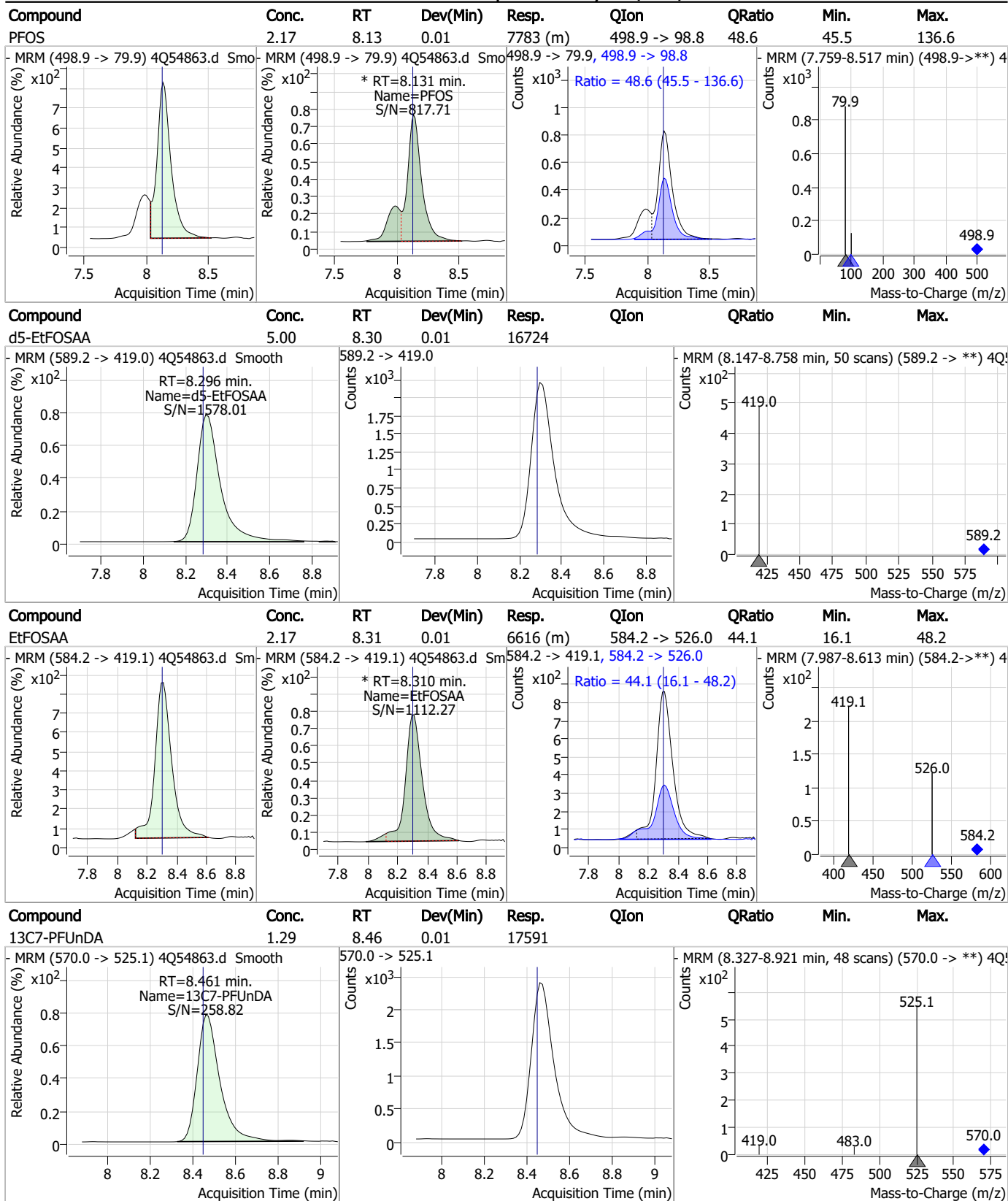
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7.7.12  
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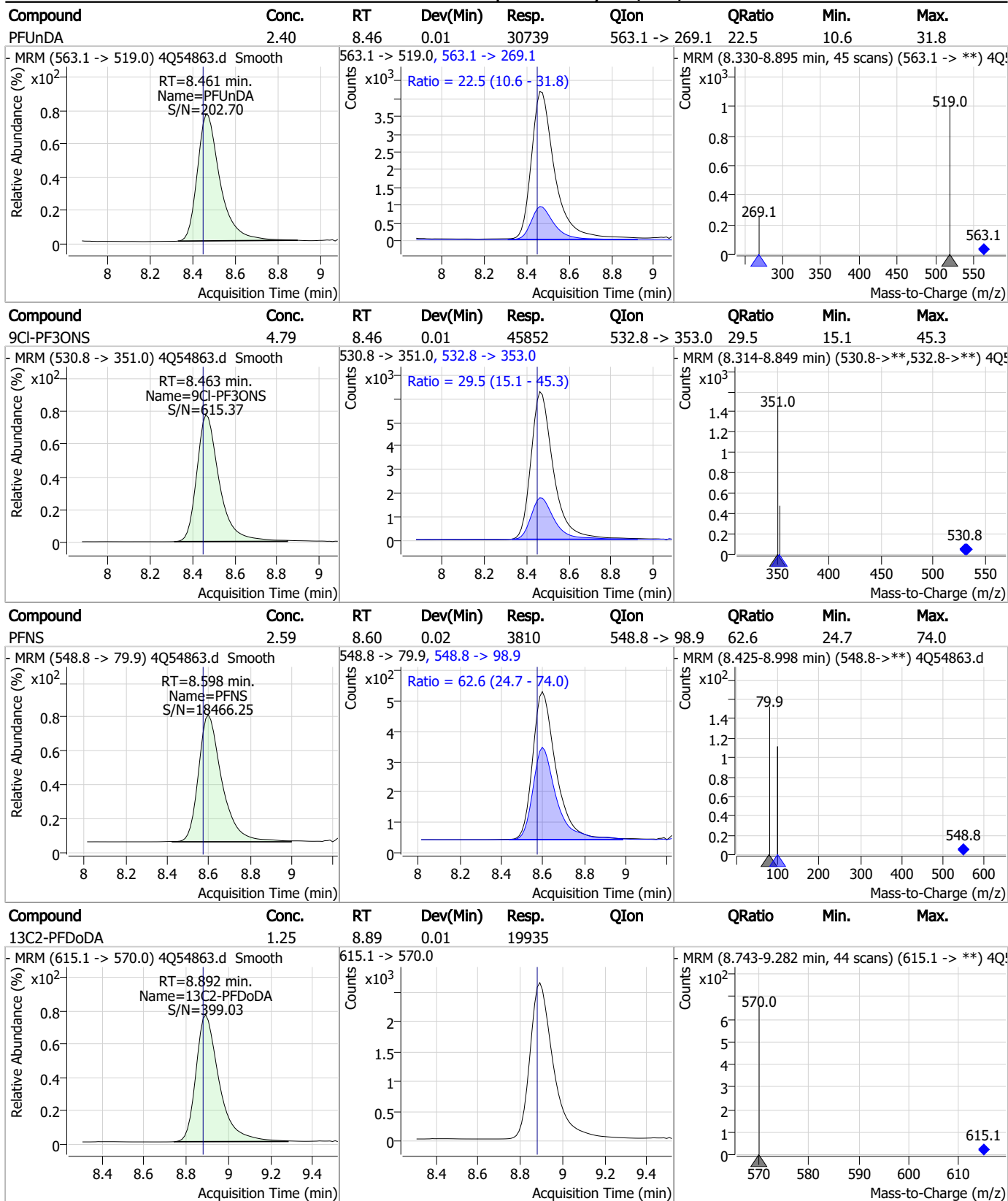
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7.7.12  
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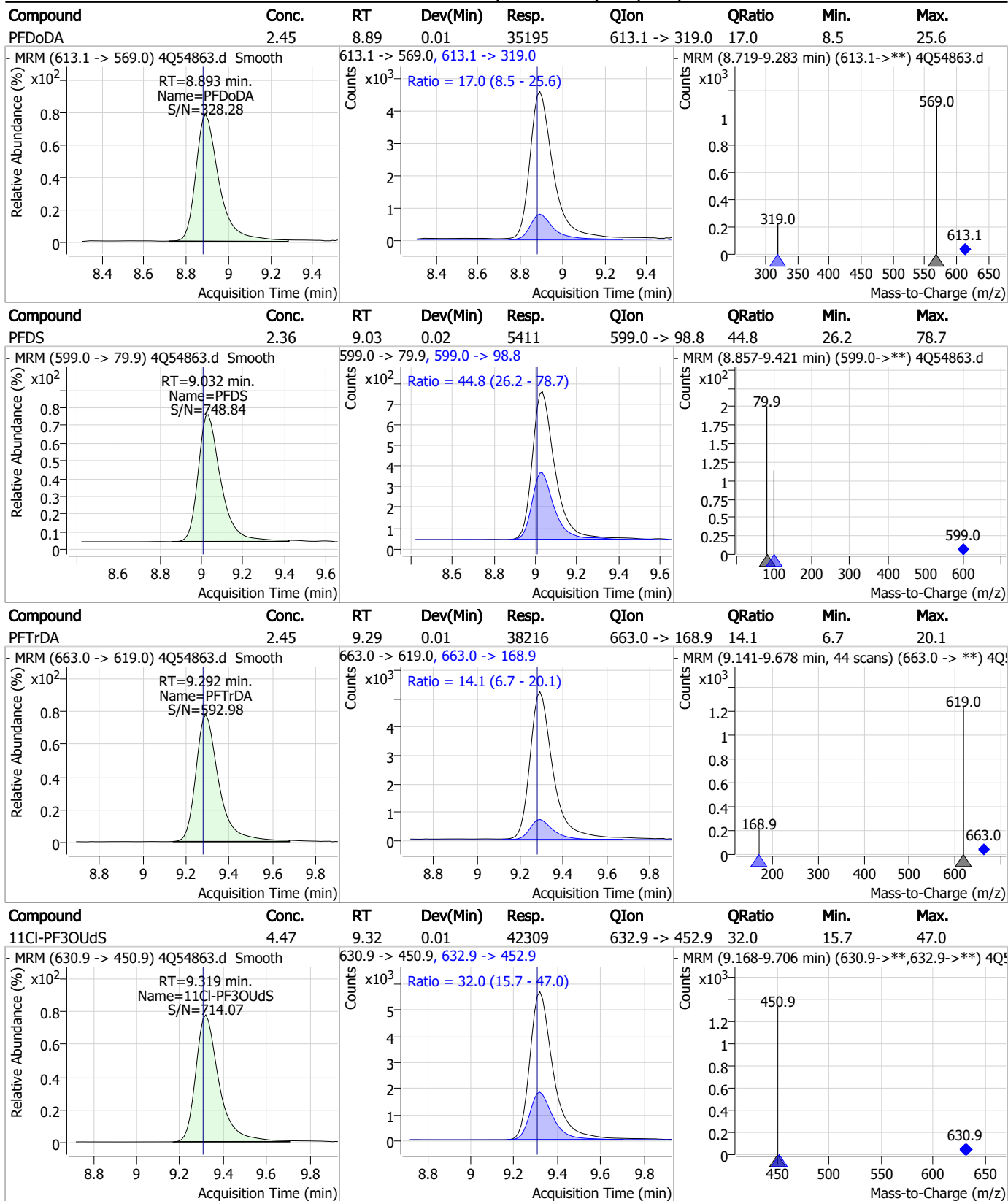


### Perfluorinated Compounds by LC/MS/MS



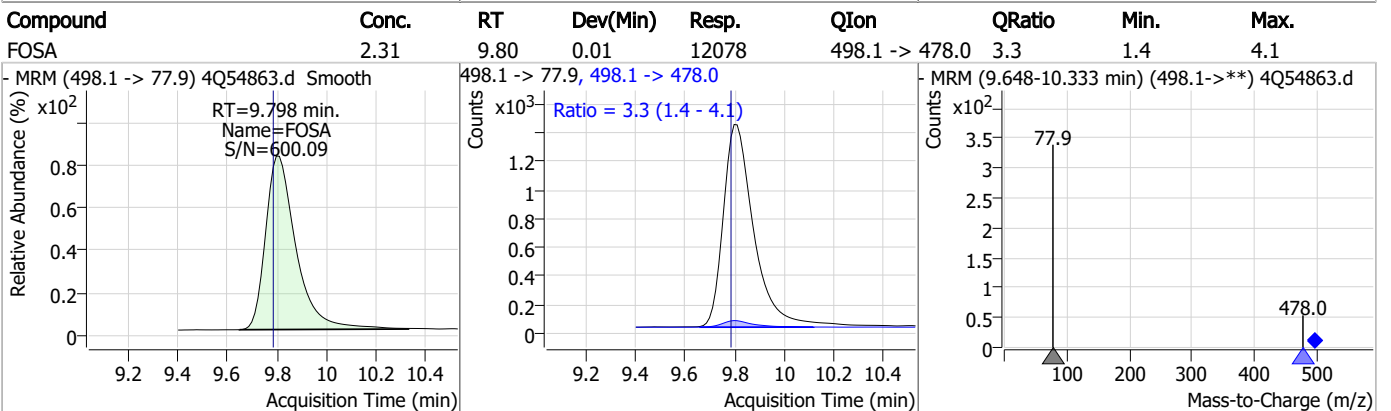
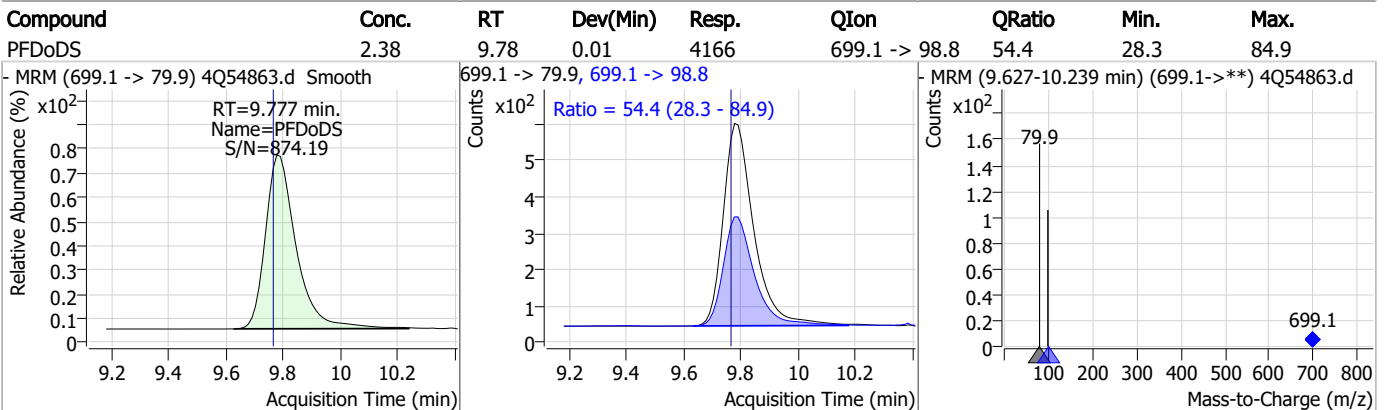
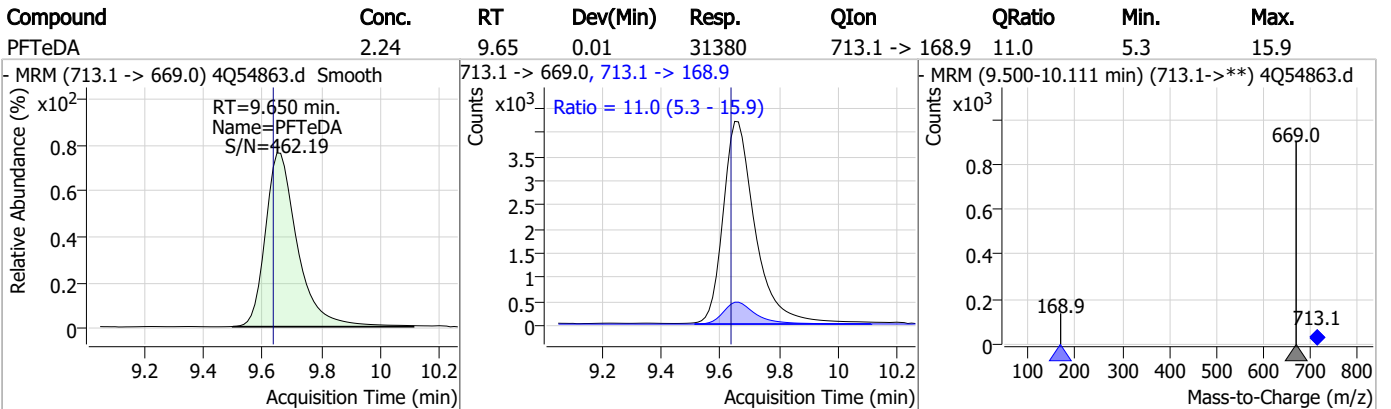
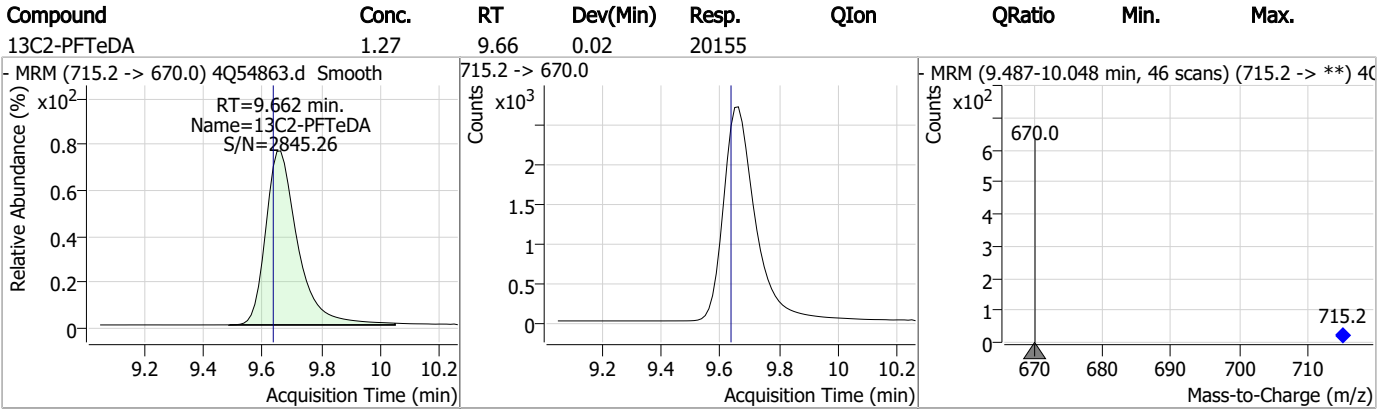
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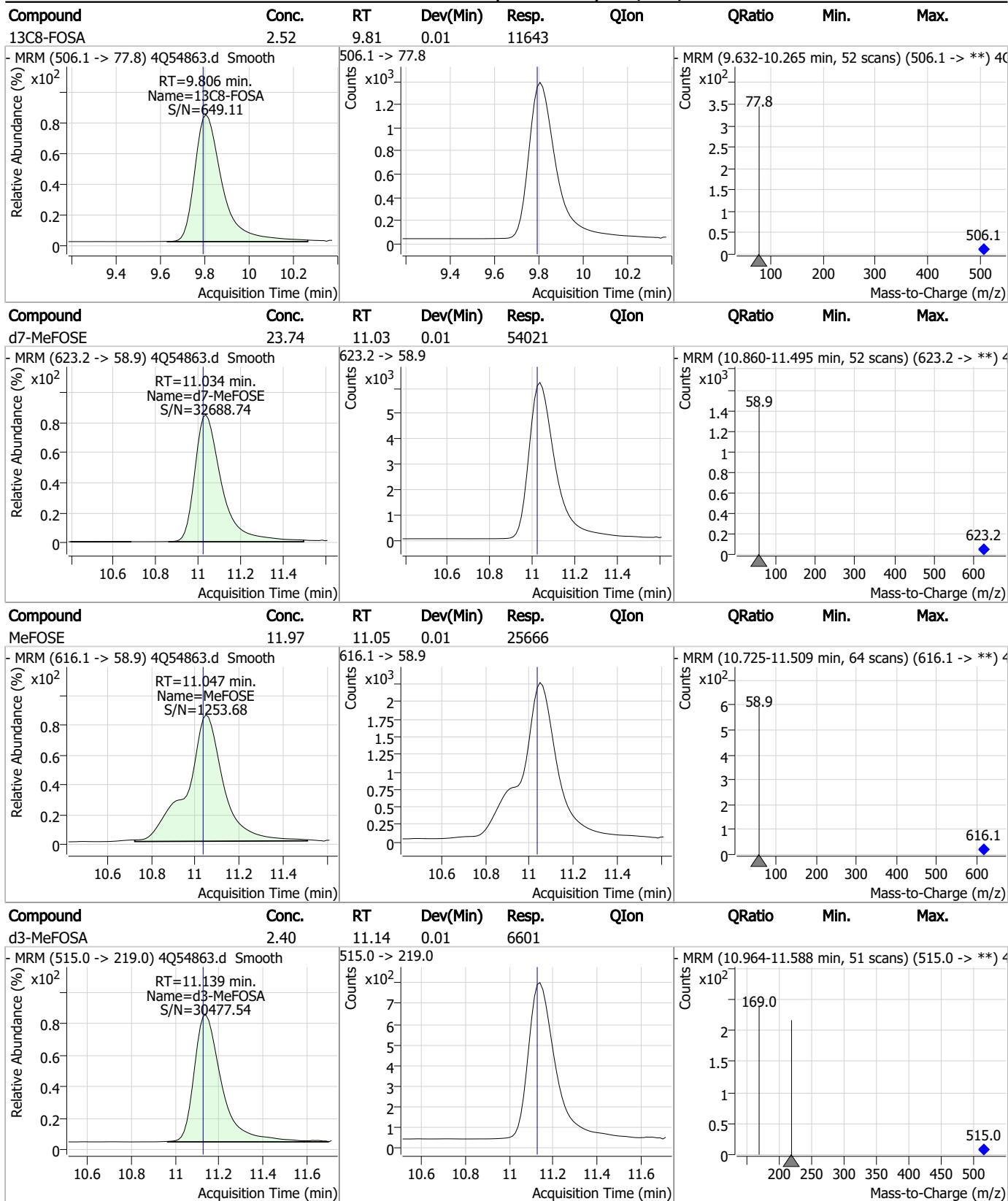


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### Perfluorinated Compounds by LC/MS/MS



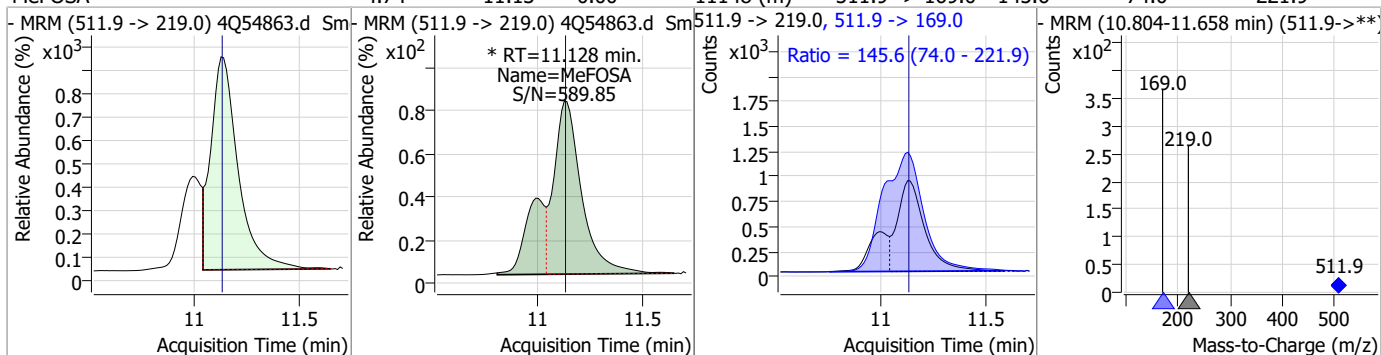
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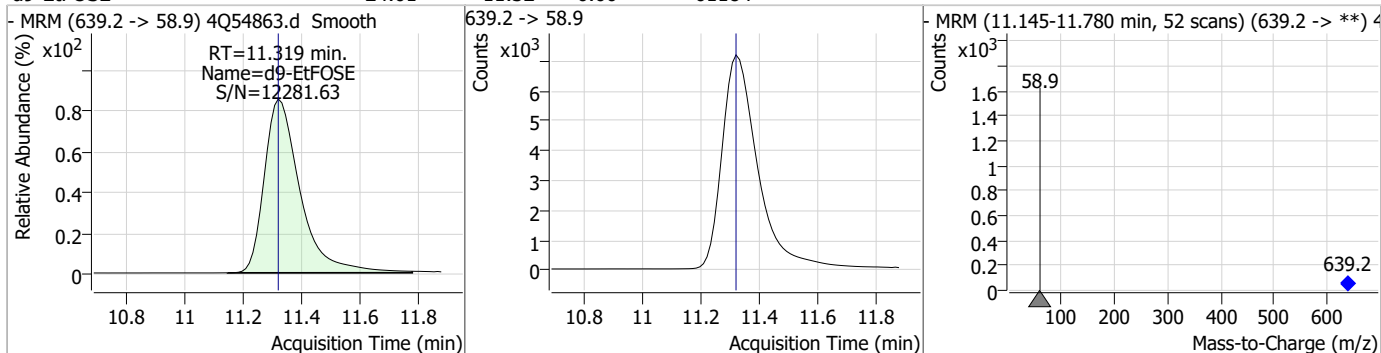
7.7.12  
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### Perfluorinated Compounds by LC/MS/MS

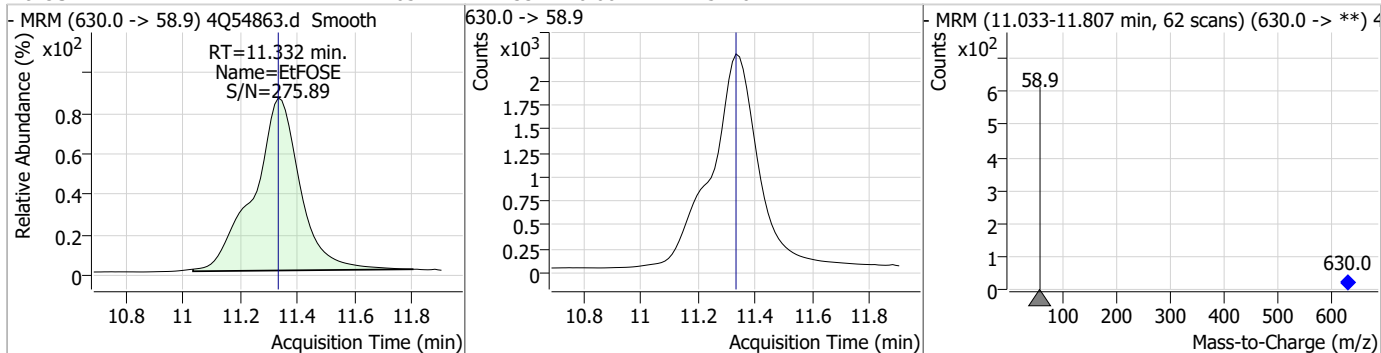
| Compound | Conc. | RT    | Dev(Min) | Resp.     | QIon           | QRatio | Min. | Max.  |
|----------|-------|-------|----------|-----------|----------------|--------|------|-------|
| MeFOSA   | 4.74  | 11.13 | 0.00     | 11148 (m) | 511.9 -> 169.0 | 145.6  | 74.0 | 221.9 |



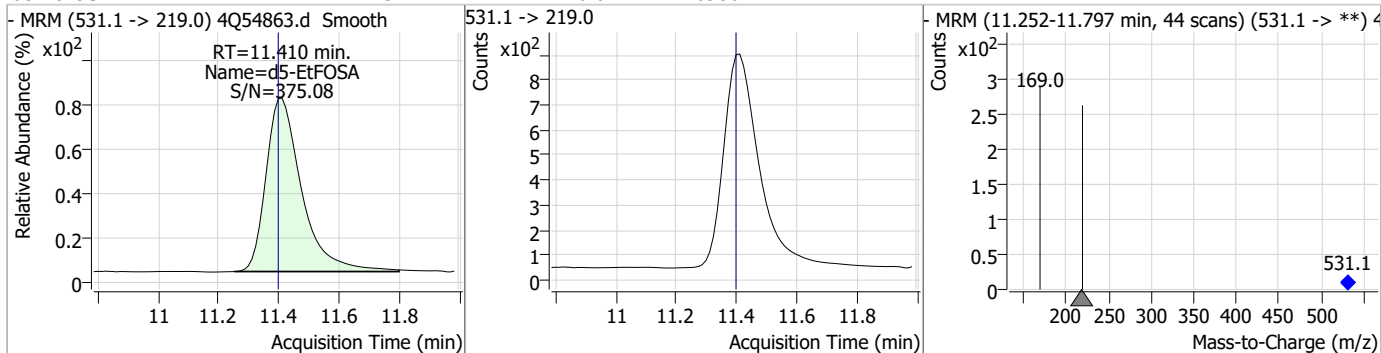
| Compound  | Conc. | RT    | Dev(Min) | Resp. | QIon | QRatio | Min. | Max. |
|-----------|-------|-------|----------|-------|------|--------|------|------|
| d9-EtFOSE | 24.01 | 11.32 | 0.00     | 61184 |      |        |      |      |



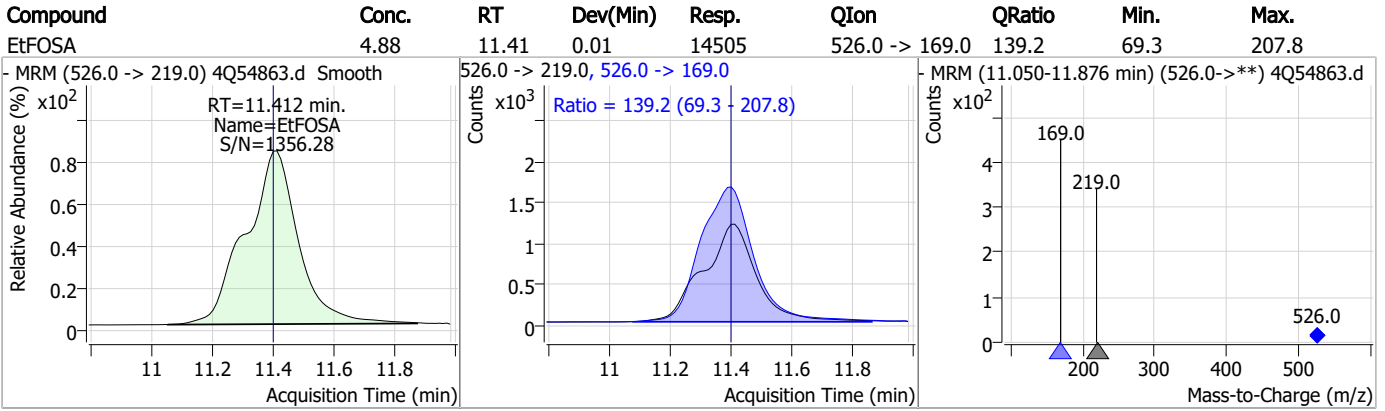
| Compound | Conc. | RT    | Dev(Min) | Resp. | QIon | QRatio | Min. | Max. |
|----------|-------|-------|----------|-------|------|--------|------|------|
| EtFOSE   | 11.65 | 11.33 | 0.00     | 25226 |      |        |      |      |



| Compound  | Conc. | RT    | Dev(Min) | Resp. | QIon | QRatio | Min. | Max. |
|-----------|-------|-------|----------|-------|------|--------|------|------|
| d5-EtFOSA | 2.32  | 11.41 | 0.01     | 6988  |      |        |      |      |



### Perfluorinated Compounds by LC/MS/MS



7.7.12

7

# Manual Integration Approval Summary

Sample Number: S4Q804-CC804      Method: EPA DRAFT 1633  
Lab FileID: 4Q54863.D      Analyst approved: 12/10/23 12:52 Anna Ludwig  
Injection Time: 12/08/23 14:20      Supervisor approved: 12/11/23 15:42 Natasha Gumtie

| Parameter                    | CAS        | Sig# | R.T.<br>(min.) | Reason     |
|------------------------------|------------|------|----------------|------------|
| Perfluorohexanesulfonic acid | 355-46-4   |      | 7.05           | Split peak |
| Perfluorooctanesulfonic acid | 1763-23-1  |      | 8.13           | Split peak |
| EtFOSAA                      | 2991-50-6  |      | 8.31           | Split peak |
| MeFOSA                       | 31506-32-8 |      | 11.13          | Split peak |

7.7.12.1  
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### Perfluorinated Compounds by LC/MS/MS

Data File : 4Q54864.d  
 Operator : annal  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 12/8/2023 2:40:36 PM  
 Sample Name : cc804-1.0LL  
 Vial : P1-A2  
 DA Method File : 1633\_120823\_S4Q804.quantmethod.xml  
 Batch Name : s4q804.batch.bin  
 Sample Information : OP99999,S4Q804,500,,,5.0,1,water

| Compound                           | RT                   | Transition     | Response         | Conc. Units | Dev(Min) |
|------------------------------------|----------------------|----------------|------------------|-------------|----------|
| <b>Internal Standards</b>          |                      |                |                  |             |          |
| M4-PFBA                            | 2.752                | 216.8 -> 171.9 | 101633           | 10.00 µg/L  | 0.078    |
| M5-PFPeA                           | 4.212                | 268.3 -> 223.0 | 41357            | 5.00 µg/L   | 0.050    |
| M5-PFHxA                           | 5.384                | 318.0 -> 273.0 | 31970            | 2.50 µg/L   | 0.050    |
| M4-PFHpA                           | 6.330                | 367.1 -> 322.0 | 30567            | 2.50 µg/L   | 0.038    |
| M8-PFOA                            | 7.001                | 421.1 -> 376.0 | 50654            | 2.50 µg/L   | 0.025    |
| M9-PFNA                            | 7.547                | 472.1 -> 427.0 | 19026            | 1.25 µg/L   | 0.026    |
| M6-PFDA                            | 8.029                | 519.1 -> 474.1 | 13264            | 1.25 µg/L   | 0.025    |
| M7-PFUnDA                          | 8.473                | 570.0 -> 525.1 | 17662            | 1.25 µg/L   | 0.025    |
| M2-PFDoDA                          | 8.905                | 615.1 -> 570.0 | 18365            | 1.25 µg/L   | 0.025    |
| M2-PFTeDA                          | 9.662                | 715.2 -> 670.0 | 18625            | 1.25 µg/L   | 0.025    |
| M8-FOSA                            | 9.818                | 506.1 -> 77.8  | 11521            | 2.50 µg/L   | 0.025    |
| M3-PFBS                            | 5.240                | 302.1 -> 79.9  | 9105             | 2.50 µg/L   | 0.050    |
| M3-PFHxS                           | 7.067                | 402.1 -> 79.9  | 7306             | 2.50 µg/L   | 0.037    |
| M8-PFOS                            | 8.143                | 507.1 -> 79.9  | 8502             | 2.50 µg/L   | 0.026    |
| M2-4:2FTS                          | 5.083                | 329.1 -> 80.9  | 961              | 5.00 µg/L   | 0.037    |
| M2-6:2FTS                          | 6.786                | 429.1 -> 80.9  | 2413             | 5.00 µg/L   | 0.037    |
| M2-8:2FTS                          | 7.828                | 529.1 -> 80.9  | 2954             | 5.00 µg/L   | 0.025    |
| M3-MeFOSAA                         | 8.111                | 573.2 -> 419.0 | 17896            | 5.00 µg/L   | 0.025    |
| M3-HFPO-DA                         | 5.727                | 286.9 -> 168.9 | 31728            | 10.00 µg/L  | 0.037    |
| M5-EtFOSAA                         | 8.322                | 589.2 -> 419.0 | 15076            | 5.00 µg/L   | 0.038    |
| M7-MeFOSE                          | 11.034               | 623.2 -> 58.9  | 52926            | 25.00 µg/L  | 0.012    |
| M9-EtFOSE                          | 11.319               | 639.2 -> 58.9  | 58474            | 25.00 µg/L  | 0.000    |
| M5-EtFOSA                          | 11.410               | 531.1 -> 219.0 | 6646             | 2.50 µg/L   | 0.012    |
| M3-MeFOSA                          | 11.139               | 515.0 -> 219.0 | 6166             | 2.50 µg/L   | 0.012    |
| 13C4-PFOS                          | 8.144                | 502.8 -> 79.9  | 6266             | 2.50 µg/L   | 0.026    |
| 13C3-PFBA                          | 2.755                | 216.0 -> 172.0 | 47457            | 5.00 µg/L   | 0.077    |
| 18O2-PFHxS                         | 7.066                | 403.0 -> 83.9  | 4869             | 2.50 µg/L   | 0.025    |
| 13C4-PFOA                          | 7.002                | 417.1 -> 372.0 | 55470            | 2.50 µg/L   | 0.025    |
| 13C2-PFDA                          | 8.029                | 515.1 -> 470.1 | 15205            | 1.25 µg/L   | 0.025    |
| 13C5-PFNA                          | 7.547                | 468.0 -> 423.0 | 20096            | 1.25 µg/L   | 0.038    |
| 13C2-PFHxA                         | 5.385                | 315.1 -> 270.0 | 35357            | 2.50 µg/L   | 0.050    |
| <b>System Monitoring Compounds</b> |                      |                |                  |             |          |
| 13C2-4:2FTS                        | 5.083                | 329.1 -> 80.9  | 961              | 4.16 µg/L   | 0.037    |
| Spiked Amount: 5.00                | Range: 50.0 - 150.0% |                | Recovery = 83.1% |             |          |
| 13C2-6:2FTS                        | 6.786                | 429.1 -> 80.9  | 2413             | 4.81 µg/L   | 0.037    |
| Spiked Amount: 5.00                | Range: 50.0 - 150.0% |                | Recovery = 96.2% |             |          |
| 13C2-8:2FTS                        | 7.828                | 529.1 -> 80.9  | 2954             | 4.40 µg/L   | 0.025    |
| Spiked Amount: 5.00                | Range: 50.0 - 150.0% |                | Recovery = 88.0% |             |          |
| 13C2-PFDoDA                        | 8.905                | 615.1 -> 570.0 | 18365            | 1.21 µg/L   | 0.025    |
| Spiked Amount: 1.25                | Range: 50.0 - 150.0% |                | Recovery = 96.7% |             |          |
| 13C2-PFTeDA                        | 9.662                | 715.2 -> 670.0 | 18625            | 1.23 µg/L   | 0.025    |
| Spiked Amount: 1.25                | Range: 50.0 - 150.0% |                | Recovery = 98.7% |             |          |
| 13C3-PFBS                          | 5.240                | 302.1 -> 79.9  | 9105             | 2.44 µg/L   | 0.050    |
| Spiked Amount: 2.50                | Range: 50.0 - 150.0% |                | Recovery = 97.6% |             |          |
| 13C3-PFHxS                         | 7.067                | 402.1 -> 79.9  | 7306             | 2.39 µg/L   | 0.037    |

7.7.13  
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### Perfluorinated Compounds by LC/MS/MS

| Compound                | RT                   | Transition     | Response | Conc. Units       | Dev(Min)      |
|-------------------------|----------------------|----------------|----------|-------------------|---------------|
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 95.7%  |               |
| 13C4-PFBA               | 2.752                | 216.8 -> 171.9 | 101633   | 10.20 µg/L        | 0.078         |
| Spiked Amount: 10.00    | Range: 50.0 - 150.0% |                |          | Recovery = 102.0% |               |
| 13C4-PFHpA              | 6.330                | 367.1 -> 322.0 | 30567    | 2.45 µg/L         | 0.038         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 98.1%  |               |
| 13C5-PFHxA              | 5.384                | 318.0 -> 273.0 | 31970    | 2.45 µg/L         | 0.050         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 98.2%  |               |
| 13C5-PFPeA              | 4.212                | 268.3 -> 223.0 | 41357    | 5.10 µg/L         | 0.050         |
| Spiked Amount: 5.00     | Range: 50.0 - 150.0% |                |          | Recovery = 101.9% |               |
| 13C6-PFDA               | 8.029                | 519.1 -> 474.1 | 13264    | 1.20 µg/L         | 0.025         |
| Spiked Amount: 1.25     | Range: 50.0 - 150.0% |                |          | Recovery = 95.9%  |               |
| 13C7-PFUnDA             | 8.473                | 570.0 -> 525.1 | 17662    | 1.35 µg/L         | 0.025         |
| Spiked Amount: 1.25     | Range: 50.0 - 150.0% |                |          | Recovery = 108.3% |               |
| 13C8-FOSA               | 9.818                | 506.1 -> 77.8  | 11521    | 2.84 µg/L         | 0.025         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 113.5% |               |
| 13C8-PFOA               | 7.001                | 421.1 -> 376.0 | 50654    | 2.47 µg/L         | 0.025         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 98.8%  |               |
| 13C8-PFOS               | 8.143                | 507.1 -> 79.9  | 8502     | 2.68 µg/L         | 0.026         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 107.2% |               |
| 13C9-PFNA               | 7.547                | 472.1 -> 427.0 | 19026    | 1.18 µg/L         | 0.026         |
| Spiked Amount: 1.25     | Range: 50.0 - 150.0% |                |          | Recovery = 94.5%  |               |
| d3-MeFOSAA              | 8.111                | 573.2 -> 419.0 | 17896    | 5.14 µg/L         | 0.025         |
| Spiked Amount: 5.00     | Range: 50.0 - 150.0% |                |          | Recovery = 102.9% |               |
| 13C3-HFPO-DA            | 5.727                | 286.9 -> 168.9 | 31728    | 9.75 µg/L         | 0.037         |
| Spiked Amount: 10.00    | Range: 50.0 - 150.0% |                |          | Recovery = 97.5%  |               |
| d3-MeFOSA               | 11.139               | 515.0 -> 219.0 | 6166     | 2.55 µg/L         | 0.012         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 101.8% |               |
| d5-EtFOSAA              | 8.322                | 589.2 -> 419.0 | 15076    | 5.12 µg/L         | 0.038         |
| Spiked Amount: 5.00     | Range: 50.0 - 150.0% |                |          | Recovery = 102.5% |               |
| d7-MeFOSE               | 11.034               | 623.2 -> 58.9  | 52926    | 26.42 µg/L        | 0.012         |
| Spiked Amount: 25.00    | Range: 50.0 - 150.0% |                |          | Recovery = 105.7% |               |
| d9-EtFOSE               | 11.319               | 639.2 -> 58.9  | 58474    | 26.06 µg/L        | 0.000         |
| Spiked Amount: 25.00    | Range: 50.0 - 150.0% |                |          | Recovery = 104.2% |               |
| d5-EtFOSA               | 11.410               | 531.1 -> 219.0 | 6646     | 2.50 µg/L         | 0.012         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 100.1% |               |
| <b>Target Compounds</b> |                      |                |          |                   | <b>QValue</b> |
| 4:2FTS                  | 5.084                | 327.1 -> 307.0 | 1253     | 0.76 µg/L         | 99            |
|                         |                      | 327.1 -> 80.9  | 526      |                   |               |
| 6:2FTS                  | 6.786                | 427.1 -> 407.0 | 1708     | 0.67 µg/L         | 95            |
|                         |                      | 427.1 -> 80.9  | 673      |                   |               |
| 8:2FTS                  | 7.841                | 527.1 -> 507.0 | 1197     | 0.77 µg/L         | 97            |
|                         |                      | 527.1 -> 80.8  | 465      |                   |               |
| EtFOSAA                 | 8.322                | 584.2 -> 419.1 | 414      | 0.15 µg/L         | 80            |
|                         |                      | 584.2 -> 526.0 | 179      |                   |               |
| FOSA                    | 9.823                | 498.1 -> 77.9  | 1004     | 0.19 µg/L         | 99            |
|                         |                      | 498.1 -> 478.0 | 24       |                   |               |
| MeFOSAA                 | 8.112                | 570.1 -> 419.0 | 432      | 0.17 µg/L         | # 50          |
|                         |                      | 570.1 -> 483.0 | 162      |                   |               |
| PFBA                    | 2.746                | 212.8 -> 168.9 | 2471     | 0.76 µg/L         | 100           |
| PFBS                    | 5.241                | 298.7 -> 79.9  | 492      | 0.17 µg/L         | 75            |
|                         |                      | 298.7 -> 98.8  | 125      |                   |               |
| PFDA                    | 8.030                | 512.9 -> 469.0 | 2268     | 0.23 µg/L         | 93            |
|                         |                      | 512.9 -> 219.0 | 395      |                   |               |
| PFDODA                  | 8.905                | 613.1 -> 569.0 | 2514     | 0.19 µg/L         | 94            |
|                         |                      | 613.1 -> 319.0 | 498      |                   |               |
| PFDS                    | 9.045                | 599.0 -> 79.9  | 422      | 0.19 µg/L         | 79            |

7.7.13  
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Perfluorinated Compounds by LC/MS/MS

| Compound     | RT     | Transition     | Response | Conc. | Units | Dev(Min) |
|--------------|--------|----------------|----------|-------|-------|----------|
| PFHpA        | 6.331  | 599.0 -> 98.8  | 160      | 0.20  | µg/L  | 93       |
|              |        | 363.1 -> 319.0 | 3445     |       |       |          |
| PFHpS        | 7.649  | 363.1 -> 169.0 | 528      | 0.18  | µg/L  | 91       |
|              |        | 449.0 -> 79.9  | 592      |       |       |          |
| PFHxA        | 5.375  | 449.0 -> 98.9  | 345      | 0.19  | µg/L  | 96       |
|              |        | 313.0 -> 269.0 | 1911     |       |       |          |
| PFHxS        | 7.068  | 313.0 -> 118.9 | 78       | 0.22  | µg/L  | m        |
|              |        | 398.7 -> 79.9  | 509      |       |       |          |
| PFNA         | 7.548  | 398.7 -> 98.9  | 217      | 0.19  | µg/L  | 98       |
|              |        | 463.0 -> 419.0 | 2152     |       |       |          |
| PFNS         | 8.611  | 463.0 -> 219.0 | 519      | 0.20  | µg/L  | 83       |
|              |        | 548.8 -> 79.9  | 292      |       |       |          |
| PFOA         | 7.015  | 548.8 -> 98.9  | 177      | 0.19  | µg/L  | 97       |
|              |        | 413.0 -> 369.0 | 3884     |       |       |          |
| PFOS         | 8.144  | 413.0 -> 169.0 | 926      | 0.17  | µg/L  | m        |
|              |        | 498.9 -> 79.9  | 598      |       |       |          |
| PFPeA        | 4.214  | 498.9 -> 98.8  | 284      | 0.39  | µg/L  | 100      |
|              |        | 263.0 -> 219.0 | 3208     |       |       |          |
| PFPeS        | 6.319  | 349.1 -> 79.9  | 350      | 0.16  | µg/L  | 70       |
|              |        | 349.1 -> 98.9  | 215      |       |       |          |
| PFTeDA       | 9.662  | 713.1 -> 669.0 | 2240     | 0.17  | µg/L  | 95       |
|              |        | 713.1 -> 168.9 | 278      |       |       |          |
| PFTrDA       | 9.304  | 663.0 -> 619.0 | 2779     | 0.19  | µg/L  | 95       |
|              |        | 663.0 -> 168.9 | 431      |       |       |          |
| PFUnDA       | 8.486  | 563.1 -> 519.0 | 2229     | 0.17  | µg/L  | 87       |
|              |        | 563.1 -> 269.1 | 610      |       |       |          |
| 11Cl-PF3OUdS | 9.331  | 630.9 -> 450.9 | 3136     | 0.36  | µg/L  | 98       |
|              |        | 632.9 -> 452.9 | 954      |       |       |          |
| 9Cl-PF3ONS   | 8.476  | 530.8 -> 351.0 | 3190     | 0.36  | µg/L  | 95       |
|              |        | 532.8 -> 353.0 | 878      |       |       |          |
| ADONA        | 6.593  | 376.9 -> 250.9 | 8250     | 0.39  | µg/L  | 96       |
|              |        | 376.9 -> 84.8  | 2175     |       |       |          |
| HFPO-DA      | 5.740  | 284.9 -> 168.9 | 1122     | 0.37  | µg/L  | 93       |
|              |        | 284.9 -> 184.9 | 76       |       |       |          |
| 3:3FTCA      | 3.704  | 241.0 -> 177.0 | 496      | 0.96  | µg/L  | 90       |
|              |        | 241.0 -> 117.0 | 27       |       |       |          |
| 5:3FTCA      | 6.070  | 341.0 -> 237.1 | 8480     | 4.66  | µg/L  | 100      |
|              |        | 341.0 -> 217.0 | 6035     |       |       |          |
| 7:3FTCA      | 7.574  | 441.0 -> 316.9 | 4692     | 4.92  | µg/L  | 97       |
|              |        | 441.0 -> 336.9 | 10890    |       |       |          |
| EtFOSA       | 11.412 | 526.0 -> 219.0 | 1017     | 0.36  | µg/L  | m        |
|              |        | 526.0 -> 169.0 | 1547     |       |       |          |
| EtFOSE       | 11.332 | 630.0 -> 58.9  | 2373     | 1.15  | µg/L  | 100      |
|              |        | 511.9 -> 219.0 | 822      |       |       |          |
| MeFOSA       | 11.140 | 511.9 -> 169.0 | 1398     | 0.37  | µg/L  | m        |
|              |        | 616.1 -> 58.9  | 2172     |       |       |          |
| MeFOSE       | 11.060 | 699.1 -> 79.9  | 333      | 1.03  | µg/L  | 100      |
|              |        | 699.1 -> 98.8  | 197      |       |       |          |
| PFDoDS       | 9.789  | 295.0 -> 201.0 | 263      | 0.19  | µg/L  | 97       |
|              |        | 295.0 -> 84.9  | 99       |       |       |          |
| NFDHA        | 5.266  | 279.0 -> 85.1  | 1758     | 0.39  | µg/L  | 100      |
|              |        | 229.0 -> 84.9  | 1921     |       |       |          |
| PFMBA        | 4.616  | 314.8 -> 134.9 | 2689     | 0.39  | µg/L  | 100      |
|              |        | 314.8 -> 82.9  | 77       |       |       |          |
| PFMPA        | 3.369  |                |          | 0.36  | µg/L  | 97       |
|              |        |                |          |       |       |          |
| PFEESA       | 5.759  |                |          | 0.36  | µg/L  | 97       |
|              |        |                |          |       |       |          |

# = Qualifier out of range, m = manually integrated, + = Area summed

7.7.13  
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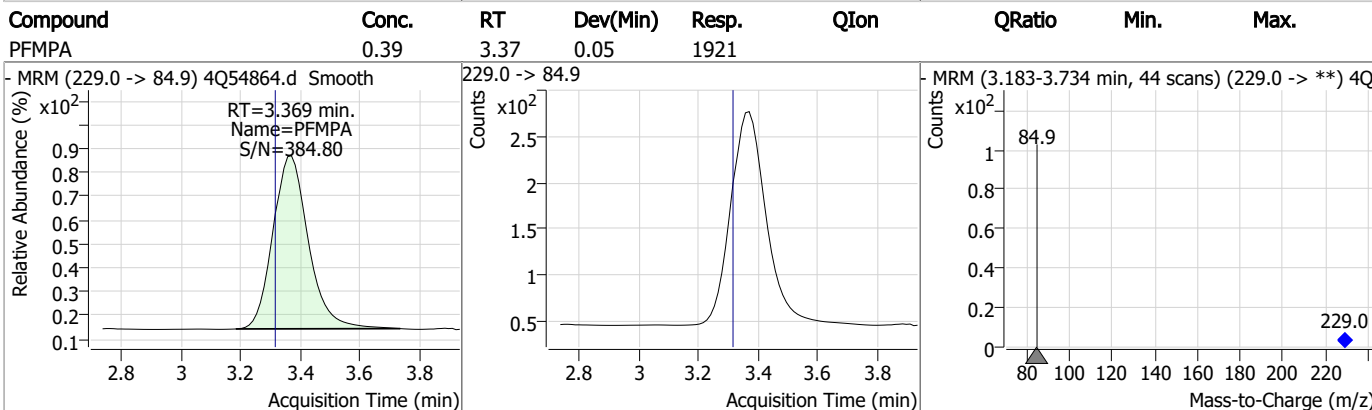
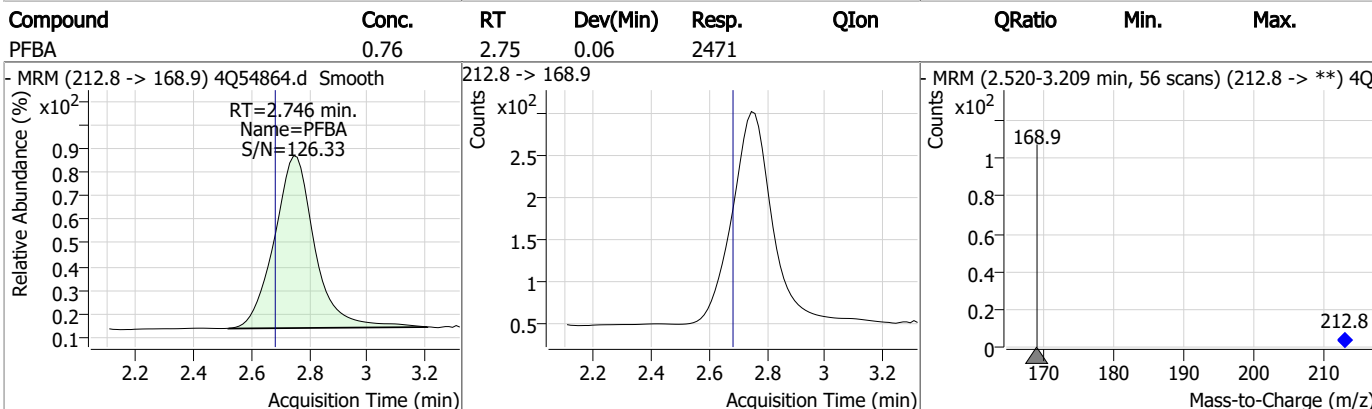
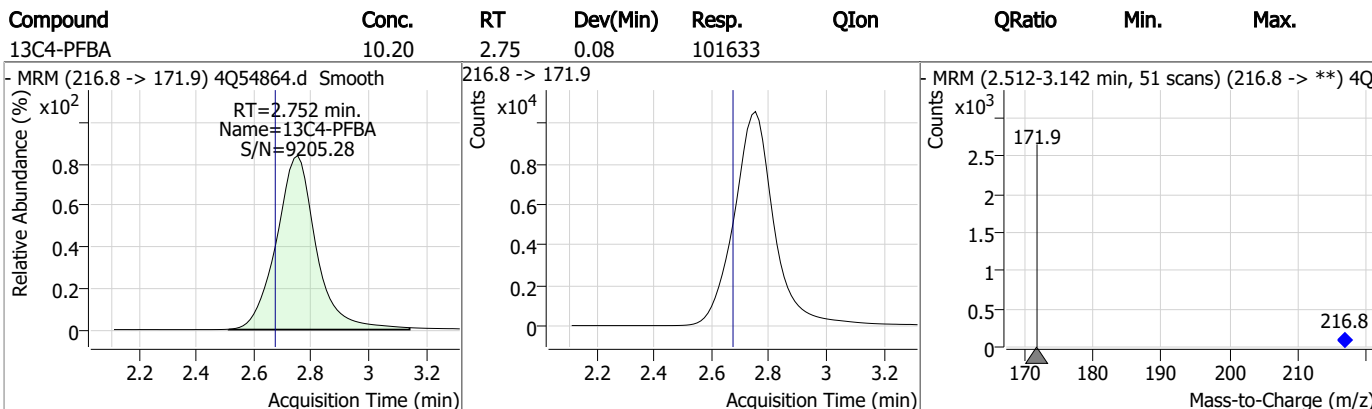
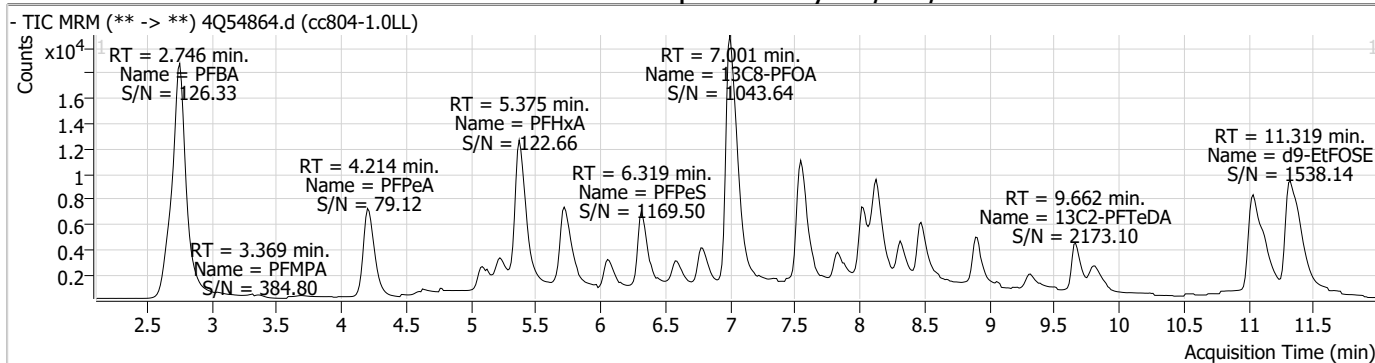
### Perfluorinated Compounds by LC/MS/MS

| Compound | RT | Transition | Response | Conc. Units | Dev(Min) |
|----------|----|------------|----------|-------------|----------|
|----------|----|------------|----------|-------------|----------|

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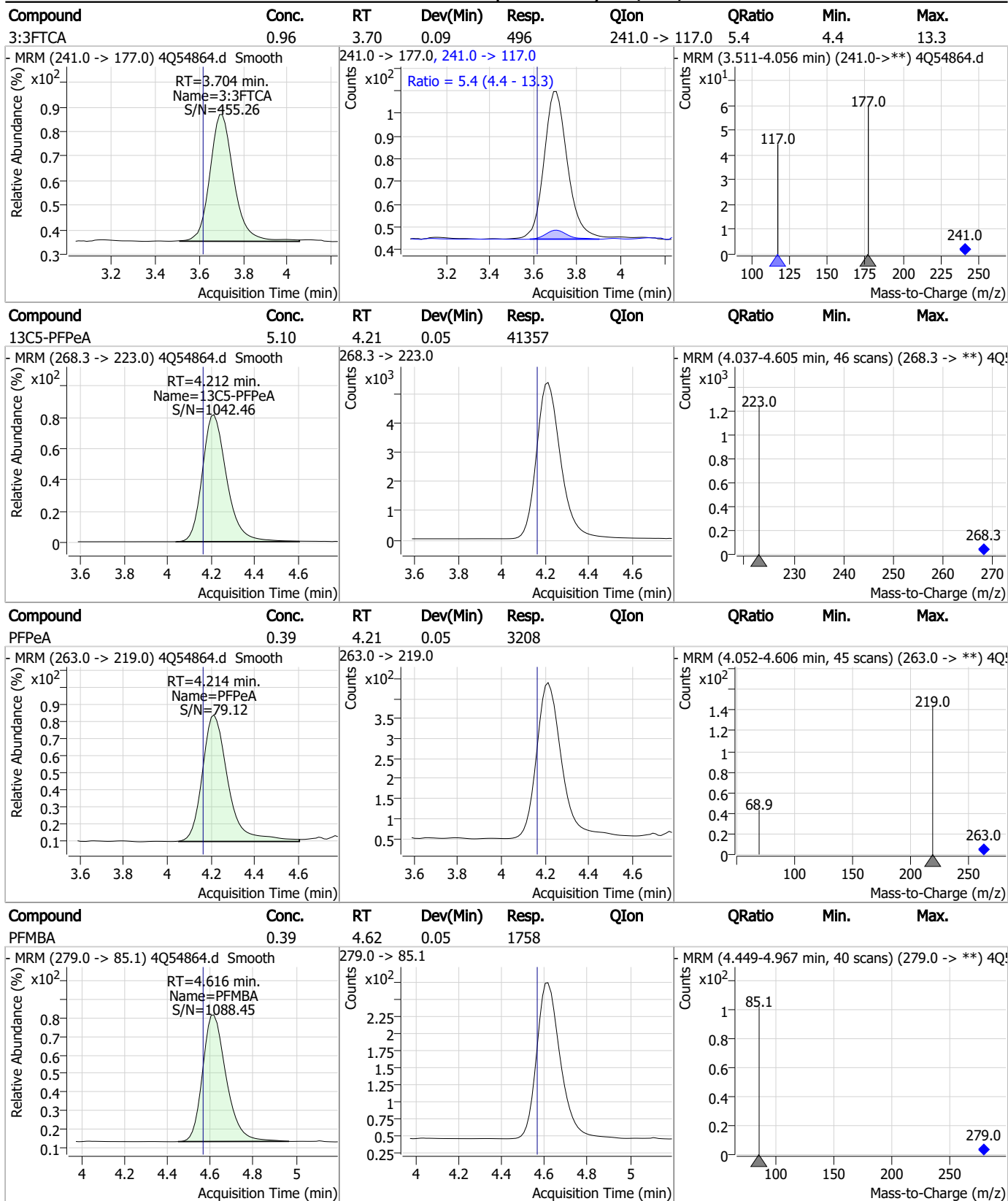
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### Perfluorinated Compounds by LC/MS/MS



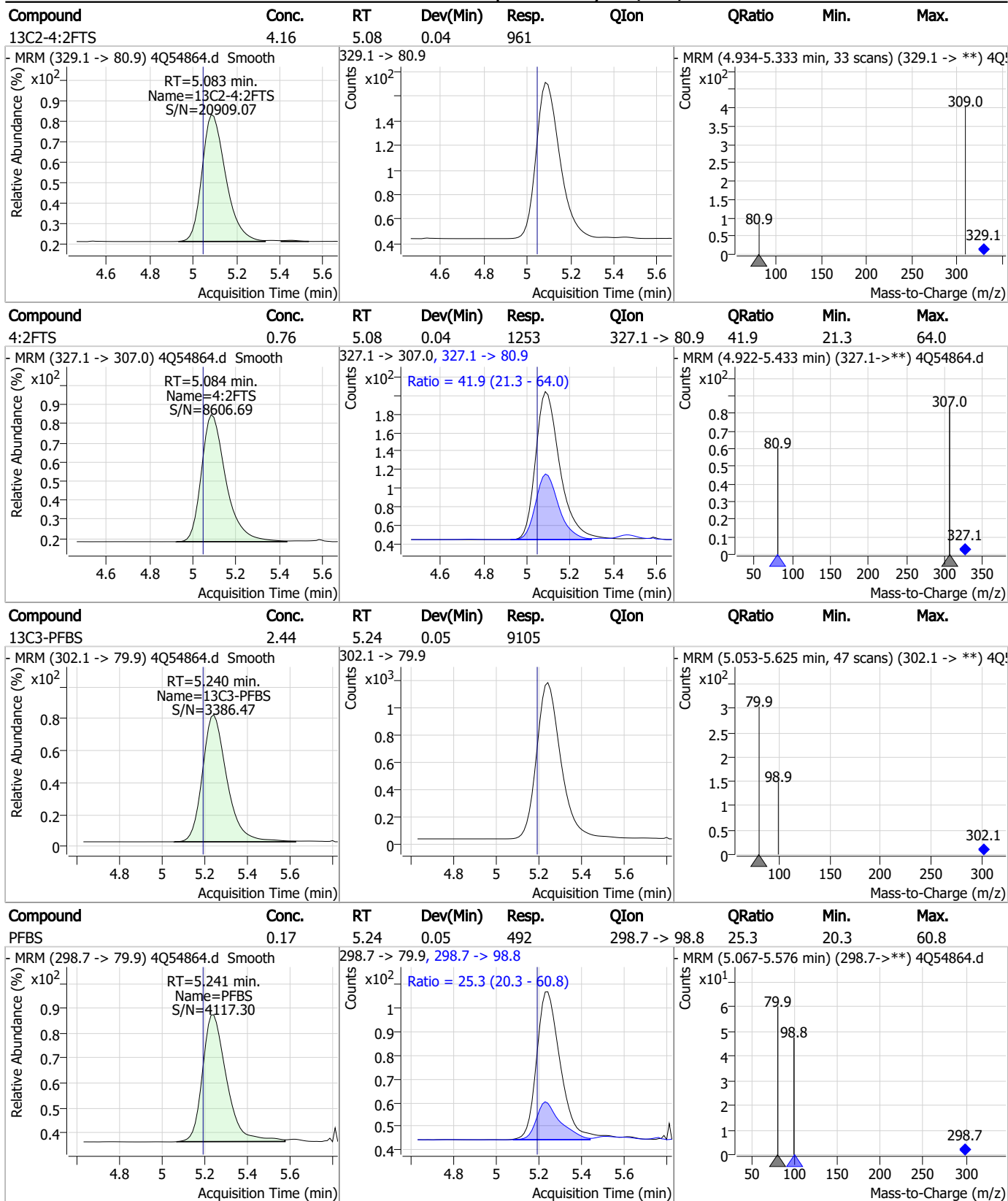
7.7.13  
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### Perfluorinated Compounds by LC/MS/MS



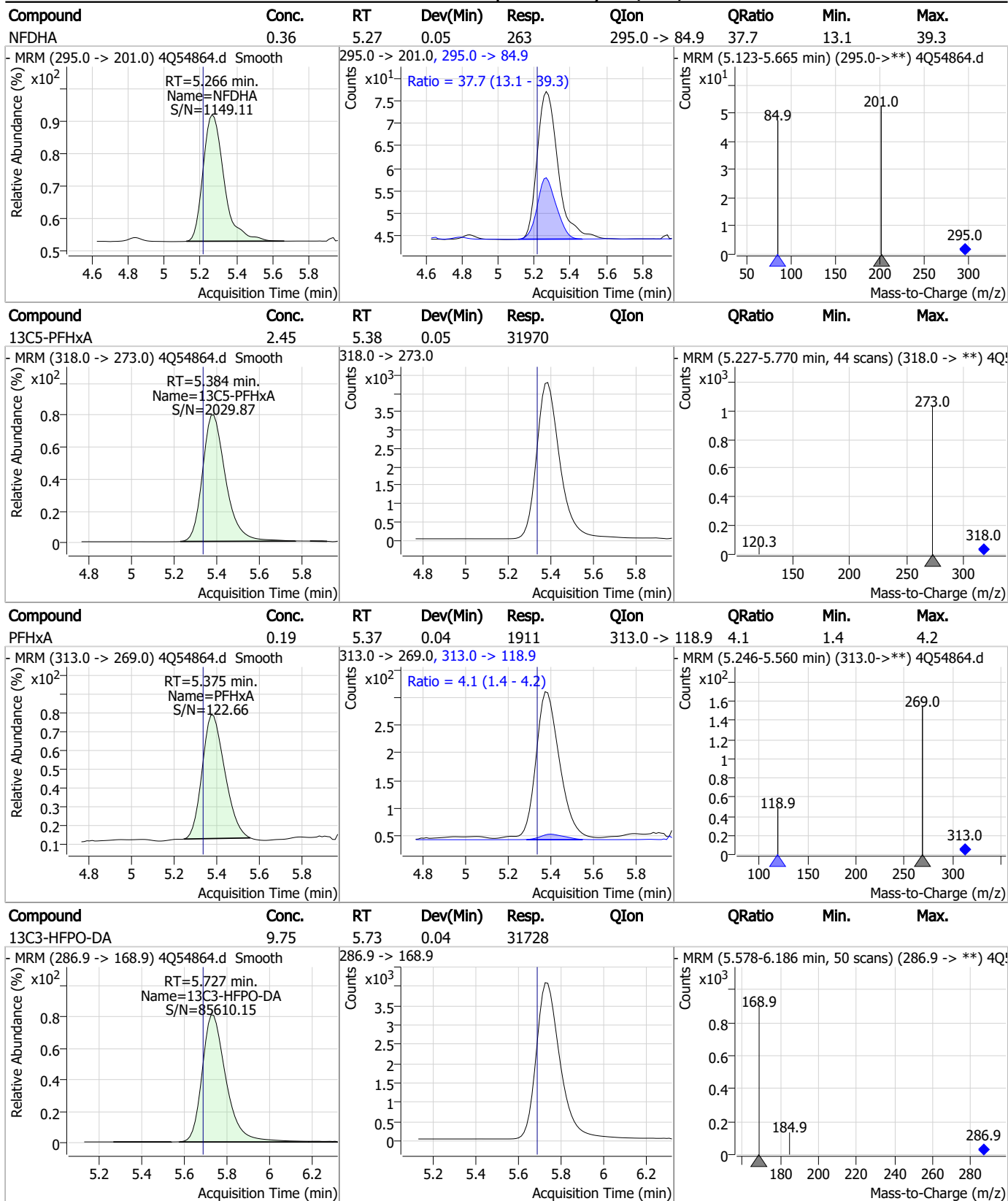
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### Perfluorinated Compounds by LC/MS/MS



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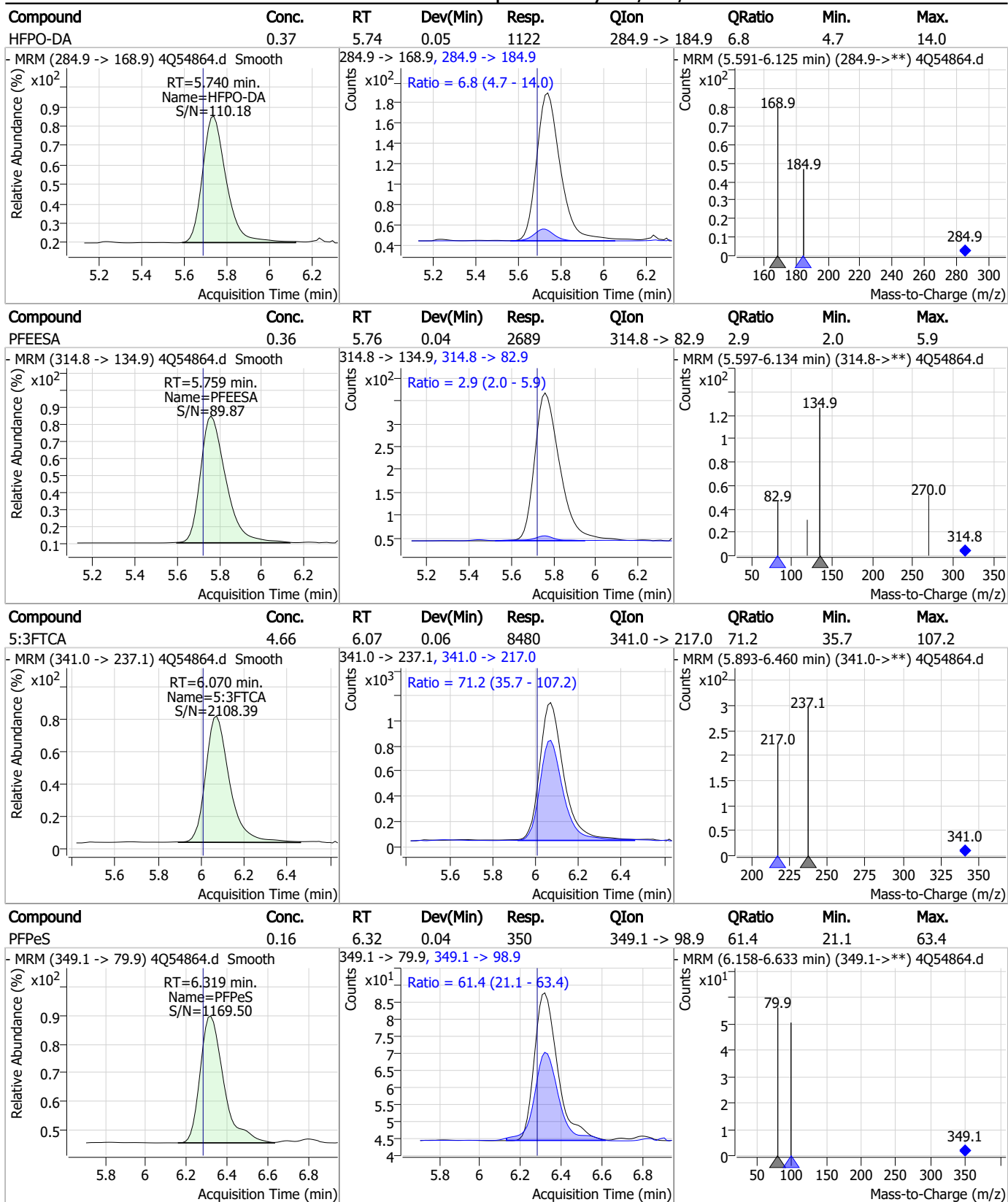
### Perfluorinated Compounds by LC/MS/MS



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### Perfluorinated Compounds by LC/MS/MS

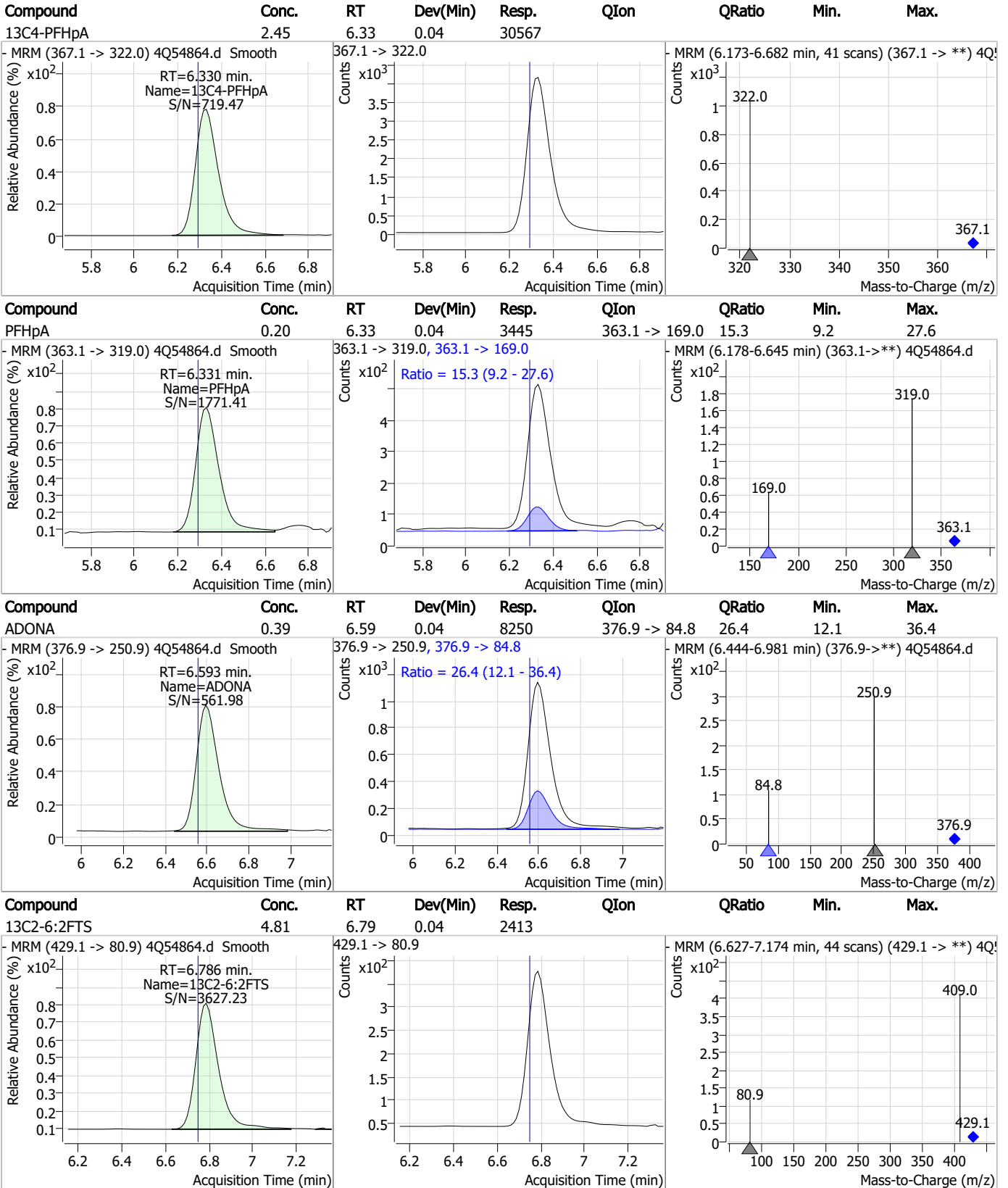


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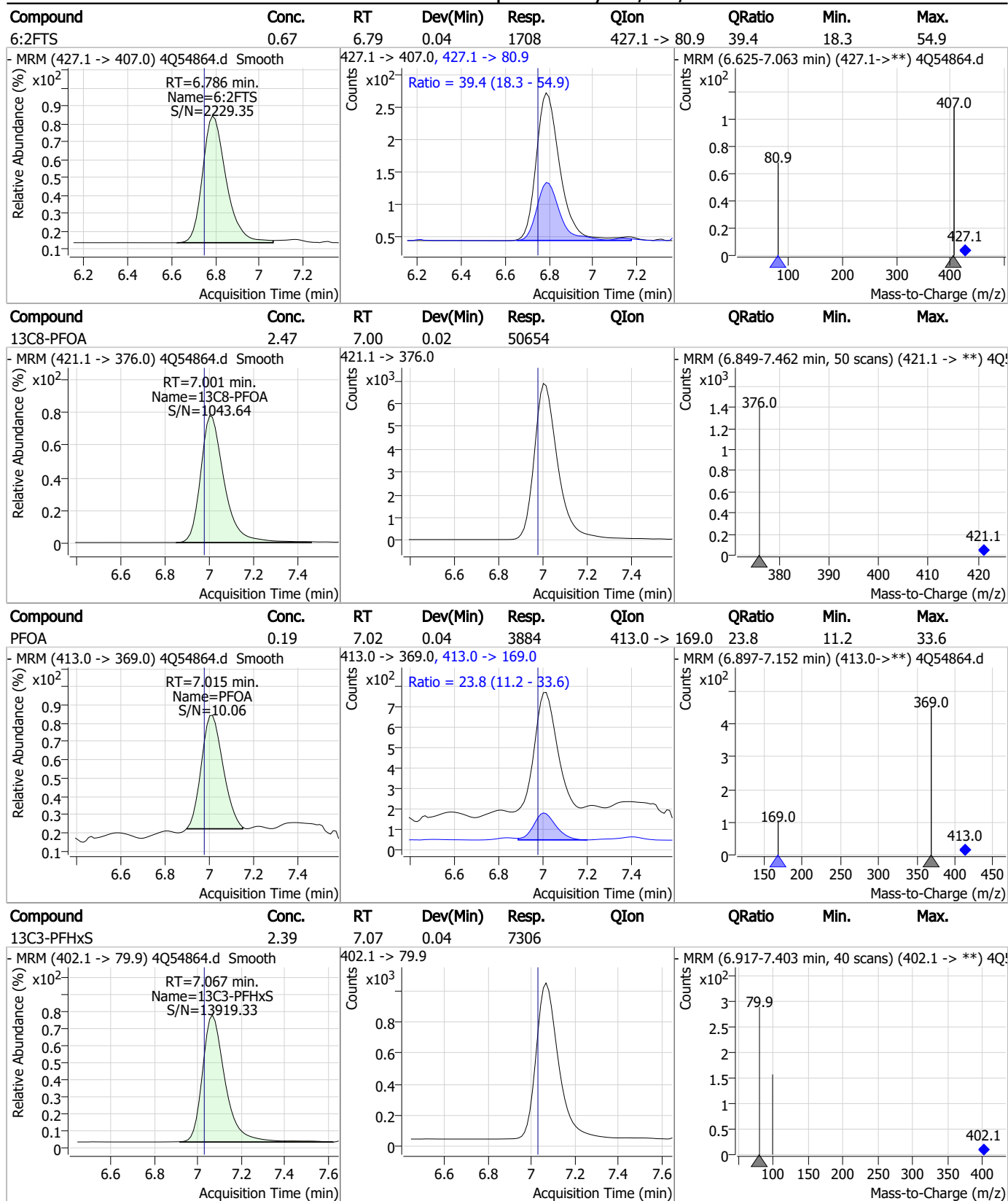


### Perfluorinated Compounds by LC/MS/MS



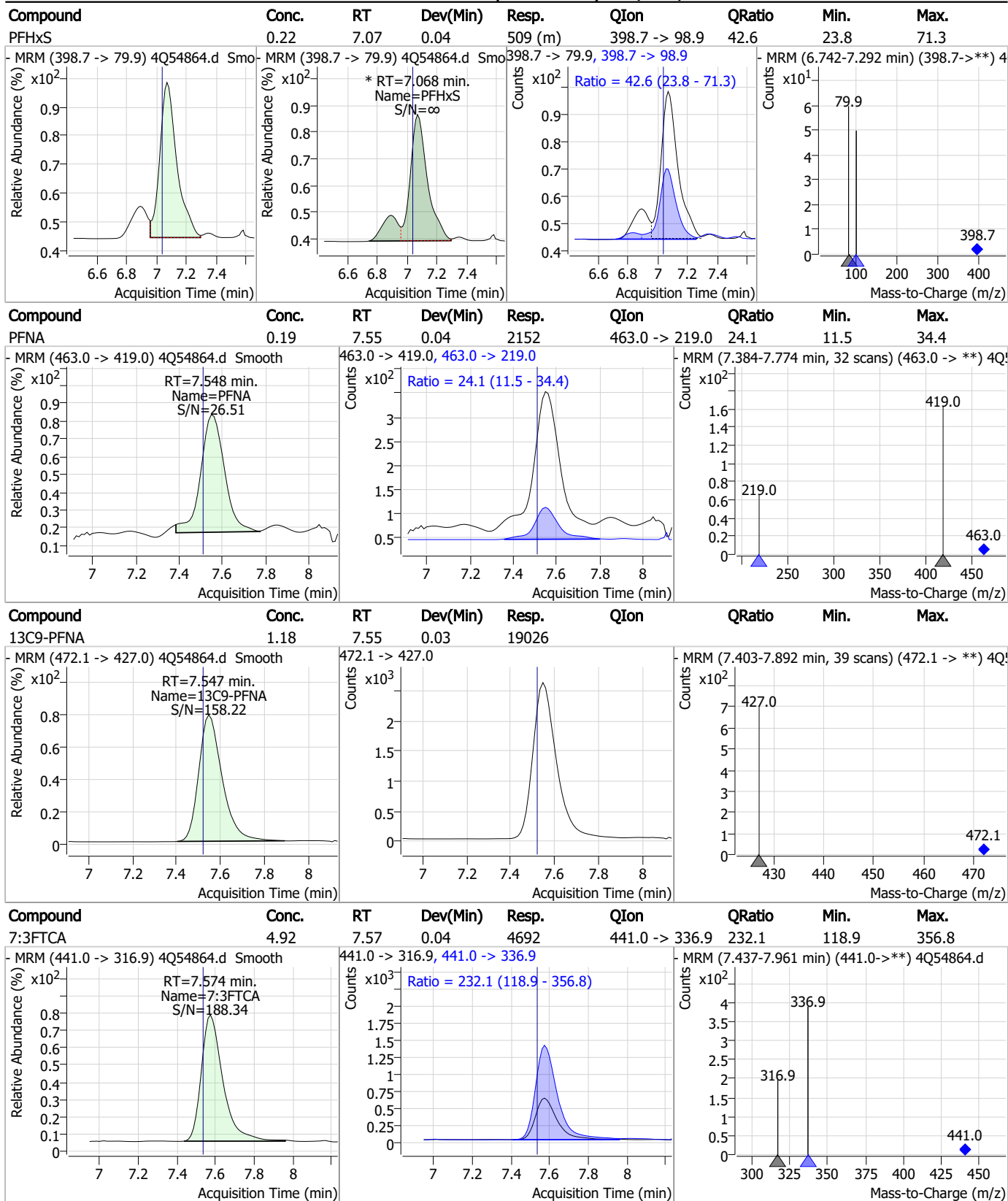
7.7.13 7

### Perfluorinated Compounds by LC/MS/MS



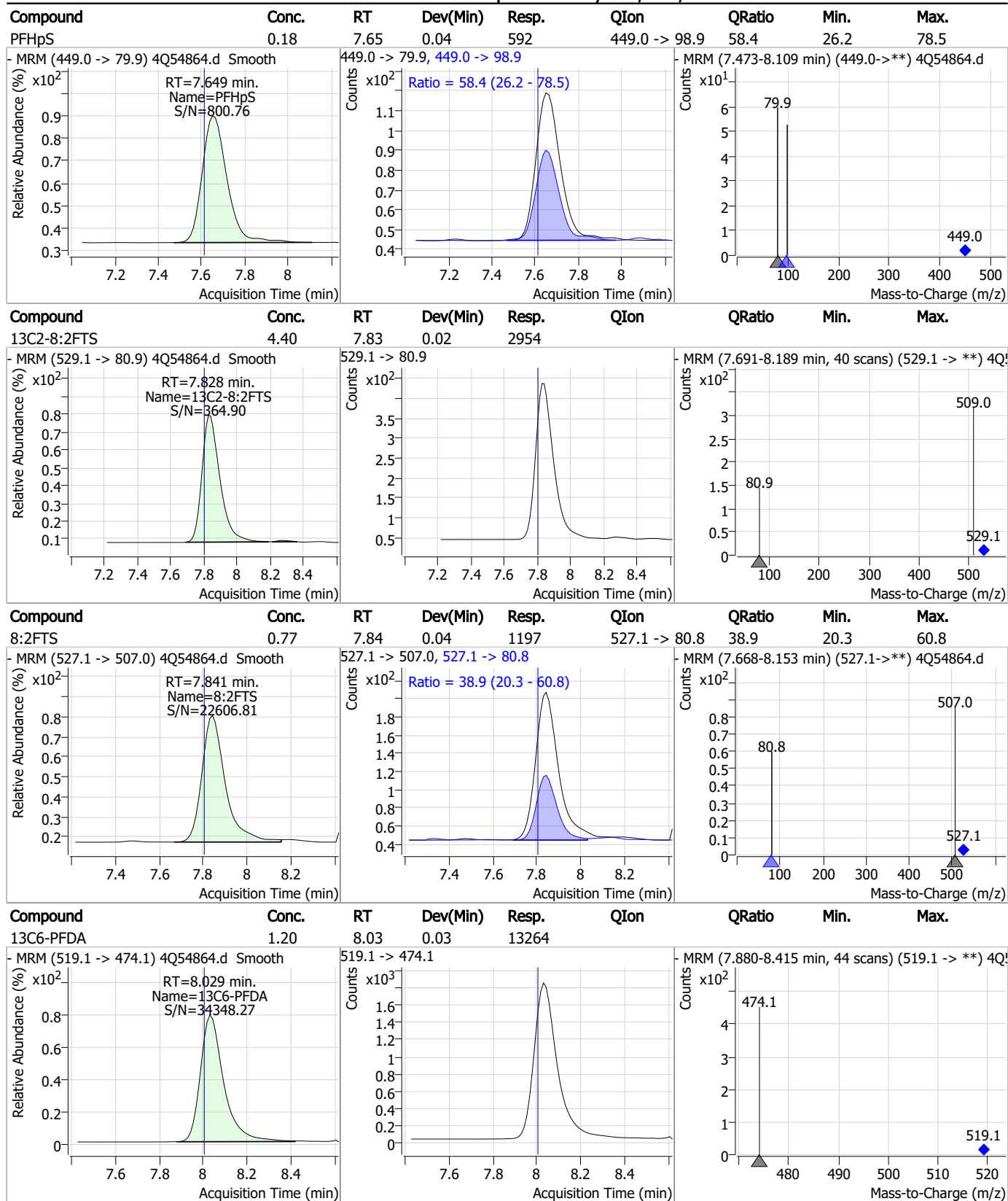
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### Perfluorinated Compounds by LC/MS/MS



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### Perfluorinated Compounds by LC/MS/MS

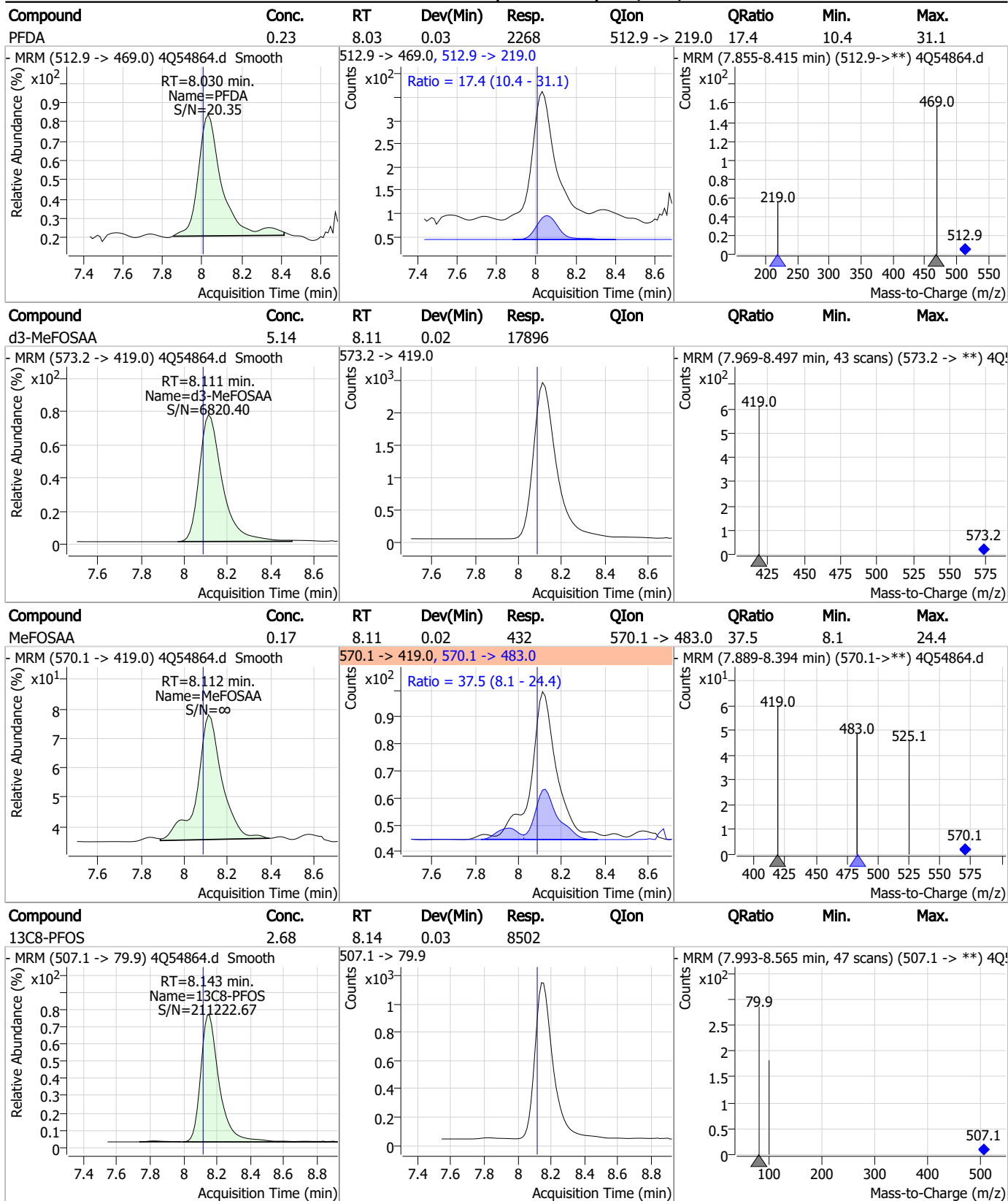


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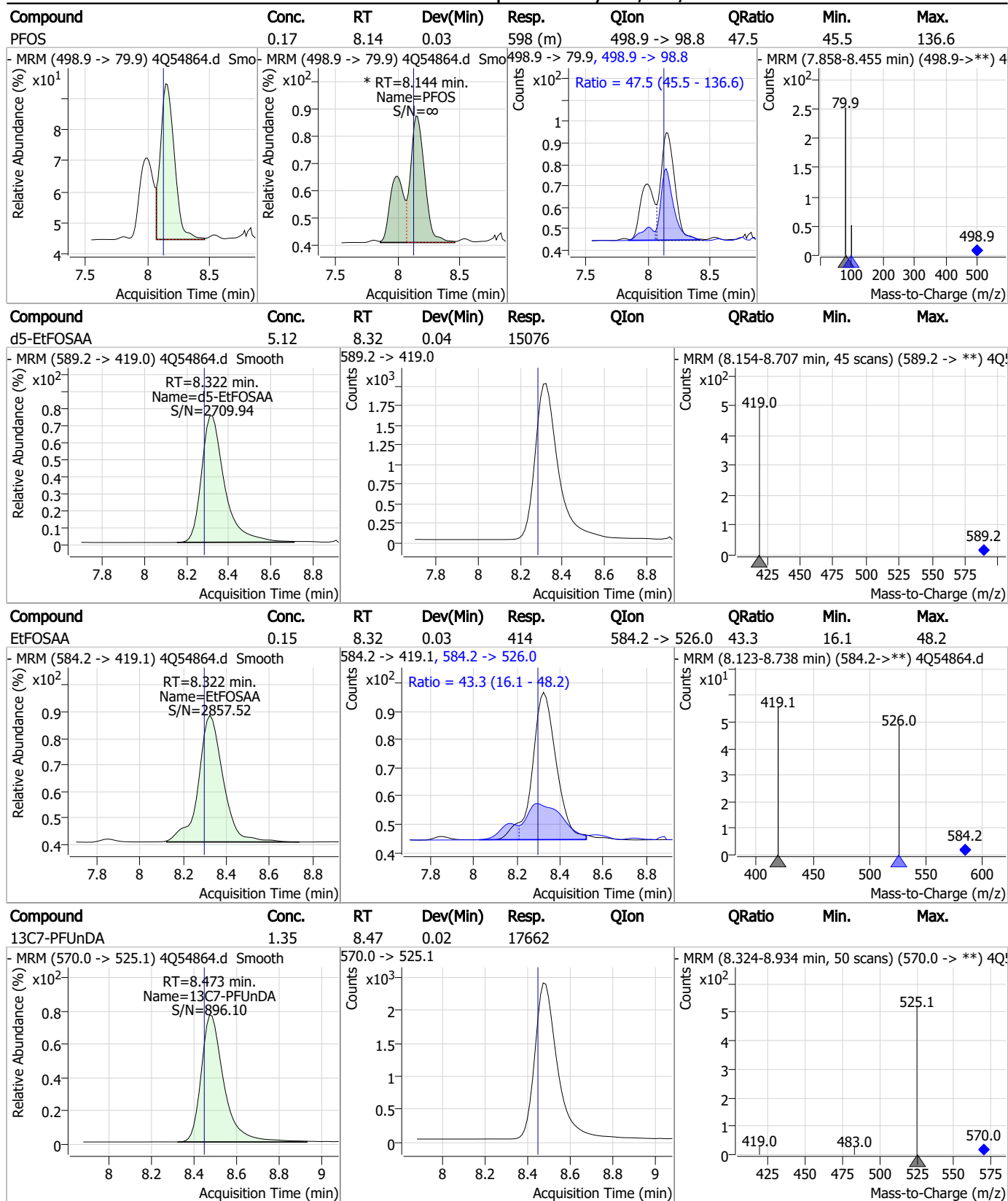


### Perfluorinated Compounds by LC/MS/MS



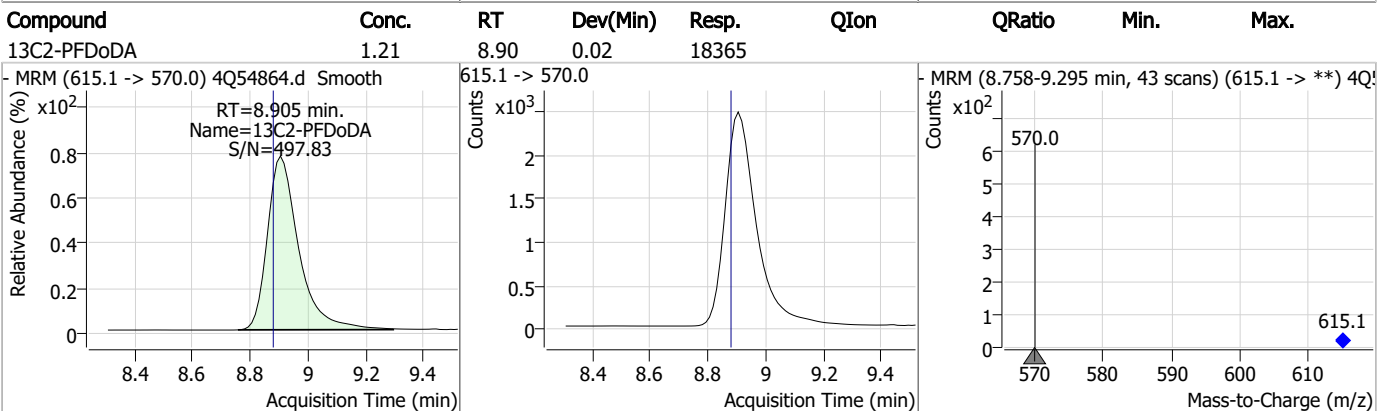
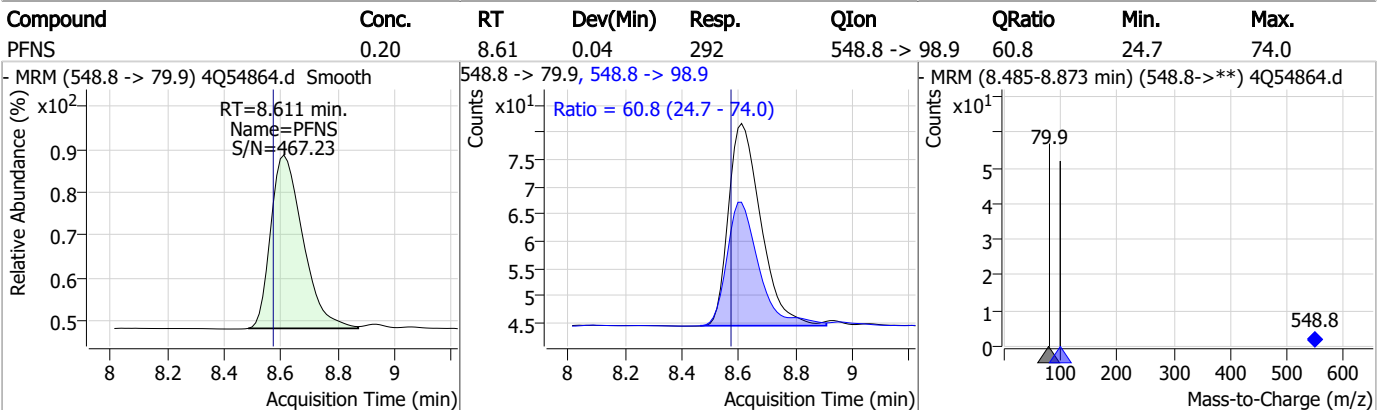
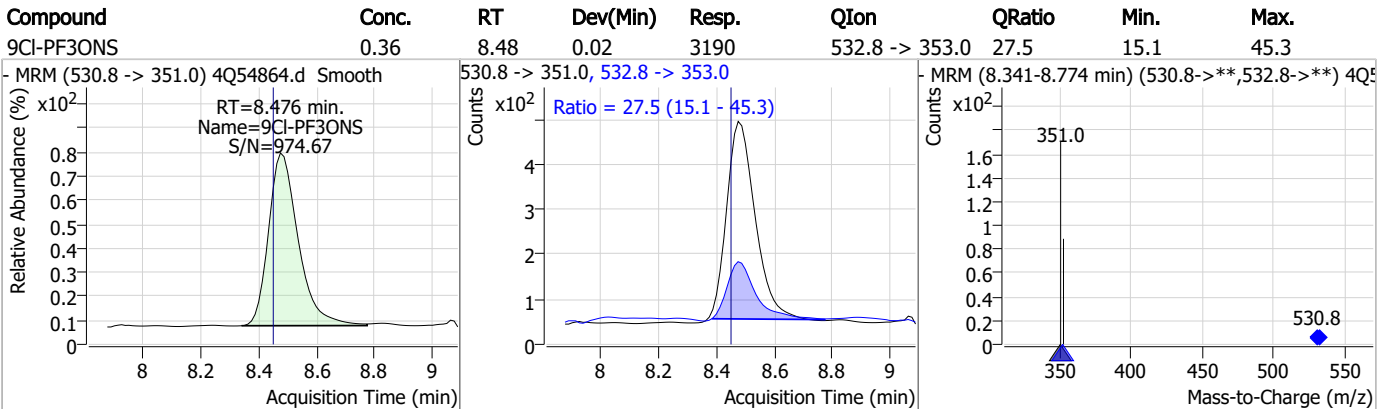
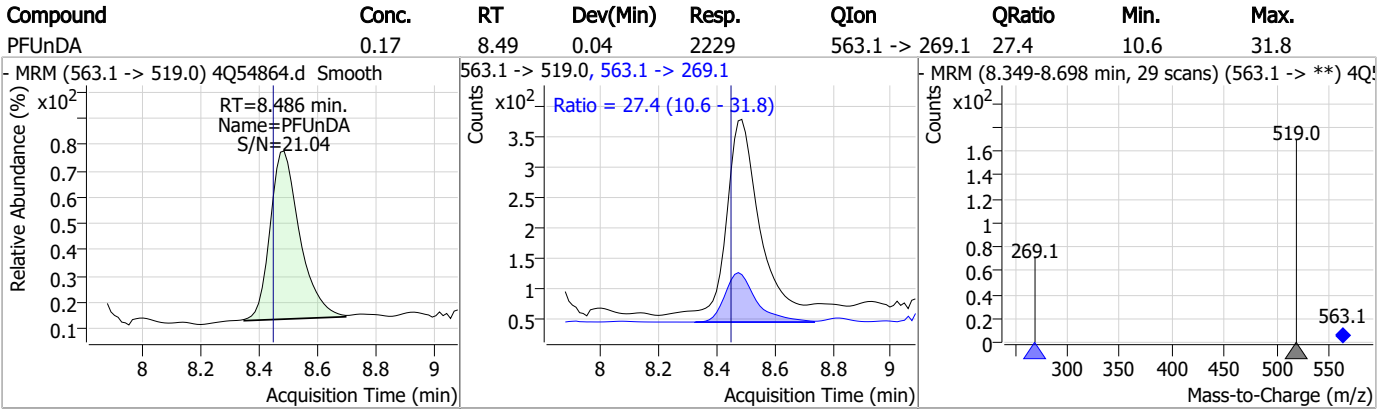
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### Perfluorinated Compounds by LC/MS/MS



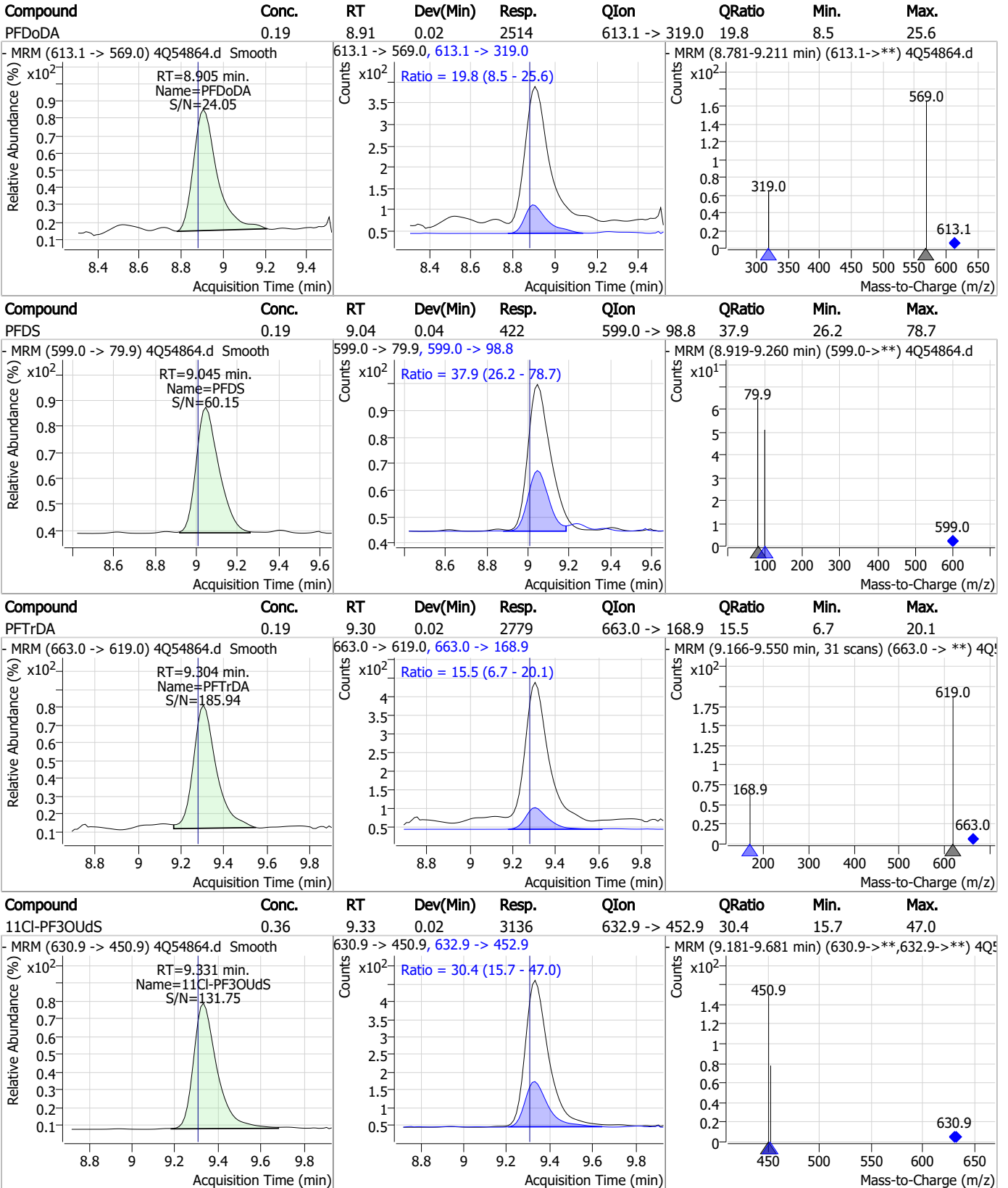
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### Perfluorinated Compounds by LC/MS/MS





### Perfluorinated Compounds by LC/MS/MS

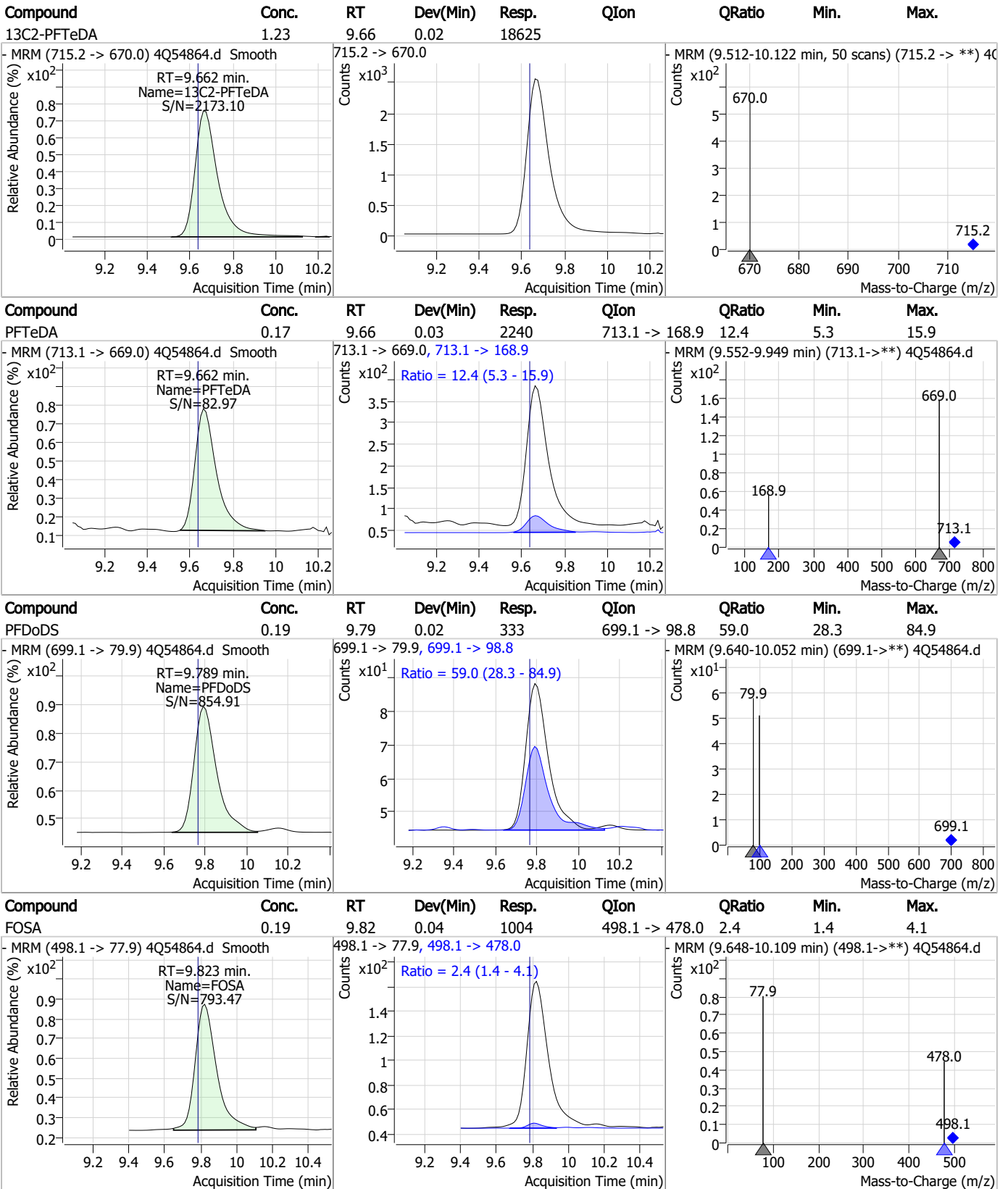


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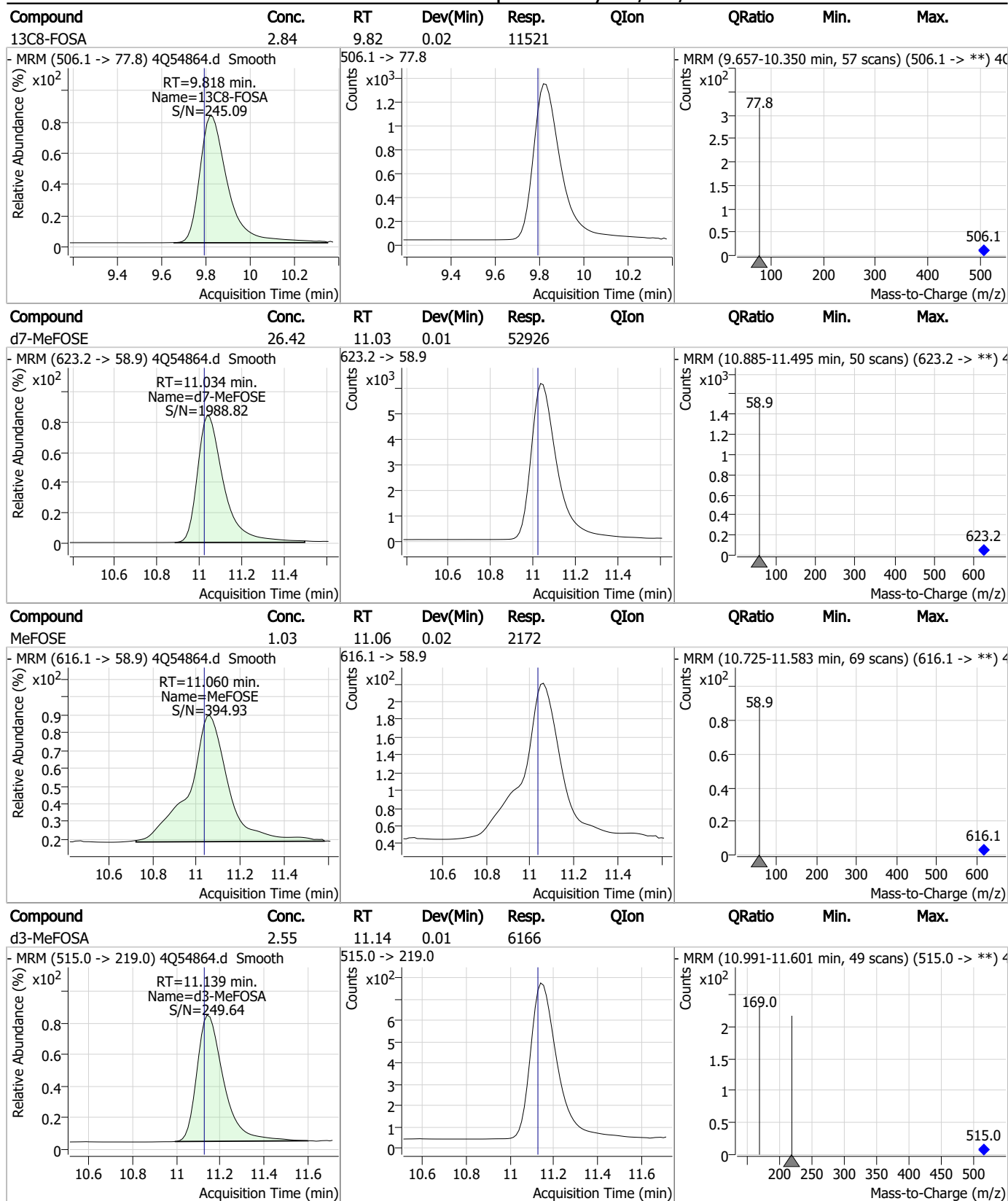


### Perfluorinated Compounds by LC/MS/MS



7.7.13 7

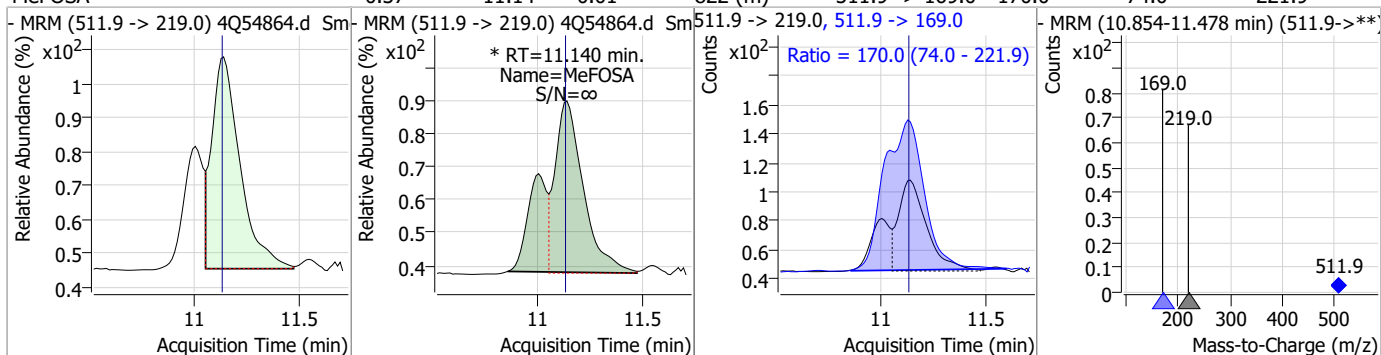
### Perfluorinated Compounds by LC/MS/MS



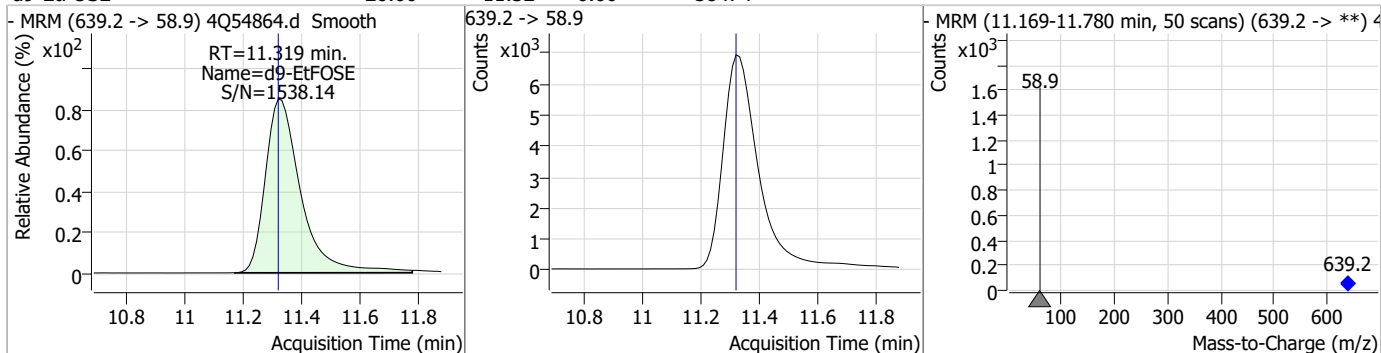
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### Perfluorinated Compounds by LC/MS/MS

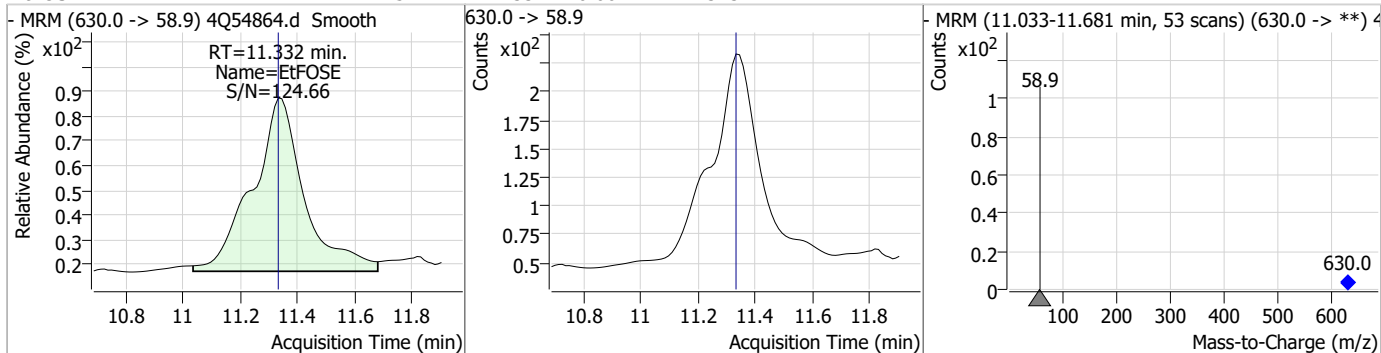
| Compound | Conc. | RT    | Dev(Min) | Resp.   | QIon           | QRatio | Min. | Max.  |
|----------|-------|-------|----------|---------|----------------|--------|------|-------|
| MeFOSA   | 0.37  | 11.14 | 0.01     | 822 (m) | 511.9 -> 169.0 | 170.0  | 74.0 | 221.9 |



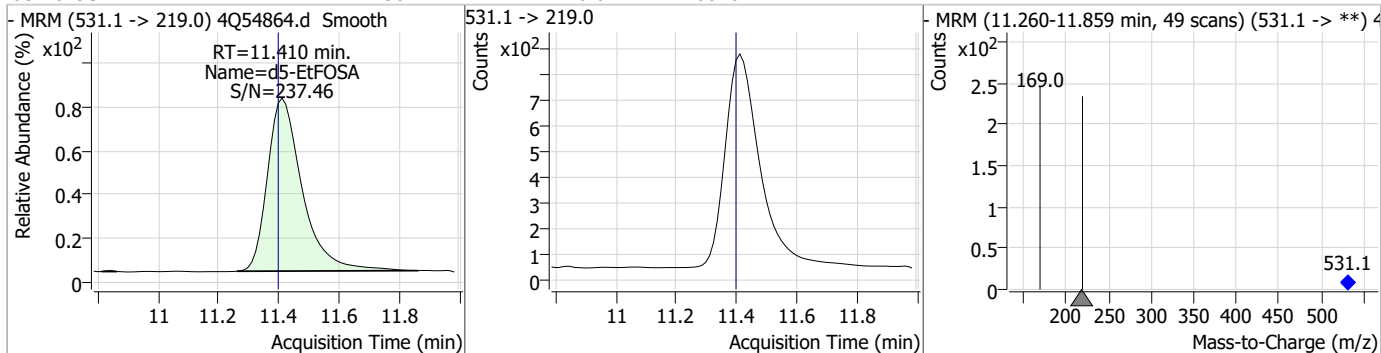
| Compound  | Conc. | RT    | Dev(Min) | Resp. | QIon | QRatio | Min. | Max. |
|-----------|-------|-------|----------|-------|------|--------|------|------|
| d9-EtFOSE | 26.06 | 11.32 | 0.00     | 5874  |      |        |      |      |



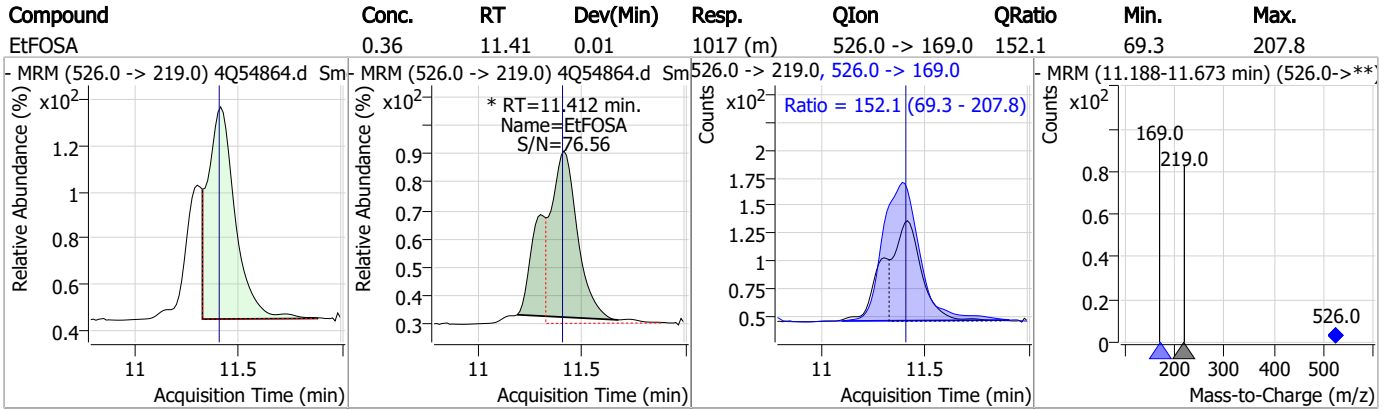
| Compound | Conc. | RT    | Dev(Min) | Resp. | QIon | QRatio | Min. | Max. |
|----------|-------|-------|----------|-------|------|--------|------|------|
| EtFOSE   | 1.15  | 11.33 | 0.00     | 2373  |      |        |      |      |



| Compound  | Conc. | RT    | Dev(Min) | Resp. | QIon | QRatio | Min. | Max. |
|-----------|-------|-------|----------|-------|------|--------|------|------|
| d5-EtFOSA | 2.50  | 11.41 | 0.01     | 6646  |      |        |      |      |



### Perfluorinated Compounds by LC/MS/MS



7.7.13

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# Manual Integration Approval Summary

Sample Number: S4Q804-CC804      Method: EPA DRAFT 1633  
Lab FileID: 4Q54864.D      Analyst approved: 12/10/23 12:52 Anna Ludwig  
Injection Time: 12/08/23 14:40      Supervisor approved: 12/11/23 15:42 Natasha Gumtie

| Parameter                    | CAS        | Sig# | R.T.<br>(min.) | Reason     |
|------------------------------|------------|------|----------------|------------|
| Perfluorohexanesulfonic acid | 355-46-4   |      | 7.07           | Split peak |
| Perfluorooctanesulfonic acid | 1763-23-1  |      | 8.14           | Split peak |
| MeFOSA                       | 31506-32-8 |      | 11.14          | Split peak |
| EtFOSA                       | 4151-50-2  |      | 11.41          | Split peak |

7.7.13.1  
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## Perfluorinated Compounds by LC/MS/MS

Data File : 4Q54872.d  
 Operator : annal  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 12/8/2023 4:39:04 PM  
 Sample Name : cc804-4  
 Vial : P1-A5  
 DA Method File : 1633\_120823\_S4Q804.quantmethod.xml  
 Batch Name : s4q804.batch.bin  
 Sample Information : OP99999,S4Q804,500,,,5.0,1,water

| Compound                           | RT                   | Transition     | Response         | Conc. Units | Dev(Min) |
|------------------------------------|----------------------|----------------|------------------|-------------|----------|
| <b>Internal Standards</b>          |                      |                |                  |             |          |
| M4-PFBA                            | 2.686                | 216.8 -> 171.9 | 106597           | 10.00 µg/L  | 0.012    |
| M5-PFPeA                           | 4.187                | 268.3 -> 223.0 | 44414            | 5.00 µg/L   | 0.025    |
| M5-PFHxA                           | 5.359                | 318.0 -> 273.0 | 35672            | 2.50 µg/L   | 0.025    |
| M4-PFHpA                           | 6.317                | 367.1 -> 322.0 | 34156            | 2.50 µg/L   | 0.025    |
| M8-PFOA                            | 7.001                | 421.1 -> 376.0 | 55463            | 2.50 µg/L   | 0.025    |
| M9-PFNA                            | 7.534                | 472.1 -> 427.0 | 21555            | 1.25 µg/L   | 0.012    |
| M6-PFDA                            | 8.029                | 519.1 -> 474.1 | 15458            | 1.25 µg/L   | 0.025    |
| M7-PFUnDA                          | 8.473                | 570.0 -> 525.1 | 18302            | 1.25 µg/L   | 0.025    |
| M2-PFDoDA                          | 8.905                | 615.1 -> 570.0 | 19826            | 1.25 µg/L   | 0.025    |
| M2-PFTeDA                          | 9.662                | 715.2 -> 670.0 | 19248            | 1.25 µg/L   | 0.025    |
| M8-FOSA                            | 9.818                | 506.1 -> 77.8  | 11078            | 2.50 µg/L   | 0.025    |
| M3-PFBS                            | 5.215                | 302.1 -> 79.9  | 9673             | 2.50 µg/L   | 0.025    |
| M3-PFHxS                           | 7.054                | 402.1 -> 79.9  | 8352             | 2.50 µg/L   | 0.025    |
| M8-PFOS                            | 8.143                | 507.1 -> 79.9  | 9034             | 2.50 µg/L   | 0.026    |
| M2-4:2FTS                          | 5.071                | 329.1 -> 80.9  | 1116             | 5.00 µg/L   | 0.025    |
| M2-6:2FTS                          | 6.773                | 429.1 -> 80.9  | 2283             | 5.00 µg/L   | 0.025    |
| M2-8:2FTS                          | 7.828                | 529.1 -> 80.9  | 2798             | 5.00 µg/L   | 0.025    |
| M3-MeFOSAA                         | 8.111                | 573.2 -> 419.0 | 20252            | 5.00 µg/L   | 0.025    |
| M3-HFPO-DA                         | 5.714                | 286.9 -> 168.9 | 35091            | 10.00 µg/L  | 0.025    |
| M5-EtFOSAA                         | 8.309                | 589.2 -> 419.0 | 16385            | 5.00 µg/L   | 0.026    |
| M7-MeFOSE                          | 11.047               | 623.2 -> 58.9  | 55451            | 25.00 µg/L  | 0.025    |
| M9-EtFOSE                          | 11.331               | 639.2 -> 58.9  | 62731            | 25.00 µg/L  | 0.012    |
| M5-EtFOSA                          | 11.410               | 531.1 -> 219.0 | 7375             | 2.50 µg/L   | 0.012    |
| M3-MeFOSA                          | 11.139               | 515.0 -> 219.0 | 6808             | 2.50 µg/L   | 0.012    |
| 13C4-PFOS                          | 8.144                | 502.8 -> 79.9  | 7700             | 2.50 µg/L   | 0.026    |
| 13C3-PFBA                          | 2.691                | 216.0 -> 172.0 | 51249            | 5.00 µg/L   | 0.013    |
| 18O2-PFHxS                         | 7.066                | 403.0 -> 83.9  | 5277             | 2.50 µg/L   | 0.025    |
| 13C4-PFOA                          | 7.002                | 417.1 -> 372.0 | 59573            | 2.50 µg/L   | 0.025    |
| 13C2-PFDA                          | 8.029                | 515.1 -> 470.1 | 16463            | 1.25 µg/L   | 0.025    |
| 13C5-PFNA                          | 7.534                | 468.0 -> 423.0 | 21526            | 1.25 µg/L   | 0.025    |
| 13C2-PFHxA                         | 5.360                | 315.1 -> 270.0 | 39357            | 2.50 µg/L   | 0.025    |
| <b>System Monitoring Compounds</b> |                      |                |                  |             |          |
| 13C2-4:2FTS                        | 5.071                | 329.1 -> 80.9  | 1116             | 4.45 µg/L   | 0.025    |
| Spiked Amount: 5.00                | Range: 50.0 - 150.0% |                | Recovery = 89.1% |             |          |
| 13C2-6:2FTS                        | 6.773                | 429.1 -> 80.9  | 2283             | 4.20 µg/L   | 0.025    |
| Spiked Amount: 5.00                | Range: 50.0 - 150.0% |                | Recovery = 84.0% |             |          |
| 13C2-8:2FTS                        | 7.828                | 529.1 -> 80.9  | 2798             | 3.85 µg/L   | 0.025    |
| Spiked Amount: 5.00                | Range: 50.0 - 150.0% |                | Recovery = 76.9% |             |          |
| 13C2-PFDoDA                        | 8.905                | 615.1 -> 570.0 | 19826            | 1.21 µg/L   | 0.025    |
| Spiked Amount: 1.25                | Range: 50.0 - 150.0% |                | Recovery = 96.4% |             |          |
| 13C2-PFTeDA                        | 9.662                | 715.2 -> 670.0 | 19248            | 1.18 µg/L   | 0.025    |
| Spiked Amount: 1.25                | Range: 50.0 - 150.0% |                | Recovery = 94.2% |             |          |
| 13C3-PFBS                          | 5.215                | 302.1 -> 79.9  | 9673             | 2.39 µg/L   | 0.025    |
| Spiked Amount: 2.50                | Range: 50.0 - 150.0% |                | Recovery = 95.7% |             |          |
| 13C3-PFHxS                         | 7.054                | 402.1 -> 79.9  | 8352             | 2.52 µg/L   | 0.025    |

7.7.14  
7



### Perfluorinated Compounds by LC/MS/MS

| Compound                | RT                   | Transition     | Response | Conc. Units       | Dev(Min)      |
|-------------------------|----------------------|----------------|----------|-------------------|---------------|
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 101.0% |               |
| 13C4-PFBA               | 2.686                | 216.8 -> 171.9 | 106597   | 9.91 µg/L         | 0.012         |
| Spiked Amount: 10.00    | Range: 50.0 - 150.0% |                |          | Recovery = 99.1%  |               |
| 13C4-PFHpA              | 6.317                | 367.1 -> 322.0 | 34156    | 2.46 µg/L         | 0.025         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 98.5%  |               |
| 13C5-PFHxA              | 5.359                | 318.0 -> 273.0 | 35672    | 2.46 µg/L         | 0.025         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 98.4%  |               |
| 13C5-PFPeA              | 4.187                | 268.3 -> 223.0 | 44414    | 4.92 µg/L         | 0.025         |
| Spiked Amount: 5.00     | Range: 50.0 - 150.0% |                |          | Recovery = 98.3%  |               |
| 13C6-PFDA               | 8.029                | 519.1 -> 474.1 | 15458    | 1.29 µg/L         | 0.025         |
| Spiked Amount: 1.25     | Range: 50.0 - 150.0% |                |          | Recovery = 103.2% |               |
| 13C7-PFUnDA             | 8.473                | 570.0 -> 525.1 | 18302    | 1.30 µg/L         | 0.025         |
| Spiked Amount: 1.25     | Range: 50.0 - 150.0% |                |          | Recovery = 103.7% |               |
| 13C8-FOSA               | 9.818                | 506.1 -> 77.8  | 11078    | 2.22 µg/L         | 0.025         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 88.8%  |               |
| 13C8-PFOA               | 7.001                | 421.1 -> 376.0 | 55463    | 2.52 µg/L         | 0.025         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 100.8% |               |
| 13C8-PFOS               | 8.143                | 507.1 -> 79.9  | 9034     | 2.32 µg/L         | 0.026         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 92.7%  |               |
| 13C9-PFNA               | 7.534                | 472.1 -> 427.0 | 21555    | 1.25 µg/L         | 0.012         |
| Spiked Amount: 1.25     | Range: 50.0 - 150.0% |                |          | Recovery = 100.0% |               |
| d3-MeFOSAA              | 8.111                | 573.2 -> 419.0 | 20252    | 4.74 µg/L         | 0.025         |
| Spiked Amount: 5.00     | Range: 50.0 - 150.0% |                |          | Recovery = 94.8%  |               |
| 13C3-HFPO-DA            | 5.714                | 286.9 -> 168.9 | 35091    | 9.68 µg/L         | 0.025         |
| Spiked Amount: 10.00    | Range: 50.0 - 150.0% |                |          | Recovery = 96.8%  |               |
| d3-MeFOSA               | 11.139               | 515.0 -> 219.0 | 6808     | 2.29 µg/L         | 0.012         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 91.5%  |               |
| d5-EtFOSAA              | 8.309                | 589.2 -> 419.0 | 16385    | 4.53 µg/L         | 0.026         |
| Spiked Amount: 5.00     | Range: 50.0 - 150.0% |                |          | Recovery = 90.6%  |               |
| d7-MeFOSE               | 11.047               | 623.2 -> 58.9  | 55451    | 22.52 µg/L        | 0.025         |
| Spiked Amount: 25.00    | Range: 50.0 - 150.0% |                |          | Recovery = 90.1%  |               |
| d9-EtFOSE               | 11.331               | 639.2 -> 58.9  | 62731    | 22.75 µg/L        | 0.012         |
| Spiked Amount: 25.00    | Range: 50.0 - 150.0% |                |          | Recovery = 91.0%  |               |
| d5-EtFOSA               | 11.410               | 531.1 -> 219.0 | 7375     | 2.26 µg/L         | 0.012         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 90.4%  |               |
| <b>Target Compounds</b> |                      |                |          |                   | <b>QValue</b> |
| 4:2FTS                  | 5.072                | 327.1 -> 307.0 | 17463    | 9.09 µg/L         | 100           |
|                         |                      | 327.1 -> 80.9  | 7419     |                   |               |
| 6:2FTS                  | 6.774                | 427.1 -> 407.0 | 23821    | 9.93 µg/L         | 100           |
|                         |                      | 427.1 -> 80.9  | 8742     |                   |               |
| 8:2FTS                  | 7.829                | 527.1 -> 507.0 | 16346    | 11.09 µg/L        | 97            |
|                         |                      | 527.1 -> 80.8  | 6874     |                   |               |
| EtFOSAA                 | 8.310                | 584.2 -> 419.1 | 6642     | 2.22 µg/L         | m 86          |
|                         |                      | 584.2 -> 526.0 | 2645     |                   |               |
| FOSA                    | 9.810                | 498.1 -> 77.9  | 12253    | 2.46 µg/L         | 98            |
|                         |                      | 498.1 -> 478.0 | 415      |                   |               |
| MeFOSAA                 | 8.112                | 570.1 -> 419.0 | 7192     | 2.48 µg/L         | 93            |
|                         |                      | 570.1 -> 483.0 | 1379     |                   |               |
| PFBA                    | 2.695                | 212.8 -> 168.9 | 32219    | 9.44 µg/L         | 100           |
| PFBS                    | 5.216                | 298.7 -> 79.9  | 6108     | 2.04 µg/L         | 98            |
|                         |                      | 298.7 -> 98.8  | 2566     |                   |               |
| PFDA                    | 8.030                | 512.9 -> 469.0 | 25952    | 2.29 µg/L         | 98            |
|                         |                      | 512.9 -> 219.0 | 5081     |                   |               |
| PFDODA                  | 8.905                | 613.1 -> 569.0 | 34121    | 2.39 µg/L         | 98            |
|                         |                      | 613.1 -> 319.0 | 6155     |                   |               |
| PFDS                    | 9.032                | 599.0 -> 79.9  | 5612     | 2.33 µg/L         | 93            |



7.7.14  
7

Perfluorinated Compounds by LC/MS/MS

| Compound     | RT     | Transition     | Response | Conc. | Units | Dev(Min) |
|--------------|--------|----------------|----------|-------|-------|----------|
| PFHpA        | 6.317  | 599.0 -> 98.8  | 2655     | 2.27  | µg/L  | 100      |
|              |        | 363.1 -> 319.0 | 43700    |       |       |          |
| PFHpS        | 7.637  | 363.1 -> 169.0 | 8064     | 2.07  | µg/L  | 94       |
|              |        | 449.0 -> 79.9  | 7410     |       |       |          |
| PFHxA        | 5.362  | 449.0 -> 98.9  | 4206     | 2.16  | µg/L  | 100      |
|              |        | 313.0 -> 269.0 | 24632    |       |       |          |
| PFHxS        | 7.055  | 313.0 -> 118.9 | 666      | 2.05  | µg/L  | 87       |
|              |        | 398.7 -> 79.9  | 5527     |       |       |          |
| PFNA         | 7.534  | 398.7 -> 98.9  | 3092     | 2.32  | µg/L  | 100      |
|              |        | 463.0 -> 419.0 | 29389    |       |       |          |
| PFNS         | 8.611  | 463.0 -> 219.0 | 6719     | 2.65  | µg/L  | 98       |
|              |        | 548.8 -> 79.9  | 4081     |       |       |          |
| PFOA         | 7.003  | 548.8 -> 98.9  | 1964     | 2.34  | µg/L  | 94       |
|              |        | 413.0 -> 369.0 | 53374    |       |       |          |
| PFOS         | 8.144  | 413.0 -> 169.0 | 10371    | 2.16  | µg/L  | 53       |
|              |        | 498.9 -> 79.9  | 8104     |       |       |          |
| PFPeA        | 4.189  | 498.9 -> 98.8  | 3804     | 4.56  | µg/L  | 100      |
|              |        | 263.0 -> 219.0 | 39835    |       |       |          |
| PFPeS        | 6.307  | 349.1 -> 79.9  | 5440     | 2.14  | µg/L  | 98       |
|              |        | 349.1 -> 98.9  | 2386     |       |       |          |
| PFTeDA       | 9.662  | 713.1 -> 669.0 | 31987    | 2.39  | µg/L  | 99       |
|              |        | 713.1 -> 168.9 | 3269     |       |       |          |
| PFTrDA       | 9.304  | 663.0 -> 619.0 | 37245    | 2.40  | µg/L  | 99       |
|              |        | 663.0 -> 168.9 | 5197     |       |       |          |
| PFUnDA       | 8.474  | 563.1 -> 519.0 | 31135    | 2.34  | µg/L  | 99       |
|              |        | 563.1 -> 269.1 | 6787     |       |       |          |
| 11CI-PF3OUdS | 9.331  | 630.9 -> 450.9 | 44497    | 4.61  | µg/L  | 99       |
|              |        | 632.9 -> 452.9 | 13588    |       |       |          |
| 9CI-PF3ONS   | 8.476  | 530.8 -> 351.0 | 43808    | 4.49  | µg/L  | 98       |
|              |        | 532.8 -> 353.0 | 13751    |       |       |          |
| ADONA        | 6.581  | 376.9 -> 250.9 | 117206   | 4.95  | µg/L  | 99       |
|              |        | 376.9 -> 84.8  | 29076    |       |       |          |
| HFPO-DA      | 5.715  | 284.9 -> 168.9 | 15818    | 4.71  | µg/L  | 99       |
|              |        | 284.9 -> 184.9 | 1541     |       |       |          |
| 3:3FTCA      | 3.630  | 241.0 -> 177.0 | 5865     | 10.81 | µg/L  | 98       |
|              |        | 241.0 -> 117.0 | 571      |       |       |          |
| 5:3FTCA      | 6.045  | 341.0 -> 237.1 | 117651   | 57.95 | µg/L  | 100      |
|              |        | 341.0 -> 217.0 | 84226    |       |       |          |
| 7:3FTCA      | 7.562  | 441.0 -> 316.9 | 62746    | 58.93 | µg/L  | 99       |
|              |        | 441.0 -> 336.9 | 148418   |       |       |          |
| EtFOSA       | 11.412 | 526.0 -> 219.0 | 15069    | 4.80  | µg/L  | 97       |
|              |        | 526.0 -> 169.0 | 20371    |       |       |          |
| EtFOSE       | 11.345 | 630.0 -> 58.9  | 26486    | 11.93 | µg/L  | 100      |
|              |        | 511.9 -> 219.0 | 11504    |       |       |          |
| MeFOSA       | 11.140 | 511.9 -> 169.0 | 16404    | 4.75  | µg/L  | 96       |
|              |        | 616.1 -> 58.9  | 24851    |       |       |          |
| MeFOSE       | 11.060 | 699.1 -> 79.9  | 4257     | 11.30 | µg/L  | 100      |
|              |        | 699.1 -> 98.8  | 2377     |       |       |          |
| PFDoDS       | 9.789  | 295.0 -> 201.0 | 3526     | 2.32  | µg/L  | 99       |
|              |        | 295.0 -> 84.9  | 901      |       |       |          |
| NFDHA        | 5.253  | 279.0 -> 85.1  | 22574    | 4.37  | µg/L  | 99       |
|              |        | 229.0 -> 84.9  | 24654    |       |       |          |
| PFMBA        | 4.591  | 314.8 -> 134.9 | 35998    | 4.66  | µg/L  | 100      |
|              |        | 314.8 -> 82.9  | 1263     |       |       |          |
| PFMPA        | 3.332  |                |          | 4.28  | µg/L  | 99       |
|              |        |                |          |       |       |          |
| PFEESA       | 5.747  |                |          |       |       |          |
|              |        |                |          |       |       |          |

# = Qualifier out of range, m = manually integrated, + = Area summed



7.7.14  
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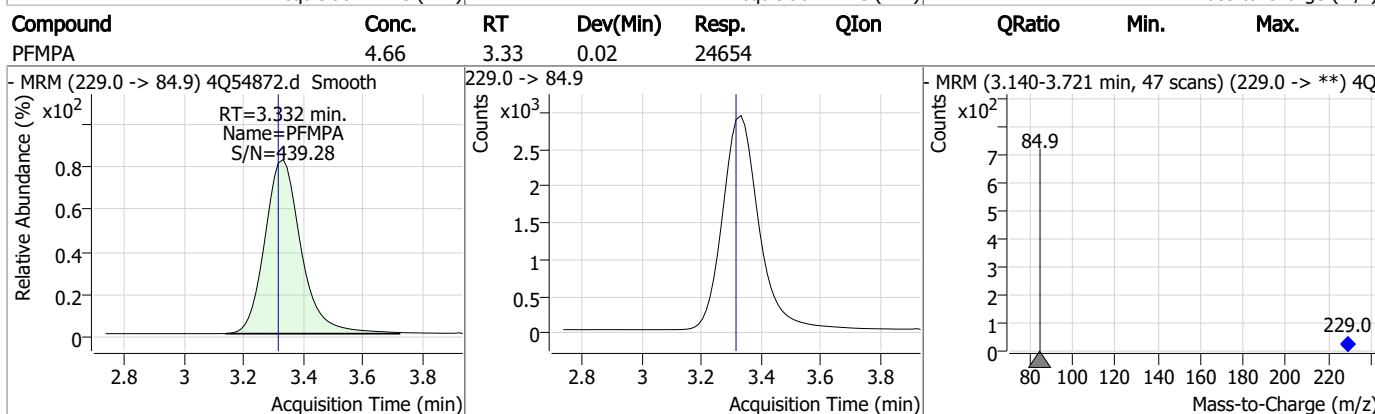
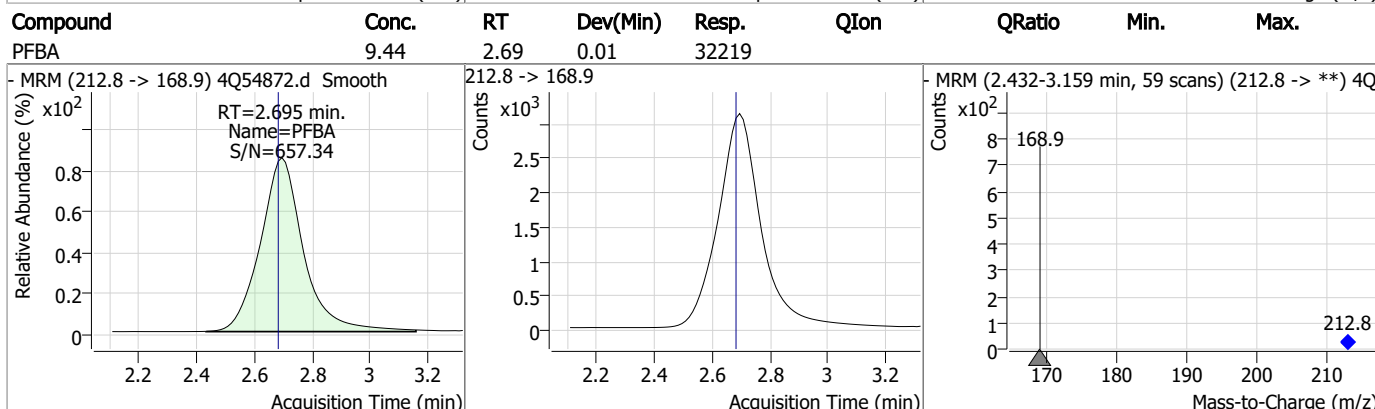
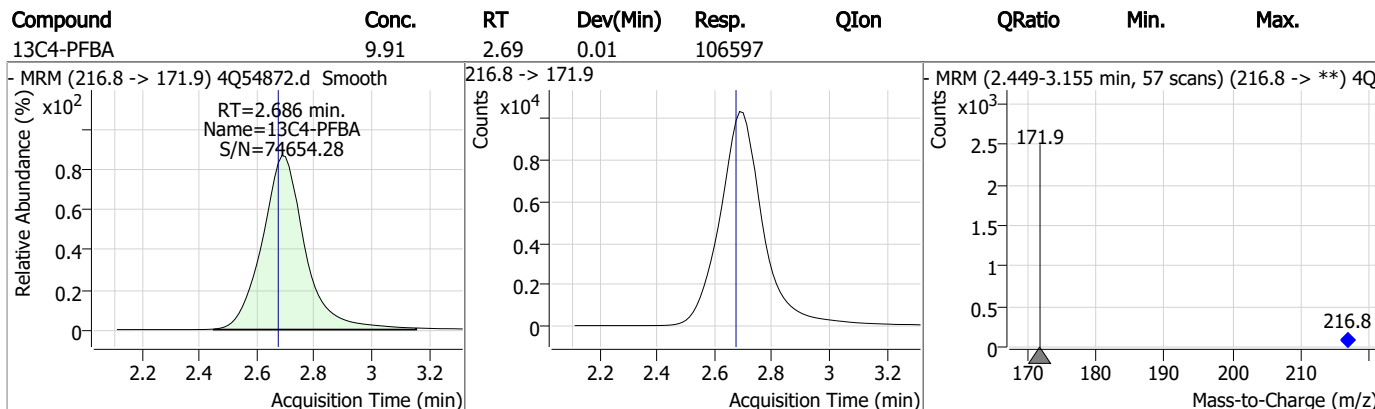
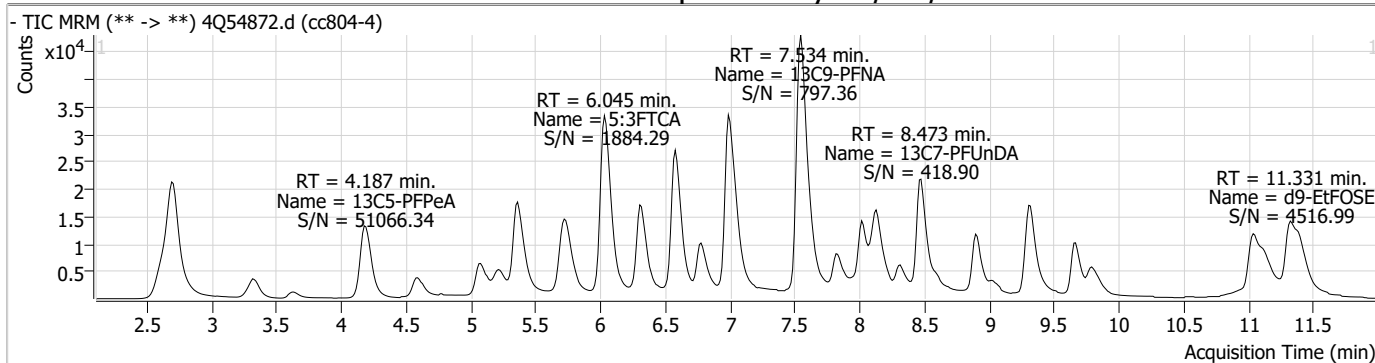
### Perfluorinated Compounds by LC/MS/MS

| Compound | RT | Transition | Response | Conc. Units | Dev(Min) |
|----------|----|------------|----------|-------------|----------|
|----------|----|------------|----------|-------------|----------|

7.7.14

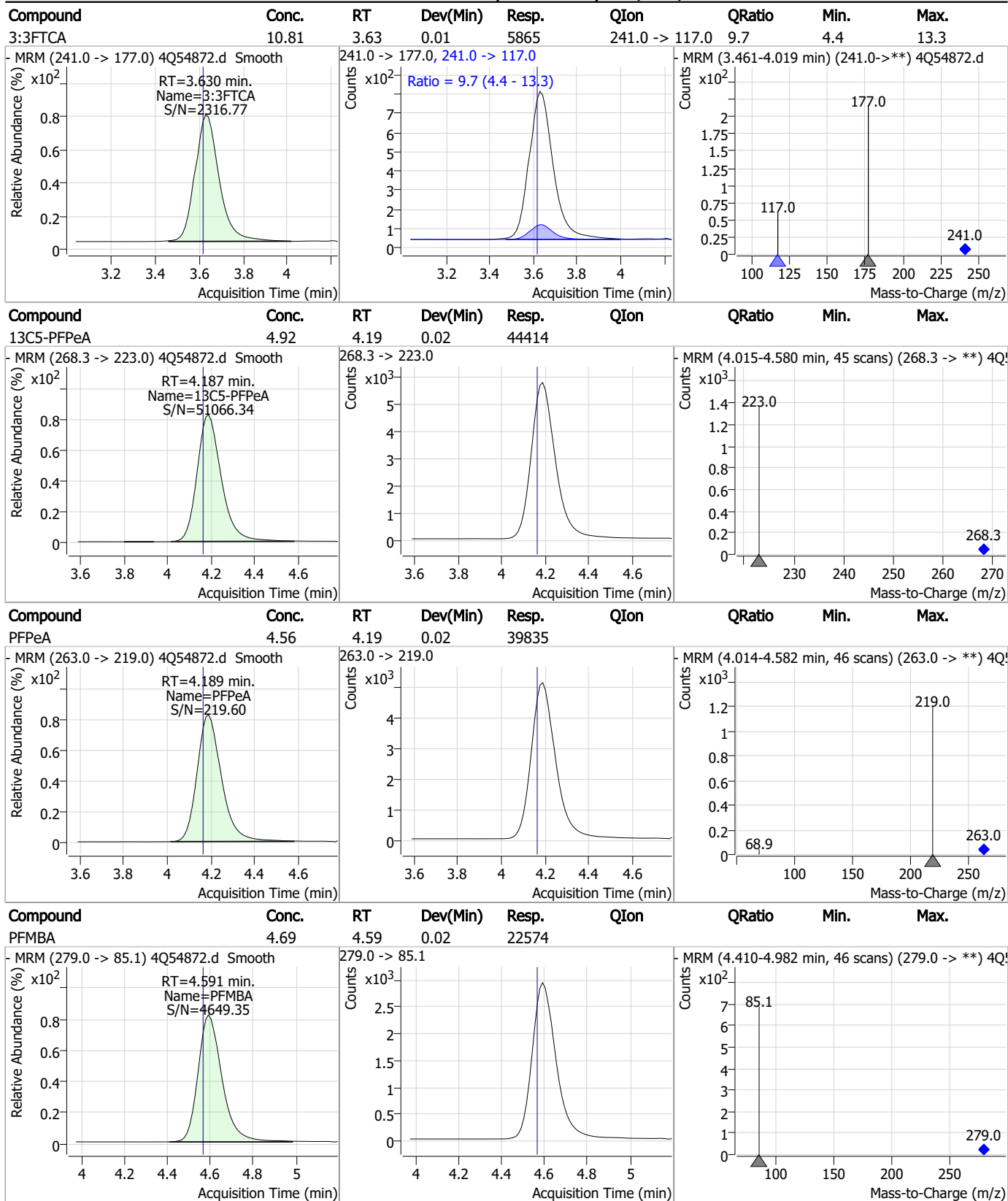
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### Perfluorinated Compounds by LC/MS/MS



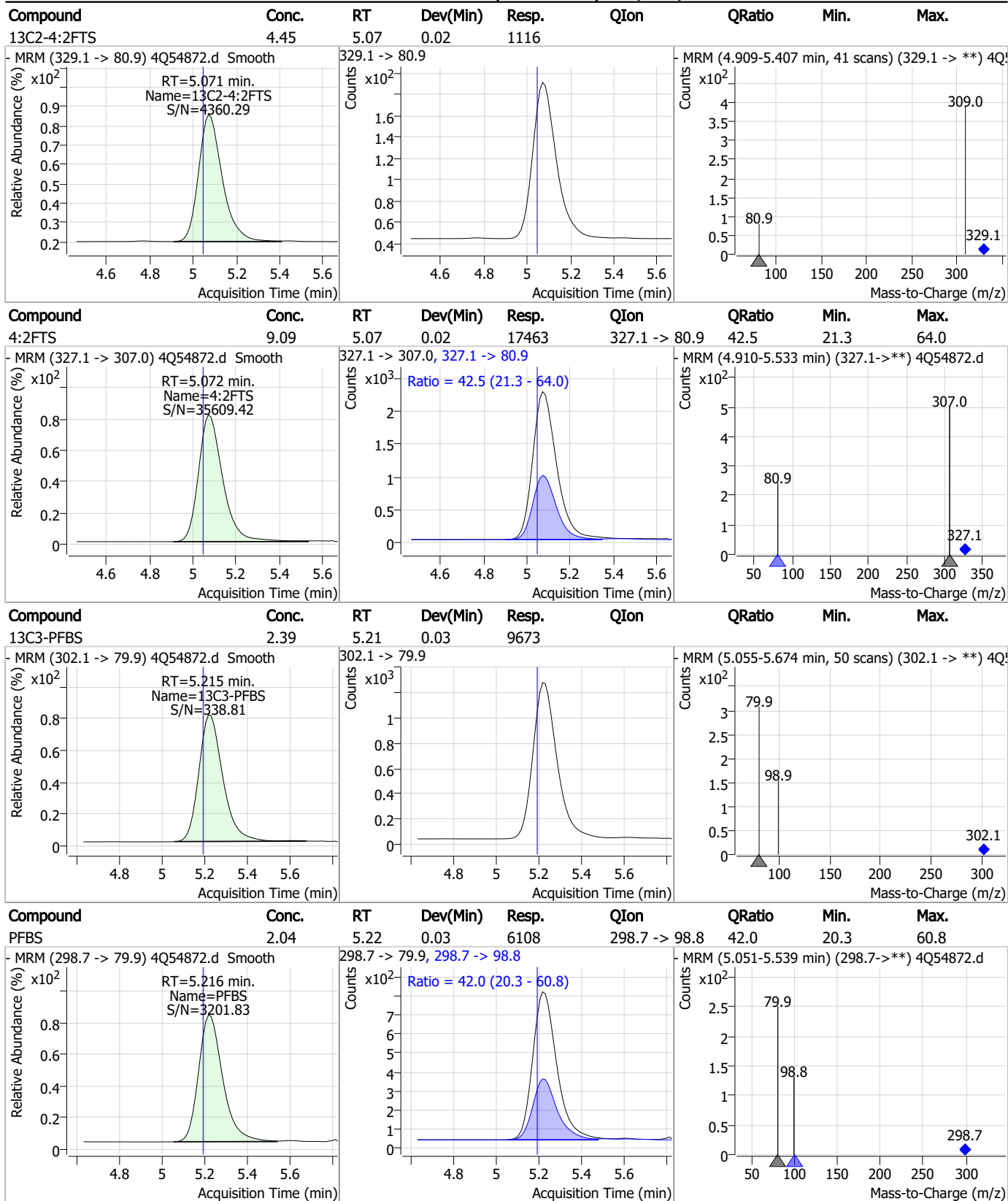
7.7.14  
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### Perfluorinated Compounds by LC/MS/MS



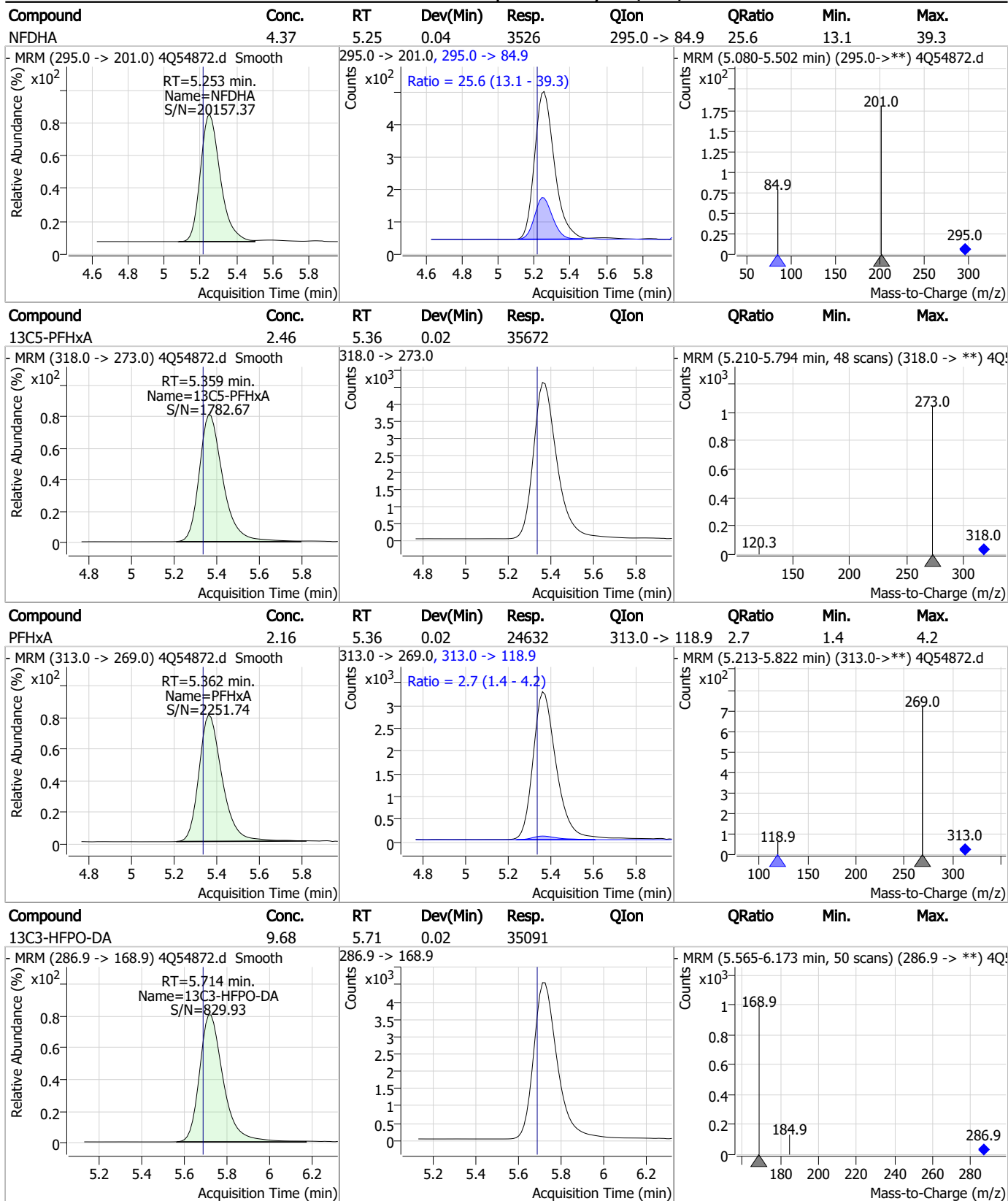
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### Perfluorinated Compounds by LC/MS/MS



7.7.14  
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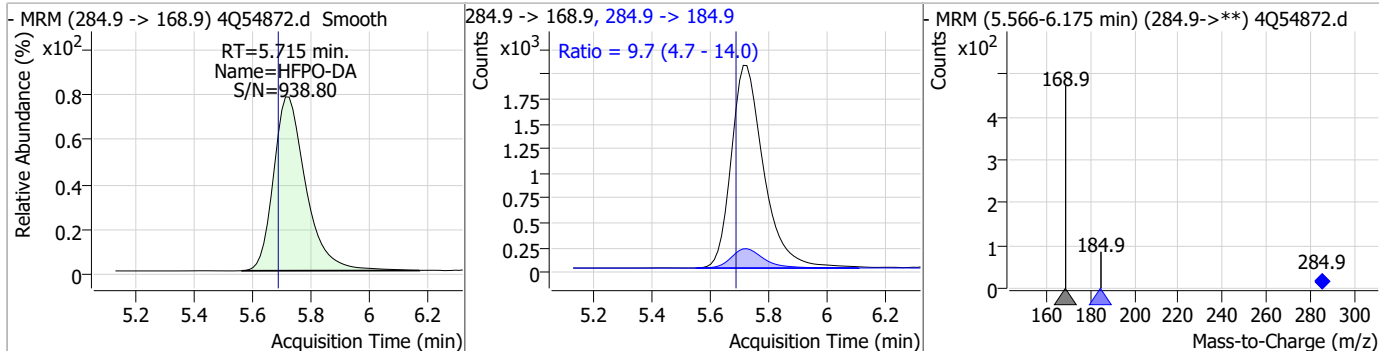
### Perfluorinated Compounds by LC/MS/MS



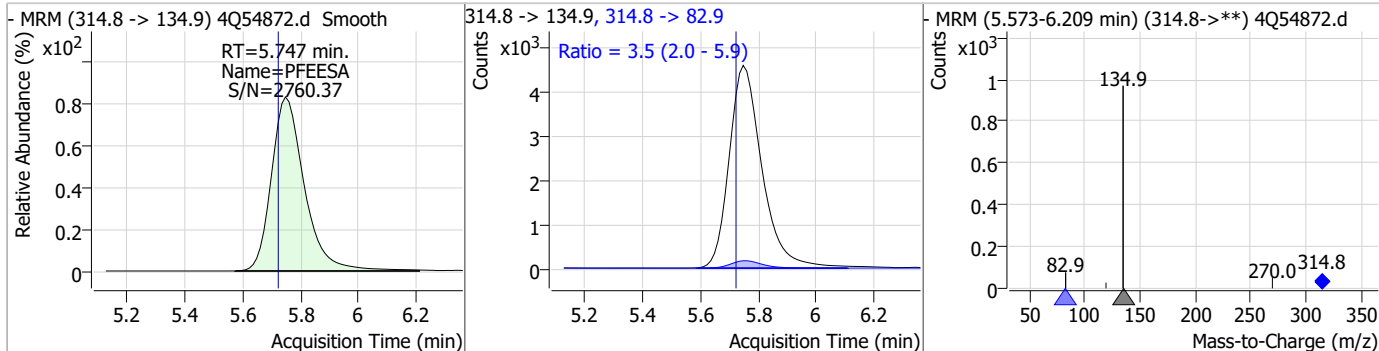
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### Perfluorinated Compounds by LC/MS/MS

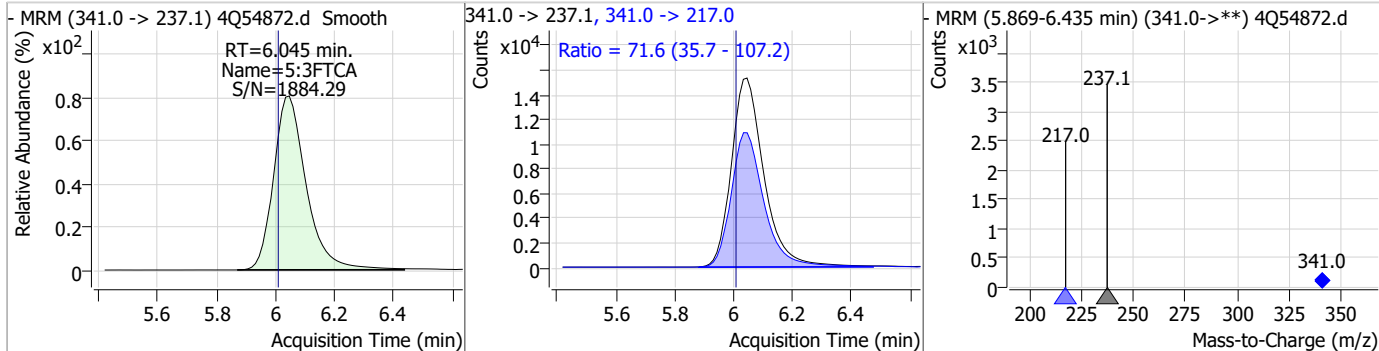
| Compound | Conc. | RT   | Dev(Min) | Resp. | QIon           | QRatio | Min. | Max. |
|----------|-------|------|----------|-------|----------------|--------|------|------|
| HFPO-DA  | 4.71  | 5.72 | 0.02     | 15818 | 284.9 -> 184.9 | 9.7    | 4.7  | 14.0 |



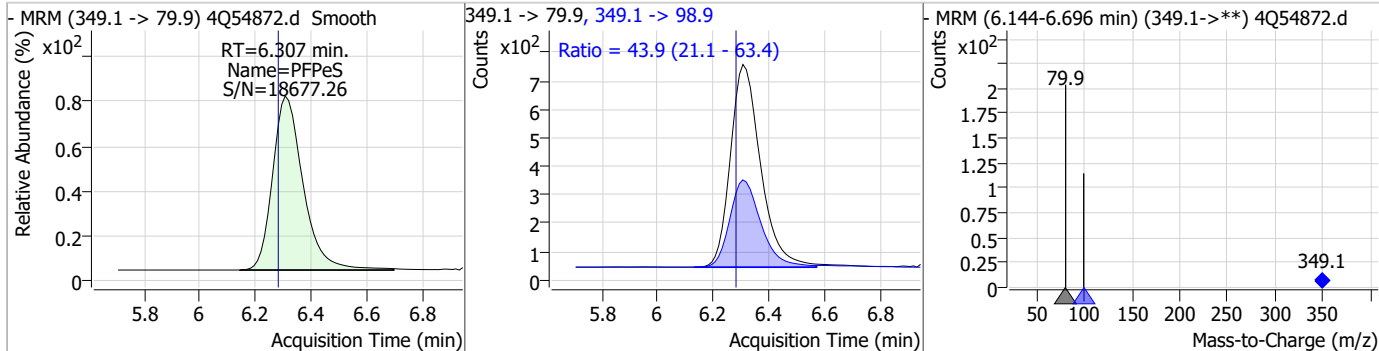
| Compound | Conc. | RT   | Dev(Min) | Resp. | QIon          | QRatio | Min. | Max. |
|----------|-------|------|----------|-------|---------------|--------|------|------|
| PFEESA   | 4.28  | 5.75 | 0.02     | 35998 | 314.8 -> 82.9 | 3.5    | 2.0  | 5.9  |



| Compound | Conc. | RT   | Dev(Min) | Resp.  | QIon           | QRatio | Min. | Max.  |
|----------|-------|------|----------|--------|----------------|--------|------|-------|
| 5:3FTCA  | 57.95 | 6.05 | 0.04     | 117651 | 341.0 -> 217.0 | 71.6   | 35.7 | 107.2 |

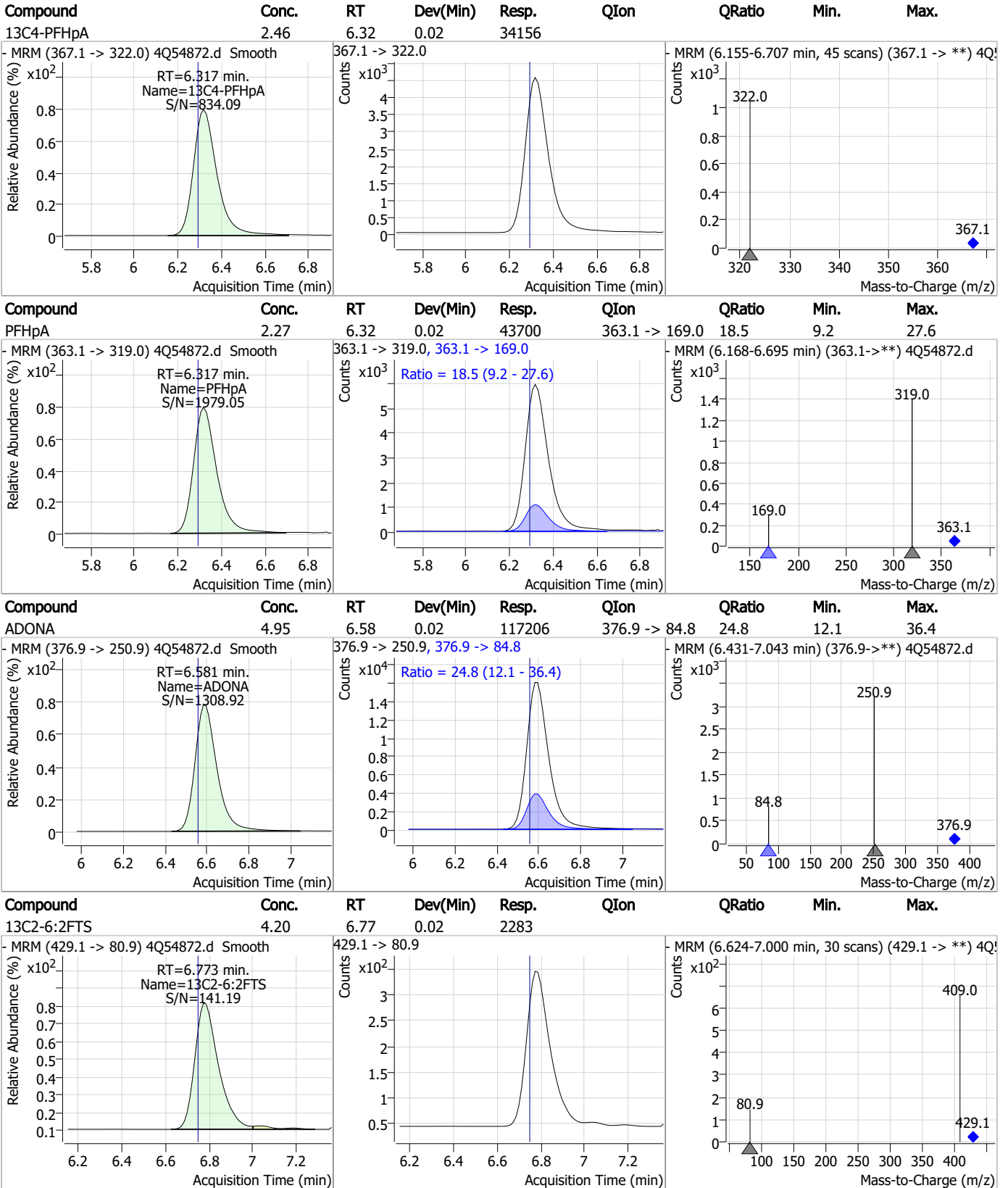


| Compound | Conc. | RT   | Dev(Min) | Resp. | QIon          | QRatio | Min. | Max. |
|----------|-------|------|----------|-------|---------------|--------|------|------|
| PFPeS    | 2.14  | 6.31 | 0.02     | 5440  | 349.1 -> 98.9 | 43.9   | 21.1 | 63.4 |



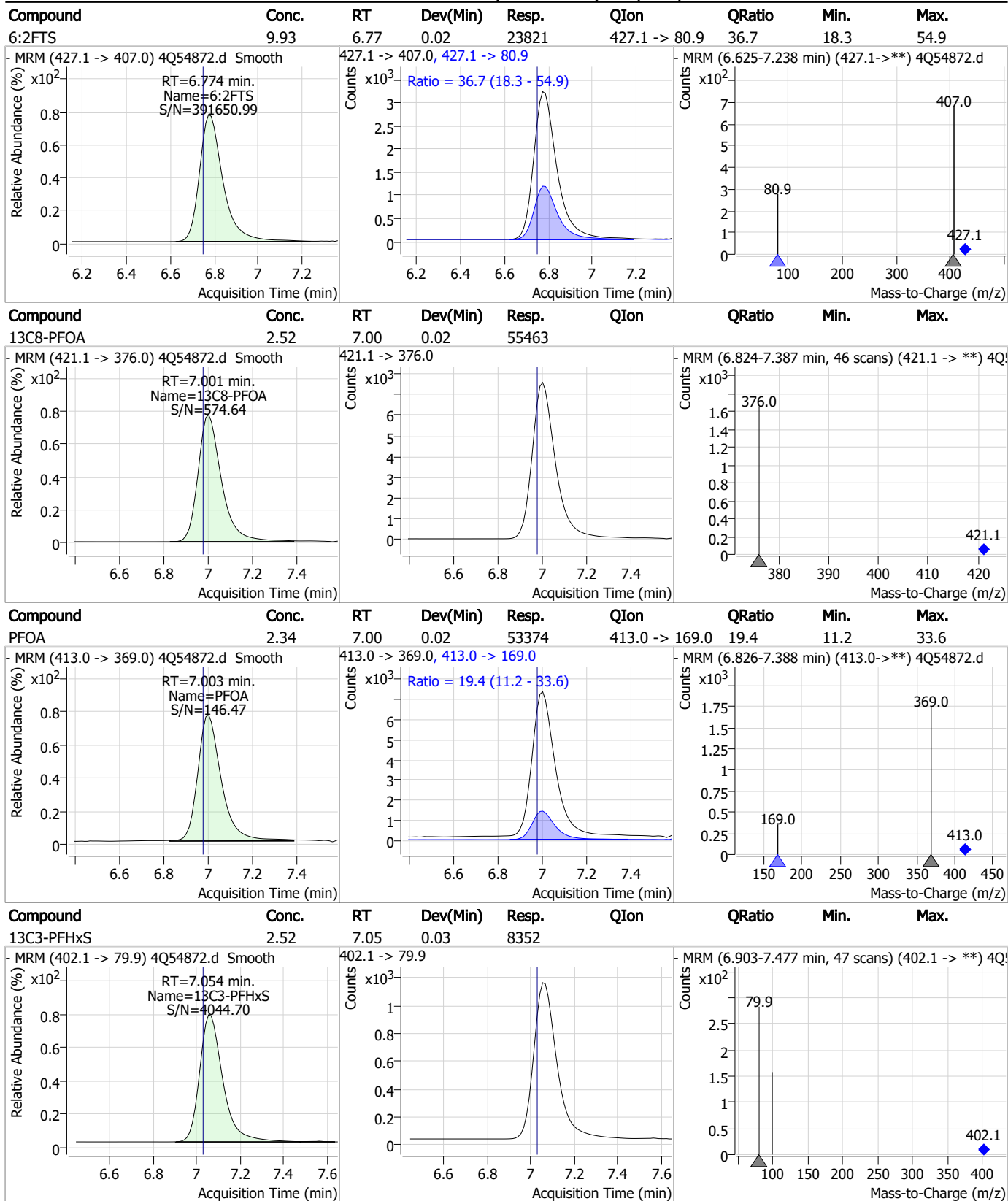
7.7.14  
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### Perfluorinated Compounds by LC/MS/MS



7.7.14  
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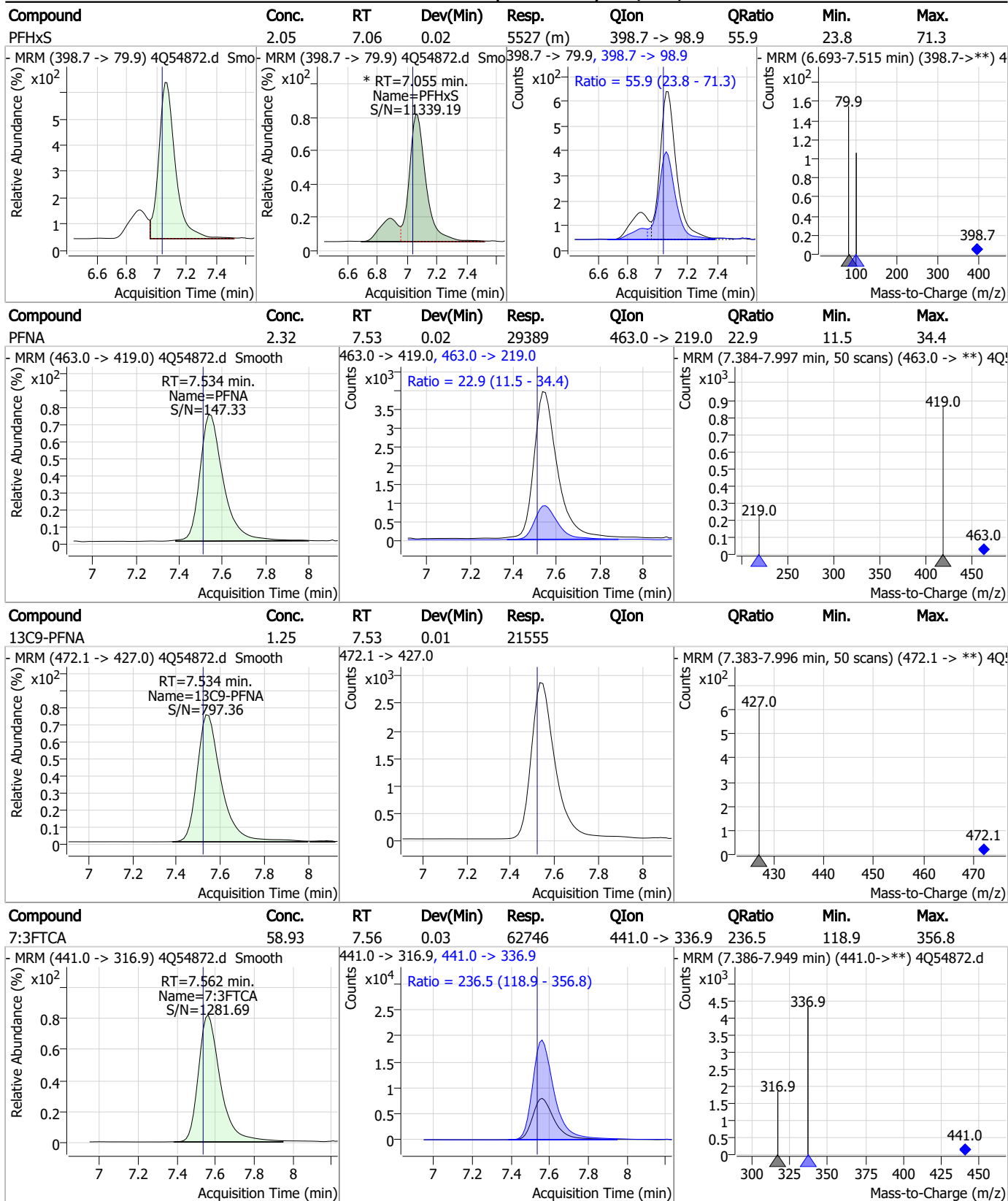
### Perfluorinated Compounds by LC/MS/MS



7.7.14

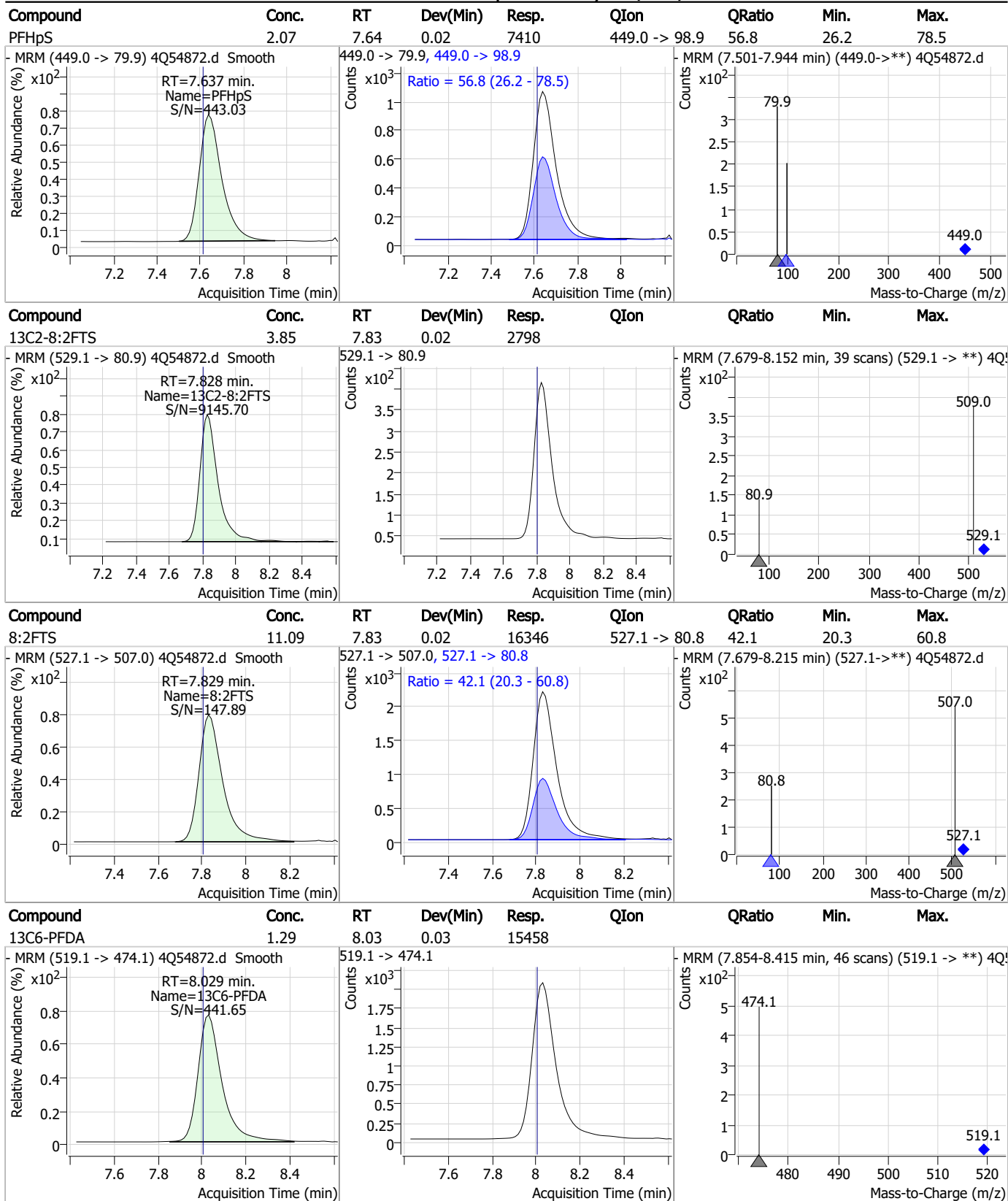


### Perfluorinated Compounds by LC/MS/MS



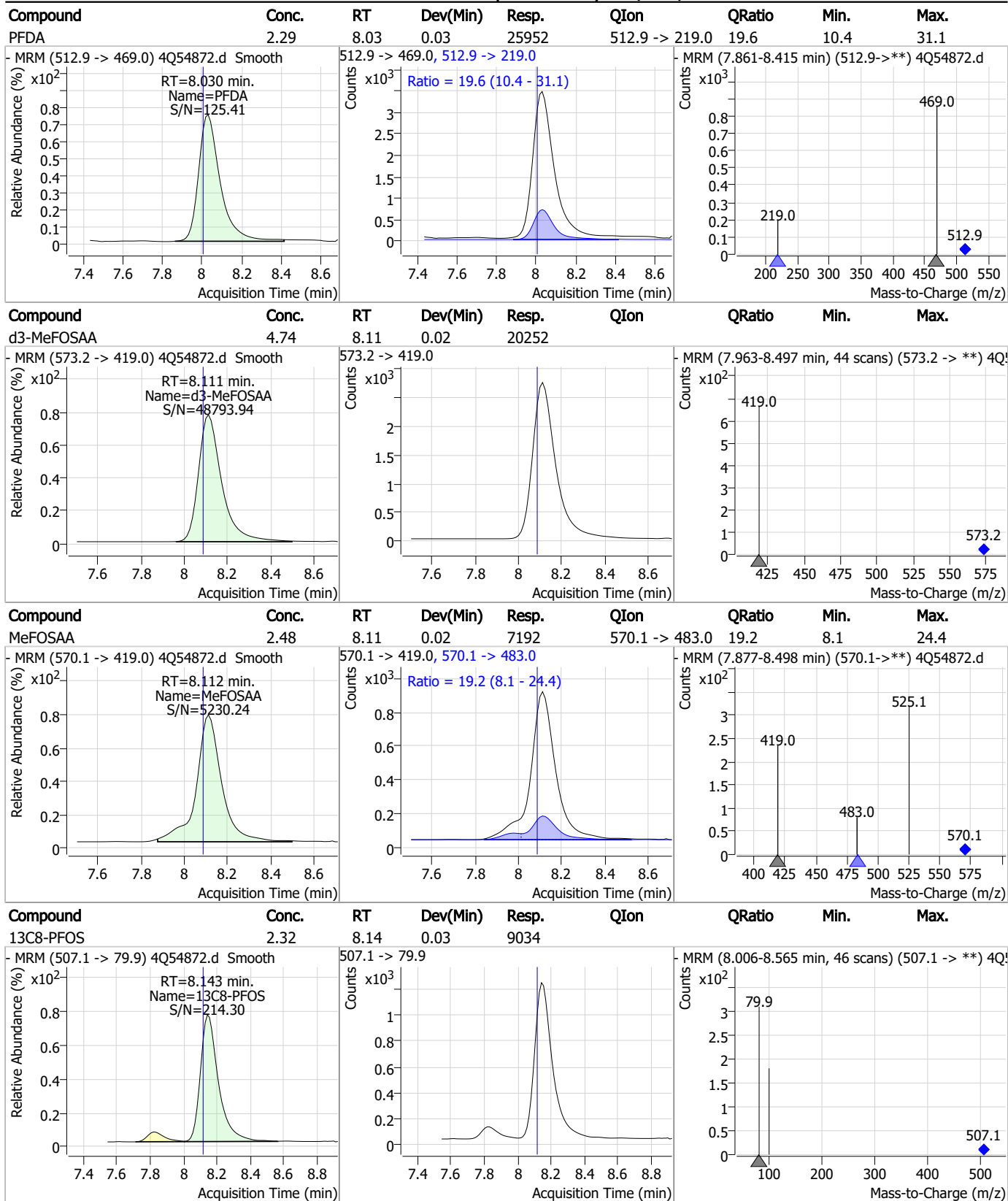
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### Perfluorinated Compounds by LC/MS/MS



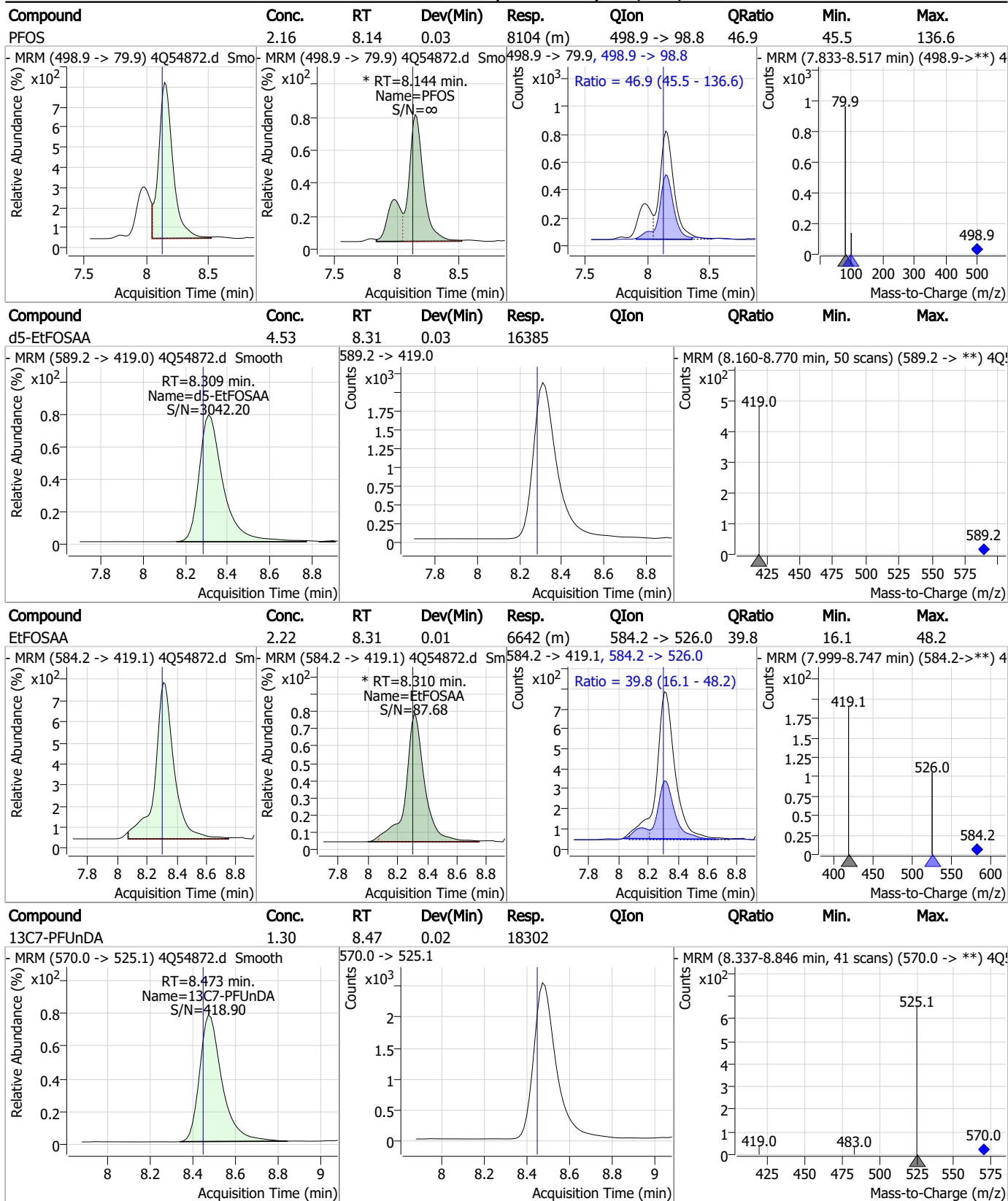
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### Perfluorinated Compounds by LC/MS/MS



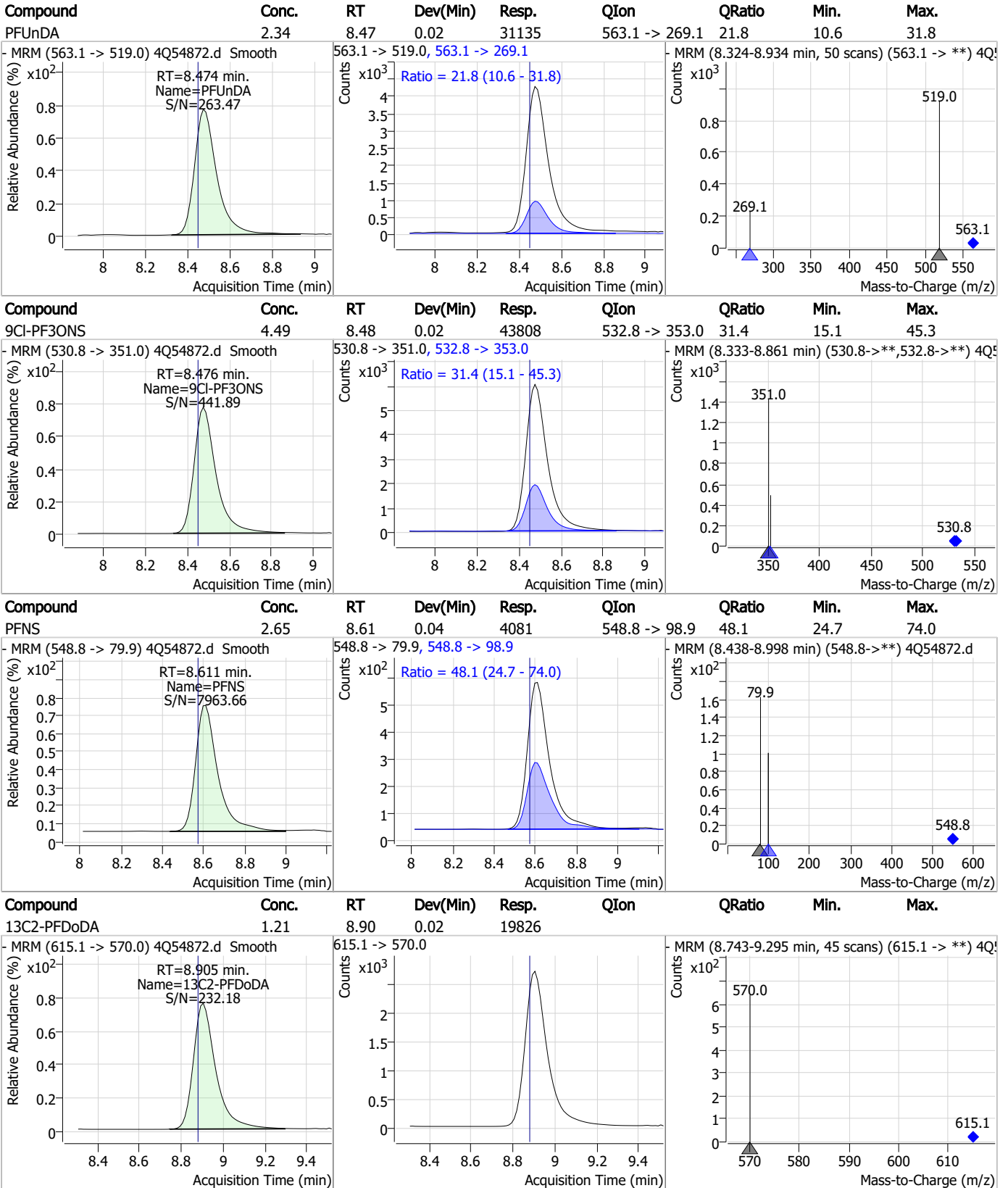
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### Perfluorinated Compounds by LC/MS/MS



7.7.14  
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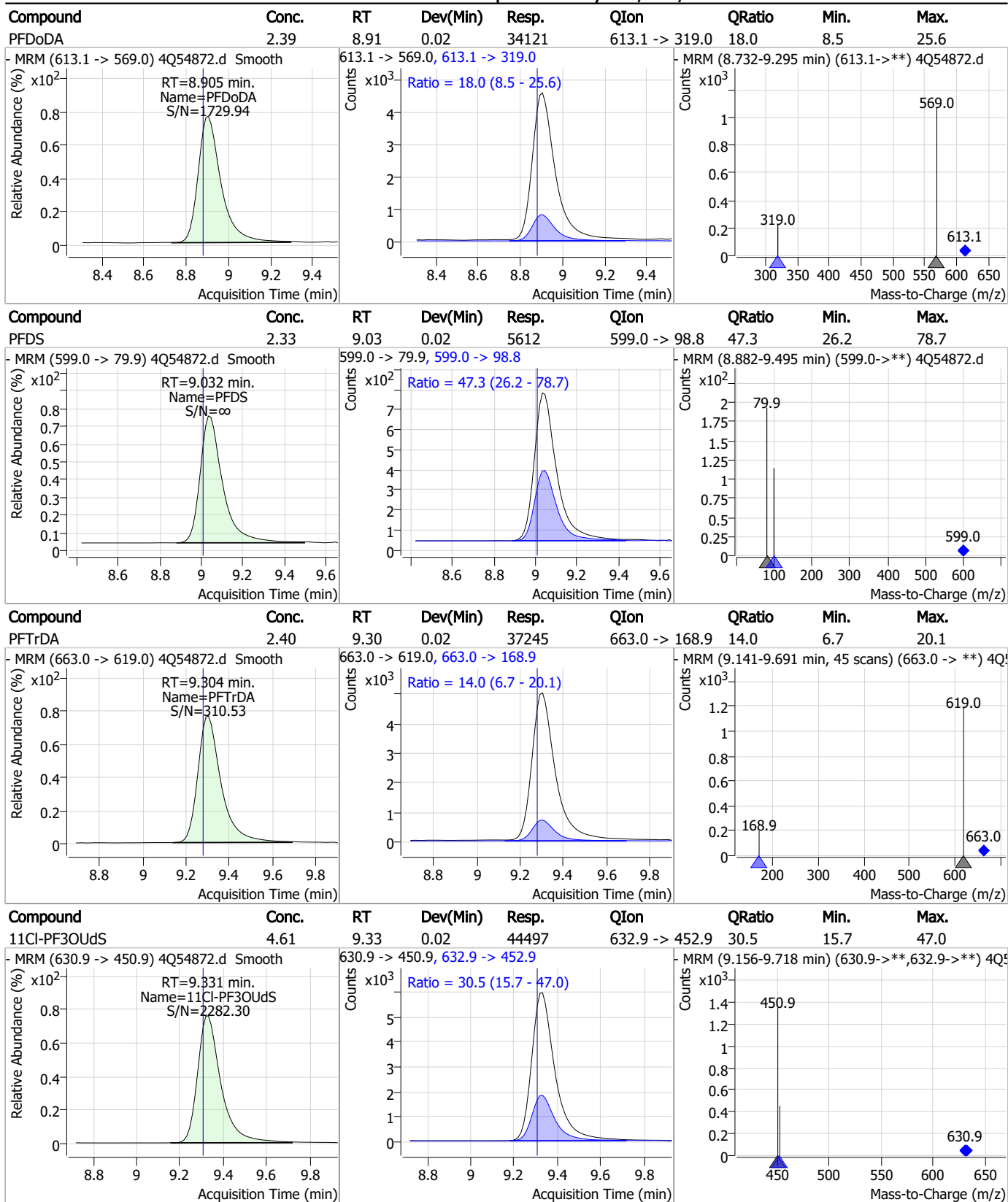
### Perfluorinated Compounds by LC/MS/MS



7.7.14  
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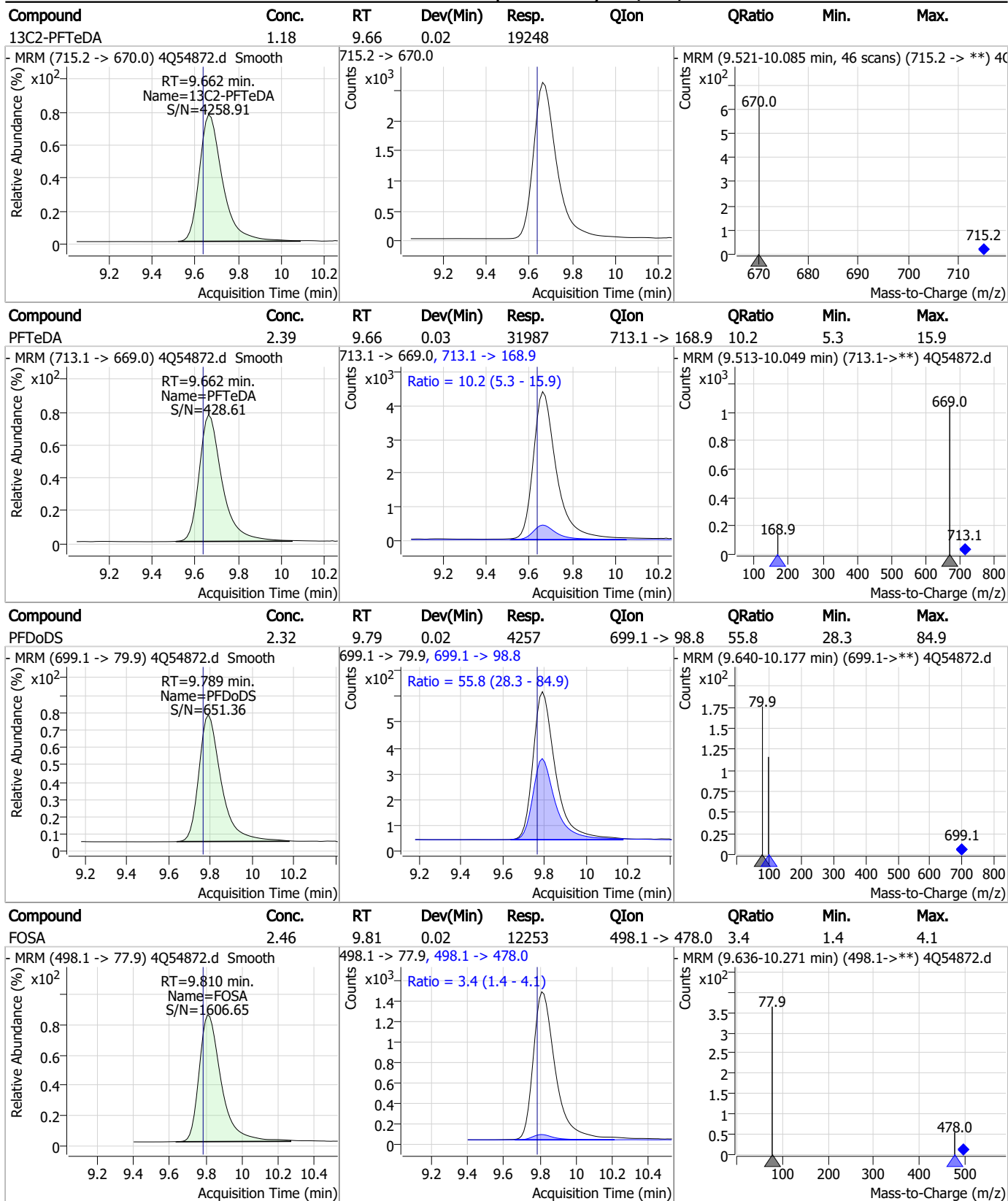


### Perfluorinated Compounds by LC/MS/MS



7.7.14  
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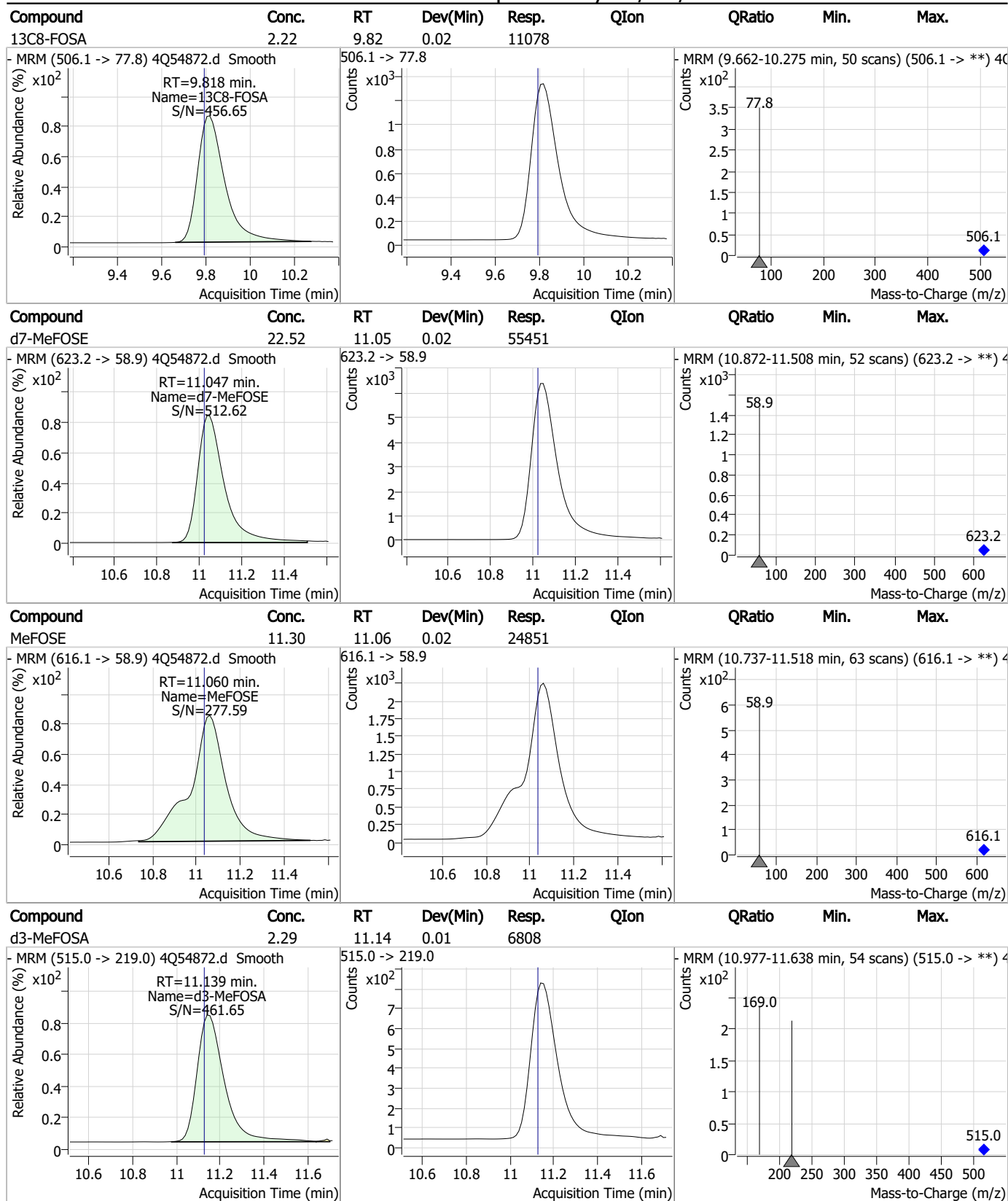
### Perfluorinated Compounds by LC/MS/MS



7.7.14



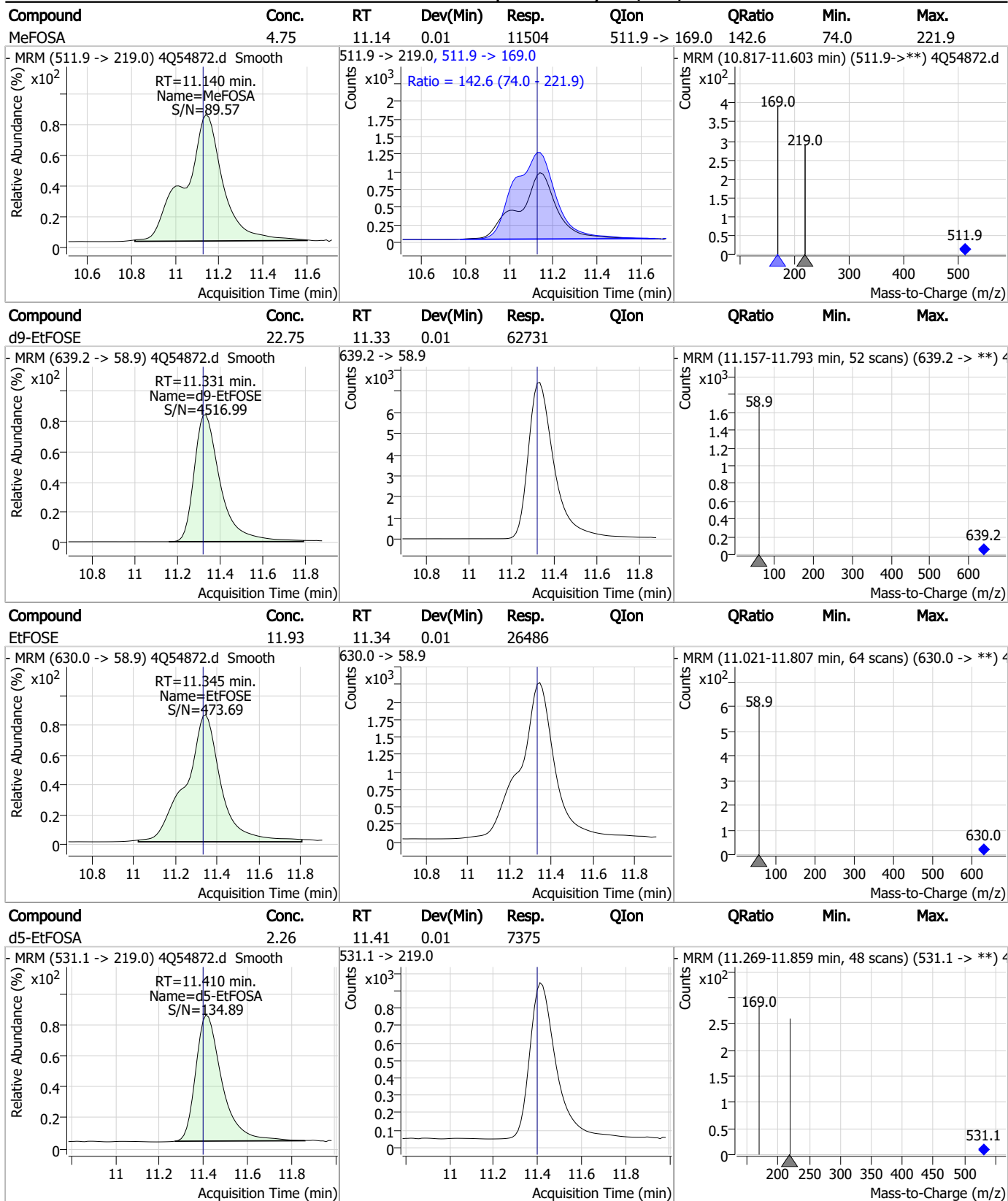
### Perfluorinated Compounds by LC/MS/MS



7.7.14  
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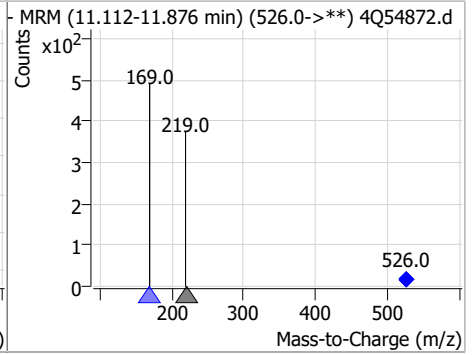
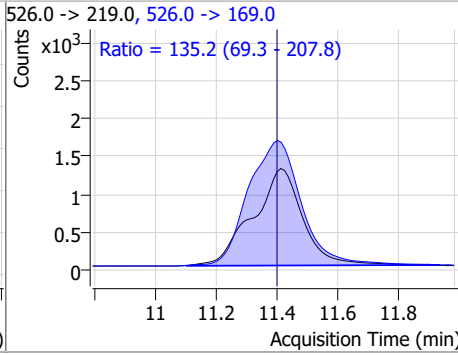
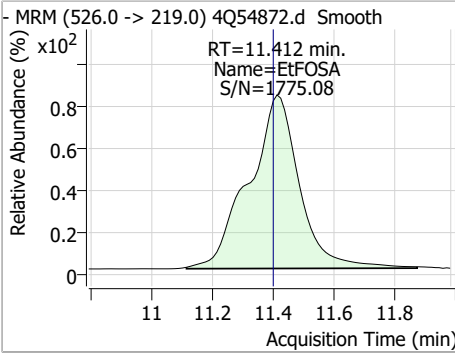
### Perfluorinated Compounds by LC/MS/MS



7.7.14

### Perfluorinated Compounds by LC/MS/MS

| Compound | Conc. | RT    | Dev(Min) | Resp. | QIon           | QRatio | Min. | Max.  |
|----------|-------|-------|----------|-------|----------------|--------|------|-------|
| EtFOSA   | 4.80  | 11.41 | 0.01     | 15069 | 526.0 -> 169.0 | 135.2  | 69.3 | 207.8 |



7.7.14  
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# Manual Integration Approval Summary

Sample Number: S4Q804-CC804      Method: EPA DRAFT 1633  
Lab FileID: 4Q54872.D      Analyst approved: 12/10/23 12:52 Anna Ludwig  
Injection Time: 12/08/23 16:39      Supervisor approved: 12/11/23 15:42 Natasha Gumtie

| Parameter                    | CAS       | Sig# | R.T.<br>(min.) | Reason     |
|------------------------------|-----------|------|----------------|------------|
| Perfluorohexanesulfonic acid | 355-46-4  |      | 7.05           | Split peak |
| Perfluorooctanesulfonic acid | 1763-23-1 |      | 8.14           | Split peak |
| EtFOSAA                      | 2991-50-6 |      | 8.31           | Split peak |

7.7.14.1

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### Perfluorinated Compounds by LC/MS/MS

Data File : 4Q54881.d  
 Operator : annal  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 12/8/2023 6:52:11 PM  
 Sample Name : cc804-4  
 Vial : P1-A5  
 DA Method File : 1633\_120823\_S4Q804.quantmethod.xml  
 Batch Name : s4q804.batch.bin  
 Sample Information : OP99999,S4Q804,500,,,5.0,1,water

| Compound                           | RT                   | Transition     | Response          | Conc. Units | Dev(Min) |
|------------------------------------|----------------------|----------------|-------------------|-------------|----------|
| <b>Internal Standards</b>          |                      |                |                   |             |          |
| M4-PFBA                            | 2.699                | 216.8 -> 171.9 | 108650            | 10.00 µg/L  | 0.025    |
| M5-PFPeA                           | 4.187                | 268.3 -> 223.0 | 44445             | 5.00 µg/L   | 0.025    |
| M5-PFHxA                           | 5.359                | 318.0 -> 273.0 | 36417             | 2.50 µg/L   | 0.025    |
| M4-PFHpA                           | 6.317                | 367.1 -> 322.0 | 34632             | 2.50 µg/L   | 0.025    |
| M8-PFOA                            | 6.989                | 421.1 -> 376.0 | 55057             | 2.50 µg/L   | 0.012    |
| M9-PFNA                            | 7.534                | 472.1 -> 427.0 | 21454             | 1.25 µg/L   | 0.012    |
| M6-PFDA                            | 8.017                | 519.1 -> 474.1 | 15363             | 1.25 µg/L   | 0.013    |
| M7-PFUnDA                          | 8.473                | 570.0 -> 525.1 | 19336             | 1.25 µg/L   | 0.025    |
| M2-PFDoDA                          | 8.892                | 615.1 -> 570.0 | 20512             | 1.25 µg/L   | 0.012    |
| M2-PFTeDA                          | 9.662                | 715.2 -> 670.0 | 20700             | 1.25 µg/L   | 0.025    |
| M8-FOSA                            | 9.806                | 506.1 -> 77.8  | 12732             | 2.50 µg/L   | 0.012    |
| M3-PFBS                            | 5.215                | 302.1 -> 79.9  | 10274             | 2.50 µg/L   | 0.025    |
| M3-PFHxS                           | 7.054                | 402.1 -> 79.9  | 8589              | 2.50 µg/L   | 0.025    |
| M8-PFOS                            | 8.130                | 507.1 -> 79.9  | 8777              | 2.50 µg/L   | 0.012    |
| M2-4:2FTS                          | 5.071                | 329.1 -> 80.9  | 1076              | 5.00 µg/L   | 0.025    |
| M2-6:2FTS                          | 6.773                | 429.1 -> 80.9  | 2366              | 5.00 µg/L   | 0.025    |
| M2-8:2FTS                          | 7.828                | 529.1 -> 80.9  | 3479              | 5.00 µg/L   | 0.025    |
| M3-MeFOSAA                         | 8.099                | 573.2 -> 419.0 | 19719             | 5.00 µg/L   | 0.012    |
| M3-HFPO-DA                         | 5.714                | 286.9 -> 168.9 | 35533             | 10.00 µg/L  | 0.025    |
| M5-EtFOSAA                         | 8.309                | 589.2 -> 419.0 | 17560             | 5.00 µg/L   | 0.026    |
| M7-MeFOSE                          | 11.034               | 623.2 -> 58.9  | 59074             | 25.00 µg/L  | 0.012    |
| M9-EtFOSE                          | 11.331               | 639.2 -> 58.9  | 68365             | 25.00 µg/L  | 0.012    |
| M5-EtFOSA                          | 11.410               | 531.1 -> 219.0 | 7038              | 2.50 µg/L   | 0.012    |
| M3-MeFOSA                          | 11.139               | 515.0 -> 219.0 | 6634              | 2.50 µg/L   | 0.012    |
| 13C4-PFOS                          | 8.144                | 502.8 -> 79.9  | 7540              | 2.50 µg/L   | 0.026    |
| 13C3-PFBA                          | 2.703                | 216.0 -> 172.0 | 51927             | 5.00 µg/L   | 0.025    |
| 18O2-PFHxS                         | 7.054                | 403.0 -> 83.9  | 5018              | 2.50 µg/L   | 0.013    |
| 13C4-PFOA                          | 6.989                | 417.1 -> 372.0 | 62892             | 2.50 µg/L   | 0.012    |
| 13C2-PFDA                          | 8.017                | 515.1 -> 470.1 | 16901             | 1.25 µg/L   | 0.013    |
| 13C5-PFNA                          | 7.534                | 468.0 -> 423.0 | 22009             | 1.25 µg/L   | 0.025    |
| 13C2-PFHxA                         | 5.360                | 315.1 -> 270.0 | 38647             | 2.50 µg/L   | 0.025    |
| <b>System Monitoring Compounds</b> |                      |                |                   |             |          |
| 13C2-4:2FTS                        | 5.071                | 329.1 -> 80.9  | 1076              | 4.52 µg/L   | 0.025    |
| Spiked Amount: 5.00                | Range: 50.0 - 150.0% |                | Recovery = 90.3%  |             |          |
| 13C2-6:2FTS                        | 6.773                | 429.1 -> 80.9  | 2366              | 4.58 µg/L   | 0.025    |
| Spiked Amount: 5.00                | Range: 50.0 - 150.0% |                | Recovery = 91.6%  |             |          |
| 13C2-8:2FTS                        | 7.828                | 529.1 -> 80.9  | 3479              | 5.03 µg/L   | 0.025    |
| Spiked Amount: 5.00                | Range: 50.0 - 150.0% |                | Recovery = 100.6% |             |          |
| 13C2-PFDoDA                        | 8.892                | 615.1 -> 570.0 | 20512             | 1.21 µg/L   | 0.012    |
| Spiked Amount: 1.25                | Range: 50.0 - 150.0% |                | Recovery = 97.1%  |             |          |
| 13C2-PFTeDA                        | 9.662                | 715.2 -> 670.0 | 20700             | 1.23 µg/L   | 0.025    |
| Spiked Amount: 1.25                | Range: 50.0 - 150.0% |                | Recovery = 98.7%  |             |          |
| 13C3-PFBS                          | 5.215                | 302.1 -> 79.9  | 10274             | 2.67 µg/L   | 0.025    |
| Spiked Amount: 2.50                | Range: 50.0 - 150.0% |                | Recovery = 106.8% |             |          |
| 13C3-PFHxS                         | 7.054                | 402.1 -> 79.9  | 8589              | 2.73 µg/L   | 0.025    |

7.7.15  
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Perfluorinated Compounds by LC/MS/MS

| Compound                | RT                   | Transition     | Response | Conc. Units       | Dev(Min)      |
|-------------------------|----------------------|----------------|----------|-------------------|---------------|
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 109.2% |               |
| 13C4-PFBA               | 2.699                | 216.8 -> 171.9 | 108650   | 9.96 µg/L         | 0.025         |
| Spiked Amount: 10.00    | Range: 50.0 - 150.0% |                |          | Recovery = 99.6%  |               |
| 13C4-PFHpA              | 6.317                | 367.1 -> 322.0 | 34632    | 2.54 µg/L         | 0.025         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 101.7% |               |
| 13C5-PFHxA              | 5.359                | 318.0 -> 273.0 | 36417    | 2.56 µg/L         | 0.025         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 102.3% |               |
| 13C5-PFPeA              | 4.187                | 268.3 -> 223.0 | 44445    | 5.01 µg/L         | 0.025         |
| Spiked Amount: 5.00     | Range: 50.0 - 150.0% |                |          | Recovery = 100.2% |               |
| 13C6-PFDA               | 8.017                | 519.1 -> 474.1 | 15363    | 1.25 µg/L         | 0.013         |
| Spiked Amount: 1.25     | Range: 50.0 - 150.0% |                |          | Recovery = 99.9%  |               |
| 13C7-PFUnDA             | 8.473                | 570.0 -> 525.1 | 19336    | 1.33 µg/L         | 0.025         |
| Spiked Amount: 1.25     | Range: 50.0 - 150.0% |                |          | Recovery = 106.7% |               |
| 13C8-FOSA               | 9.806                | 506.1 -> 77.8  | 12732    | 2.61 µg/L         | 0.012         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 104.2% |               |
| 13C8-PFOA               | 6.989                | 421.1 -> 376.0 | 55057    | 2.37 µg/L         | 0.012         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 94.8%  |               |
| 13C8-PFOS               | 8.130                | 507.1 -> 79.9  | 8777     | 2.30 µg/L         | 0.012         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 92.0%  |               |
| 13C9-PFNA               | 7.534                | 472.1 -> 427.0 | 21454    | 1.22 µg/L         | 0.012         |
| Spiked Amount: 1.25     | Range: 50.0 - 150.0% |                |          | Recovery = 97.3%  |               |
| d3-MeFOSAA              | 8.099                | 573.2 -> 419.0 | 19719    | 4.71 µg/L         | 0.012         |
| Spiked Amount: 5.00     | Range: 50.0 - 150.0% |                |          | Recovery = 94.2%  |               |
| 13C3-HFPO-DA            | 5.714                | 286.9 -> 168.9 | 35533    | 9.99 µg/L         | 0.025         |
| Spiked Amount: 10.00    | Range: 50.0 - 150.0% |                |          | Recovery = 99.9%  |               |
| d3-MeFOSA               | 11.139               | 515.0 -> 219.0 | 6634     | 2.28 µg/L         | 0.012         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 91.0%  |               |
| d5-EtFOSAA              | 8.309                | 589.2 -> 419.0 | 17560    | 4.96 µg/L         | 0.026         |
| Spiked Amount: 5.00     | Range: 50.0 - 150.0% |                |          | Recovery = 99.2%  |               |
| d7-MeFOSE               | 11.034               | 623.2 -> 58.9  | 59074    | 24.51 µg/L        | 0.012         |
| Spiked Amount: 25.00    | Range: 50.0 - 150.0% |                |          | Recovery = 98.0%  |               |
| d9-EtFOSE               | 11.331               | 639.2 -> 58.9  | 68365    | 25.32 µg/L        | 0.012         |
| Spiked Amount: 25.00    | Range: 50.0 - 150.0% |                |          | Recovery = 101.3% |               |
| d5-EtFOSA               | 11.410               | 531.1 -> 219.0 | 7038     | 2.20 µg/L         | 0.012         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                |          | Recovery = 88.1%  |               |
| <b>Target Compounds</b> |                      |                |          |                   | <b>QValue</b> |
| 4:2FTS                  | 5.072                | 327.1 -> 307.0 | 18074    | 9.75 µg/L         | 99            |
|                         |                      | 327.1 -> 80.9  | 7627     |                   |               |
| 6:2FTS                  | 6.774                | 427.1 -> 407.0 | 23749    | 9.55 µg/L         | 100           |
|                         |                      | 427.1 -> 80.9  | 8684     |                   |               |
| 8:2FTS                  | 7.829                | 527.1 -> 507.0 | 17503    | 9.55 µg/L         | 99            |
|                         |                      | 527.1 -> 80.8  | 7003     |                   |               |
| EtFOSAA                 | 8.310                | 584.2 -> 419.1 | 7440     | 2.32 µg/L         | 85            |
|                         |                      | 584.2 -> 526.0 | 3020     |                   |               |
| FOSA                    | 9.810                | 498.1 -> 77.9  | 12921    | 2.26 µg/L         | 98            |
|                         |                      | 498.1 -> 478.0 | 433      |                   |               |
| MeFOSAA                 | 8.099                | 570.1 -> 419.0 | 7287     | 2.58 µg/L         | 93            |
|                         |                      | 570.1 -> 483.0 | 1407     |                   |               |
| PFBA                    | 2.695                | 212.8 -> 168.9 | 32683    | 9.39 µg/L         | 100           |
| PFBS                    | 5.216                | 298.7 -> 79.9  | 6265     | 1.97 µg/L         | 84            |
|                         |                      | 298.7 -> 98.8  | 1909     |                   |               |
| PFDA                    | 8.017                | 512.9 -> 469.0 | 25721    | 2.28 µg/L         | 97            |
|                         |                      | 512.9 -> 219.0 | 4979     |                   |               |
| PFDoDA                  | 8.893                | 613.1 -> 569.0 | 36187    | 2.45 µg/L         | 100           |
|                         |                      | 613.1 -> 319.0 | 6260     |                   |               |
| PFDS                    | 9.032                | 599.0 -> 79.9  | 5518     | 2.36 µg/L         | 94            |

7.7.15  
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Perfluorinated Compounds by LC/MS/MS

| Compound     | RT     | Transition     | Response | Conc. | Units | Dev(Min) |
|--------------|--------|----------------|----------|-------|-------|----------|
| PFHpA        | 6.317  | 599.0 -> 98.8  | 2668     | 2.29  | µg/L  | 98       |
|              |        | 363.1 -> 319.0 | 44580    |       |       |          |
| PFHpS        | 7.637  | 363.1 -> 169.0 | 7813     | 2.37  | µg/L  | 97       |
|              |        | 449.0 -> 79.9  | 8259     |       |       |          |
| PFHxA        | 5.362  | 449.0 -> 98.9  | 4167     | 2.22  | µg/L  | 99       |
|              |        | 313.0 -> 269.0 | 25816    |       |       |          |
| PFHxS        | 7.055  | 313.0 -> 118.9 | 807      | 1.99  | µg/L  | m        |
|              |        | 398.7 -> 79.9  | 5518     |       |       |          |
| PFNA         | 7.534  | 398.7 -> 98.9  | 2871     | 2.30  | µg/L  | 99       |
|              |        | 463.0 -> 419.0 | 29036    |       |       |          |
| PFNS         | 8.598  | 463.0 -> 219.0 | 6837     | 2.54  | µg/L  | 91       |
|              |        | 548.8 -> 79.9  | 3798     |       |       |          |
| PFOA         | 6.990  | 548.8 -> 98.9  | 2111     | 2.38  | µg/L  | 94       |
|              |        | 413.0 -> 369.0 | 53830    |       |       |          |
| PFOS         | 8.144  | 413.0 -> 169.0 | 10517    | 2.30  | µg/L  | m        |
|              |        | 498.9 -> 79.9  | 8414     |       |       |          |
| PFPeA        | 4.177  | 498.9 -> 98.8  | 4132     | 4.68  | µg/L  | 100      |
|              |        | 263.0 -> 219.0 | 40969    |       |       |          |
| PFPeS        | 6.307  | 349.1 -> 79.9  | 5376     | 2.06  | µg/L  | 96       |
|              |        | 349.1 -> 98.9  | 2426     |       |       |          |
| PFTeDA       | 9.662  | 713.1 -> 669.0 | 32977    | 2.29  | µg/L  | 98       |
|              |        | 713.1 -> 168.9 | 3699     |       |       |          |
| PFTrDA       | 9.292  | 663.0 -> 619.0 | 39164    | 2.44  | µg/L  | 97       |
|              |        | 663.0 -> 168.9 | 5767     |       |       |          |
| PFUnDA       | 8.474  | 563.1 -> 519.0 | 32418    | 2.31  | µg/L  | 97       |
|              |        | 563.1 -> 269.1 | 7317     |       |       |          |
| 11Cl-PF3OUdS | 9.319  | 630.9 -> 450.9 | 44560    | 4.55  | µg/L  | 100      |
|              |        | 632.9 -> 452.9 | 13917    |       |       |          |
| 9Cl-PF3ONS   | 8.476  | 530.8 -> 351.0 | 45197    | 4.57  | µg/L  | 98       |
|              |        | 532.8 -> 353.0 | 14122    |       |       |          |
| ADONA        | 6.581  | 376.9 -> 250.9 | 117498   | 4.90  | µg/L  | 100      |
|              |        | 376.9 -> 84.8  | 28432    |       |       |          |
| HFPO-DA      | 5.715  | 284.9 -> 168.9 | 15441    | 4.54  | µg/L  | 99       |
|              |        | 284.9 -> 184.9 | 1403     |       |       |          |
| 3:3FTCA      | 3.630  | 241.0 -> 177.0 | 6216     | 11.24 | µg/L  | 99       |
|              |        | 241.0 -> 117.0 | 537      |       |       |          |
| 5:3FTCA      | 6.033  | 341.0 -> 237.1 | 119462   | 57.64 | µg/L  | 100      |
|              |        | 341.0 -> 217.0 | 85189    |       |       |          |
| 7:3FTCA      | 7.549  | 441.0 -> 316.9 | 63720    | 58.63 | µg/L  | 97       |
|              |        | 441.0 -> 336.9 | 148674   |       |       |          |
| EtFOSA       | 11.412 | 526.0 -> 219.0 | 14539    | 4.85  | µg/L  | 100      |
|              |        | 526.0 -> 169.0 | 20097    |       |       |          |
| EtFOSE       | 11.345 | 630.0 -> 58.9  | 27911    | 11.54 | µg/L  | 100      |
|              |        | 511.9 -> 219.0 | 11835    |       |       |          |
| MeFOSA       | 11.140 | 511.9 -> 169.0 | 17073    | 5.01  | µg/L  | m        |
|              |        | 616.1 -> 58.9  | 27518    |       |       |          |
| MeFOSE       | 11.060 | 699.1 -> 79.9  | 4108     | 11.74 | µg/L  | 100      |
|              |        | 699.1 -> 98.8  | 2294     |       |       |          |
| PFDoDS       | 9.789  | 295.0 -> 201.0 | 3638     | 2.31  | µg/L  | 99       |
|              |        | 295.0 -> 84.9  | 980      |       |       |          |
| NFDHA        | 5.241  | 279.0 -> 85.1  | 22495    | 4.42  | µg/L  | 99       |
|              |        | 229.0 -> 84.9  | 24452    |       |       |          |
| PFMBA        | 4.591  | 314.8 -> 134.9 | 35868    | 4.67  | µg/L  | 100      |
|              |        | 314.8 -> 82.9  | 1207     |       |       |          |
| PFMPA        | 3.332  |                |          | 4.62  | µg/L  | 100      |
|              |        |                |          |       |       |          |
| PFEESA       | 5.734  |                |          | 4.18  | µg/L  | 98       |
|              |        |                |          |       |       |          |

# = Qualifier out of range, m = manually integrated, + = Area summed



7.7.15  
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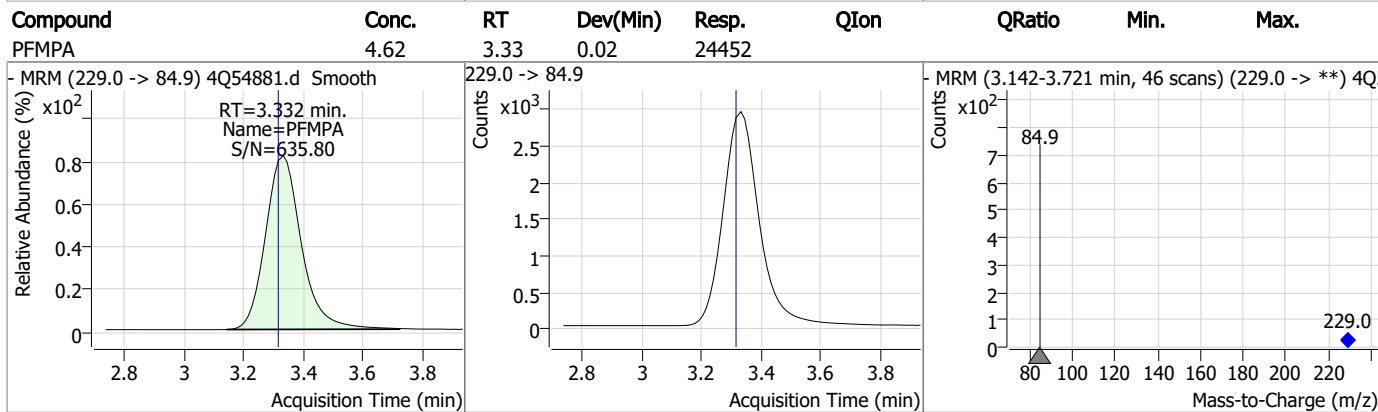
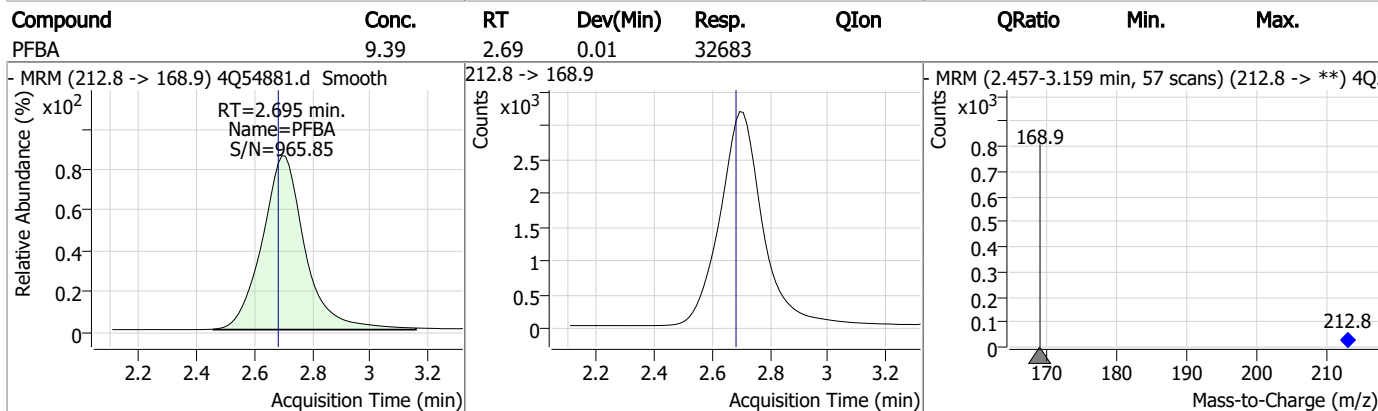
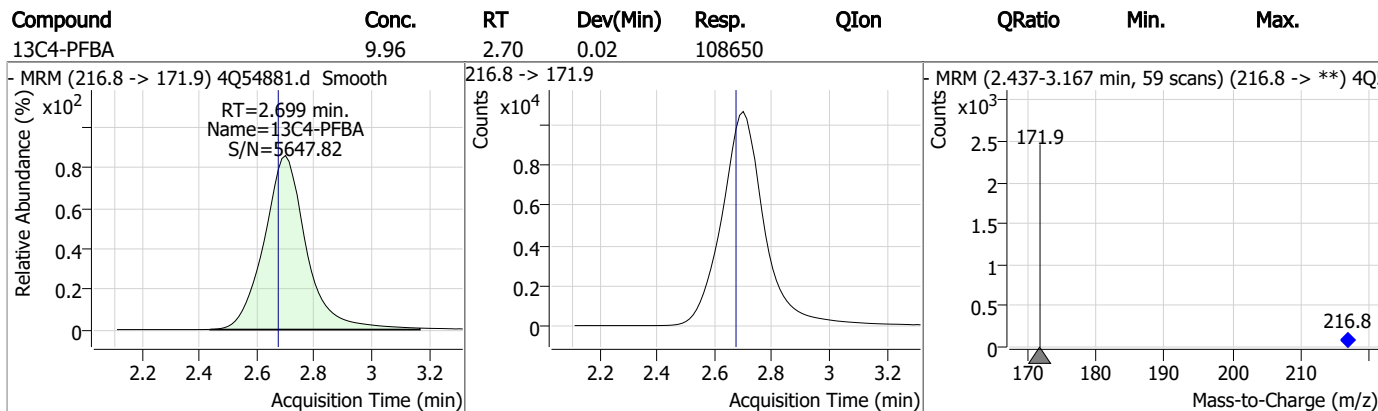
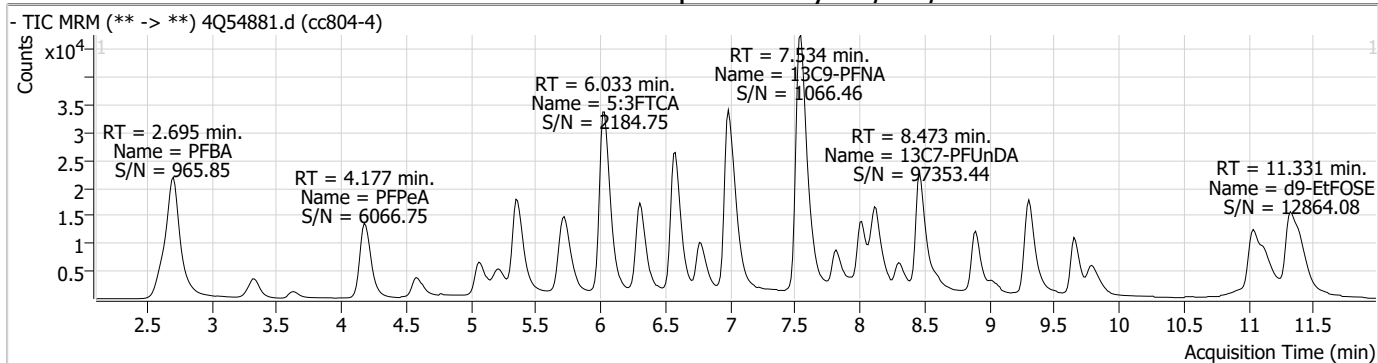
### Perfluorinated Compounds by LC/MS/MS

| Compound | RT | Transition | Response | Conc. Units | Dev(Min) |
|----------|----|------------|----------|-------------|----------|
|----------|----|------------|----------|-------------|----------|

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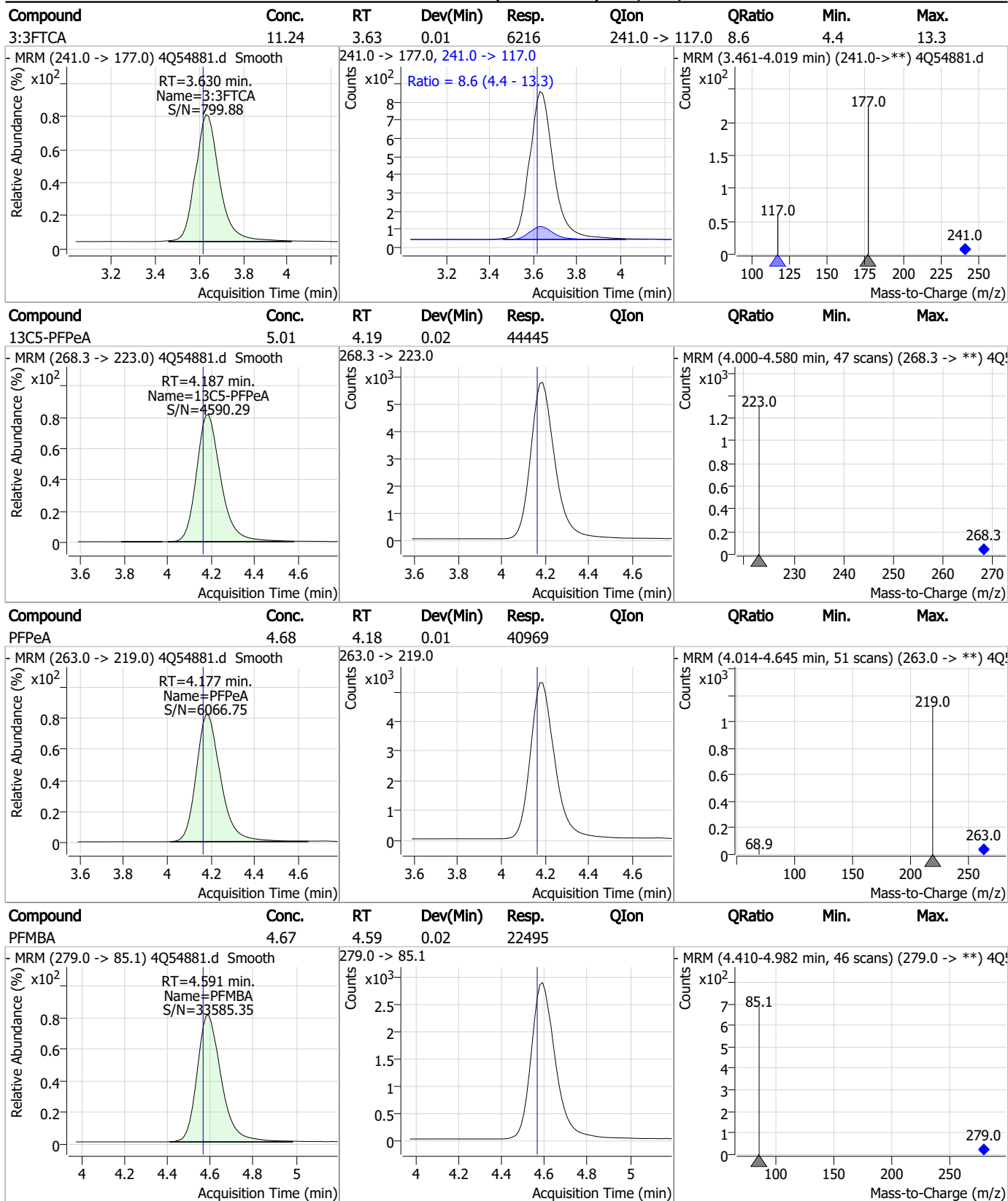
### Perfluorinated Compounds by LC/MS/MS



7.7.15  
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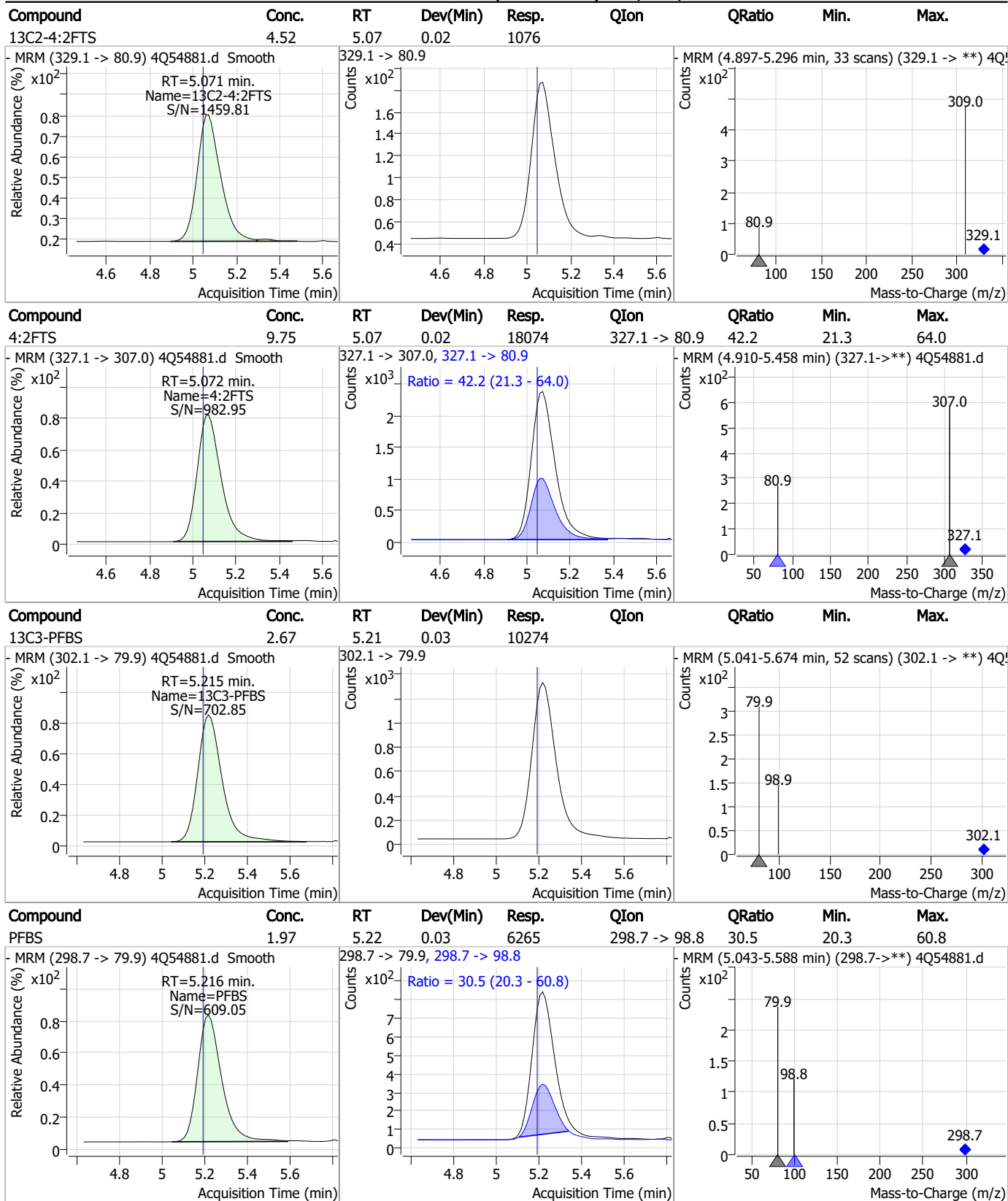


### Perfluorinated Compounds by LC/MS/MS



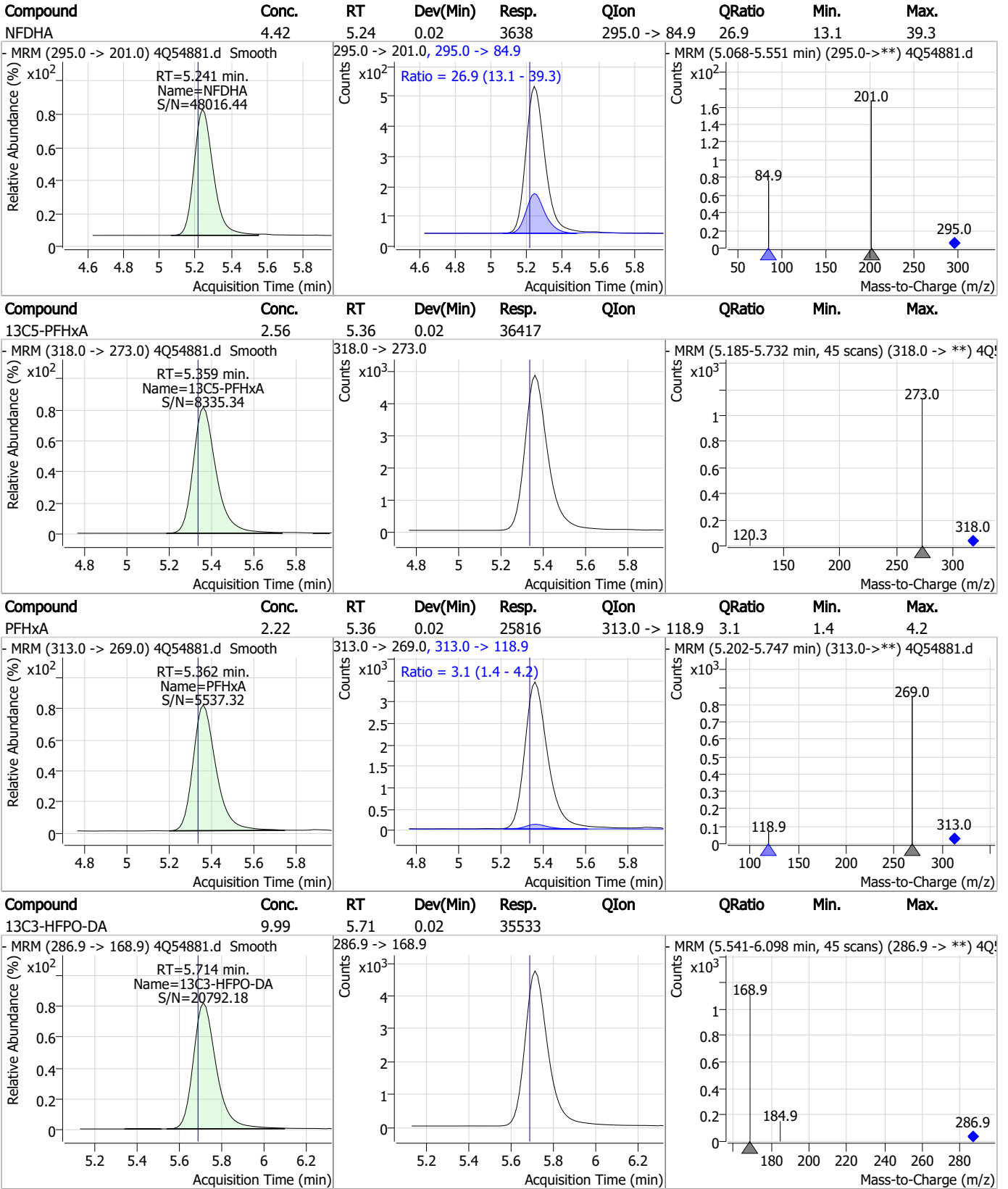
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### Perfluorinated Compounds by LC/MS/MS



7.7.15  
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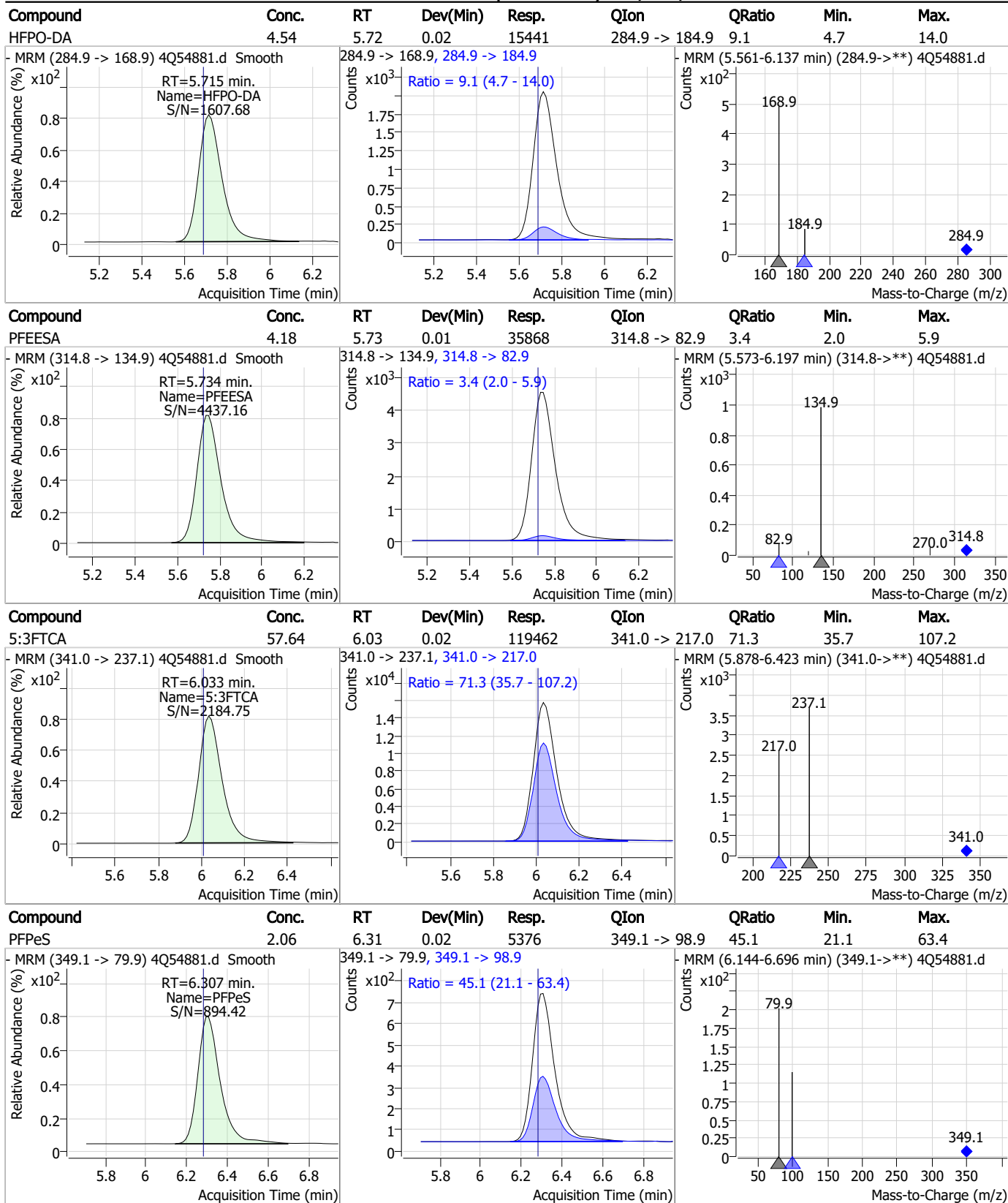
### Perfluorinated Compounds by LC/MS/MS



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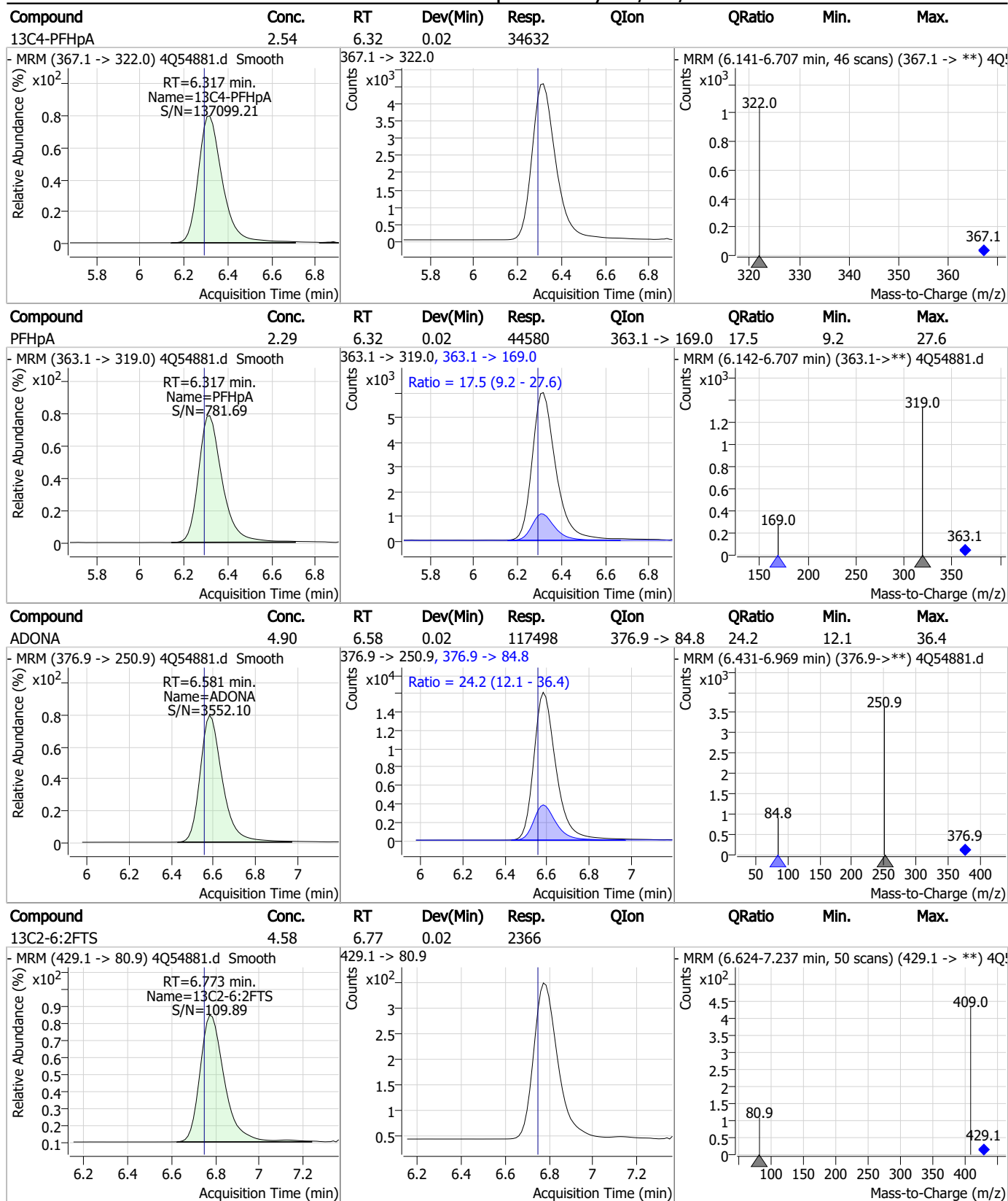
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### Perfluorinated Compounds by LC/MS/MS



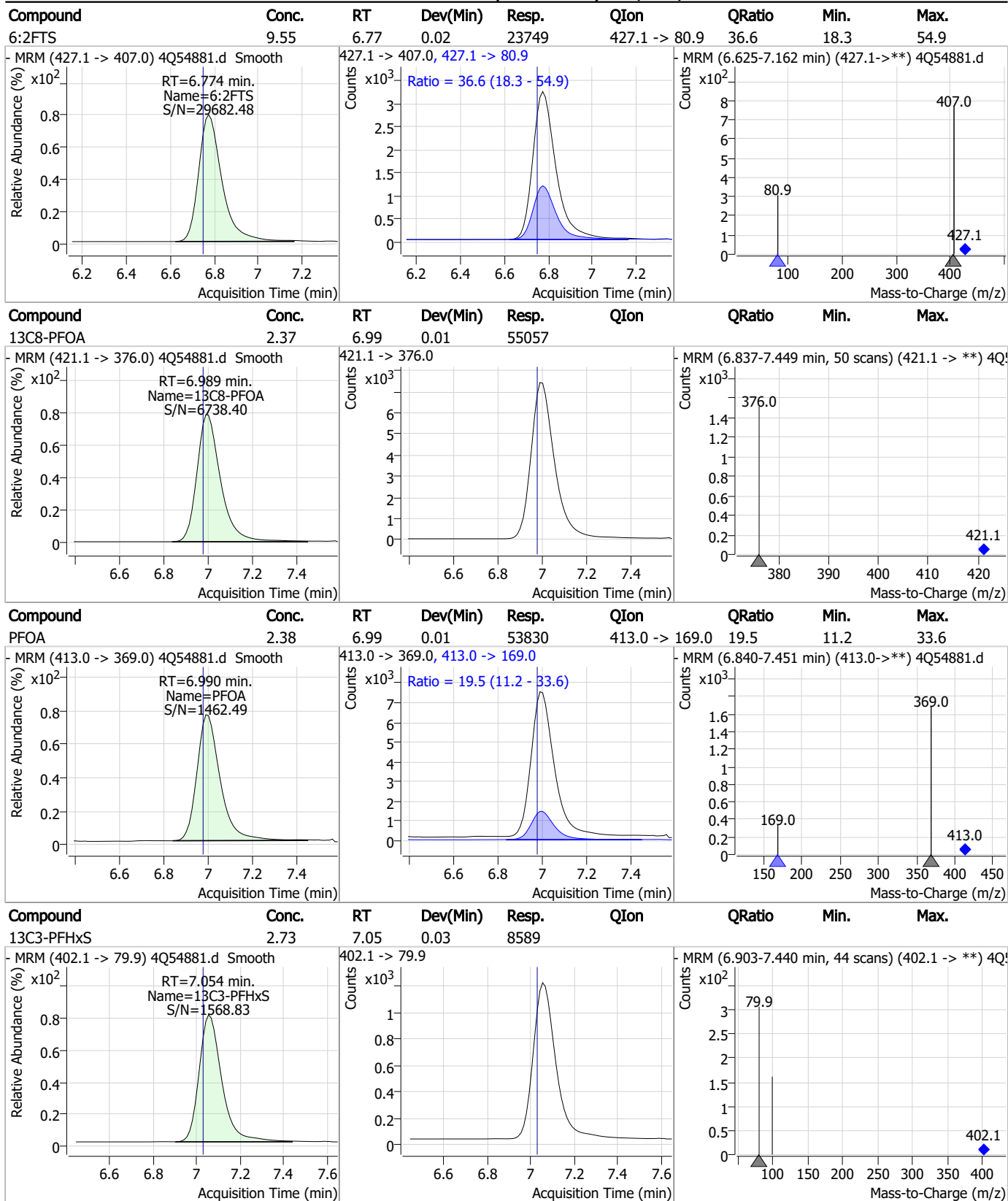
7.7.15  
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### Perfluorinated Compounds by LC/MS/MS



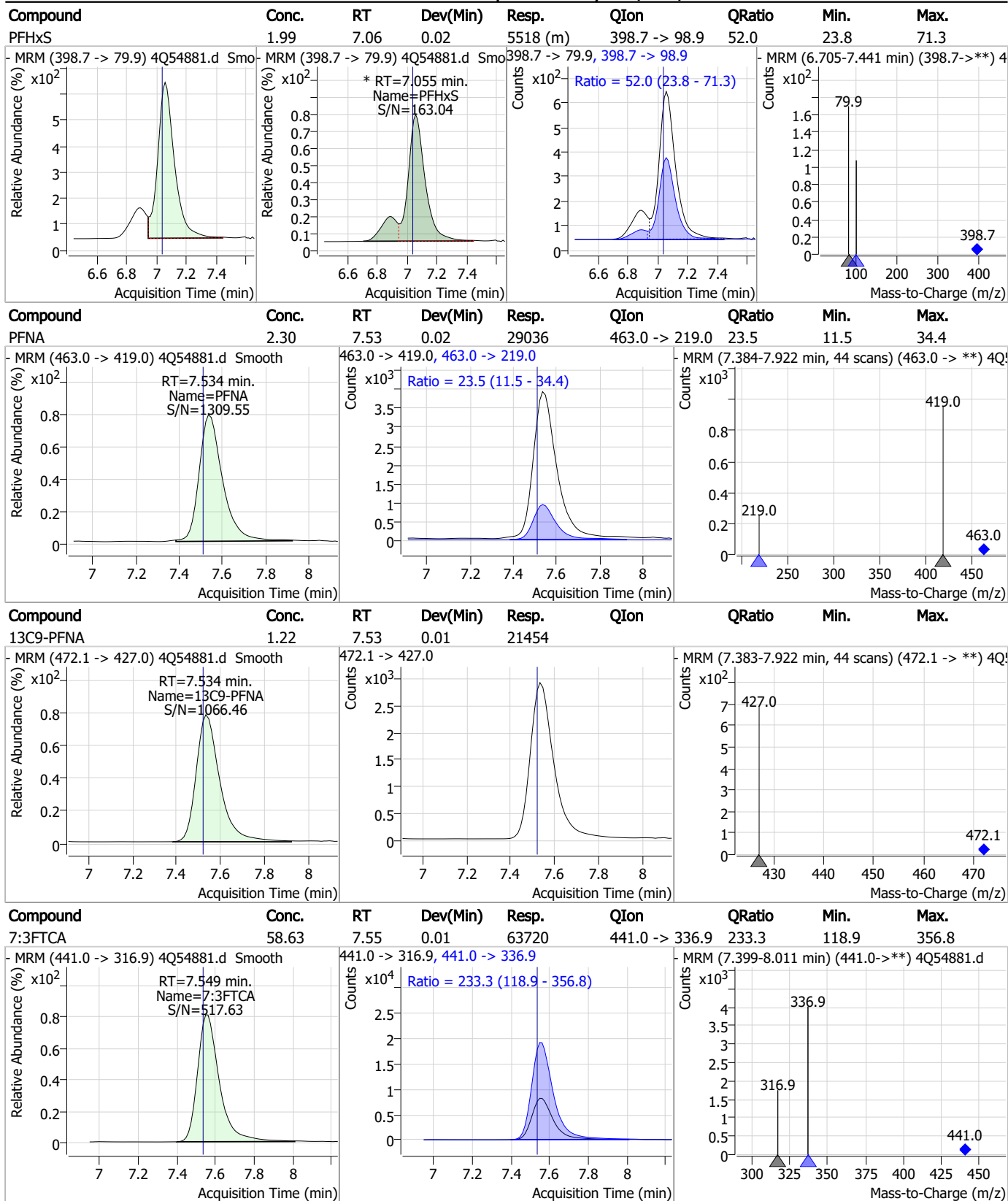
7.7.15  
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### Perfluorinated Compounds by LC/MS/MS



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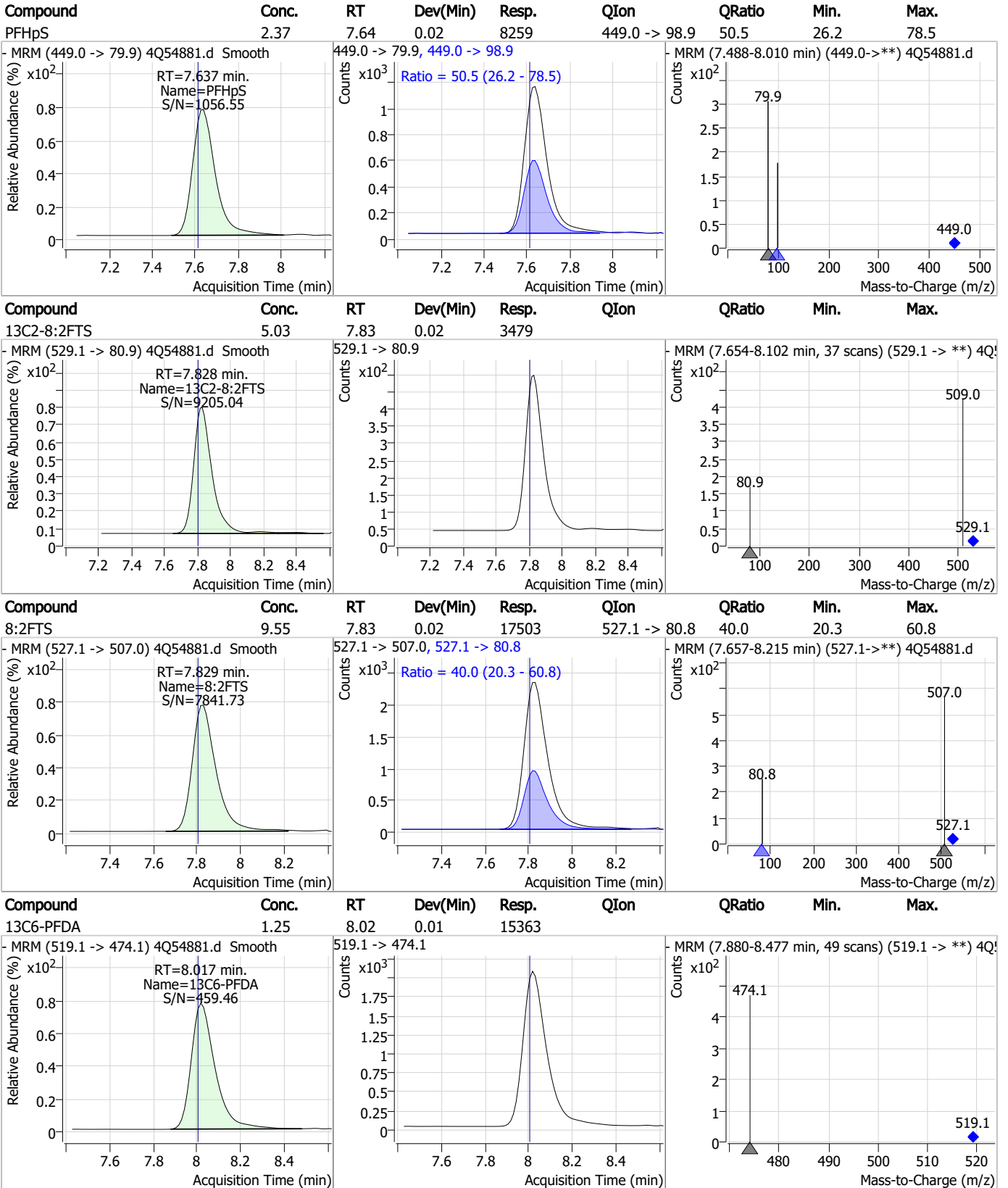
### Perfluorinated Compounds by LC/MS/MS



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### Perfluorinated Compounds by LC/MS/MS

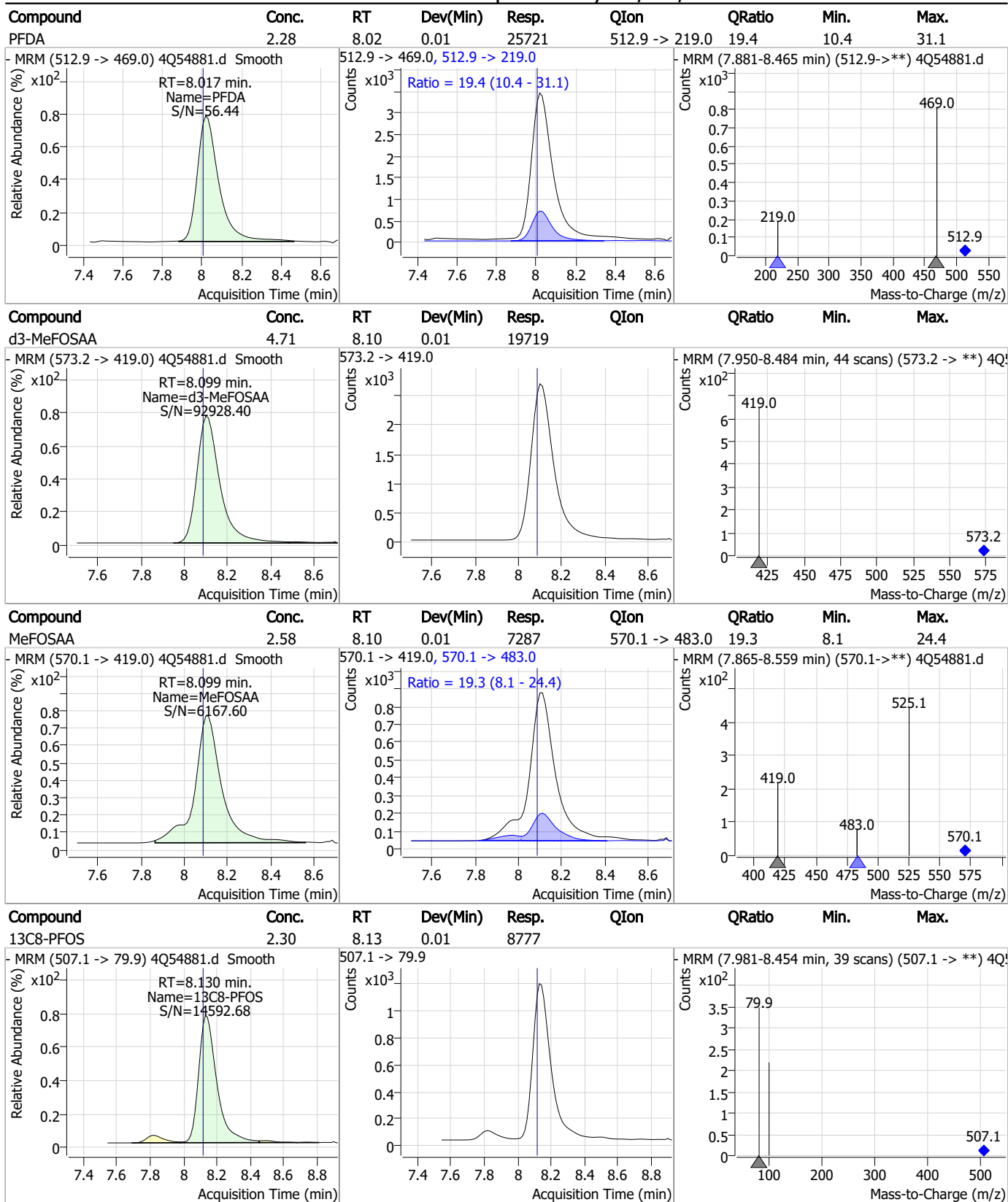


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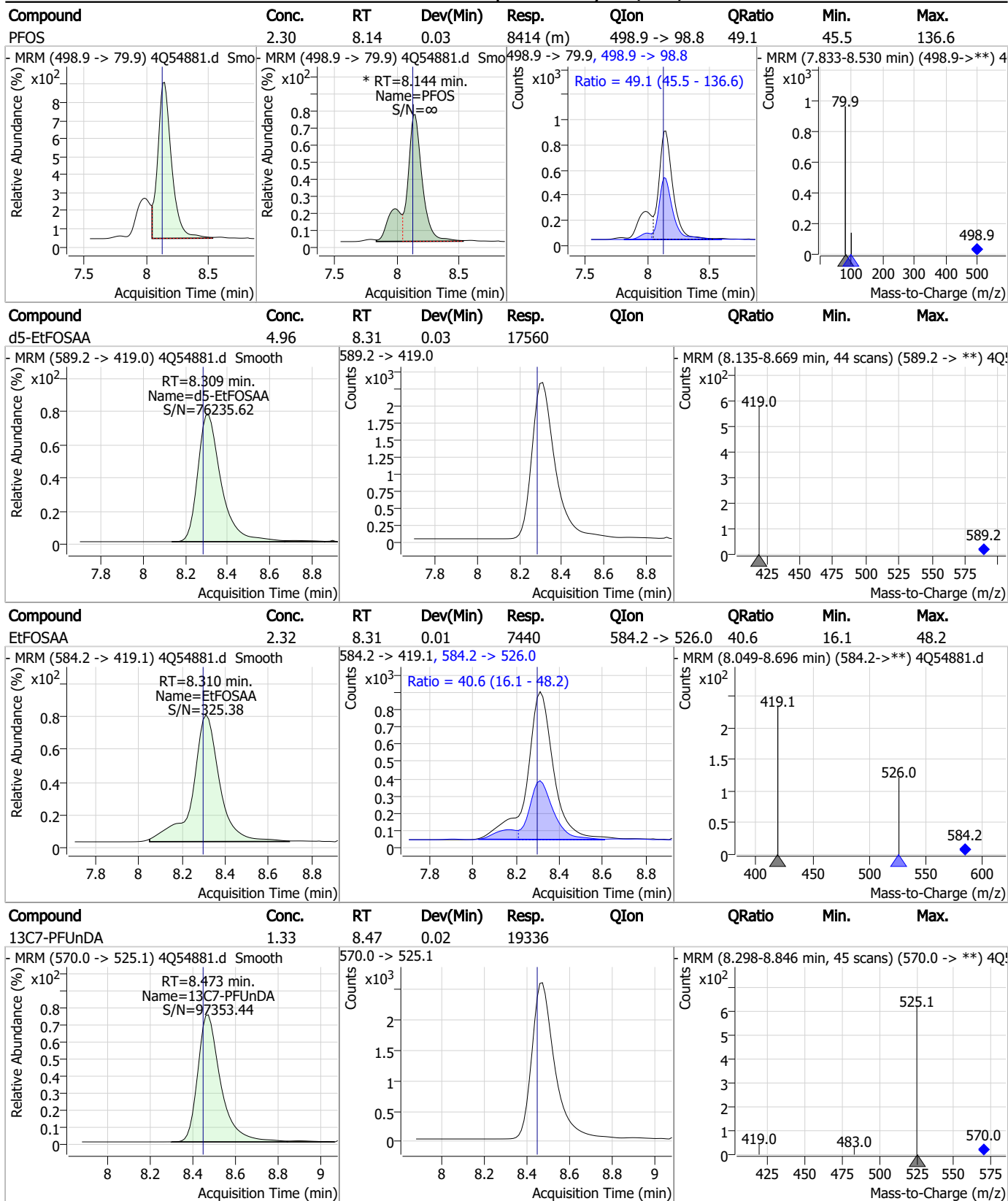
### Perfluorinated Compounds by LC/MS/MS



7.7.15

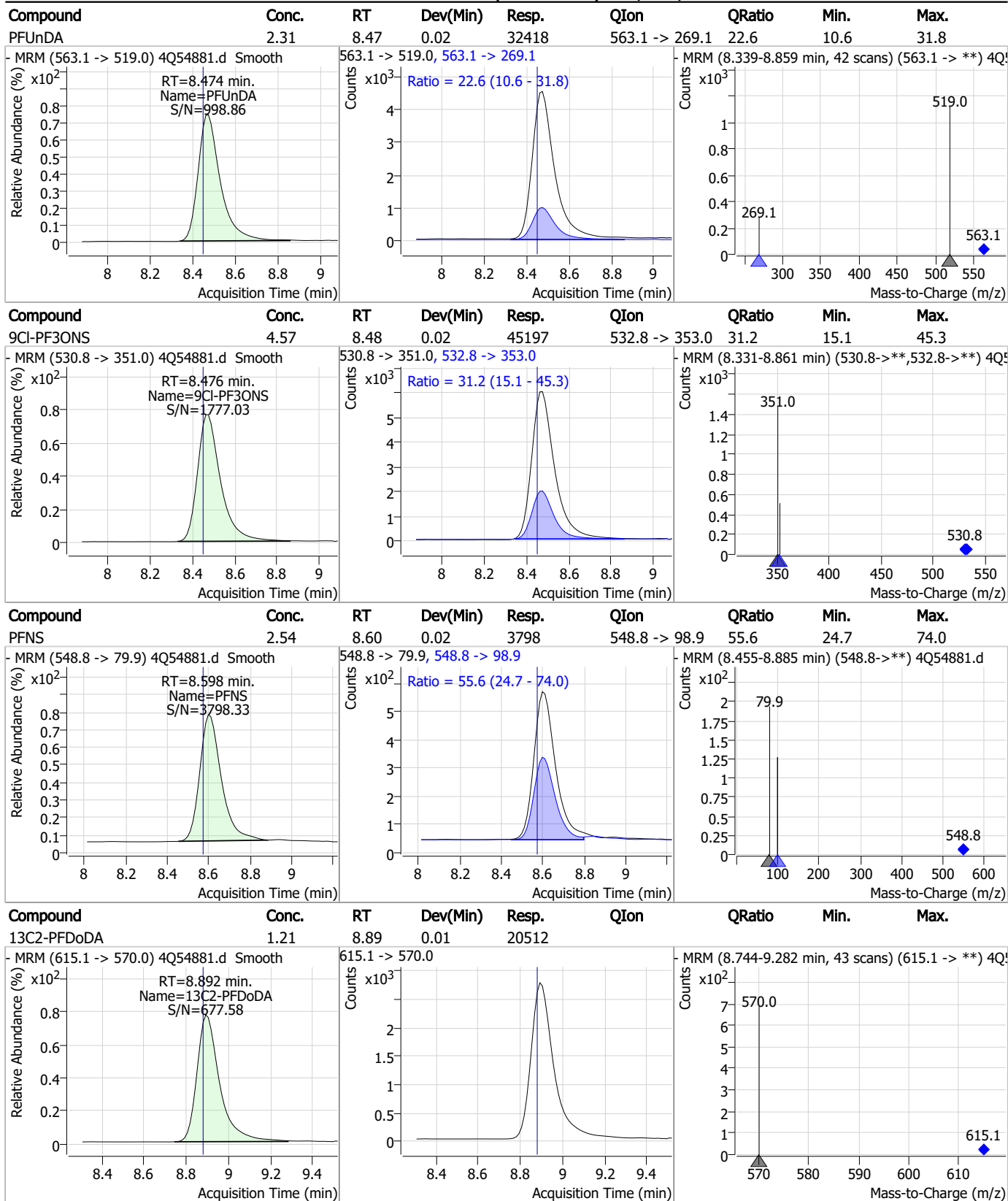
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### Perfluorinated Compounds by LC/MS/MS



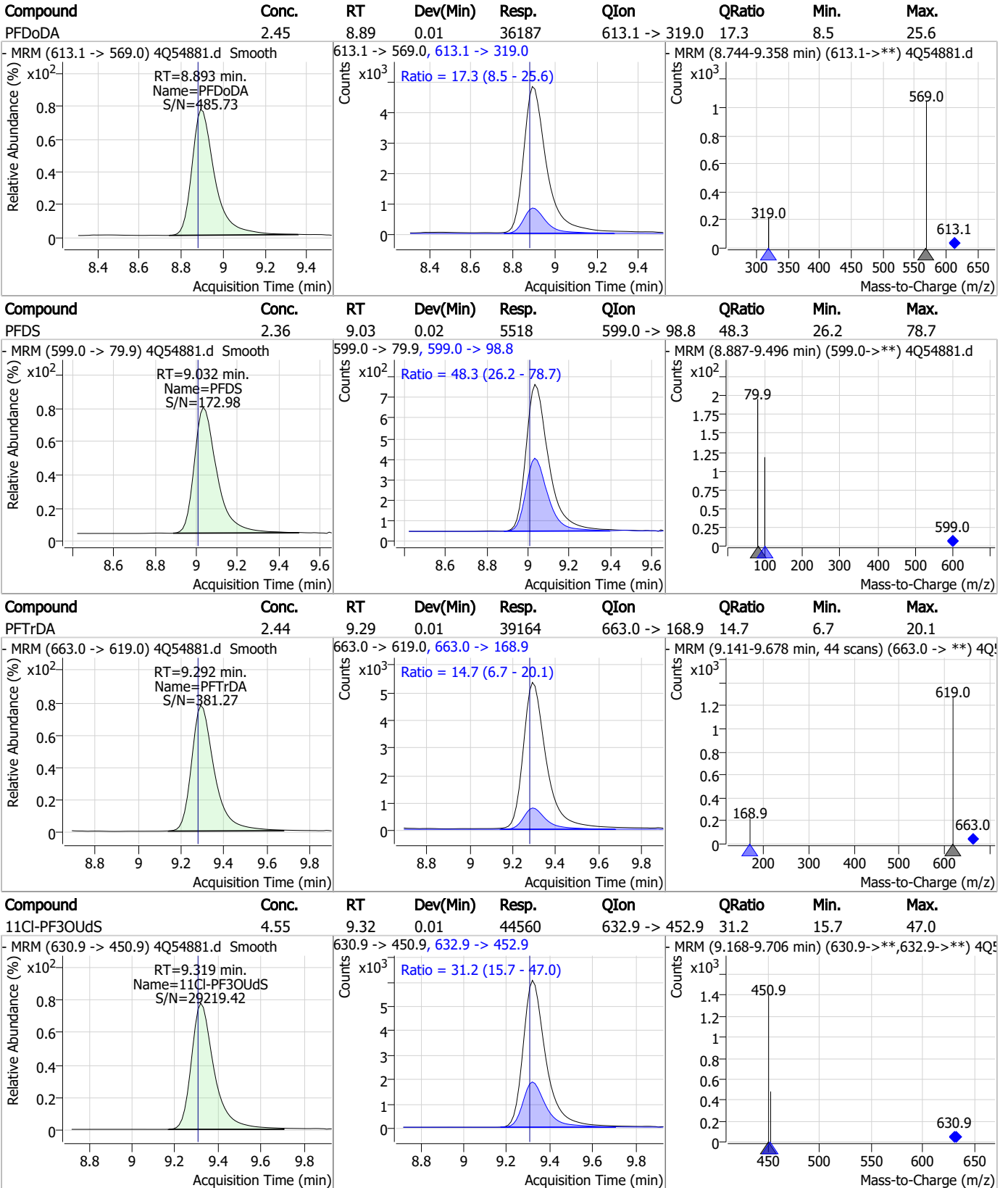
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### Perfluorinated Compounds by LC/MS/MS



7.7.15  
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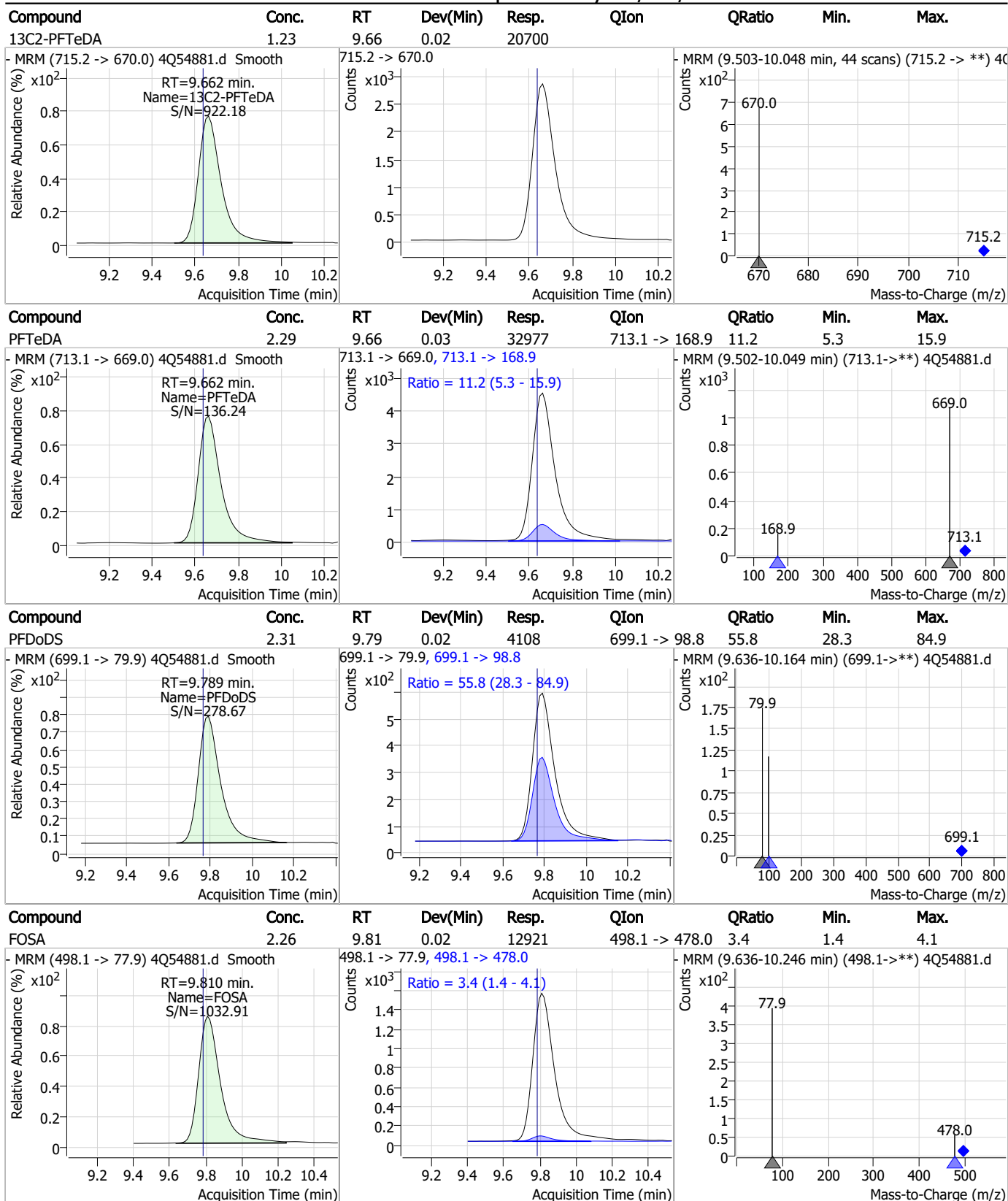
### Perfluorinated Compounds by LC/MS/MS



7.7.15 7

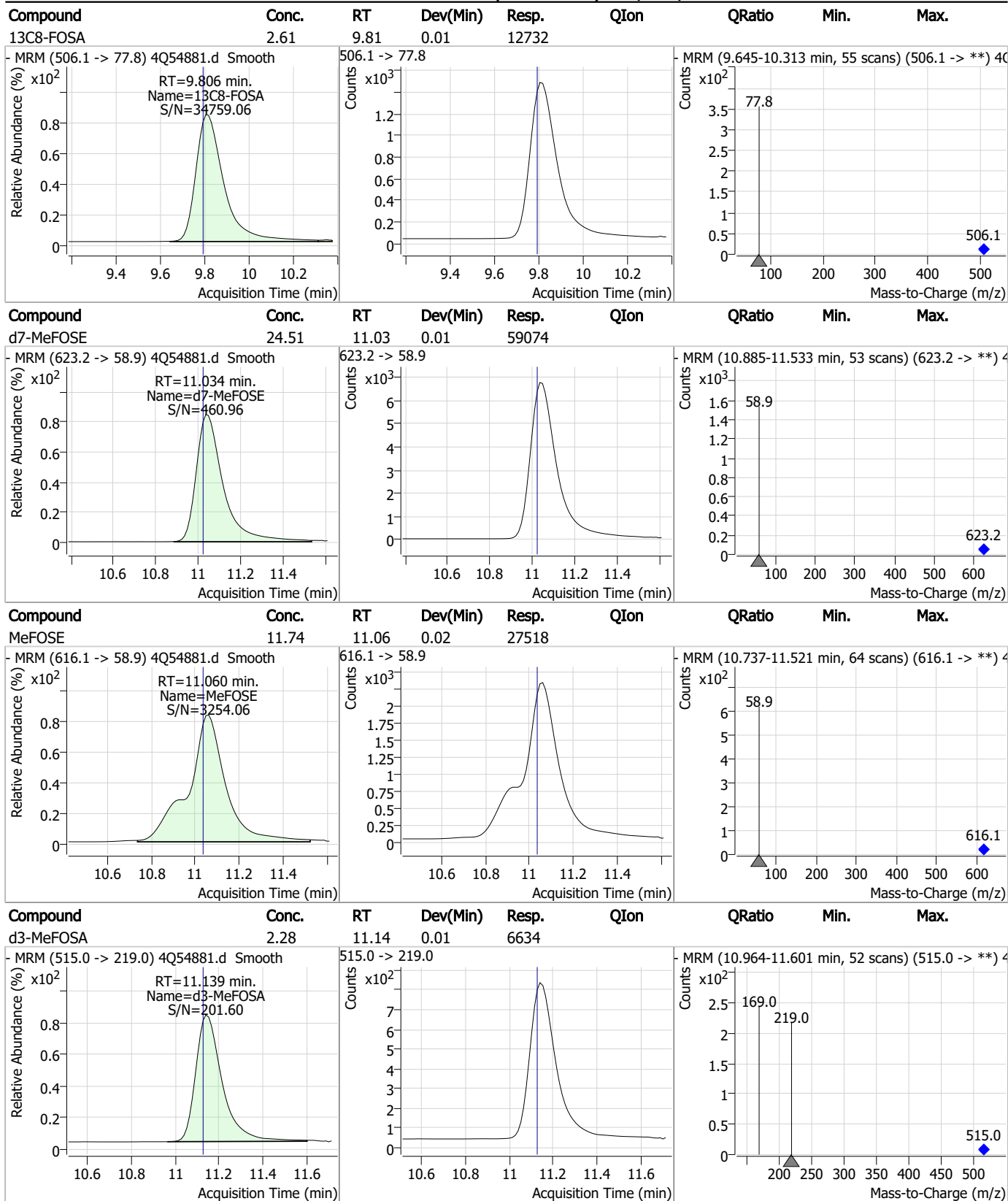


### Perfluorinated Compounds by LC/MS/MS



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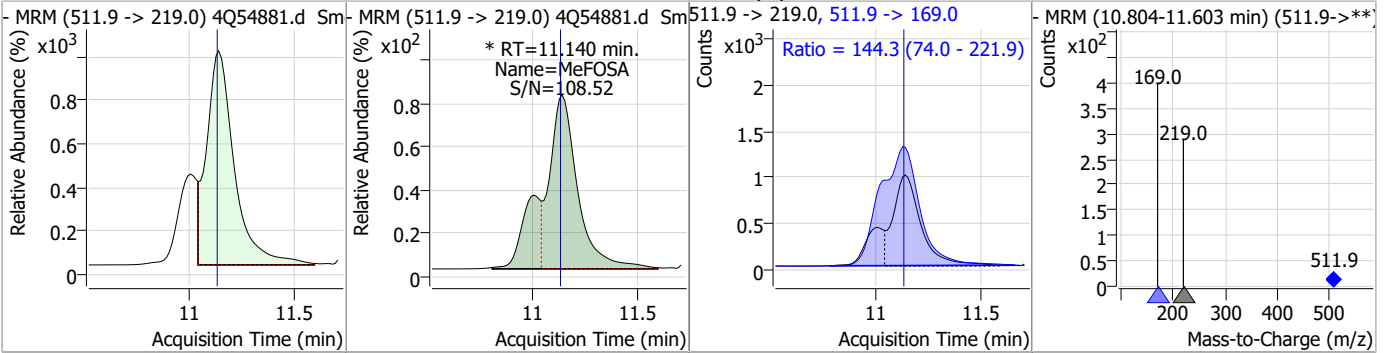
### Perfluorinated Compounds by LC/MS/MS



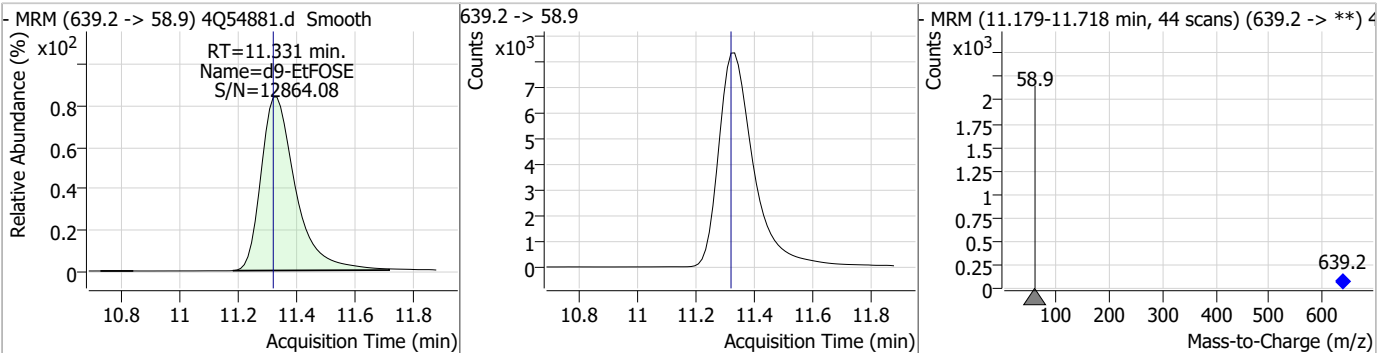
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### Perfluorinated Compounds by LC/MS/MS

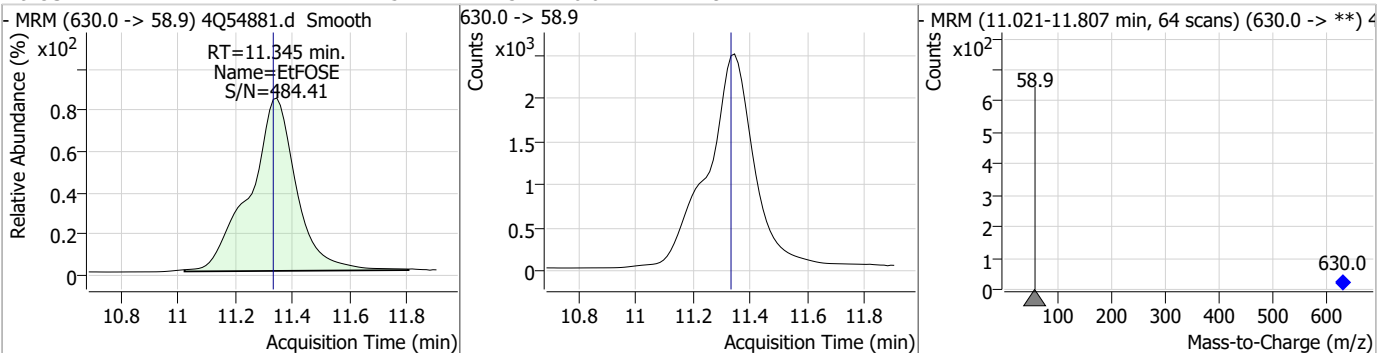
| Compound | Conc. | RT    | Dev(Min) | Resp.     | QIon           | QRatio | Min. | Max.  |
|----------|-------|-------|----------|-----------|----------------|--------|------|-------|
| MeFOSA   | 5.01  | 11.14 | 0.01     | 11835 (m) | 511.9 -> 169.0 | 144.3  | 74.0 | 221.9 |



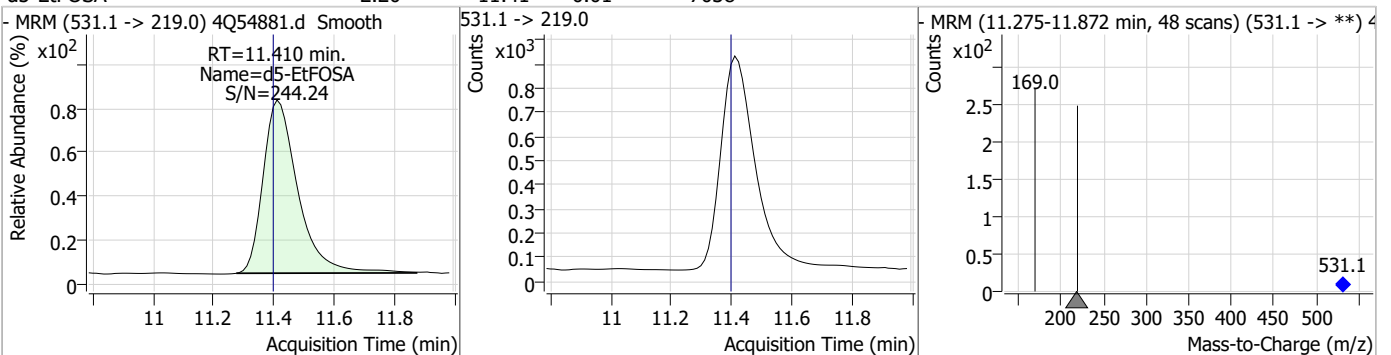
| Compound  | Conc. | RT    | Dev(Min) | Resp. | QIon | QRatio | Min. | Max. |
|-----------|-------|-------|----------|-------|------|--------|------|------|
| d9-EtFOSE | 25.32 | 11.33 | 0.01     | 68365 |      |        |      |      |



| Compound | Conc. | RT    | Dev(Min) | Resp. | QIon | QRatio | Min. | Max. |
|----------|-------|-------|----------|-------|------|--------|------|------|
| EtFOSE   | 11.54 | 11.34 | 0.01     | 27911 |      |        |      |      |



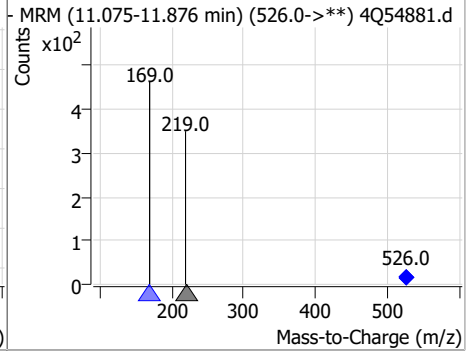
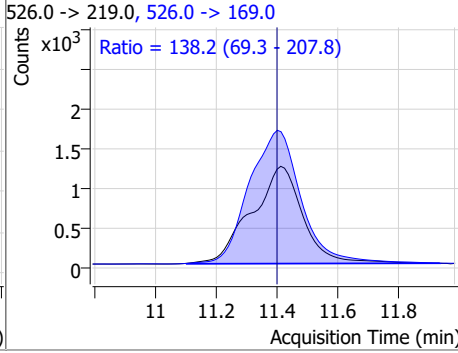
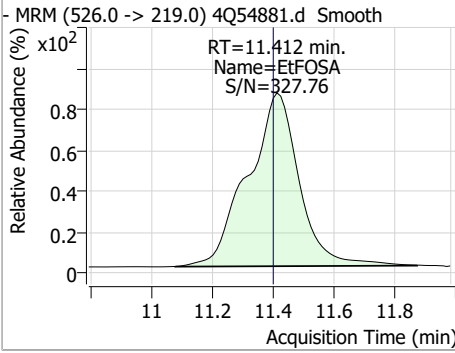
| Compound  | Conc. | RT    | Dev(Min) | Resp. | QIon | QRatio | Min. | Max. |
|-----------|-------|-------|----------|-------|------|--------|------|------|
| d5-EtFOSA | 2.20  | 11.41 | 0.01     | 7038  |      |        |      |      |



7.7.15  
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### Perfluorinated Compounds by LC/MS/MS

| Compound | Conc. | RT    | Dev(Min) | Resp. | QIon           | QRatio | Min. | Max.  |
|----------|-------|-------|----------|-------|----------------|--------|------|-------|
| EtFOSA   | 4.85  | 11.41 | 0.01     | 14539 | 526.0 -> 169.0 | 138.2  | 69.3 | 207.8 |



7.7.15  
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# Manual Integration Approval Summary

Sample Number: S4Q804-CC804      Method: EPA DRAFT 1633  
Lab FileID: 4Q54881.D      Analyst approved: 12/10/23 12:52 Anna Ludwig  
Injection Time: 12/08/23 18:52      Supervisor approved: 12/11/23 15:42 Natasha Gumtie

| Parameter                    | CAS        | Sig# | R.T.<br>(min.) | Reason     |
|------------------------------|------------|------|----------------|------------|
| Perfluorohexanesulfonic acid | 355-46-4   |      | 7.05           | Split peak |
| Perfluorooctanesulfonic acid | 1763-23-1  |      | 8.14           | Split peak |
| MeFOSA                       | 31506-32-8 |      | 11.14          | Split peak |

7.7.15.1

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Perfluorinated Compounds by LC/MS/MS

Data File : 4Q54893.d  
 Operator : annal  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 12/8/2023 9:49:12 PM  
 Sample Name : cc804-4  
 Vial : P1-A5  
 DA Method File : 1633\_120823\_S4Q804.quantmethod.xml  
 Batch Name : s4q804.batch.bin  
 Sample Information : OP99999,S4Q804,500,,,5.0,1,water

| Compound                           | RT                   | Transition     | Response          | Conc. Units | Dev(Min) |
|------------------------------------|----------------------|----------------|-------------------|-------------|----------|
| <b>Internal Standards</b>          |                      |                |                   |             |          |
| M4-PFBA                            | 2.699                | 216.8 -> 171.9 | 108556            | 10.00 µg/L  | 0.025    |
| M5-PFPeA                           | 4.187                | 268.3 -> 223.0 | 45168             | 5.00 µg/L   | 0.025    |
| M5-PFHxA                           | 5.359                | 318.0 -> 273.0 | 36512             | 2.50 µg/L   | 0.025    |
| M4-PFHpA                           | 6.317                | 367.1 -> 322.0 | 34027             | 2.50 µg/L   | 0.025    |
| M8-PFOA                            | 7.001                | 421.1 -> 376.0 | 55395             | 2.50 µg/L   | 0.025    |
| M9-PFNA                            | 7.534                | 472.1 -> 427.0 | 21419             | 1.25 µg/L   | 0.012    |
| M6-PFDA                            | 8.029                | 519.1 -> 474.1 | 15267             | 1.25 µg/L   | 0.025    |
| M7-PFUnDA                          | 8.473                | 570.0 -> 525.1 | 18918             | 1.25 µg/L   | 0.025    |
| M2-PFDoDA                          | 8.892                | 615.1 -> 570.0 | 20434             | 1.25 µg/L   | 0.012    |
| M2-PFTeDA                          | 9.662                | 715.2 -> 670.0 | 20525             | 1.25 µg/L   | 0.025    |
| M8-FOSA                            | 9.806                | 506.1 -> 77.8  | 12257             | 2.50 µg/L   | 0.012    |
| M3-PFBS                            | 5.215                | 302.1 -> 79.9  | 10347             | 2.50 µg/L   | 0.025    |
| M3-PFHxS                           | 7.054                | 402.1 -> 79.9  | 7968              | 2.50 µg/L   | 0.025    |
| M8-PFOS                            | 8.143                | 507.1 -> 79.9  | 9194              | 2.50 µg/L   | 0.026    |
| M2-4:2FTS                          | 5.071                | 329.1 -> 80.9  | 1290              | 5.00 µg/L   | 0.025    |
| M2-6:2FTS                          | 6.773                | 429.1 -> 80.9  | 2840              | 5.00 µg/L   | 0.025    |
| M2-8:2FTS                          | 7.828                | 529.1 -> 80.9  | 3817              | 5.00 µg/L   | 0.025    |
| M3-MeFOSAA                         | 8.111                | 573.2 -> 419.0 | 22017             | 5.00 µg/L   | 0.025    |
| M3-HFPO-DA                         | 5.714                | 286.9 -> 168.9 | 33738             | 10.00 µg/L  | 0.025    |
| M5-EtFOSAA                         | 8.309                | 589.2 -> 419.0 | 17506             | 5.00 µg/L   | 0.026    |
| M7-MeFOSE                          | 11.034               | 623.2 -> 58.9  | 56765             | 25.00 µg/L  | 0.012    |
| M9-EtFOSE                          | 11.331               | 639.2 -> 58.9  | 64754             | 25.00 µg/L  | 0.012    |
| M5-EtFOSA                          | 11.410               | 531.1 -> 219.0 | 7786              | 2.50 µg/L   | 0.012    |
| M3-MeFOSA                          | 11.139               | 515.0 -> 219.0 | 6878              | 2.50 µg/L   | 0.012    |
| 13C4-PFOS                          | 8.144                | 502.8 -> 79.9  | 7622              | 2.50 µg/L   | 0.026    |
| 13C3-PFBA                          | 2.691                | 216.0 -> 172.0 | 51598             | 5.00 µg/L   | 0.013    |
| 18O2-PFHxS                         | 7.066                | 403.0 -> 83.9  | 5214              | 2.50 µg/L   | 0.025    |
| 13C4-PFOA                          | 7.002                | 417.1 -> 372.0 | 61977             | 2.50 µg/L   | 0.025    |
| 13C2-PFDA                          | 8.029                | 515.1 -> 470.1 | 16726             | 1.25 µg/L   | 0.025    |
| 13C5-PFNA                          | 7.547                | 468.0 -> 423.0 | 21307             | 1.25 µg/L   | 0.038    |
| 13C2-PFHxA                         | 5.360                | 315.1 -> 270.0 | 39260             | 2.50 µg/L   | 0.025    |
| <b>System Monitoring Compounds</b> |                      |                |                   |             |          |
| 13C2-4:2FTS                        | 5.071                | 329.1 -> 80.9  | 1290              | 5.21 µg/L   | 0.025    |
| Spiked Amount: 5.00                | Range: 50.0 - 150.0% |                | Recovery = 104.2% |             |          |
| 13C2-6:2FTS                        | 6.773                | 429.1 -> 80.9  | 2840              | 5.29 µg/L   | 0.025    |
| Spiked Amount: 5.00                | Range: 50.0 - 150.0% |                | Recovery = 105.8% |             |          |
| 13C2-8:2FTS                        | 7.828                | 529.1 -> 80.9  | 3817              | 5.31 µg/L   | 0.025    |
| Spiked Amount: 5.00                | Range: 50.0 - 150.0% |                | Recovery = 106.2% |             |          |
| 13C2-PFDoDA                        | 8.892                | 615.1 -> 570.0 | 20434             | 1.22 µg/L   | 0.012    |
| Spiked Amount: 1.25                | Range: 50.0 - 150.0% |                | Recovery = 97.8%  |             |          |
| 13C2-PFTeDA                        | 9.662                | 715.2 -> 670.0 | 20525             | 1.24 µg/L   | 0.025    |
| Spiked Amount: 1.25                | Range: 50.0 - 150.0% |                | Recovery = 98.9%  |             |          |
| 13C3-PFBS                          | 5.215                | 302.1 -> 79.9  | 10347             | 2.59 µg/L   | 0.025    |
| Spiked Amount: 2.50                | Range: 50.0 - 150.0% |                | Recovery = 103.6% |             |          |
| 13C3-PFHxS                         | 7.054                | 402.1 -> 79.9  | 7968              | 2.44 µg/L   | 0.025    |

7.7.16  
7



Perfluorinated Compounds by LC/MS/MS

| Compound                | RT                   | Transition     | Response          | Conc. Units | Dev(Min)      |
|-------------------------|----------------------|----------------|-------------------|-------------|---------------|
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                | Recovery = 97.5%  |             |               |
| 13C4-PFBA               | 2.699                | 216.8 -> 171.9 | 108556            | 10.02 µg/L  | 0.025         |
| Spiked Amount: 10.00    | Range: 50.0 - 150.0% |                | Recovery = 100.2% |             |               |
| 13C4-PFHpA              | 6.317                | 367.1 -> 322.0 | 34027             | 2.46 µg/L   | 0.025         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                | Recovery = 98.4%  |             |               |
| 13C5-PFHxA              | 5.359                | 318.0 -> 273.0 | 36512             | 2.52 µg/L   | 0.025         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                | Recovery = 101.0% |             |               |
| 13C5-PFPeA              | 4.187                | 268.3 -> 223.0 | 45168             | 5.01 µg/L   | 0.025         |
| Spiked Amount: 5.00     | Range: 50.0 - 150.0% |                | Recovery = 100.3% |             |               |
| 13C6-PFDA               | 8.029                | 519.1 -> 474.1 | 15267             | 1.25 µg/L   | 0.025         |
| Spiked Amount: 1.25     | Range: 50.0 - 150.0% |                | Recovery = 100.4% |             |               |
| 13C7-PFUnDA             | 8.473                | 570.0 -> 525.1 | 18918             | 1.32 µg/L   | 0.025         |
| Spiked Amount: 1.25     | Range: 50.0 - 150.0% |                | Recovery = 105.5% |             |               |
| 13C8-FOSA               | 9.806                | 506.1 -> 77.8  | 12257             | 2.48 µg/L   | 0.012         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                | Recovery = 99.2%  |             |               |
| 13C8-PFOA               | 7.001                | 421.1 -> 376.0 | 55395             | 2.42 µg/L   | 0.025         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                | Recovery = 96.7%  |             |               |
| 13C8-PFOS               | 8.143                | 507.1 -> 79.9  | 9194              | 2.38 µg/L   | 0.026         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                | Recovery = 95.3%  |             |               |
| 13C9-PFNA               | 7.534                | 472.1 -> 427.0 | 21419             | 1.25 µg/L   | 0.012         |
| Spiked Amount: 1.25     | Range: 50.0 - 150.0% |                | Recovery = 100.4% |             |               |
| d3-MeFOSAA              | 8.111                | 573.2 -> 419.0 | 22017             | 5.20 µg/L   | 0.025         |
| Spiked Amount: 5.00     | Range: 50.0 - 150.0% |                | Recovery = 104.1% |             |               |
| 13C3-HFPO-DA            | 5.714                | 286.9 -> 168.9 | 33738             | 9.33 µg/L   | 0.025         |
| Spiked Amount: 10.00    | Range: 50.0 - 150.0% |                | Recovery = 93.3%  |             |               |
| d3-MeFOSA               | 11.139               | 515.0 -> 219.0 | 6878              | 2.33 µg/L   | 0.012         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                | Recovery = 93.4%  |             |               |
| d5-EtFOSAA              | 8.309                | 589.2 -> 419.0 | 17506             | 4.89 µg/L   | 0.026         |
| Spiked Amount: 5.00     | Range: 50.0 - 150.0% |                | Recovery = 97.8%  |             |               |
| d7-MeFOSE               | 11.034               | 623.2 -> 58.9  | 56765             | 23.29 µg/L  | 0.012         |
| Spiked Amount: 25.00    | Range: 50.0 - 150.0% |                | Recovery = 93.2%  |             |               |
| d9-EtFOSE               | 11.331               | 639.2 -> 58.9  | 64754             | 23.73 µg/L  | 0.012         |
| Spiked Amount: 25.00    | Range: 50.0 - 150.0% |                | Recovery = 94.9%  |             |               |
| d5-EtFOSA               | 11.410               | 531.1 -> 219.0 | 7786              | 2.41 µg/L   | 0.012         |
| Spiked Amount: 2.50     | Range: 50.0 - 150.0% |                | Recovery = 96.4%  |             |               |
| <b>Target Compounds</b> |                      |                |                   |             | <b>QValue</b> |
| 4:2FTS                  | 5.072                | 327.1 -> 307.0 | 19882             | 8.95 µg/L   | 99            |
|                         |                      | 327.1 -> 80.9  | 8605              |             |               |
| 6:2FTS                  | 6.774                | 427.1 -> 407.0 | 27196             | 9.11 µg/L   | 100           |
|                         |                      | 427.1 -> 80.9  | 10008             |             |               |
| 8:2FTS                  | 7.829                | 527.1 -> 507.0 | 19334             | 9.61 µg/L   | 99            |
|                         |                      | 527.1 -> 80.8  | 7756              |             |               |
| EtFOSAA                 | 8.310                | 584.2 -> 419.1 | 6856              | 2.15 µg/L   | 87            |
|                         |                      | 584.2 -> 526.0 | 2681              | m           |               |
| FOSA                    | 9.810                | 498.1 -> 77.9  | 12318             | 2.24 µg/L   | 98            |
|                         |                      | 498.1 -> 478.0 | 415               |             |               |
| MeFOSAA                 | 8.112                | 570.1 -> 419.0 | 7845              | 2.49 µg/L   | 96            |
|                         |                      | 570.1 -> 483.0 | 1415              |             |               |
| PFBA                    | 2.695                | 212.8 -> 168.9 | 32080             | 9.23 µg/L   | 100           |
| PFBS                    | 5.216                | 298.7 -> 79.9  | 6183              | 1.93 µg/L   | 97            |
|                         |                      | 298.7 -> 98.8  | 2394              |             |               |
| PFDA                    | 8.030                | 512.9 -> 469.0 | 24442             | 2.18 µg/L   | 99            |
|                         |                      | 512.9 -> 219.0 | 5171              |             |               |
| PFDODA                  | 8.893                | 613.1 -> 569.0 | 36794             | 2.50 µg/L   | 100           |
|                         |                      | 613.1 -> 319.0 | 6256              |             |               |
| PFDS                    | 9.032                | 599.0 -> 79.9  | 5635              | 2.30 µg/L   | 86            |

7.7.16  
7



Perfluorinated Compounds by LC/MS/MS

| Compound     | RT     | Transition     | Response | Conc. | Units | Dev(Min) |
|--------------|--------|----------------|----------|-------|-------|----------|
| PFHpA        | 6.317  | 599.0 -> 98.8  | 2403     | 2.37  | µg/L  | 100      |
|              |        | 363.1 -> 319.0 | 45398    |       |       |          |
| PFHpS        | 7.637  | 363.1 -> 169.0 | 8345     | 2.21  | µg/L  | 96       |
|              |        | 449.0 -> 79.9  | 8074     |       |       |          |
| PFHxA        | 5.362  | 449.0 -> 98.9  | 3995     | 2.23  | µg/L  | 99       |
|              |        | 313.0 -> 269.0 | 26028    |       |       |          |
| PFHxS        | 7.055  | 313.0 -> 118.9 | 833      | 2.23  | µg/L  | 98       |
|              |        | 398.7 -> 79.9  | 5719     |       |       |          |
| PFNA         | 7.534  | 398.7 -> 98.9  | 2809     | 2.42  | µg/L  | 99       |
|              |        | 463.0 -> 419.0 | 30424    |       |       |          |
| PFNS         | 8.598  | 463.0 -> 219.0 | 7128     | 2.66  | µg/L  | 94       |
|              |        | 548.8 -> 79.9  | 4178     |       |       |          |
| PFOA         | 7.003  | 548.8 -> 98.9  | 2223     | 2.33  | µg/L  | 96       |
|              |        | 413.0 -> 369.0 | 53190    |       |       |          |
| PFOS         | 8.144  | 413.0 -> 169.0 | 10973    | 2.11  | µg/L  | 56       |
|              |        | 498.9 -> 79.9  | 8060     |       |       |          |
| PFPeA        | 4.189  | 498.9 -> 98.8  | 4003     | 4.55  | µg/L  | 100      |
|              |        | 263.0 -> 219.0 | 40480    |       |       |          |
| PFPeS        | 6.307  | 349.1 -> 79.9  | 5749     | 2.37  | µg/L  | 98       |
|              |        | 349.1 -> 98.9  | 2351     |       |       |          |
| PFTeDA       | 9.662  | 713.1 -> 669.0 | 32984    | 2.31  | µg/L  | 100      |
|              |        | 713.1 -> 168.9 | 3444     |       |       |          |
| PFTrDA       | 9.292  | 663.0 -> 619.0 | 38567    | 2.41  | µg/L  | 98       |
|              |        | 663.0 -> 168.9 | 5409     |       |       |          |
| PFUnDA       | 8.474  | 563.1 -> 519.0 | 31488    | 2.29  | µg/L  | 95       |
|              |        | 563.1 -> 269.1 | 7394     |       |       |          |
| 11CI-PF3OUdS | 9.319  | 630.9 -> 450.9 | 44832    | 4.83  | µg/L  | 100      |
|              |        | 632.9 -> 452.9 | 14066    |       |       |          |
| 9CI-PF3ONS   | 8.476  | 530.8 -> 351.0 | 44939    | 4.79  | µg/L  | 100      |
|              |        | 532.8 -> 353.0 | 13530    |       |       |          |
| ADONA        | 6.581  | 376.9 -> 250.9 | 117245   | 5.15  | µg/L  | 99       |
|              |        | 376.9 -> 84.8  | 28860    |       |       |          |
| HFPO-DA      | 5.715  | 284.9 -> 168.9 | 15126    | 4.69  | µg/L  | 97       |
|              |        | 284.9 -> 184.9 | 1580     |       |       |          |
| 3:3FTCA      | 3.630  | 241.0 -> 177.0 | 6369     | 11.52 | µg/L  | 99       |
|              |        | 241.0 -> 117.0 | 579      |       |       |          |
| 5:3FTCA      | 6.033  | 341.0 -> 237.1 | 120364   | 57.92 | µg/L  | 98       |
|              |        | 341.0 -> 217.0 | 83806    |       |       |          |
| 7:3FTCA      | 7.562  | 441.0 -> 316.9 | 62803    | 57.63 | µg/L  | 97       |
|              |        | 441.0 -> 336.9 | 152457   |       |       |          |
| EtFOSA       | 11.412 | 526.0 -> 219.0 | 15254    | 4.60  | µg/L  | 98       |
|              |        | 526.0 -> 169.0 | 21432    |       |       |          |
| EtFOSE       | 11.345 | 630.0 -> 58.9  | 27030    | 11.79 | µg/L  | 100      |
|              |        | 511.9 -> 219.0 | 11441    |       |       |          |
| MeFOSA       | 11.140 | 511.9 -> 169.0 | 17032    | 4.67  | µg/L  | 99       |
|              |        | 616.1 -> 58.9  | 25489    |       |       |          |
| MeFOSE       | 11.060 | 699.1 -> 79.9  | 4204     | 11.32 | µg/L  | 100      |
|              |        | 699.1 -> 98.8  | 2458     |       |       |          |
| PFDoDS       | 9.789  | 295.0 -> 201.0 | 3981     | 2.25  | µg/L  | 97       |
|              |        | 295.0 -> 84.9  | 829      |       |       |          |
| NFDHA        | 5.241  | 279.0 -> 85.1  | 22446    | 4.82  | µg/L  | 89       |
|              |        | 229.0 -> 84.9  | 24856    |       |       |          |
| PFMBA        | 4.591  | 314.8 -> 134.9 | 35392    | 4.62  | µg/L  | 100      |
|              |        | 314.8 -> 82.9  | 1350     |       |       |          |
| PFMPA        | 3.332  |                |          | 4.11  | µg/L  | 100      |
|              |        |                |          |       |       |          |
| PFEESA       | 5.747  |                |          | 4.11  | µg/L  | 100      |
|              |        |                |          |       |       |          |

# = Qualifier out of range, m = manually integrated, + = Area summed



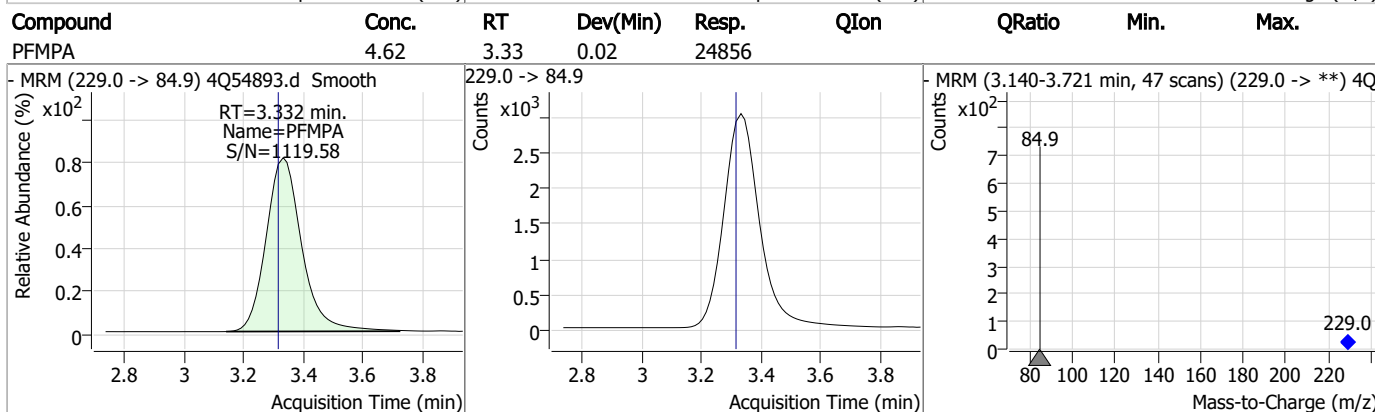
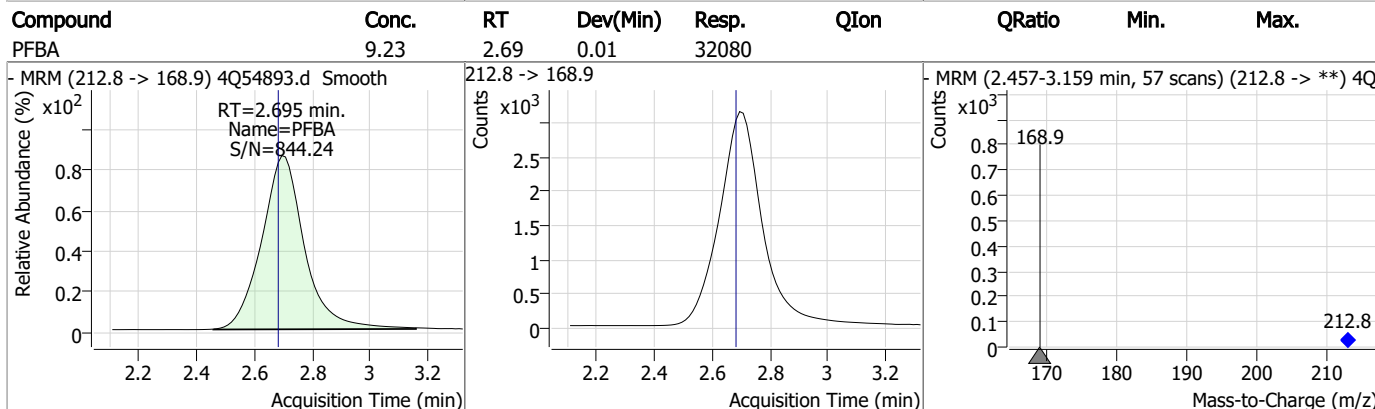
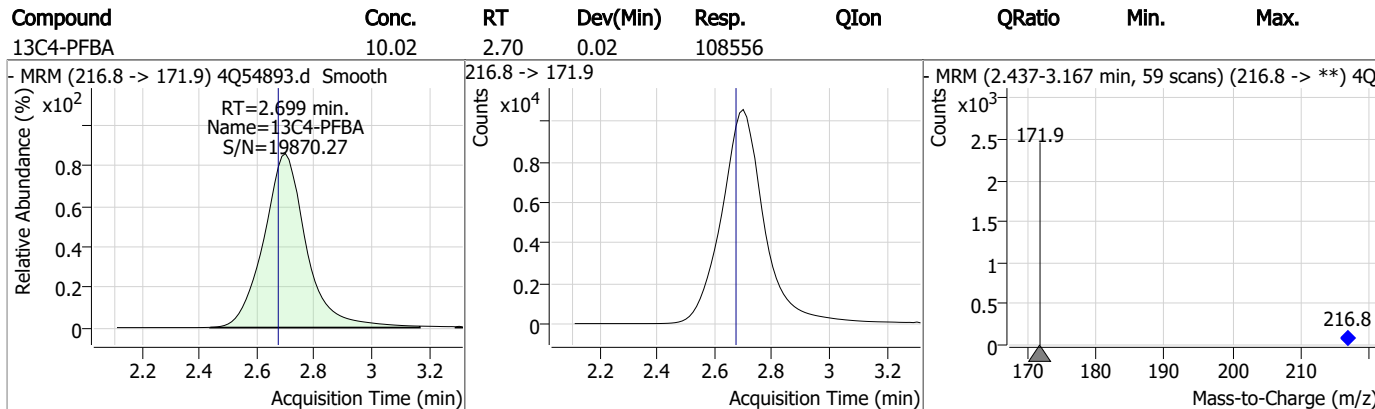
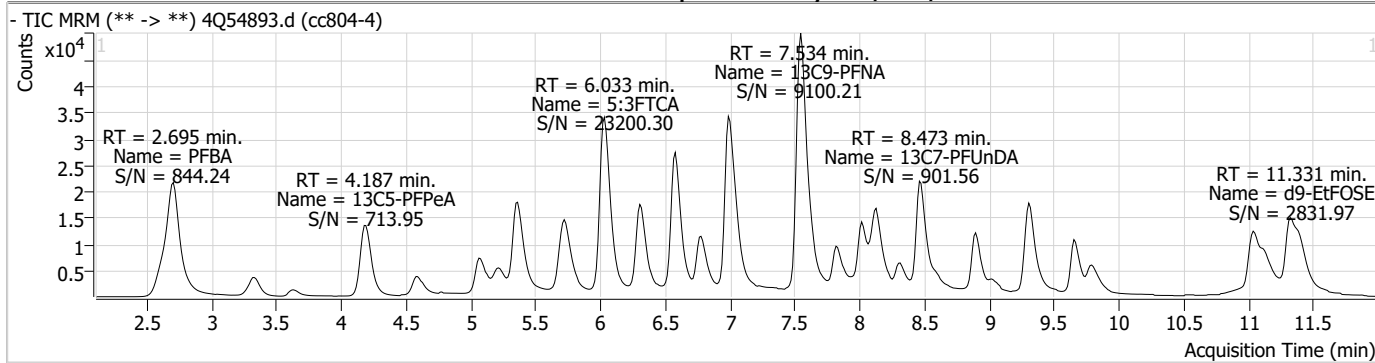
### Perfluorinated Compounds by LC/MS/MS

| Compound | RT | Transition | Response | Conc. Units | Dev(Min) |
|----------|----|------------|----------|-------------|----------|
|----------|----|------------|----------|-------------|----------|

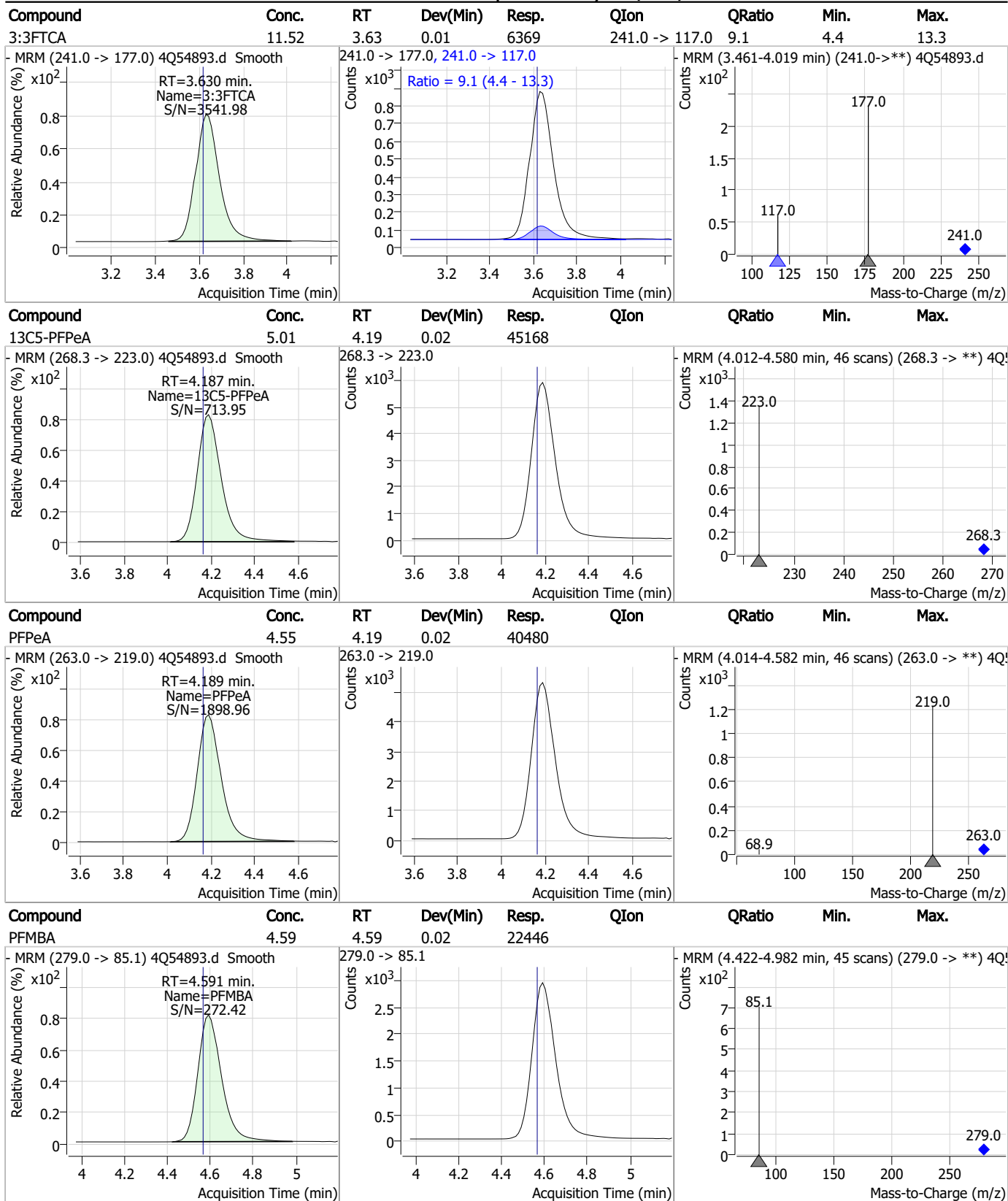
7.7.16

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### Perfluorinated Compounds by LC/MS/MS

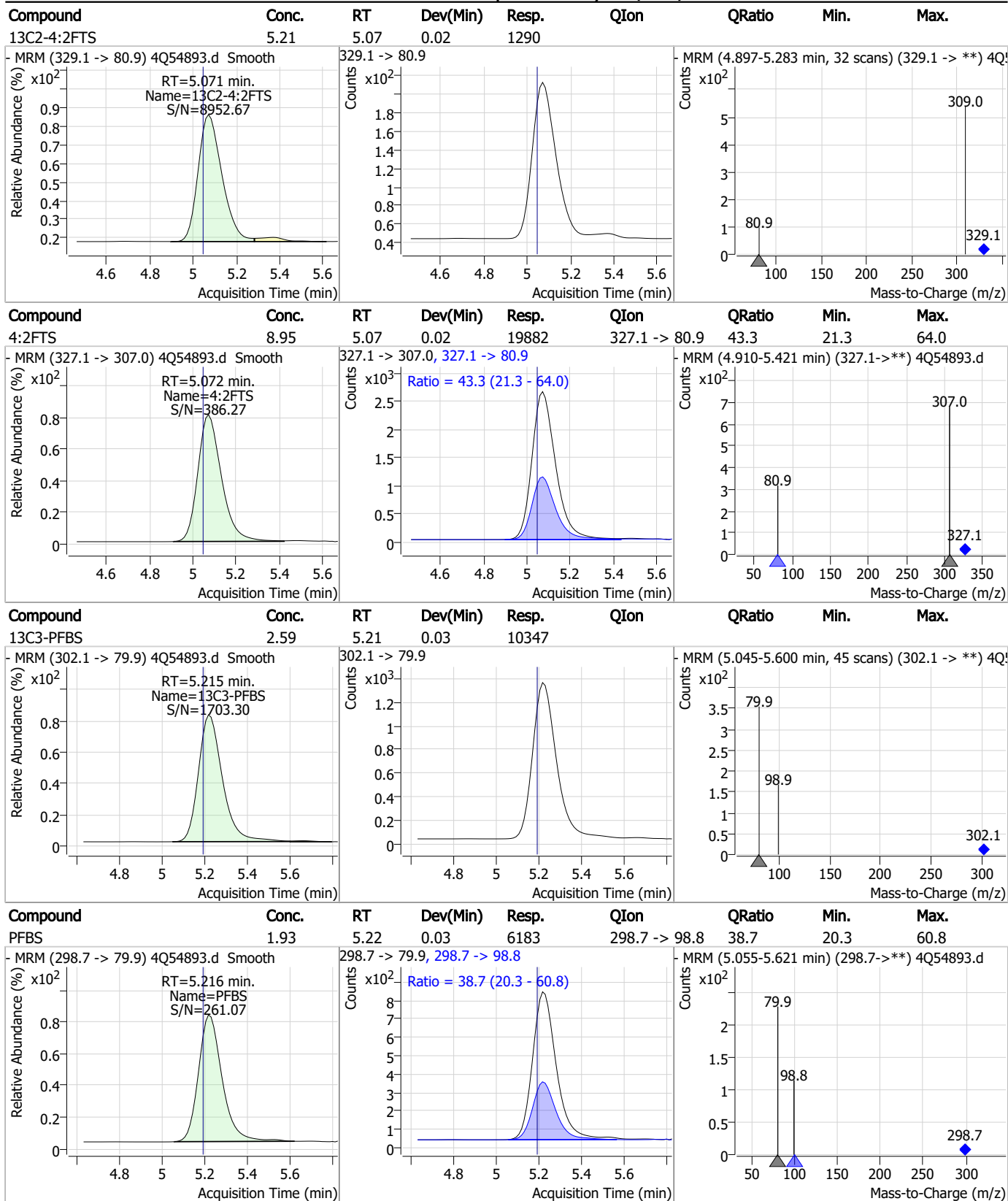


### Perfluorinated Compounds by LC/MS/MS



7.7.16  
7

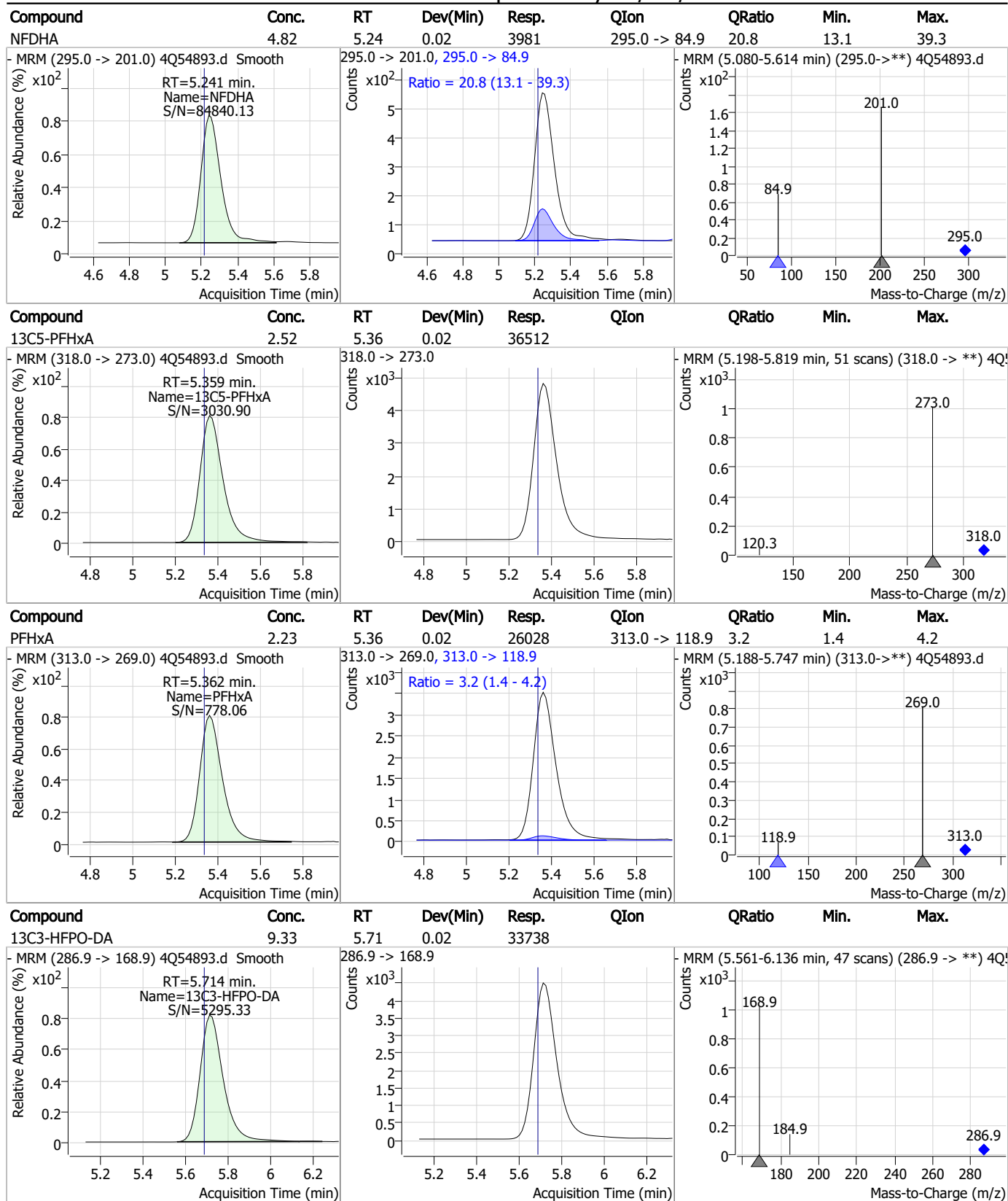
### Perfluorinated Compounds by LC/MS/MS



7.7.16  
7



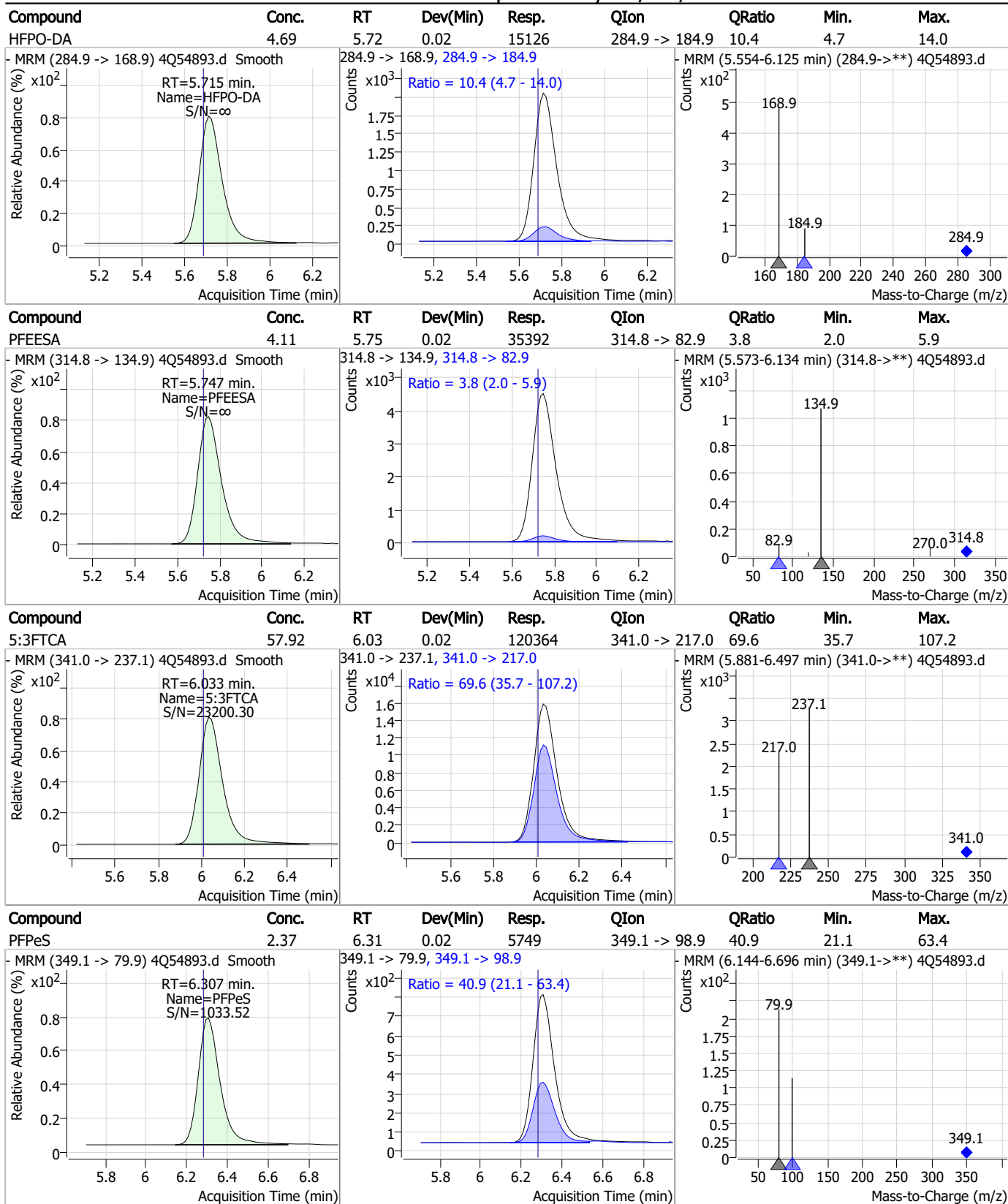
### Perfluorinated Compounds by LC/MS/MS



7.7.16

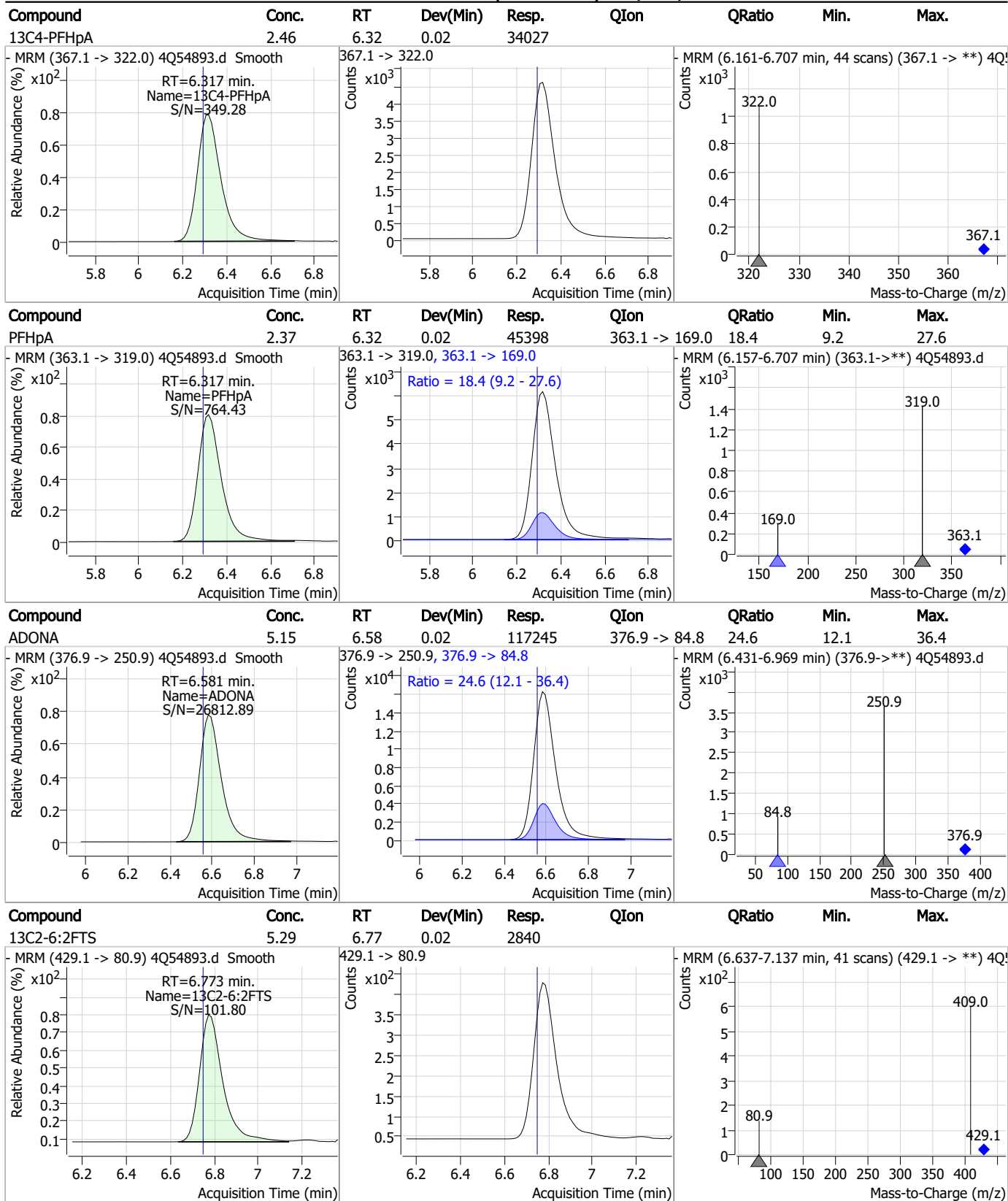
7

### Perfluorinated Compounds by LC/MS/MS



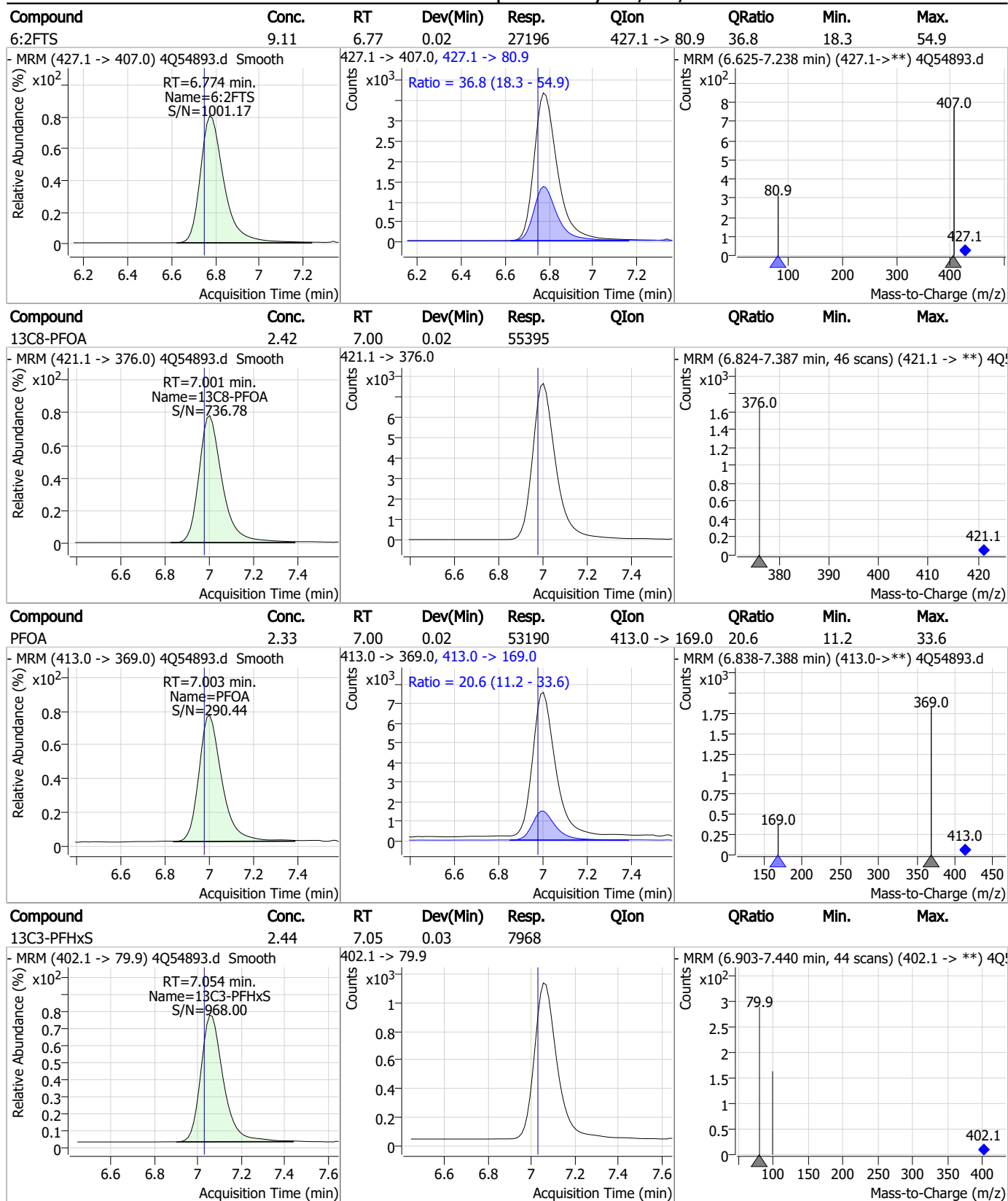
7.7.16  
7

### Perfluorinated Compounds by LC/MS/MS



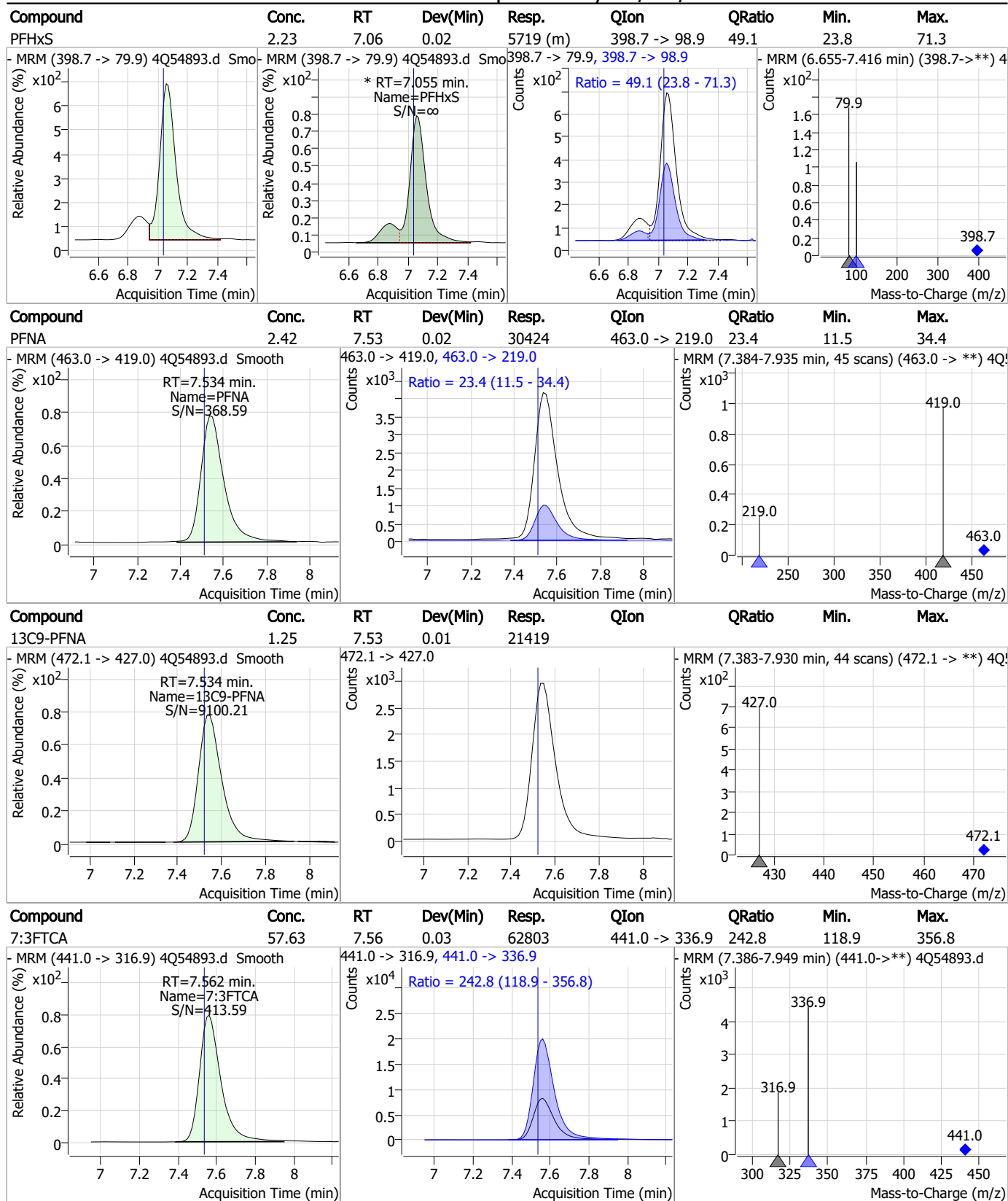
7.7.16  
7

### Perfluorinated Compounds by LC/MS/MS



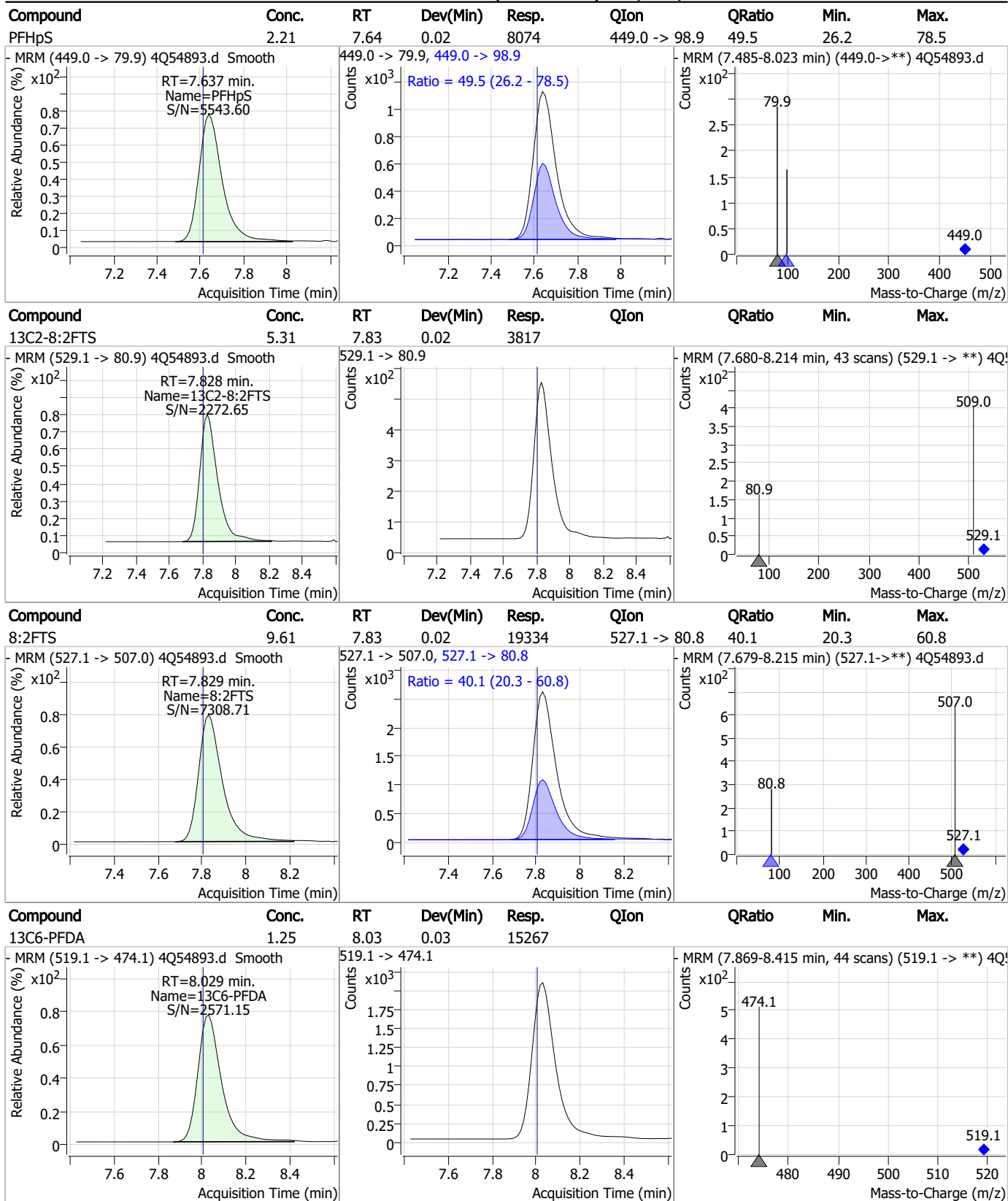
7.7.16 7

### Perfluorinated Compounds by LC/MS/MS



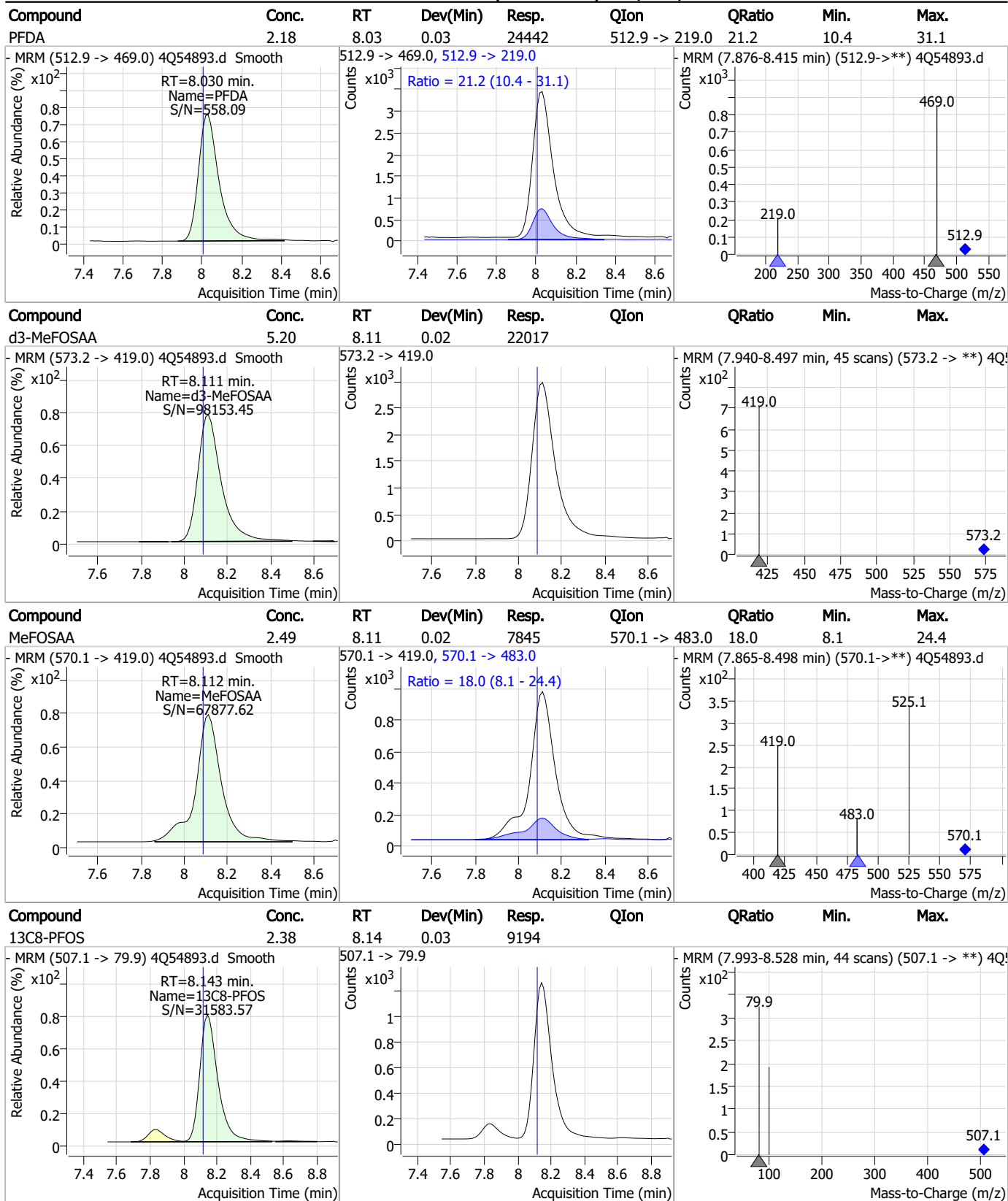
7.7.16  
7

### Perfluorinated Compounds by LC/MS/MS



7.7.16  
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### Perfluorinated Compounds by LC/MS/MS

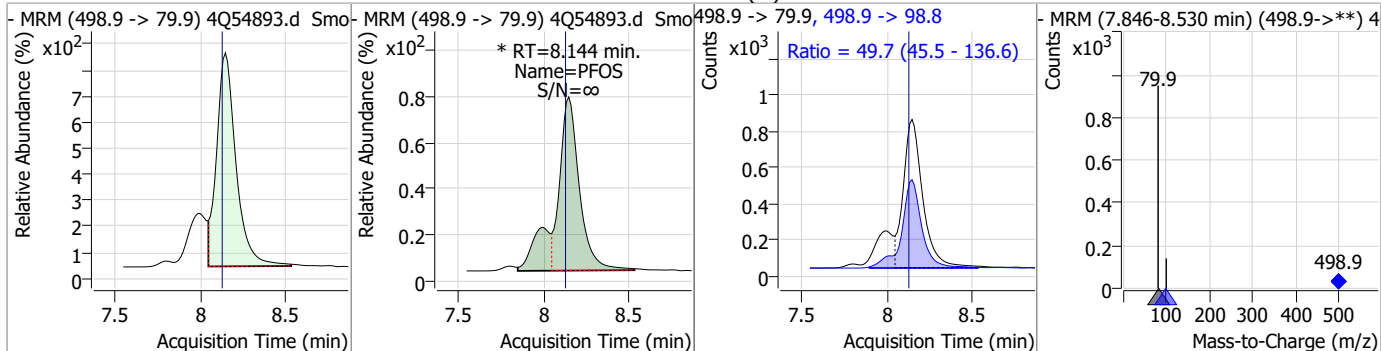


7.7.16  
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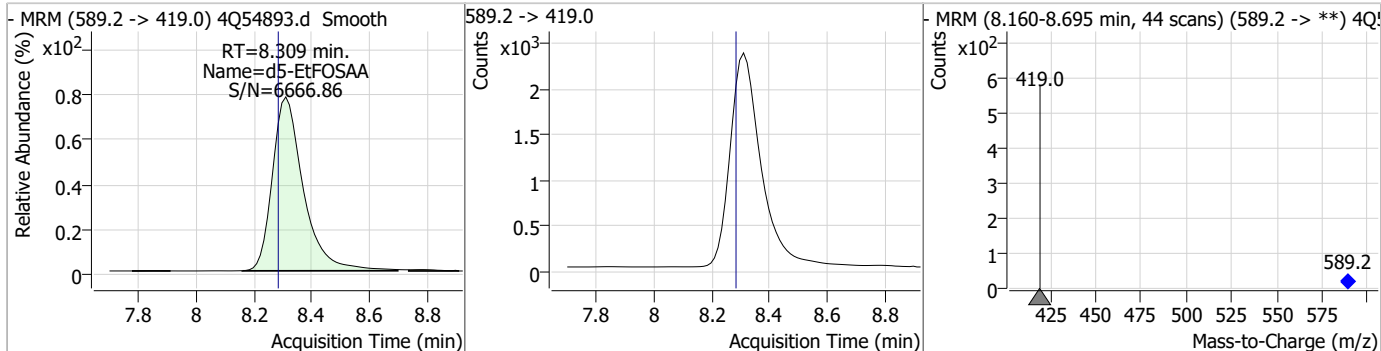


### Perfluorinated Compounds by LC/MS/MS

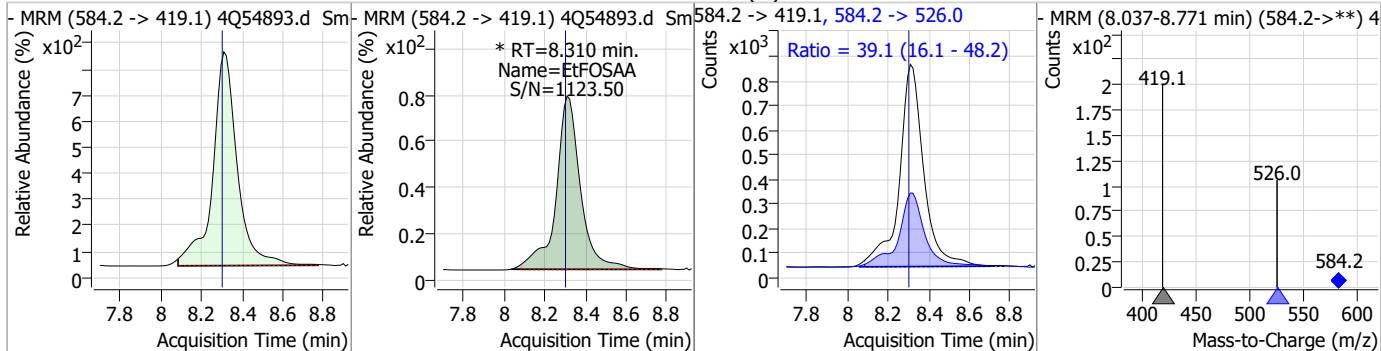
| Compound | Conc. | RT   | Dev(Min) | Resp.    | QIon          | QRatio | Min. | Max.  |
|----------|-------|------|----------|----------|---------------|--------|------|-------|
| PFOS     | 2.11  | 8.14 | 0.03     | 8060 (m) | 498.9 -> 98.8 | 49.7   | 45.5 | 136.6 |



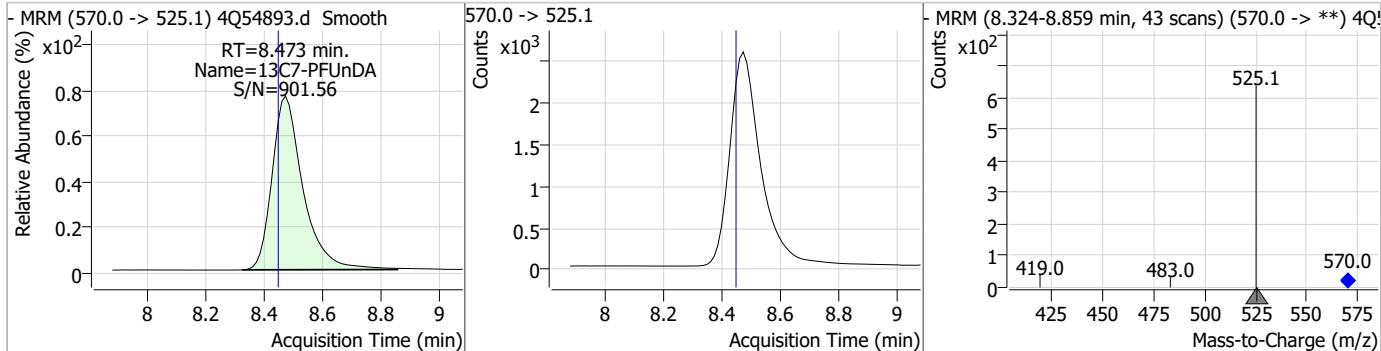
| Compound   | Conc. | RT   | Dev(Min) | Resp. | QIon | QRatio | Min. | Max. |
|------------|-------|------|----------|-------|------|--------|------|------|
| d5-EtFOSAA | 4.89  | 8.31 | 0.03     | 17506 |      |        |      |      |



| Compound | Conc. | RT   | Dev(Min) | Resp.    | QIon           | QRatio | Min. | Max. |
|----------|-------|------|----------|----------|----------------|--------|------|------|
| EtFOSAA  | 2.15  | 8.31 | 0.01     | 6856 (m) | 584.2 -> 526.0 | 39.1   | 16.1 | 48.2 |



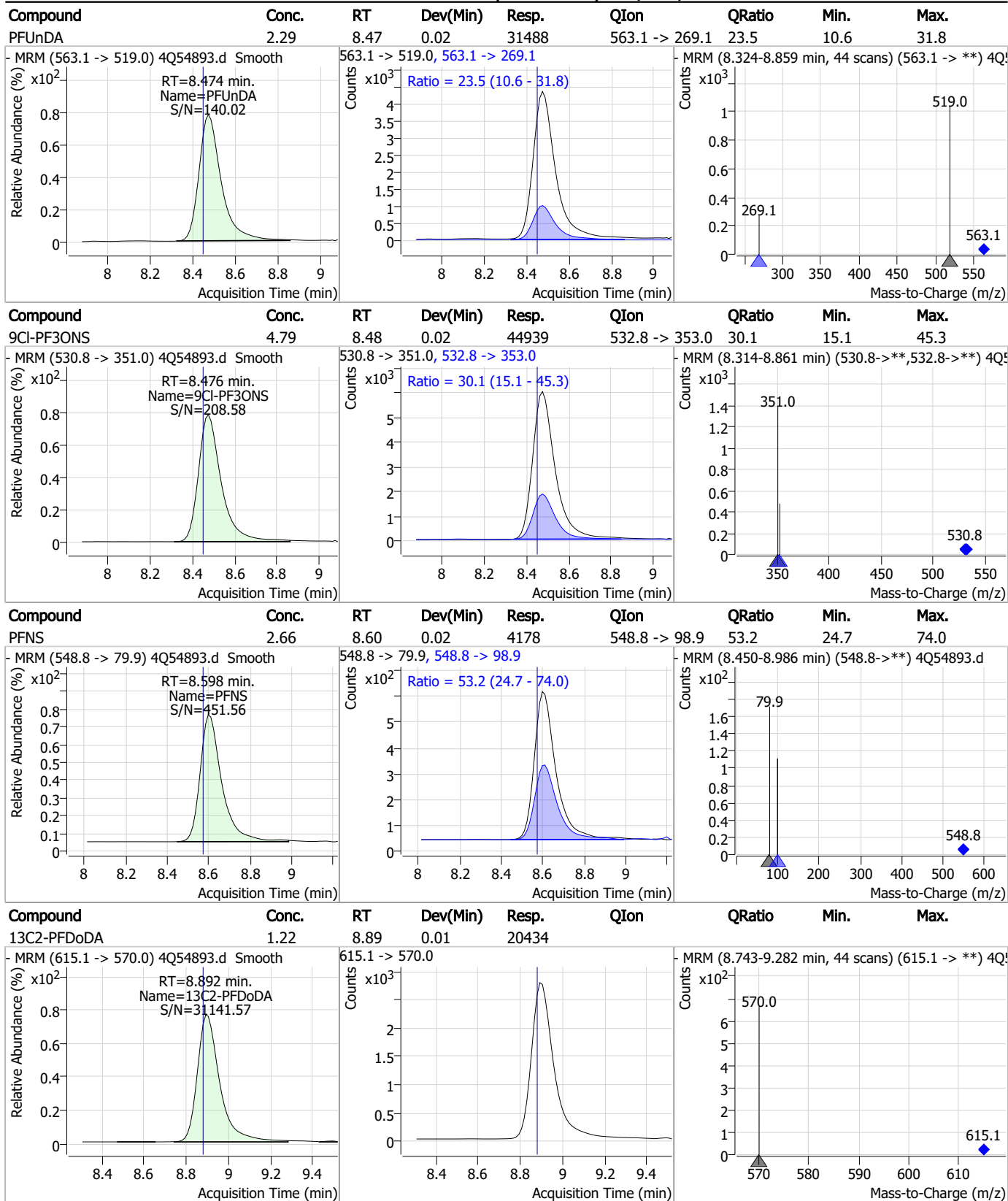
| Compound    | Conc. | RT   | Dev(Min) | Resp. | QIon | QRatio | Min. | Max. |
|-------------|-------|------|----------|-------|------|--------|------|------|
| 13C7-PFUnDA | 1.32  | 8.47 | 0.02     | 18918 |      |        |      |      |



7.7.16  
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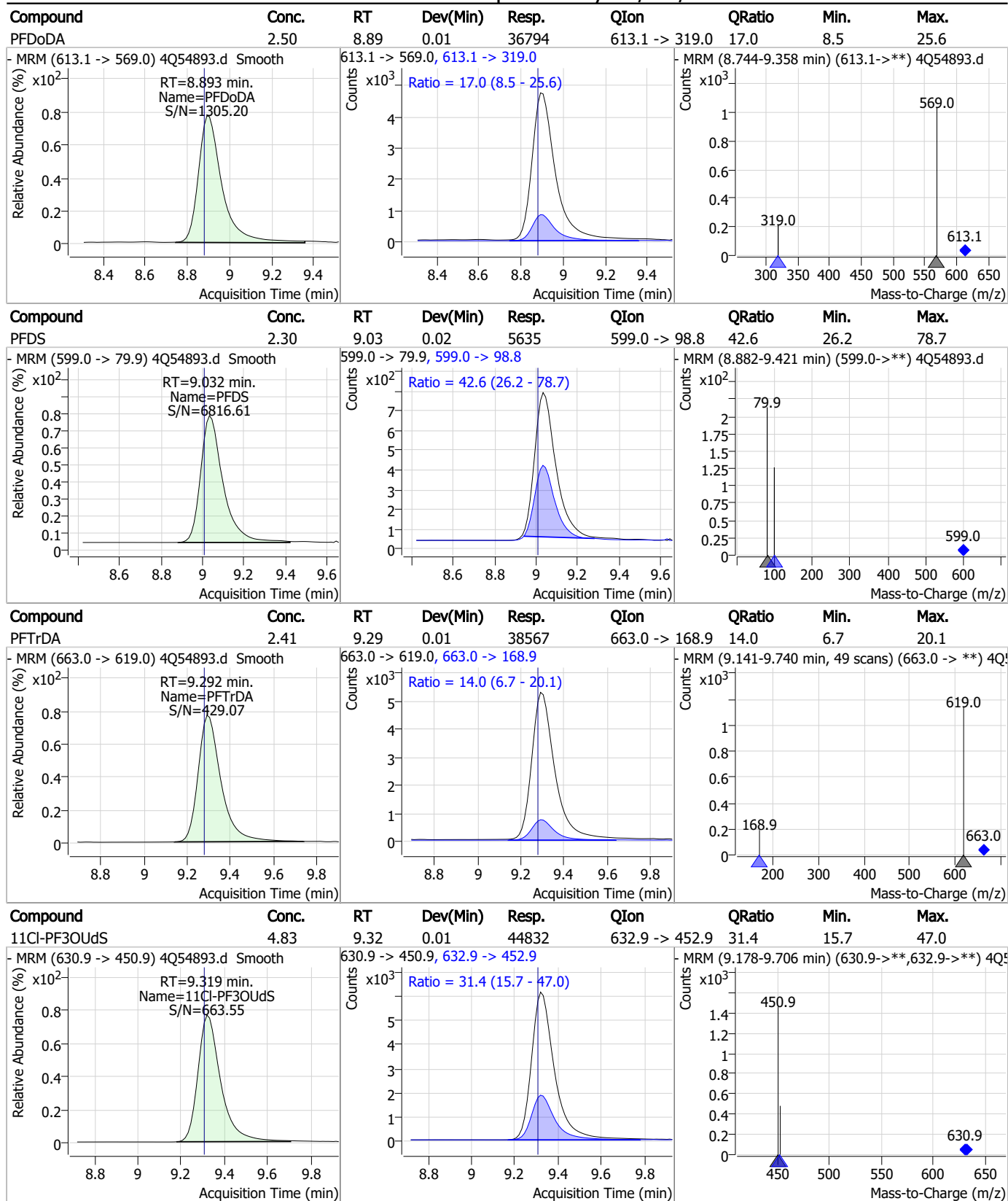


### Perfluorinated Compounds by LC/MS/MS



7.7.16  
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### Perfluorinated Compounds by LC/MS/MS



7.7.16  
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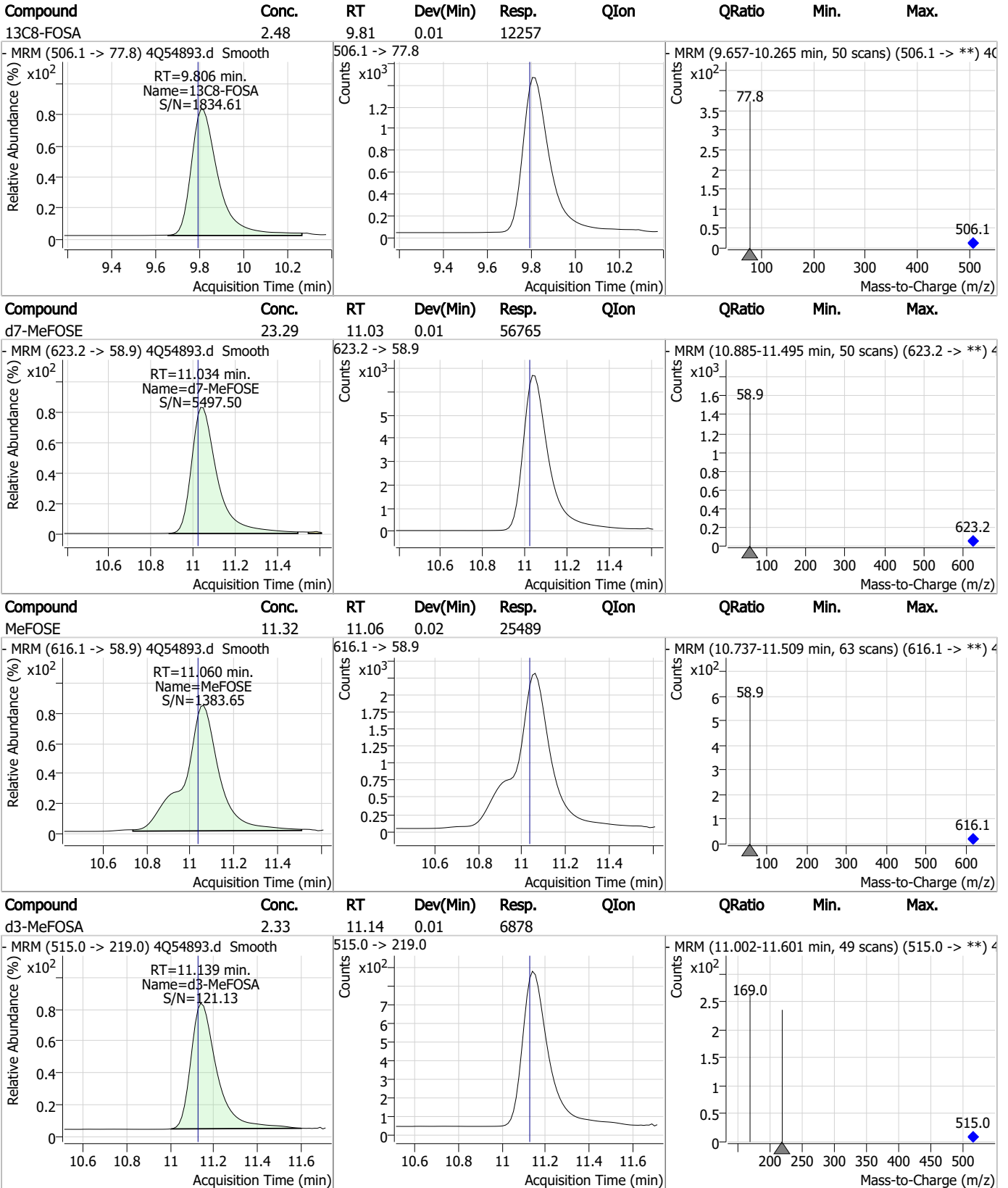


### Perfluorinated Compounds by LC/MS/MS

| Compound    | Conc. | RT   | Dev(Min) | Resp. | QIon     | QRatio | Min. | Max.        |
|-------------|-------|------|----------|-------|----------|--------|------|-------------|
| 13C2-PFTeDA | 1.24  | 9.66 | 0.02     | 20525 |          |        |      |             |
|             |       |      |          |       |          |        |      |             |
| PFTeDA      | 2.31  | 9.66 | 0.03     | 32984 | 713.1 -> | 168.9  | 10.4 | 5.3 - 15.9  |
|             |       |      |          |       |          |        |      |             |
| PFDoDS      | 2.25  | 9.79 | 0.02     | 4204  | 699.1 -> | 98.8   | 58.5 | 28.3 - 84.9 |
|             |       |      |          |       |          |        |      |             |
| FOSA        | 2.24  | 9.81 | 0.02     | 12318 | 498.1 -> | 478.0  | 3.4  | 1.4 - 4.1   |
|             |       |      |          |       |          |        |      |             |

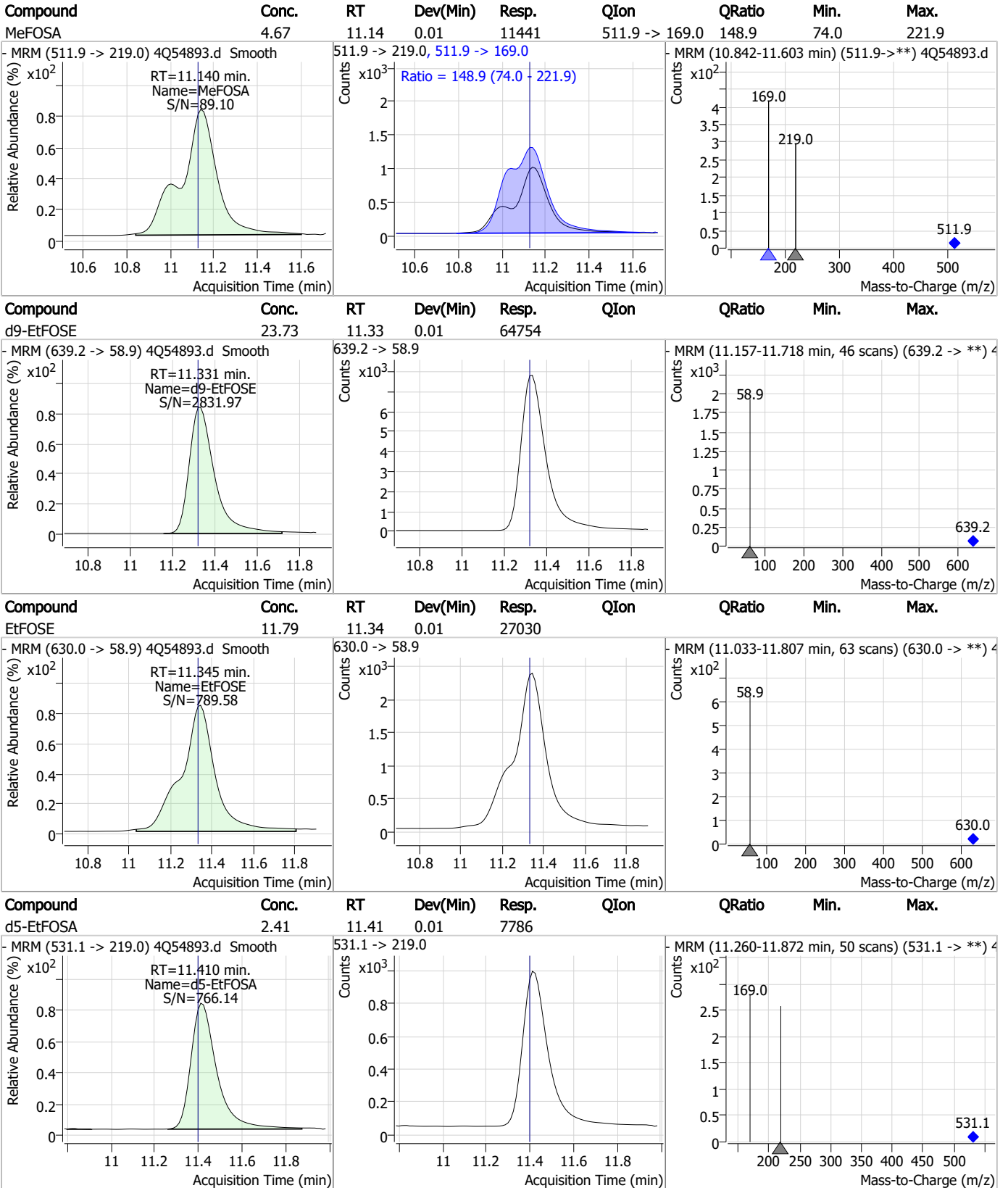
7.7.16  
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### Perfluorinated Compounds by LC/MS/MS



7.7.16  
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### Perfluorinated Compounds by LC/MS/MS

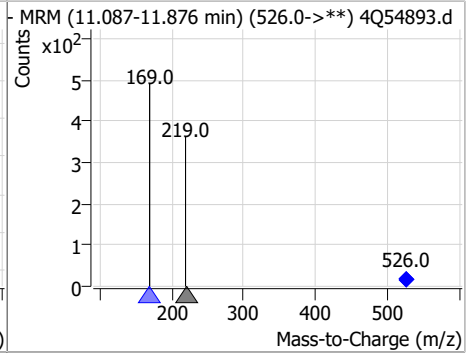
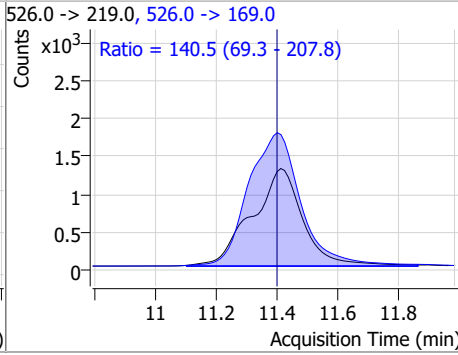
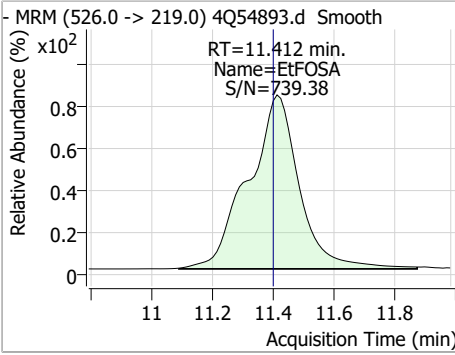


7.7.16  
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### Perfluorinated Compounds by LC/MS/MS

| Compound | Conc. | RT    | Dev(Min) | Resp. | QIon           | QRatio | Min. | Max.  |
|----------|-------|-------|----------|-------|----------------|--------|------|-------|
| EtFOSA   | 4.60  | 11.41 | 0.01     | 15254 | 526.0 -> 169.0 | 140.5  | 69.3 | 207.8 |



7.7.16  
7



# Manual Integration Approval Summary

Sample Number: S4Q804-CC804      Method: EPA DRAFT 1633  
Lab FileID: 4Q54893.D      Analyst approved: 12/10/23 12:52 Anna Ludwig  
Injection Time: 12/08/23 21:49      Supervisor approved: 12/11/23 16:36 Norman Farmer

| Parameter                    | CAS       | Sig# | R.T.<br>(min.) | Reason     |
|------------------------------|-----------|------|----------------|------------|
| Perfluorohexanesulfonic acid | 355-46-4  |      | 7.05           | Split peak |
| Perfluorooctanesulfonic acid | 1763-23-1 |      | 8.14           | Split peak |
| EtFOSAA                      | 2991-50-6 |      | 8.31           | Split peak |

7.7.16.1

7

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|              |                |
|--------------|----------------|
| DATE:        | 12/08/23       |
| COLUMN TYPE: | Poroshell EC18 |
| AMOUNT INJ:  | 6 ul           |
| INSTRUMENT:  | LCMS4-4Q       |

LCMS4-4Q ANALYSIS LOG

|             |                    |
|-------------|--------------------|
| METHODS:    | 1633               |
| PROC. METH: | 1633_120823_S4Q804 |
| CAL DATE:   | 12/08/23           |
| ANALYST:    | AL                 |
| RUN BATCH:  | S4Q804             |

|                   |                                       |
|-------------------|---------------------------------------|
| ELUENT A LOT #:   | 233675 W5%ACN 226166<br>2mMAMAC.11706 |
| ELUENT B LOT #:   | ACN 226166                            |
| IC/CC STD LOT #:  | LCMS 2212G                            |
| ICV STD LOT #:    | LCMS 2211                             |
| ISTD/D STD LOT #: | 12087D + 12030I                       |

|    | Data File | Sample | Sample Name    | Method        | Sample Type | Level   | Misc. Info                       | Comments        |
|----|-----------|--------|----------------|---------------|-------------|---------|----------------------------------|-----------------|
| 1  | 4Q54847.d | P1-B9  | ccb            | 1633full_4Q.m | Sample      |         | OP99999,S4Q804.500,,,5.0,1,water | nd              |
| 2  | 4Q54848.d | P1-B9  | ccb            | 1633full_4Q.m | Sample      |         | OP99999,S4Q804.500,,,5.0,1,water | nd              |
| 3  | 4Q54849.d | P1-B1  | RT TDCA        | 1633full_4Q.m | Sample      |         | OP99999,S4Q804.500,,,5.0,1,water | pass            |
| 4  | 4Q54850.d | P1-B2  | RT BR_LN       | 1633full_4Q.m | Sample      |         | OP99999,S4Q804.500,,,5.0,1,water | pass            |
| 5  | 4Q54851.d | P1-A1  | ic804-0        | 1633full_4Q.m | Sample      |         | OP99999,S4Q804.500,,,5.0,1,water | check tune file |
| 6  | 4Q54852.d | P1-A2  | ic804-1        | 1633full_4Q.m | Calibration | 1.6/500 | OP99999,S4Q804.500,,,5.0,1,water | pass            |
| 7  | 4Q54853.d | P1-A3  | ic804-2        | 1633full_4Q.m | Calibration | 3.2/500 | OP99999,S4Q804.500,,,5.0,1,water | pass            |
| 8  | 4Q54854.d | P1-A4  | ic804-3        | 1633full_4Q.m | Calibration | 10/500  | OP99999,S4Q804.500,,,5.0,1,water | pass            |
| 9  | 4Q54855.d | P1-A5  | icc804-4       | 1633full_4Q.m | Calibration | 20/500  | OP99999,S4Q804.500,,,5.0,1,water | pass            |
| 10 | 4Q54856.d | P1-A6  | ic804-5        | 1633full_4Q.m | Calibration | 40/500  | OP99999,S4Q804.500,,,5.0,1,water | pass            |
| 11 | 4Q54857.d | P1-A7  | ic804-6        | 1633full_4Q.m | Calibration | 100/500 | OP99999,S4Q804.500,,,5.0,1,water | pass            |
| 12 | 4Q54858.d | P1-A8  | ic804-7        | 1633full_4Q.m | Calibration | 200/500 | OP99999,S4Q804.500,,,5.0,1,water | pass            |
| 13 | 4Q54859.d | P1-A9  | ic804-8        | 1633full_4Q.m | Calibration | 1x      | OP99999,S4Q804.500,,,5.0,1,water | pass            |
| 14 | 4Q54860.d | P1-A1  | iblk           | 1633full_4Q.m | Sample      |         | OP99999,S4Q804.500,,,5.0,1,water | nd              |
| 15 | 4Q54861.d | P1-B3  | icv804-4       | 1633full_4Q.m | QC          | 20/500  | OP99999,S4Q804.500,,,5.0,1,water | pass            |
| 16 | 4Q54862.d | P1-B4  | icv804-20      | 1633full_4Q.m | QC          | 100/500 | OP99999,S4Q804.500,,,5.0,1,water | pass            |
| 17 | 4Q54863.d | P1-A5  | cc804-4        | 1633full_4Q.m | QC          | 20/500  | OP99999,S4Q804.500,,,5.0,1,water | pass            |
| 18 | 4Q54864.d | P1-A2  | cc804-1.0LL    | 1633full_4Q.m | QC          | 1.6/500 | OP99999,S4Q804.500,,,5.0,1,water | pass            |
| 19 | 4Q54865.d | P2-A9  | op471-bs       | 1633full_4Q.m | Sample      |         | OP471,S4Q804.500,,,5.0,1,soil    | ✓               |
| 20 | 4Q54866.d | P2-B1  | op471-llbs:3   | 1633full_4Q.m | Sample      |         | OP471,S4Q804.500,,,5.0,1,soil    | ✓               |
| 21 | 4Q54867.d | P2-B2  | op471-mb       | 1633full_4Q.m | Sample      |         | OP471,S4Q804.500,,,5.0,1,soil    | ✓               |
| 22 | 4Q54868.d | P2-B3  | fc11193-41     | 1633full_4Q.m | Sample      |         | OP471,S4Q804.4.99,,,5.0,1,soil   | ✓               |
| 23 | 4Q54869.d | P2-B4  | fc11193-42     | 1633full_4Q.m | Sample      |         | OP471,S4Q804.5.00,,,5.0,1,soil   | ✓               |
| 24 | 4Q54870.d | P2-B5  | fc11193-43     | 1633full_4Q.m | Sample      |         | OP471,S4Q804.4.99,,,5.0,1,soil   | ✓               |
| 25 | 4Q54871.d | P2-B6  | fc11193-44     | 1633full_4Q.m | Sample      |         | OP471,S4Q804.5.02,,,5.0,1,soil   | ✓               |
| 26 | 4Q54872.d | P1-A5  | cc804-4        | 1633full_4Q.m | QC          | 20/500  | OP99999,S4Q804.500,,,5.0,1,water | pass            |
| 27 | 4Q54873.d | P1-A1  | iccb           | 1633full_4Q.m | Sample      |         | OP99999,S4Q804.500,,,5.0,1,water | nd              |
| 28 | 4Q54874.d | P2-B7  | op471-m-bs     | 1633full_4Q.m | Sample      |         | OP471,S4Q804.5.00,,,5.0,1,soil   | ✓               |
| 29 | 4Q54875.d | P2-B8  | op471-m-llbs:3 | 1633full_4Q.m | Sample      |         | OP471,S4Q804.5.00,,,5.0,1,soil   | ✓               |
| 30 | 4Q54876.d | P2-B9  | op471-m-mb     | 1633full_4Q.m | Sample      |         | OP471,S4Q804.5.00,,,5.0,1,soil   | ✓               |
| 31 | 4Q54877.d | P2-C1  | fc11193-41m    | 1633full_4Q.m | Sample      |         | OP471,S4Q804.4.99,,,5.0,1,soil   | ✓               |
| 32 | 4Q54878.d | P2-C2  | fc11193-42m    | 1633full_4Q.m | Sample      |         | OP471,S4Q804.5.01,,,5.0,1,soil   | ✓               |
| 33 | 4Q54879.d | P2-C3  | fc11193-43m    | 1633full_4Q.m | Sample      |         | OP471,S4Q804.5.02,,,5.0,1,soil   | ✓               |
| 34 | 4Q54880.d | P2-C4  | fc11193-44m    | 1633full_4Q.m | Sample      |         | OP471,S4Q804.5.01,,,5.0,1,soil   | ✓               |
| 35 | 4Q54881.d | P1-A5  | cc804-4        | 1633full_4Q.m | QC          | 20/500  | OP99999,S4Q804.500,,,5.0,1,water | pass            |

Printed 12/11/2023 @ 8:41 AM

18.7



LCMS4-4Q ANALYSIS LOG

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|    |           |       |             |               |        |                                 |               |
|----|-----------|-------|-------------|---------------|--------|---------------------------------|---------------|
| 36 | 4Q54882.d | P1-A1 | iccb        | 1633full_4Q.m | Sample | OP9999,S4Q804,500,,,5.0,1,water | nd            |
| 37 | 4Q54883.d | P2-C5 | op495-bs    | 1633full_4Q.m | Sample | OP495,S4Q804,500,,,5.0,1,water  | ✓             |
| 38 | 4Q54884.d | P2-C6 | op495-lbs:3 | 1633full_4Q.m | Sample | OP495,S4Q804,500,,,5.0,1,water  | ✓             |
| 39 | 4Q54885.d | P2-C7 | op495-mb    | 1633full_4Q.m | Sample | OP495,S4Q804,500,,,5.0,1,water  | ✓             |
| 40 | 4Q54886.d | P2-C8 | fc11689-1   | 1633full_4Q.m | Sample | OP495,S4Q804,550,,,5.0,1,water  | ✓             |
| 41 | 4Q54887.d | P2-C9 | fc11715-1   | 1633full_4Q.m | Sample | OP495,S4Q804,550,,,5.0,1,water  | ✓             |
| 42 | 4Q54888.d | P2-D1 | fc11715-2   | 1633full_4Q.m | Sample | OP495,S4Q804,520,,,5.0,1,water  | ✓             |
| 43 | 4Q54889.d | P2-D2 | op495-ms    | 1633full_4Q.m | Sample | OP495,S4Q804,550,,,5.0,1,water  | ✓             |
| 44 | 4Q54890.d | P2-D3 | fc11715-3   | 1633full_4Q.m | Sample | OP495,S4Q804,510,,,5.0,1,water  | ✓             |
| 45 | 4Q54891.d | P2-D4 | op495-dup   | 1633full_4Q.m | Sample | OP495,S4Q804,530,,,5.0,1,water  | ✓             |
| 46 | 4Q54892.d | P2-D5 | fc11715-4   | 1633full_4Q.m | Sample | OP495,S4Q804,560,,,5.0,1,water  | ✓             |
| 47 | 4Q54893.d | P1-A5 | cc804-4     | 1633full_4Q.m | QC     | 20/500                          | pass          |
| 48 | 4Q54894.d | P1-A1 | iccb        | 1633full_4Q.m | Sample | OP9999,S4Q804,500,,,5.0,1,water | nd            |
| 49 | 4Q54895.d | P2-D6 | op496-bs    | 1633full_4Q.m | Sample | OP496,S4Q804,500,,,5.0,1,water  | ✓             |
| 50 | 4Q54896.d | P2-D7 | op496-lbs:2 | 1633full_4Q.m | Sample | OP496,S4Q804,500,,,5.0,1,water  | ✓             |
| 51 | 4Q54897.d | P2-D8 | op496-mb    | 1633full_4Q.m | Sample | OP496,S4Q804,500,,,5.0,1,water  | ✓             |
| 52 | 4Q54898.d | P2-D9 | fc11610-1   | 1633full_4Q.m | Sample | OP496,S4Q804,540,,,5.0,1,water  | ✓             |
| 53 | 4Q54899.d | P2-E1 | fc11610-2   | 1633full_4Q.m | Sample | OP496,S4Q804,540,,,5.0,1,water  | ✓             |
| 54 | 4Q54900.d | P2-E2 | fc11610-3   | 1633full_4Q.m | Sample | OP496,S4Q804,520,,,5.0,1,water  | rr 5x low eis |
| 55 | 4Q54901.d | P2-E3 | fc11610-4   | 1633full_4Q.m | Sample | OP496,S4Q804,520,,,5.0,1,water  | rr 5x low eis |
| 56 | 4Q54902.d | P2-E4 | fc11707-11  | 1633full_4Q.m | Sample | OP496,S4Q804,60,,,5.0,1,water   | ✓             |
| 57 | 4Q54903.d | P2-E5 | fc11673-1   | 1633full_4Q.m | Sample | OP496,S4Q804,500,,,5.0,1,water  | ✓             |
| 58 | 4Q54904.d | P2-E6 | op496-ms    | 1633full_4Q.m | Sample | OP496,S4Q804,490,,,5.0,1,water  | ✓             |
| 59 | 4Q54905.d | P1-A5 | cc804-4     | 1633full_4Q.m | QC     | 20/500                          | pass          |
| 60 | 4Q54906.d | P1-A1 | iccb        | 1633full_4Q.m | Sample | OP9999,S4Q804,500,,,5.0,1,water | nd            |
| 61 | 4Q54907.d | P2-E7 | fc11673-2   | 1633full_4Q.m | Sample | OP496,S4Q804,500,,,5.0,1,water  | ✓             |
| 62 | 4Q54908.d | P2-E8 | op496-dup   | 1633full_4Q.m | Sample | OP496,S4Q804,480,,,5.0,1,water  | ✓             |
| 63 | 4Q54909.d | P2-E9 | fc11673-3   | 1633full_4Q.m | Sample | OP496,S4Q804,520,,,5.0,1,water  | ✓             |
| 64 | 4Q54910.d | P2-F1 | fc11673-4   | 1633full_4Q.m | Sample | OP496,S4Q804,500,,,5.0,1,water  | ✓             |
| 65 | 4Q54911.d | P2-F2 | fc11673-5   | 1633full_4Q.m | Sample | OP496,S4Q804,500,,,5.0,1,water  | ✓             |
| 66 | 4Q54912.d | P2-F3 | op519-bs    | 1633full_4Q.m | Sample | OP519,S4Q804,500,,,5.0,1,water  | ✓             |
| 67 | 4Q54913.d | P2-F4 | op519-lbs:3 | 1633full_4Q.m | Sample | OP519,S4Q804,500,,,5.0,1,water  | ✓             |
| 68 | 4Q54914.d | P2-F5 | op519-mb    | 1633full_4Q.m | Sample | OP519,S4Q804,500,,,5.0,1,water  | ✓             |
| 69 | 4Q54915.d | P2-F6 | fc11645-1   | 1633full_4Q.m | Sample | OP519,S4Q804,495,,,5.0,1,water  | ✓             |
| 70 | 4Q54916.d | P2-F7 | fc11645-2   | 1633full_4Q.m | Sample | OP519,S4Q804,495,,,5.0,1,water  | ✓             |
| 71 | 4Q54917.d | P1-A5 | cc804-4     | 1633full_4Q.m | QC     | 20/500                          | pass          |
| 72 | 4Q54918.d | P1-A1 | iccb        | 1633full_4Q.m | Sample | OP9999,S4Q804,500,,,5.0,1,water | nd            |
| 73 | 4Q54919.d | P2-F8 | fc11645-3   | 1633full_4Q.m | Sample | OP519,S4Q804,495,,,5.0,1,water  | ✓             |
| 74 | 4Q54920.d | P2-F9 | fc11645-4   | 1633full_4Q.m | Sample | OP519,S4Q804,495,,,5.0,1,water  | ✓             |
| 75 | 4Q54921.d | P3-A1 | fc11645-5   | 1633full_4Q.m | Sample | OP519,S4Q804,520,,,5.0,1,water  | ✓             |
| 76 | 4Q54922.d | P3-A2 | fc11645-6   | 1633full_4Q.m | Sample | OP519,S4Q804,510,,,5.0,1,water  | ✓             |
| 77 | 4Q54923.d | P3-A3 | fc11645-7   | 1633full_4Q.m | Sample | OP519,S4Q804,500,,,5.0,1,water  | ✓             |
| 78 | 4Q54924.d | P3-A4 | fc11645-8   | 1633full_4Q.m | Sample | OP519,S4Q804,500,,,5.0,1,water  | ✓             |

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SGS ORLANDO LCMS4-4Q ANALYSIS LOG

|    |           |       |            |               |        |                                  |              |
|----|-----------|-------|------------|---------------|--------|----------------------------------|--------------|
| 79 | 4Q54925.d | P3-A5 | fc11645-9  | 1633full_4Q.m | Sample | OP519,S4Q804,500,,,5.0,1,water   | ✓            |
| 80 | 4Q54926.d | P3-A6 | fc11645-10 | 1633full_4Q.m | Sample | OP519,S4Q804,495,,,5.0,1,water   | ✓            |
| 81 | 4Q54927.d | P3-A7 | fc11645-11 | 1633full_4Q.m | Sample | OP519,S4Q804,505,,,5.0,1,water   | ✓            |
| 82 | 4Q54928.d | P3-A8 | fc11645-12 | 1633full_4Q.m | Sample | OP519,S4Q804,505,,,5.0,1,water   | ✓            |
| 83 | 4Q54929.d | P1-A5 | cc804-4    | 1633full_4Q.m | QC     | 20/500                           | pass         |
| 84 | 4Q54930.d | P1-A1 | iccb       | 1633full_4Q.m | Sample | OP99999,S4Q804,500,,,5.0,1,water | nd           |
| 85 | 4Q54931.d | P3-A9 | op519-ms   | 1633full_4Q.m | Sample | OP519,S4Q804,490,,,5.0,1,water   | ✓            |
| 86 | 4Q54932.d | P3-B1 | fc11645-13 | 1633full_4Q.m | Sample | OP519,S4Q804,505,,,5.0,1,water   | ✓            |
| 87 | 4Q54933.d | P3-B2 | fc11645-14 | 1633full_4Q.m | Sample | OP519,S4Q804,510,,,5.0,1,water   | ✓            |
| 88 | 4Q54934.d | P3-B3 | op519-dup  | 1633full_4Q.m | Sample | OP519,S4Q804,500,,,5.0,1,water   | ✓            |
| 89 | 4Q54935.d | P3-B4 | fc11645-15 | 1633full_4Q.m | Sample | OP519,S4Q804,510,,,5.0,1,water   | ✓            |
| 90 | 4Q54936.d | P3-B5 | fc11645-16 | 1633full_4Q.m | Sample | OP519,S4Q804,510,,,5.0,1,water   | ✓            |
| 91 | 4Q54937.d | P3-B6 | fc11645-17 | 1633full_4Q.m | Sample | OP519,S4Q804,510,,,5.0,1,water   | ✓            |
| 92 | 4Q54938.d | P3-B7 | fc11645-18 | 1633full_4Q.m | Sample | OP519,S4Q804,520,,,5.0,1,water   | rr 2x e flag |
| 93 | 4Q54939.d | P3-B8 | fc11645-19 | 1633full_4Q.m | Sample | OP519,S4Q804,515,,,5.0,1,water   | rr 1x co     |
| 94 | 4Q54940.d | P1-A5 | ecc804-4   | 1633full_4Q.m | QC     | 20/500                           | pass         |
| 95 | 4Q54941.d | P1-A1 | iccb       | 1633full_4Q.m | Sample | OP99999,S4Q804,500,,,5.0,1,water | nd           |

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Organic Standards Preparation Log

| SGS - Orlando Std. # | Name Description             | Parent Std. #  | Parent Name        | Parent Vendor | Vendor Exp. Date | Lab* Exp. Date    | Parent Conc. | Vol. Used | Final Vol. | Final Conc.       | Diluent Lot                   | Prep. Date | Exp. Date | Initials |
|----------------------|------------------------------|----------------|--------------------|---------------|------------------|-------------------|--------------|-----------|------------|-------------------|-------------------------------|------------|-----------|----------|
| LCMS 2211            | Full List 40 Spike (Cal mix) | 12006 / 12047A | PFOA-DOD (28 Comp) | Absolute      | 06/26/28         | 09/19/24          | 1.0 ppm      | 400 µL    | 4.0 mL     | 100 ppb           | 95% MeOH 5% H <sub>2</sub> O  | 10/18/23   | 02/07/24  | JR       |
| LCMS 2210            | ↓                            | LCMS 2210      | 40 List Add-mob    | -             | -                | 02/08/24          | ↓            | ↓         | ↓          | ↓                 | ↓                             | ↓          | ↓         | ↓        |
| LCMS 2156            | ↓                            | LCMS 2156      | 40 List Add-mob    | -             | -                | 02/07/24          | ↓            | ↓         | ↓          | ↓                 | ↓                             | ↓          | ↓         | ↓        |
| LCMS 2193            | ↓                            | LCMS 2193      | P056 Std.          | -             | -                | 03/25/24          | 5.0 ppm      | ↓         | ↓          | 500 ppb           | ↓                             | ↓          | ↓         | ↓        |
| LCMS 2198            | 1633 Cal std. Spike          | LCMS 2198      | Br-LN Et-me        | SGS LABO      | 4/1/24           | 4/4/24            | 2 ppm        | 250 µL    | 4 mL       | 125 312.5 ppb     | 1033 mix (2088 µL)            | 10/22/23   | 4/4/24    | MJ       |
| LCMS 12032           | ↓                            | 12032          | PFAC MXH           | Wellington    | 4/19/28          | 10/15/24 10/22/24 | 1-H ppm      | ↓         | ↓          | 62.5 12.5 250 ppb | ↓                             | ↓          | ↓         | ↓        |
| LCMS 12005           | ↓                            | 12005          | PFAC MXF           | ↓             | 3/24/26          | 10/15/24 10/22/24 | 2 ppm        | ↓         | ↓          | 125 ppb           | ↓                             | ↓          | ↓         | ↓        |
| LCMS 12034           | ↓                            | 12034          | PFAC MXG           | ↓             | 7/27/28          | 10/15/24 10/22/24 | 2 ppm        | ↓         | ↓          | 125 25 40 ppb     | ↓                             | ↓          | ↓         | ↓        |
| LCMS 12091           | ↓                            | 12091          | PFAC MXJ           | ↓             | 3/28/28          | 10/15/24 10/22/24 | 4-20 ppm     | 312 µL    | ↓          | 312 1100 ppb      | ↓                             | ↓          | ↓         | ↓        |
| LCMS 2208            | PFAC MDL Spike               | LCMS 2208      | PFAC Spike         | -             | -                | 03/13/24          | 400 ppb      | 100 µL    | 1.0 mL     | 400 ppb           | 95% MeOH 5% H <sub>2</sub> O  | 10/18/23   | 03/13/24  | NG       |
| LCMS 2214            | 6850 STD                     | 11755          | pchlorate br-N     | Absolute      | 07/16/24         | 07/16/24          | 100 ppm      | 50 µL     | 50 mL      | 100 ppb           | HPCL H <sub>2</sub> O 233 G75 | 10/24/23   | 04/24/24  | AL       |
| LCMS 2215            | 1633 Br-LN Me/EtFSA:metEtFSE | 11777          | Me/FOSA br-N       | Wellington    | 8/23/27          | 10/14/24          | 50 ppm       | 200 µL    | 5 mL       | 2 ppm             | 1633 mix (3.600 µL)           | 10/25/23   | 4/4/24    | MJ       |
| LCMS 11798           | ↓                            | 11798          | ETFOA br-N         | ↓             | 10/4/27          | 10/4/24           | ↓            | ↓         | ↓          | 2 ppm             | ↓                             | ↓          | ↓         | ↓        |
| LCMS 12070A          | ↓                            | 12070A         | MeFOSE br-N        | ↓             | 10/7/27          | 10/4/24           | ↓            | 500 µL    | ↓          | 5 ppm             | ↓                             | ↓          | ↓         | ↓        |
| LCMS 12071A          | ↓                            | 12071A         | MeFOSE br-N        | ↓             | 10/7/27          | 10/4/24           | ↓            | ↓         | ↓          | 5 ppm             | ↓                             | ↓          | ↓         | ↓        |
|                      |                              |                |                    |               |                  | JR 10/30/23       |              |           |            |                   |                               |            |           |          |

\*JR 10/18/23

LCMS 2211 10/11/23

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Organic Standards Preparation Log

| SGS - Orlando Std. # | Name Description               | Parent Std. # | Parent Name       | Parent Vendor   | Vendor Exp. Date | Lab* Exp. Date | Parent Conc. | Vol. Used | Final Vol. | Final Conc.      | Diluent Lot        | Prep. Date | Exp. Date | Initials |
|----------------------|--------------------------------|---------------|-------------------|-----------------|------------------|----------------|--------------|-----------|------------|------------------|--------------------|------------|-----------|----------|
| LCMS 2196            | PFC 1D Std                     | 12006         | PFDA-DOB (250amp) | Absolute        | 04/24/28         | 09/19/24       | 1.0 ppm      | 400 µL    | 4.0 mL     | 100 ppb          | 95/1107 5:14-0     | 09/28/23   | 12/13/24  | JR       |
| ↓                    | ↓                              | 11432         | N-Me FOSA-M       | Wellington Labs | 02/28/27         | 03/13/24       | 50 ppm       | 8 µL      | ↓          | ↓                | ↓                  | ↓          | ↓         | ↓        |
| ↓                    | ↓                              | 11793         | PBSA-1            | ↓               | 02/01/28         | 08/08/24       | ↓            | ↓         | ↓          | ↓                | ↓                  | ↓          | ↓         | ↓        |
| ↓                    | ↓                              | 11792         | PHSA-1            | ↓               | 12/01/27         | 08/08/24       | ↓            | ↓         | ↓          | ↓                | ↓                  | ↓          | ↓         | ↓        |
| ↓                    | ↓                              | 11332         | PFCHS             | ↓               | 03/28/27         | 04/18/24       | ↓            | ↓         | ↓          | ↓                | ↓                  | ↓          | ↓         | ↓        |
| ↓                    | ↓                              | LCMS 2191     | Br-LN Et-ME       | SGS LABO        | n/a              | 12/28/23       | 2ppm         | 250µL     | 4mL        | 125 312.5ppb     | 1633 MIX (2500µL)  | 10/1/23    | 12/28/23  | MV       |
| ↓                    | ↓                              | 11968         | PFAC              | Wellington      | 4-19-28          | 9-24-24        | 1-4 ppm      | 250µL     | ↓          | 102.5 125 250ppb | ↓                  | ↓          | ↓         | ↓        |
| ↓                    | ↓                              | 11989         | MXH               | ↓               | 3-24-26          | 9/24/24        | 2ppm         | 250µL     | ↓          | 125ppb           | ↓                  | ↓          | ↓         | ↓        |
| ↓                    | ↓                              | 11990         | PFAC MXF          | ↓               | 12/1/27          | 10/1/24        | 2ppm         | 250µL     | ↓          | 125ppb           | ↓                  | ↓          | ↓         | ↓        |
| ↓                    | ↓                              | 11918         | PFAC              | ↓               | 3/28/28          | 9/24/24        | 420 ppm      | 312µL     | ↓          | 312 1160ppb      | ↓                  | ↓          | ↓         | ↓        |
| ↓                    | ↓                              | 11970         | MXG               | ↓               | ↓                | ↓              | ↓            | ↓         | ↓          | ↓                | ↓                  | ↓          | ↓         | ↓        |
| ↓                    | ↓                              | 120148        | PFAC              | ↓               | ↓                | ↓              | ↓            | ↓         | ↓          | ↓                | ↓                  | ↓          | ↓         | ↓        |
| ↓                    | ↓                              | 120168        | MXJ               | ↓               | ↓                | ↓              | ↓            | ↓         | ↓          | ↓                | ↓                  | ↓          | ↓         | ↓        |
| LCMS 2198            | 1633BR-LN Me/Et/Isop/mc/effose | 11797         | br-N MeFOA        | Wellington      | 8/23/27          | 10/14/24       | 50ppm        | 200µL     | 5mL        | 2ppm             | 1633 mix (5000 µL) | 10/14/23   | 4/4/24    | NW       |
| ↓                    | ↓                              | 11798         | br-N EtFOA        | ↓               | 10/7/27          | 10/14/24       | ↓            | 200µL     | ↓          | 2ppm             | ↓                  | ↓          | ↓         | ↓        |
| ↓                    | ↓                              | 12070A        | br-N MeFOE        | ↓               | 10/7/27          | 10/14/24       | ↓            | 500µL     | ↓          | 5ppm             | ↓                  | ↓          | ↓         | ↓        |
| ↓                    | ↓                              | 12071A        | br-N EtFOE        | ↓               | 10/7/27          | 10/14/24       | ↓            | 500µL     | ↓          | 5ppm             | ↓                  | ↓          | ↓         | ↓        |

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ORLD-QAC-0017-6-03-FORM-lcms std prep log.xls 030819



Organic Standards Preparation Log

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|----------------------|--------------------------|------------------|--------------------------------------|-----------------|---------------------------------|----------------|--------------|-----------|------------|-------------|---------------------------------|------------|-----------|----------|
| LCMS 2210            | 40 List Std<br>Add-on #1 | 11049            | PFS                                  | Wellington Labs | 12/01/27                        | 08/07/24       | 50 ppm       | 80 mL     | 4.0 mL     | 1.0 ppm     | 95% MeOH<br>5% H <sub>2</sub> O | 10/18/23   | 02/08/24  | JR       |
|                      |                          | <del>11461</del> | L-<br>PFDS                           |                 | <del>02/08/27</del><br>04/02/27 | 10/18/24       |              |           |            |             |                                 |            |           |          |
|                      |                          | 11710            | N-Me<br>FOSR-M                       |                 | 11/11/27                        | 08/07/24       |              |           |            |             |                                 |            |           |          |
|                      |                          | 12122            | N-Et<br>FOSR-M                       |                 | 09/19/28                        | 10/18/24       |              |           |            |             |                                 |            |           |          |
|                      |                          | 11481            | PFHxDA                               |                 | 02/23/27                        | 10/18/24       |              |           |            |             |                                 |            |           |          |
|                      |                          | 11462            | PFODA                                |                 | 07/05/27                        | 10/18/24       |              |           |            |             |                                 |            |           |          |
|                      |                          | 11116B           | 5:3FTCA<br>FP-PA                     |                 | 02/05/27                        | 02/08/24       |              |           |            |             |                                 |            |           |          |
|                      |                          | 11994            | 5:3FTCA<br>MSFP2A                    |                 | 08/02/27                        | 09/05/24       |              |           |            |             |                                 |            |           |          |
|                      |                          | 11116A           | 3:3FTCA<br>FHPA                      |                 | 11/12/25                        | 02/08/24       |              |           |            |             |                                 |            |           |          |
|                      |                          | 11794            | PFECHS                               |                 | 03/14/28                        | 08/07/24       |              |           |            |             |                                 |            |           |          |
|                      |                          | 11464            | PFEESA                               |                 | 11/22/27                        | 10/18/24       |              |           |            |             |                                 |            |           |          |
|                      |                          | 11465            | PFMDA                                |                 | 08/02/27                        | 08/07/24       |              |           |            |             |                                 |            |           |          |
|                      |                          | 11648            | PFHPA                                |                 | 08/02/27                        | 09/07/24       |              |           |            |             |                                 |            |           |          |
|                      |                          | 11467            | PF4PA<br>PF4PA<br>NFHDA<br>5:3 OFHMA |                 | 04/08/27                        | 10/18/24       |              |           |            |             |                                 |            |           |          |
|                      |                          |                  |                                      |                 |                                 | JR             |              |           |            |             |                                 |            |           |          |
|                      |                          |                  |                                      |                 |                                 | 10/18/23       |              |           |            |             |                                 |            |           |          |

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\*JR 10/18/23 \* based on date opened as specified in each SGS - Orlando SOP.

Organic Standards Preparation Log

| SGS - Orlando Std. # | Name Description    | Parent Std. # | Parent Name | Parent Vendor | Vendor Exp. Date | Lab* Exp. Date    | Parent Conc. | Vol. Used   | Final Vol. | Final Conc.           | Diluent Lot            | Prep. Date | Exp. Date | Initials |
|----------------------|---------------------|---------------|-------------|---------------|------------------|-------------------|--------------|-------------|------------|-----------------------|------------------------|------------|-----------|----------|
| LCMS 2156            | List 40 ADD ON #2   | 11513         | FBSA-1      | Wellington    | 11/10/26         | 4/18/24           | 50 ppm       | 800ul       | 4.0ml      | 1ppm                  | 95% methanol<br>5% H2O | 8/7/23     | 2/7/24    | MW       |
|                      |                     | 11514         | FHXSA1      |               | 12/29/26         | 4/18/24           |              |             |            |                       | (3760)                 |            |           |          |
|                      |                     | 11140B        | 1-PFAS      |               | 7/12/26          | 5/19/24           |              |             |            |                       |                        |            |           |          |
| LCMS 2157            | 1033 RT BR-LN       | 11496         | br-Fosa     | Wellington    | 10/7/27          | 12/28/23          | 50 ppm       | 10NL<br>5µL | 5ml        | 100ppb                | 1033 mix               | 8/7/23     | 12/28/23  | MW       |
|                      |                     | 11497         | br-N metosa |               | 8/23/27          |                   |              | 10NL        |            |                       | (4930)                 |            |           |          |
|                      |                     | 11498         | br-N ETFOA  |               | 10/7/27          |                   |              |             |            |                       |                        |            |           |          |
|                      |                     | 11494         | br-N metose |               | 10/7/27          |                   |              |             |            |                       |                        |            |           |          |
|                      |                     | 11495         | br-N ETFOE  |               | 10/7/27          |                   |              |             |            |                       |                        |            |           |          |
|                      |                     | 11502         | T-PFOA      |               | 01/27/27         |                   |              |             |            |                       |                        |            |           |          |
|                      |                     | 11527         | IP PFNA     |               | 01/10/27         |                   |              |             |            |                       |                        |            |           |          |
| LCMS 2158 AE         | 1033 Cul std. Spike | 11930         | Br-LN ET-me | SGS LABO      | N/A              | 12/28/23          | 2ppm<br>5ppm | 250ul       | 4ml        | 125<br>312.5ppb       | 1033 mix<br>2088ul     | 8/7/23     | 12/28/23  | MW       |
|                      |                     | 11930         | PFAC MXH    | Wellington    | 4/19/28          | 7/31/24<br>8/7/24 | 1-4 ppm      |             |            | 62.5<br>125<br>250ppb |                        |            |           |          |
|                      |                     | 11921A        | PFAC MX F   |               | 3/24/26          | 7-31-24<br>8-7-24 | 2ppm         |             |            | 125ppb                |                        |            |           |          |
|                      |                     | 11907         | PFAC MX G   |               | 12/11/27         | 7-31-24<br>8-7-24 | 2ppm         |             |            | 125ppb                |                        |            |           |          |
|                      |                     | 11933A        | PFAC MX J   |               | 3-28-28          | 7-31-24<br>8-7-24 | 4-20 ppm     | 312NL       |            | 312<br>1160ppb        |                        |            |           |          |
|                      |                     | 11933B        |             |               |                  |                   |              |             |            |                       |                        |            |           |          |
|                      |                     |               |             |               |                  |                   |              |             |            |                       |                        |            |           |          |

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ORLD-QAC-0017-6-03-FORM-lcms std prep log.xls 030819



Organic Standards Preparation Log

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|----------------------|------------------------------|-----------------|--------------------------------------|-----------------|------------------|----------------|--------------|-----------|------------|-----------------------|-------------------------------|------------|----------------------------------|----------|
| LCMS 2192A-1         | 1033 Cal std. (spike)        | LCMS 2191       | PFAC <sup>ant</sup><br>BE-IN<br>PFAC | Sgs Labs        | n/a              | 12/28/23       | 2ppm<br>5ppm | 250uL     | 4mL        | 125<br>312.5ppb       | 1633<br>1633<br>1633          | 9/24/23    | 12/28/23<br>12/28/23<br>12/28/23 | MW       |
|                      |                              | 11940           | PFAC                                 | Washington      | 4-19-28          | 9/24/23        | 1-4 ppm      | 250uL     |            | 62.5<br>125<br>250ppb |                               |            |                                  |          |
|                      |                              | 11947B          | PFAC                                 |                 | 3-24-26          | 9/15/24        | 2ppm         | 250uL     |            | 125ppb                |                               |            |                                  |          |
|                      |                              | 11964           | MXF                                  |                 | 12-1-27          | 9/24/24        | 2ppm         | 250uL     |            | 125ppb                |                               |            |                                  |          |
|                      |                              | 11948A          | PFAC                                 |                 | 3-28-28          | 9/15/24        | 4-20 ppm     | 312 uL    |            | 312<br>1100<br>ppb    |                               |            |                                  |          |
|                      |                              | 11948B          | MXG                                  |                 | 05/19/27         | 09/25/24       | 50ppm        | 200 uL    | 2.0 mL     | 5ppb                  | 95/MCOH<br>5/H <sub>2</sub> O | 09/25/23   | 03/25/24                         | JR       |
| LCMS 2193            | FOSE Std                     | 11409           | N-ET-FOSE                            | Wollington Labs | 05/19/27         | 09/25/24       | ↓            | ↓         | ↓          | ↓                     | ↓                             | ↓          | ↓                                | ↓        |
|                      |                              | 11410           | N-Me-FOSE                            |                 | 05/19/27         | 09/25/24       | ↓            | ↓         | ↓          | ↓                     | ↓                             | ↓          | ↓                                | ↓        |
| LCMS 2194            | Full List 40 Spike (cal std) | 11904/<br>12006 | PFAC-<br>DOP<br>(25comp)             | Absolute        | 03/19/28         | 09/11/24       | 1.0 ppm      | 400 uL    | 4.0 mL     | 100ppb                | 95/MCOH<br>5/H <sub>2</sub> O | 09/25/23   | 10/18/23                         | JR       |
|                      |                              | LCMS 2179       | 40 List Add-m#1                      | Sgs Std         | -                | 10/18/23       | ↓            | ↓         | ↓          | ↓                     | ↓                             | ↓          | ↓                                | ↓        |
|                      |                              | LCMS 2156       | 40 List Add-m#2                      |                 | -                | 02/07/24       | ↓            | ↓         | ↓          | ↓                     | ↓                             | ↓          | ↓                                | ↓        |
|                      |                              | LCMS 2195       | FOSE Std.                            |                 | -                | 03/25/24       | 5.0 ppm      | ↓         | ↓          | 500ppb                | ↓                             | ↓          | ↓                                | ↓        |
| LCMS 2195            | PFC Spike                    | 12006           | PFAC-<br>DOP<br>(25comp)             | Absolute        | 06/26/28         | 09/19/24       | 1.0 ppm      | 2 mL      | 5.0 mL     | 400ppb                | 95/MCOH<br>5/H <sub>2</sub> O | 09/28/23   | 03/19/24                         | JR       |
|                      |                              | 11432           | N-Me FOSA-M                          | Wollington Labs | 02/28/27         | 03/19/24       | 50ppm        | 40 uL     | ↓          | ↓                     | ↓                             | ↓          | ↓                                | ↓        |
|                      |                              | 11793           | FOSA-1                               |                 | 04/01/28         | 08/08/24       | ↓            | ↓         | ↓          | ↓                     | ↓                             | ↓          | ↓                                | ↓        |
|                      |                              | 11712           | FH-SA-1                              |                 | 12/01/27         | 08/08/24       | ↓            | ↓         | ↓          | ↓                     | ↓                             | ↓          | ↓                                | ↓        |
|                      |                              | 11332           | PFCMS                                |                 | 03/28/27         | 04/18/24       | ↓            | ↓         | ↓          | ↓                     | ↓                             | ↓          | ↓                                | ↓        |

\* based on date opened as specified in each SGS - Orlando SOP.

ORLD-QAC-0017-6-03-FORM-lcms std prep log.xls 030819



1116 A.B <sup>nw</sup>

1116B on the back nw



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:**

FHpPA

**LOT NUMBER:**

FHpPA1020

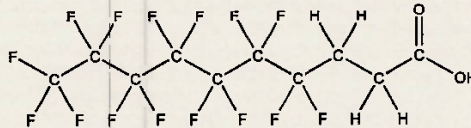
**COMPOUND:**

3-Perfluoroheptyl propanoic acid

**STRUCTURE:**

**CAS #:**

812-70-4



**MOLECULAR FORMULA:**

C<sub>10</sub>H<sub>5</sub>F<sub>15</sub>O<sub>2</sub>

**MOLECULAR WEIGHT:**

442.12

**CONCENTRATION:**

50.0 ± 2.5 µg/mL

**SOLVENT(S):**

Methanol

**CHEMICAL PURITY:**

>98%

**LAST TESTED:** (mm/dd/yyyy)

11/12/2020

**EXPIRY DATE:** (mm/dd/yyyy)

11/12/2025

**RECOMMENDED STORAGE:**

Refrigerate ampoule

**DOCUMENTATION/ DATA ATTACHED:**

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

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

**ADDITIONAL INFORMATION:**

- See page 2 for further details.

**FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE**

**Certified By:**

B.G. Chittim, General Manager

**Date:** 11/27/2020

(mm/dd/yyyy)

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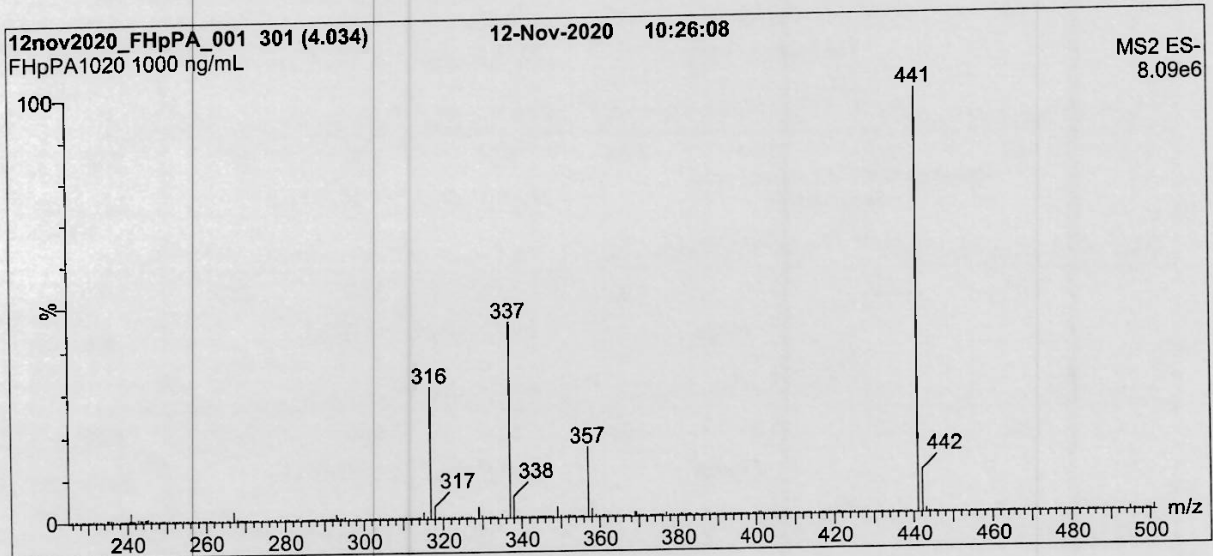
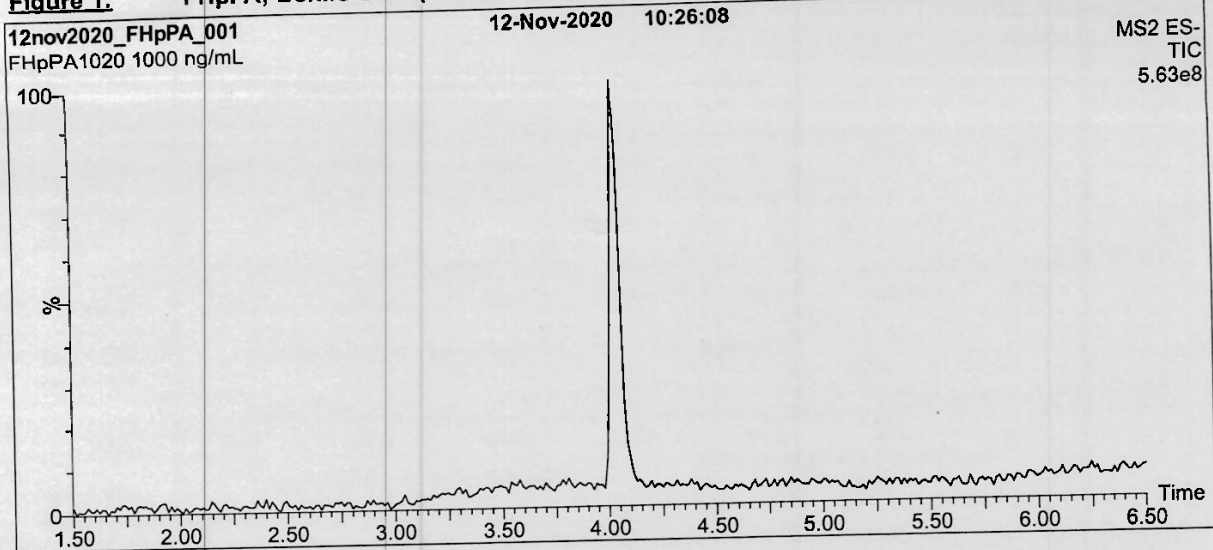
Form#: 27, Issued 2004-11-10  
Revision#: 8, Revised 2020-09-10

FHpPA1020 (1 of 4)  
rev0

7.9.1

7



**Figure 1: FHpPA; LC/MS Data (TIC and Mass Spectrum)****Conditions for Figure 1:**

Waters Acquity Ultra Performance LC  
Waters Xevo TQ-S micro MS

**Chromatographic Conditions:**

Column: Acquity UPLC BEH Shield RP<sub>18</sub>  
1.7  $\mu$ m, 2.1 x 100 mm

Mobile phase: Gradient  
Start: 45% H<sub>2</sub>O / 55% (80:20 MeOH:ACN)  
(both with 10 mM NH<sub>4</sub>OAc buffer)  
Ramp to 90% organic over 8 min and hold for  
2 min before returning to initial conditions in 0.75 min.  
Time: 12 min

Flow: 300  $\mu$ L/min

**MS Parameters:**

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)  
Capillary Voltage (kV) = 0.50  
Cone Voltage (V) = 28.50  
Desolvation Temperature ( $^{\circ}$ C) = 500  
Desolvation Gas Flow (L/hr) = 1000

FPrPA(3:3FTEA) 1116 B



**WELLINGTON**  
LABORATORIES

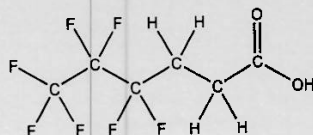
**CERTIFICATE OF ANALYSIS**  
DOCUMENTATION

**PRODUCT CODE:** FPrPA  
**COMPOUND:** 3-Perfluoropropyl propanoic acid

**LOT NUMBER:** FPrPA0122

**STRUCTURE:**

**CAS #:** 356-02-5



**MOLECULAR FORMULA:** C<sub>6</sub>H<sub>5</sub>F<sub>7</sub>O<sub>2</sub>  
**CONCENTRATION:** 50.0 ± 2.5 µg/mL  
**CHEMICAL PURITY:** >98%  
**LAST TESTED:** (mm/dd/yyyy) 02/03/2022  
**EXPIRY DATE:** (mm/dd/yyyy) 02/03/2027  
**RECOMMENDED STORAGE:** Refrigerate ampoule

**MOLECULAR WEIGHT:** 242.09  
**SOLVENT(S):** Methanol

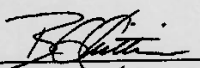
**DOCUMENTATION/ DATA ATTACHED:**

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

**ADDITIONAL INFORMATION:**

- See page 2 for further details.
- Contains <1% of the unsaturated 3:3 telomer acid (C<sub>6</sub>H<sub>3</sub>F<sub>7</sub>O<sub>2</sub>) as an impurity determined by <sup>19</sup>F NMR.

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**Certified By:**   
B.G. Chittim, General Manager

**Date:** 02/04/2022  
(mm/dd/yyyy)

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11140



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:**

L-PFPrS

**LOT NUMBER:**

LPFPrS0721

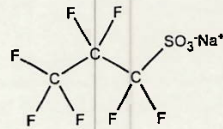
**COMPOUND:**

Sodium perfluoro-1-propanesulfonate

**STRUCTURE:**

**CAS #:**

Not available



**MOLECULAR FORMULA:**

C<sub>3</sub>F<sub>7</sub>SO<sub>3</sub>Na

**MOLECULAR WEIGHT:**

272.07

**CONCENTRATION:**

50.0 ± 2.5 µg/mL (Na salt)

46.0 ± 2.3 µg/mL (PFPrS acid)

45.8 ± 2.3 µg/mL (PFPrS anion)

**SOLVENT(S):**

Methanol

**CHEMICAL PURITY:**

>98%

**LAST TESTED:** (mm/dd/yyyy)

07/12/2021

**EXPIRY DATE:** (mm/dd/yyyy)

07/12/2026

**RECOMMENDED STORAGE:**

Store ampoule in a cool, dark place

**DOCUMENTATION/ DATA ATTACHED:**

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

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

**ADDITIONAL INFORMATION:**

- See page 2 for further details.

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Certified By:

B.G. Chittim, General Manager

Date: 08/04/2021

(mm/dd/yyyy)

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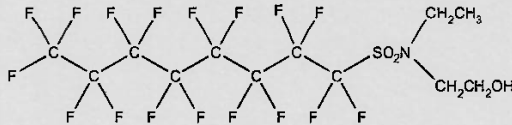
# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

n, 09/27/2

**PRODUCT CODE:** N-EtFOSE-M **LOT NUMBER:** NEtFOSE0622M  
**COMPOUND:** 2-(N-ethylperfluoro-1-octanesulfonamido)ethanol

**STRUCTURE:** **CAS #:** 1691-99-2



11409

**MOLECULAR FORMULA:** C<sub>12</sub>H<sub>16</sub>F<sub>17</sub>NO<sub>3</sub>S **MOLECULAR WEIGHT:** 571.25  
**CONCENTRATION:** 50.0 ± 2.5 µg/mL **SOLVENT(S):** Methanol  
**CHEMICAL PURITY:** >98%  
**LAST TESTED:** (mm/dd/yyyy) 05/13/2022 (HRGC/LRMS)  
05/13/2022 (LC/MS)  
**EXPIRY DATE:** (mm/dd/yyyy) 05/13/2027  
**RECOMMENDED STORAGE:** Store ampoule in a cool, dark place

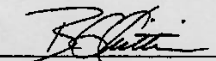
**DOCUMENTATION/ DATA ATTACHED:**

- Figure 1: HRGC/LRMS Data (Full Scan and Mass Spectrum)
- Figure 2: LC/MS Data (Full Scan and Mass Spectrum)
- Figure 3: LC/MS/MS Data (Selected MRM Transitions)

**ADDITIONAL INFORMATION:**

- See page 2 for further details.
- In order to see the molecular ion (adduct free), the LC mobile phase should be free of ammonium acetate buffer.

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**Certified By:**  **Date:** 07/13/2022  
B.G. Chittim, General Manager (mm/dd/yyyy)

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Form# 27, Issued 2004-11-10  
Revision# 9, Revised 2020-12-23

NEtFOSE0622M (1 of 5)  
rev0

7.9.1  
7



11462



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

7.9.1  
7

**PRODUCT CODE:**

L-PFDoS

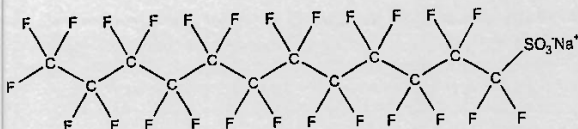
**LOT NUMBER:** LPFDoS0422

**COMPOUND:**

Sodium perfluoro-1-dodecanesulfonate

**STRUCTURE:**

**CAS #:** 1260224-54-1



**MOLECULAR FORMULA:**

C<sub>12</sub>F<sub>25</sub>SO<sub>3</sub>Na

**MOLECULAR WEIGHT:** 722.14

**CONCENTRATION:**

50.0 ± 2.5 µg/mL (Na salt)  
48.5 ± 2.4 µg/mL (PFDoS acid)  
48.4 ± 2.4 µg/mL (PFDoS anion)

**SOLVENT(S):** Methanol

**CHEMICAL PURITY:**

>98%

**LAST TESTED:** (mm/dd/yyyy)

04/20/2022

**EXPIRY DATE:** (mm/dd/yyyy)

04/20/2027

**RECOMMENDED STORAGE:**

Store ampoule in a cool, dark place

**DOCUMENTATION/ DATA ATTACHED:**

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

**ADDITIONAL INFORMATION:**

- See page 2 for further details.

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Certified By:

B.G. Chittim, General Manager

Date: 05/16/2022

(mm/dd/yyyy)

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11464



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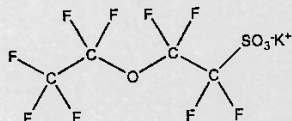
**CERTIFICATE OF ANALYSIS**  
DOCUMENTATION

**PRODUCT CODE:**

PFEESA

**LOT NUMBER:** PFEESA1121**COMPOUND:**

Potassium perfluoro(2-ethoxyethane)sulfonate

**STRUCTURE:****CAS #:** 117205-07-9**MOLECULAR FORMULA:** $C_4F_9SO_4K$ **MOLECULAR WEIGHT:** 354.19**CONCENTRATION:**

50.0 ± 2.5 µg/mL (K salt)  
44.6 ± 2.2 µg/mL (PFEESA acid)  
44.5 ± 2.2 µg/mL (PFEESA anion)

**SOLVENT(S):** Methanol**CHEMICAL PURITY:**

&gt;98%

**LAST TESTED:** (mm/dd/yyyy)

11/22/2021

**EXPIRY DATE:** (mm/dd/yyyy)

11/22/2026

**RECOMMENDED STORAGE:** Store ampoule in a cool, dark place**DOCUMENTATION/ DATA ATTACHED:**

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

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

**ADDITIONAL INFORMATION:**

- See page 2 for further details.
- Contains ~0.2% of perfluoro-n-octanoic acid (PFOA).

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Certified By:

B.G. Chittim, General Manager

Date: 11/29/2021  
(mm/dd/yyyy)

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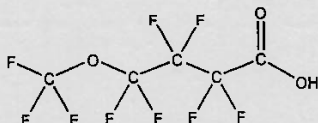
11465



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:** PF5OHxA **LOT NUMBER:** PF5OHxA0722  
**COMPOUND:** Perfluoro-5-oxahexanoic acid  
**SYNONYM:** Perfluoro-4-methoxybutanoic acid (PFMBA)  
**STRUCTURE:** **CAS #:** 863090-89-5



**MOLECULAR FORMULA:** C<sub>6</sub>H<sub>5</sub>F<sub>9</sub>O<sub>3</sub> **MOLECULAR WEIGHT:** 280.05  
**CONCENTRATION:** 50.0 ± 2.5 µg/mL **SOLVENT(S):** Methanol  
 Water (<1%)  
**CHEMICAL PURITY:** >98%  
**LAST TESTED:** (mm/dd/yyyy) 08/02/2022  
**EXPIRY DATE:** (mm/dd/yyyy) 08/02/2027  
**RECOMMENDED STORAGE:** Store ampoule in a cool, dark place


### DOCUMENTATION/ DATA ATTACHED:

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

### ADDITIONAL INFORMATION:

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

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**Certified By:**   
 B.G. Chittim, General Manager

**Date:** 08/26/2022  
 (mm/dd/yyyy)

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11467



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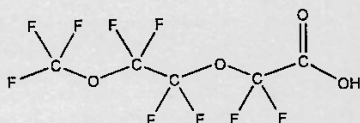
**CERTIFICATE OF ANALYSIS**  
DOCUMENTATION

**PRODUCT CODE:**

3,6-OPFHpA

**LOT NUMBER:** 36OPFHpA0522**COMPOUND:**

Perfluoro-3,6-dioxaheptanoic acid

**STRUCTURE:****CAS #:** 151772-58-6**MOLECULAR FORMULA:** $C_7HF_8O_4$ **MOLECULAR WEIGHT:** 296.04**CONCENTRATION:**

50.0 ± 2.5 µg/mL

**SOLVENT(S):**Methanol  
Water (<1%)**CHEMICAL PURITY:**

&gt;98%

**LAST TESTED:** (mm/dd/yyyy)

06/08/2022

**EXPIRY DATE:** (mm/dd/yyyy)

06/08/2027

**RECOMMENDED STORAGE:**

Store ampoule in a cool, dark place

**DOCUMENTATION/ DATA ATTACHED:**

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

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

**ADDITIONAL INFORMATION:**

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

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Certified By:

B.G. Chittim, General Manager

Date: 06/27/2022

(mm/dd/yyyy)

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11481 rec'd 10/21/22

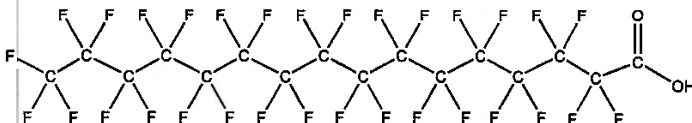


# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:** PFHxDA      **LOT NUMBER:** PFHxDA0222  
**COMPOUND:** Perfluoro-n-hexadecanoic acid

**STRUCTURE:**      **CAS #:** 67905-19-5



**MOLECULAR FORMULA:** C<sub>16</sub>H<sub>31</sub>O<sub>2</sub>      **MOLECULAR WEIGHT:** 814.13  
**CONCENTRATION:** 50.0 ± 2.5 µg/mL      **SOLVENT(S):** Methanol  
Water (<1%)  
**CHEMICAL PURITY:** >98%  
**LAST TESTED:** (mm/dd/yyyy) 02/23/2022  
**EXPIRY DATE:** (mm/dd/yyyy) 02/23/2027  
**RECOMMENDED STORAGE:** Store ampoule in a cool, dark place

**DOCUMENTATION/ DATA ATTACHED:**

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

**ADDITIONAL INFORMATION:**

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

**FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE**

**Certified By:**       **Date:** 03/08/2022  
B.G. Chittim, General Manager      (mm/dd/yyyy)

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Form#: 27, Issued 2004-11-10  
Revision#: 9, Revised 2020-12-23

PFHxDA0222 (1 of 4)  
rev0



7.9.1  
7





11514 rec'd 11/14/22

# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:**

FHxSA-1

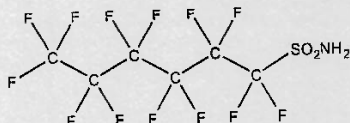
**LOT NUMBER:** FHxSA1221I

**COMPOUND:**

Perfluoro-1-hexanesulfonamide

**CAS #:** 41997-13-1

**STRUCTURE:**



**MOLECULAR FORMULA:**

C<sub>6</sub>H<sub>2</sub>F<sub>13</sub>NO<sub>2</sub>S

**MOLECULAR WEIGHT:** 399.13

**CONCENTRATION:**

50.0 ± 2.5 µg/mL

**SOLVENT(S):**

Isopropanol

**CHEMICAL PURITY:**

>98%

**LAST TESTED:** (mm/dd/yyyy)

12/29/2021

**EXPIRY DATE:** (mm/dd/yyyy)

12/29/2026

**RECOMMENDED STORAGE:**

Refrigerate ampoule

**DOCUMENTATION/ DATA ATTACHED:**

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

**ADDITIONAL INFORMATION:**

- See page 2 for further details.

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Certified By:

B.G. Chittim, General Manager

Date: 01/10/2022  
(mm/dd/yyyy)

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FHxSA1221I (1 of 4)



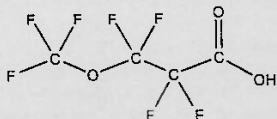
11648 Rec. 02/13/23



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:** PF4OPeA **LOT NUMBER:** PF4OPeA0722  
**COMPOUND:** Perfluoro-4-oxapentanoic acid  
**SYNONYM:** Perfluoro-3-methoxypropanoic acid (PFMPA) **CAS #:** 377-73-1  
**STRUCTURE:**



**MOLECULAR FORMULA:** C<sub>4</sub>HF<sub>7</sub>O<sub>3</sub> **MOLECULAR WEIGHT:** 230.04  
**CONCENTRATION:** 50.0 ± 2.5 µg/mL **SOLVENT(S):** Methanol  
Water (<1%)  
**CHEMICAL PURITY:** >98%  
**LAST TESTED:** (mm/dd/yyyy) 08/02/2022  
**EXPIRY DATE:** (mm/dd/yyyy) 08/02/2027  
**RECOMMENDED STORAGE:** Store ampoule in a cool, dark place

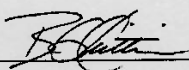
### DOCUMENTATION/ DATA ATTACHED:

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

### ADDITIONAL INFORMATION:

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

**FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE**

**Certified By:**   
B.G. Chittim, General Manager **Date:** 08/15/2022  
(mm/dd/yyyy)

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11649 Rec. 02/13/23

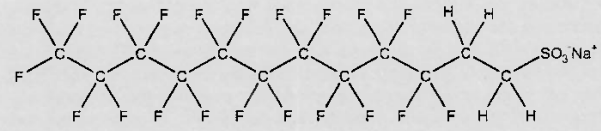


# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:** 10:2FTS **LOT NUMBER:** 102FTS1122  
**COMPOUND:** Sodium 1H,1H,2H,2H-perfluorododecanesulfonate

**STRUCTURE:** **CAS #:** 108026-35-3



**MOLECULAR FORMULA:**  $C_{12}H_4F_{21}SO_3Na$  **MOLECULAR WEIGHT:** 650.18  
**CONCENTRATION:** 50.0 ± 2.5 µg/mL (Na salt) **SOLVENT(S):** Methanol  
 48.3 ± 2.4 µg/mL (10:2FTS acid)  
 48.2 ± 2.4 µg/mL (10:2FTS anion)  
**CHEMICAL PURITY:** >98%  
**LAST TESTED:** (mm/dd/yyyy) 12/01/2022  
**EXPIRY DATE:** (mm/dd/yyyy) 12/01/2027  
**RECOMMENDED STORAGE:** Refrigerate ampoule

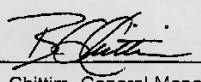
**DOCUMENTATION/ DATA ATTACHED:**

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

**ADDITIONAL INFORMATION:**

- See page 2 for further details.

**FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE**

**Certified By:**  **Date:** 12/09/2022  
 B.G. Chittim, General Manager (mm/dd/yyyy)

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Form# 27, Issued 2004-11-10  
Revision# 9, Revised 2020-12-23

102FTS1122 (1 of 4)  
rev0

7.9.1  
7



11710  
rec'd: 03/17/23



# WELLINGTON LABORATORIES

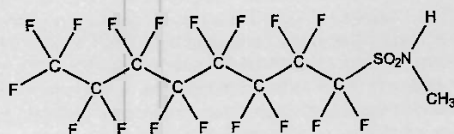
## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:** N-MeFOSA-M  
**COMPOUND:** N-Methylperfluoro-1-octanesulfonamide

**LOT NUMBER:** NMeFOSA1122M

**STRUCTURE:**

**CAS #:** 31506-32-8



**MOLECULAR FORMULA:** C<sub>9</sub>H<sub>4</sub>F<sub>17</sub>NO<sub>2</sub>S  
**CONCENTRATION:** 50.0 ± 2.5 µg/mL  
**CHEMICAL PURITY:** >98%  
**LAST TESTED:** (mm/dd/yyyy) 11/11/2022  
**EXPIRY DATE:** (mm/dd/yyyy) 11/11/2027  
**RECOMMENDED STORAGE:** Store ampoule in a cool, dark place

**MOLECULAR WEIGHT:** 513.17  
**SOLVENT(S):** Methanol

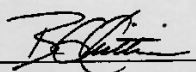
**DOCUMENTATION/ DATA ATTACHED:**

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

**ADDITIONAL INFORMATION:**

- See page 2 for further details.

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**Certified By:**   
B.G. Chittim, General Manager

**Date:** 11/25/2022  
(mm/dd/yyyy)

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Revision#:9, Revised 2020-12-23

NMeFOSA1122M (1 of 4)  
rev0

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# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:**

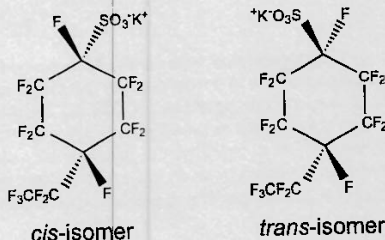
PFECHS

**LOT NUMBER:** PFECHS0223

**COMPOUND:**

Potassium perfluoro-4-ethylcyclohexanesulfonate (isomeric mixture)

**STRUCTURE:**



**CAS #:** 335-24-0

**MOLECULAR FORMULA:**

C<sub>9</sub>F<sub>15</sub>SO<sub>3</sub>K

**MOLECULAR WEIGHT:** 500.22

**CONCENTRATION:**

50.0 ± 2.5 µg/mL (K salt)  
46.2 ± 2.3 µg/mL (PFECHS acid)  
46.1 ± 2.3 µg/mL (PFECHS anion)

**SOLVENT(S):** Methanol

**CHEMICAL PURITY:**

>98%

**LAST TESTED:** (mm/dd/yyyy)

03/14/2023

**EXPIRY DATE:** (mm/dd/yyyy)

03/14/2028

**RECOMMENDED STORAGE:**

Store ampoule in a cool, dark place

**DOCUMENTATION/ DATA ATTACHED:**

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

**ADDITIONAL INFORMATION:**

- See page 2 for further details.
- Contains a mixture of the *cis/trans* isomers of PFECHS at a ratio of 1:1.27 (*cis:trans*, by <sup>19</sup>F NMR).

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Certified By:

B.G. Chittim, General Manager

Date: 03/16/2023  
(mm/dd/yyyy)

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rec'd: 05/15/23



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

### br-NMeFOSA

#### N-Methylperfluorooctanesulfonamide Isomeric Mix

**PRODUCT CODE:** br-NMeFOSA  
**LOT NUMBER:** brNMeFOSA0822  
**CONCENTRATION:** 50.0 ± 2.5 µg/mL  
**SOLVENT(S):** Methanol  
**DATE PREPARED:** (mm/dd/yyyy) 08/18/2022  
**LAST TESTED:** (mm/dd/yyyy) 08/23/2022  
**EXPIRY DATE:** (mm/dd/yyyy) 08/23/2027  
**RECOMMENDED STORAGE:** Store ampoule in a cool, dark place

### DESCRIPTION:

The chemical purity has been determined to be ≥98% N-methylperfluorooctanesulfonamide (linear and branched isomers). The full name, structure, and percent composition for each of the identified isomeric components are given in Table A.

### DOCUMENTATION/ DATA ATTACHED:

Table A: Isomeric Components and Percent Composition by <sup>19</sup>F-NMR  
Figure 1: LC/MS Data (Full Scan and Mass Spectrum)  
Figure 2: LC/MS Data (SIR)  
Figure 3: LC/MS/MS Data (Selected MRM Transitions)

### ADDITIONAL INFORMATION:

- See page 2 for further details.
- CAS #: 31506-32-8 (for linear isomer).

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Form#: 13, Issued 2004-11-10  
Revision#: 9, Revised 2020-12-23

brNMeFOSA0822 (1 of 6)  
rev1



117a8  
rec'd: 05/15/23



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

### br-NEtFOSA

**N-Ethylperfluorooctanesulfonamide  
Isomeric Mix**

|   |                                     |
|---|-------------------------------------|
| <b><u>PRODUCT CODE:</u></b>               | br-NEtFOSA                          |
| <b><u>LOT NUMBER:</u></b>                 | brNEtFOSA0922                       |
| <b><u>CONCENTRATION:</u></b>              | 50.0 ± 2.5 µg/mL                    |
| <b><u>SOLVENT(S):</u></b>                 | Methanol                            |
| <b><u>DATE PREPARED:</u></b> (mm/dd/yyyy) | 08/23/2022                          |
| <b><u>LAST TESTED:</u></b> (mm/dd/yyyy)   | 10/07/2022                          |
| <b><u>EXPIRY DATE:</u></b> (mm/dd/yyyy)   | 10/07/2027                          |
| <b><u>RECOMMENDED STORAGE:</u></b>        | Store ampoule in a cool, dark place |

### DESCRIPTION:

The chemical purity has been determined to be ≥98% N-ethylperfluorooctanesulfonamide (linear and branched isomers). The full name, structure, and percent composition for each of the identified isomeric components are given in Table A.

### DOCUMENTATION/ DATA ATTACHED:

- Table A: Isomeric Components and Percent Composition by <sup>19</sup>F-NMR
- Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
- Figure 2: LC/MS Data (SIR)
- Figure 3: LC/MS/MS Data (Selected MRM Transitions)

### ADDITIONAL INFORMATION:

- See page 2 for further details.
- CAS #: 4151-50-2 (for linear isomer).

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Form#:13, Issued 2004-11-10  
Revision#:9, Revised 2020-12-23

brNEtFOSA0922 (1 of 6)  
rev1

7.9.1  
7

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rec'd: 08/13/23



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:**

FPePA (5:3)

**LOT NUMBER:**

FPePA0722

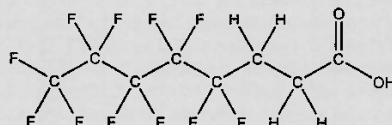
**COMPOUND:**

3-Perfluoropentyl propanoic acid

**STRUCTURE:**

**CAS #:**

914637-49-3



**MOLECULAR FORMULA:**

$C_8H_5F_{11}O_2$

**MOLECULAR WEIGHT:**

342.11

**CONCENTRATION:**

$50.0 \pm 2.5 \mu\text{g/mL}$

**SOLVENT(S):**

Methanol

**CHEMICAL PURITY:**

>98%

**LAST TESTED:** (mm/dd/yyyy)

08/02/2022

**EXPIRY DATE:** (mm/dd/yyyy)

08/02/2027

**RECOMMENDED STORAGE:**

Refrigerate ampoule

### DOCUMENTATION/ DATA ATTACHED:

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

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

### ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains <0.5% of the unsaturated 5:3 telomer acid ( $C_8H_3F_{11}O_2$ ) as an impurity determined by  $^1\text{H}$  NMR.

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**Certified By:**

B.G. Chittim, General Manager

**Date:** 08/10/2022

(mm/dd/yyyy)

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



**Certified Reference Material CRM**



**CERTIFIED WEIGHT REPORT**

Part Number: 64029  
Lot Number: 062623  
Description: PFOA-DOD  
26 components  
Preparator (P):  
J.D.  
BU7B

Substrate(s):  
Methanol (1 mL (M))  
2-Propanol (2N)

Lot #  
040729 (95%)  
32500 (2N)

Formulated By: *P. S. ...*  
Prepared By: *Adelle ...*  
DATE: 06/26/23  
DATE: 06/26/23

Volume(s) shown below were combined and diluted to (mL):  
Note: All assigned values are mean concentrations.

| Component   | Part Number | Lot Number | Dilution Factor | Initial Vol. (mL) | Uncertainty (mL) | Initial Conc. (µg/mL) | Final Conc. (µg/mL) | Uncertainty (µg/mL) | Solvent Safety Info. On Attached PG | OSHA PEL (TWA) | LOD              |
|---|-------------|------------|-----------------|-------------------|------------------|-----------------------|---------------------|---------------------|-------------------------------------|----------------|------------------|
| 1. Perfluoro-n-butanoic acid (PFBA)                                     | 95242       | 110422     | 0.02            | 2.00              | 0.017            | 50.1                  | 1.00                | 0.02                | 375-29-4                            | N/A            | N/A              |
| 2. Perfluoro-pentanoic acid (PFPA)                                      | 95243       | 011722     | 0.02            | 2.00              | 0.017            | 50.3                  | 1.00                | 0.02                | 2782-95-3                           | N/A            | N/A              |
| 3. Perfluoro-hexanoic acid (PFHA)                                       | 91199       | 071023     | 0.02            | 2.00              | 0.017            | 50.2                  | 1.00                | 0.02                | 3073-24-4                           | N/A            | N/A              |
| 4. Perfluoro-heptanoic acid (PFHPA)                                     | 91177       | 110622     | 0.02            | 2.00              | 0.017            | 50.1                  | 1.00                | 0.02                | 3745-24-9                           | N/A            | N/A              |
| 5. Perfluoro-octanoic acid (PFOPA)                                      | 95202       | 09522      | 0.02            | 2.00              | 0.017            | 50.2                  | 1.00                | 0.02                | 282-87-1 (L)                        | N/A            | Insect Repellent |
| 6. Perfluoro-nonoic acid (PFNA)   | 95203       | 110622     | 0.02            | 2.00              | 0.017            | 50.1                  | 1.00                | 0.02                | 3745-24-9                           | N/A            | N/A              |
| 7. Perfluoro-decanoic acid (PFDA)                                       | 91195       | 110622     | 0.02            | 2.00              | 0.017            | 50.0                  | 1.00                | 0.02                | 2069-64-9                           | N/A            | N/A              |
| 8. Perfluoro-undecanoic acid (PFUA)                                     | 95205       | 052423     | 0.02            | 2.00              | 0.017            | 50.2                  | 1.00                | 0.02                | 2782-95-3                           | N/A            | N/A              |
| 9. Perfluoro-dodecanoic acid (PFDA)                                     | 91198       | 052423     | 0.02            | 2.00              | 0.017            | 50.1                  | 1.00                | 0.02                | 2782-95-3                           | N/A            | N/A              |
| 10. Perfluoro-tridecanoic acid (PFDA)                                   | 95204       | 110622     | 0.02            | 2.00              | 0.017            | 50.1                  | 1.00                | 0.02                | 2782-95-3                           | N/A            | N/A              |
| 11. Perfluoro-tetradecanoic acid (PFDA)                                 | 95203       | 03022      | 0.02            | 2.00              | 0.017            | 50.0                  | 1.00                | 0.02                | 2782-95-3                           | N/A            | N/A              |
| 12. Perfluoro-1-iodo-2,2,2-trifluoroethane (PFDA)                       | 3677        | PFDA1221   | 0.02            | 2.00              | 0.017            | 50.0                  | 1.00                | 0.02                | 753-31-9 (L)                        | N/A            | N/A              |
| 13. Methylperfluorooctanoate (PFMOA)                                    | 4162        | PERFOA0429 | 0.02            | 2.00              | 0.017            | 50.0                  | 1.00                | 0.02                | 2811-59-4 (L)                       | N/A            | N/A              |
| 14. Methylperfluorodecanoate (PFMDA)                                    | 4163        | PERFOA1029 | 0.02            | 2.00              | 0.017            | 50.0                  | 1.00                | 0.02                | 2811-59-4 (L)                       | N/A            | N/A              |
| 15. Perfluorobutanesulfonic acid (PFBS)                                 | 91194       | 060522     | 0.02            | 2.00              | 0.017            | 50.2                  | 1.00                | 0.02                | 2782-95-3                           | N/A            | N/A              |
| 16. Perfluoropentanesulfonic acid (PFPS)                                | 95244       | 091522     | 0.02            | 2.00              | 0.017            | 50.1                  | 1.00                | 0.02                | 2782-95-3                           | N/A            | N/A              |
| 17. Perfluorohexanesulfonic acid (PFHPS)                                | 91196       | 060623     | 0.02            | 2.00              | 0.017            | 50.0                  | 1.00                | 0.02                | 355-44-1 (L)                        | N/A            | N/A              |
| 18. Perfluoroheptanesulfonic acid (PFHPS)                               | 3672        | LFPHS0622  | 0.02            | 2.00              | 0.017            | 49.8                  | 1.00                | 0.02                | 375-24-1 (L)                        | N/A            | N/A              |
| 19. Heptafluoroisobutanesulfonic acid (PFOS)                            | 95201       | 050923     | 0.02            | 2.00              | 0.017            | 50.1                  | 1.00                | 0.02                | 1782-29-1 (L)                       | N/A            | N/A              |
| 20. Perfluoro-1-nonanesulfonic acid (PFNS)                              | 3957        | LFPS1122   | 0.02            | 2.00              | 0.017            | 49.0                  | 1.00                | 0.02                | 185-77-2 (L)                        | N/A            | N/A              |
| 21. Perfluoro-1-dodecanesulfonic acid (PFDS)                            | 3671        | LPDS1122   | 0.02            | 2.00              | 0.017            | 49.2                  | 1.00                | 0.02                | 2781-77-4                           | N/A            | N/A              |
| 22. 1H,1H,2H,2H-Perfluorooctane sulfonic acid (4:2 FTB)                 | 6571        | 060522     | 0.02            | 2.00              | 0.017            | 50.2                  | 1.00                | 0.02                | 2781-77-4                           | N/A            | N/A              |
| 23. 1H,1H,2H,2H-Perfluorodecane sulfonic acid (6:2 FTB)                 | 6572        | 051023     | 0.02            | 2.00              | 0.017            | 50.2                  | 1.00                | 0.02                | 3019-24-2                           | N/A            | N/A              |
| 24. 1H,1H,2H,2H-Perfluorododecane sulfonic acid (8:2 FTB)               | 3682        | PF12D223   | 0.02            | 2.00              | 0.017            | 49.3                  | 1.00                | 0.02                | 1333-13-8                           | N/A            | N/A              |
| 25. 2-Hexafluoroethyl-2,2,3,3-tetrafluoropropyl sulfonic acid (PFPO-SA) | 95206       | 050223     | 0.02            | 2.00              | 0.017            | 49.2                  | 1.00                | 0.02                | 1782-29-1 (L)                       | N/A            | N/A              |
| 26. 1-Chlorooctadecane-2-sulfonic acid (1:10-PPDO-S)                    | 4165        | PERFOA0829 | 0.02            | 2.00              | 0.017            | 47.1                  | 1.00                | 0.02                | 2782-95-3                           | N/A            | N/A              |
| 27. 9-Chlorooctadecane-2-sulfonic acid (9:1-PPDO-S)                     | 4164        | PERFOA0829 | 0.02            | 2.00              | 0.017            | 49.8                  | 1.00                | 0.02                | 2782-95-3                           | N/A            | N/A              |
| 28. Dodecafluoro-3H,4,6-dioxatetrasulfonic acid (ADONA)                 | 4163        | PERFOA0129 | 0.02            | 2.00              | 0.017            | 47.1                  | 1.00                | 0.02                | 918005-14-4                         | N/A            | N/A              |
| Perfluorooctanoic acid (linear)*  | 95202       | 060522     | 0.02            | 2.00              | 0.004            | 49.6                  | 0.99                | 0.010               | 335-67-1 (L)                        | N/A            | Local 180mg/6h   |
| Perfluorodecanoic acid (branched isomer)*                               | 95202       | 060522     | 0.02            | 2.00              | 0.004            | 0.5                   | 0.01                | 0.001               | 335-67-1 (L)                        | N/A            | Local 180mg/6h   |
| Perfluorohexanesulfonic acid (branched isomer)*                         | 91196       | 030923     | 0.02            | 2.00              | 0.017            | 44.0                  | 0.98                | 0.02                | 355-44-1 (L)                        | N/A            | N/A              |
| Perfluorooctanesulfonic acid (branched isomer)*                         | 91196       | 030923     | 0.02            | 2.00              | 0.017            | 0.0                   | 0.12                | 0.0020              | 355-44-1 (L)                        | N/A            | N/A              |
| Heptafluoroisobutanesulfonic acid (linear)*                             | 95201       | 030923     | 0.02            | 2.00              | 0.017            | 38.1                  | 0.76                | 0.02                | 1782-29-1 (L)                       | N/A            | N/A              |
| Heptafluorooctanesulfonic acid (branched isomer)*                       | 95201       | 030923     | 0.02            | 2.00              | 0.017            | 7.5                   | 0.15                | 0.003               | 1782-29-1 (L)                       | N/A            | N/A              |
| Heptafluorodecane sulfonic acid (branched isomer)*                      | 95201       | 030923     | 0.02            | 2.00              | 0.017            | 4.0                   | 0.08                | 0.002               | 1782-29-1 (L)                       | N/A            | N/A              |
| Heptafluorododecane sulfonic acid (branched isomer)*                    | 95201       | 030923     | 0.02            | 2.00              | 0.017            | 0.5                   | 0.010               | 0.0002              | 1782-29-1 (L)                       | N/A            | N/A              |
| M-Methylparfluoro-1-iodo-2,2,2-trifluoroethane (linear)*                | 4162        | PERFOA0429 | 0.02            | 2.00              | 0.017            | 38.0                  | 0.72                | 0.04                | 2555-31-9 (L)                       | N/A            | N/A              |
| M-Methylparfluoro-1-iodo-2,2,2-trifluoroethane (branched)*              | 4162        | PERFOA0429 | 0.02            | 2.00              | 0.017            | 0.5                   | 0.10                | 0.011               | 2555-31-9 (L)                       | N/A            | N/A              |
| M-Methylparfluoro-1-iodo-2,2,2-trifluoroethane (branched)*              | 4162        | PERFOA0429 | 0.02            | 2.00              | 0.017            | 5.0                   | 0.10                | 0.005               | 2555-31-9 (L)                       | N/A            | N/A              |
| M-Methylparfluoro-1-iodo-2,2,2-trifluoroethane (branched)*              | 4162        | PERFOA0429 | 0.02            | 2.00              | 0.017            | 2.5                   | 0.05                | 0.0029              | 2555-31-9 (L)                       | N/A            | N/A              |
| N-Ethylparfluoro-1-iodo-2,2,2-trifluoroethane (linear)*                 | 4163        | PERFOA1029 | 0.02            | 2.00              | 0.017            | 36.5                  | 0.73                | 0.04                | 2961-59-3 (L)                       | N/A            | N/A              |
| N-Ethylparfluoro-1-iodo-2,2,2-trifluoroethane (branched)*               | 4163        | PERFOA1029 | 0.02            | 2.00              | 0.017            | 7.7                   | 0.15                | 0.009               | 2961-59-3 (L)                       | N/A            | N/A              |
| N-Ethylparfluoro-1-iodo-2,2,2-trifluoroethane (branched)*               | 4163        | PERFOA1029 | 0.02            | 2.00              | 0.017            | 5.3                   | 0.11                | 0.005               | 2961-59-3 (L)                       | N/A            | N/A              |
| N-Ethylparfluoro-1-iodo-2,2,2-trifluoroethane (branched)*               | 4163        | PERFOA1029 | 0.02            | 2.00              | 0.017            | 0.4                   | 0.007               | 0.0006              | 2961-59-3 (L)                       | N/A            | N/A              |

\*Quantitative standard (Sect. 3.13) is available for PFOA that contains the linear and branched isomers (Wellington Labs, Cat. No. T-PFOA, or equivalent). This PFOA standard must be purchased and used to identify the retention times of the branched PFOA isomers. The linear PFOA standard must be used for quantitation (Sect. 12.2) until a quantitative PFOA standard containing the branched and linear isomers becomes commercially available.

\*The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise noted.  
 \*Standard deviations are given in parentheses. All values are certified for 95% of the stated value, unless otherwise noted.  
 \*All standards, after opening amples, should be stored with caps tight and under nitrogen atmosphere in laboratory conditions.  
 \*Certification Reference Material (CRM) is a material that is certified for one or more properties by a government agency or an independent organization.  
 \*NIST Reference Standard (NIST) is a material that is certified for one or more properties by the National Institute of Standards and Technology (NIST), Gaithersburg, MD, USA.

12006  
Rec'd: 09/07/23



12013 A-B  
rec'd: 09/11/23

# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

### PFAC-MXH

Native PFAS  
Solution/Mixture

**PRODUCT CODE:** PFAC-MXH  
**LOT NUMBER:** PFACMXH0423  
**SOLVENT(S):** Methanol/Isopropanol (2%)/Water (<1%)  
**DATE PREPARED:** (mm/dd/yyyy) 04/06/2023  
**LAST TESTED:** (mm/dd/yyyy) 04/19/2023  
**EXPIRY DATE:** (mm/dd/yyyy) 04/19/2028  
**RECOMMENDED STORAGE:** Refrigerate ampoule

### DESCRIPTION:

PFAC-MXH is a solution/mixture of 11 native linear perfluoroalkylcarboxylic acids (C<sub>4</sub>-C<sub>14</sub>), eight native perfluoroalkanesulfonates (C<sub>4</sub>, C<sub>5</sub>, C<sub>7</sub>, C<sub>9</sub>, C<sub>10</sub> and C<sub>12</sub> linear; C<sub>6</sub> and C<sub>8</sub> linear and branched), three native fluorotelomer sulfonates (4:2, 6:2, and 8:2), two native linear and branched perfluorooctanesulfonamidoacetic acids, and perfluoro-1-octanesulfonamide. The components and their concentrations are given in Table A.

The individual components of this mixture all have chemical purities of >98%.

### DOCUMENTATION/ DATA ATTACHED:

- Table A: Components and Concentrations of the Solution/Mixture
- Table B: Isomeric Components and Percent Composition of N-MeFOSAA
- Table C: Isomeric Components and Percent Composition of N-EtFOSAA
- Table D: Isomeric Components and Percent Composition of PFHxSK
- Table E: Isomeric Components and Percent Composition of PFOSK
- Figure 1: LC/MS Data (SIR)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

### ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acids to their respective methyl esters.

**FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE**

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

Form#:13, Issued 2004-11-10  
Revision#:9, Revised 2020-12-23

PFACMXH0423 (1 of 11)  
rev1

7.9.1  
7

⊗ A:

**PFAC-MXH; Components and Concentrations**  
(ng/mL, ± 5% in methanol/isopropanol (2%)/water (<1%))

| Compound  | Acronym                       | Concentration* (ng/mL) |             | Peak Assignment in Figure 1 |
|---|-------------------------------|------------------------|-------------|-----------------------------|
|   |                               | as the salt            | as the acid |                             |
| Perfluoro-n-butanoic acid                         | PFBA                          | 4000                   |             | 1                           |
| Perfluoro-n-pentanoic acid                        | PFPeA                         | 2000                   |             | 2                           |
| Perfluoro-n-hexanoic acid                         | PFHxA                         | 1000                   |             | 5                           |
| Perfluoro-n-heptanoic acid                        | PFHpA                         | 1000                   |             | 7                           |
| Perfluoro-n-octanoic acid                         | PFOA                          | 1000                   |             | 11                          |
| Perfluoro-n-nonanoic acid                         | PFNA                          | 1000                   |             | 14                          |
| Perfluoro-n-decanoic acid                         | PFDA                          | 1000                   |             | 18                          |
| Perfluoro-n-undecanoic acid                       | PFUdA                         | 1000                   |             | 23                          |
| Perfluoro-n-dodecanoic acid                       | PFDoA                         | 1000                   |             | 26                          |
| Perfluoro-n-tridecanoic acid                      | PFTrDA                        | 1000                   |             | 27                          |
| Perfluoro-n-tetradecanoic acid                    | PFTeDA                        | 1000                   |             | 29                          |
| Perfluoro-1-octanesulfonamide                     | FOSA                          | 1000                   |             | 24                          |
| N-Methylperfluorooctanesulfonamidoacetic acid *   | N-MeFOSAA: linear isomer      | 760                    |             | 20                          |
|   | N-MeFOSAA: ∑ branched isomers | 240                    |             | 17                          |
| N-Ethylperfluorooctanesulfonamidoacetic acid †    | N-EtFOSAA: linear isomer      | 775                    |             | 22                          |
|   | N-EtFOSAA: ∑ branched isomers | 225                    |             | 21                          |
| Compound  | Acronym                       | Concentration* (ng/mL) |             | Peak Assignment in Figure 1 |
|   |                               | as the salt            | as the acid |                             |
| Potassium perfluoro-1-butanefluorobutanesulfonate | L-PFBS                        | 1000                   | 887         | 3                           |
| Sodium perfluoro-1-pentanesulfonate               | L-PFPeS                       | 1000                   | 941         | 6                           |
| Potassium perfluorohexanesulfonate ‡              | PFHxSK: linear isomer         | 811                    | 741         | 9                           |
|   | PFHxSK: ∑ branched isomers    | 189                    | 173         | 8                           |
| Sodium perfluoro-1-heptanesulfonate               | L-PFHpS                       | 1000                   | 953         | 12                          |
| Potassium perfluorooctanesulfonate §              | PFOSK: linear isomer          | 788                    | 732         | 15                          |
|   | PFOSK: ∑ branched isomers     | 211                    | 196         | 13                          |
| Sodium perfluoro-1-nonanesulfonate                | L-PFNS                        | 1000                   | 962         | 19                          |
| Sodium perfluoro-1-decanesulfonate                | L-PFDS                        | 1000                   | 965         | 25                          |
| Sodium perfluoro-1-dodecanesulfonate              | L-PFDoS                       | 1000                   | 970         | 28                          |
| Sodium 1H,1H,2H,2H-perfluorohexanesulfonate       | 4:2FTS                        | 4000                   | 3750        | 4                           |
| Sodium 1H,1H,2H,2H-perfluorooctanesulfonate       | 6:2FTS                        | 4000                   | 3800        | 10                          |
| Sodium 1H,1H,2H,2H-perfluorodecanesulfonate       | 8:2FTS                        | 4000                   | 3840        | 16                          |

\* See Table B for percent composition of linear and branched N-MeFOSAA isomers.  
 † See Table C for percent composition of linear and branched N-EtFOSAA isomers.  
 ‡ See Table D for percent composition of linear and branched PFHxSK isomers.  
 § See Table E for percent composition of linear and branched PFOSK isomers.

\* Concentrations have been rounded to three significant figures.

Certified By:   
 B.G. Chittim, General Manager

Date: 05/11/2023  
(mm/dd/yyyy)

12015A-B  
rec'd: 09/11/23



**WELLINGTON**  
LABORATORIES

**CERTIFICATE OF ANALYSIS**  
DOCUMENTATION

**PFAC-MXG**

**Native Perfluoroalkyl Ether Carboxylic  
Acids and Sulfonate Solution/Mixture**

**PRODUCT CODE:** PFAC-MXG  
**LOT NUMBER:** PFACMXG0723  
**SOLVENT(S):** Methanol/Water (<1%)  
**DATE PREPARED:** (mm/dd/yyyy) 07/27/2023  
**LAST TESTED:** (mm/dd/yyyy) 07/27/2023  
**EXPIRY DATE:** (mm/dd/yyyy) 07/27/2028  
**RECOMMENDED STORAGE:** Store ampoule in a cool, dark place

**DESCRIPTION:**

PFAC-MXG is a solution/mixture of three native perfluoroalkyl ether carboxylic acids and a native perfluoroalkyl ether sulfonate. The components and their concentrations are given in Table A.

The individual components all have chemical purities of >98%.

**DOCUMENTATION/ DATA ATTACHED:**

Table A: Components and Concentrations of the Solution/Mixture  
Figure 1: LC/MS Data (SIR)  
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

**ADDITIONAL INFORMATION:**

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acids to their respective methyl esters.

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Form#:13, Issued 2004-11-10  
Revision#:9, Revised 2020-12-23

PFACMXG0723 (1 of 5)  
rev0

7.9.1

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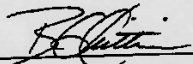


Peak A:

**PFAC-MXG; Components and Concentrations (ng/mL; ± 5% in methanol/water (<1%))**

| Compound                                     | Acronym    | Concentration (ng/mL)  |             | Peak Assignment in Figure 1 |
|--|------------|------------------------|-------------|-----------------------------|
|  |            | as the salt            | as the acid |                             |
| Perfluoro-4-oxapentanoic acid                | PF4OPeA    | 2000                   |             | A                           |
| Perfluoro-5-oxahexanoic acid                 | PF5OHxA    | 2000                   |             | B                           |
| Perfluoro-3,6-dioxaheptanoic acid            | 3,6-OPFHpA | 2000                   |             | D                           |
| Compound                                     | Acronym    | Concentration* (ng/mL) |             | Peak Assignment in Figure 1 |
|  |            | as the salt            | as the acid |                             |
| Potassium perfluoro(2-ethoxyethane)sulfonate | PFEESA     | 2000                   | 1780        | C                           |

\* Concentrations have been rounded to three significant figures.

Certified By:   
 B.G. Chittim, General Manager

Date: 08/11/2023  
(mm/dd/yyyy)

7.9.1

7

12032  
rec'd: 09/18/23



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

### PFAC-MXH

Native PFAS  
Solution/Mixture

**PRODUCT CODE:** PFAC-MXH  
**LOT NUMBER:** PFACMXH0423  
**SOLVENT(S):** Methanol/Isopropanol (2%)/Water (<1%)  
**DATE PREPARED:** (mm/dd/yyyy) 04/06/2023  
**LAST TESTED:** (mm/dd/yyyy) 04/19/2023  
**EXPIRY DATE:** (mm/dd/yyyy) 04/19/2028  
**RECOMMENDED STORAGE:** Refrigerate ampoule

**DESCRIPTION:**

PFAC-MXH is a solution/mixture of 11 native linear perfluoroalkylcarboxylic acids (C<sub>4</sub>-C<sub>14</sub>), eight native perfluoroalkanesulfonates (C<sub>4</sub>, C<sub>5</sub>, C<sub>7</sub>, C<sub>9</sub>, C<sub>10</sub> and C<sub>12</sub> linear; C<sub>6</sub> and C<sub>8</sub> linear and branched), three native fluorotelomer sulfonates (4:2, 6:2, and 8:2), two native linear and branched perfluorooctanesulfonamidoacetic acids, and perfluoro-1-octanesulfonamide. The components and their concentrations are given in Table A.

The individual components of this mixture all have chemical purities of >98%.

**DOCUMENTATION/ DATA ATTACHED:**

- Table A: Components and Concentrations of the Solution/Mixture
- Table B: Isomeric Components and Percent Composition of N-MeFOSAA
- Table C: Isomeric Components and Percent Composition of N-EtFOSAA
- Table D: Isomeric Components and Percent Composition of PFHxSK
- Table E: Isomeric Components and Percent Composition of PFOSK
- Figure 1: LC/MS Data (SIR)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

**ADDITIONAL INFORMATION:**

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acids to their respective methyl esters.

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Form#: 13, Issued 2004-11-10  
Revision#: 9, Revised 2020-12-23

PFACMXH0423 (1 of 11)  
rev1

7.9.1  
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**Table A: PFAC-MXH; Components and Concentrations (ng/mL, ± 5% in methanol/isopropanol (2%)/water (<1%))**

| Compound   | Acronym                       | Concentration* (ng/mL) |             | Peak Assignment in Figure 1 |
|--|-------------------------------|------------------------|-------------|-----------------------------|
|  |                               | as the salt            | as the acid |                             |
| Perfluoro-n-butanoic acid                                  | PFBA                          | 4000                   |             | 1                           |
| Perfluoro-n-pentanoic acid                                 | PFPeA                         | 2000                   |             | 2                           |
| Perfluoro-n-hexanoic acid                                  | PFHxA                         | 1000                   |             | 5                           |
| Perfluoro-n-heptanoic acid                                 | PFHpA                         | 1000                   |             | 7                           |
| Perfluoro-n-octanoic acid                                  | PFOA                          | 1000                   |             | 11                          |
| Perfluoro-n-nonanoic acid                                  | PFNA                          | 1000                   |             | 14                          |
| Perfluoro-n-decanoic acid                                  | PFDA                          | 1000                   |             | 18                          |
| Perfluoro-n-undecanoic acid                                | PFUdA                         | 1000                   |             | 23                          |
| Perfluoro-n-dodecanoic acid                                | PFDoA                         | 1000                   |             | 26                          |
| Perfluoro-n-tridecanoic acid                               | PFTrDA                        | 1000                   |             | 27                          |
| Perfluoro-n-tetradecanoic acid                             | PFTeDA                        | 1000                   |             | 29                          |
| Perfluoro-1-octanesulfonamide                              | FOSA                          | 1000                   |             | 24                          |
| N-Methylperfluorooctanesulfonamidoacetic acid <sup>a</sup> | N-MeFOSAA: linear isomer      | 760                    |             | 20                          |
|  | N-MeFOSAA: ∑ branched isomers | 240                    |             | 17                          |
| N-Ethylperfluorooctanesulfonamidoacetic acid <sup>b</sup>  | N-EtFOSAA: linear isomer      | 775                    |             | 22                          |
|  | N-EtFOSAA: ∑ branched isomers | 225                    |             | 21                          |
| Compound   | Acronym                       | Concentration* (ng/mL) |             | Peak Assignment in Figure 1 |
|  |                               | as the salt            | as the acid |                             |
| Potassium perfluoro-1-butanedisulfonate                    | L-PFBS                        | 1000                   | 887         | 3                           |
| Sodium perfluoro-1-pentadisulfonate                        | L-PFPeS                       | 1000                   | 941         | 6                           |
| Potassium perfluorohexanesulfonate <sup>c</sup>            | PFHxSK: linear isomer         | 811                    | 741         | 9                           |
|  | PFHxSK: ∑ branched isomers    | 189                    | 173         | 8                           |
| Sodium perfluoro-1-heptadisulfonate                        | L-PFHpS                       | 1000                   | 953         | 12                          |
| Potassium perfluorooctanesulfonate <sup>d</sup>            | PFOSK: linear isomer          | 788                    | 732         | 15                          |
|  | PFOSK: ∑ branched isomers     | 211                    | 196         | 13                          |
| Sodium perfluoro-1-nonadisulfonate                         | L-PFNS                        | 1000                   | 962         | 19                          |
| Sodium perfluoro-1-decadisulfonate                         | L-PFDS                        | 1000                   | 965         | 25                          |
| Sodium perfluoro-1-dodecadisulfonate                       | L-PFDoS                       | 1000                   | 970         | 28                          |
| Sodium 1H,1H,2H,2H-perfluorohexanesulfonate                | 4:2FTS                        | 4000                   | 3750        | 4                           |
| Sodium 1H,1H,2H,2H-perfluorooctanesulfonate                | 6:2FTS                        | 4000                   | 3800        | 10                          |
| Sodium 1H,1H,2H,2H-perfluorodecane sulfonate               | 8:2FTS                        | 4000                   | 3840        | 16                          |

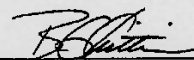
<sup>a</sup> See Table B for percent composition of linear and branched N-MeFOSAA isomers.

<sup>b</sup> See Table C for percent composition of linear and branched N-EtFOSAA isomers.

<sup>c</sup> See Table D for percent composition of linear and branched PFHxSK isomers.

<sup>d</sup> See Table E for percent composition of linear and branched PFOSK isomers.

\* Concentrations have been rounded to three significant figures.

Certified By:   
B.G. Chittim, General Manager

Date: 05/11/2023  
(mm/dd/yyyy)



12033  
rec'd: 09/18/23



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

### PFAC-MXF

#### Native Replacement PFAS Solution/Mixture

**PRODUCT CODE:** PFAC-MXF  
**LOT NUMBER:** PFACMXF0323  
**SOLVENT(S):** Methanol / Water (<1%)  
**DATE PREPARED:** (mm/dd/yyyy) 03/23/2023  
**LAST TESTED:** (mm/dd/yyyy) 03/24/2023  
**EXPIRY DATE:** (mm/dd/yyyy) 03/24/2026  
**RECOMMENDED STORAGE:** Refrigerate ampoule

#### DESCRIPTION:

PFAC-MXF is a solution/mixture of sodium dodecafluoro-3H-4,8-dioxanonanoate (NaDONA), the major and minor components of F-53B (9CI-PF3ONS and 11CI-PF3OUDs), and hexafluoropropylene oxide dimer acid (GenX, HFPO-DA). The components and their concentrations are given in Table A.

The individual components of this mixture all have chemical purities of >98%.

#### DOCUMENTATION/ DATA ATTACHED:

- Table A: Components and Concentrations of the Solution/Mixture
- Figure 1: LC/MS Data (SIR)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

#### ADDITIONAL INFORMATION:

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

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Form#: 13, Issued 2004-11-10  
Revision#: 9, Revised 2020-12-23

PFACMXF0323 (1 of 5)  
rev0

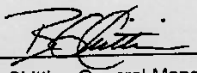
7.9.1  
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**Table A:** PFAC-MXF; Components and Concentrations (ng/mL;  $\pm$  5% in Methanol/Water (<1%))

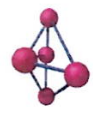
| Compound   | Acronym      | Concentration* (ng/mL) |             | Peak Assignment in Figure 1 |
|--|--------------|------------------------|-------------|-----------------------------|
|  |              | as the salt            | as the acid |                             |
| 2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)propanoic acid | HFPO-DA      | 2000                   |             | A                           |
| Sodium dodecafluoro-3H-4,8-dioxanonanoate                              | NaDONA       | 2000                   | 1890        | B                           |
| Potassium 9-chlorohexadecafluoro-3-oxanonane-1-sulfonate               | 9Cl-PF3ONS   | 2000                   | 1870        | C                           |
| Potassium 11-chloroicosafuoro-3-oxaundecane-1-sulfonate                | 11Cl-PF3OUdS | 2000                   | 1890        | D                           |

\* Concentrations have been rounded to three significant figures.

Certified By:

  
B.G. Chittim, General Manager

Date: 03/29/2023  
(mm/dd/yyyy)



**CERTIFIED WEIGHT REPORT**

**Part Number:** 64026  
**Lot Number:** 06323  
**Description:** PFDA-DOD 28 components  
**Expiration Date:** 06/328  
**Recommended Storage:** Freeze (0 °C)  
**Nominal Concentration (µg/mL):** 1.0  
**NET Test ID#:** 6UTB

**Solvent(s):** Methane (1 mM KOH)  
**Lot# (99%):** 040723  
**Lot# (99%):** 32500

**Formulated By:** Prashant Chauhan  
**Reviewed By:** Pedro L. Ramos

**Formulation Date:** 06323  
**DATE:** 06323

Volumes shown below were combined and diluted to (mL):  
Note: All assigned values are amon concentrations.

| Compound                                 | Part Number | Lot Number | Dilution Factor | Initial Vol. (mL) | Initial Concentration (µg/mL) | Final Concentration (µg/mL) | Final Uncertainty (µg/mL) | Final Uncertainty (%) | SOS Information |                       |
|--|-------------|------------|-----------------|-------------------|-------------------------------|-----------------------------|---------------------------|-----------------------|-----------------|-----------------------|
|  |             |            |                 |                   |                               |                             |                           |                       | Final Vol. (mL) | Final Uncertainty (%) |
| 1. Perfluoro-n-butanoic acid (PFBA)      | 99542       | 110422     | 0.02            | 2.00              | 50.1                          | 1.00                        | 0.02                      | 375-22.4              | N/A             | N/A                   |
| 2. Perfluoro-n-pentanoic acid (PFPA)     | 99543       | 011723     | 0.02            | 2.00              | 50.3                          | 1.01                        | 0.02                      | 2706-90.3             | N/A             | N/A                   |
| 3. Perfluoro-n-hexanoic acid (PFHxA)     | 99199       | 051023     | 0.02            | 2.00              | 50.2                          | 1.00                        | 0.02                      | 307-24.4              | N/A             | N/A                   |
| 4. Perfluoroheptanoic acid (PFHpA)       | 99177       | 110922     | 0.02            | 2.00              | 50.1                          | 1.00                        | 0.02                      | 375-85.8              | N/A             | N/A                   |
| 5. Perfluorooctanoic acid (PFODa)        | 99202       | 090522     | 0.02            | 2.00              | 50.2                          | 1.00                        | 0.02                      | 335-97.1 (L)          | N/A             | Isot. Uncertainty     |
| 6. Perfluorononanoic acid (PFNA)         | 99200       | 110922     | 0.02            | 2.00              | 50.1                          | 1.00                        | 0.02                      | 379-85.1              | N/A             | Isot. Uncertainty     |
| 7. Perfluorodecanoic acid (PFDA)         | 99185       | 052423     | 0.02            | 2.00              | 50.0                          | 1.00                        | 0.02                      | 385-79.2              | N/A             | Isot. Uncertainty     |
| 8. Perfluoroundecanoic acid (PFUDA)      | 99186       | 052423     | 0.02            | 2.00              | 50.1                          | 1.00                        | 0.02                      | 2059-94.3             | N/A             | N/A                   |
| 9. Perfluorododecanoic acid (PFDDA)      | 99204       | 110922     | 0.02            | 2.00              | 50.1                          | 1.00                        | 0.02                      | 307-85.1              | N/A             | N/A                   |
| 10. Perfluorotridecanoic acid (PFTrDA)   | 99203       | 053422     | 0.02            | 2.00              | 50.1                          | 1.00                        | 0.02                      | 7829-94.9             | N/A             | N/A                   |
| 11. Perfluorotetradecanoic acid (PFTrDA) | 99201       | 053422     | 0.02            | 2.00              | 50.1                          | 1.00                        | 0.02                      | 379-06.7              | N/A             | N/A                   |
| 12. Perfluoropentadecanoic acid (PFPeDA) | 99205       | 053422     | 0.02            | 2.00              | 50.0                          | 1.00                        | 0.02                      | 784-81.8              | N/A             | N/A                   |
| 13. Perfluorohexadecanoic acid (PFHxDA)  | 99206       | 053422     | 0.02            | 2.00              | 50.0                          | 1.00                        | 0.02                      | 2355-31.8 (L)         | N/A             | N/A                   |
| 14. Perfluoroheptadecanoic acid (PFHeDA) | 99207       | 053422     | 0.02            | 2.00              | 50.0                          | 1.00                        | 0.02                      | 391-80.4 (L)          | N/A             | N/A                   |
| 15. Perfluorooctadecanoic acid (PFODa)   | 99194       | 051023     | 0.02            | 2.00              | 50.1                          | 1.00                        | 0.02                      | 375-73.5              | N/A             | N/A                   |
| 16. Perfluorononadecanoic acid (PFNDa)   | 99184       | 051522     | 0.02            | 2.00              | 50.1                          | 1.00                        | 0.02                      | 2706-81.4             | N/A             | N/A                   |
| 17. Perfluorodocosanoic acid (PFDDa)     | 99198       | 050923     | 0.02            | 2.00              | 50.0                          | 1.00                        | 0.02                      | 379-84.8 (L)          | N/A             | N/A                   |
| 18. Perfluorotriacontanoic acid (PFTrDA) | 99202       | 050923     | 0.02            | 2.00              | 50.1                          | 1.00                        | 0.02                      | 379-84.8 (L)          | N/A             | N/A                   |
| 19. Perfluorotetracosanoic acid (PFTrDA) | 99201       | 050923     | 0.02            | 2.00              | 50.1                          | 1.00                        | 0.02                      | 1783-25.1 (L)         | N/A             | N/A                   |
| 20. Perfluoropentacosanoic acid (PFPeDA) | 99204       | 050923     | 0.02            | 2.00              | 50.1                          | 1.00                        | 0.02                      | 4829-6.1 (L)          | N/A             | N/A                   |
| 21. Perfluorohexacosanoic acid (PFHxDA)  | 99203       | 050923     | 0.02            | 2.00              | 50.1                          | 1.00                        | 0.02                      | 398-77.3              | N/A             | N/A                   |
| 22. Perfluoroheptacosanoic acid (PFHeDA) | 99205       | 050923     | 0.02            | 2.00              | 50.2                          | 1.00                        | 0.02                      | 257194-72.4           | N/A             | N/A                   |
| 23. Perfluoro-octacosanoic acid (PFODa)  | 99206       | 051023     | 0.02            | 2.00              | 50.2                          | 1.00                        | 0.02                      | 37819-87.2            | N/A             | N/A                   |
| 24. Perfluoro-nonacosanoic acid (PFNDa)  | 99207       | 051023     | 0.02            | 2.00              | 50.2                          | 1.00                        | 0.02                      | 30108-34.4            | N/A             | N/A                   |
| 25. Perfluorodocosanoic acid (PFDDa)     | 99208       | 050523     | 0.02            | 2.00              | 50.2                          | 1.00                        | 0.02                      | 18255-15.8            | N/A             | N/A                   |
| 26. Perfluorotriacontanoic acid (PFTrDA) | 99209       | 050523     | 0.02            | 2.00              | 50.2                          | 1.00                        | 0.02                      | 78201-82.8            | N/A             | N/A                   |
| 27. Perfluorotetracosanoic acid (PFTrDA) | 99210       | 050523     | 0.02            | 2.00              | 50.2                          | 1.00                        | 0.02                      | 25826-56.1            | N/A             | N/A                   |
| 28. Perfluoropentacosanoic acid (PFPeDA) | 99211       | 050523     | 0.02            | 2.00              | 50.2                          | 1.00                        | 0.02                      | 819025-14.4           | N/A             | N/A                   |
| 29. Perfluorohexacosanoic acid (PFHxDA)  | 99212       | 050523     | 0.02            | 2.00              | 50.2                          | 1.00                        | 0.02                      | 335-67.1 (L)          | N/A             | Isot. Uncertainty     |
| 30. Perfluoroheptacosanoic acid (PFHeDA) | 99213       | 050523     | 0.02            | 2.00              | 50.2                          | 1.00                        | 0.02                      | 335-67.1 (L)          | N/A             | Isot. Uncertainty     |
| 31. Perfluoro-octacosanoic acid (PFODa)  | 99214       | 050523     | 0.02            | 2.00              | 50.2                          | 1.00                        | 0.02                      | 385-48.4 (L)          | N/A             | N/A                   |
| 32. Perfluorononacosanoic acid (PFNDa)   | 99215       | 050523     | 0.02            | 2.00              | 50.2                          | 1.00                        | 0.02                      | 385-48.4 (L)          | N/A             | N/A                   |
| 33. Perfluorodocosanoic acid (PFDDa)     | 99216       | 050523     | 0.02            | 2.00              | 50.2                          | 1.00                        | 0.02                      | 1783-25.1 (L)         | N/A             | N/A                   |
| 34. Perfluoroheptacosanoic acid (PFHeDA) | 99217       | 050523     | 0.02            | 2.00              | 50.2                          | 1.00                        | 0.02                      | 1783-25.1 (L)         | N/A             | N/A                   |
| 35. Perfluoro-octacosanoic acid (PFODa)  | 99218       | 050523     | 0.02            | 2.00              | 50.2                          | 1.00                        | 0.02                      | 2355-31.8 (L)         | N/A             | N/A                   |
| 36. Perfluorononacosanoic acid (PFNDa)   | 99219       | 050523     | 0.02            | 2.00              | 50.2                          | 1.00                        | 0.02                      | 2355-31.8 (L)         | N/A             | N/A                   |
| 37. Perfluorodocosanoic acid (PFDDa)     | 99220       | 050523     | 0.02            | 2.00              | 50.2                          | 1.00                        | 0.02                      | 2961-50.4 (L)         | N/A             | N/A                   |
| 38. Perfluoroheptacosanoic acid (PFHeDA) | 99221       | 050523     | 0.02            | 2.00              | 50.2                          | 1.00                        | 0.02                      | 2961-50.4 (L)         | N/A             | N/A                   |
| 39. Perfluoro-octacosanoic acid (PFODa)  | 99222       | 050523     | 0.02            | 2.00              | 50.2                          | 1.00                        | 0.02                      | 2961-50.4 (L)         | N/A             | N/A                   |
| 40. Perfluorononacosanoic acid (PFNDa)   | 99223       | 050523     | 0.02            | 2.00              | 50.2                          | 1.00                        | 0.02                      | 2961-50.4 (L)         | N/A             | N/A                   |
| 41. Perfluorodocosanoic acid (PFDDa)     | 99224       | 050523     | 0.02            | 2.00              | 50.2                          | 1.00                        | 0.02                      | 2961-50.4 (L)         | N/A             | N/A                   |
| 42. Perfluoroheptacosanoic acid (PFHeDA) | 99225       | 050523     | 0.02            | 2.00              | 50.2                          | 1.00                        | 0.02                      | 2961-50.4 (L)         | N/A             | N/A                   |
| 43. Perfluoro-octacosanoic acid (PFODa)  | 99226       | 050523     | 0.02            | 2.00              | 50.2                          | 1.00                        | 0.02                      | 2961-50.4 (L)         | N/A             | N/A                   |
| 44. Perfluorononacosanoic acid (PFNDa)   | 99227       | 050523     | 0.02            | 2.00              | 50.2                          | 1.00                        | 0.02                      | 2961-50.4 (L)         | N/A             | N/A                   |
| 45. Perfluorodocosanoic acid (PFDDa)     | 99228       | 050523     | 0.02            | 2.00              | 50.2                          | 1.00                        | 0.02                      | 2961-50.4 (L)         | N/A             | N/A                   |
| 46. Perfluoroheptacosanoic acid (PFHeDA) | 99229       | 050523     | 0.02            | 2.00              | 50.2                          | 1.00                        | 0.02                      | 2961-50.4 (L)         | N/A             | N/A                   |
| 47. Perfluoro-octacosanoic acid (PFODa)  | 99230       | 050523     | 0.02            | 2.00              | 50.2                          | 1.00                        | 0.02                      | 2961-50.4 (L)         | N/A             | N/A                   |
| 48. Perfluorononacosanoic acid (PFNDa)   | 99231       | 050523     | 0.02            | 2.00              | 50.2                          | 1.00                        | 0.02                      | 2961-50.4 (L)         | N/A             | N/A                   |
| 49. Perfluorodocosanoic acid (PFDDa)     | 99232       | 050523     | 0.02            | 2.00              | 50.2                          | 1.00                        | 0.02                      | 2961-50.4 (L)         | N/A             | N/A                   |
| 50. Perfluoroheptacosanoic acid (PFHeDA) | 99233       | 050523     | 0.02            | 2.00              | 50.2                          | 1.00                        | 0.02                      | 2961-50.4 (L)         | N/A             | N/A                   |
| 51. Perfluoro-octacosanoic acid (PFODa)  | 99234       | 050523     | 0.02            | 2.00              | 50.2                          | 1.00                        | 0.02                      | 2961-50.4 (L)         | N/A             | N/A                   |
| 52. Perfluorononacosanoic acid (PFNDa)   | 99235       | 050523     | 0.02            | 2.00              | 50.2                          | 1.00                        | 0.02                      | 2961-50.4 (L)         | N/A             | N/A                   |
| 53. Perfluorodocosanoic acid (PFDDa)     | 99236       | 050523     | 0.02            | 2.00              | 50.2                          | 1.00                        | 0.02                      | 2961-50.4 (L)         | N/A             | N/A                   |
| 54. Perfluoroheptacosanoic acid (PFHeDA) | 99237       | 050523     | 0.02            | 2.00              | 50.2                          | 1.00                        | 0.02                      | 2961-50.4 (L)         | N/A             | N/A                   |
| 55. Perfluoro-octacosanoic acid (PFODa)  | 99238       | 050523     | 0.02            | 2.00              | 50.2                          | 1.00                        | 0.02                      | 2961-50.4 (L)         | N/A             | N/A                   |
| 56. Perfluorononacosanoic acid (PFNDa)   | 99239       | 050523     | 0.02            | 2.00              | 50.2                          | 1.00                        | 0.02                      | 2961-50.4 (L)         | N/A             | N/A                   |
| 57. Perfluorodocosanoic acid (PFDDa)     | 99240       | 050523     | 0.02            | 2.00              | 50.2                          | 1.00                        | 0.02                      | 2961-50.4 (L)         | N/A             | N/A                   |
| 58. Perfluoroheptacosanoic acid (PFHeDA) | 99241       | 050523     | 0.02            | 2.00              | 50.2                          | 1.00                        | 0.02                      | 2961-50.4 (L)         | N/A             | N/A                   |
| 59. Perfluoro-octacosanoic acid (PFODa)  | 99242       | 050523     | 0.02            | 2.00              | 50.2                          | 1.00                        | 0.02                      | 2961-50.4 (L)         | N/A             | N/A                   |
| 60. Perfluorononacosanoic acid (PFNDa)   | 99243       | 050523     | 0.02            | 2.00              | 50.2                          | 1.00                        | 0.02                      | 2961-50.4 (L)         | N/A             | N/A                   |
| 61. Perfluorodocosanoic acid (PFDDa)     | 99244       | 050523     | 0.02            | 2.00              | 50.2                          | 1.00                        | 0.02                      | 2961-50.4 (L)         | N/A             | N/A                   |
| 62. Perfluoroheptacosanoic acid (PFHeDA) | 99245       | 050523     | 0.02            | 2.00              | 50.2                          | 1.00                        | 0.02                      | 2961-50.4 (L)         | N/A             | N/A                   |
| 63. Perfluoro-octacosanoic acid (PFODa)  | 99246       | 050523     | 0.02            | 2.00              | 50.2                          | 1.00                        | 0.02                      | 2961-50.4 (L)         | N/A             | N/A                   |
| 64. Perfluorononacosanoic acid (PFNDa)   | 99247       | 050523     | 0.02            | 2.00              | 50.2                          | 1.00                        | 0.02                      | 2961-50.4 (L)         | N/A             | N/A                   |
| 65. Perfluorodocosanoic acid (PFDDa)     | 99248       | 050523     | 0.02            | 2.00              | 50.2                          | 1.00                        | 0.02                      | 2961-50.4 (L)         | N/A             | N/A                   |
| 66. Perfluoroheptacosanoic acid (PFHeDA) | 99249       | 050523     | 0.02            | 2.00              | 50.2                          | 1.00                        | 0.02                      | 2961-50.4 (L)         | N/A             | N/A                   |
| 67. Perfluoro-octacosanoic acid (PFODa)  | 99250       | 050523     | 0.02            | 2.00              | 50.2                          | 1.00                        | 0.02                      | 2961-50.4 (L)         | N/A             | N/A                   |
| 68. Perfluorononacosanoic acid (PFNDa)   | 99251       | 050523     | 0.02            | 2.00              | 50.2                          | 1.00                        | 0.02                      | 2961-50.4 (L)         | N/A             | N/A                   |
| 69. Perfluorodocosanoic acid (PFDDa)     | 99252       | 050523     | 0.02            | 2.00              | 50.2                          | 1.00                        | 0.02                      | 2961-50.4 (L)         | N/A             | N/A                   |
| 70. Perfluoroheptacosanoic acid (PFHeDA) | 99253       | 050523     | 0.02            | 2.00              | 50.2                          | 1.00                        | 0.02                      | 2961-50.4 (L)         | N/A             | N/A                   |
| 71. Perfluoro-octacosanoic acid (PFODa)  | 99254       | 050523     | 0.02            | 2.00              | 50.2                          | 1.00                        | 0.02                      | 2961-50.4 (L)         | N/A             | N/A                   |
| 72. Perfluorononacosanoic acid (PFNDa)   | 99255       | 050523     | 0.02            | 2.00              | 50.2                          | 1.00                        | 0.02                      | 2961-50.4 (L)         | N/A             | N/A                   |
| 73. Perfluorodocosanoic acid (PFDDa)     | 99256       | 050523     | 0.02            | 2.00              | 50.2                          | 1.00                        | 0.02                      | 2961-50.4 (L)         | N/A             | N/A                   |
| 74. Perfluoroheptacosanoic acid (PFHeDA) | 99257       | 050523     | 0.02            | 2.00              | 50.2                          | 1.00                        | 0.02                      | 2961-50.4 (L)         | N/A             | N/A                   |
| 75. Perfluoro-octacosanoic acid (PFODa)  | 99258       | 050523     | 0.02            | 2.00              | 50.2                          | 1.00                        | 0.02                      | 2961-50.4 (L)         | N/A             | N/A                   |
| 76. Perfluorononacosanoic acid (PFNDa)   | 99259       | 050523     | 0.02            | 2.00              | 50.2                          | 1.00                        | 0.02                      | 2961-50.4 (L)         | N/A             | N/A                   |
| 77. Perfluorodocosanoic acid (PFDDa)     | 99260       | 050523     | 0.02            | 2.00              | 50.2                          | 1.00                        | 0.02                      | 2961-50.4 (L)         | N/A             | N/A                   |
| 78. Perfluoroheptacosanoic acid (PFHeDA) | 99261       | 050523     | 0.02            | 2.00              | 50.2                          | 1.00                        | 0.02                      | 2961-50.4 (L)         | N/A             | N/A                   |
| 79. Perfluoro-octacosanoic acid (PFODa)  | 99262       | 050523     | 0.02            | 2.00              | 50.2                          | 1.00                        | 0.02                      | 2961-50.4 (L)         | N/A             | N/A                   |
| 80. Perfluorononacosanoic acid (PFNDa)   | 99263       | 050523     | 0.02            | 2.00              | 50.2                          | 1.00                        | 0.02                      | 2961-50.4 (L)         | N/A             | N/A                   |
| 81. Perfluorodocosanoic acid (PFDDa)     | 99264       | 050523     | 0.02            | 2.00              | 50.2                          | 1.00                        | 0.02                      | 2961-50.4 (L)         | N/A             | N/A                   |
| 82. Perfluoroheptacosanoic acid (PFHeDA) | 99265       | 050523     | 0.02            | 2.00              | 50.2                          | 1.00                        | 0.02                      | 2961-50.4 (L)         | N/A             | N/A                   |
| 83. Perfluoro-octacosanoic acid (PFODa)  | 99266       | 050523     | 0.02            | 2.00              | 50.2                          | 1.00                        | 0.02                      | 2961-50.4 (L)         | N/A             | N/A                   |
| 84. Perfluorononacosanoic acid (PFNDa)   | 99267       | 050523     | 0.02            | 2.00              | 50.2                          | 1.00                        | 0.02                      | 2961-50.4 (L)         | N/A             | N/A                   |
| 85. Perfluorodocosanoic acid (PFDDa)     | 99268       | 050523     | 0.02            | 2.00              | 50.2                          | 1.00                        | 0.02                      | 2961-50.4 (L)         | N/A             | N/A                   |
| 86. Perfluoroheptacosanoic acid (PFHeDA) | 99269       | 050523     | 0.02            | 2.00              | 50.2                          | 1.00                        | 0.02                      | 2961-50.4 (L)         | N/A             | N/A                   |
| 87. Perfluoro-octacosanoic acid (PFODa)  | 99270       | 050523     | 0.02            | 2.00              | 50.2                          | 1.00                        |                           |                       |                 |                       |



12065 rec'd: 01/28/23



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

### PFAC-MXF

#### Native Replacement PFAS Solution/Mixture

**PRODUCT CODE:** PFAC-MXF  
**LOT NUMBER:** PFACMXF0323  
**SOLVENT(S):** Methanol / Water (<1%)  
**DATE PREPARED:** (mm/dd/yyyy) 03/23/2023  
**LAST TESTED:** (mm/dd/yyyy) 03/24/2023  
**EXPIRY DATE:** (mm/dd/yyyy) 03/24/2026  
**RECOMMENDED STORAGE:** Refrigerate ampoule

#### DESCRIPTION:

PFAC-MXF is a solution/mixture of sodium dodecafluoro-3H-4,8-dioxanonanoate (NaDONA), the major and minor components of F-53B (9Cl-PF3ONS and 11Cl-PF3OUdS), and hexafluoropropylene oxide dimer acid (GenX, HFPO-DA). The components and their concentrations are given in Table A.

The individual components of this mixture all have chemical purities of >98%.

#### DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture  
 Figure 1: LC/MS Data (SIR)  
 Figure 2: LC/MS/MS Data (Selected MRM Transitions)

#### ADDITIONAL INFORMATION:

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

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Revision#:9, Revised 2020-12-23

PFACMXF0323 (1 of 5)  
rev0

7.9.1  
7



**Tab. 1A:** PFAC-MXF; Components and Concentrations (ng/mL;  $\pm 5\%$  in Methanol/Water (<1%))

| Compound   | Acronym      | Concentration* (ng/mL) |             | Peak Assignment in Figure 1 |
|--|--------------|------------------------|-------------|-----------------------------|
|  |              | as the salt            | as the acid |                             |
| 2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)propanoic acid | HFPO-DA      | 2000                   |             | A                           |
| Sodium dodecafluoro-3H-4,8-dioxananoate                                | NaDONA       | 2000                   | 1890        | B                           |
| Potassium 9-chlorohexadecafluoro-3-oxanonane-1-sulfonate               | 9Cl-PF3ONS   | 2000                   | 1870        | C                           |
| Potassium 11-chloroicosadecafluoro-3-oxaundecane-1-sulfonate           | 11Cl-PF3OUdS | 2000                   | 1890        | D                           |

\* Concentrations have been rounded to three significant figures.

Certified By: 

B.G. Chittim, General Manager

Date: 03/29/2023  
(mm/dd/yyyy)



12070 A-B  
rec'd: 10/02/23



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

### br-NMeFOSE

2-(N-Methylperfluorooctanesulfonamido)ethanol  
Isomeric Mix

|                                    |  |
|------------------------------------|--|
| <b>PRODUCT CODE:</b>               | br-NMeFOSE                                   |
| <b>LOT NUMBER:</b>                 | brNMeFOSE0922                                |
| <b>CONCENTRATION:</b>              | 50.0 ± 2.5 µg/mL                             |
| <b>SOLVENT(S):</b>                 | Methanol                                     |
| <b>DATE PREPARED:</b> (mm/dd/yyyy) | 09/02/2022                                   |
| <b>LAST TESTED:</b> (mm/dd/yyyy)   | 09/07/2022 (HRGC/LRMS)<br>10/07/2022 (LC/MS) |
| <b>EXPIRY DATE:</b> (mm/dd/yyyy)   | 10/07/2027                                   |
| <b>RECOMMENDED STORAGE:</b>        | Store ampoule in a cool, dark place          |

### DESCRIPTION:

The chemical purity has been determined to be ≥98% 2-(N-methylperfluorooctanesulfonamido)ethanol linear and branched isomers. The full name, structure, and percent composition for each of the isomeric components are given in Table A.

### DOCUMENTATION/ DATA ATTACHED:

- Table A: Isomeric Components and Percent Composition by <sup>19</sup>F-NMR
- Figure 1: HRGC/LRMS Data (Full Scan and Mass Spectrum)
- Figure 2: LC/MS Data (Full Scan and Mass Spectrum)
- Figure 3: LC/MS Data (SIR)
- Figure 4: LC/MS/MS Data (Selected MRM Transitions)

### ADDITIONAL INFORMATION:

- See page 2 for further details.
- CAS #: 24448-09-7 (for linear isomer).

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brNMeFOSE0922 (1 of 7)  
rev 1

7.9.1

7

12071 A-B  
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# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

### br-NEtFOSE

2-(N-Ethylperfluorooctanesulfonamido)ethanol  
Isomeric Mix

|                                    |  |
|------------------------------------|--|
| <b>PRODUCT CODE:</b>               | br-NEtFOSE                                   |
| <b>LOT NUMBER:</b>                 | brNEtFOSE1022                                |
| <b>CONCENTRATION:</b>              | 50.0 ± 2.5 µg/mL                             |
| <b>SOLVENT(S):</b>                 | Methanol                                     |
| <b>DATE PREPARED:</b> (mm/dd/yyyy) | 09/12/2022                                   |
| <b>LAST TESTED:</b> (mm/dd/yyyy)   | 09/12/2022 (HRGC/LRMS)<br>10/07/2022 (LC/MS) |
| <b>EXPIRY DATE:</b> (mm/dd/yyyy)   | 10/07/2027                                   |
| <b>RECOMMENDED STORAGE:</b>        | Store ampoule in a cool, dark place          |

#### DESCRIPTION:

The chemical purity has been determined to be ≥98% 2-(N-ethylperfluorooctanesulfonamido)ethanol linear and branched isomers. The full name, structure, and percent composition for each of the isomeric components are given in Table A.

#### DOCUMENTATION/ DATA ATTACHED:

Table A: Isomeric Components and Percent Composition by <sup>19</sup>F-NMR  
Figure 1: HRGC/LRMS Data (Full Scan and Mass Spectrum)  
Figure 2: LC/MS Data (Full Scan and Mass Spectrum)  
Figure 3: LC/MS Data (SIR)  
Figure 4: LC/MS/MS Data (Selected MRM Transitions)

#### ADDITIONAL INFORMATION:

- See page 2 for further details.
- CAS #: 1691-99-2 (for linear isomer).

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brNEtFOSE1022 (1 of 7)  
rev1

7.9.1

7



12091  
rec'd: 10/11/23



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

### PFAC-MXJ

Native X:3 Fluorotelomer Carboxylic  
Acid Solution/Mixture

|   |                     |
|---|---------------------|
| <b><u>PRODUCT CODE:</u></b>               | PFAC-MXJ            |
| <b><u>LOT NUMBER:</u></b>                 | PFACMXJ0323         |
| <b><u>SOLVENT(S):</u></b>                 | Methanol            |
| <b><u>DATE PREPARED:</u></b> (mm/dd/yyyy) | 03/27/2023          |
| <b><u>LAST TESTED:</u></b> (mm/dd/yyyy)   | 03/28/2023          |
| <b><u>EXPIRY DATE:</u></b> (mm/dd/yyyy)   | 03/28/2028          |
| <b><u>RECOMMENDED STORAGE:</u></b>        | Refrigerate ampoule |

### DESCRIPTION:

PFAC-MXJ is a solution/mixture of three native X:3 fluorotelomer carboxylic acids. The components and their concentrations are given in Table A.

The individual components have a chemical purity of >98%.

### DOCUMENTATION/ DATA ATTACHED:

- Table A: Components and Concentrations of the Solution/Mixture
- Figure 1: LC/MS Data (SIR)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

### ADDITIONAL INFORMATION:

- See page 2 for further details.

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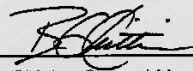
PFACMXJ0323 (1 of 5)  
rev0

7.9.1  
7



**Table 1: PFAC-MXJ; Components and Concentrations ( $\mu\text{g}/\text{mL}$ ;  $\pm 5\%$  in methanol)**

| Compound                         | Acronym | Concentration ( $\mu\text{g}/\text{mL}$ ) |
|----------------------------------|---------|---|
| 3-Perfluoropropyl propanoic acid | FPrPA   | 4.00                                      |
| 3-Perfluoropentyl propanoic acid | FPePA   | 20.0                                      |
| 3-Perfluoroheptyl propanoic acid | FHpPA   | 20.0                                      |

Certified By:   
B.G. Chittim, General Manager

Date: 04/12/2023  
(mm/dd/yyyy)





**PFAC-MXJ**

**Native X:3 Fluorotelomer Carboxylic  
Acid Solution/Mixture**

12/20  
rec'd: 10/18/23

|   |                     |
|---|---------------------|
| <b><u>PRODUCT CODE:</u></b>               | PFAC-MXJ            |
| <b><u>LOT NUMBER:</u></b>                 | PFACMXJ0323         |
| <b><u>SOLVENT(S):</u></b>                 | Methanol            |
| <b><u>DATE PREPARED:</u></b> (mm/dd/yyyy) | 03/27/2023          |
| <b><u>LAST TESTED:</u></b> (mm/dd/yyyy)   | 03/28/2023          |
| <b><u>EXPIRY DATE:</u></b> (mm/dd/yyyy)   | 03/28/2028          |
| <b><u>RECOMMENDED STORAGE:</u></b>        | Refrigerate ampoule |

**DESCRIPTION:**

PFAC-MXJ is a solution/mixture of three native X:3 fluorotelomer carboxylic acids. The components and their concentrations are given in Table A.

The individual components have a chemical purity of >98%.

**DOCUMENTATION/ DATA ATTACHED:**

- Table A: Components and Concentrations of the Solution/Mixture
- Figure 1: LC/MS Data (SIR)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

**ADDITIONAL INFORMATION:**


- See page 2 for further details.

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**Table A: PFAC-MXJ; Components and Concentrations ( $\mu\text{g}/\text{mL}$ ;  $\pm 5\%$  in methanol)**

| Compound                         | Acronym | Concentration ( $\mu\text{g}/\text{mL}$ ) |
|----------------------------------|---------|---|
| 3-Perfluoropropyl propanoic acid | FPrPA   | 4.00                                      |
| 3-Perfluoropentyl propanoic acid | FPePA   | 20.0                                      |
| 3-Perfluoroheptyl propanoic acid | FHpPA   | 20.0                                      |

Certified By:   
B.G. Chittim, General Manager

Date: 04/12/2023  
(mm/dd/yyyy)



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

12122  
rec'd: 10/18/23  
NEIFOSA0923M

**PRODUCT CODE:**

N-EtFOSA-M

**LOT NUMBER:**

NEIFOSA0923M

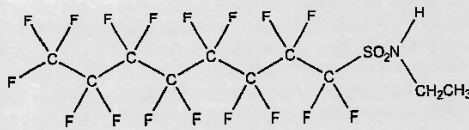
**COMPOUND:**

N-Ethylperfluoro-1-octanesulfonamide

**STRUCTURE:**

**CAS #:**

4151-50-2



**MOLECULAR FORMULA:**

C<sub>10</sub>H<sub>6</sub>F<sub>17</sub>NO<sub>2</sub>S

**MOLECULAR WEIGHT:**

527.20

**CONCENTRATION:**

50.0 ± 2.5 µg/mL

**SOLVENT(S):**

Methanol

**CHEMICAL PURITY:**

>98%

**LAST TESTED:** (mm/dd/yyyy)

09/19/2023

**EXPIRY DATE:** (mm/dd/yyyy)

09/19/2028

**RECOMMENDED STORAGE:**

Store ampoule in a cool, dark place

**DOCUMENTATION/ DATA ATTACHED:**

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

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

**ADDITIONAL INFORMATION:**

- See page 2 for further details.

**FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE**

Certified By:

B.G. Chittim, General Manager

Date: 10/04/2023

(mm/dd/yyyy)

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12030 A-5  
rec'd: 09/18/23



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

### MPFAC-HIF-IS

Mass-Labelled PFAS Injection  
Standard Solution/Mixture

**PRODUCT CODE:** MPFAC-HIF-IS  
**LOT NUMBER:** MPFACHIFIS0723  
**SOLVENT(S):** Methanol/Water (<1%)  
**DATE PREPARED:** (mm/dd/yyyy) 07/05/2023  
**LAST TESTED:** (mm/dd/yyyy) 07/05/2023  
**EXPIRY DATE:** (mm/dd/yyyy) 07/05/2028  
**RECOMMENDED STORAGE:** Store ampoule in a cool, dark place

#### DESCRIPTION:

MPFAC-HIF-IS is a solution/mixture of five mass-labelled (<sup>13</sup>C) perfluoroalkylcarboxylic acids (C<sub>4</sub>, C<sub>6</sub>, C<sub>8</sub>-C<sub>10</sub>) and two mass-labelled (<sup>18</sup>O and <sup>13</sup>C) perfluoroalkanesulfonates (C<sub>8</sub> and C<sub>9</sub>). The components and their concentrations are given in Table A.

The individual mass-labelled perfluoroalkylcarboxylic acids and perfluoroalkanesulfonates all have chemical purities of >98% and isotopic purities of ≥99% per <sup>13</sup>C or >94% per <sup>18</sup>O.

#### DOCUMENTATION/ DATA ATTACHED:

- Table A: Components and Concentrations of the Solution/Mixture
- Figure 1: LC/MS Data (SIR)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

#### ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acids to their respective methyl esters.

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Form#: 13, Issued 2004-11-10  
Revision#: 9, Revised 2020-12-23

MPFACHIFIS0723 (1 of 5)  
rev0

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**Table A: MPFAC-HIF-IS; Components and Concentrations (ng/mL, ± 5% in methanol/water (<1%))**

| Compound   | Acronym | Concentration (ng/mL)  |             | Peak Assignment in Figure 1 |
|--|---------|------------------------|-------------|-----------------------------|
|  |         | as the salt            | as the acid |                             |
| Perfluoro-n-(2,3,4- <sup>13</sup> C <sub>3</sub> )butanoic acid            | M3PFBA  | 1000                   |             | 1                           |
| Perfluoro-n-(1,2- <sup>13</sup> C <sub>2</sub> )hexanoic acid              | MPFHxA  | 500                    |             | 2                           |
| Perfluoro-n-(1,2,3,4- <sup>13</sup> C <sub>4</sub> )octanoic acid          | MPFOA   | 500                    |             | 4                           |
| Perfluoro-n-(1,2,3,4,5- <sup>13</sup> C <sub>5</sub> )nonanoic acid        | MPFNA   | 250                    |             | 5                           |
| Perfluoro-n-(1,2- <sup>13</sup> C <sub>2</sub> )decanoic acid              | MPFDA   | 250                    |             | 7                           |
| Compound   | Acronym | Concentration* (ng/mL) |             | Peak Assignment in Figure 1 |
|  |         | as the salt            | as the acid |                             |
| Sodium perfluoro-1-hexane( <sup>18</sup> O <sub>2</sub> )sulfonate         | MPFHxS  | 500                    | 474         | 3                           |
| Sodium perfluoro-1-(1,2,3,4- <sup>13</sup> C <sub>4</sub> )octanesulfonate | MPFOS   | 500                    | 479         | 6                           |

\* Concentrations have been rounded to three significant figures.

Certified By:   
 B.G. Chittim, General Manager

Date: 07/07/2023  
(mm/dd/yyyy)

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12087A-J  
rec'd: 10/11/23

# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

### MPFAC-HIF-ES

#### Mass-Labelled PFAS Extraction Standard Solution/Mixture

**PRODUCT CODE:** MPFAC-HIF-ES  
**LOT NUMBER:** MPFACHIFES0623  
**SOLVENT(S):** Methanol/Isopropanol (1%)/Water (<1%)  
**DATE PREPARED:** (mm/dd/yyyy) 06/19/2023  
**LAST TESTED:** (mm/dd/yyyy) 06/20/2023  
**EXPIRY DATE:** (mm/dd/yyyy) 06/20/2026  
**RECOMMENDED STORAGE:** Refrigerate ampoule

#### DESCRIPTION:

MPFAC-HIF-ES is a solution/mixture of ten mass-labelled (<sup>13</sup>C) perfluoroalkylcarboxylic acids (C<sub>4</sub>-C<sub>12</sub>, C<sub>14</sub>), three mass-labelled (<sup>13</sup>C) perfluoroalkanesulfonates (C<sub>4</sub>, C<sub>6</sub>, and C<sub>8</sub>), three mass-labelled (one <sup>13</sup>C and two <sup>2</sup>H) perfluoro-1-octanesulfonamides, three mass-labelled (<sup>13</sup>C) fluorotelomer sulfonates (4:2, 6:2, and 8:2), two mass-labelled (<sup>2</sup>H) perfluorooctanesulfonamidoacetic acids, two mass-labelled (<sup>2</sup>H) perfluorooctanesulfonamidoethanols, and mass-labelled (<sup>13</sup>C) hexafluoropropylene oxide dimer acid (<sup>13</sup>C<sub>5</sub>-GenX, M3HFPO-DA). The components and their concentrations are given in Table A.

The individual <sup>13</sup>C-labelled components all have chemical purities >98% and isotopic purities of ≥99%. The individual <sup>2</sup>H-labelled components all have chemical purities >98% and isotopic purities of ≥98%.

#### DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture  
 Figure 1: LC/MS Data (SIR)  
 Figure 2: LC/MS/MS Data (Selected MRM Transitions)

#### ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acids to their respective methyl esters.

**FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE**

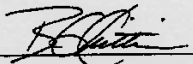
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**Tab. : MPFAC-HIF-ES; Components and Concentrations**  
(ng/mL, ± 5% in methanol/isopropanol (1%)/water (<1%))

| Compound   | Acronym      | Concentration (ng/mL)  |             | Peak Assignment in Figure 1 |
|--|--------------|------------------------|-------------|-----------------------------|
|  |              | as the salt            | as the acid |                             |
| Perfluoro-n-( <sup>13</sup> C <sub>4</sub> )butanoic acid  | MPFBA        | 2000                   |             | 1                           |
| Perfluoro-n-( <sup>13</sup> C <sub>5</sub> )pentanoic acid   | M5PFPeA      | 1000                   |             | 2                           |
| Perfluoro-n-(1,2,3,4,6- <sup>13</sup> C <sub>6</sub> )hexanoic acid                                    | M5PFHxA      | 500                    |             | 5                           |
| Perfluoro-n-(1,2,3,4- <sup>13</sup> C <sub>4</sub> )heptanoic acid                                     | M4PFHpA      | 500                    |             | 7                           |
| Perfluoro-n-( <sup>13</sup> C <sub>8</sub> )octanoic acid  | M8PFOA       | 500                    |             | 10                          |
| Perfluoro-n-( <sup>13</sup> C <sub>9</sub> )nonanoic acid  | M9PFNA       | 250                    |             | 11                          |
| Perfluoro-n-(1,2,3,4,5,6- <sup>13</sup> C <sub>6</sub> )decanoic acid                                  | M6PFDA       | 250                    |             | 14                          |
| Perfluoro-n-(1,2,3,4,5,6,7- <sup>13</sup> C <sub>7</sub> )undecanoic acid                              | M7PFUdA      | 250                    |             | 18                          |
| Perfluoro-n-(1,2- <sup>13</sup> C <sub>2</sub> )dodecanoic acid  | MPFDoA       | 250                    |             | 19                          |
| Perfluoro-n-(1,2- <sup>13</sup> C <sub>2</sub> )tetradecanoic acid                                     | M2PFTeDA     | 250                    |             | 24                          |
| Perfluoro-1-( <sup>13</sup> C <sub>8</sub> )octanesulfonamide  | M8FOSA       | 500                    |             | 16                          |
| N-Methyl-d <sub>3</sub> -perfluoro-1-octanesulfonamide   | d-N-MeFOSA   | 500                    |             | 21                          |
| N-Ethyl-d <sub>5</sub> -perfluoro-1-octanesulfonamide  | d-N-EtFOSA   | 500                    |             | 23                          |
| N-Methyl-d <sub>3</sub> -perfluoro-1-octanesulfonamidoacetic acid                                      | d3-N-MeFOSAA | 1000                   |             | 15                          |
| N-Ethyl-d <sub>5</sub> -perfluoro-1-octanesulfonamidoacetic acid                                       | d5-N-EtFOSAA | 1000                   |             | 17                          |
| 2-(N-Methyl-d <sub>3</sub> -perfluoro-1-octanesulfonamido)ethan-d <sub>4</sub> -ol                     | d7-N-MeFOSE  | 5000                   |             | 20                          |
| 2-(N-Ethyl-d <sub>5</sub> -perfluoro-1-octanesulfonamido)ethan-d <sub>4</sub> -ol                      | d9-N-EtFOSE  | 5000                   |             | 22                          |
| 2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)( <sup>13</sup> C <sub>3</sub> )propanoic acid | M3HFPO-DA    | 2000                   |             | 6                           |
| Compound   | Acronym      | Concentration* (ng/mL) |             | Peak Assignment in Figure 1 |
|  |              | as the salt            | as the acid |                             |
| Sodium perfluoro-1-(2,3,4- <sup>13</sup> C <sub>3</sub> )butanesulfonate                               | M3PFBS       | 500                    | 466         | 3                           |
| Sodium perfluoro-1-(1,2,3- <sup>13</sup> C <sub>3</sub> )hexanesulfonate                               | M3PFHxS      | 500                    | 474         | 8                           |
| Sodium perfluoro-1-( <sup>13</sup> C <sub>8</sub> )octanesulfonate                                     | M8PFOS       | 500                    | 479         | 12                          |
| Sodium 1H,1H,2H,2H-perfluoro-(1,2- <sup>13</sup> C <sub>2</sub> )hexanesulfonate                       | M2-4:2FTS    | 1000                   | 938         | 4                           |
| Sodium 1H,1H,2H,2H-perfluoro-(1,2- <sup>13</sup> C <sub>2</sub> )octanesulfonate                       | M2-6:2FTS    | 1000                   | 951         | 9                           |
| Sodium 1H,1H,2H,2H-perfluoro-(1,2- <sup>13</sup> C <sub>2</sub> )decanesulfonate                       | M2-8:2FTS    | 1000                   | 960         | 13                          |

\* Concentrations have been rounded to three significant figures.

Certified By:   
B.G. Chittim, General Manager

Date: 06/22/2023  
(mm/dd/yyyy)

12034  
rec'd: 09/18/23



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

### PFAC-MXG

**Native Perfluoroalkyl Ether Carboxylic  
Acids and Sulfonate Solution/Mixture**

|   |                                     |
|---|-------------------------------------|
| <b><u>PRODUCT CODE:</u></b>               | PFAC-MXG                            |
| <b><u>LOT NUMBER:</u></b>                 | PFACMXG0723                         |
| <b><u>SOLVENT(S):</u></b>                 | Methanol/Water (<1%)                |
| <b><u>DATE PREPARED:</u></b> (mm/dd/yyyy) | 07/27/2023                          |
| <b><u>LAST TESTED:</u></b> (mm/dd/yyyy)   | 07/27/2023                          |
| <b><u>EXPIRY DATE:</u></b> (mm/dd/yyyy)   | 07/27/2028                          |
| <b><u>RECOMMENDED STORAGE:</u></b>        | Store ampoule in a cool, dark place |

#### DESCRIPTION:

PFAC-MXG is a solution/mixture of three native perfluoroalkyl ether carboxylic acids and a native perfluoroalkyl ether sulfonate. The components and their concentrations are given in Table A.

The individual components all have chemical purities of >98%.

#### DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture  
 Figure 1: LC/MS Data (SIR)  
 Figure 2: LC/MS/MS Data (Selected MRM Transitions)

#### ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acids to their respective methyl esters.

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Form#: 13, Issued 2004-11-10  
Revision#: 9, Revised 2020-12-23

PFACMXG0723 (1 of 5)  
rev0

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**Table A: PFAC-MXG; Components and Concentrations (ng/mL; ± 5% in methanol/water (<1%))**

| Compound                                     | Acronym    | Concentration (ng/mL)  |             | Peak Assignment in Figure 1 |
|--|------------|------------------------|-------------|-----------------------------|
|  |            | as the salt            | as the acid |                             |
| Perfluoro-4-oxapentanoic acid                | PF4OPeA    | 2000                   |             | A                           |
| Perfluoro-5-oxahexanoic acid                 | PF5OHxA    | 2000                   |             | B                           |
| Perfluoro-3,6-dioxaheptanoic acid            | 3,6-OPFHpA | 2000                   |             | D                           |
| Compound                                     | Acronym    | Concentration* (ng/mL) |             | Peak Assignment in Figure 1 |
|  |            | as the salt            | as the acid |                             |
| Potassium perfluoro(2-ethoxyethane)sulfonate | PFEESA     | 2000                   | 1780        | C                           |

\* Concentrations have been rounded to three significant figures.

Certified By:   
 B.G. Chittim, General Manager

Date: 08/11/2023  
(mm/dd/yyyy)

SGS - ORLANDO

Date/Time: 12/07/23 08:00  
Started (mm/dd/yy 24:00)

SPE LIQUID SAMPLE PREP REPORT

Method: EPA 1633 Draft (QSM) List 40

Date/Time: 12/08/23 1430  
Finished (mm/dd/yy 24:00)

Balance ID: \_\_\_\_\_

Batch#: OP 495 Ext. By: GH

Conc. By: \_\_\_\_\_ Viald By: \_\_\_\_\_

| Sample ID              | Bottle Number | Amount Extracted (ml) | Initial pH | Adjusted pH | Surrogate Amount (ul) | Spike Amount (ul) | Final Volume (ml) | Manifold ID | Comments |
|------------------------|---------------|-----------------------|------------|-------------|-----------------------|-------------------|-------------------|-------------|----------|
| OP 495 MB              |               | 500                   | 6          | N/A         | 25                    |                   | 5                 | E           |          |
| OP 495 BS              |               | 500                   | 6          |             |                       |                   |                   |             |          |
| OP 495 LLBS            |               | 500                   | 6          |             |                       | 200               |                   |             |          |
| FC11689-1              | 2             | 550                   | 6          |             |                       | 60                |                   |             |          |
| FC11715-1              | 2             | 550                   |            |             |                       |                   |                   |             |          |
|                        | 2             | 520                   |            |             |                       |                   |                   |             |          |
|                        | 3             | 510                   |            |             |                       |                   |                   |             |          |
|                        | 4             | 560                   | 6          | N/A         | 25                    |                   | 5                 | E           |          |
| <del>GH 12/07/23</del> |               |                       |            |             |                       |                   |                   |             |          |
| OP FC11715-2MS         | 3             | 550                   | 6          | N/A         | 25                    | 200               | 5                 | E           |          |
| OP MSD                 |               |                       |            |             |                       |                   |                   |             |          |
| OP FC11715-3 DUP       | 3             | 530                   | 6          | N/A         | 25                    |                   | 5                 | E           |          |

Comments:

EIS (SURR) ID: 12150J-L Conc: 250-5000 ng/ml Exp. Date: 11/16/24 Inj. By: GH Ver. By: AG  
 SPIKE.1 ID: LCMS 02230 Conc: VARIED Exp. Date: 04/04/24 Inj. By: GH Ver. By: AG  
 SPIKE.2 ID: \_\_\_\_\_ Conc: \_\_\_\_\_ Exp. Date: \_\_\_\_\_ Inj. By: \_\_\_\_\_ Ver. By: \_\_\_\_\_  
 NIS (ISTD) ID: 12174 C-E Conc: 250-1000 ng/ml Exp. Date: 12/04/24 Inj. By: AL Ver. By: JR

TurboVap Temp (Therm ID): \_\_\_\_\_ N-Evap Temp (Therm ID): \_\_\_\_\_  
 Observed Temp °C: \_\_\_\_\_ Corr. Temp °C: \_\_\_\_\_ Observed Temp °C: \_\_\_\_\_ Corr. Temp °C: \_\_\_\_\_

Methanol Lot # 232689 1% NH4OH MeOH PF751 SPE Lot # 604-0-07  
 Water Lot# OP1 0.3M Formic Acid PF749 Syringe filter Lot # \_\_\_\_\_  
 Acetic Acid# 194003 3% NH4OH Sol \_\_\_\_\_ pH paper Lot# 205423  
 0.1M Formic PF745 5% Formic Acid \_\_\_\_\_ Carbon Lot# 99687

Relinquished By: [Signature]  
 Accepted By: [Signature]

Date: 12/07/23  
 Date: 12/08/23

1633 AQ extraction 042222.xls NF

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