The results set forth herein are provided by SGS North America Inc.

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*Automated Report*

Technical Report for

AECOM, INC.

N6274223F0104 RH Fire Suppression System

60697810

SGS Job Number: FC6097

Sampling Date: 05/15/23

Report to:

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Total number of pages in report: 45

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.

Norm Farmer
Technical Director

Client Service contact: Elvin Kumar 407-425-6700

Certifications: FL(E83510), LA(03051), KS(E-10327), NC(573), NJ(FL002), NY(12022), SC(96038001) DoD ELAP(ANAB L2229), AZ(AZ0806), CA(2937), TX(T104704404), PA(68-03573), VA(460177), AL, AK, AR, CT, IA, KY, MA, MI. MS, ND, NH, NV, OK, OR, IL, UT, VT, WA, WI, WV

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SGS North America Inc.

# Sample Summary

AECOM, INC.

**Job No:** FC6097

N6274223F0104 RH Fire Suppression System
Project No: 60697810

| Sample Number | Collected Date | Time | By | Received | Matrix Code | Type | Client Sample ID |
|---|---|---|---|---|---|---|---|
| FC6097-1 | 05/15/23 | 09:40 | OSNM | 05/16/23 | AQ | Ground Water | AF-RHMW04-WGN01LF-2305W3 |
| FC6097-2 | 05/15/23 | 11:10 | OSNM | 05/16/23 | AQ | Ground Water | AF-RHMW06-WGN01LF-2305W3 |
| FC6097-3 | 05/15/23 | 09:23 | RS | 05/16/23 | AQ | Ground Water | AF-RHMW12A-WGN01LF-2305W3 |
| FC6097-4 | 05/15/23 | 09:23 | RS | 05/16/23 | AQ | Ground Water | AF-RHMW12A-WGFD01LF-2305W3 |
| FC6097-5 | 05/15/23 | 11:38 | RS | 05/16/23 | AQ | Ground Water | AF-RHMW16-WGN01LF-2305W3 |

# SAMPLE DELIVERY GROUP CASE NARRATIVE

**Client:** AECOM, INC. **Job No:** FC6097

**Site:** N6274223F0104 RH Fire Suppression System **Report Date:** 5/23/2023 11:40:35 AM

On 05/16/2023, 5 Sample(s), 0 Trip Blank(s) and 0 Field Blank(s) were received at SGS North America Inc - Orlando. at a maximum corrected temperature of 3.4 C. Samples were intact and chemically preserved, unless noted below. A SGS North America Inc. - Orlando Job Number of FC6097 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:** OP96921

Sample(s) FC5594-2MS, FC5594-2MSD were used as the QC samples indicated.

Blank Spike Recovery(s) for 3:3 Fluorotelomer carboxylate, PFMPA are outside control limits.

OP96921-BS for 13C4-PFBA: Outside control limits.

FC6097-1 for PFMPA: Associated BS recovery outside control limits; LLBS recovery was within control limits and sample was ND.

FC6097-1 for 3:3 Fluorotelomer carboxylate: Associated BS recovery outside control limits; LLBS recovery was within control limits and sample was ND.

FC6097-2 for PFMPA: Associated BS recovery outside control limits; LLBS recovery was within control limits and sample was ND.

FC6097-2 for 3:3 Fluorotelomer carboxylate: Associated BS recovery outside control limits; LLBS recovery was within control limits and sample was ND.

FC6097-3 for 3:3 Fluorotelomer carboxylate: Associated BS recovery outside control limits; LLBS recovery was within control limits and sample was ND.

FC6097-3 for PFMPA: Associated BS recovery outside control limits; LLBS recovery was within control limits and sample was ND.

FC6097-4 for 3:3 Fluorotelomer carboxylate: Associated BS recovery outside control limits; LLBS recovery was within control limits and sample was ND.

FC6097-4 for PFMPA: Associated BS recovery outside control limits; LLBS recovery was within control limits and sample was ND.

FC6097-5 for 3:3 Fluorotelomer carboxylate: Associated BS recovery outside control limits; LLBS recovery was within control limits and sample was ND.

FC6097-5 for PFMPA: Associated BS recovery outside control limits; LLBS recovery was within control limits and sample was ND.

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:

_____

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

# Summary of Hits

**Job Number:** FC6097
**Account:** AECOM, INC.
**Project:** N6274223F0104 RH Fire Suppression System
**Collected:** 05/15/23



| Lab Sample ID / Analyte | Client Sample ID | Result/ Qual | LOQ | LOD | Units | Method |
|---|---|---|---|---|---|---|
| **FC6097-1** | **AF-RHMW04-WGN01LF-2305W3** | | | | | |
| No hits reported in this sample. | | | | | | |
| **FC6097-2** | **AF-RHMW06-WGN01LF-2305W3** | | | | | |
| No hits reported in this sample. | | | | | | |
| **FC6097-3** | **AF-RHMW12A-WGN01LF-2305W3** | | | | | |
| Perfluoropentanoic acid | | 3.2 J | 7.4 | 1.9 | ng/l | EPA DRAFT 1633 |
| Perfluorohexanoic acid | | 0.98 J | 3.7 | 1.9 | ng/l | EPA DRAFT 1633 |
| **FC6097-4** | **AF-RHMW12A-WGFD01LF-2305W3** | | | | | |
| Perfluoropentanoic acid | | 3.1 J | 7.4 | 1.9 | ng/l | EPA DRAFT 1633 |
| Perfluorohexanoic acid | | 1.0 J | 3.7 | 1.9 | ng/l | EPA DRAFT 1633 |
| **FC6097-5** | **AF-RHMW16-WGN01LF-2305W3** | | | | | |
| No hits reported in this sample. | | | | | | |

## Sample Results

Report of Analysis

# Report of Analysis





**Client Sample ID:** AF-RHMW04-WGN01LF-2305W3
**Lab Sample ID:** FC6097-1
**Matrix:** AQ - Ground Water
**Method:** EPA DRAFT 1633 EPA 1633 DRAFT
**Project:** N6274223F0104 RH Fire Suppression System

**Date Sampled:** 05/15/23
**Date Received:** 05/16/23
**Percent Solids:** n/a

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | 6Q18132.D | 1 | 05/19/23 14:18 | MV | 05/17/23 11:00 | OP96921 | S6Q272 |
| Run #2 | | | | | | | |

| | Initial Volume | Final Volume |
|---|---|---|
| Run #1 | 570 ml | 5.0 ml |
| Run #2 | | |

| CAS No. | Compound | Result | LOQ | LOD | DL | Units | Q |
|---|---|---|---|---|---|---|---|
| **PERFLUOROALKYL CARBOXYLIC ACIDS** | | | | | | | |
| 375-22-4 | Perfluorobutanoic acid | 3.5 U | 14 | 3.5 | 1.7 | ng/l | |
| 2706-90-3 | Perfluoropentanoic acid | 1.8 U | 7.0 | 1.8 | 0.82 | ng/l | |
| 307-24-4 | Perfluorohexanoic acid | 1.8 U | 3.5 | 1.8 | 0.44 | ng/l | |
| 375-85-9 | Perfluoroheptanoic acid | 1.8 U | 3.5 | 1.8 | 0.44 | ng/l | |
| 335-67-1 | Perfluorooctanoic acid | 0.88 U | 3.5 | 0.88 | 0.44 | ng/l | |
| 375-95-1 | Perfluorononanoic acid | 1.8 U | 3.5 | 1.8 | 0.54 | ng/l | |
| 335-76-2 | Perfluorodecanoic acid | 1.8 U | 3.5 | 1.8 | 0.44 | ng/l | |
| 2058-94-8 | Perfluoroundecanoic acid | 1.8 U | 3.5 | 1.8 | 0.53 | ng/l | |
| 307-55-1 | Perfluorododecanoic acid | 1.8 U | 3.5 | 1.8 | 0.53 | ng/l | |
| 72629-94-8 | Perfluorotridecanoic acid | 1.8 U | 3.5 | 1.8 | 0.74 | ng/l | |
| 376-06-7 | Perfluorotetradecanoic acid | 1.8 U | 3.5 | 1.8 | 0.44 | ng/l | |
| **PERFLUOROALKYL SULFONIC ACIDS** | | | | | | | |
| 375-73-5 | Perfluorobutanesulfonic acid | 1.8 U | 3.5 | 1.8 | 0.44 | ng/l | |
| 2706-91-4 | Perfluoropentanesulfonic acid | 3.5 U | 4.4 | 3.5 | 0.98 | ng/l | |
| 355-46-4 | Perfluorohexanesulfonic acid | 1.8 U | 3.5 | 1.8 | 0.61 | ng/l | |
| 375-92-8 | Perfluoroheptanesulfonic acid | 1.8 U | 3.5 | 1.8 | 0.44 | ng/l | |
| 1763-23-1 | Perfluorooctanesulfonic acid | 1.8 U | 3.5 | 1.8 | 0.47 | ng/l | |
| 68259-12-1 | Perfluorononanesulfonic acid | 1.8 U | 3.5 | 1.8 | 0.50 | ng/l | |
| 335-77-3 | Perfluorodecanesulfonic acid | 1.8 U | 3.5 | 1.8 | 0.56 | ng/l | |
| 79780-39-5 | Perfluorododecanesulfonic aci | 3.5 U | 4.4 | 3.5 | 1.0 | ng/l | |
| **FLUOROTELOMER SULFONIC ACIDS** | | | | | | | |
| 757124-72-4 | 4:2 Fluorotelomer sulfonate | 7.0 U | 18 | 7.0 | 2.8 | ng/l | |
| 27619-97-2 | 6:2 Fluorotelomer sulfonate | 7.0 U | 18 | 7.0 | 3.0 | ng/l | |
| 39108-34-4 | 8:2 Fluorotelomer sulfonate | 7.0 U | 18 | 7.0 | 3.6 | ng/l | |
| **PERFLUOROOCTANE SULFONAMIDES** | | | | | | | |
| 754-91-6 | PFOSA | 1.8 U | 3.5 | 1.8 | 0.59 | ng/l | |
| 31506-32-8 | MeFOSA | 3.5 U | 7.0 | 3.5 | 0.88 | ng/l | |
| 4151-50-2 | EtFOSA | 3.5 U | 7.0 | 3.5 | 0.88 | 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-2305W3 | | |
| **Lab Sample ID:** | FC6097-1 | **Date Sampled:** | 05/15/23 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 05/16/23 |
| **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 |
|---|---|---|---|---|---|---|---|
| **PERFLUOROOCTANE SULFONAMIDOACETIC ACIDS** | | | | | | | |
| 2355-31-9 | MeFOSAA | 3.5 U | 4.4 | 3.5 | 0.88 | ng/l | |
| 2991-50-6 | EtFOSAA | 3.5 U | 4.4 | 3.5 | 1.2 | ng/l | |
| **PERFLUOROOCTANE SULFONAMIDO ETHANOLS** | | | | | | | |
| 24448-09-7 | MeFOSE | 18 U | 35 | 18 | 3.8 | ng/l | |
| 1691-99-2 | EtFOSE | 18 U | 35 | 18 | 6.5 | ng/l | |
| **PER and POLYFLUOROETHER CARBOXYLIC ACIDS** | | | | | | | |
| 13252-13-6 | HFPO-DA (GenX) | 1.8 U | 3.5 | 1.8 | 0.88 | ng/l | |
| 919005-14-4 | ADONA | 3.5 U | 7.0 | 3.5 | 1.6 | ng/l | |
| 377-73-1 | PFMPA [a] | 1.8 U | 7.0 | 1.8 | 0.88 | ng/l | |
| 863090-89-5 | PFMBA | 3.5 U | 7.0 | 3.5 | 1.0 | ng/l | |
| 151772-58-6 | NFDHA | 3.5 U | 7.0 | 3.5 | 1.1 | ng/l | |
| **PER and POLYFLUOROETHER SULFONIC ACIDS** | | | | | | | |
| 756426-58-1 | 9Cl-PF3ONS (F-53B Major) | 3.5 U | 7.0 | 3.5 | 1.2 | ng/l | |
| 763051-92-9 | 11Cl-PF3OUdS (F-53B Minor) | 3.5 U | 7.0 | 3.5 | 1.5 | ng/l | |
| 113507-82-7 | PFEESA | 1.8 U | 7.0 | 1.8 | 0.68 | ng/l | |
| **FLUOROTELOMER CARBOXYLIC ACIDS** | | | | | | | |
| 356-02-5 | 3:3 Fluorotelomer carboxylat [a] | 8.8 U | 18 | 8.8 | 4.0 | ng/l | |
| 914637-49-3 | 5:3 Fluorotelomer carboxylate | 18 U | 88 | 18 | 7.7 | ng/l | |
| 812-70-4 | 7:3 Fluorotelomer carboxylate | 18 U | 88 | 18 | 6.9 | ng/l | |

| CAS No. | ID Standard Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| | 13C4-PFBA | 86% | | 20-150% |
| | 13C5-PFPeA | 92% | | 20-150% |
| | 13C5-PFHxA | 90% | | 20-150% |
| | 13C4-PFHpA | 94% | | 20-150% |
| | 13C8-PFOA | 91% | | 20-150% |
| | 13C9-PFNA | 88% | | 20-150% |
| | 13C6-PFDA | 75% | | 20-150% |
| | 13C7-PFUnDA | 73% | | 20-150% |
| | 13C2-PFDoDA | 68% | | 20-150% |
| | 13C2-PFTeDA | 63% | | 20-150% |
| | 13C3-PFBS | 90% | | 20-150% |
| | 13C3-PFHxS | 92% | | 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





| | | | |
|---|---|---|---|
| **Client Sample ID:** | AF-RHMW04-WGN01LF-2305W3 | | |
| **Lab Sample ID:** | FC6097-1 | **Date Sampled:** | 05/15/23 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 05/16/23 |
| **Method:** | EPA DRAFT 1633 EPA 1633 DRAFT | **Percent Solids:** | n/a |
| **Project:** | N6274223F0104 RH Fire Suppression System | | |

| CAS No. | ID Standard Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| | 13C8-PFOS | 89% | | 20-150% |
| | 13C8-FOSA | 69% | | 20-150% |
| | d3-MeFOSA | 64% | | 20-150% |
| | d5-EtFOSA | 70% | | 20-150% |
| | d3-MeFOSAA | 95% | | 20-150% |
| | d5-EtFOSAA | 89% | | 20-150% |
| | d7-MeFOSE | 59% | | 20-150% |
| | d9-EtFOSE | 66% | | 20-150% |
| | 13C2-4:2FTS | 117% | | 20-180% |
| | 13C2-6:2FTS | 122% | | 20-180% |
| | 13C2-8:2FTS | 108% | | 20-180% |
| | 13C3-HFPO-DA | 94% | | 20-150% |

(a) Associated BS recovery outside control limits; LLBS recovery was within control limits and sample was ND.

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-2305W3 | | |
| **Lab Sample ID:** | FC6097-2 | **Date Sampled:** | 05/15/23 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 05/16/23 |
| **Method:** | EPA DRAFT 1633 EPA 1633 DRAFT | **Percent Solids:** | n/a |
| **Project:** | N6274223F0104 RH Fire Suppression System | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | 6Q18133.D | 1 | 05/19/23 14:33 | MV | 05/17/23 11:00 | OP96921 | S6Q272 |
| Run #2 | | | | | | | |

| | Initial Volume | Final Volume |
|---|---|---|
| Run #1 | 530 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 | 7.5 | 1.9 | 0.89 | ng/l | |
| 307-24-4 | Perfluorohexanoic acid | 1.9 U | 3.8 | 1.9 | 0.47 | ng/l | |
| 375-85-9 | Perfluoroheptanoic acid | 1.9 U | 3.8 | 1.9 | 0.47 | ng/l | |
| 335-67-1 | Perfluorooctanoic acid | 0.94 U | 3.8 | 0.94 | 0.47 | ng/l | |
| 375-95-1 | Perfluorononanoic acid | 1.9 U | 3.8 | 1.9 | 0.58 | ng/l | |
| 335-76-2 | Perfluorodecanoic acid | 1.9 U | 3.8 | 1.9 | 0.47 | ng/l | |
| 2058-94-8 | Perfluoroundecanoic acid | 1.9 U | 3.8 | 1.9 | 0.57 | ng/l | |
| 307-55-1 | Perfluorododecanoic acid | 1.9 U | 3.8 | 1.9 | 0.57 | ng/l | |
| 72629-94-8 | Perfluorotridecanoic acid | 1.9 U | 3.8 | 1.9 | 0.79 | ng/l | |
| 376-06-7 | Perfluorotetradecanoic acid | 1.9 U | 3.8 | 1.9 | 0.47 | ng/l | |
| **PERFLUOROALKYL SULFONIC ACIDS** | | | | | | | |
| 375-73-5 | Perfluorobutanesulfonic acid | 1.9 U | 3.8 | 1.9 | 0.47 | ng/l | |
| 2706-91-4 | Perfluoropentanesulfonic acid | 3.8 U | 4.7 | 3.8 | 1.1 | ng/l | |
| 355-46-4 | Perfluorohexanesulfonic acid | 1.9 U | 3.8 | 1.9 | 0.66 | ng/l | |
| 375-92-8 | Perfluoroheptanesulfonic acid | 1.9 U | 3.8 | 1.9 | 0.47 | ng/l | |
| 1763-23-1 | Perfluorooctanesulfonic acid | 1.9 U | 3.8 | 1.9 | 0.51 | ng/l | |
| 68259-12-1 | Perfluorononanesulfonic acid | 1.9 U | 3.8 | 1.9 | 0.54 | ng/l | |
| 335-77-3 | Perfluorodecanesulfonic acid | 1.9 U | 3.8 | 1.9 | 0.60 | ng/l | |
| 79780-39-5 | Perfluorododecanesulfonic aci | 3.8 U | 4.7 | 3.8 | 1.1 | ng/l | |
| **FLUOROTELOMER SULFONIC ACIDS** | | | | | | | |
| 757124-72-4 | 4:2 Fluorotelomer sulfonate | 7.5 U | 19 | 7.5 | 3.0 | ng/l | |
| 27619-97-2 | 6:2 Fluorotelomer sulfonate | 7.5 U | 19 | 7.5 | 3.3 | ng/l | |
| 39108-34-4 | 8:2 Fluorotelomer sulfonate | 7.5 U | 19 | 7.5 | 3.9 | ng/l | |
| **PERFLUOROOCTANE SULFONAMIDES** | | | | | | | |
| 754-91-6 | PFOSA | 1.9 U | 3.8 | 1.9 | 0.63 | ng/l | |
| 31506-32-8 | MeFOSA | 3.8 U | 7.5 | 3.8 | 0.94 | ng/l | |
| 4151-50-2 | EtFOSA | 3.8 U | 7.5 | 3.8 | 0.94 | 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-2305W3 | | |
| **Lab Sample ID:** | FC6097-2 | **Date Sampled:** | 05/15/23 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 05/16/23 |
| **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 |
|---|---|---|---|---|---|---|---|
| **PERFLUOROOCTANE SULFONAMIDOACETIC ACIDS** | | | | | | | |
| 2355-31-9 | MeFOSAA | 3.8 U | 4.7 | 3.8 | 0.94 | ng/l | |
| 2991-50-6 | EtFOSAA | 3.8 U | 4.7 | 3.8 | 1.3 | ng/l | |
| **PERFLUOROOCTANE SULFONAMIDO ETHANOLS** | | | | | | | |
| 24448-09-7 | MeFOSE | 19 U | 38 | 19 | 4.1 | ng/l | |
| 1691-99-2 | EtFOSE | 19 U | 38 | 19 | 7.0 | ng/l | |
| **PER and POLYFLUOROETHER CARBOXYLIC ACIDS** | | | | | | | |
| 13252-13-6 | HFPO-DA (GenX) | 1.9 U | 3.8 | 1.9 | 0.94 | ng/l | |
| 919005-14-4 | ADONA | 3.8 U | 7.5 | 3.8 | 1.8 | ng/l | |
| 377-73-1 | PFMPA [a] | 1.9 U | 7.5 | 1.9 | 0.94 | ng/l | |
| 863090-89-5 | PFMBA | 3.8 U | 7.5 | 3.8 | 1.1 | ng/l | |
| 151772-58-6 | NFDHA | 3.8 U | 7.5 | 3.8 | 1.1 | ng/l | |
| **PER and POLYFLUOROETHER SULFONIC ACIDS** | | | | | | | |
| 756426-58-1 | 9Cl-PF3ONS (F-53B Major) | 3.8 U | 7.5 | 3.8 | 1.3 | ng/l | |
| 763051-92-9 | 11Cl-PF3OUdS (F-53B Minor) | 3.8 U | 7.5 | 3.8 | 1.7 | ng/l | |
| 113507-82-7 | PFEESA | 1.9 U | 7.5 | 1.9 | 0.74 | ng/l | |
| **FLUOROTELOMER CARBOXYLIC ACIDS** | | | | | | | |
| 356-02-5 | 3:3 Fluorotelomer carboxylat [a] | 9.4 U | 19 | 9.4 | 4.3 | ng/l | |
| 914637-49-3 | 5:3 Fluorotelomer carboxylate | 19 U | 94 | 19 | 8.2 | ng/l | |
| 812-70-4 | 7:3 Fluorotelomer carboxylate | 19 U | 94 | 19 | 7.4 | ng/l | |

| CAS No. | ID Standard Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| | 13C4-PFBA | 94% | | 20-150% |
| | 13C5-PFPeA | 93% | | 20-150% |
| | 13C5-PFHxA | 93% | | 20-150% |
| | 13C4-PFHpA | 96% | | 20-150% |
| | 13C8-PFOA | 98% | | 20-150% |
| | 13C9-PFNA | 91% | | 20-150% |
| | 13C6-PFDA | 84% | | 20-150% |
| | 13C7-PFUnDA | 72% | | 20-150% |
| | 13C2-PFDoDA | 67% | | 20-150% |
| | 13C2-PFTeDA | 59% | | 20-150% |
| | 13C3-PFBS | 98% | | 20-150% |
| | 13C3-PFHxS | 89% | | 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





| | | | |
|---|---|---|---|
| **Client Sample ID:** | AF-RHMW06-WGN01LF-2305W3 | | |
| **Lab Sample ID:** | FC6097-2 | **Date Sampled:** | 05/15/23 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 05/16/23 |
| **Method:** | EPA DRAFT 1633 EPA 1633 DRAFT | **Percent Solids:** | n/a |
| **Project:** | N6274223F0104 RH Fire Suppression System | | |

| CAS No. | ID Standard Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| | 13C8-PFOS | 83% | | 20-150% |
| | 13C8-FOSA | 76% | | 20-150% |
| | d3-MeFOSA | 61% | | 20-150% |
| | d5-EtFOSA | 66% | | 20-150% |
| | d3-MeFOSAA | 89% | | 20-150% |
| | d5-EtFOSAA | 85% | | 20-150% |
| | d7-MeFOSE | 58% | | 20-150% |
| | d9-EtFOSE | 64% | | 20-150% |
| | 13C2-4:2FTS | 116% | | 20-180% |
| | 13C2-6:2FTS | 115% | | 20-180% |
| | 13C2-8:2FTS | 114% | | 20-180% |
| | 13C3-HFPO-DA | 93% | | 20-150% |

(a) Associated BS recovery outside control limits; LLBS recovery was within control limits and sample was ND.

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-RHMW12A-WGN01LF-2305W3
**Lab Sample ID:** FC6097-3
**Matrix:** AQ - Ground Water
**Method:** EPA DRAFT 1633 EPA 1633 DRAFT
**Project:** N6274223F0104 RH Fire Suppression System

**Date Sampled:** 05/15/23
**Date Received:** 05/16/23
**Percent Solids:** n/a

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | 6Q18134.D | 1 | 05/19/23 14:47 | MV | 05/17/23 11:00 | OP96921 | S6Q272 |
| Run #2 | | | | | | | |

| | Initial Volume | Final Volume |
|---|---|---|
| Run #1 | 540 ml | 5.0 ml |
| Run #2 | | |

| CAS No. | Compound | Result | LOQ | LOD | DL | Units | Q |
|---|---|---|---|---|---|---|---|
| **PERFLUOROALKYL CARBOXYLIC ACIDS** | | | | | | | |
| 375-22-4 | Perfluorobutanoic acid | 3.7 U | 15 | 3.7 | 1.8 | ng/l | |
| 2706-90-3 | Perfluoropentanoic acid | 3.2 | 7.4 | 1.9 | 0.87 | ng/l | J |
| 307-24-4 | Perfluorohexanoic acid | 0.98 | 3.7 | 1.9 | 0.46 | ng/l | J |
| 375-85-9 | Perfluoroheptanoic acid | 1.9 U | 3.7 | 1.9 | 0.46 | ng/l | |
| 335-67-1 | Perfluorooctanoic acid | 0.93 U | 3.7 | 0.93 | 0.46 | ng/l | |
| 375-95-1 | Perfluorononanoic acid | 1.9 U | 3.7 | 1.9 | 0.56 | ng/l | |
| 335-76-2 | Perfluorodecanoic acid | 1.9 U | 3.7 | 1.9 | 0.46 | ng/l | |
| 2058-94-8 | Perfluoroundecanoic acid | 1.9 U | 3.7 | 1.9 | 0.56 | ng/l | |
| 307-55-1 | Perfluorododecanoic acid | 1.9 U | 3.7 | 1.9 | 0.56 | ng/l | |
| 72629-94-8 | Perfluorotridecanoic acid | 1.9 U | 3.7 | 1.9 | 0.78 | ng/l | |
| 376-06-7 | Perfluorotetradecanoic acid | 1.9 U | 3.7 | 1.9 | 0.46 | ng/l | |
| **PERFLUOROALKYL SULFONIC ACIDS** | | | | | | | |
| 375-73-5 | Perfluorobutanesulfonic acid | 1.9 U | 3.7 | 1.9 | 0.46 | ng/l | |
| 2706-91-4 | Perfluoropentanesulfonic acid | 3.7 U | 4.6 | 3.7 | 1.0 | ng/l | |
| 355-46-4 | Perfluorohexanesulfonic acid | 1.9 U | 3.7 | 1.9 | 0.65 | ng/l | |
| 375-92-8 | Perfluoroheptanesulfonic acid | 1.9 U | 3.7 | 1.9 | 0.46 | ng/l | |
| 1763-23-1 | Perfluorooctanesulfonic acid | 1.9 U | 3.7 | 1.9 | 0.50 | ng/l | |
| 68259-12-1 | Perfluorononanesulfonic acid | 1.9 U | 3.7 | 1.9 | 0.53 | ng/l | |
| 335-77-3 | Perfluorodecanesulfonic acid | 1.9 U | 3.7 | 1.9 | 0.59 | ng/l | |
| 79780-39-5 | Perfluorododecanesulfonic aci | 3.7 U | 4.6 | 3.7 | 1.1 | ng/l | |
| **FLUOROTELOMER SULFONIC ACIDS** | | | | | | | |
| 757124-72-4 | 4:2 Fluorotelomer sulfonate | 7.4 U | 19 | 7.4 | 3.0 | ng/l | |
| 27619-97-2 | 6:2 Fluorotelomer sulfonate | 7.4 U | 19 | 7.4 | 3.2 | ng/l | |
| 39108-34-4 | 8:2 Fluorotelomer sulfonate | 7.4 U | 19 | 7.4 | 3.8 | ng/l | |
| **PERFLUOROOCTANE SULFONAMIDES** | | | | | | | |
| 754-91-6 | PFOSA | 1.9 U | 3.7 | 1.9 | 0.62 | ng/l | |
| 31506-32-8 | MeFOSA | 3.7 U | 7.4 | 3.7 | 0.93 | ng/l | |
| 4151-50-2 | EtFOSA | 3.7 U | 7.4 | 3.7 | 0.93 | 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-RHMW12A-WGN01LF-2305W3 | | |
| **Lab Sample ID:** | FC6097-3 | **Date Sampled:** | 05/15/23 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 05/16/23 |
| **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 |
|---|---|---|---|---|---|---|---|
| **PERFLUOROOCTANE SULFONAMIDOACETIC ACIDS** | | | | | | | |
| 2355-31-9 | MeFOSAA | 3.7 U | 4.6 | 3.7 | 0.93 | ng/l | |
| 2991-50-6 | EtFOSAA | 3.7 U | 4.6 | 3.7 | 1.2 | ng/l | |
| **PERFLUOROOCTANE SULFONAMIDO ETHANOLS** | | | | | | | |
| 24448-09-7 | MeFOSE | 19 U | 37 | 19 | 4.1 | ng/l | |
| 1691-99-2 | EtFOSE | 19 U | 37 | 19 | 6.9 | ng/l | |
| **PER and POLYFLUOROETHER CARBOXYLIC ACIDS** | | | | | | | |
| 13252-13-6 | HFPO-DA (GenX) | 1.9 U | 3.7 | 1.9 | 0.93 | ng/l | |
| 919005-14-4 | ADONA | 3.7 U | 7.4 | 3.7 | 1.7 | ng/l | |
| 377-73-1 | PFMPA [a] | 1.9 U | 7.4 | 1.9 | 0.93 | ng/l | |
| 863090-89-5 | PFMBA | 3.7 U | 7.4 | 3.7 | 1.1 | ng/l | |
| 151772-58-6 | NFDHA | 3.7 U | 7.4 | 3.7 | 1.1 | ng/l | |
| **PER and POLYFLUOROETHER SULFONIC ACIDS** | | | | | | | |
| 756426-58-1 | 9Cl-PF3ONS (F-53B Major) | 3.7 U | 7.4 | 3.7 | 1.3 | ng/l | |
| 763051-92-9 | 11Cl-PF3OUdS (F-53B Minor) | 3.7 U | 7.4 | 3.7 | 1.6 | ng/l | |
| 113507-82-7 | PFEESA | 1.9 U | 7.4 | 1.9 | 0.72 | ng/l | |
| **FLUOROTELOMER CARBOXYLIC ACIDS** | | | | | | | |
| 356-02-5 | 3:3 Fluorotelomer carboxylat [a] | 9.3 U | 19 | 9.3 | 4.2 | ng/l | |
| 914637-49-3 | 5:3 Fluorotelomer carboxylate | 19 U | 93 | 19 | 8.1 | ng/l | |
| 812-70-4 | 7:3 Fluorotelomer carboxylate | 19 U | 93 | 19 | 7.3 | ng/l | |

| CAS No. | ID Standard Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| | 13C4-PFBA | 45% | | 20-150% |
| | 13C5-PFPeA | 94% | | 20-150% |
| | 13C5-PFHxA | 93% | | 20-150% |
| | 13C4-PFHpA | 95% | | 20-150% |
| | 13C8-PFOA | 90% | | 20-150% |
| | 13C9-PFNA | 88% | | 20-150% |
| | 13C6-PFDA | 87% | | 20-150% |
| | 13C7-PFUnDA | 85% | | 20-150% |
| | 13C2-PFDoDA | 73% | | 20-150% |
| | 13C2-PFTeDA | 65% | | 20-150% |
| | 13C3-PFBS | 90% | | 20-150% |
| | 13C3-PFHxS | 90% | | 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





| | | | |
|---|---|---|---|
| **Client Sample ID:** | AF-RHMW12A-WGN01LF-2305W3 | | |
| **Lab Sample ID:** | FC6097-3 | **Date Sampled:** | 05/15/23 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 05/16/23 |
| **Method:** | EPA DRAFT 1633 EPA 1633 DRAFT | **Percent Solids:** | n/a |
| **Project:** | N6274223F0104 RH Fire Suppression System | | |

| CAS No. | ID Standard Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| | 13C8-PFOS | 88% | | 20-150% |
| | 13C8-FOSA | 82% | | 20-150% |
| | d3-MeFOSA | 70% | | 20-150% |
| | d5-EtFOSA | 70% | | 20-150% |
| | d3-MeFOSAA | 99% | | 20-150% |
| | d5-EtFOSAA | 100% | | 20-150% |
| | d7-MeFOSE | 58% | | 20-150% |
| | d9-EtFOSE | 63% | | 20-150% |
| | 13C2-4:2FTS | 107% | | 20-180% |
| | 13C2-6:2FTS | 114% | | 20-180% |
| | 13C2-8:2FTS | 115% | | 20-180% |
| | 13C3-HFPO-DA | 93% | | 20-150% |

(a) Associated BS recovery outside control limits; LLBS recovery was within control limits and sample was ND.

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-RHMW12A-WGFD01LF-2305W3
**Lab Sample ID:** FC6097-4 **Date Sampled:** 05/15/23
**Matrix:** AQ - Ground Water **Date Received:** 05/16/23
**Method:** EPA DRAFT 1633 EPA 1633 DRAFT **Percent Solids:** n/a
**Project:** N6274223F0104 RH Fire Suppression System

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | 6Q18135.D | 1 | 05/19/23 15:02 | MV | 05/17/23 11:00 | OP96921 | S6Q272 |
| Run #2 | | | | | | | |

| | Initial Volume | Final Volume |
|---|---|---|
| Run #1 | 540 ml | 5.0 ml |
| Run #2 | | |

| CAS No. | Compound | Result | LOQ | LOD | DL | Units | Q |
|---|---|---|---|---|---|---|---|
| **PERFLUOROALKYL CARBOXYLIC ACIDS** | | | | | | | |
| 375-22-4 | Perfluorobutanoic acid | 3.7 U | 15 | 3.7 | 1.8 | ng/l | |
| 2706-90-3 | Perfluoropentanoic acid | 3.1 | 7.4 | 1.9 | 0.87 | ng/l | J |
| 307-24-4 | Perfluorohexanoic acid | 1.0 | 3.7 | 1.9 | 0.46 | ng/l | J |
| 375-85-9 | Perfluoroheptanoic acid | 1.9 U | 3.7 | 1.9 | 0.46 | ng/l | |
| 335-67-1 | Perfluorooctanoic acid | 0.93 U | 3.7 | 0.93 | 0.46 | ng/l | |
| 375-95-1 | Perfluorononanoic acid | 1.9 U | 3.7 | 1.9 | 0.56 | ng/l | |
| 335-76-2 | Perfluorodecanoic acid | 1.9 U | 3.7 | 1.9 | 0.46 | ng/l | |
| 2058-94-8 | Perfluoroundecanoic acid | 1.9 U | 3.7 | 1.9 | 0.56 | ng/l | |
| 307-55-1 | Perfluorododecanoic acid | 1.9 U | 3.7 | 1.9 | 0.56 | ng/l | |
| 72629-94-8 | Perfluorotridecanoic acid | 1.9 U | 3.7 | 1.9 | 0.78 | ng/l | |
| 376-06-7 | Perfluorotetradecanoic acid | 1.9 U | 3.7 | 1.9 | 0.46 | ng/l | |
| **PERFLUOROALKYL SULFONIC ACIDS** | | | | | | | |
| 375-73-5 | Perfluorobutanesulfonic acid | 1.9 U | 3.7 | 1.9 | 0.46 | ng/l | |
| 2706-91-4 | Perfluoropentanesulfonic acid | 3.7 U | 4.6 | 3.7 | 1.0 | ng/l | |
| 355-46-4 | Perfluorohexanesulfonic acid | 1.9 U | 3.7 | 1.9 | 0.65 | ng/l | |
| 375-92-8 | Perfluoroheptanesulfonic acid | 1.9 U | 3.7 | 1.9 | 0.46 | ng/l | |
| 1763-23-1 | Perfluorooctanesulfonic acid | 1.9 U | 3.7 | 1.9 | 0.50 | ng/l | |
| 68259-12-1 | Perfluorononanesulfonic acid | 1.9 U | 3.7 | 1.9 | 0.53 | ng/l | |
| 335-77-3 | Perfluorodecanesulfonic acid | 1.9 U | 3.7 | 1.9 | 0.59 | ng/l | |
| 79780-39-5 | Perfluorododecanesulfonic aci | 3.7 U | 4.6 | 3.7 | 1.1 | ng/l | |
| **FLUOROTELOMER SULFONIC ACIDS** | | | | | | | |
| 757124-72-4 | 4:2 Fluorotelomer sulfonate | 7.4 U | 19 | 7.4 | 3.0 | ng/l | |
| 27619-97-2 | 6:2 Fluorotelomer sulfonate | 7.4 U | 19 | 7.4 | 3.2 | ng/l | |
| 39108-34-4 | 8:2 Fluorotelomer sulfonate | 7.4 U | 19 | 7.4 | 3.8 | ng/l | |
| **PERFLUOROOCTANE SULFONAMIDES** | | | | | | | |
| 754-91-6 | PFOSA | 1.9 U | 3.7 | 1.9 | 0.62 | ng/l | |
| 31506-32-8 | MeFOSA | 3.7 U | 7.4 | 3.7 | 0.93 | ng/l | |
| 4151-50-2 | EtFOSA | 3.7 U | 7.4 | 3.7 | 0.93 | 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-RHMW12A-WGFD01LF-2305W3 | | |
| **Lab Sample ID:** | FC6097-4 | **Date Sampled:** | 05/15/23 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 05/16/23 |
| **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 |
|---|---|---|---|---|---|---|---|
| **PERFLUOROOCTANE SULFONAMIDOACETIC ACIDS** | | | | | | | |
| 2355-31-9 | MeFOSAA | 3.7 U | 4.6 | 3.7 | 0.93 | ng/l | |
| 2991-50-6 | EtFOSAA | 3.7 U | 4.6 | 3.7 | 1.2 | ng/l | |
| **PERFLUOROOCTANE SULFONAMIDO ETHANOLS** | | | | | | | |
| 24448-09-7 | MeFOSE | 19 U | 37 | 19 | 4.1 | ng/l | |
| 1691-99-2 | EtFOSE | 19 U | 37 | 19 | 6.9 | ng/l | |
| **PER and POLYFLUOROETHER CARBOXYLIC ACIDS** | | | | | | | |
| 13252-13-6 | HFPO-DA (GenX) | 1.9 U | 3.7 | 1.9 | 0.93 | ng/l | |
| 919005-14-4 | ADONA | 3.7 U | 7.4 | 3.7 | 1.7 | ng/l | |
| 377-73-1 | PFMPA [a] | 1.9 U | 7.4 | 1.9 | 0.93 | ng/l | |
| 863090-89-5 | PFMBA | 3.7 U | 7.4 | 3.7 | 1.1 | ng/l | |
| 151772-58-6 | NFDHA | 3.7 U | 7.4 | 3.7 | 1.1 | ng/l | |
| **PER and POLYFLUOROETHER SULFONIC ACIDS** | | | | | | | |
| 756426-58-1 | 9Cl-PF3ONS (F-53B Major) | 3.7 U | 7.4 | 3.7 | 1.3 | ng/l | |
| 763051-92-9 | 11Cl-PF3OUdS (F-53B Minor) | 3.7 U | 7.4 | 3.7 | 1.6 | ng/l | |
| 113507-82-7 | PFEESA | 1.9 U | 7.4 | 1.9 | 0.72 | ng/l | |
| **FLUOROTELOMER CARBOXYLIC ACIDS** | | | | | | | |
| 356-02-5 | 3:3 Fluorotelomer carboxylat [a] | 9.3 U | 19 | 9.3 | 4.2 | ng/l | |
| 914637-49-3 | 5:3 Fluorotelomer carboxylate | 19 U | 93 | 19 | 8.1 | ng/l | |
| 812-70-4 | 7:3 Fluorotelomer carboxylate | 19 U | 93 | 19 | 7.3 | ng/l | |

| CAS No. | ID Standard Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| | 13C4-PFBA | 57% | | 20-150% |
| | 13C5-PFPeA | 100% | | 20-150% |
| | 13C5-PFHxA | 99% | | 20-150% |
| | 13C4-PFHpA | 101% | | 20-150% |
| | 13C8-PFOA | 100% | | 20-150% |
| | 13C9-PFNA | 97% | | 20-150% |
| | 13C6-PFDA | 94% | | 20-150% |
| | 13C7-PFUnDA | 90% | | 20-150% |
| | 13C2-PFDoDA | 82% | | 20-150% |
| | 13C2-PFTeDA | 69% | | 20-150% |
| | 13C3-PFBS | 97% | | 20-150% |
| | 13C3-PFHxS | 94% | | 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





| | | | |
|---|---|---|---|
| **Client Sample ID:** | AF-RHMW12A-WGFD01LF-2305W3 | | |
| **Lab Sample ID:** | FC6097-4 | **Date Sampled:** | 05/15/23 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 05/16/23 |
| **Method:** | EPA DRAFT 1633 EPA 1633 DRAFT | **Percent Solids:** | n/a |
| **Project:** | N6274223F0104 RH Fire Suppression System | | |

| CAS No. | ID Standard Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| | 13C8-PFOS | 96% | | 20-150% |
| | 13C8-FOSA | 80% | | 20-150% |
| | d3-MeFOSA | 75% | | 20-150% |
| | d5-EtFOSA | 77% | | 20-150% |
| | d3-MeFOSAA | 110% | | 20-150% |
| | d5-EtFOSAA | 112% | | 20-150% |
| | d7-MeFOSE | 66% | | 20-150% |
| | d9-EtFOSE | 75% | | 20-150% |
| | 13C2-4:2FTS | 132% | | 20-180% |
| | 13C2-6:2FTS | 130% | | 20-180% |
| | 13C2-8:2FTS | 119% | | 20-180% |
| | 13C3-HFPO-DA | 98% | | 20-150% |

(a) Associated BS recovery outside control limits; LLBS recovery was within control limits and sample was ND.

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-RHMW16-WGN01LF-2305W3 | | |
| **Lab Sample ID:** | FC6097-5 | **Date Sampled:** | 05/15/23 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 05/16/23 |
| **Method:** | EPA DRAFT 1633 EPA 1633 DRAFT | **Percent Solids:** | n/a |
| **Project:** | N6274223F0104 RH Fire Suppression System | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | 6Q18136.D | 1 | 05/19/23 15:16 | MV | 05/17/23 11:00 | OP96921 | S6Q272 |
| Run #2 | | | | | | | |

| | Initial Volume | Final Volume |
|---|---|---|
| Run #1 | 530 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 | 7.5 | 1.9 | 0.89 | ng/l | |
| 307-24-4 | Perfluorohexanoic acid | 1.9 U | 3.8 | 1.9 | 0.47 | ng/l | |
| 375-85-9 | Perfluoroheptanoic acid | 1.9 U | 3.8 | 1.9 | 0.47 | ng/l | |
| 335-67-1 | Perfluorooctanoic acid | 0.94 U | 3.8 | 0.94 | 0.47 | ng/l | |
| 375-95-1 | Perfluorononanoic acid | 1.9 U | 3.8 | 1.9 | 0.58 | ng/l | |
| 335-76-2 | Perfluorodecanoic acid | 1.9 U | 3.8 | 1.9 | 0.47 | ng/l | |
| 2058-94-8 | Perfluoroundecanoic acid | 1.9 U | 3.8 | 1.9 | 0.57 | ng/l | |
| 307-55-1 | Perfluorododecanoic acid | 1.9 U | 3.8 | 1.9 | 0.57 | ng/l | |
| 72629-94-8 | Perfluorotridecanoic acid | 1.9 U | 3.8 | 1.9 | 0.79 | ng/l | |
| 376-06-7 | Perfluorotetradecanoic acid | 1.9 U | 3.8 | 1.9 | 0.47 | ng/l | |
| **PERFLUOROALKYL SULFONIC ACIDS** | | | | | | | |
| 375-73-5 | Perfluorobutanesulfonic acid | 1.9 U | 3.8 | 1.9 | 0.47 | ng/l | |
| 2706-91-4 | Perfluoropentanesulfonic acid | 3.8 U | 4.7 | 3.8 | 1.1 | ng/l | |
| 355-46-4 | Perfluorohexanesulfonic acid | 1.9 U | 3.8 | 1.9 | 0.66 | ng/l | |
| 375-92-8 | Perfluoroheptanesulfonic acid | 1.9 U | 3.8 | 1.9 | 0.47 | ng/l | |
| 1763-23-1 | Perfluorooctanesulfonic acid | 1.9 U | 3.8 | 1.9 | 0.51 | ng/l | |
| 68259-12-1 | Perfluorononanesulfonic acid | 1.9 U | 3.8 | 1.9 | 0.54 | ng/l | |
| 335-77-3 | Perfluorodecanesulfonic acid | 1.9 U | 3.8 | 1.9 | 0.60 | ng/l | |
| 79780-39-5 | Perfluorododecanesulfonic aci | 3.8 U | 4.7 | 3.8 | 1.1 | ng/l | |
| **FLUOROTELOMER SULFONIC ACIDS** | | | | | | | |
| 757124-72-4 | 4:2 Fluorotelomer sulfonate | 7.5 U | 19 | 7.5 | 3.0 | ng/l | |
| 27619-97-2 | 6:2 Fluorotelomer sulfonate | 7.5 U | 19 | 7.5 | 3.3 | ng/l | |
| 39108-34-4 | 8:2 Fluorotelomer sulfonate | 7.5 U | 19 | 7.5 | 3.9 | ng/l | |
| **PERFLUOROOCTANE SULFONAMIDES** | | | | | | | |
| 754-91-6 | PFOSA | 1.9 U | 3.8 | 1.9 | 0.63 | ng/l | |
| 31506-32-8 | MeFOSA | 3.8 U | 7.5 | 3.8 | 0.94 | ng/l | |
| 4151-50-2 | EtFOSA | 3.8 U | 7.5 | 3.8 | 0.94 | 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-RHMW16-WGN01LF-2305W3 | | |
| **Lab Sample ID:** | FC6097-5 | **Date Sampled:** | 05/15/23 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 05/16/23 |
| **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 |
|---|---|---|---|---|---|---|---|
| **PERFLUOROOCTANE SULFONAMIDOACETIC ACIDS** | | | | | | | |
| 2355-31-9 | MeFOSAA | 3.8 U | 4.7 | 3.8 | 0.94 | ng/l | |
| 2991-50-6 | EtFOSAA | 3.8 U | 4.7 | 3.8 | 1.3 | ng/l | |
| **PERFLUOROOCTANE SULFONAMIDO ETHANOLS** | | | | | | | |
| 24448-09-7 | MeFOSE | 19 U | 38 | 19 | 4.1 | ng/l | |
| 1691-99-2 | EtFOSE | 19 U | 38 | 19 | 7.0 | ng/l | |
| **PER and POLYFLUOROETHER CARBOXYLIC ACIDS** | | | | | | | |
| 13252-13-6 | HFPO-DA (GenX) | 1.9 U | 3.8 | 1.9 | 0.94 | ng/l | |
| 919005-14-4 | ADONA | 3.8 U | 7.5 | 3.8 | 1.8 | ng/l | |
| 377-73-1 | PFMPA [a] | 1.9 U | 7.5 | 1.9 | 0.94 | ng/l | |
| 863090-89-5 | PFMBA | 3.8 U | 7.5 | 3.8 | 1.1 | ng/l | |
| 151772-58-6 | NFDHA | 3.8 U | 7.5 | 3.8 | 1.1 | ng/l | |
| **PER and POLYFLUOROETHER SULFONIC ACIDS** | | | | | | | |
| 756426-58-1 | 9Cl-PF3ONS (F-53B Major) | 3.8 U | 7.5 | 3.8 | 1.3 | ng/l | |
| 763051-92-9 | 11Cl-PF3OUdS (F-53B Minor) | 3.8 U | 7.5 | 3.8 | 1.7 | ng/l | |
| 113507-82-7 | PFEESA | 1.9 U | 7.5 | 1.9 | 0.74 | ng/l | |
| **FLUOROTELOMER CARBOXYLIC ACIDS** | | | | | | | |
| 356-02-5 | 3:3 Fluorotelomer carboxylat [a] | 9.4 U | 19 | 9.4 | 4.3 | ng/l | |
| 914637-49-3 | 5:3 Fluorotelomer carboxylate | 19 U | 94 | 19 | 8.2 | ng/l | |
| 812-70-4 | 7:3 Fluorotelomer carboxylate | 19 U | 94 | 19 | 7.4 | ng/l | |

| CAS No. | ID Standard Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| | 13C4-PFBA | 81% | | 20-150% |
| | 13C5-PFPeA | 102% | | 20-150% |
| | 13C5-PFHxA | 106% | | 20-150% |
| | 13C4-PFHpA | 104% | | 20-150% |
| | 13C8-PFOA | 100% | | 20-150% |
| | 13C9-PFNA | 98% | | 20-150% |
| | 13C6-PFDA | 88% | | 20-150% |
| | 13C7-PFUnDA | 79% | | 20-150% |
| | 13C2-PFDoDA | 69% | | 20-150% |
| | 13C2-PFTeDA | 63% | | 20-150% |
| | 13C3-PFBS | 110% | | 20-150% |
| | 13C3-PFHxS | 105% | | 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





| | | | |
|---|---|---|---|
| **Client Sample ID:** | AF-RHMW16-WGN01LF-2305W3 | | |
| **Lab Sample ID:** | FC6097-5 | **Date Sampled:** | 05/15/23 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 05/16/23 |
| **Method:** | EPA DRAFT 1633 EPA 1633 DRAFT | **Percent Solids:** | n/a |
| **Project:** | N6274223F0104 RH Fire Suppression System | | |

| CAS No. | ID Standard Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| | 13C8-PFOS | 93% | | 20-150% |
| | 13C8-FOSA | 87% | | 20-150% |
| | d3-MeFOSA | 67% | | 20-150% |
| | d5-EtFOSA | 68% | | 20-150% |
| | d3-MeFOSAA | 85% | | 20-150% |
| | d5-EtFOSAA | 84% | | 20-150% |
| | d7-MeFOSE | 63% | | 20-150% |
| | d9-EtFOSE | 70% | | 20-150% |
| | 13C2-4:2FTS | 135% | | 20-180% |
| | 13C2-6:2FTS | 134% | | 20-180% |
| | 13C2-8:2FTS | 121% | | 20-180% |
| | 13C3-HFPO-DA | 103% | | 20-150% |

(a) Associated BS recovery outside control limits; LLBS recovery was within control limits and sample was ND.

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

Includes the following where applicable:

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

FC6097

COC #: 2305W3AFSG08

PAGE 1 OF 1

# SGS North America Inc - Orlando
## Chain of Custody

4405 Vineland Road, Suite C-15 Orlando, Fl 32811
TEL: 407-425-6700 FAX: 407-425-0707
www.sgs.com

SGS - ORLANDO JOB # :

SGS - ORLANDO Quote # | SKIFF #

**Client / Reporting Information**

Company Name: AECOM
Address: 1001 Bishop St. ste 1600
City: Honolulu State: HI Zip: 96813
Project Contact: Katie Abbott Email: katie.abbott@aecom.com
Project Manager: Watson Tanji Email: watson.tanji@aecom.com
Phone #: 303-796-4624 / 808-954-4512
Sampler(s) Name(s) (Printed)
Sampler 1: Olivia Shively Sampler 2: Nate Hagsten

**Project Information**

Project Name: N6274223F0104 RH Fire Suppression System
Street
City Honolulu State Hawaii
Project # 60697810
Fax #
Client Purchase Order #

**Analytical Information**

PFAS EPA Draft 1633

**Matrix Codes**

DW - Drinking Water
GW - Ground Water
WW - Water
SW - Surface Water
SO - Soil
SL - Sludge
OI - Oil
LIQ - Other Liquid
AIR - Air
SOL - Other Solid
WP - Wipe

| SGS Orlando Sample # | Field ID / Point of Collection | COLLECTION DATE | TIME | SAMPLED BY: | MATRIX | TOTAL # OF BOTTLES | OTHER | NONE | HCl | NaOH | HNO3 | H2SO4 | NaOH+ZnAc | DI WATER | MEOH | PFAS EPA Draft 1633 | LAB USE ONLY |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | AF-RHMW04-WGN01LF-2305W3 | 5/15/23 | 0940 | OS/NA | GW | 3 | | X | | | | | | | | X | |

INITIAL ASSESSMENT ZB
LABEL VERIFICATION ZB

**Turnaround Time ( Business days)**

10 Day (Business)
7 Day
5 Day
3 Day *RUSH*
2 Day *RUSH*
1 Day *RUSH*
Other
Approved By: / Date:
Rush T/A Data Available VIA Email or Lablink

**Data Deliverable Information**

- [ ] COMMERCIAL "A" (RESULTS ONLY)
- [ ] COMMERCIAL "B" (RESULTS PLUS QC)
- [ ] REDT1 (EPA LEVEL 3)
- [x] FULLT1 (EPA LEVEL 4)
- [x] EDD'S

**Comments / Remarks**

EDMS upload database: JBPHE
EDMS Coverage: AFFF Assessment Sampling GW
United AWB 016-17895393

Sample Custody must be documented below each time samples change possession, including courier delivery.

| | Relinquished by Sampler/Affiliation | Date Time: | Received By/Affiliation | Relinquished By/Affiliation | Date Time: | Received By/Affiliation |
|---|---|---|---|---|---|---|
| 1 | Olivia Shively/AECOM | 5/15/23 1203 | 2 Alex Edmonds AECOM | 3 Alex Edmonds | 5/15/23 1403 | 4 05/16/23 1440 |
| 5 | Relinquished by/Affiliation: United Cargo | Date Time: | 6 United Cargo | 7 | Date Time: | 8 |

Lab Use Only : Cooler Temperature(s) Celsius (corrected): 3.4IR1

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

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**FC6097: Chain of Custody**
**Page 1 of 5**

FC6097 COC #: 2305W3AFSG09

# SGS North America Inc - Orlando
## Chain of Custody

4405 Vineland Road, Suite C-15 Orlando, Fl 32811
TEL: 407-425-6700 FAX: 407-425-0707
www.sgs.com

SGS - ORLANDO JOB # : PAGE 1 OF 1

SGS - ORLANDO Quote # | SKIFF #

**Client / Reporting Information**

Company Name: AECOM
Address: 1001 Bishop St. ste 1600
City: Honolulu State: HI Zip: 96813
Project Contact: Katie Abbott Email: katie.abbott@aecom.com
Project Manager: Watson Tanji Email: watson.tanji@aecom.com
Phone #: 303-796-4624 / 808-954-4512
Sampler(s) Name(s) (Printed)
Sampler 1: O. Shively Sampler 2: N. Moyster

**Project Information**

Project Name: N6274223F0104 RH Fire Suppression System
Street
City: Honolulu State: Hawaii
Project # 60697810
Fax #
Client Purchase Order #

**Analytical Information**

PFAS EPA Draft 1633

**Matrix Codes**

DW - Drinking Water
GW - Ground Water
WW - Water
SW - Surface Water
SO - Soil
SL - Sludge
OI - Oil
LIQ - Other Liquid
AIR - Air
SOL - Other Solid
WP - Wipe

| SGS Orlando Sample # | Field ID / Point of Collection | COLLECTION DATE | COLLECTION TIME | SAMPLED BY: | MATRIX | TOTAL # OF BOTTLES | CONTAINER INFORMATION: OTHER | NONE | HCl | NaOH | HNO3 | H2SO4 | NaOH+ZnAc | DI WATER | MEOH | PFAS EPA Draft 1633 | LAB USE ONLY |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | AF-RHMW06-WGN01LF-2305W3 | 5/15/23 | 1110 (0944) (0945) | OS, NM | GW | 3 | | X | | | | | | | | X | |

**Turnaround Time ( Business days)**

10 Day (Business)
7 Day
5 Day
3 Day *RUSH*
2 Day *RUSH*
1 Day *RUSH*
Other
Approved By: / Date:
Rush T/A Data Available VIA Email or Lablink

**Data Deliverable Information**

- [ ] COMMERCIAL "A" (RESULTS ONLY)
- [ ] COMMERCIAL "B" (RESULTS PLUS QC)
- [ ] REDT1 (EPA LEVEL 3)
- [x] FULLT1 (EPA LEVEL 4)
- [x] EDD'S

**Comments / Remarks**

EDMS upload database: JBPHE
EDMS Coverage: AFFF Assessment Sampling GW
United AWB 016-17895393

Sample Custody must be documented below each time samples change possession, including courier delivery.

| | Relinquished by Sampler/Affiliation | Date Time: | Received By/Affiliation | Relinquished By/Affiliation | Date Time: | Received By/Affiliation |
|---|---|---|---|---|---|---|
| 1 | Oliv Shively | 5/15/23 1230 | 2 Alex Edmonds AEcom | 3 Alex Edmonds AEcom | 5/15/23 1700 | 4 05/16/23 1440 |
| 5 | Relinquished by/Affiliation: United Cargo | Date Time: | 6 Received By/Affiliation | 7 Relinquished By/Affiliation | Date Time: | 8 Received By/Affiliation |

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

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

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**FC6097: Chain of Custody**
**Page 2 of 5**

SGS

# SGS North America Inc - Orlando
## Chain of Custody

4405 Vineland Road, Suite C-15 Orlando, Fl 32811
TEL. 407-425-6700 FAX: 407-425-0707
www.sgs.com

FC6097 COC #: 2305W3AFSG05
SGS - ORLANDO JOB # : PAGE 1 OF 1

SGS - ORLANDO Quote # | SKIFF #

**Client / Reporting Information**

Company Name: AECOM
Address: 1001 Bishop St. ste 1600
City: Honolulu State: HI Zip: 96813
Project Contact: Katie Abbott Email: katie.abbott@aecom.com
Project Manager: Watson Tanji Email: watson.tanji@aecom.com
Phone #: 303-796-4624 / 808-954-4512
Sampler(s) Name(s) (Printed)
Sampler 1: Sampler 2:

**Project Information**

Project Name: N6274223F0104 RH Fire Suppression System
Street
City Honolulu State Hawaii
Project # 60697810
Fax #
Client Purchase Order #

**Analytical Information**

**Matrix Codes**

DW - Drinking Water
GW - Ground Water
WW - Water
SW - Surface Water
SO - Soil
SL- Sludge
OI - Oil
LIQ - Other Liquid
AIR - Air
SOL - Other Solid
WP - Wipe

| SGS Orlando Sample # | Field ID / Point of Collection | COLLECTION DATE | TIME | SAMPLED BY: | MATRIX | TOTAL # OF BOTTLES | OTHER | NONE | HCl | NaOH | HNO3 | H2SO4 | NAOH+ZNAC | DI WATER | MEOH | PFAS EPA Draft 1633 | LAB USE ONLY |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | AF-RHMW12A-WGN01LF-2305W3 | 5/15/23 | 0923 | | GW | 3 | | X | | | | | | | | X | |
| 4 | AF-RHMW12A-WGFD01LF-2305W3 | 5/15/23 | 0923 | | GW | 3 | | X | | | | | | | | X | |

**Turnaround Time ( Business days)**

10 Day (Business) Approved By: / Date:
7 Day
5 Day
3 Day *RUSH*
2 Day *RUSH*
1 Day *RUSH*
Other
Rush T/A Data Available VIA Email or Lablink

**Data Deliverable Information**

- [ ] COMMERCIAL "A" (RESULTS ONLY)
- [ ] COMMERCIAL "B" (RESULTS PLUS QC)
- [ ] REDT1 (EPA LEVEL 3)
- [x] FULLT1 (EPA LEVEL 4)
- [x] EDD'S

**Comments / Remarks**

EDMS upload database: JBPHE
EDMS Coverage: AFFF Assessment Sampling GW
United AWB 016-17895393

Sample Custody must be documented below each time samples change possession, including courier delivery.

| | Relinquished by Sampler/Affiliation | Date Time: | Received By/Affiliation | Relinquished By/Affiliation | Date Time: | Received By/Affiliation |
|---|---|---|---|---|---|---|
| 1 | Ryan Uchimoto | 5/15/23 1300 | 2 Alex Edwards AEcom | 3 Alex Edwards | 5/15/23 1640 | 4 05/16/23 1140 |
| 5 | United Cargo | Date Time: | 6 United Cargo | 7 | Date Time: | 8 |

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

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

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**FC6097: Chain of Custody**
**Page 3 of 5**

FC6097

# SGS North America Inc - Orlando
## Chain of Custody

4405 Vineland Road, Suite C-15 Orlando, Fl 32811
TEL: 407-425-6700 FAX: 407-425-0707
www.sgs.com

COC #: 2305W3AFSG06
PAGE 1 OF 1

SGS - ORLANDO JOB # :

| SGS - ORLANDO Quote # | SKIFF # |
|---|---|
| | |

**Client / Reporting Information**

Company Name: AECOM
Address: 1001 Bishop St. ste 1600
City: Honolulu State: HI Zip: 96813
Project Contact: Katie Abbott Email: katie.abbott@aecom.com
Project Manager: Watson Tanji Email: watson.tanji@aecom.com
Phone #: 303-796-4624 / 808-954-4512
Sampler(s) Name(s) (Printed)
Sampler 1: Sampler 2:

**Project Information**

Project Name: N6274223F0104 RH Fire Suppression System
Street
City Honolulu State Hawaii
Project # 60697810
Fax #
Client Purchase Order #

**Analytical Information**

**Matrix Codes**

DW - Drinking Water
GW - Ground Water
WW - Water
SW - Surface Water
SO - Soil
SL - Sludge
OI - Oil
LIQ - Other Liquid
AIR - Air
SOL - Other Solid
WP - Wipe

| SGS Orlando Sample # | Field ID / Point of Collection | COLLECTION DATE | COLLECTION TIME | SAMPLED BY: | MATRIX | TOTAL # OF BOTTLES | CONTAINER INFORMATION: OTHER | NONE | HCl | NaOH | HNO3 | H2SO4 | NAOH+ZNAC | DI WATER | MEOH | PFAS EPA Draft 1633 | LAB USE ONLY |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 | AF-RHMW16-WGN01LF-2305W3 | 5/15/23 | 1138 | | GW | 3 | | X | | | | | | | | X | |

**Turnaround Time ( Business days)**

10 Day (Business) Approved By: / Date:
7 Day
5 Day
3 Day *RUSH*
2 Day *RUSH*
1 Day *RUSH*
Other
Rush T/A Data Available VIA Email or Lablink

**Data Deliverable Information**

- [ ] COMMERCIAL "A" (RESULTS ONLY)
- [ ] COMMERCIAL "B" (RESULTS PLUS QC)
- [ ] REDT1 (EPA LEVEL 3)
- [x] FULLT1 (EPA LEVEL 4)
- [x] EDD'S

**Comments / Remarks**

EDMS upload database: JBPHE
EDMS Coverage: AFFF Assessment Sampling GW
United AUWB - 016-17895393

Sample Custody must be documented below each time samples change possession, including courier delivery.

| Relinquished by Sampler/Affiliation | Date Time: | Received By/Affiliation | Relinquished By/Affiliation | Date Time: | Received By/Affiliation |
|---|---|---|---|---|---|
| 1 Ryan Shimmoto | 5/15/23 1300 | 2 Alex Edmonds AECOM | 3 Alex Edmonds AECOM | 5/15/23 1440 | 4 05/16/23 1140 |
| 5 United Cargo | Date Time: | 6 United Cargo | 7 | Date Time: | 8 |

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

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

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**FC6097: Chain of Custody**
**Page 4 of 5**

# SGS Sample Receipt Summary

**Job Number:** FC6097 **Client:** AECOM **Project:** N6274223F0104 RH Fire Suppression System

**Date / Time Received:** 5/16/2023 2:40:00 PM **Delivery Method:** United Cargo/Airspace **Airbill #'s:** United Cargo AWB #: 016-17895393

**Therm ID:** IR 1; **Therm CF:** -0.1; **# of Coolers:** 1

**Cooler Temps (Raw Measured) °C:** Cooler 1: (3.5);

**Cooler Temps (Corrected) °C:** Cooler 1: (3.4);

| 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 preserved properly | ☑ | | ☐ | |
| 3. Sufficient volume/containers recvd for analysis: | ☑ | | ☐ | |
| 4. Condition of sample | Intact | | | |
| 5. Sample recvd 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 5035 Field Kits: _____ Number of Lab Filtered Metals: _____

Test Strip Lot #s: pH 0-3 230320 pH 10-12 _____ Other: (Specify) pH 1.0 - 12.0 222221

Residual Chlorine Test Strip Lot #: _____

Comments

SM001
Rev. Date 05/24/17

Technician: SHAYLAP Date: 5/16/2023 2:40:00 PM Reviewer: CD Date: 5/18/2023

# QC Evaluation: DOD QSM5.x Limits



**Job Number:** FC6097
**Account:** AECOM, INC.
**Project:** N6274223F0104 RH Fire Suppression System
**Collected:** 05/15/23

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

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

* Sample used for QC is not from job FC6097

## MS Semi-volatiles



### QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

# Instrument Blank



**Job Number:** FC6097
**Account:** AECOMCOD AECOM, INC.
**Project:** N6274223F0104 RH Fire Suppression System

| Sample | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| S6Q272-IBLK | 6Q18060.D | 1 | 05/18/23 | MV | n/a | n/a | S6Q272 |

**The QC reported here applies to the following samples:** **Method:** EPA DRAFT 1633

FC6097-1, FC6097-2, FC6097-3, FC6097-4, FC6097-5

| 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 | |
| 757124-72-4 | 4:2 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 | |
| 756426-58-1 | 9Cl-PF3ONS (F-53B Major) | ND | 0.0080 | 0.0014 | ug/l | |
| 763051-92-9 | 11Cl-PF3OUdS (F-53B Minor) | ND | 0.0080 | 0.0018 | ug/l | |

# Instrument Blank

**Job Number:** FC6097
**Account:** AECOMCOD AECOM, INC.
**Project:** N6274223F0104 RH Fire Suppression System

| Sample | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| S6Q272-IBLK | 6Q18060.D | 1 | 05/18/23 | MV | n/a | n/a | S6Q272 |

**The QC reported here applies to the following samples:** **Method:** EPA DRAFT 1633

FC6097-1, FC6097-2, FC6097-3, FC6097-4, FC6097-5

| 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 | |
| 914637-49-3 | 5:3 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 | 96% | 20-150% |
| | 13C8-PFOA | 109% | 20-150% |
| | 13C9-PFNA | 100% | 20-150% |
| | 13C6-PFDA | 93% | 20-150% |
| | 13C7-PFUnDA | 102% | 20-150% |
| | 13C2-PFDoDA | 96% | 20-150% |
| | 13C2-PFTeDA | 89% | 20-150% |
| | 13C3-PFBS | 98% | 20-150% |
| | 13C3-PFHxS | 93% | 20-150% |
| | 13C8-PFOS | 95% | 20-150% |
| | 13C8-FOSA | 97% | 20-150% |
| | d3-MeFOSA | 90% | 20-150% |
| | d5-EtFOSA | 98% | 20-150% |
| | d3-MeFOSAA | 110% | 20-150% |
| | d5-EtFOSAA | 100% | 20-150% |
| | d7-MeFOSE | 97% | 20-150% |
| | d9-EtFOSE | 98% | 20-150% |
| | 13C2-4:2FTS | 108% | 20-180% |
| | 13C2-6:2FTS | 103% | 20-180% |
| | 13C2-8:2FTS | 105% | 20-180% |
| | 13C3-HFPO-DA | 98% | 20-150% |

# Continuing Calibration Blank



**Job Number:** FC6097
**Account:** AECOMCOD AECOM, INC.
**Project:** N6274223F0104 RH Fire Suppression System

| Sample | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| S6Q272-ICCB | 6Q18131.D | 1 | 05/19/23 | MV | n/a | n/a | S6Q272 |



**The QC reported here applies to the following samples:** **Method:** EPA DRAFT 1633

FC6097-1, FC6097-2, FC6097-3, FC6097-4, FC6097-5

| 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 | |
| 757124-72-4 | 4:2 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 | |
| 756426-58-1 | 9Cl-PF3ONS (F-53B Major) | ND | 0.0080 | 0.0014 | ug/l | |
| 763051-92-9 | 11Cl-PF3OUdS (F-53B Minor) | ND | 0.0080 | 0.0018 | ug/l | |

# Continuing Calibration Blank

**Job Number:** FC6097
**Account:** AECOMCOD AECOM, INC.
**Project:** N6274223F0104 RH Fire Suppression System

| Sample | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| S6Q272-ICCB | 6Q18131.D | 1 | 05/19/23 | MV | n/a | n/a | S6Q272 |

**The QC reported here applies to the following samples:** **Method:** EPA DRAFT 1633

FC6097-1, FC6097-2, FC6097-3, FC6097-4, FC6097-5

| 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 | |
| 914637-49-3 | 5:3 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 | 101% | 20-150% |
| | 13C4-PFHpA | 106% | 20-150% |
| | 13C8-PFOA | 99% | 20-150% |
| | 13C9-PFNA | 107% | 20-150% |
| | 13C6-PFDA | 91% | 20-150% |
| | 13C7-PFUnDA | 95% | 20-150% |
| | 13C2-PFDoDA | 95% | 20-150% |
| | 13C2-PFTeDA | 92% | 20-150% |
| | 13C3-PFBS | 97% | 20-150% |
| | 13C3-PFHxS | 98% | 20-150% |
| | 13C8-PFOS | 98% | 20-150% |
| | 13C8-FOSA | 100% | 20-150% |
| | d3-MeFOSA | 94% | 20-150% |
| | d5-EtFOSA | 94% | 20-150% |
| | d3-MeFOSAA | 112% | 20-150% |
| | d5-EtFOSAA | 111% | 20-150% |
| | d7-MeFOSE | 97% | 20-150% |
| | d9-EtFOSE | 96% | 20-150% |
| | 13C2-4:2FTS | 122% | 20-180% |
| | 13C2-6:2FTS | 127% | 20-180% |
| | 13C2-8:2FTS | 122% | 20-180% |
| | 13C3-HFPO-DA | 106% | 20-150% |

# Continuing Calibration Blank



**Job Number:** FC6097
**Account:** AECOMCOD AECOM, INC.
**Project:** N6274223F0104 RH Fire Suppression System

| Sample | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| S6Q272-ICCB | 6Q18138.D | 1 | 05/19/23 | MV | n/a | n/a | S6Q272 |



**The QC reported here applies to the following samples:** **Method:** EPA DRAFT 1633

FC6097-1, FC6097-2, FC6097-3, FC6097-4, FC6097-5

| 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 | |
| 757124-72-4 | 4:2 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 | |
| 756426-58-1 | 9Cl-PF3ONS (F-53B Major) | ND | 0.0080 | 0.0014 | ug/l | |
| 763051-92-9 | 11Cl-PF3OUdS (F-53B Minor) | ND | 0.0080 | 0.0018 | ug/l | |

# Continuing Calibration Blank

**Job Number:** FC6097
**Account:** AECOMCOD AECOM, INC.
**Project:** N6274223F0104 RH Fire Suppression System

| Sample | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| S6Q272-ICCB | 6Q18138.D | 1 | 05/19/23 | MV | n/a | n/a | S6Q272 |

**The QC reported here applies to the following samples:** **Method:** EPA DRAFT 1633

FC6097-1, FC6097-2, FC6097-3, FC6097-4, FC6097-5

| 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 | |
| 914637-49-3 | 5:3 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 | 99% | 20-150% |
| | 13C5-PFHxA | 100% | 20-150% |
| | 13C4-PFHpA | 98% | 20-150% |
| | 13C8-PFOA | 98% | 20-150% |
| | 13C9-PFNA | 92% | 20-150% |
| | 13C6-PFDA | 104% | 20-150% |
| | 13C7-PFUnDA | 103% | 20-150% |
| | 13C2-PFDoDA | 100% | 20-150% |
| | 13C2-PFTeDA | 98% | 20-150% |
| | 13C3-PFBS | 98% | 20-150% |
| | 13C3-PFHxS | 97% | 20-150% |
| | 13C8-PFOS | 96% | 20-150% |
| | 13C8-FOSA | 106% | 20-150% |
| | d3-MeFOSA | 99% | 20-150% |
| | d5-EtFOSA | 105% | 20-150% |
| | d3-MeFOSAA | 125% | 20-150% |
| | d5-EtFOSAA | 118% | 20-150% |
| | d7-MeFOSE | 100% | 20-150% |
| | d9-EtFOSE | 104% | 20-150% |
| | 13C2-4:2FTS | 127% | 20-180% |
| | 13C2-6:2FTS | 131% | 20-180% |
| | 13C2-8:2FTS | 110% | 20-180% |
| | 13C3-HFPO-DA | 102% | 20-150% |

# Method Blank Summary



**Job Number:** FC6097
**Account:** AECOMCOD AECOM, INC.
**Project:** N6274223F0104 RH Fire Suppression System

| Sample | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| OP96921-MB | 6Q18122.D | 1 | 05/19/23 | MV | 05/17/23 | OP96921 | S6Q272 |

**The QC reported here applies to the following samples:** **Method:** EPA DRAFT 1633

FC6097-1, FC6097-2, FC6097-3, FC6097-4, FC6097-5

| 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 | |
| 757124-72-4 | 4:2 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 | |
| 756426-58-1 | 9Cl-PF3ONS (F-53B Major) | ND | 0.0080 | 0.0014 | ug/l | |
| 763051-92-9 | 11Cl-PF3OUdS (F-53B Minor) | ND | 0.0080 | 0.0018 | ug/l | |

# Method Blank Summary

**Job Number:** FC6097
**Account:** AECOMCOD AECOM, INC.
**Project:** N6274223F0104 RH Fire Suppression System

| Sample | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| OP96921-MB | 6Q18122.D | 1 | 05/19/23 | MV | 05/17/23 | OP96921 | S6Q272 |

**The QC reported here applies to the following samples:** **Method:** EPA DRAFT 1633

FC6097-1, FC6097-2, FC6097-3, FC6097-4, FC6097-5

| 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 | |
| 914637-49-3 | 5:3 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 | 94% | 20-150% |
| | 13C5-PFPeA | 96% | 20-150% |
| | 13C5-PFHxA | 93% | 20-150% |
| | 13C4-PFHpA | 96% | 20-150% |
| | 13C8-PFOA | 100% | 20-150% |
| | 13C9-PFNA | 97% | 20-150% |
| | 13C6-PFDA | 90% | 20-150% |
| | 13C7-PFUnDA | 92% | 20-150% |
| | 13C2-PFDoDA | 86% | 20-150% |
| | 13C2-PFTeDA | 81% | 20-150% |
| | 13C3-PFBS | 88% | 20-150% |
| | 13C3-PFHxS | 88% | 20-150% |
| | 13C8-PFOS | 91% | 20-150% |
| | 13C8-FOSA | 67% | 20-150% |
| | d3-MeFOSA | 60% | 20-150% |
| | d5-EtFOSA | 63% | 20-150% |
| | d3-MeFOSAA | 106% | 20-150% |
| | d5-EtFOSAA | 95% | 20-150% |
| | d7-MeFOSE | 58% | 20-150% |
| | d9-EtFOSE | 67% | 20-150% |
| | 13C2-4:2FTS | 106% | 20-180% |
| | 13C2-6:2FTS | 108% | 20-180% |
| | 13C2-8:2FTS | 105% | 20-180% |
| | 13C3-HFPO-DA | 93% | 20-150% |

# Continuing Calibration Blank



**Job Number:** FC6097
**Account:** AECOMCOD AECOM, INC.
**Project:** N6274223F0104 RH Fire Suppression System

| Sample | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| S6Q272-ICCB | 6Q18119.D | 1 | 05/19/23 | MV | n/a | n/a | S6Q272 |



**The QC reported here applies to the following samples:** **Method:** EPA DRAFT 1633

OP96921-BS, OP96921-LLBS, OP96921-MB, OP96921-MS, OP96921-MSD

| 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 | |
| 757124-72-4 | 4:2 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 | |
| 756426-58-1 | 9Cl-PF3ONS (F-53B Major) | ND | 0.0080 | 0.0014 | ug/l | |
| 763051-92-9 | 11Cl-PF3OUdS (F-53B Minor) | ND | 0.0080 | 0.0018 | ug/l | |

# Continuing Calibration Blank

**Job Number:** FC6097
**Account:** AECOMCOD AECOM, INC.
**Project:** N6274223F0104 RH Fire Suppression System

| Sample | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| S6Q272-ICCB | 6Q18119.D | 1 | 05/19/23 | MV | n/a | n/a | S6Q272 |

**The QC reported here applies to the following samples:** **Method:** EPA DRAFT 1633

OP96921-BS, OP96921-LLBS, OP96921-MB, OP96921-MS, OP96921-MSD

| 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 | |
| 914637-49-3 | 5:3 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 | 102% | 20-150% |
| | 13C5-PFHxA | 104% | 20-150% |
| | 13C4-PFHpA | 104% | 20-150% |
| | 13C8-PFOA | 104% | 20-150% |
| | 13C9-PFNA | 96% | 20-150% |
| | 13C6-PFDA | 90% | 20-150% |
| | 13C7-PFUnDA | 96% | 20-150% |
| | 13C2-PFDoDA | 99% | 20-150% |
| | 13C2-PFTeDA | 98% | 20-150% |
| | 13C3-PFBS | 96% | 20-150% |
| | 13C3-PFHxS | 97% | 20-150% |
| | 13C8-PFOS | 97% | 20-150% |
| | 13C8-FOSA | 109% | 20-150% |
| | d3-MeFOSA | 104% | 20-150% |
| | d5-EtFOSA | 105% | 20-150% |
| | d3-MeFOSAA | 121% | 20-150% |
| | d5-EtFOSAA | 122% | 20-150% |
| | d7-MeFOSE | 108% | 20-150% |
| | d9-EtFOSE | 112% | 20-150% |
| | 13C2-4:2FTS | 130% | 20-180% |
| | 13C2-6:2FTS | 123% | 20-180% |
| | 13C2-8:2FTS | 126% | 20-180% |
| | 13C3-HFPO-DA | 102% | 20-150% |

# Blank Spike Summary



**Job Number:** FC6097
**Account:** AECOMCOD AECOM, INC.
**Project:** N6274223F0104 RH Fire Suppression System

| Sample | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| OP96921-LLBS | 6Q18121.D | 1 | 05/19/23 | MV | 05/17/23 | OP96921 | S6Q272 |

**The QC reported here applies to the following samples:** **Method:** EPA DRAFT 1633

FC6097-1, FC6097-2, FC6097-3, FC6097-4, FC6097-5

| CAS No. | Compound | Spike ug/l | BSP ug/l | BSP % | Limits |
|---|---|---|---|---|---|
| 375-22-4 | Perfluorobutanoic acid | 0.03 | 0.0288 | 96 | 40-150 |
| 2706-90-3 | Perfluoropentanoic acid | 0.015 | 0.0143 | 95 | 40-150 |
| 307-24-4 | Perfluorohexanoic acid | 0.0075 | 0.0075 | 100 | 40-150 |
| 375-85-9 | Perfluoroheptanoic acid | 0.0075 | 0.0065 | 87 | 40-150 |
| 335-67-1 | Perfluorooctanoic acid | 0.0075 | 0.0074 | 99 | 40-150 |
| 375-95-1 | Perfluorononanoic acid | 0.0075 | 0.0071 | 95 | 40-150 |
| 335-76-2 | Perfluorodecanoic acid | 0.0075 | 0.0072 | 96 | 40-150 |
| 2058-94-8 | Perfluoroundecanoic acid | 0.0075 | 0.0071 | 95 | 40-150 |
| 307-55-1 | Perfluorododecanoic acid | 0.0075 | 0.0072 | 96 | 40-150 |
| 72629-94-8 | Perfluorotridecanoic acid | 0.0075 | 0.0071 | 95 | 40-150 |
| 376-06-7 | Perfluorotetradecanoic acid | 0.0075 | 0.0065 | 87 | 40-150 |
| 375-73-5 | Perfluorobutanesulfonic acid | 0.00665 | 0.0066 | 99 | 40-150 |
| 2706-91-4 | Perfluoropentanesulfonic acid | 0.00706 | 0.0071 | 101 | 40-150 |
| 355-46-4 | Perfluorohexanesulfonic acid | 0.00686 | 0.0074 | 108 | 40-150 |
| 375-92-8 | Perfluoroheptanesulfonic acid | 0.00715 | 0.0069 | 97 | 40-150 |
| 1763-23-1 | Perfluorooctanesulfonic acid | 0.00696 | 0.0062 | 89 | 40-150 |
| 68259-12-1 | Perfluorononanesulfonic acid | 0.00722 | 0.0064 | 89 | 40-150 |
| 335-77-3 | Perfluorodecanesulfonic acid | 0.00724 | 0.0061 | 84 | 40-150 |
| 79780-39-5 | Perfluorododecanesulfonic aci | 0.00728 | 0.0058 | 80 | 40-150 |
| 757124-72-4 | 4:2 Fluorotelomer sulfonate | 0.0281 | 0.0294 | 105 | 40-150 |
| 27619-97-2 | 6:2 Fluorotelomer sulfonate | 0.0285 | 0.0306 | 107 | 40-150 |
| 39108-34-4 | 8:2 Fluorotelomer sulfonate | 0.0288 | 0.0299 | 104 | 40-150 |
| 754-91-6 | PFOSA | 0.0075 | 0.0081 | 108 | 40-150 |
| 31506-32-8 | MeFOSA | 0.015 | 0.0145 | 97 | 40-150 |
| 4151-50-2 | EtFOSA | 0.015 | 0.0145 | 97 | 40-150 |
| 2355-31-9 | MeFOSAA | 0.0075 | 0.0071 | 95 | 40-150 |
| 2991-50-6 | EtFOSAA | 0.0075 | 0.0080 | 107 | 40-150 |
| 24448-09-7 | MeFOSE | 0.0375 | 0.0351 | 94 | 40-150 |
| 1691-99-2 | EtFOSE | 0.0375 | 0.0334 | 89 | 40-150 |
| 13252-13-6 | HFPO-DA (GenX) | 0.015 | 0.0152 | 101 | 40-150 |
| 919005-14-4 | ADONA | 0.0142 | 0.0142 | 100 | 40-150 |
| 377-73-1 | PFMPA | 0.015 | 0.0139 | 93 | 40-150 |
| 863090-89-5 | PFMBA | 0.015 | 0.0139 | 93 | 40-150 |
| 151772-58-6 | NFDHA | 0.015 | 0.0138 | 92 | 40-150 |
| 756426-58-1 | 9Cl-PF3ONS (F-53B Major) | 0.014 | 0.0133 | 95 | 40-150 |
| 763051-92-9 | 11Cl-PF3OUdS (F-53B Minor) | 0.0142 | 0.0123 | 87 | 40-150 |

* = Outside of Control Limits.

# Blank Spike Summary

**Job Number:** FC6097
**Account:** AECOMCOD AECOM, INC.
**Project:** N6274223F0104 RH Fire Suppression System

| Sample | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| OP96921-LLBS | 6Q18121.D | 1 | 05/19/23 | MV | 05/17/23 | OP96921 | S6Q272 |

**The QC reported here applies to the following samples:** **Method:** EPA DRAFT 1633

FC6097-1, FC6097-2, FC6097-3, FC6097-4, FC6097-5

| CAS No. | Compound | Spike ug/l | BSP ug/l | BSP % | Limits |
|---|---|---|---|---|---|
| 113507-82-7 | PFEESA | 0.0134 | 0.0133 | 100 | 40-150 |
| 356-02-5 | 3:3 Fluorotelomer carboxylate | 0.0375 | 0.0180 | 48 | 40-150 |
| 914637-49-3 | 5:3 Fluorotelomer carboxylate | 0.188 | 0.155 | 83 | 40-150 |
| 812-70-4 | 7:3 Fluorotelomer carboxylate | 0.188 | 0.170 | 91 | 40-150 |

| CAS No. | ID Standard Recoveries | BSP | Limits |
|---|---|---|---|
| | 13C4-PFBA | 79% | 20-150% |
| | 13C5-PFPeA | 84% | 20-150% |
| | 13C5-PFHxA | 82% | 20-150% |
| | 13C4-PFHpA | 87% | 20-150% |
| | 13C8-PFOA | 83% | 20-150% |
| | 13C9-PFNA | 81% | 20-150% |
| | 13C6-PFDA | 81% | 20-150% |
| | 13C7-PFUnDA | 80% | 20-150% |
| | 13C2-PFDoDA | 71% | 20-150% |
| | 13C2-PFTeDA | 74% | 20-150% |
| | 13C3-PFBS | 84% | 20-150% |
| | 13C3-PFHxS | 80% | 20-150% |
| | 13C8-PFOS | 86% | 20-150% |
| | 13C8-FOSA | 60% | 20-150% |
| | d3-MeFOSA | 58% | 20-150% |
| | d5-EtFOSA | 59% | 20-150% |
| | d3-MeFOSAA | 98% | 20-150% |
| | d5-EtFOSAA | 93% | 20-150% |
| | d7-MeFOSE | 49% | 20-150% |
| | d9-EtFOSE | 58% | 20-150% |
| | 13C2-4:2FTS | 102% | 20-180% |
| | 13C2-6:2FTS | 99% | 20-180% |
| | 13C2-8:2FTS | 108% | 20-180% |
| | 13C3-HFPO-DA | 80% | 20-150% |

* = Outside of Control Limits.

# Blank Spike Summary



**Job Number:** FC6097
**Account:** AECOMCOD AECOM, INC.
**Project:** N6274223F0104 RH Fire Suppression System

| Sample | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| OP96921-BS | 6Q18120.D | 1 | 05/19/23 | MV | 05/17/23 | OP96921 | S6Q272 |

**The QC reported here applies to the following samples:** **Method:** EPA DRAFT 1633

FC6097-1, FC6097-2, FC6097-3, FC6097-4, FC6097-5

| CAS No. | Compound | Spike ug/l | BSP ug/l | BSP % | Limits |
|---|---|---|---|---|---|
| 375-22-4 | Perfluorobutanoic acid | 0.1 | 0.0937 | 94 | 40-150 |
| 2706-90-3 | Perfluoropentanoic acid | 0.05 | 0.0462 | 92 | 40-150 |
| 307-24-4 | Perfluorohexanoic acid | 0.025 | 0.0248 | 99 | 40-150 |
| 375-85-9 | Perfluoroheptanoic acid | 0.025 | 0.0223 | 89 | 40-150 |
| 335-67-1 | Perfluorooctanoic acid | 0.025 | 0.0224 | 90 | 40-150 |
| 375-95-1 | Perfluorononanoic acid | 0.025 | 0.0228 | 91 | 40-150 |
| 335-76-2 | Perfluorodecanoic acid | 0.025 | 0.0241 | 96 | 40-150 |
| 2058-94-8 | Perfluoroundecanoic acid | 0.025 | 0.0263 | 105 | 40-150 |
| 307-55-1 | Perfluorododecanoic acid | 0.025 | 0.0230 | 92 | 40-150 |
| 72629-94-8 | Perfluorotridecanoic acid | 0.025 | 0.0228 | 91 | 40-150 |
| 376-06-7 | Perfluorotetradecanoic acid | 0.025 | 0.0233 | 93 | 40-150 |
| 375-73-5 | Perfluorobutanesulfonic acid | 0.0222 | 0.0208 | 94 | 40-150 |
| 2706-91-4 | Perfluoropentanesulfonic acid | 0.0235 | 0.0231 | 98 | 40-150 |
| 355-46-4 | Perfluorohexanesulfonic acid | 0.0229 | 0.0220 | 96 | 40-150 |
| 375-92-8 | Perfluoroheptanesulfonic acid | 0.0238 | 0.0209 | 88 | 40-150 |
| 1763-23-1 | Perfluorooctanesulfonic acid | 0.0232 | 0.0194 | 84 | 40-150 |
| 68259-12-1 | Perfluorononanesulfonic acid | 0.0241 | 0.0206 | 86 | 40-150 |
| 335-77-3 | Perfluorodecanesulfonic acid | 0.0241 | 0.0203 | 84 | 40-150 |
| 79780-39-5 | Perfluorododecanesulfonic aci | 0.0243 | 0.0189 | 78 | 40-150 |
| 757124-72-4 | 4:2 Fluorotelomer sulfonate | 0.0938 | 0.0900 | 96 | 40-150 |
| 27619-97-2 | 6:2 Fluorotelomer sulfonate | 0.095 | 0.0873 | 92 | 40-150 |
| 39108-34-4 | 8:2 Fluorotelomer sulfonate | 0.096 | 0.0892 | 93 | 40-150 |
| 754-91-6 | PFOSA | 0.025 | 0.0234 | 94 | 40-150 |
| 31506-32-8 | MeFOSA | 0.05 | 0.0507 | 101 | 40-150 |
| 4151-50-2 | EtFOSA | 0.05 | 0.0470 | 94 | 40-150 |
| 2355-31-9 | MeFOSAA | 0.025 | 0.0238 | 95 | 40-150 |
| 2991-50-6 | EtFOSAA | 0.025 | 0.0217 | 87 | 40-150 |
| 24448-09-7 | MeFOSE | 0.125 | 0.121 | 97 | 40-150 |
| 1691-99-2 | EtFOSE | 0.125 | 0.112 | 90 | 40-150 |
| 13252-13-6 | HFPO-DA (GenX) | 0.05 | 0.0478 | 96 | 40-150 |
| 919005-14-4 | ADONA | 0.0473 | 0.0462 | 98 | 40-150 |
| 377-73-1 | PFMPA | 0.05 | 0.0184 | 37* | 40-150 |
| 863090-89-5 | PFMBA | 0.05 | 0.0521 | 104 | 40-150 |
| 151772-58-6 | NFDHA | 0.05 | 0.0477 | 95 | 40-150 |
| 756426-58-1 | 9Cl-PF3ONS (F-53B Major) | 0.0468 | 0.0444 | 95 | 40-150 |
| 763051-92-9 | 11Cl-PF3OUdS (F-53B Minor) | 0.0473 | 0.0426 | 90 | 40-150 |

* = Outside of Control Limits.

# Blank Spike Summary

**Job Number:** FC6097
**Account:** AECOMCOD AECOM, INC.
**Project:** N6274223F0104 RH Fire Suppression System

| Sample | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| OP96921-BS | 6Q18120.D | 1 | 05/19/23 | MV | 05/17/23 | OP96921 | S6Q272 |

**The QC reported here applies to the following samples:** **Method:** EPA DRAFT 1633

FC6097-1, FC6097-2, FC6097-3, FC6097-4, FC6097-5

| CAS No. | Compound | Spike ug/l | BSP ug/l | BSP % | Limits |
|---|---|---|---|---|---|
| 113507-82-7 | PFEESA | 0.0445 | 0.0417 | 94 | 40-150 |
| 356-02-5 | 3:3 Fluorotelomer carboxylate | 0.125 | 0.0309 | 25* | 40-150 |
| 914637-49-3 | 5:3 Fluorotelomer carboxylate | 0.625 | 0.516 | 83 | 40-150 |
| 812-70-4 | 7:3 Fluorotelomer carboxylate | 0.625 | 0.574 | 92 | 40-150 |

| CAS No. | ID Standard Recoveries | BSP | Limits |
|---|---|---|---|
| | 13C4-PFBA | 18%* [a] | 20-150% |
| | 13C5-PFPeA | 80% | 20-150% |
| | 13C5-PFHxA | 93% | 20-150% |
| | 13C4-PFHpA | 97% | 20-150% |
| | 13C8-PFOA | 98% | 20-150% |
| | 13C9-PFNA | 96% | 20-150% |
| | 13C6-PFDA | 94% | 20-150% |
| | 13C7-PFUnDA | 88% | 20-150% |
| | 13C2-PFDoDA | 93% | 20-150% |
| | 13C2-PFTeDA | 93% | 20-150% |
| | 13C3-PFBS | 91% | 20-150% |
| | 13C3-PFHxS | 90% | 20-150% |
| | 13C8-PFOS | 119% | 20-150% |
| | 13C8-FOSA | 90% | 20-150% |
| | d3-MeFOSA | 83% | 20-150% |
| | d5-EtFOSA | 90% | 20-150% |
| | d3-MeFOSAA | 120% | 20-150% |
| | d5-EtFOSAA | 124% | 20-150% |
| | d7-MeFOSE | 65% | 20-150% |
| | d9-EtFOSE | 77% | 20-150% |
| | 13C2-4:2FTS | 116% | 20-180% |
| | 13C2-6:2FTS | 119% | 20-180% |
| | 13C2-8:2FTS | 117% | 20-180% |
| | 13C3-HFPO-DA | 95% | 20-150% |

(a) Outside control limits.

* = Outside of Control Limits.

# Matrix Spike/Matrix Spike Duplicate Summary



**Job Number:** FC6097
**Account:** AECOMCOD AECOM, INC.
**Project:** N6274223F0104 RH Fire Suppression System

| Sample | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| OP96921-MS | 6Q18125.D | 1 | 05/19/23 | MV | 05/17/23 | OP96921 | S6Q272 |
| OP96921-MSD | 6Q18126.D | 1 | 05/19/23 | MV | 05/17/23 | OP96921 | S6Q272 |
| FC5594-2 | 6Q18124.D | 1 | 05/19/23 | MV | 05/17/23 | OP96921 | S6Q272 |

**The QC reported here applies to the following samples:** **Method:** EPA DRAFT 1633

FC6097-1, FC6097-2, FC6097-3, FC6097-4, FC6097-5

| CAS No. | Compound | FC5594-2 ug/l | Q | Spike ug/l | MS ug/l | MS % | Spike ug/l | MSD ug/l | MSD % | RPD | Limits Rec/RPD |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 375-22-4 | Perfluorobutanoic acid | 0.0157 | | 0.0877 | 0.0988 | 95 | 0.0877 | 0.0966 | 92 | 2 | 40-150/30 |
| 2706-90-3 | Perfluoropentanoic acid | 0.0070 | U | 0.0439 | 0.0420 | 96 | 0.0439 | 0.0414 | 94 | 1 | 40-150/30 |
| 307-24-4 | Perfluorohexanoic acid | 0.0035 | U | 0.0219 | 0.0215 | 98 | 0.0219 | 0.0197 | 90 | 9 | 40-150/30 |
| 375-85-9 | Perfluoroheptanoic acid | 0.0035 | U | 0.0219 | 0.0208 | 95 | 0.0219 | 0.0202 | 92 | 3 | 40-150/30 |
| 335-67-1 | Perfluorooctanoic acid | 0.0035 | U | 0.0219 | 0.0211 | 96 | 0.0219 | 0.0208 | 95 | 1 | 40-150/30 |
| 375-95-1 | Perfluorononanoic acid | 0.0035 | U | 0.0219 | 0.0220 | 100 | 0.0219 | 0.0205 | 93 | 7 | 40-150/30 |
| 335-76-2 | Perfluorodecanoic acid | 0.0035 | U | 0.0219 | 0.0204 | 93 | 0.0219 | 0.0216 | 98 | 6 | 40-150/30 |
| 2058-94-8 | Perfluoroundecanoic acid | 0.0035 | U | 0.0219 | 0.0222 | 101 | 0.0219 | 0.0213 | 97 | 4 | 40-150/30 |
| 307-55-1 | Perfluorododecanoic acid | 0.0035 | U | 0.0219 | 0.0214 | 98 | 0.0219 | 0.0220 | 100 | 3 | 40-150/30 |
| 72629-94-8 | Perfluorotridecanoic acid | 0.0035 | U | 0.0219 | 0.0207 | 94 | 0.0219 | 0.0209 | 95 | 1 | 40-150/30 |
| 376-06-7 | Perfluorotetradecanoic acid | 0.0035 | U | 0.0219 | 0.0230 | 105 | 0.0219 | 0.0208 | 95 | 10 | 40-150/30 |
| 375-73-5 | Perfluorobutanesulfonic acid | 0.0035 | U | 0.0195 | 0.0192 | 99 | 0.0195 | 0.0177 | 91 | 8 | 40-150/30 |
| 2706-91-4 | Perfluoropentanesulfonic acid | 0.0044 | U | 0.0206 | 0.0205 | 99 | 0.0206 | 0.0193 | 94 | 6 | 40-150/30 |
| 355-46-4 | Perfluorohexanesulfonic acid | 0.0035 | U | 0.02 | 0.0188 | 94 | 0.02 | 0.0190 | 95 | 1 | 40-150/30 |
| 375-92-8 | Perfluoroheptanesulfonic acid | 0.0035 | U | 0.0209 | 0.0229 | 110 | 0.0209 | 0.0184 | 88 | 22 | 40-150/30 |
| 1763-23-1 | Perfluorooctanesulfonic acid | 0.0035 | U | 0.0204 | 0.0206 | 101 | 0.0204 | 0.0170 | 84 | 19 | 40-150/30 |
| 68259-12-1 | Perfluorononanesulfonic acid | 0.0035 | U | 0.0211 | 0.0201 | 95 | 0.0211 | 0.0182 | 86 | 10 | 40-150/30 |
| 335-77-3 | Perfluorodecanesulfonic acid | 0.0035 | U | 0.0212 | 0.0194 | 92 | 0.0212 | 0.0156 | 74 | 22 | 40-150/30 |
| 79780-39-5 | Perfluorododecanesulfonic aci | 0.0044 | U | 0.0213 | 0.0172 | 81 | 0.0213 | 0.0155 | 73 | 10 | 40-150/30 |
| 757124-72-4 | 4:2 Fluorotelomer sulfonate | 0.018 | U | 0.0822 | 0.0812 | 99 | 0.0822 | 0.0781 | 95 | 4 | 40-150/30 |
| 27619-97-2 | 6:2 Fluorotelomer sulfonate | 0.018 | U | 0.0833 | 0.0873 | 105 | 0.0833 | 0.0816 | 98 | 7 | 40-150/30 |
| 39108-34-4 | 8:2 Fluorotelomer sulfonate | 0.018 | U | 0.0842 | 0.0884 | 105 | 0.0842 | 0.0818 | 97 | 8 | 40-150/30 |
| 754-91-6 | PFOSA | 0.0035 | U | 0.0219 | 0.0223 | 102 | 0.0219 | 0.0225 | 103 | 1 | 40-150/30 |
| 31506-32-8 | MeFOSA | 0.0070 | U | 0.0439 | 0.0466 | 106 | 0.0439 | 0.0402 | 92 | 15 | 40-150/30 |
| 4151-50-2 | EtFOSA | 0.0070 | U | 0.0439 | 0.0422 | 96 | 0.0439 | 0.0412 | 94 | 2 | 40-150/30 |
| 2355-31-9 | MeFOSAA | 0.0044 | U | 0.0219 | 0.0198 | 90 | 0.0219 | 0.0215 | 98 | 8 | 40-150/30 |
| 2991-50-6 | EtFOSAA | 0.0044 | U | 0.0219 | 0.0211 | 96 | 0.0219 | 0.0204 | 93 | 3 | 40-150/30 |
| 24448-09-7 | MeFOSE | 0.035 | U | 0.11 | 0.110 | 100 | 0.11 | 0.105 | 96 | 5 | 40-150/30 |
| 1691-99-2 | EtFOSE | 0.035 | U | 0.11 | 0.106 | 97 | 0.11 | 0.0949 | 87 | 11 | 40-150/30 |
| 13252-13-6 | HFPO-DA (GenX) | 0.0035 | U | 0.0439 | 0.0442 | 101 | 0.0439 | 0.0407 | 93 | 8 | 40-150/30 |
| 919005-14-4 | ADONA | 0.0070 | U | 0.0414 | 0.0407 | 98 | 0.0414 | 0.0394 | 95 | 3 | 40-150/30 |
| 377-73-1 | PFMPA | 0.0070 | U | 0.0439 | 0.0370 | 84 | 0.0439 | 0.0359 | 82 | 3 | 40-150/30 |
| 863090-89-5 | PFMBA | 0.0070 | U | 0.0439 | 0.0413 | 94 | 0.0439 | 0.0404 | 92 | 2 | 40-150/30 |
| 151772-58-6 | NFDHA | 0.0070 | U | 0.0439 | 0.0423 | 96 | 0.0439 | 0.0399 | 91 | 6 | 40-150/30 |
| 756426-58-1 | 9Cl-PF3ONS (F-53B Major) | 0.0070 | U | 0.041 | 0.0359 | 88 | 0.041 | 0.0329 | 80 | 9 | 40-150/30 |
| 763051-92-9 | 11Cl-PF3OUdS (F-53B Minor) | 0.0070 | U | 0.0414 | 0.0295 | 71 | 0.0414 | 0.0282 | 68 | 5 | 40-150/30 |

* = Outside of Control Limits.

# Matrix Spike/Matrix Spike Duplicate Summary



**Job Number:** FC6097
**Account:** AECOMCOD AECOM, INC.
**Project:** N6274223F0104 RH Fire Suppression System

| Sample | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| OP96921-MS | 6Q18125.D | 1 | 05/19/23 | MV | 05/17/23 | OP96921 | S6Q272 |
| OP96921-MSD | 6Q18126.D | 1 | 05/19/23 | MV | 05/17/23 | OP96921 | S6Q272 |
| FC5594-2 | 6Q18124.D | 1 | 05/19/23 | MV | 05/17/23 | OP96921 | S6Q272 |

**The QC reported here applies to the following samples:** **Method:** EPA DRAFT 1633

FC6097-1, FC6097-2, FC6097-3, FC6097-4, FC6097-5

| CAS No. | Compound | FC5594-2 ug/l | Q | Spike ug/l | MS ug/l | MS % | Spike ug/l | MSD ug/l | MSD % | RPD | Limits Rec/RPD |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 113507-82-7 | PFEESA | 0.0070 | U | 0.039 | 0.0372 | 95 | 0.039 | 0.0367 | 94 | 1 | 40-150/30 |
| 356-02-5 | 3:3 Fluorotelomer carboxylate | 0.018 | U | 0.11 | 0.0556 | 51 | 0.11 | 0.0532 | 49 | 4 | 40-150/30 |
| 914637-49-3 | 5:3 Fluorotelomer carboxylate | 0.088 | U | 0.548 | 0.476 | 87 | 0.548 | 0.390 | 71 | 20 | 40-150/30 |
| 812-70-4 | 7:3 Fluorotelomer carboxylate | 0.088 | U | 0.548 | 0.534 | 97 | 0.548 | 0.443 | 81 | 19 | 40-150/30 |

| CAS No. | ID Standard Recoveries | MS | MSD | FC5594-2 | Limits |
|---|---|---|---|---|---|
| | 13C4-PFBA | 49% | 50% | 59% | 20-150% |
| | 13C5-PFPeA | 83% | 91% | 87% | 20-150% |
| | 13C5-PFHxA | 80% | 93% | 89% | 20-150% |
| | 13C4-PFHpA | 85% | 95% | 89% | 20-150% |
| | 13C8-PFOA | 82% | 94% | 91% | 20-150% |
| | 13C9-PFNA | 78% | 93% | 82% | 20-150% |
| | 13C6-PFDA | 79% | 75% | 86% | 20-150% |
| | 13C7-PFUnDA | 68% | 72% | 89% | 20-150% |
| | 13C2-PFDoDA | 60% | 67% | 68% | 20-150% |
| | 13C2-PFTeDA | 58% | 69% | 62% | 20-150% |
| | 13C3-PFBS | 83% | 89% | 86% | 20-150% |
| | 13C3-PFHxS | 81% | 91% | 82% | 20-150% |
| | 13C8-PFOS | 77% | 97% | 89% | 20-150% |
| | 13C8-FOSA | 72% | 58% | 71% | 20-150% |
| | d3-MeFOSA | 59% | 60% | | 20-150% |
| | d5-EtFOSA | 65% | 61% | | 20-150% |
| | d3-MeFOSAA | 93% | 93% | 89% | 20-150% |
| | d5-EtFOSAA | 86% | 87% | 89% | 20-150% |
| | d7-MeFOSE | 54% | 47% | | 20-150% |
| | d9-EtFOSE | 59% | 58% | | 20-150% |
| | 13C2-4:2FTS | 99% | 116% | 105% | 20-180% |
| | 13C2-6:2FTS | 97% | 111% | 111% | 20-180% |
| | 13C2-8:2FTS | 97% | 108% | 100% | 20-180% |
| | 13C3-HFPO-DA | 84% | 96% | | 20-150% |

* = Outside of Control Limits.