AECOM

AFFF Fire Truck and Foam Unit Decontamination Summary Report

AFFF Decontamination Demonstration Project

Connecticut Department of Energy and Environmental Protection & Department of Emergency Services and Public Protection

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Table of Contents

1. Introduction 1
2. Decontamination Preparation & Site Setup 1
   2.1 Health and Safety Preparation 1
   2.2 Secondary Containment & Spill Prevention 1
   2.3 PerfluorAd Preparation, Rinsate Treatment Setup, and General Procedure 2
3. Decontamination Procedure 2
   3.1 AFFF Draining and Initial Rinse 2
   3.2 PerfluorAd® Treatment 3
   3.3 Treatment and Reuse of Rinsate Water 6
   3.4 Waste Handling/Treatment 6
   3.5 Demobilization 7
4. Verification Sampling and Analysis 7
   4.1 Total Oxidizable Precursors Assay 8
   4.2 AR AFFF Concentrate Results 9
   4.3 Rinsate Results 9
   4.4 Treatment Effluent Results 10
   4.5 Quality Control 10
5. Conclusions 11
6. References 11

Figures

Figure 1 AFFF Cleanout System Process Flow Diagram

Figure 2 Linear Regression Plot of Post-TOP vs. Pre-TOP Total PFCAs

Figure 3 Pre and Post-TOP TPFAS Relative Abundance in Concentrate

Figure 4 Pre and Post-TOP Total PFCA Rinsate Results

Tables

Table 1 Rinsate Volumes and Cost Reduction

Table 2 Summary of Sample ID Descriptions

Table 3 PFAS Results – AFFF Concentrate

Table 4 Rinsate PFAS Results – Foam Unit 7

Table 5 Rinsate PFAS Results – Engine 33 (ECFS)

Table 6 Rinsate PFAS Results – Mystic FD #1 (ECFS)

Table 7 Rinsate PFAS Results – Hebron FD #ET-310

Table 8 Rinsate PFAS Results – Foam Unit 6

Table 9 Summary of Rinsate Results (Pre-TOP Assay)

Table 10 Post-GAC Treatment – Effluent Sample PFAS Results

Table 11 Field Blank PFAS Results

Table 12 Relative Percent Difference Between Normal and Field Duplicates

Appendices

Appendix A Site Photographs

Appendix B Analytical Laboratory Reports

1. Introduction

AECOM Technical Services, Inc. (AECOM) has been selected to support the state's Aqueous Film Forming Foam (AFFF) Take-Back Program, specifically for the decontamination of fire apparatus and equipment used to contain and dispense AFFF which contained Per- and Polyfluoroalkyl Substances (PFAS). The current scope of work serves as a demonstration project to evaluate and establish the most cost effective and technically efficient process to decontaminate foam trailers and fire trucks. The State Team refers to the Connecticut Department of Energy and Environmental Protection (DEEP) and the Department of Emergency Services and Public Protection (DESPP). The foam trailers were AFT 500 AFFF trailers manufactured by United Plastic Fabricating, Inc., with possible minor changes due to year of manufacture (i.e., first or second generation AFT 500) and changes made by the trailer Owner since purchase. It is understood that the 500-gallon trailer tanks and 30-gallon firetruck tanks were filled with National Foam Universal Gold 1%-3% Alcohol Resistant (AR)-AFFF.

Between August 31 and October 29, 2021, AECOM and their subcontractors, Hiller Fire Protection and TRS Group, decontaminated two AFFF trailers and three fire trucks via multiple rinses and PerfluorAd® solution containing water. The decontamination process was performed in general accordance with the Standard Operating Procedure prepared by AECOM in August 2021, with some variations due to field conditions. The work was performed at the Eastern Connecticut Fire School (ECFS) located at 1 Fire School Road, Willimantic, Connecticut. The AFFF trailers, Foam Unit #6 and #7, were provided by Danbury and Willington Fire Departments, respectively. Two of the three fire trucks were provided by ECFS, and one was provided by Hebron Fire Department.

This document has been prepared to summarize the draining, rinsing, sampling, and water treatment procedures used to decontaminate the firefighting vehicles. Details on the treatment process, volumes and chemicals used, and samples collected are described below.

2. Decontamination Preparation & Site Setup

2.1 Health and Safety Preparation

Prior to the start of any decontamination work, AECOM prepared a health and safety plan for the demonstration project. Proper personnel protective equipment (PPE) was used in accordance with the Foam and cleaning agent safety data sheets. AECOM and subcontractors prepared Task Hazard Analyses (THAs) for each work activity performed under this scope of work. AECOM held daily Tailgate Health and Safety Meetings to review site hazards, THAs, and the activities planned for each day.

2.2 Secondary Containment & Spill Prevention

On August 31, 2021, AECOM and Hiller began setting up containment berms within the central garage bay. First, absorbent socks were placed in two of the garage bay trench drains. Each drain was then covered with 4-millimeter poly sheeting. The iron drain grates were put back in place over the poly sheeting.

Four containment berms, each with integral poly sheeting were then installed. A 12 foot (ft) by 50 ft InstaBerm with pop-up sidewalls was installed to hold the two 1,000 gallon settling tanks and the foam vehicle. Three additional 8 ft by 14 ft bracket sidewall berms were installed to hold the 275-gallon

intermediate bulk container (IBC) totes, other waste drums, the carbon vessels, and the 1,000-gallon stainless steel heating tank.

Absorbent rags, additional absorbent socks, and a shop vac were also available in the work area to address spills. A defoaming agent was used to maximize tote volumes, however only a minimal amount was needed for this scope of work.

2.3 PerfluorAd Preparation, Rinsate Treatment Setup, and General Procedure

TRS mobilized to the site on September 1, 2021 to set up the PerfluorAd® treatment system as described herein, and depicted as **Figure 1**. A 1,000-gallon stainless steel tank was outfitted with two heaters, pumps, and a mixer, and was used primarily to heat hydrant water and mix the water with PerfluorAd® solution prior to pumping into the AFFF trailer or fire truck. A third heater, which would have decreased the time needed to heat the water, could not be used due to power supply restraints. PerfluorAd® was heated separately with an electric heating wrap in a 5-gallon bucket. PerfluorAd® solution has high viscosity and must be mixed to homogenize the substance and prevent stratification during settling. PerfluorAd® solution must also be heated to completely dissolve in the water. Once the water was heated between 80- and 122-degrees Fahrenheit (F), and the PerfluorAd® solution heated above 100 degrees F, PerfluorAd® solution was added to the water, mixed, and pumped into the AFFF trailer or fire truck.

At the end of the cleaning rinse, the PerfluorAd water rinse was pumped via transfer pump from the AFFF trailer or fire truck to the 1,000-gallon settling tank adjacent to the trailer. Two settling tanks were provided, but only one was necessary for this scope of work. Once water was pumped into the settling tank, it was mixed with powdered activated carbon (PAC) for 30 minutes, and then allowed to settle for one hour. After settling, clearer water from the top of the tank was pumped through the two 200-pound carbon vessels filled with granular activated carbon (GAC) for treatment. Water flow through the carbon vessels was set to 5 gallons per minute (gpm) to ensure sufficient residence time before being pumped into IBC totes for future reuse or disposal. Photos of the system are provided as **Appendix A**.

3. Decontamination Procedure

3.1 AFFF Draining and Initial Rinse

Initial draining of the AFFF concentrate was performed on the first day of work for each of the two AFFF trailers and three fire trucks. Draining operations were performed by Hiller with AECOM assistance. Approximately 450 gallons and 90 gallons of AFFF concentrate were removed from Foam Units #6 and #7, respectively. A sample of AFFF concentrate was collected from the drain port of Foam Unit #7, identified as "CONCENTRATE-1," dated September 1, 2021; and was submitted to Eurofins Lancaster Laboratory (Lancaster, PA) for PFAS analysis.

Approximately 30 gallons of AFFF concentrate per truck were drained from Fire Truck #1 and Fire Truck #2. Fire Truck #3 arrived at Site with the AFFF tank previously drained off-site and filled with water. This water was sampled prior to draining, identified as "TANKWATER-1," dated October 25, 2021.

AFFF was drained from each vehicle using a transfer pump and deposited into 55-gallon drums or 275-gallon intermediate bulk container (IBC) totes staged within secondary containment. Each AFFF trailer was hitched backwards to allow gravity flow to the drain port and five-gallon buckets were used to collect residual AFFF from the tanks.

The estimated 600 gallons of AFFF concentrate was removed and disposed of by Clean Harbors on October 20, 2021 and January 18, 2022.

Prior to filling the first vehicle (Foam Unit #7) for treatment, the backflow preventer on the hydrant was inspected and approved by the Town of Windham Water Works Department on August 31, 2021. A sample of water was collected directly from the hydrant, identified as "HYDRANT-1," and dated September 2, 2021.

Based on discussions with United Plastic Fabricating, Inc. on September 1, the AFFF trailer concentrate tank has two front-to-back baffle walls that extent from top to bottom and divide the tank into three segments running front- to-back. They are structural and connect to the tank floor. These walls have V-shape openings along the floor and approximately 8-inch diameter holes about ten inches above the tank floor. There are also four baffles running between the sides, each starting about 4-inches above the floor and extend to the tank roof. All the baffle walls have V-shaped openings at the top for air flow. The four baffles also feature approximately 4-inch diameter holes about ten inches above the tank floor. United Plastic Fabricating, Inc. also recommended against pressurizing the tank above one pound per square inch. It was noted that no access ports were available to directly inject water into the baffled tank segment on the left side of trailer (drain and fill tower on right side of trailer).

The AECOM team discussed the options for agitating the solution within the AFFF trailer concentrate tank to get contact with the tank surfaces and decided the best option was to fill the tank, not completely, and drive the trailer around to create agitation.

Following the initial draining, the trailer was filled with approximately 350 gallons of water from a nearby hydrant for the first rinse. The trailer was then hitched to a truck and driven around the site to agitate the water and improve contact with internal surfaces of the baffled tank. The truck frequently stopped and started, drove in reverse, and took multiple turns to create lateral movement within the tank. After driving the trailer around for approximately one hour, the water was pumped via a transfer pump into two IBC totes.

Fire trucks were drained via a transfer pump directly to an IBC tote. A bucket was placed beneath the drain line and the drain valve opened to collect any residual AFFF from the tank. Once the concentrate was removed, the tank was filled with freshwater and flushed via transfer pump to an IBC tote. A pressure washer was used to attempt to remove dried AFFF from the tank walls and increase the total concentrate removed. Success was visually evaluated based on the presence of foamy or clear water. A sample was collected from the drain port prior to transfer, identified as "RINSE-1," for each vehicle.

3.2 PerfluorAd® Treatment

Following the initial hydrant water rinse, the AFFF trailers and fire trucks were decontaminated with heated water and PerfluorAd® solution in multiple rinse cycles, as described below. Each rinse was followed up with a flush of heated water. Samples were collected following each rinse and submitted to Eurofins for PFAS analysis. Volumes used for decontamination and flushing decreased after the first AFFF trailer (Foam Unit 7) based on analytical results, wastewater optimization, and field efficiencies, as shown on **Table 1**. Additionally, less treatment cycles were used with longer contact times after Foam Unit 7. This allowed the project team to simulate the contact time of two PerfluorAd® treatments using a single, longer, cycle while minimizing wastewater and avoiding the downtime of reheating water.

PerfluorAd® Treatment #1

For the first PerfluorAd® treatment of each vehicle except Foam Unit #6 (300 gallons), a total of 450 gallons of heated water, and 200 milliliters (ml) of heated PerfluorAd® concentrate were mixed in the stainless-steel heating tank. An additional 20 ml of PerfluorAd® concentrate solution was added to

counter floc forming in the heating tank prior to contact with AFFF. It is believed the PerfluorAd® solution was reacting with either a coating on the stainless-steel tank or interference from the hydrant water with a pH of 10. The heated water with PerfluorAd® solution was pumped into each AFFF trailer, which was driven around as described in Section 3.1.

For decontamination of the fire trucks, process loops were established, which allowed the team to recirculate PerfluorAd® treatment water and rinse water without driving the trucks around to increase agitation. Two separate loops for the AFFF tank and process piping were created for each fire truck. Water in the stainless-steel tank was connected to the truck, circulated through the piping on the fire truck, and returned to the stainless-steel tank completing the loop. Valves on the truck were routinely exercised to ensure PerfluorAd® solution reaches piping that may have been in contact with AFFF, including drain lines. A small recirculation loop was created for the 30-gallon AFFF tank on each fire truck, featuring a transfer pump to agitate the water. One PerfluorAd® cycle consisted of 90-minutes of recirculation within the tank and pipes. However, the 30-gallon tanks were circulated for up to 8-hours, given that the tanks needed a higher degree of cleaning. For this extended tank cleaning, a lower horsepower pump was used, and the tanks were visually inspected for signs of AFFF.

After driving the AFFF trailers around or recirculating the fire trucks, water from each vehicle was pumped into a settling tank, and another 300-450 gallons of water were heated for a freshwater rinse following the PerfluorAd® rinse. Once heated to at least 80 degrees F, the heated water was pumped into the AFFF trailers and driven around or recirculated in the fire trucks similarly to the PerfluorAd® treatment.

A sample of the rinse water was collected at this point, identified as "RINSE-2," for each vehicle. The sample was collected from the drain port of each trailer and from the AFFF tank of each fire truck. The heated water was then pumped into the settling tank with the 300-450 gallons of water with PerfluorAd® solution and became the first batch to go through carbon treatment (effluent #1) described in Section 3.3, below.

PerfluorAd® Treatment #2

For the second PerfluorAd® treatment of each vehicle except Foam Unit #6 (300 gallons), a total of 450 gallons of heated water and 150 milliliters (ml) of heated PerfluorAd® were mixed in the stainless-steel heating tank. According to TRS, PerfluorAd® concentrate volume can incrementally decrease with each subsequent rinse, meaning less chemical was used for the second decontamination rinse. The heated water with PerfluorAd® solution was pumped into each AFFF trailer and was driven around as described in Section 3.1.

For decontamination of the fire trucks, process loops were established, which allowed the team to recirculate PerfluorAd® treatment water and rinse water without driving the trucks around to increase agitation. Two separate loops for the AFFF tank and process piping were created for each fire truck. Water in the stainless-steel tank was connected to the truck, circulated through the piping, and returned to the stainless-steel tank completing the loop. Valves on the truck were routinely exercised to ensure PerfluorAd® reaches piping that may have been in contact with AFFF, including drain lines. A small recirculation loop was created for the 30-gallon AFFF tanks on each fire truck, featuring a transfer pump to agitate the water. For Treatment #2, two consecutive 90-minute intervals of PerfluorAd® treatment via recirculation was performed to achieve proper contact time (i.e., minimum of 3 hours). The 30-gallon tanks were circulated for up to 8-hours, given that the tanks needed a higher degree of cleaning. For this extended tank cleaning, a lower horsepower pump was used, and the tanks were visually inspected for signs of AFFF.

After driving the trailer around or recirculating the fire trucks, water from each vehicle was pumped into a settling tank, and another 250-450 gallons of water were heated for a freshwater rinse following the PerfluorAd® treatment rinse. Once heated to at least 80 degrees F, the heated water was pumped into the AFFF trailers and driven around or recirculated in the fire trucks similarly to the PerfluorAd® treatment.

A sample of the rinse water was collected at this point, identified as "RINSE-3," for each vehicle, except Engine #33 where "RINSE-3" represents the final freshwater rinse, described below. The sample was collected from the drain port of each trailer and from the AFFF tank of each fire truck. The heated water was then pumped into the settling tank with the 300-450 gallons of water with PerfluorAd® solution and became the second batch to go through carbon treatment (effluent #2) described in Section 3.3, below.

PerfluorAd® Treatment #3 (Foam Unit #7 only)

Based on analytical data, a third PerfluorAd® treatment was only performed on Foam Unit #7, which was the first vehicle decontaminated. On September 8, 2021, 450 gallons of heated water (100 degrees F), and 100 milliliters (ml) of heated PerfluorAd® concentrate solution were mixed in the stainless-steel heating tank. The 450 gallons of heated water with PerfluorAd® solution were pumped into the AFFF trailer, which was driven around as described in Section 3.1. The truck was driven around for two hours to simulate additional PerfluorAd® solution rinsing without generating additional rinsate water. After driving the trailer around, the trailer water was pumped into a settling tank, and another 450 gallons of water was heated for a freshwater rinse following the PerfluorAd® treatment rinse. A sample was then collected of the PerfluorAd® solution water from this rinse and is identified as "RINSE-4," and dated September 8, 2021.

Approximately 450 gallons of water were taken directly from the hydrant for a final freshwater rinse following the PerfluorAd® solution rinse. This water was not heated and was pumped into the AFFF trailer to be driven around. A sample of the rinse water was collected at this point, identified as "RINSE-5PM," and dated September 8, 2021.

This water was left in the AFFF trailer overnight in secondary containment to perform a leak detection test. The next morning, no leaks were identified on the trailer. Prior to the water being pumped into the settling tank, another sample of this rinse water was collected, identified as "RINSE-5AM," and dated September 9, 2021. These samples were collected to compare if contact time had an impact on PFAS concentrations in the rinsate.

The water was then pumped into the settling tank with the 450 gallons of water with PerfluorAd® solution, and these 900 gallons were the third and final batch to go through carbon treatment (effluent #3) described in Section 3.3, below.

Final Freshwater Rinse

Following the last PerfluorAd® treatment and rinse, each vehicle was flushed with unheated freshwater. The volume used varied by vehicle, but a range of 250-450 gallons were used for each final flush. The final freshwater rinse sample was collected from the drain port of the AFFF trailers or the AFFF tank on each fire truck. This sample is identified as "RINSE-4" for each vehicle except Foam Unit #7 and Engine #33. For Foam Unit #7 the additional PerfluorAd® treatment cycle conducted on this trailer resulted in the final freshwater rinse being identified as "RINSE-5PM, described above." For Engine #33, the water used following the second PerfluorAd® treatment was cycled again as the final rinse, identified as "RINSE-3." This method maintained adequate contact time but did not allow an opportunity to collect two samples.

AFFF Trailer Hard Piping Downstream of Proportioners

It is understood that the proportioners were replaced in 2019 on all AFFF trailers. Some piping located after the proportioners on the front end of the trailer may have come in contact with PFAS containing foam. On September 9, 2021, AECOM and their subcontractors disconnected the soft lay flat hosing and ran a total of 75 gallons of hydrant water through the three piping segments following the proportioners. The line was pressurized via hydrant water and 25 gallons were flushed through each of the three pipe segments.

Disconnected steel piping and pumps from Foam Unit #7 provided separately by the Willington Fire Department were cut and placed in steel drums for future off-site disposal by Clean Harbors.

Fire Truck Hose Cleaning Test

A simple test for cleaning the fire truck hose was conducted on October 19 and October 20, 2021. A 50-foot segment of fire hosing that may have contacted AFFF was filled with hydrant water. A sample was collected immediately, to evaluate existing PFAS concentrations. This sample is identified as "HOSE-PRE-1," dated October 19, 2021. After collecting the sample, the pipe was capped on both ends and remained filled for at least 12-hours to evaluate PFAS water leachability from the hosing interior. Approximately 13 gallons of water were used to fill the hose. The following morning on October 20, 2021, a sample was collected from the hose, identified as "HOSE-PRE-12 HRS-1."

This segment of hose was utilized in the PerfluorAd® treatment recirculation loop by connecting it between the fire truck and the stainless-steel tank. At the end of the rinse cycle, a sample of the chase water was taken from the hose segment. This sample is identified as "HOSE-POST-1," dated October 20, 2021.

3.3 Treatment and Reuse of Rinsate Water

Water pumped from each vehicle to the settling tanks was mixed with 7.5 pounds of PAC for every 900 gallons of water. Once dosed, the carbon water mixture was agitated for 30 minutes and then allowed to settle for a minimum of one hour. A drainpipe at the bottom of the cone shaped settling tank dispensed precipitated solids (and some water) into 55-gallon drums for off-site disposal by Clean Harbors. After settling, the clarified water was pumped in series through two bag filters and two 200-pound GAC vessels. Water flowed through the carbon vessels at 5 gallons per minute to allow sufficient contact time with the GAC. Following GAC treatment, the water was pumped directly into IBC totes for reuse or disposal. Typically, effluent water from the PerfluorAd® treatment decontamination rinses #2 and #3 were reused in subsequent rinses and vehicles in a conscious effort to minimize wastewater generated. IBC totes were visually inspected for discoloration, odor, microbial growth prior to reuse. Water that was visually unsatisfactory, or already used more than three times, was put aside for disposal and not reused for subsequent decontaminations.

A total of two to three batches of settled water (900 gallons each) were treated through the GAC vessels for each vehicle decontaminated. These post-carbon samples were collected from a sample port located after the second carbon vessel. For each vehicle the sample associated with water from PerfluorAd® treatment #1 described above was identified as "EFFLUENT-1." Similarly, the samples from the second and third treatments were "EFFLUENT-2" and "EFFLUENT-3", respectively.

3.4 Waste Handling/Treatment

The demonstration includes treatment of the rinsate which includes mixing the rinsate with PAC, settling, sludge removal, and pumping of clarified water through bag filters and liquid phase GAC. The treated effluent was partially reused for subsequent rinse cycles as discussed below. The decision of

which effluent to reuse was based on analytical data, correspondence with the PerfluorAd® technology manufacturer, visual and olfactory observations and other considerations.

Treatment of the rinsate water for reuse as makeup water greatly reduced the overall volume of clean water required to facilitate decontamination activities and waste generated requiring off-site disposal. The reduction of clean water required, and impacted water requiring off-site management/disposal is estimated to be approximately 7,820 gallons. Based on waste disposal costs from Phase I, this results in a reduction of an estimated $81,548 of disposal costs to CTDEEP. In addition to cost savings for totes, transportation and disposal costs, this approach reduces the carbon footprint of the project and is consistent with AECOM's targets for sustainable remediation. R provides the calculations for this rinsate disposal reduction and cost savings.

All residual concentrate, treatment sludge, AFFF contaminated solid wastes, and other wastes were properly contained in drums or 275-gallon totes kept with the secondary containment. The total quantities disposed were as listed below:

- Rinsate: 15 275-gallon IBC totes (~4,125 gallons);
- PerfluorAd® solution floc and carbon sludge: six 55-gallon drums (~330 gallons);
- LGAC: three 55-gallon drums (~165 gallons); and,
- Solids/PPE: one 55-gallon drum.

On October 20, 2021 Clean Harbors removed AFFF concentrate totes from the Site. On January 18, 2022, Clean Harbors removed from site all IBC totes containing rinsate water and AFFF concentrate, as well as drums of solids (GAC, PPE, piping, bag filters, etc.), and carbon sludge for final off-site disposal.

3.5 Demobilization

On October 29, 2021, the work area was decontaminated and prepped for a shutdown as the team coordinated final off-site transport of the process equipment. Hoses, wires, and tools were rolled up and put in storage. Piping and power supplies were de-energized and staged for shutdown. Totes and drums were staged in secondary containment for off-site disposal by Clean Harbors. On December 1, 2021, TRS demobilized the remaining process equipment from the site

4. Verification Sampling and Analysis

Samples were collected directly from the AFFF trailer, fire truck, hydrant, or carbon vessel sample port to minimize cross contamination. **Table 2** presents a description of the samples collected. Samples were collected into lab-provided bottleware for PFAS and Top Assay analyses. A duplicate sample was collected following the final rinse of the AFFF trailer, and a field blank (dated September 9, 2021) was collected using laboratory provided PFAS-free water. A matrix spike/matrix spike duplicate (MS/MSD) sample was collected from the final effluent (EFFLUENT-3). Samples were kept on ice until submission to Eurofins Lancaster Laboratory. Samples were shipped to the lab via FedEx under proper chain of custody and were packaged with ice and sealed bags to prevent spilling.

As agreed with the State Team, both AECOM and Arcadis used Eurofins-Lancaster for the laboratory analysis. Eurofins-Lancaster holds a DoD ELAP certification for Standard PFAS analyses using LC/MS/MS; compliant with QSM 5.3 Table B-15 for the post-rinsate sample analysis. The post-rinsate samples were analyzed using isotope dilution method. The analyte list was the 24 PFAS compounds in EPA 8327. The only modification from the DoD rules was reporting to the RL = LOQ, and not reporting J detections below the LOQ, consistent with other state guidance

Analytical Summary Table

Sample Location	Standard PFAS (DoD ELAP)	TOP Assay	AFFF
Tap-water	1		
Post-rinse	26	26	1
Treatment Effluent	15	15	
Duplicates	5	5	
Blank	1	1	
TOTAL	**48**	**47**	**1**

4.1 Total Oxidizable Precursors Assay

The Total Oxidizable Precursors (TOP) assay converts a portion of the complex soup of perfluorinated chemicals in AFFF into detectable terminal perfluoro carboxylate (PFCAs) which are called terminal PFCAs because they resist further degradation by the aggressive oxidation of the TOP procedure. This provides a surrogate value to represent a portion of the unquantified fluorinated chemicals in AFFF called precursors which could potentially degrade to terminal PFAS in the future (Houtz,2012). TOP does not degrade all perfluorinated chemicals and the measured Post-TOP PFCAs are not the only precursor oxidation products. The strong chemical oxidant effect likely over-predicts the potential for precursor oxidation to terminal carboxylates under normal environmental conditions (Guelfo,2021; Ruyle,2021). Note the target analyte list for the Post -TOP results included some analytes (highlighted purple in data tables) that were not part of the project specific analyte list derived from the DoD QSM 5.3 Appx. C Table C-44. These extra analytes are not included in the total sums for PFAS, PFCAs, PFSAs, and FTS.

The predominant terminal target compounds in this group contain perfluorinated chains with between 4 and 9 carbons, i.e., PFBA, PFPeA, PFHxA, PFHpA, PFOA, and PFNA. Some longer chain C10 to C14 compounds can also be created depending on the AFFF composition. The ratio of the Pre-TOP and Post-TOP PFCA concentrations provides a rough indicator of unquantified PFAS in each sample and how effective the cleanup process is at removing all the PFAS, both target and non-target fluorinated chemicals, in AFFF residuals.

Individual Post/Pre-TOP total PFCA ratios vary over a wide range from 4 to 4000. These ratio variations are probably due to difficulty in consistently subsampling higher concentration samples where PFAS micelle formation can create solution inhomogeneities, differences in oxidation efficiency in individual TOP preparations, and artifacts of elevated detection limits in different dilutions. Linear regression analysis of the Pre-TOP and Post-TOP total PFCA concentrations provided in **Figure 2** indicates they are correlated as would be expected if the TOP degradable precursor pool and measured analyte PFCAs have a similar ratio regardless of concentration in the various rinses, however this apparent high correlation is driven by a few of the higher concentration result pairs. The regression in log space reveals the scatter in ratios for the lower concentration samples.

In general, the Post-TOP and Pre-TOP final rinses and effluent sample results indicate that the PFAS reductions from PerfluorAd and GAC treatment effectively reduce both the target and non-target fluorinated chemicals in AFFF residuals.

4.2 AR AFFF Concentrate Results

Analyses of the AR AFFF foam concentrate identified as National Foam Universal® Gold 1%-3% AR-AFFF are provided in **Table 3**. Results of the Pre-TOP analysis of the AFFF concentrate solution indicate the dominant PFAS target analytes are the C9 and C11 PFCAs PFNA and PFUnA, respectively. These 2 PFCAs constitute more than 80% of the target analyte total concentration. Longer chain PFCAs like these, and PFOA, PFDA, PFDoA, PFTRDA, and PFTeDA also present, are less water soluble than the sort chain PFAS and therefore more likely to strongly sorb to surfaces in the tanks and trailers. These sorbed PFAS are more difficult to remove during tank and baffle rinsing and present a challenge to effective PFAS removal. Significant concentrations of the FTS compounds 4:2 FTS, 6:2 FTS, and 8:2 FTS were present, representing >6% of the target PFAS in the concentrate. The PFSAs are not major components of this AFFF, but PFHxS and PFOS were present at trace levels (<<1%).

The Post-TOP analysis of the AR AFFF concentrate exhibits more than twice the total PFCA concentration as the Pre-TOP analysis, where the largest increase is in the short chain PFCAs such as PFBA, PFPeA, PFHxA, and PFHpA, which collectively become 79% of the total measured PFAS concentration. **Figure 3** provides a graph comparing the relative abundance of PFCA, PFSA, and FTS target compounds, illustrating the shift to short chain PFAS in the Post-TOP results. This same pattern is generally observed in the rinsates as well and is typical of TOP which readily produces short chain PFCAs from precursor mixtures. The nearly complete disappearance of measurable FTS compounds in the Post-TOP is a measure of the oxidation completeness, although the fact that 10:2 FTS appeared in the post-TOP extract and that PFNA, PFUnA, and PFTeDA Post-TOP concentrations are below the Pre-TOP values indicates some analytical difficulties in oxidizing and quantifying the TOP results in concentrated PFAS.

4.3 Rinsate Results

Results for Pre-TOP and Post-TOP analyses for each location where successive rinsates were treated with PerfluorAd® solution to remove PFAS are provided in **Table 4** for Foam Unit 7, **Table 5** for Engine 33, **Table 6** for the Mystic FD, **Table 7** for the Hebron FD, and **Table 8** for Foam Unit 6. In addition to the results, the % reduction from the starting concentration in the initial rinse, and the % reduction between rinses are calculated at bottom of the table columns. Graphs displaying the reduction of total PFCAs from successive rinsate cleanups at each location are provided in **Figure 4** for each treatment location in both linear and log scale on the y-axis so the final rinse results are easier to see.

Table 9 provides a summary of the total Pre-TOP PFAS concentrations and the reduction from the first rinsate sample to the last rinsate sample for the 2 AFFF trailers and three fire trucks using the Pre-TOP results. The total Pre-TOP PFAS concentrations in Rinse 1 ranged from 545,360 ng/L to 15,407,000 ng/L for the five vehicles. The percent % reduction for the five vehicles ranged from 99.660% to 99.98%.

Table 9 also provides a summary of the reduction between each rinsate sample for the five vehicles using the Pre-TOP results. The percent % reduction between the Rinse 1 and Rinse 2 samples for the five vehicles ranged from 72.79% to 99.93%. The percent % reduction between the Rinse 2 and Rinse 3 samples for the five vehicles ranged from 38.24% to 98.85%. The general conclusion that can be made from **Table 9** is that the second PerfluorAd® cycle continues to lower the rinsate PFAS

concentration but a third PerfluorAd® cycle, as done for Foam Unit 7, does not appear to provide further benefit.

A simple test for cleaning the fire truck hose for the Hebron FD fire truck was conducted on October 19 and October 20, 2021 as described in Section 3.2. The results are presented in **Table 7.** The initial sample Pre-TOP PFAS concentration, HOSE-PRE-1, was very low at 810 ng/L. The post cleaning sample was higher (4,388 ng/L) but this may reflect the desorption of PFAS during the cleaning treatment process. The data does suggest that the fire hose starting concentration is significant lower than the trailers and fire trucks. The post cleaning sample was higher than the pre-cleaning sample but this may be due to PreflourAd removing the PFAS and the small rinsate volume. It is likely that a subsequent rinsate sample would have been lower than the pre or post hose samples. However, a more thorough demonstration would need to be performed to verify these results.

4.4 Treatment Effluent Results

Results for Pre- and Post-TOP PFAS analyses of the effluent after final cleanup using GAC are provided in **Table 10** for all locations.

The Pre-TOP results for total PFAS for the effluent after treatment varied between 0 ng/L and 1,046 ng/L, excluding sample TRAILER 2 -EFF 1-1. The average of the seven samples was 426 ng/L, excluding sample TRAILER 2 -EFF 1-1. The Post-TOP results for total PFAS for the effluent after treatment varied between 0 ng/L and 90,200 ng/L and the average of the seven samples was 16,270 ng/L, excluding sample TRAILER 2 -EFF 1-1. The very low to non-detect results were achieved during the first two vehicles. It is expected that the reuse of the treated rinsate made it more difficult to completely remove PFAS during the third through five vehicles. However, the rinsate results do not suggest any notable decrease in PerfluorAd® treatment performance due to reuse of treated effluent.

Sample TRAILER 2 -EFF 1-1 had significantly higher Pre-TOP and Post-TOP total PFAS concentrations of 23012 ng/L and 4,690,000 ng/L, respectively. This sample results is not believed to be representative of the treatment results because the sample may have captured some powder activated carbon (PAC) which contained precipitated PFAS that could be leached out on the SPE rinse during analysis prep.

4.5 Quality Control

All of the Eurofins-Lancaster reports batch level QA/QC results were reviewed for conformity with laboratory control limits. No target analytes were detected in any of the associated method blanks. No target analytes were detected in any of the field blank samples (see **Table 11**). Precision for the results in field duplicate samples (see **Table 12**) were generally within the 30% standard control limit for aqueous sample field duplicate RPDs. Exceedances of 30% are highlighted yellow and primarily occur in the highest concentration sample Foam Unit #7 RINSE-5 AM, which may have been inhomogeneous due to foaming related micelle formation. All laboratory control sample native analyte recoveries were within control limits. A few method blanks displayed high extracted internal standard (EIS) recoveries for many analytes. Some LSC samples exhibited some minor exceedances in EIS recoveries for 2 to 12 analytes. In samples minor exceedances were noted for injection standard areas, exceedance of calibration range, and EIS recovery for some analytes in some samples. Isotope dilution calculations correct all results for EIS recoveries, therefore if adequate signal to noise is available for detected target peaks, results should be accurate regardless of EIS recovery, but a limit of 10% is often applied in data evaluation to reject associated non-detect results. (EPA,2020). All labeled Post TOP surrogates were within control limits. EIS recoveries were below 10% for a few analytes in some EFF and TOTE-GAC

samples, possibly due to the presence of residual activated carbon. All the associated data, with the exception of a few non-detect analyte results where EIS %R <10%, are regarded as usable for project purposes based on standard data validation criteria. All laboratory reports are included in **Appendix B**.

5. Conclusions

The purpose of this work was to evaluate and establish the most cost effective and technically efficient process to decontaminate foam trailers and fire trucks. Between August 31 and October 29, 2021, AECOM and their subcontractors, Hiller Fire Protection and TRS Group, decontaminated two AFFF trailers and three fire trucks via multiple rinses and PerfluorAd® solution containing water.

The PerfluorAd® treatment of AFFF containing foam trailers and fire trucks resulted in greater than 99% removal of PFAS during this demonstration. The total Pre-TOP PFAS concentrations in Rinse 1 ranged from 545,360 ng/L to 15,407,000 ng/L for the five vehicles. The percent % reduction for the five vehicles ranged from 99.660% to 99.98%.

Asymptotic PFCA removal results were observed with subsequent rinses. The general conclusion that can be made from **Table 9** is that the second PerfluorAd® cycle continues to lower the rinsate PFAS concentration but a third PerfluorAd® cycle, as done for Foam Unit 7, does not appear to provide further benefit.

Treatment and reuse of rinsate water resulted in over $80,000 in savings of transportation and disposal costs for the five vehicles involved with the demonstration. Cost savings of this magnitude are expected to accumulate during the continued decontamination of each fire truck and foam unit in the state of Connecticut.

A demonstration of clean water triple rinse is recommended to compare the cost benefit and effectiveness of triple rinse compared to PerfluorAd® treatment.

In conclusion, this work demonstrated that AFFF trailers and fire trucks can be successfully cleaned of AFFF and PFAS. It was also demonstrated treatment and reuse of rinsate water will provide significant cost savings.

6. References

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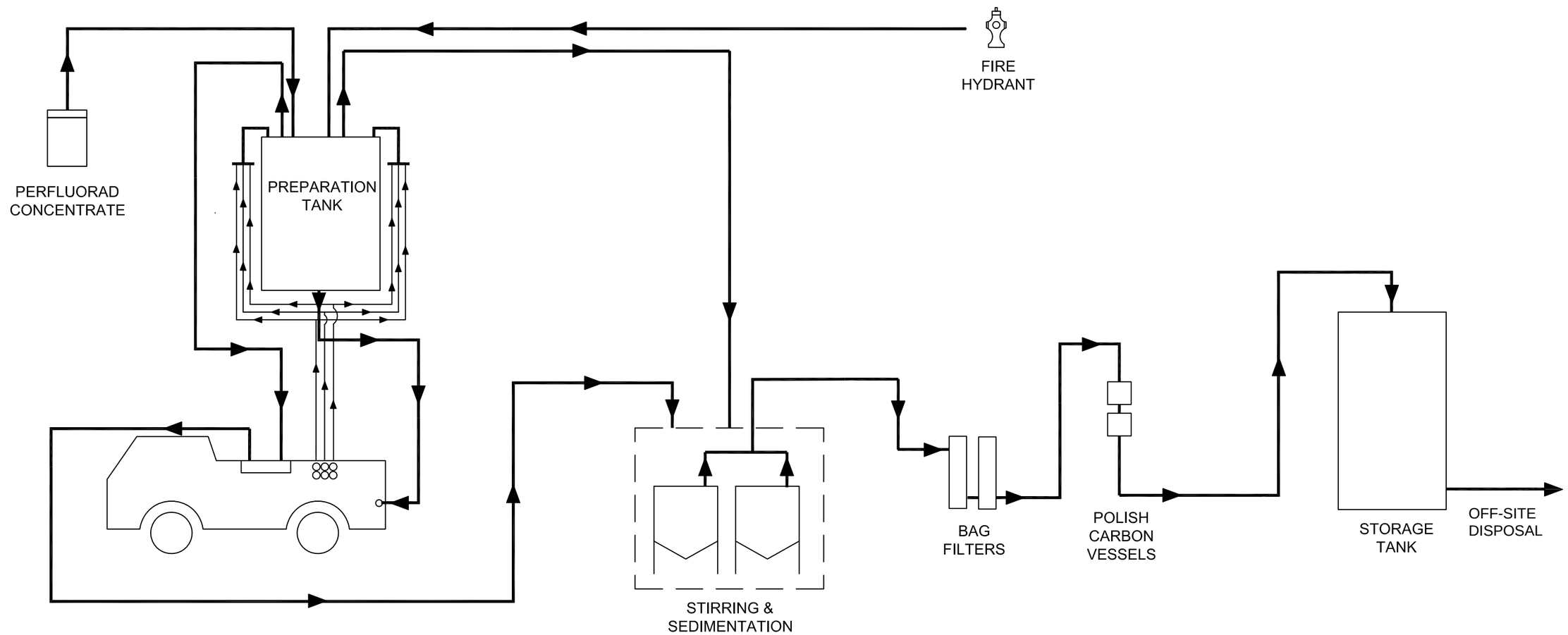
Figures

APPROVED

For Construction



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DRAWN BY	A. PEABODY
CHECKED BY	J. BUHL
PROJECT MANAGER	TRS PERSONNEL
QSAT REVIEW	TRS PERSONNEL

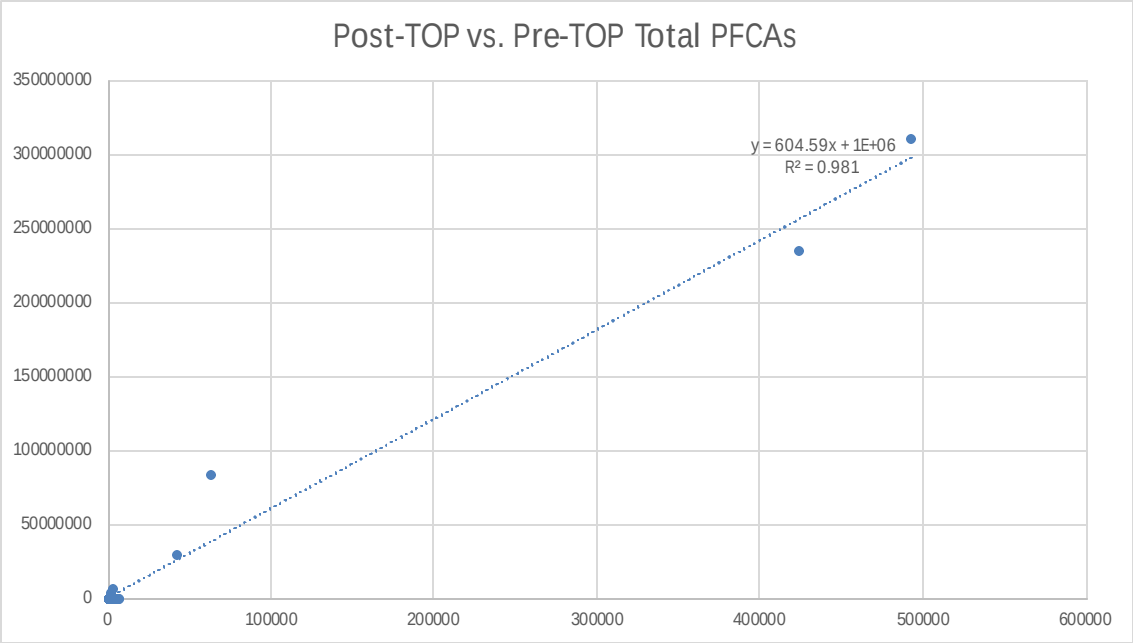
AFFF CLEANOUT SYSTEM
PROCESS FLOW DIAGRAM

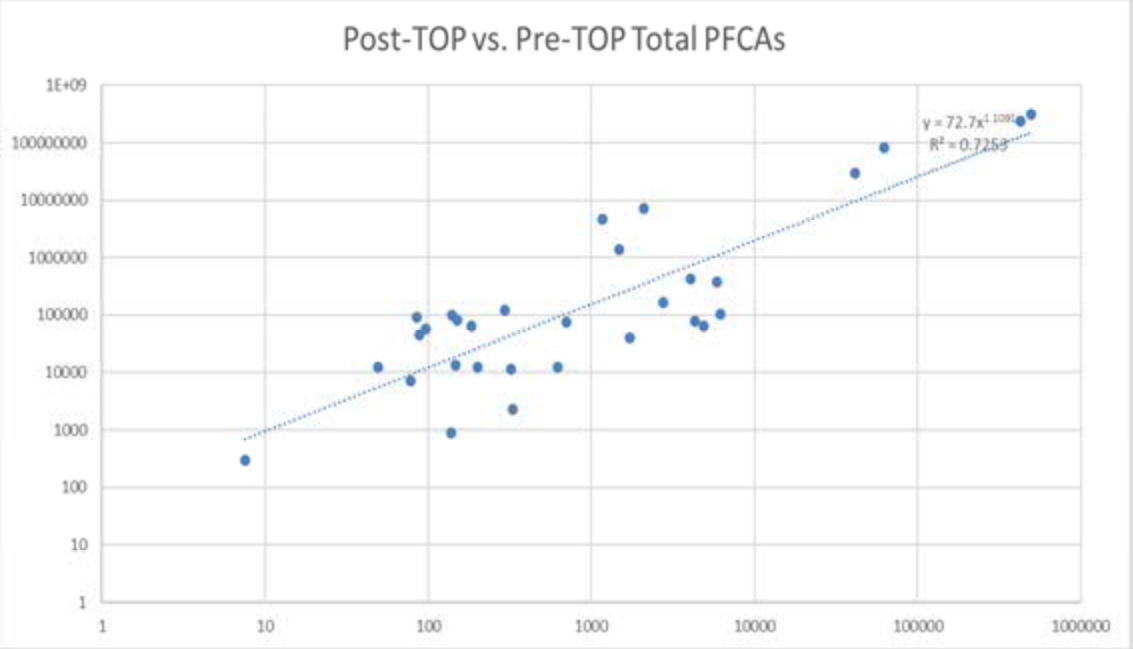
APPROVED FOR CONSTRUCTION
BY _____
DATE _____

DATE 2021.JUL.22 | PROJECT 60662934

SHEET FIGURE 1

Figure 2
Linear Regression Plot of Post-TOP vs. Pre-TOP Total PFCAs
CT DEEP AFFF Decon Demonstration





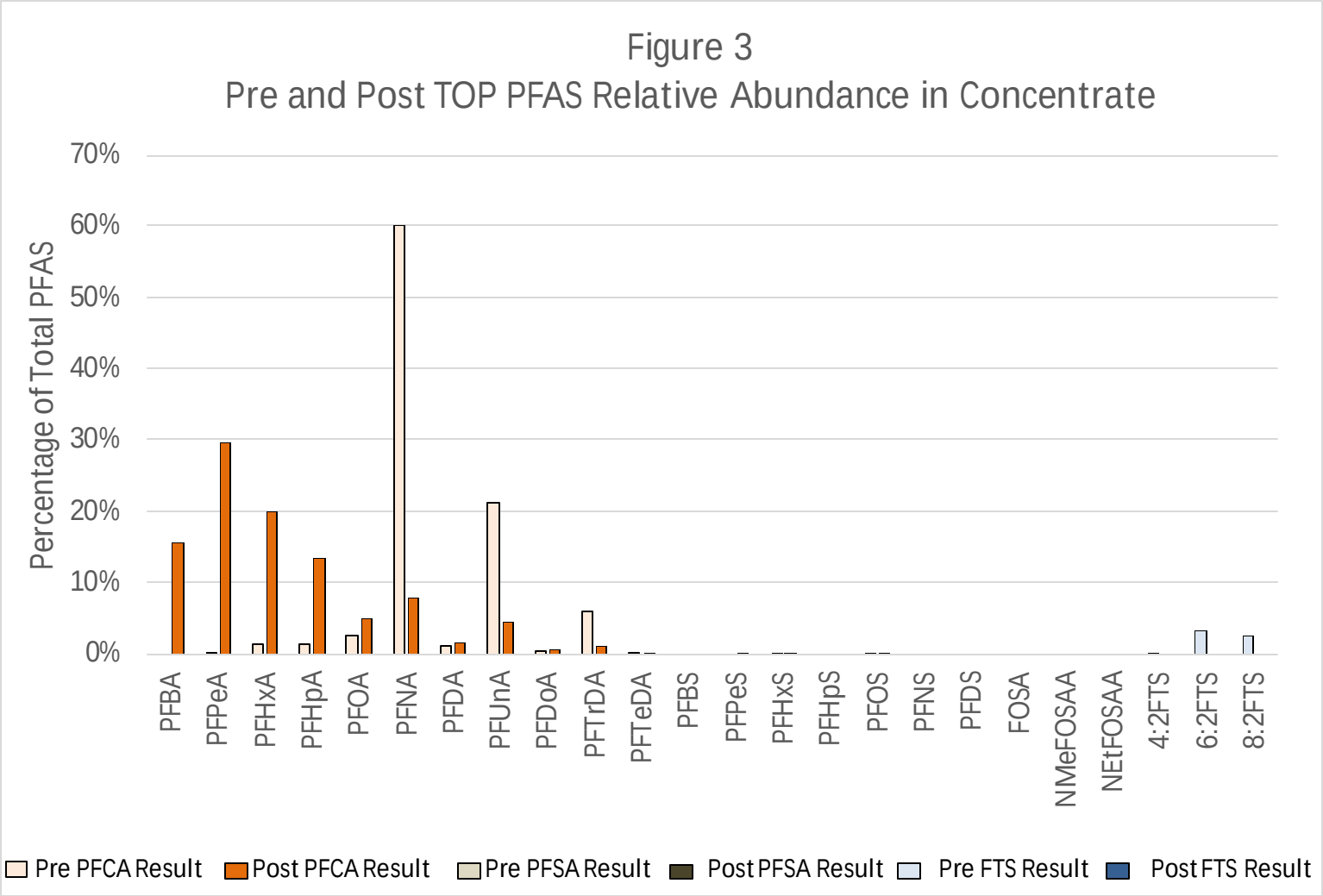
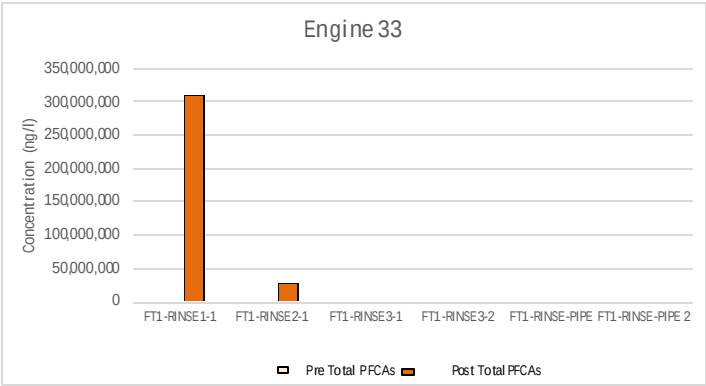
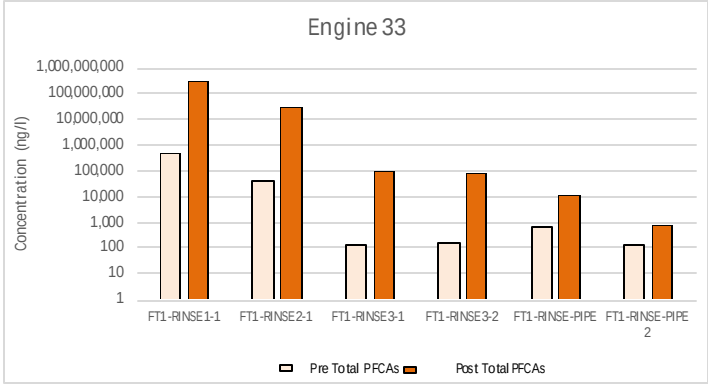
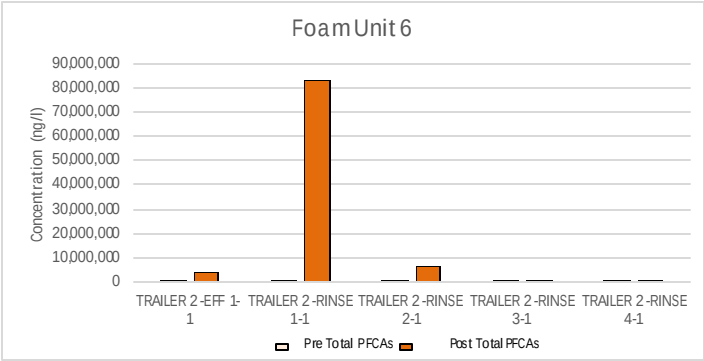


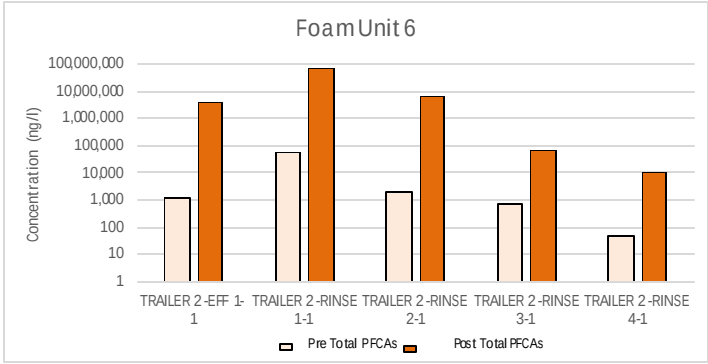
Figure 3
Pre and Post TOP PFAS Relative Abundance in Concentrate
Percentage of Total PFAS
70%
60%
50%
40%
30%
20%
10%
0%
PFBA
PFPeA
PFHxA
PFHpA
PFOA
PFNA
PFDA
PFUnA
PFDoA
PFTrDA
PFTeDA
PFBS
PFPeS
PFHxS
PFHpS
PFOS
PFNS
PFDS
FOSA
NMeFOSAA
NEtFOSAA
4:2FTS
6:2FTS
8:2FTS
Pre PFCA Result
Post PFCA Result
Pre PFSA Result
Post PFSA Result
Pre FTS Result
Post FTS Result

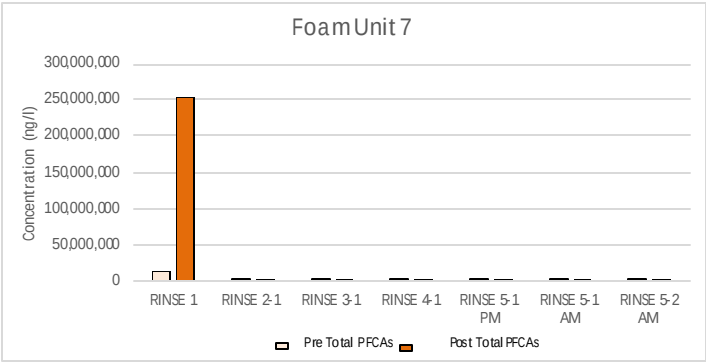
Figure 4
Pre and Post-TOP Total PFCA Rinsate Results
CT DEEP AFFF Decon Demonstration











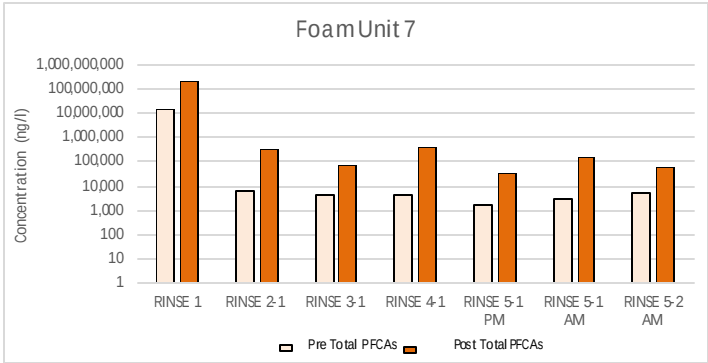
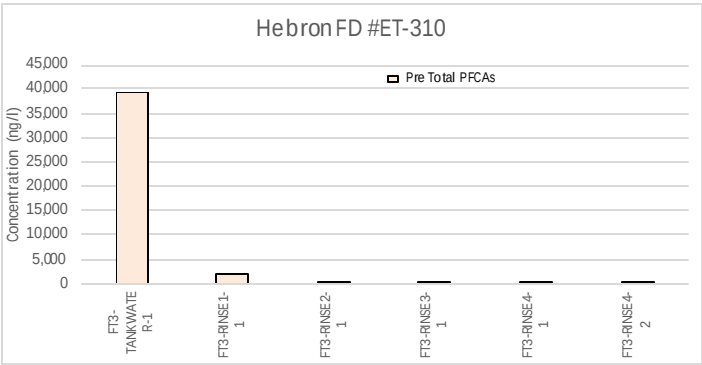
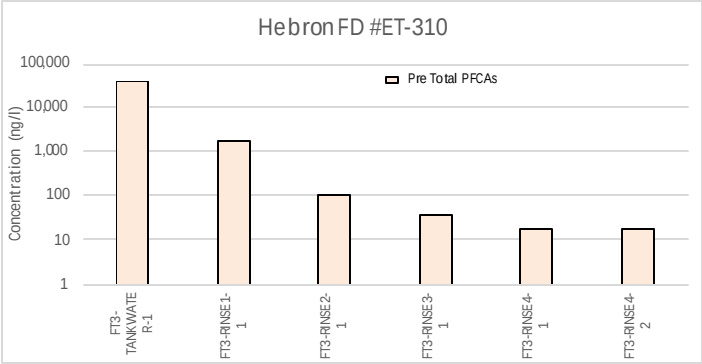
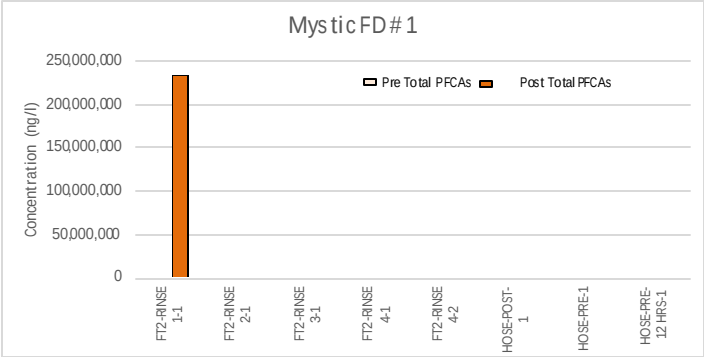
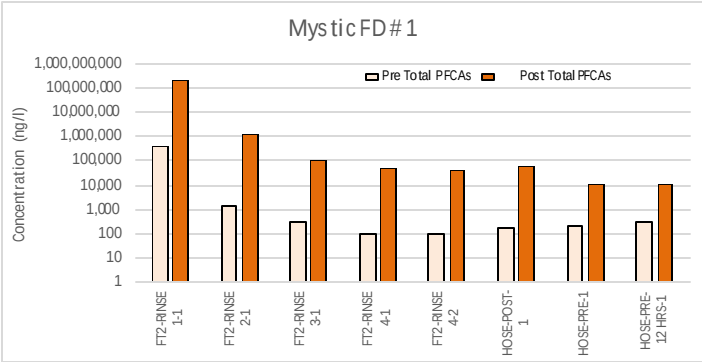


Figure 4
Pre and Post-TOP Total PFCA Rinsate Results
CT DEEP AFFF Decon Demonstration









Tables

Table 1
Rinsate Volumes and Cost Reduction
CT DEEP AFFF Decon Demonstration

Total Volume of Rinsate Produced (Gallons)									
	Initial Rinse	1st Perfluorad	1st Rinse	2nd Perfluorad	2nd Rinse	3rd Perfluorad	3rd Rinse	Final Rinse	Total Volume
Foam Unit #7	350	450	450	450	450	450	450	450	3500
Engine #33 (ECFS)	50	450	350	450	350	-	-	350	2000
Mystic FD #1 (ECFS)	50	450	350	450	250	-	-	250	1800
Foam Unit #6	300	300	300	300	350	-	-	350	1900
Hebron FD #ET-310	50	450	350	450	350	-	-	350	2000
								Total	11200

Estimated Percent Reduction in Rinsate Disposal	
Rinsate Volume Disposed by Clean Harbors (gal.)	3,380
Reduction in rinsate quantity due to effluent treatment and reuse (gal.)	7,820
Percent reduction in disposal rinsate due to effluent treatment and reuse (%)	70%
Estimated Number of Totes Reduced	30
Clean Harbors Disposal ($2,258/tote)	$ 67,914
Clean Harbors Transportation Fee (1 round trip CT -Sarnia, ON)	$ 4,100
Material Cost of Totes ($317/tote)	$ 9,534
Total Rinsate Cost Savings	$ 81,548

Table 2
Summary of Sample ID Descriptions
CT DEEP AFFF Decon Demonstration

Associated Vehicl	Vehicle Number	Sample ID	Description
Foam Trailer #1	Foam Unit #7	CONCENTRATE-1	AFFF concentrate from foam tank on trailer
Foam Trailer #1	Foam Unit #7	RINSE-1	first water only rinse collected from the tank prior to any PerfluorAd
Foam Trailer #1	Foam Unit #7	HYDRANT-1	sample of hydrant water collected from slightly opened valve on hydrant
Foam Trailer #1	Foam Unit #7	RINSE2-1	sample of the flush water used following the 1st PerfluorAd and flush
Foam Trailer #1	Foam Unit #7	EFFLUENT-1	sample of GAC-treated water from the first and second PerfluorAd and subsequent first and second post- PerfluorAd flush
Foam Trailer #1	Foam Unit #7	RINSE3-1	sample of the flush water used following the 2nd PerfluorAd and flush
Foam Trailer #1	Foam Unit #7	EFFLUENT-2	sample of GAC-treated water from the third and fourth PerfluorAd and subsequent third and fourth post- PerfluorAd flush
Foam Trailer #1	Foam Unit #7	RINSE 4-1	sample of the flush water used following the 3rd PerfluorAd and flush
Foam Trailer #1	Foam Unit #7	RINSE 5-1PM	sample of the flush water used following the 4th clean water flush.
Foam Trailer #1	Foam Unit #7	RINSE 5-1AM	Rinse water was left in the trailer overnight and resampled in the morning to assess leaching. This sample was collected approximately 14 hours following RINSE 5-1PM
Foam Trailer #1	Foam Unit #7	RINSE 5-2AM	Duplicate of RINSE 5-1AM
Foam Trailer #1	Foam Unit #7	FIELD BLANK-1	Field blank collected using laboratory provided PFAS free water
Foam Trailer #1	Foam Unit #7	EFFLUENT 3-1	sample of GAC-treated water from the fifth PerfluorAd and subsequent fifth post-PerfluorAd flush
Foam Trailer #1	Foam Unit #7	TOTE10-11-GAC-2	additional GAC treatment of TRAILER1-EFFLUENT3-1 from Foam Unit #7
Foam Trailer #2	Foam Unit #6	TRAILER2-RINSE1-1	first water only rinse collected from the tank prior to any PerfluorAd
Foam Trailer #2	Foam Unit #6	TRAILER2-RINSE2-1	sample of the flush water used following the 1st PerfluorAd and flush
Foam Trailer #2	Foam Unit #6	TRAILER2-EFF1-1	sample of GAC-treated water from the first PerfluorAd and subsequent first post-PerfluorAd flush
Foam Trailer #2	Foam Unit #6	TRAILER2-RINSE3-1	sample of the flush water used following the 2nd PerfluorAd and flush
Foam Trailer #2	Foam Unit #6	TRAILER2-RINSE4-1	sample of the flush water used following the 3rd PerfluorAd and flush
Foam Trailer #2	Foam Unit #6	TRAILER2-RINSE4-2	duplicate of TRAILER2-RINSE4-1
Foam Trailer #2	Foam Unit #6	TRAILER2-EFF2-1	sample of GAC-treated water from the second PerfluorAd and subsequent second post- PerfluorAd flush
Foam Trailer #2	Foam Unit #6	TRAILER2-EFF3-1	sample of GAC-treated water from the third PerfluorAd and subsequent third post- PerfluorAd flush
Fire Truck #1	Engine #33 (ECFS)	FT1-RINSE1-1	first water only rinse collected from the tank prior to any PerfluorAd
Fire Truck #1	Engine #33 (ECFS)	FT1-RINSE-PIPE	rinse water sampled from the truck plumbing following the first PerfluorAd and water flush. Sample was collected of the flush water
Fire Truck #1	Engine #33 (ECFS)	FT1-RINSE2-1	sample of the flush water used following the 1st PerfluorAd and flush
Fire Truck #1	Engine #33 (ECFS)	FT1-EFFLUENT1-1	sample of GAC-treated water from the first PerfluorAd and subsequent first post-PerfluorAd flush
Fire Truck #1	Engine #33 (ECFS)	FT1-RINSE-PIPE2	rinse water sampled from the truck plumbing following the 2nd PerfluorAd and water flush
Fire Truck #1	Engine #33 (ECFS)	FT1-RINSE3-1	sample of the flush water from tank used following the final rinse
Fire Truck #1	Engine #33 (ECFS)	FT1-RINSE3-2	duplicate of FT1-RINSE3-1
Fire Truck #1	Engine #33 (ECFS)	FT1-EFFLUENT2-1	sample of GAC-treated water from the second PerfluorAd and subsequent second post- PerfluorAd flush
Fire Truck #1	Engine #33 (ECFS)	FB-FT1	Field blank collected using laboratory provided PFAS free water

Table 2
Summary of Sample ID Descriptions
CT DEEP AFFF Decon Demonstration

Associated Vehicl	Vehicle Number	Sample ID	Description
Fire Truck #2	Mystic FD #1 (ECFS)	FT2-RINSE1-1	first water only rinse collected from the tank prior to any PerfluorAd
Fire Truck #2	Mystic FD #1 (ECFS)	HOSE-PRE-1	Ran hydrant water into a 50 ft hose previously used for foam and collected water at the end of the hose
Fire Truck #2	Mystic FD #1 (ECFS)	HOSE-PRE-12HRS-1	The 50 ft hose was filled with hydrant water and capped on both sides, and allowed to sit overnight. Water was sampled the following morning
Fire Truck #2	Mystic FD #1 (ECFS)	FT2-RINSE2-1	sample of the flush water used following the 1st PerfluorAd and flush
Fire Truck #2	Mystic FD #1 (ECFS)	HOSE-POST-1	sample of rinse water collected from the hose used as part of the recirculation loop following the first Perfluorad treatment
Fire Truck #2	Mystic FD #1 (ECFS)	FT2-EFF1-1	sample of GAC-treated water from the first PerfluorAd and subsequent first post-PerfluorAd flush
Fire Truck #2	Mystic FD #1 (ECFS)	FT2-RINSE3-1	sample of the flush water used following the 2nd PerfluorAd and flush
Fire Truck #2	Mystic FD #1 (ECFS)	FT2-RINSE4-1	sample of the flush water from tank used following the final hydrant water flush
Fire Truck #2	Mystic FD #1 (ECFS)	FT2-RINSE4-2	duplicate of FT2-RINSE4-1
Fire Truck #2	Mystic FD #1 (ECFS)	FT2-EFF2-1	sample of GAC-treated water from the second and third PerfluorAd and subsequent second and third post- PerfluorAd flush
Fire Truck #3	Hebron FD ET-310	FT3-TANKWATER-1	Water was located in the foam tank when arrived on site. This water was sampled before being drained
Fire Truck #3	Hebron FD ET-310	FT3-RINSE1-1	first water only rinse collected from the tank prior to any PerfluorAd
Fire Truck #3	Hebron FD ET-310	FT3-RINSE2-1	sample of the flush water used following the 1st PerfluorAd and flush
Fire Truck #3	Hebron FD ET-310	FT3-EFF1-1	sample of GAC-treated water from the first PerfluorAd and subsequent first post-PerfluorAd flush
Fire Truck #3	Hebron FD ET-310	FT3-RINSE3-1	sample of the flush water used following the 2nd PerfluorAd and flush
Fire Truck #3	Hebron FD ET-310	FT3-RINSE4-1	sample of the flush water from tank used following the final hydrant water flush
Fire Truck #3	Hebron FD ET-310	FT3-RINSE4-2	duplicate of FT3-RINSE4-1
Fire Truck #3	Hebron FD ET-310	FT3-EFF2-1	sample of GAC-treated water from the second PerfluorAd and subsequent second post- PerfluorAd flush

Notes:

1. Foam trailers were all sampled from the same drain valve on the trailer.

2. For each fire truck, two separate recirculation loops were utilized concurrently. After a batch of PerfluorAd water or chase water was prepared, approximately 30 gallons was pumped into the tank and the rest was recirculated through the truck's foam piping. The tank loop consisted of a small transfer pump and PVC piping that pulled water from the tank through the pump, and then back into the tank on the outlet side of the pump. The remaining water in the stainless steel mixing tank was pumped through hosing into the truck which contacted the internal piping system and was then plumbed from a truck outlet back to the stainless steel tank. Internal valves were exercised periodically to allow sufficient contact time for all piping sections including drain valves.

3. All "RINSE" samples on fire trucks were collected from the tank recirculation loop. Samples from fire trucks with "PIPE" in the sample ID were collected from the plumbing system recirculation loop.

Table 3
PFAS Results
AFFF Concentrate
CT DEEP AFFF Decon Demonstration

		LOCATION	Foam Unit 7	Foam Unit 7	Foam Unit 7	Foam Unit 7
		FIELD SAMPLE ID	CONCENTRATE-1	CONCENTRATE-1	CONCENTRATE-1	CONCENTRATE-1
		COLLECTION DATE	9/1/2021	9/1/2021	9/1/2021	9/1/2021
		LAB SDG	410-54547-1		410-54547-1	
		ANALYTICAL METHOD	EPA-537-POST		EPA-537-PRE	EPA-537-PRE
		UNIT	ng/g	% of Total PFAS	ng/g	% of Total PFAS
ABBV.	CHEMICAL_NAME	CAS_RN				
PFBA	Perfluorobutanoic acid	375-22-4	53000	15.76%	< 200	
PFPeA	Perfluoropentanoic acid	2706-90-3	100000	29.74%	140	0.10%
PFHxA	Perfluorohexanoic acid	307-24-4	67000	19.93%	1800	1.32%
PFHpA	Perfluoroheptanoic acid	375-85-9	45000	13.38%	1600	1.17%
PFOA	Perfluorooctanoic acid	335-67-1	17000	5.06%	3500	2.56%
PFNA	Perfluorononanoic acid	375-95-1	27000	8.03%	82000	60.00%
PFDA	Perfluorodecanoic acid	335-76-2	5300	1.58%	1400	1.02%
PFUnA	Perfluoroundecanoic acid	2058-94-8	15000	4.46%	29000	21.22%
PFDoA	Perfluorododecanoic acid	307-55-1	2200	0.65%	370	0.27%
PFTrDA	Perfluorotridecanoic acid	72629-94-8	3900	1.16%	8100	5.93%
PFTeDA	Perfluorotetradecanoic acid	376-06-7	600	0.18%	140	0.10%
PFHxDA	Perfluorohexadecanoic acid	67905-19-5	65			
PFODA	Perfluorooctadecanoic acid	16517-11-6	< 30			
T-PFCA	Total PFCAs	CALC	336000		128050	
PFBS	Perfluorobutanesulfonic acid	375-73-5	< 100		< 200	
PFPeS	Perfluoropentane Sulfonic acid	2706-91-4	32	0.01%	< 60	
PFHxS	Perfluorohexanesulfonic acid	355-46-4	63	0.02%	110	0.08%
PFHpS	Perfluoroheptanesulfonic acid	375-92-8	< 30		< 60	
PFOS	Perfluorooctanesulfonic acid	1763-23-1	130	0.04%	64	0.05%
PFNS	Perfluorononanesulfonic acid	68259-12-1	< 30		< 60	
PFDS	Perfluorodecanesulfonic acid	335-77-3	< 30		< 60	
PFDoDS	Perfluorododecane sulfonic acid	79780-39-5	< 100			
T-PFSA	Total PFSAs	CALC	225		174	
FOSA	Perfluorooctane sulfonamide	754-91-6	< 30		< 60	
NEtFOSA	N-Ethyl perfluorooctane sulfonamide	4151-50-2	< 100			
NMeFOSA	N-Methyl perfluorooctane sulfonamide	31506-32-8	< 100			
NEtFOSE	N-Ethyl perfluorooctane sulfonamidoethanol	1691-99-2	< 100			
NMeFOSE	N-Methyl perfluorooctane sulfonamidoethanol	24448-09-7	< 100			
NMeFOSAA	NMeFOSAA	2355-31-9	< 100		< 200	
NEtFOSAA	NEtFOSAA	2991-50-6	< 100		< 200	
4:2FTS	4:2 Fluorotelomer sulfonic acid	757124-72-4	< 100		340	0.25%
6:2FTS	6:2 Fluorotelomer sulfonic acid	27619-97-2	< 100		4500	3.29%
8:2FTS	8:2 Fluorotelomer sulfonic acid	39108-34-4	< 150		3600	2.63%
10:2FTS	10:2 Fluorotelomer sulfonic acid	120226-60-0	330			
T-FTS	Total FTSs	CALC	0		8440	
HFPO-DA	Hexafluoropropylene oxide dimer acid	13252-13-6	< 150			
ADONA	4,8-dioxa-3H-perfluorononanoic acid	919005-14-4	< 30			
9Cl-PF3ONS	9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid	756426-58-1	< 100			
11Cl-PF3OUdS	11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	763051-92-9	< 30			
T-PFAS	Total PFAS	CALC	336225		136664	

Notes:
Targets in TOP results list but not DoD list (per QSM 5.3 Table C-45)
Total PFCAs = Sum of DoD List Carboxylates
Total PFSAs = Sum of DoD List Sulfonates
Total FTSs = Sum of DoD List Fluortelomer Sulfonates
Total PFAS = Sum of DoD List PFAS Targets

Table 4
Rinsate PFAS Results
Foam Unit 7
CT DEEP AFFF Decon Demonstration

		LOCATION	Foam Unit 7	Foam Unit 7	Foam Unit 7	Foam Unit 7	Foam Unit 7	Foam Unit 7	Foam Unit 7
		FIELD SAMPLE ID	RINSE 1	RINSE 1	RINSE 2-1	RINSE 2-1	RINSE 3-1	RINSE 3-1	RINSE 4-1
		COLLECTION DATE	9/1/2021	9/1/2021	9/3/2021	9/3/2021	9/7/2021	9/7/2021	9/8/2021
		LAB SDG	410-54547-1	410-54547-1	410-54547-1	410-54547-1	410-54547-1	410-54547-1	410-54640-1
		ANALYTICAL METHOD	EPA-537-POST	EPA-537-PRE	EPA-537-POST	EPA-537-PRE	EPA-537-POST	EPA-537-PRE	EPA-537-POST
		SAMPLE TYPE	N	N	N	N	N	N	N
		UNIT	ng/l	ng/l	ng/l	ng/l	ng/l	ng/l	ng/l
ABBV.	CHEMICAL_NAME	CAS_RN							
PFBA	Perfluorobutanoic acid	375-22-4	31000000	< 50000	72000	96	13000	11	70000
PFPeA	Perfluoropentanoic acid	2706-90-3	95000000	28000	170000	35	34000	6	190000
PFHxA	Perfluorohexanoic acid	307-24-4	33000000	290000	49000	200	12000	59	61000
PFHpA	Perfluoroheptanoic acid	375-85-9	40000000	240000	45000	61	10000	35	59000
PFOA	Perfluorooctanoic acid	335-67-1	15000000	540000	16000	170	3800	98	19000
PFNA	Perfluorononanoic acid	375-95-1	22000000	8900000	17000	3400	3800	2700	15000
PFDA	Perfluorodecanoic acid	335-76-2	5900000	170000	5000	60	730	49	3900
PFUnA	Perfluoroundecanoic acid	2058-94-8	7700000	3500000	5600	1400	800	1100	3100
PFDoA	Perfluorododecanoic acid	307-55-1	2500000	24000	1800	23	230	17	950
PFTrDA	Perfluorotridecanoic acid	72629-94-8	1900000	250000	1600	450	230	210	740
PFTeDA	Perfluorotetradecanoic acid	376-06-7	1400000	< 20000	1100	< 18	140	8	440
PFHxDA	Perfluorohexadecanoic acid	67905-19-5	280000		320		< 150		< 150
PFODA	Perfluorooctadecanoic acid	16517-11-6	< 150000		< 150		< 150		< 150
T-PFCA	Total PFCAs	CALC	255400000	13942000	384100	5895	78730	4292	423130
PFBS	Perfluorobutanesulfonic acid	375-73-5	< 100000	< 20000	< 100	< 18	< 100	< 1.8	< 100
PFPeS	Perfluoropentane Sulfonic acid	2706-91-4	< 100000	< 20000	< 100	< 18	< 100	< 1.8	< 100
PFHxS	Perfluorohexanesulfonic acid	355-46-4	< 100000	20000	< 100	< 18	< 100	6	< 100
PFHpS	Perfluoroheptanesulfonic acid	375-92-8	< 100000	< 20000	< 100	< 18	< 100	< 1.8	< 100
PFOS	Perfluorooctanesulfonic acid	1763-23-1	< 100000	55000	210	32	< 100	16	< 100
PFNS	Perfluorononanesulfonic acid	68259-12-1	< 100000	< 20000	< 100	< 18	< 100	< 1.8	< 100
PFDS	Perfluorodecanesulfonic acid	335-77-3	< 100000	< 20000	< 100	< 18	< 100	< 1.8	< 100
PFDoDS	Perfluorododecane sulfonic acid	79780-39-5	< 150000		< 150		< 150		< 150
T-PFSA	Total PFSAs	CALC	0	75000	210	32	0	22	0
FOSA	Perfluorooctane sulfonamide	754-91-6	< 100000	< 20000	< 100	< 18	< 100	< 1.8	< 100
NEtFOSA	N-Ethyl perfluorooctane sulfonamide	4151-50-2	< 250000		< 250		< 250		< 250
NMeFOSA	N-Methyl perfluorooctane sulfonamide	31506-32-8	< 150000		< 150		< 150		< 150
NEtFOSE	N-Ethyl perfluorooctane sulfonamidoethanol	1691-99-2	< 150000		< 150		< 150		< 150
NMeFOSE	N-Methyl perfluorooctane sulfonamidoethanol	24448-09-7	< 150000		< 150		< 150		< 150
NMeFOSAA	NMeFOSAA	2355-31-9	< 100000	< 20000	< 100	< 18	< 100	< 1.8	< 100
NEtFOSAA	NEtFOSAA	2991-50-6	< 150000	< 30000	< 150	< 27	< 150	< 2.7	< 150
4:2FTS	4:2 Fluorotelomer sulfonic acid	757124-72-4	< 100000	40000	< 100	48	< 100	12	< 100
6:2FTS	6:2 Fluorotelomer sulfonic acid	27619-97-2	< 250000	910000	< 250	4700	< 250	2100	< 250
8:2FTS	8:2 Fluorotelomer sulfonic acid	39108-34-4	< 150000	440000	< 150	1300	< 150	970	< 150
10:2FTS	10:2 Fluorotelomer sulfonic acid	120226-60-0	< 250000		< 250		< 250		< 250
T-FTS	Total FTSs	CALC	0	1390000	0	6048	0	3082	0
HFPO-DA	Hexafluoropropylene oxide dimer acid	13252-13-6	< 150000		< 150		< 150		< 150
ADONA	4,8-dioxa-3H-perfluorononanoic acid	919005-14-4	< 100000		< 100		< 100		< 100
9Cl-PF3ONS	9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid	756426-58-1	< 100000		< 100		< 100		< 100
11Cl-PF3OUdS	11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	763051-92-9	< 100000		< 100		< 100		< 100
T-PFAS	Total PFAS	CALC	255400000	15407000	384310	11975	78730	7396	423130

% reduction between starting concentration to current rinse			starting conc.		99.92%		99.95%	
% reduction between current rinse and previous rinses			starting conc.		99.92%		38.24%	

Notes:

Targets in TOP results list but not DoD list (per QSM 5.3 Table C-45)
Total PFCAs = Sum of DoD List Carboxylates
Total PFSAs = Sum of DoD List Sulfonates
Total FTSs = Sum of DoD List Fluortelomer Sulfonates
Total PFAS = Sum of DoD List PFAS Targets

Table 4
Rinsate PFAS Results
Foam Unit 7
CT DEEP AFFF Decon Demonstration

		LOCATION	Foam Unit 7	Foam Unit 7	Foam Unit 7	Foam Unit 7	Foam Unit 7	Foam Unit 7	Foam Unit 7
		FIELD SAMPLE ID	RINSE 4-1	RINSE 5-1 PM	RINSE 5-1 PM	RINSE 5-1 AM	RINSE 5-1 AM	RINSE 5-2 AM	RINSE 5-2 AM
		COLLECTION DATE	9/8/2021	9/8/2021	9/8/2021	9/9/2021	9/9/2021	9/9/2021	9/9/2021
		LAB SDG	410-54640-1	410-54640-1	410-54640-1	410-54640-1	410-54640-1	410-54640-1	410-54640-1
		ANALYTICAL METHOD	EPA-537-PRE	EPA-537-POST	EPA-537-PRE	EPA-537-POST	EPA-537-PRE	EPA-537-POST	EPA-537-PRE
		SAMPLE TYPE	N	N	N	N	N	FD	FD
		UNIT	ng/l	ng/l	ng/l	ng/l	ng/l	ng/l	ng/l
ABBV.	CHEMICAL_NAME	CAS_RN							
PFBA	Perfluorobutanoic acid	375-22-4	< 50	7300	10	33000	29	12000	75
PFPeA	Perfluoropentanoic acid	2706-90-3	< 20	19000	4	78000	13	32000	33
PFHxA	Perfluorohexanoic acid	307-24-4	92	6100	33	25000	140	9500	350
PFHpA	Perfluoroheptanoic acid	375-85-9	52	3600	17	15000	59	6400	140
PFOA	Perfluorooctanoic acid	335-67-1	130	1600	41	5600	110	2600	250
PFNA	Perfluorononanoic acid	375-95-1	2500	1700	1100	4600	1900	2300	3200
PFDA	Perfluorodecanoic acid	335-76-2	37	300	18	830	20	420	35
PFUnA	Perfluoroundecanoic acid	2058-94-8	880	330	390	710	370	360	570
PFDoA	Perfluorododecanoic acid	307-55-1	< 20	< 100	6	200	6	100	11
PFTrDA	Perfluorotridecanoic acid	72629-94-8	340	< 100	86	180	110	< 100	200
PFTeDA	Perfluorotetradecanoic acid	376-06-7	< 20	< 100	3	< 100	3	< 100	5
PFHxDA	Perfluorohexadecanoic acid	67905-19-5		< 150		< 150		< 150	
PFODA	Perfluorooctadecanoic acid	16517-11-6		< 150		< 150		< 150	
T-PFCA	Total PFCAs	CALC	4031	39930	1707	163120	2760	65680	4869
PFBS	Perfluorobutanesulfonic acid	375-73-5	< 20	< 100	< 1.9	< 100	< 1.8	< 100	3
PFPeS	Perfluoropentane Sulfonic acid	2706-91-4	< 20	< 100	< 1.9	< 100	< 1.8	< 100	< 1.7
PFHxS	Perfluorohexanesulfonic acid	355-46-4	< 20	< 100	< 1.9	< 100	4	< 100	8
PFHpS	Perfluoroheptanesulfonic acid	375-92-8	< 20	< 100	< 1.9	< 100	< 1.8	< 100	< 1.7
PFOS	Perfluorooctanesulfonic acid	1763-23-1	< 20	< 100	6	< 100	6	< 100	11
PFNS	Perfluorononanesulfonic acid	68259-12-1	< 20	< 100	< 1.9	< 100	< 1.8	< 100	< 1.7
PFDS	Perfluorodecanesulfonic acid	335-77-3	< 20	< 100	< 1.9	< 100	< 1.8	< 100	< 1.7
PFDoDS	Perfluorododecane sulfonic acid	79780-39-5		< 150		< 150		< 150	
T-PFSA	Total PFSAs	CALC	0	0	6	0	10	0	22
FOSA	Perfluorooctane sulfonamide	754-91-6	< 20	< 100	< 1.9	< 100	< 1.8	< 100	< 1.7
NEtFOSA	N-Ethyl perfluorooctane sulfonamide	4151-50-2		< 250		< 250		< 250	
NMeFOSA	N-Methyl perfluorooctane sulfonamide	31506-32-8		< 150		< 150		< 150	
NEtFOSE	N-Ethyl perfluorooctane sulfonamidoethanol	1691-99-2		< 150		< 150		< 150	
NMeFOSE	N-Methyl perfluorooctane sulfonamidoethanol	24448-09-7		< 150		< 150		< 150	
NMeFOSAA	NMeFOSAA	2355-31-9	< 20	< 100	< 1.9	< 100	< 1.8	< 100	< 1.7
NEtFOSAA	NEtFOSAA	2991-50-6	< 30	< 150	< 2.8	< 150	< 2.7	< 150	< 2.6
4:2FTS	4:2 Fluorotelomer sulfonic acid	757124-72-4	20	< 100	7	< 100	30	< 100	79
6:2FTS	6:2 Fluorotelomer sulfonic acid	27619-97-2	3000	< 250	1100	< 250	2800	< 250	4800
8:2FTS	8:2 Fluorotelomer sulfonic acid	39108-34-4	1000	< 150	440	< 150	550	< 150	740
10:2FTS	10:2 Fluorotelomer sulfonic acid	120226-60-0		< 250		< 250		< 250	
T-FTS	Total FTSs	CALC	4020	0	1547	0	3380	0	5619
HFPO-DA	Hexafluoropropylene oxide dimer acid	13252-13-6		< 150		< 150		< 150	
ADONA	4,8-dioxa-3H-perfluorononanoic acid	919005-14-4		< 100		< 100		< 100	
9Cl-PF3ONS	9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid	756426-58-1		< 100		< 100		< 100	
11Cl-PF3OUdS	11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	763051-92-9		< 100		< 100		< 100	
T-PFAS	Total PFAS	CALC	8051	39930	3260	163120	6151	65680	10510

% reduction between starting concentration to current rinse		99.95%		99.98%		99.96%		99.93%
% reduction between current rinse and previous rinses		-8.86%		59.51%				

Notes:

Targets in TOP results list but not DoD list (per QSM 5.3 Table C-45)
Total PFCAs = Sum of DoD List Carboxylates
Total PFSAs = Sum of DoD List Sulfonates
Total FTSs = Sum of DoD List Fluortelomer Sulfonates
Total PFAS = Sum of DoD List PFAS Targets

Table 5
Rinsate PFAS Results
Engine 33 (ECFS)
CT DEEP AFFF Decon Demonstration

		LOCATION	Engine 33 (ECFS)	Engine 33 (ECFS)	Engine 33 (ECFS)	Engine 33 (ECFS)	Engine 33 (ECFS)	Engine 33 (ECFS)	Engine 33 (ECFS)
		FIELD SAMPLE ID	FT1-RINSE1-1	FT1-RINSE1-1	FT1-RINSE2-1	FT1-RINSE2-1	FT1-RINSE3-1	FT1-RINSE3-1	FT1-RINSE3-2
		COLLECTION DATE	10/5/2021	10/5/2021	10/7/2021	10/7/2021	10/8/2021	10/8/2021	10/8/2021
		LAB SDG	410-58547-1	410-58547-1	410-58547-1	410-58547-1	410-58547-1	410-58547-1	410-58547-1
		ANALYTICAL METHOD	EPA-537-POST	EPA-537-PRE	EPA-537-POST	EPA-537-PRE	EPA-537-POST	EPA-537-PRE	EPA-537-POST
		SAMPLE TYPE	N	N	N	N	N	N	N
		UNIT	ng/l	ng/l	ng/l	ng/l	ng/l	ng/l	ng/l
ABBV.	CHEMICAL_NAME	CAS_RN							
PFBA	Perfluorobutanoic acid	375-22-4	37000000	< 5000	3800000	1300	15000	< 4.6	15000
PFPeA	Perfluoropentanoic acid	2706-90-3	120000000	< 2000	11000000	1200	40000	2	38000
PFHxA	Perfluorohexanoic acid	307-24-4	42000000	92000	4300000	10000	19000	13	15000
PFHpA	Perfluoroheptanoic acid	375-85-9	59000000	35000	5700000	2900	16000	6	8900
PFOA	Perfluorooctanoic acid	335-67-1	14000000	270000	1500000	20000	4500	64	2200
PFNA	Perfluorononanoic acid	375-95-1	12000000	26000	1300000	1500	2100	15	1300
PFDA	Perfluorodecanoic acid	335-76-2	7600000	56000	570000	4000	1100	36	640
PFUnA	Perfluoroundecanoic acid	2058-94-8	5700000	2600	610000	230	1100	< 1.8	760
PFDoA	Perfluorododecanoic acid	307-55-1	6300000	8400	410000	360	680	5	550
PFTrDA	Perfluorotridecanoic acid	72629-94-8	3500000	< 2000	260000	< 200	< 500	< 1.8	< 500
PFTeDA	Perfluorotetradecanoic acid	376-06-7	4700000	2300	290000	< 200	< 500	< 1.8	< 500
PFHxDA	Perfluorohexadecanoic acid	67905-19-5	1400000		< 150000		< 750		< 750
PFODA	Perfluorooctadecanoic acid	16517-11-6	230000		< 150000		< 750		< 750
T-PFCA	Total PFCAs	CALC	311800000	492300	29740000	41490	99480	141	82350
PFBS	Perfluorobutanesulfonic acid	375-73-5	< 100000	< 2000	< 100000	< 200	< 500	< 1.8	< 500
PFPeS	Perfluoropentane Sulfonic acid	2706-91-4	< 100000	< 2000	< 100000	< 200	< 500	< 1.8	< 500
PFHxS	Perfluorohexanesulfonic acid	355-46-4	< 100000	< 2000	< 100000	< 200	< 500	< 1.8	< 500
PFHpS	Perfluoroheptanesulfonic acid	375-92-8	< 100000	< 2000	< 100000	< 200	< 500	< 1.8	< 500
PFOS	Perfluorooctanesulfonic acid	1763-23-1	< 100000	< 2000	< 100000	< 200	< 500	2	< 500
PFNS	Perfluorononanesulfonic acid	68259-12-1	< 100000	< 2000	< 100000	< 200	< 500	< 1.8	< 500
PFDS	Perfluorodecanesulfonic acid	335-77-3	< 100000	< 2000	< 100000	< 200	< 500	< 1.8	< 500
PFDoDS	Perfluorododecane sulfonic acid	79780-39-5	< 150000		< 150000		< 750		< 750
T-PFSA	Total PFSAs	CALC	0	0	0	0	0	2	0
FOSA	Perfluorooctane sulfonamide	754-91-6	< 100000	< 2000	< 100000	< 200	< 500	< 1.8	< 500
NEtFOSA	N-Ethyl perfluorooctane sulfonamide	4151-50-2	< 250000		< 250000		< 1300		< 1300
NMeFOSA	N-Methyl perfluorooctane sulfonamide	31506-32-8	< 150000		< 150000		< 750		< 750
NEtFOSE	N-Ethyl perfluorooctane sulfonamidoethanol	1691-99-2	< 150000		< 150000		< 750		< 750
NMeFOSE	N-Methyl perfluorooctane sulfonamidoethanol	24448-09-7	< 150000		< 150000		< 750		< 750
NMeFOSAA	NMeFOSAA	2355-31-9	< 100000	< 2000	< 100000	< 200	< 500	< 1.8	< 500
NEtFOSAA	NEtFOSAA	2991-50-6	< 150000	< 3000	< 150000	< 300	< 750	< 2.7	< 750
4:2FTS	4:2 Fluorotelomer sulfonic acid	757124-72-4	< 100000	< 2000	< 100000	< 200	< 500	< 1.8	< 500
6:2FTS	6:2 Fluorotelomer sulfonic acid	27619-97-2	< 250000	110000	< 250000	110000	< 1300	1100	< 1300
8:2FTS	8:2 Fluorotelomer sulfonic acid	39108-34-4	< 150000	61000	< 150000	29000	< 750	830	< 750
10:2FTS	10:2 Fluorotelomer sulfonic acid	120226-60-0	< 250000		< 250000		< 1300		< 1300
T-FTS	Total FTSs	CALC	0	171000	0	139000	0	1930	0
HFPO-DA	Hexafluoropropylene oxide dimer acid	13252-13-6	< 150000		< 150000		< 750		< 750
ADONA	4,8-dioxa-3H-perfluorononanoic acid	919005-14-4	< 100000		< 100000		< 500		< 500
9Cl-PF3ONS	9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid	756426-58-1	< 100000		< 100000		< 500		< 500
11Cl-PF3OUdS	11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	763051-92-9	< 100000		< 100000		< 500		< 500
T-PFAS	Total PFAS	CALC	311800000	663300	29740000	180490	99480	2073	82350

% reduction between starting concentration to current rinse	starting conc.		72.79%		99.69%	
% reduction between current rinse and previous rinses	starting conc.		72.79%		98.85%	

Notes:
Targets in TOP results list but not DoD list (per QSM 5.3 Table C-45)
Total PFCAs = Sum of DoD List Carboxylates
Total PFSAs = Sum of DoD List Sulfonates
Total FTSs = Sum of DoD List Fluortelomer Sulfonates
Total PFAS = Sum of DoD List PFAS Targets

Table 5
Rinsate PFAS Results
Engine 33 (ECFS)
CT DEEP AFFF Decon Demonstration

		LOCATION	Engine 33 (ECFS)	Engine 33 (ECFS)	Engine 33 (ECFS)	Engine 33 (ECFS)	Engine 33 (ECFS)
		FIELD SAMPLE ID	FT1-RINSE3-2	FT1-RINSE-PIPE	FT1-RINSE-PIPE	FT1-RINSE-PIPE 2	FT1-RINSE-PIPE 2
		COLLECTION DATE	10/8/2021	10/6/2021	10/6/2021	10/7/2021	10/7/2021
		LAB SDG	410-58547-1	410-58547-1	410-58547-1	410-58547-1	410-58547-1
		ANALYTICAL METHOD	EPA-537-PRE	EPA-537-POST	EPA-537-PRE	EPA-537-POST	EPA-537-PRE
		SAMPLE TYPE	N	N	N	N	N
		UNIT	ng/l	ng/l	ng/l	ng/l	ng/l
ABBV.	CHEMICAL_NAME	CAS_RN					
PFBA	Perfluorobutanoic acid	375-22-4	< 4.4	2100	5	150	< 4.8
PFPeA	Perfluoropentanoic acid	2706-90-3	2	5700	7	330	4
PFHxA	Perfluorohexanoic acid	307-24-4	14	1700	34	200	36
PFHpA	Perfluoroheptanoic acid	375-85-9	6	1300	12	120	8
PFOA	Perfluorooctanoic acid	335-67-1	67	350	19	46	15
PFNA	Perfluorononanoic acid	375-95-1	16	490	340	35	51
PFDA	Perfluorodecanoic acid	335-76-2	38	120	6	11	< 1.9
PFUnA	Perfluoroundecanoic acid	2058-94-8	2	200	130	13	18
PFDoA	Perfluorododecanoic acid	307-55-1	6	79	2	< 10	< 1.9
PFTrDA	Perfluorotridecanoic acid	72629-94-8	< 1.8	83	62	< 10	6
PFTeDA	Perfluorotetradecanoic acid	376-06-7	< 1.8	51	< 1.7	< 10	< 1.9
PFHxDA	Perfluorohexadecanoic acid	67905-19-5		18		< 15	
PFODA	Perfluorooctadecanoic acid	16517-11-6		< 15		< 15	
T-PFCA	Total PFCAs	CALC	151	12173	617	905	138
PFBS	Perfluorobutanesulfonic acid	375-73-5	< 1.8	< 10	< 1.7	< 10	< 1.9
PFPeS	Perfluoropentane Sulfonic acid	2706-91-4	< 1.8	< 10	< 1.7	< 10	< 1.9
PFHxS	Perfluorohexanesulfonic acid	355-46-4	< 1.8	< 10	< 1.7	< 10	3
PFHpS	Perfluoroheptanesulfonic acid	375-92-8	< 1.8	< 10	< 1.7	< 10	< 1.9
PFOS	Perfluorooctanesulfonic acid	1763-23-1	2	< 10	6	< 10	9
PFNS	Perfluorononanesulfonic acid	68259-12-1	< 1.8	< 10	< 1.7	< 10	< 1.9
PFDS	Perfluorodecanesulfonic acid	335-77-3	< 1.8	< 10	< 1.7	< 10	< 1.9
PFDoDS	Perfluorododecane sulfonic acid	79780-39-5		< 15		< 15	
T-PFSA	Total PFSAs	CALC	2	0	6	0	11
FOSA	Perfluorooctane sulfonamide	754-91-6	< 1.8	< 10	< 1.7	< 10	< 1.9
NEtFOSA	N-Ethyl perfluorooctane sulfonamide	4151-50-2		< 25		< 25	
NMeFOSA	N-Methyl perfluorooctane sulfonamide	31506-32-8		< 15		< 15	
NEtFOSE	N-Ethyl perfluorooctane sulfonamidoethanol	1691-99-2		< 15		< 15	
NMeFOSE	N-Methyl perfluorooctane sulfonamidoethanol	24448-09-7		< 15		< 15	
NMeFOSAA	NMeFOSAA	2355-31-9	< 1.8	< 10	< 1.7	< 10	< 1.9
NEtFOSAA	NEtFOSAA	2991-50-6	< 2.6	< 15	< 2.6	< 15	< 2.9
4:2FTS	4:2 Fluorotelomer sulfonic acid	757124-72-4	< 1.8	< 10	3	< 10	< 1.9
6:2FTS	6:2 Fluorotelomer sulfonic acid	27619-97-2	1100	< 25	510	< 25	410
8:2FTS	8:2 Fluorotelomer sulfonic acid	39108-34-4	1000	< 15	140	< 15	25
10:2FTS	10:2 Fluorotelomer sulfonic acid	120226-60-0		< 25		< 25	
T-FTS	Total FTSs	CALC	2100	0	653	0	435
HFPO-DA	Hexafluoropropylene oxide dimer acid	13252-13-6		< 15		< 15	
ADONA	4,8-dioxa-3H-perfluorononanoic acid	919005-14-4		< 10		< 10	
9Cl-PF3ONS	9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid	756426-58-1		< 10		< 10	
11Cl-PF3OUdS	11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	763051-92-9		< 10		< 10	
T-PFAS	Total PFAS	CALC	2253	12173	1276	905	584

% reduction between starting concentration to current rinse	99.66%
% reduction between current rinse and previous rinses	dup

Notes:
Targets in TOP results list but not DoD list (per QSM 5.3 Table C-45)
Total PFCAs = Sum of DoD List Carboxylates
Total PFSAs = Sum of DoD List Sulfonates
Total FTSs = Sum of DoD List Fluortelomer Sulfonates
Total PFAS = Sum of DoD List PFAS Targets

Table 6
Rinsate PFAS Results
Mystic FD #1 (ECFS)
CT DEEP AFFF Decon Demonstration

		LOCATION	Mystic FD #1 (ECFS)	Mystic FD #1 (ECFS)	Mystic FD #1 (ECFS)	Mystic FD #1 (ECFS)	Mystic FD #1 (ECFS)	Mystic FD #1 (ECFS)	Mystic FD #1 (ECFS)
		FIELD SAMPLE ID	FT2-RINSE 1-1	FT2-RINSE 1-1	FT2-RINSE 2-1	FT2-RINSE 2-1	FT2-RINSE 3-1	FT2-RINSE 3-1	FT2-RINSE 4-1
		COLLECTION DATE	10/19/2021	10/19/2021	10/20/2021	10/20/2021	10/21/2021	10/21/2021	10/21/2021
		LAB SDG	410-60469-1	410-60469-1	410-60469-1	410-60469-1	410-60469-1	410-60469-1	410-60469-1
		ANALYTICAL METHOD	EPA-537-POST	EPA-537-PRE	EPA-537-POST	EPA-537-PRE	EPA-537-POST	EPA-537-PRE	EPA-537-POST
		SAMPEL TYPE	N	N	N	N	N	N	N
		UNIT	ng/l	ng/l	ng/l	ng/l	ng/l	ng/l	ng/l
ABBV.	CHEMICAL_NAME	CAS_RN							
PFBA	Perfluorobutanoic acid	375-22-4	38000000	28000	200000	40	18000	6	8500
PFPeA	Perfluoropentanoic acid	2706-90-3	72000000	11000	500000	21	53000	4	24000
PFHxA	Perfluorohexanoic acid	307-24-4	44000000	190000	220000	430	17000	49	9600
PFHpA	Perfluoroheptanoic acid	375-85-9	26000000	5300	220000	13	21000	5	9500
PFOA	Perfluorooctanoic acid	335-67-1	19000000	130000	88000	390	4300	32	2700
PFNA	Perfluorononanoic acid	375-95-1	15000000	2600	71000	50	2200	8	1400
PFDA	Perfluorodecanoic acid	335-76-2	9200000	57000	32000	390	1000	23	790
PFUnA	Perfluoroundecanoic acid	2058-94-8	5100000	< 2000	19000	34	1300	66	710
PFDoA	Perfluorododecanoic acid	307-55-1	3800000	< 2000	15000	73	820	15	430
PFTrDA	Perfluorotridecanoic acid	72629-94-8	1400000	< 2000	7000	23	490	77	250
PFTeDA	Perfluorotetradecanoic acid	376-06-7	2100000	< 2000	8300	23	520	9	280
PFHxDA	Perfluorohexadecanoic acid	67905-19-5							
PFODA	Perfluorooctadecanoic acid	16517-11-6							
T-PFCA	Total PFCAs	CALC	235600000	423900	1380300	1487	119630	294	58160
PFBS	Perfluorobutanesulfonic acid	375-73-5	< 100000	< 2000	390	< 1.8	< 100	< 1.8	< 100
PFPeS	Perfluoropentane Sulfonic acid	2706-91-4	120000	< 2000	610	< 1.8	< 100	< 1.8	< 100
PFHxS	Perfluorohexanesulfonic acid	355-46-4	< 100000	< 2000	< 100	3	< 100	< 1.8	< 100
PFHpS	Perfluoroheptanesulfonic acid	375-92-8	< 100000	< 2000	340	< 1.8	< 100	< 1.8	< 100
PFOS	Perfluorooctanesulfonic acid	1763-23-1	< 100000	< 2000	< 100	26	< 100	5	< 100
PFNS	Perfluorononanesulfonic acid	68259-12-1	< 100000	< 2000	< 100	< 1.8	< 100	< 1.8	< 100
PFDS	Perfluorodecanesulfonic acid	335-77-3	< 100000	< 2000	< 100	63	< 100	3	< 100
PFDoDS	Perfluorododecane sulfonic acid	79780-39-5							
T-PFSA	Total PFSAs	CALC	120000	0	1340	92	0	8	0
FOSA	Perfluorooctane sulfonamide	754-91-6	< 100000	< 2000	< 100	< 1.8	< 100	< 1.8	< 100
NEtFOSA	N-Ethyl perfluorooctane sulfonamide	4151-50-2							
NMeFOSA	N-Methyl perfluorooctane sulfonamide	31506-32-8							
NEtFOSE	N-Ethyl perfluorooctane sulfonamidoethanol	1691-99-2							
NMeFOSE	N-Methyl perfluorooctane sulfonamidoethanol	24448-09-7							
NMeFOSAA	NMeFOSAA	2355-31-9	< 100000	< 2000	< 100	< 1.8	< 100	< 1.8	< 100
NEtFOSAA	NEtFOSAA	2991-50-6	< 150000	< 3000	< 150	< 2.7	< 150	< 2.6	< 150
4:2FTS	4:2 Fluorotelomer sulfonic acid	757124-72-4	< 100000	16000	< 100	22	< 100	3	< 100
6:2FTS	6:2 Fluorotelomer sulfonic acid	27619-97-2	< 250000	1000000	< 250	8700	< 250	3100	< 250
8:2FTS	8:2 Fluorotelomer sulfonic acid	39108-34-4	< 150000	570000	< 150	7800	< 150	2600	< 150
10:2FTS	10:2 Fluorotelomer sulfonic acid	120226-60-0							
T-FTS	Total FTSs	CALC	0	1586000	0	16522	0	5703	0
HFPO-DA	Hexafluoropropylene oxide dimer acid	13252-13-6							
ADONA	4,8-dioxa-3H-perfluorononanoic acid	919005-14-4							
9Cl-PF3ONS	9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid	756426-58-1							
11Cl-PF3OUdS	11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	763051-92-9							
T-PFAS	Total PFAS	CALC	235720000	2009900	1381640	18101	119630	6005	58160

% reduction between starting concentration to current rinse		starting conc.		99.10%		99.70%	
% reduction between current rinse and previous rinses		starting conc.		99.10%		66.82%	

Notes:
Targets in TOP results list but not DoD list (per QSM 5.3 Table C-45)
Total PFCAs = Sum of DoD List Carboxylates
Total PFSAs = Sum of DoD List Sulfonates
Total FTSs = Sum of DoD List Fluortelomer Sulfonates
Total PFAS = Sum of DoD List PFAS Targets

Table 6
Rinsate PFAS Results
Mystic FD #1 (ECFS)
CT DEEP AFFF Decon Demonstration

		LOCATION	Mystic FD #1 (ECFS)	Mystic FD #1 (ECFS)	Mystic FD #1 (ECFS)	Mystic FD #1 (ECFS)	Mystic FD #1 (ECFS)	Mystic FD #1 (ECFS)	Mystic FD #1 (ECFS)
		FIELD SAMPLE ID	FT2-RINSE 4-1	FT2-RINSE 4-2	FT2-RINSE 4-2	HOSE-POST-1	HOSE-POST-1	HOSE-PRE-1	HOSE-PRE-1
		COLLECTION DATE	10/21/2021	10/21/2021	10/21/2021	10/20/2021	10/20/2021	10/19/2021	10/19/2021
		LAB SDG	410-60469-1	410-60469-1	410-60469-1	410-60469-1	410-60469-1	410-60469-1	410-60469-1
		ANALYTICAL METHOD	EPA-537-PRE	EPA-537-POST	EPA-537-PRE	EPA-537-POST	EPA-537-PRE	EPA-537-POST	EPA-537-PRE
		SAMPEL TYPE	N	FD	FD	N	N	N	N
		UNIT	ng/l	ng/l	ng/l	ng/l	ng/l	ng/l	ng/l
ABBV.	CHEMICAL_NAME	CAS_RN							
PFBA	Perfluorobutanoic acid	375-22-4	< 4.4	7100	< 4.3	12000	5	2100	5
PFPeA	Perfluoropentanoic acid	2706-90-3	3	17000	3	24000	5	5700	6
PFHxA	Perfluorohexanoic acid	307-24-4	25	7700	28	7500	39	1600	52
PFHpA	Perfluoroheptanoic acid	375-85-9	5	7900	6	9400	5	2000	20
PFOA	Perfluorooctanoic acid	335-67-1	35	2200	22	2600	22	380	13
PFNA	Perfluorononanoic acid	375-95-1	7	930	8	2500	24	400	66
PFDA	Perfluorodecanoic acid	335-76-2	13	560	10	1400	27	75	4
PFUnA	Perfluoroundecanoic acid	2058-94-8	< 1.8	640	4	1800	19	88	30
PFDoA	Perfluorododecanoic acid	307-55-1	4	370	4	1200	17	18	< 1.8
PFTrDA	Perfluorotridecanoic acid	72629-94-8	2	220	2	850	10	12	4
PFTeDA	Perfluorotetradecanoic acid	376-06-7	2	270	2	910	10	< 10	< 1.8
PFHxDA	Perfluorohexadecanoic acid	67905-19-5							
PFODA	Perfluorooctadecanoic acid	16517-11-6							
T-PFCA	Total PFCAs	CALC	96	44890	88	64160	183	12373	200
PFBS	Perfluorobutanesulfonic acid	375-73-5	< 1.8	< 100	< 1.7	< 100	< 1.8	< 10	< 1.8
PFPeS	Perfluoropentane Sulfonic acid	2706-91-4	< 1.8	< 100	< 1.7	< 100	< 1.8	< 10	< 1.8
PFHxS	Perfluorohexanesulfonic acid	355-46-4	< 1.8	< 100	< 1.7	< 100	< 1.8	< 10	3
PFHpS	Perfluoroheptanesulfonic acid	375-92-8	< 1.8	< 100	< 1.7	< 100	< 1.8	< 10	< 1.8
PFOS	Perfluorooctanesulfonic acid	1763-23-1	3	< 100	3	< 100	6	22	11
PFNS	Perfluorononanesulfonic acid	68259-12-1	< 1.8	< 100	< 1.7	< 100	< 1.8	< 10	< 1.8
PFDS	Perfluorodecanesulfonic acid	335-77-3	< 1.8	< 100	< 1.7	< 100	< 1.8	< 10	< 1.8
PFDoDS	Perfluorododecane sulfonic acid	79780-39-5							
T-PFSA	Total PFSAs	CALC	3	0	3	0	6	22	14
FOSA	Perfluorooctane sulfonamide	754-91-6	< 1.8	< 100	< 1.7	< 100	< 1.8	< 10	< 1.8
NEtFOSA	N-Ethyl perfluorooctane sulfonamide	4151-50-2							
NMeFOSA	N-Methyl perfluorooctane sulfonamide	31506-32-8							
NEtFOSE	N-Ethyl perfluorooctane sulfonamidoethanol	1691-99-2							
NMeFOSE	N-Methyl perfluorooctane sulfonamidoethanol	24448-09-7							
NMeFOSAA	NMeFOSAA	2355-31-9	< 1.8	< 100	< 1.7	< 100	< 1.8	< 10	< 1.8
NEtFOSAA	NEtFOSAA	2991-50-6	< 2.7	< 150	< 2.6	< 150	< 2.7	< 15	< 2.6
4:2FTS	4:2 Fluorotelomer sulfonic acid	757124-72-4	< 1.8	< 100	< 1.7	< 100	< 1.8	< 10	< 1.8
6:2FTS	6:2 Fluorotelomer sulfonic acid	27619-97-2	2900	< 250	2500	< 250	2400	< 25	500
8:2FTS	8:2 Fluorotelomer sulfonic acid	39108-34-4	860	< 150	890	< 150	1800	< 15	96
10:2FTS	10:2 Fluorotelomer sulfonic acid	120226-60-0							
T-FTS	Total FTSs	CALC	3760	0	3390	0	4200	0	596
HFPO-DA	Hexafluoropropylene oxide dimer acid	13252-13-6							
ADONA	4,8-dioxa-3H-perfluorononanoic acid	919005-14-4							
9Cl-PF3ONS	9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid	756426-58-1							
11Cl-PF3OUdS	11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	763051-92-9							
T-PFAS	Total PFAS	CALC	3859	44890	3481	64160	4388	12395	810

% reduction between starting concentration to current rinse	99.81%		99.83%
% reduction between current rinse and previous rinses	35.74%		

Notes:
Targets in TOP results list but not DoD list (per QSM 5.3 Table C-45)
Total PFCAs = Sum of DoD List Carboxylates
Total PFSAs = Sum of DoD List Sulfonates
Total FTSs = Sum of DoD List Fluortelomer Sulfonates
Total PFAS = Sum of DoD List PFAS Targets

Table 6
Rinsate PFAS Results
Mystic FD #1 (ECFS)
CT DEEP AFFF Decon Demonstration

		LOCATION	Mystic FD #1 (ECFS)	Mystic FD #1 (ECFS)
		FIELD SAMPLE ID	HOSE-PRE-12 HRS-1	HOSE-PRE-12 HRS-1
		COLLECTION DATE	10/20/2021	10/20/2021
		LAB SDG	410-60469-1	410-60469-1
		ANALYTICAL METHOD	EPA-537-POST	EPA-537-PRE
		SAMPEL TYPE	N	N
		UNIT	ng/l	ng/l
ABBV.	CHEMICAL_NAME	CAS_RN		
PFBA	Perfluorobutanoic acid	375-22-4	1500	< 4.6
PFPeA	Perfluoropentanoic acid	2706-90-3	3600	5
PFHxA	Perfluorohexanoic acid	307-24-4	1900	44
PFHpA	Perfluoroheptanoic acid	375-85-9	3200	17
PFOA	Perfluorooctanoic acid	335-67-1	700	19
PFNA	Perfluorononanoic acid	375-95-1	450	180
PFDA	Perfluorodecanoic acid	335-76-2	77	10
PFUnA	Perfluoroundecanoic acid	2058-94-8	51	43
PFDoA	Perfluorododecanoic acid	307-55-1	12	2
PFTrDA	Perfluorotridecanoic acid	72629-94-8	< 10	3
PFTeDA	Perfluorotetradecanoic acid	376-06-7	< 10	< 1.8
PFHxDA	Perfluorohexadecanoic acid	67905-19-5		
PFODA	Perfluorooctadecanoic acid	16517-11-6		
T-PFCA	Total PFCAs	CALC	11490	322
PFBS	Perfluorobutanesulfonic acid	375-73-5	< 10	< 1.8
PFPeS	Perfluoropentane Sulfonic acid	2706-91-4	< 10	< 1.8
PFHxS	Perfluorohexanesulfonic acid	355-46-4	< 10	3
PFHpS	Perfluoroheptanesulfonic acid	375-92-8	< 10	< 1.8
PFOS	Perfluorooctanesulfonic acid	1763-23-1	< 10	12
PFNS	Perfluorononanesulfonic acid	68259-12-1	< 10	< 1.8
PFDS	Perfluorodecanesulfonic acid	335-77-3	< 10	< 1.8
PFDoDS	Perfluorododecane sulfonic acid	79780-39-5		
T-PFSA	Total PFSAs	CALC	0	15
FOSA	Perfluorooctane sulfonamide	754-91-6	< 10	2
NEtFOSA	N-Ethyl perfluorooctane sulfonamide	4151-50-2		
NMeFOSA	N-Methyl perfluorooctane sulfonamide	31506-32-8		
NEtFOSE	N-Ethyl perfluorooctane sulfonamidoethanol	1691-99-2		
NMeFOSE	N-Methyl perfluorooctane sulfonamidoethanol	24448-09-7		
NMeFOSAA	NMeFOSAA	2355-31-9	< 10	< 1.8
NEtFOSAA	NEtFOSAA	2991-50-6	< 15	< 2.7
4:2FTS	4:2 Fluorotelomer sulfonic acid	757124-72-4	< 10	< 1.8
6:2FTS	6:2 Fluorotelomer sulfonic acid	27619-97-2	< 25	800
8:2FTS	8:2 Fluorotelomer sulfonic acid	39108-34-4	< 15	290
10:2FTS	10:2 Fluorotelomer sulfonic acid	120226-60-0		
T-FTS	Total FTSs	CALC	0	1092
HFPO-DA	Hexafluoropropylene oxide dimer acid	13252-13-6		
ADONA	4,8-dioxa-3H-perfluorononanoic acid	919005-14-4		
9Cl-PF3ONS	9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid	756426-58-1		
11Cl-PF3OUdS	11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	763051-92-9		
T-PFAS	Total PFAS	CALC	11490	1429

% reduction between starting concentration to current rinse	
% reduction between current rinse and previous rinses	

Notes:
Targets in TOP results list but not DoD list (per QSM 5.3 Table C-45)
Total PFCAs = Sum of DoD List Carboxylates
Total PFSAs = Sum of DoD List Sulfonates
Total FTSs = Sum of DoD List Fluortelomer Sulfonates
Total PFAS = Sum of DoD List PFAS Targets

Table 7
Rinsate PFAS Results
Hebron FD #ET-310
CT DEEP AFFF Decon Demonstration

		LOCATION	Hebron FD #ET-310	Hebron FD #ET-310	Hebron FD #ET-310	Hebron FD #ET-310	Hebron FD #ET-310	Hebron FD #ET-310
		FIELD SAMPLE ID	FT3-TANKWATER-1	FT3-RINSE1-1	FT3-RINSE2-1	FT3-RINSE3-1	FT3-RINSE4-1	FT3-RINSE4-2
		COLLECTION DATE	10/25/2021	10/25/2021	10/27/2021	10/28/2021	10/28/2021	10/28/2021
		LAB SDG	410-61328-1	410-61328-1	410-61328-1	410-61328-1	410-61328-1	410-61328-1
		ANALYTICAL METHOD	EPA-537-PRE	EPA-537-PRE	EPA-537-PRE	EPA-537-PRE	EPA-537-PRE	EPA-537-PRE
		SAMPLE TYPE	N	N	N	N	N	FD
		UNIT	ng/l	ng/l	ng/l	ng/l	ng/l	ng/l
ABBV.	CHEMICAL_NAME	CAS_RN						
PFBA	Perfluorobutanoic acid	375-22-4	2300	98	62	< 4.2	< 4.6	< 4.5
PFPeA	Perfluoropentanoic acid	2706-90-3	2400	120	< 1.9	2	< 1.8	< 1.8
PFHxA	Perfluorohexanoic acid	307-24-4	25000	1100	9	8	4	4
PFHpA	Perfluoroheptanoic acid	375-85-9	4500	200	3	2	< 1.8	< 1.8
PFOA	Perfluorooctanoic acid	335-67-1	3500	210	7	6	4	4
PFNA	Perfluorononanoic acid	375-95-1	270	21	5	`	2	2
PFDA	Perfluorodecanoic acid	335-76-2	900	58	6	7	4	4
PFUnA	Perfluoroundecanoic acid	2058-94-8	< 190	< 17	2	5	3	2
PFDoA	Perfluorododecanoic acid	307-55-1	330	23	3	4	2	2
PFTrDA	Perfluorotridecanoic acid	72629-94-8	< 190	< 17	< 1.9	2	< 1.8	< 1.8
PFTeDA	Perfluorotetradecanoic acid	376-06-7	< 190	< 17	2	2	< 1.8	< 1.8
PFHxDA	Perfluorohexadecanoic acid	67905-19-5						
PFODA	Perfluorooctadecanoic acid	16517-11-6						
T-PFCA	Total PFCAs	CALC	39200	1830	99	38	19	18
PFBS	Perfluorobutanesulfonic acid	375-73-5	< 190	< 17	< 1.9	< 1.7	< 1.8	< 1.8
PFPeS	Perfluoropentane Sulfonic acid	2706-91-4	200	< 17	< 1.9	< 1.7	< 1.8	< 1.8
PFHxS	Perfluorohexanesulfonic acid	355-46-4	770	43	< 1.9	6	< 1.8	< 1.8
PFHpS	Perfluoroheptanesulfonic acid	375-92-8	< 190	< 17	< 1.9	< 1.7	< 1.8	< 1.8
PFOS	Perfluorooctanesulfonic acid	1763-23-1	6500	530	12	21	12	12
PFNS	Perfluorononanesulfonic acid	68259-12-1	< 190	< 17	< 1.9	< 1.7	< 1.8	< 1.8
PFDS	Perfluorodecanesulfonic acid	335-77-3	< 190	< 17	< 1.9	< 1.7	< 1.8	< 1.8
PFDoDS	Perfluorododecane sulfonic acid	79780-39-5						
T-PFSA	Total PFSAs	CALC	7470	573	12	27	12	12
FOSA	Perfluorooctane sulfonamide	754-91-6	< 190	< 17	< 1.9	< 1.7	< 1.8	< 1.8
NEtFOSA	N-Ethyl perfluorooctane sulfonamide	4151-50-2						
NMeFOSA	N-Methyl perfluorooctane sulfonamide	31506-32-8						
NEtFOSE	N-Ethyl perfluorooctane sulfonamidoethanol	1691-99-2						
NMeFOSE	N-Methyl perfluorooctane sulfonamidoethanol	24448-09-7						
NMeFOSAA	NMeFOSAA	2355-31-9	< 190	< 17	< 1.9	< 1.7	< 1.8	< 1.8
NEtFOSAA	NEtFOSAA	2991-50-6	< 290	< 26	< 2.8	< 2.5	< 2.7	< 2.7
4:2FTS	4:2 Fluorotelomer sulfonic acid	757124-72-4	390	27	< 1.9	< 1.7	< 1.8	< 1.8
6:2FTS	6:2 Fluorotelomer sulfonic acid	27619-97-2	490000	8200	510	900	430	450
8:2FTS	8:2 Fluorotelomer sulfonic acid	39108-34-4	8300	680	140	210	120	110
10:2FTS	10:2 Fluorotelomer sulfonic acid	120226-60-0						
T-FTS	Total FTSs	CALC	498690	8907	650	1110	550	560
HFPO-DA	Hexafluoropropylene oxide dimer acid	13252-13-6						
ADONA	4,8-dioxa-3H-perfluorononanoic acid	919005-14-4						
9Cl-PF3ONS	9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid	756426-58-1						
11Cl-PF3OUdS	11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	763051-92-9						
T-PFAS	Total PFAS	CALC	545360	11310	761	1175	581	590

% reduction between starting concentration to current rinse	starting conc.	97.93%	99.86%	99.78%	99.89%	
% reduction between current rinse and previous rinses	starting conc.	97.93%	93.27%	-54.31%	50.59%	

Notes:
Targets in TOP results list but not DoD list (per QSM 5.3 Table C-45)
Total PFCAs = Sum of DoD List Carboxylates
Total PFSAs = Sum of DoD List Sulfonates
Total FTSs = Sum of DoD List Fluortelomer Sulfonates
Total PFAS = Sum of DoD List PFAS Targets

Table 8
Rinsate PFAS Results
Foam Unit 6
CT DEEP AFFF Decon Demonstration

		LOCATION	Foam Unit 6	Foam Unit 6	Foam Unit 6	Foam Unit 6	Foam Unit 6	Foam Unit 6	Foam Unit 6	Foam Unit 6	Foam Unit 6	Foam Unit 6	Foam Unit 6
		FIELD SAMPLE ID	TRAILER 2 -EFF 1-1	TRAILER 2 -EFF 1-1	TRAILER 2 -RINSE 1-1	TRAILER 2 -RINSE 1-1	TRAILER 2 -RINSE 2-1	TRAILER 2 -RINSE 2-1	TRAILER 2 -RINSE 3-1	TRAILER 2 -RINSE 3-1	TRAILER 2 -RINSE 4-1	TRAILER 2 -RINSE 4-1	TRAILER 2 -RINSE 4-2
		COLLECTION DATE	10/13/2021	10/13/2021	10/12/2021	10/12/2021	10/12/2021	10/12/2021	10/13/2021	10/13/2021	10/13/2021	10/13/2021	10/13/2021
		LAB SDG	410-59688-1	410-59688-1	410-59688-1	410-59688-1	410-59688-1	410-59688-1	410-59688-1	410-59688-1	410-59688-1	410-59688-1	410-59688-1
		ANALYTICAL METHOD	EPA-537-POST	EPA-537-PRE	EPA-537-POST	EPA-537-PRE	EPA-537-POST	EPA-537-PRE	EPA-537-POST	EPA-537-PRE	EPA-537-POST	EPA-537-PRE	EPA-537-PRE
		UNIT	ng/l	ng/l	ng/l	ng/l	ng/l	ng/l	ng/l	ng/l	ng/l	ng/l	ng/l
		SAMPLE TYPE	N	N	N	N	N	N	N	N	N	N	FD
ABBV.	CHEMICAL_NAME	CAS_RN											
PFBA	Perfluorobutanoic acid	375-22-4	220000	< 50	11000000	6500	960000	< 500	8600	< 49	1900	< 50	< 4.4
PFPeA	Perfluoropentanoic acid	2706-90-3	860000	21	30000000	2000	2500000	< 200	20000	22	5000	< 20	2
PFHxA	Perfluorohexanoic acid	307-24-4	440000	51	12000000	40000	1100000	940	12000	210	2000	28	14
PFHpA	Perfluoroheptanoic acid	375-85-9	890000	< 20	14000000	< 2000	1200000	240	16000	110	2300	< 20	2.6
PFOA	Perfluorooctanoic acid	335-67-1	320000	140	5200000	12000	460000	580	5800	130	810	21	12
PFNA	Perfluorononanoic acid	375-95-1	480000	110	5500000	< 2000	370000	< 200	3700	41	340	< 20	3
PFDA	Perfluorodecanoic acid	335-76-2	490000	520	2200000	2000	190000	330	2300	78	150	< 20	3.4
PFUnA	Perfluoroundecanoic acid	2058-94-8	380000	< 20	1500000	< 2000	140000	< 200	2700	38	86	< 20	< 1.7
PFDoA	Perfluorododecanoic acid	307-55-1	290000	200	1000000	< 2000	80000	< 200	2200	38	< 50	< 20	< 1.7
PFTrDA	Perfluorotridecanoic acid	72629-94-8	140000	< 20	540000	< 2000	43000	< 200	1400	31	< 50	< 20	< 1.7
PFTeDA	Perfluorotetradecanoic acid	376-06-7	180000	120	470000	< 2000	35000	< 200	1400	< 20	< 50	< 20	< 1.7
PFHxDA	Perfluorohexadecanoic acid	67905-19-5	54000		150000		< 30000		490		< 75		
PFODA	Perfluorooctadecanoic acid	16517-11-6	8400		45000		< 30000		< 300		< 75		
T-PFCA	Total PFCAs	CALC	4690000	1162	83410000	62500	7078000	2090	76100	698	12586	49	37
PFBS	Perfluorobutanesulfonic acid	375-73-5	< 500	< 20	< 20000	< 2000	< 20000	< 200	< 200	< 20	< 50	< 20	< 1.7
PFPeS	Perfluoropentane Sulfonic acid	2706-91-4	< 500	< 20	< 20000	< 2000	< 20000	< 200	< 200	< 20	< 50	< 20	< 1.7
PFHxS	Perfluorohexanesulfonic acid	355-46-4	< 500	< 20	< 20000	< 2000	< 20000	< 200	< 200	< 20	< 50	< 20	< 1.7
PFHpS	Perfluoroheptanesulfonic acid	375-92-8	< 500	< 20	< 20000	< 2000	< 20000	< 200	< 200	< 20	< 50	< 20	< 1.7
PFOS	Perfluorooctanesulfonic acid	1763-23-1	< 500	50	< 20000	< 2000	< 20000	< 200	< 200	< 20	56	< 20	2
PFNS	Perfluorononanesulfonic acid	68259-12-1	< 500	< 20	< 20000	< 2000	< 20000	< 200	< 200	< 20	< 50	< 20	< 1.7
PFDS	Perfluorodecanesulfonic acid	335-77-3	< 500	< 20	< 20000	< 2000	< 20000	< 200	< 200	< 20	< 50	< 20	< 1.7
PFDoDS	Perfluorododecane sulfonic acid	79780-39-5	< 750		< 30000		< 30000		< 300		< 75		
T-PFSA	Total PFSAs	CALC	0	50	0	0	0	0	0	0	56	0	2
FOSA	Perfluorooctane sulfonamide	754-91-6	< 500	< 20	< 20000	< 2000	< 20000	< 200	< 200	< 20	< 50	< 20	< 1.7
NEtFOSA	N-Ethyl perfluorooctane sulfonamide	4151-50-2	< 1300		< 50000		< 50000		< 500		< 130		
NMeFOSA	N-Methyl perfluorooctane sulfonamide	31506-32-8	< 750		< 30000		< 30000		< 300		< 75		
NEtFOSE	N-Ethyl perfluorooctane sulfonamidoethanol	1691-99-2	< 750		< 30000		< 30000		< 300		< 75		
NMeFOSE	N-Methyl perfluorooctane sulfonamidoethanol	24448-09-7	< 750		< 30000		< 30000		< 300		< 75		
NMeFOSAA	NMeFOSAA	2355-31-9	< 500	< 20	< 20000	< 2000	< 20000	< 200	< 200	< 20	< 50	< 20	< 1.7
NEtFOSAA	NEtFOSAA	2991-50-6	< 750	< 30	< 30000	< 3000	< 30000	< 300	< 300	< 29	< 75	< 30	< 2.6
4:2FTS	4:2 Fluorotelomer sulfonic acid	757124-72-4	< 500	< 20	< 20000	6100	< 20000	< 200	< 200	< 20	< 50	< 20	2.6
6:2FTS	6:2 Fluorotelomer sulfonic acid	27619-97-2	< 1300	8800	< 50000	480000	< 50000	44000	< 500	3900	< 130	1000	650
8:2FTS	8:2 Fluorotelomer sulfonic acid	39108-34-4	< 750	13000	< 30000	95000	< 30000	15000	< 300	2400	< 75	410	230
10:2FTS	10:2 Fluorotelomer sulfonic acid	120226-60-0	1600		< 50000		< 50000		< 500		< 130		
T-FTS	Total FTSs	CALC	0	21800	0	581100	0	59000	0	6300	0	1410	883
HFPO-DA	Hexafluoropropylene oxide dimer acid	13252-13-6	< 750		< 30000		< 30000		< 300		< 75		
ADONA	4,8-dioxa-3H-perfluorononanoic acid	919005-14-4	< 500		< 20000		< 20000		< 200		< 50		
9Cl-PF3ONS	9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid	756426-58-1	< 500		< 20000		< 20000		< 200		< 50		
11Cl-PF3OUdS	11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	763051-92-9	< 500		< 20000		< 20000		< 200		< 50		
T-PFAS	Total PFAS	CALC	4690000	23012	83410000	643600	7078000	61090	76100	6998	12642	1459	922

% reduction between starting concentration to current rinse				starting conc.		90.51%		98.91%		99.77%	99.86%
% reduction between current rinse and previous rinses				starting conc.		90.51%		88.54%		79.15%	86.83%

Notes:

Targets in TOP results list but not DoD list (per QSM 5.3 Table C-45)

Total PFCAs = Sum of DoD List Carboxylates

Total PFSAs = Sum of DoD List Sulfonates

Total FTSs = Sum of DoD List Fluortelomer Sulfonates

Total PFAS = Sum of DoD List PFAS Targets

Table 9
Summary of Rinsate Results (Pre-TOP Assay)
CT DEEP Decon Demonstration

Foam Unit 7							
Sample ID	RINSE 1	RINSE 2-1	RINSE 3-1	RINSE 4-1	RINSE 5-1 PM	RINSE 5-1 AM	RINSE 5-2 AM
Total PFAS Concentration (ng/l)	15407000	11975	7396	8051	3260	6150.6	10509.6
% reduction between starting concentration to current rinse	starting conc.	99.92%	99.95%	99.95%	99.98%	99.96%	99.93%
% reduction between current rinse and previous rinse	starting conc.	99.92%	38.24%	-8.86%	59.51%		

Engine 33 (ECFS)				
Sample ID	FT1-RINSE1-1	FT1-RINSE2-1	FT1-RINSE3-1	FT1-RINSE3-2
Total PFAS Concentration (ng/l)	663300	180490	2072.8	2252.9
% reduction between starting concentration to current rinse	starting conc.	72.79%	99.69%	99.66%
% reduction between current rinse and previous rinse	starting conc.	72.79%	98.85%	

Mystic FD #1 (ECFS)					
Sample ID	FT2-RINSE 1-1	FT2-RINSE 2-1	FT2-RINSE 3-1	FT2-RINSE 4-1	FT2-RINSE 4-2
Total PFAS Concentration (ng/l)	2009900	18100.8	6005.3	3859	3480.9
% reduction between starting concentration to current rinse	starting conc.	99.10%	99.70%	99.81%	99.83%
% reduction between current rinse and previous rinse	starting conc.	99.10%	66.82%	35.74%	

Foam Unit 6					
Sample ID	TRAILER 2 -RINSE 1-1	TRAILER 2 -RINSE 2-1	TRAILER 2 -RINSE 3-1	TRAILER 2 -RINSE 4-1	TRAILER 2 -RINSE 4-2
Total PFAS Concentration (ng/l)	643600	61090	6998	1459	921.6
% reduction between starting concentration to current rinse	starting conc.	90.51%	98.91%	99.77%	99.86%
% reduction between current rinse and previous rinse	starting conc.	90.51%	88.54%	79.15%	86.83%

Hebron FD #ET-310					
Sample ID	FT3-TANKWATER-1	FT3-RINSE1-1	FT3-RINSE2-1	FT3-RINSE3-1	FT3-RINSE4-1
Total PFAS Concentration (ng/l)	545360	11310	761.4	1174.9	580.5
% reduction between starting concentration to current rinse	starting conc.	97.93%	99.86%	99.78%	99.89%
% reduction between current rinse and previous rinse	starting conc.	97.93%	93.27%	-54.31%	50.59%

The % reduction between current and previous rinses presents the results between two sequential rinse sample results.

Table 10
Post-GAC Treatment
Effluent Sample PFAS Results
CT DEEP AFFF Decon Demonstration

		LOCATION	Foam Unit 7	Foam Unit 7	Foam Unit 7	Foam Unit 7	Foam Unit 7	Foam Unit 7	Engine 33 (ECFS)	Engine 33 (ECFS)	Engine 33 (ECFS)
		FIELD SAMPLE ID	EFFLUENT-1	EFFLUENT-1	EFFLUENT-2	EFFLUENT-2	EFFLUENT-3-1	EFFLUENT-3-1	FT1-EFFLUENT1-1	FT1-EFFLUENT1-1	FT1-EFFLUENT2-1
		COLLECTION DATE	9/7/2021	9/7/2021	9/8/2021	9/8/2021	9/9/2021	9/9/2021	10/7/2021	10/7/2021	10/8/2021
		LAB SDG	410-54547-1	410-54547-1	410-54547-1	410-54547-1	410-54640-1	410-54640-1	410-58547-1	410-58547-1	410-58547-1
		ANALYTICAL METHOD	EPA-537-POST	EPA-537-PRE	EPA-537-POST	EPA-537-PRE	EPA-537-POST	EPA-537-PRE	EPA-537-POST	EPA-537-PRE	EPA-537-POST
		UNIT	ng/l	ng/l	ng/l	ng/l	ng/l	ng/l	ng/l	ng/l	ng/l
ABBV.	CHEMICAL_NAME	CAS_RN									
PFBA	Perfluorobutanoic acid	375-22-4	170	< 4.3	30	< 4.3	29	< 4.4	< 25	< 4.3	4600
PFPeA	Perfluoropentanoic acid	2706-90-3	360	< 1.7	59	< 1.7	63	< 1.8	< 10	< 1.7	9100
PFHxA	Perfluorohexanoic acid	307-24-4	210	< 1.7	30	< 1.7	45	< 1.8	< 10	< 1.7	7600
PFHpA	Perfluoroheptanoic acid	375-85-9	150	< 1.7	20	< 1.7	51	< 1.8	< 10	< 1.7	13000
PFOA	Perfluorooctanoic acid	335-67-1	150	< 1.7	22	< 1.7	58	< 1.8	< 10	< 1.7	7100
PFNA	Perfluorononanoic acid	375-95-1	180	3	19	< 1.7	67	< 1.8	< 10	< 1.7	9200
PFDA	Perfluorodecanoic acid	335-76-2	180	< 1.7	20	< 1.7	79	< 1.8	< 10	< 1.7	6800
PFUnA	Perfluoroundecanoic acid	2058-94-8	410	200	34	< 1.7	170	64	< 10	< 1.7	10000
PFDoA	Perfluorododecanoic acid	307-55-1	150	5	21	< 1.7	67	2	< 10	< 1.7	9100
PFTrDA	Perfluorotridecanoic acid	72629-94-8	180	120	29	8	66	100	< 10	< 1.7	6000
PFTeDA	Perfluorotetradecanoic acid	376-06-7	130	3	19	< 1.7	43	2	< 10	< 1.7	7700
PFHxDA	Perfluorohexadecanoic acid	67905-19-5	45		< 15		< 15		< 15		2700
PFODA	Perfluorooctadecanoic acid	16517-11-6	< 15		< 15		< 15		< 15		690
T-PFCA	Total PFCAs	CALC	2270	331	303	8	738	169	0	0	90200
PFBS	Perfluorobutanesulfonic acid	375-73-5	< 10	< 1.7	< 10	< 1.7	< 10	< 1.8	< 10	< 1.7	< 10
PFPeS	Perfluoropentane Sulfonic acid	2706-91-4	< 10	< 1.7	< 10	< 1.7	< 10	< 1.8	< 10	< 1.7	< 10
PFHxS	Perfluorohexanesulfonic acid	355-46-4	< 10	< 1.7	< 10	< 1.7	< 10	< 1.8	< 10	< 1.7	< 10
PFHpS	Perfluoroheptanesulfonic acid	375-92-8	< 10	< 1.7	< 10	< 1.7	< 10	< 1.8	< 10	< 1.7	< 10
PFOS	Perfluorooctanesulfonic acid	1763-23-1	< 10	2	< 10	< 1.7	< 10	< 1.8	< 10	< 1.7	< 10
PFNS	Perfluorononanesulfonic acid	68259-12-1	< 10	< 1.7	< 10	< 1.7	< 10	< 1.8	< 10	< 1.7	< 10
PFDS	Perfluorodecanesulfonic acid	335-77-3	< 10	< 1.7	< 10	< 1.7	< 10	< 1.8	< 10	< 1.7	< 10
PFDoDS	Perfluorododecane sulfonic acid	79780-39-5	< 15		< 15		< 15		< 15		< 15
T-PFSA	Total PFSAs	CALC	0	2	0	0	0	0	0	0	0
FOSA	Perfluorooctane sulfonamide	754-91-6	< 10	< 1.7	< 10	< 1.7	< 10	< 1.8	< 10	< 1.7	< 10
NEtFOSA	N-Ethyl perfluorooctane sulfonamide	4151-50-2	< 25		< 25		< 25		< 25		< 25
NMeFOSA	N-Methyl perfluorooctane sulfonamide	31506-32-8	< 15		< 15		< 15		< 15		< 15
NEtFOSE	N-Ethyl perfluorooctane sulfonamidoethanol	1691-99-2	< 15		< 15		< 15		< 15		< 15
NMeFOSE	N-Methyl perfluorooctane sulfonamidoethanol	24448-09-7	< 15		< 15		< 15		< 15		< 15
NMeFOSAA	NMeFOSAA	2355-31-9	< 10	< 1.7	< 10	< 1.7	< 10	< 1.8	< 10	< 1.7	< 10
NEtFOSAA	NEtFOSAA	2991-50-6	< 15	< 2.6	< 15	< 2.6	< 15	< 2.6	< 15	< 2.6	< 15
4:2FTS	4:2 Fluorotelomer sulfonic acid	757124-72-4	< 10	< 1.7	< 10	< 1.7	< 10	< 1.8	< 10	< 1.7	< 10
6:2FTS	6:2 Fluorotelomer sulfonic acid	27619-97-2	< 25	7	< 25	< 4.3	< 25	< 4.4	< 25	< 4.3	< 25
8:2FTS	8:2 Fluorotelomer sulfonic acid	39108-34-4	< 15	11	< 15	< 2.6	< 15	< 2.6	< 15	< 2.6	< 15
10:2FTS	10:2 Fluorotelomer sulfonic acid	120226-60-0	< 25		< 25		< 25		< 25		< 25
T-FTS	Total FTSs	CALC	0	18	0	0	0	0	0	0	0
HFPO-DA	Hexafluoropropylene oxide dimer acid	13252-13-6	< 15		< 15		< 15		< 15		< 15
ADONA	4,8-dioxa-3H-perfluorononanoic acid	919005-14-4	< 10		< 10		< 10		< 10		< 10
9Cl-PF3ONS	9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid	756426-58-1	< 10		< 10		< 10		< 10		< 10
11Cl-PF3OUdS	11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	763051-92-9	< 10		< 10		< 10		< 10		< 10
T-PFAS	Total PFAS	CALC	2270	351	303	8	738	169	0	0	90200

Notes:
Targets in TOP results list but not DoD list (per QSM 5.3 Table C-45)
Total PFCAs = Sum of DoD List Carboxylates
Total PFSAs = Sum of DoD List Sulfonates
Total FTSs = Sum of DoD List Fluortelomer Sulfonates
Total PFAS = Sum of DoD List PFAS Targets

Table 10
Post-GAC Treatment
Effluent Sample PFAS Results
CT DEEP AFFF Decon Demonstration

		LOCATION	Engine 33 (ECFS)	Foam Unit 6	Foam Unit 6	Mystic FD #1 (ECFS)	Mystic FD #1 (ECFS)	Mystic FD #1 (ECFS)	Mystic FD #1 (ECFS)	Hebron FD #ET-310
		FIELD SAMPLE ID	FT1-EFFLUENT2-1	TRAILER 2 -EFF 1-1	TRAILER 2 -EFF 1-1	FT2-EFF 1-1	FT2-EFF 1-1	FT2-EFF 2-1	FT2-EFF 2-1	FT3-EFF1-1
		COLLECTION DATE	10/8/2021	10/13/2021	10/13/2021	10/21/2021	10/21/2021	10/21/2021	10/21/2021	10/28/2021
		LAB SDG	410-58547-1	410-59688-1	410-59688-1	410-60469-1	410-60469-1	410-60469-1	410-60469-1	410-61328-1
		ANALYTICAL METHOD	EPA-537-PRE	EPA-537-POST	EPA-537-PRE	EPA-537-POST	EPA-537-PRE	EPA-537-POST	EPA-537-PRE	EPA-537-PRE
		UNIT	ng/l	ng/l	ng/l	ng/l	ng/l	ng/l	ng/l	ng/l
ABBV.	CHEMICAL_NAME	CAS_RN								
PFBA	Perfluorobutanoic acid	375-22-4	< 4.4	220000	< 50	3000	17	1700	34	61
PFPeA	Perfluoropentanoic acid	2706-90-3	< 1.8	860000	21	6500	18	3500	8	< 1.8
PFHxA	Perfluorohexanoic acid	307-24-4	< 1.8	440000	51	1800	74	1200	31	< 1.8
PFHpA	Perfluoroheptanoic acid	375-85-9	< 1.8	890000	< 20	700	3	280	< 1.8	< 1.8
PFOA	Perfluorooctanoic acid	335-67-1	3	320000	140	160	4	53	< 1.8	3
PFNA	Perfluorononanoic acid	375-95-1	3	480000	110	200	< 1.8	61	< 1.8	2
PFDA	Perfluorodecanoic acid	335-76-2	25	490000	520	210	6	66	< 1.8	18
PFUnA	Perfluoroundecanoic acid	2058-94-8	8	380000	< 20	400	10	110	< 1.8	6
PFDoA	Perfluorododecanoic acid	307-55-1	29	290000	200	190	15	59	4	19
PFTrDA	Perfluorotridecanoic acid	72629-94-8	4	140000	< 20	110	< 1.8	35	< 1.8	2
PFTeDA	Perfluorotetradecanoic acid	376-06-7	14	180000	120	86	< 1.8	25	2	12
PFHxDA	Perfluorohexadecanoic acid	67905-19-5		54000						
PFODA	Perfluorooctadecanoic acid	16517-11-6		8400						
T-PFCA	Total PFCAs	CALC	85	4690000	1162	13356	146	7089	78	122
PFBS	Perfluorobutanesulfonic acid	375-73-5	< 1.8	< 500	< 20	< 10	< 1.8	< 10	< 1.8	< 1.8
PFPeS	Perfluoropentane Sulfonic acid	2706-91-4	< 1.8	< 500	< 20	< 10	< 1.8	< 10	< 1.8	< 1.8
PFHxS	Perfluorohexanesulfonic acid	355-46-4	< 1.8	< 500	< 20	< 10	< 1.8	< 10	< 1.8	< 1.8
PFHpS	Perfluoroheptanesulfonic acid	375-92-8	< 1.8	< 500	< 20	< 10	< 1.8	< 10	< 1.8	< 1.8
PFOS	Perfluorooctanesulfonic acid	1763-23-1	< 1.8	< 500	50	< 10	< 1.8	< 10	< 1.8	< 1.8
PFNS	Perfluorononanesulfonic acid	68259-12-1	< 1.8	< 500	< 20	< 10	< 1.8	< 10	< 1.8	< 1.8
PFDS	Perfluorodecanesulfonic acid	335-77-3	< 1.8	< 500	< 20	< 10	< 1.8	< 10	< 1.8	< 1.8
PFDoDS	Perfluorododecane sulfonic acid	79780-39-5		< 750						
T-PFSA	Total PFSAs	CALC	0	0	50	0	0	0	0	0
FOSA	Perfluorooctane sulfonamide	754-91-6	< 1.8	< 500	< 20	< 10	< 1.8	< 10	< 1.8	< 1.8
NEtFOSA	N-Ethyl perfluorooctane sulfonamide	4151-50-2								
NMeFOSA	N-Methyl perfluorooctane sulfonamide	31506-32-8								
NEtFOSE	N-Ethyl perfluorooctane sulfonamidoethanol	1691-99-2								
NMeFOSE	N-Methyl perfluorooctane sulfonamidoethanol	24448-09-7								
NMeFOSAA	NMeFOSAA	2355-31-9	< 1.8	< 500	< 20	< 10	< 1.8	< 10	< 1.8	< 1.8
NEtFOSAA	NEtFOSAA	2991-50-6	< 2.6	< 750	< 30	< 15	< 2.7	< 15	< 2.7	< 2.7
4:2FTS	4:2 Fluorotelomer sulfonic acid	757124-72-4	< 1.8	< 500	< 20	< 10	< 1.8	< 10	< 1.8	< 1.8
6:2FTS	6:2 Fluorotelomer sulfonic acid	27619-97-2	70	< 1300	8800	< 25	680	< 25	320	100
8:2FTS	8:2 Fluorotelomer sulfonic acid	39108-34-4	570	< 750	13000	< 15	220	< 15	27	770
10:2FTS	10:2 Fluorotelomer sulfonic acid	120226-60-0								
T-FTS	Total FTSs	CALC	640	0	21800	0	900	0	347	870
HFPO-DA	Hexafluoropropylene oxide dimer acid	13252-13-6								
ADONA	4,8-dioxa-3H-perfluorononanoic acid	919005-14-4								
9Cl-PF3ONS	9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid	756426-58-1								
11Cl-PF3OUdS	11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	763051-92-9								
T-PFAS	Total PFAS	CALC	725	4690000	23012	13356	1046	7089	425	992

Notes:
Targets in TOP results list but not DoD list (per QSM 5.3 Table C-45)
Total PFCAs = Sum of DoD List Carboxylates
Total PFSAs = Sum of DoD List Sulfonates
Total FTSs = Sum of DoD List Fluortelomer Sulfonates
Total PFAS = Sum of DoD List PFAS Targets

Table 10
Post-GAC Treatment
Effluent Sample PFAS Results
CT DEEP AFFF Decon Demonstration

		LOCATION	Hebron FD #ET-310
		FIELD SAMPLE ID	FT3-EFF2-1
		COLLECTION DATE	10/29/2021
		LAB SDG	410-61328-1
		ANALYTICAL METHOD	EPA-537-PRE
		UNIT	ng/l
ABBV.	CHEMICAL_NAME	CAS_RN	
PFBA	Perfluorobutanoic acid	375-22-4	32
PFPeA	Perfluoropentanoic acid	2706-90-3	< 1.8
PFHxA	Perfluorohexanoic acid	307-24-4	< 1.8
PFHpA	Perfluoroheptanoic acid	375-85-9	< 1.8
PFOA	Perfluorooctanoic acid	335-67-1	< 1.8
PFNA	Perfluorononanoic acid	375-95-1	< 1.8
PFDA	Perfluorodecanoic acid	335-76-2	3
PFUnA	Perfluoroundecanoic acid	2058-94-8	< 1.8
PFDoA	Perfluorododecanoic acid	307-55-1	6
PFTrDA	Perfluorotridecanoic acid	72629-94-8	2
PFTeDA	Perfluorotetradecanoic acid	376-06-7	5
PFHxDA	Perfluorohexadecanoic acid	67905-19-5	
PFODA	Perfluorooctadecanoic acid	16517-11-6	
T-PFCA	Total PFCAs	CALC	47
PFBS	Perfluorobutanesulfonic acid	375-73-5	< 1.8
PFPeS	Perfluoropentane Sulfonic acid	2706-91-4	< 1.8
PFHxS	Perfluorohexanesulfonic acid	355-46-4	< 1.8
PFHpS	Perfluoroheptanesulfonic acid	375-92-8	< 1.8
PFOS	Perfluorooctanesulfonic acid	1763-23-1	< 1.8
PFNS	Perfluorononanesulfonic acid	68259-12-1	< 1.8
PFDS	Perfluorodecanesulfonic acid	335-77-3	< 1.8
PFDoDS	Perfluorododecane sulfonic acid	79780-39-5	
T-PFSA	Total PFSAs	CALC	0
FOSA	Perfluorooctane sulfonamide	754-91-6	< 1.8
NEtFOSA	N-Ethyl perfluorooctane sulfonamide	4151-50-2	
NMeFOSA	N-Methyl perfluorooctane sulfonamide	31506-32-8	
NEtFOSE	N-Ethyl perfluorooctane sulfonamidoethanol	1691-99-2	
NMeFOSE	N-Methyl perfluorooctane sulfonamidoethanol	24448-09-7	
NMeFOSAA	NMeFOSAA	2355-31-9	< 1.8
NEtFOSAA	NEtFOSAA	2991-50-6	< 2.6
4:2FTS	4:2 Fluorotelomer sulfonic acid	757124-72-4	< 1.8
6:2FTS	6:2 Fluorotelomer sulfonic acid	27619-97-2	9
8:2FTS	8:2 Fluorotelomer sulfonic acid	39108-34-4	67
10:2FTS	10:2 Fluorotelomer sulfonic acid	120226-60-0	
T-FTS	Total FTSs	CALC	76
HFPO-DA	Hexafluoropropylene oxide dimer acid	13252-13-6	
ADONA	4,8-dioxa-3H-perfluorononanoic acid	919005-14-4	
9Cl-PF3ONS	9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid	756426-58-1	
11Cl-PF3OUdS	11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	763051-92-9	
T-PFAS	Total PFAS	CALC	123

Notes:
Targets in TOP results list but not DoD list (per QSM 5.3 Table C-45)
Total PFCAs = Sum of DoD List Carboxylates
Total PFSAs = Sum of DoD List Sulfonates
Total FTSs = Sum of DoD List Fluortelomer Sulfonates
Total PFAS = Sum of DoD List PFAS Targets

Table 11
Field Blank PFAS Results
QA/QC
CT DEEP AFFF Decon Demonstration

		LOCATION	Engine 33 (ECFS)	Engine 33 (ECFS)	Foam Unit 7	Foam Unit 7	Hebron FD #ET-310
		FIELD SAMPLE ID	FB-FT1	FB-FT1	FIELD BLANK-1	FIELD BLANK-1	FB-102821-1
		COLLECTION DATE	10/8/2021	10/8/2021	9/9/2021	9/9/2021	10/28/2021
		LAB SDG	410-58547-1	410-58547-1	410-54640-1	410-54640-1	410-61251-1
		ANALYTICAL METHOD	EPA-537-POST	EPA-537-PRE	EPA-537-POST	EPA-537-PRE	EPA-537
		UNIT	ng/l	ng/l	ng/l	ng/l	ng/l
ABBV.	CHEMICAL_NAME	CAS_RN					
PFBA	Perfluorobutanoic acid	375-22-4	< 25	< 4.5	< 25	< 4.4	< 4.8
PFPeA	Perfluoropentanoic acid	2706-90-3	< 10	< 1.8	< 10	< 1.7	< 1.9
PFHxA	Perfluorohexanoic acid	307-24-4	< 10	< 1.8	< 10	< 1.7	< 1.9
PFHpA	Perfluoroheptanoic acid	375-85-9	< 10	< 1.8	< 10	< 1.7	< 1.9
PFOA	Perfluorooctanoic acid	335-67-1	< 10	< 1.8	< 10	< 1.7	< 1.9
PFNA	Perfluorononanoic acid	375-95-1	< 10	< 1.8	< 10	< 1.7	< 1.9
PFDA	Perfluorodecanoic acid	335-76-2	< 10	< 1.8	< 10	< 1.7	< 1.9
PFUnA	Perfluoroundecanoic acid	2058-94-8	< 10	< 1.8	< 10	< 1.7	< 1.9
PFDoA	Perfluorododecanoic acid	307-55-1	< 10	< 1.8	< 10	< 1.7	< 1.9
PFTrDA	Perfluorotridecanoic acid	72629-94-8	< 10	< 1.8	< 10	< 1.7	< 1.9
PFTeDA	Perfluorotetradecanoic acid	376-06-7	< 10	< 1.8	< 10	< 1.7	< 1.9
PFHxDA	Perfluorohexadecanoic acid	67905-19-5	< 15		< 15		
PFODA	Perfluorooctadecanoic acid	16517-11-6	< 15		< 15		
T-PFCA	Total PFCAs	CALC	0	0	0	0	0
PFBS	Perfluorobutanesulfonic acid	375-73-5	< 10	< 1.8	< 10	< 1.7	< 1.9
PFPeS	Perfluoropentane Sulfonic acid	2706-91-4	< 10	< 1.8	< 10	< 1.7	< 1.9
PFHxS	Perfluorohexanesulfonic acid	355-46-4	< 10	< 1.8	< 10	< 1.7	< 1.9
PFHpS	Perfluoroheptanesulfonic acid	375-92-8	< 10	< 1.8	< 10	< 1.7	< 1.9
PFOS	Perfluorooctanesulfonic acid	1763-23-1	< 10	< 1.8	< 10	< 1.7	< 1.9
PFNS	Perfluorononanesulfonic acid	68259-12-1	< 10	< 1.8	< 10	< 1.7	< 1.9
PFDS	Perfluorodecanesulfonic acid	335-77-3	< 10	< 1.8	< 10	< 1.7	< 1.9
PFDoDS	Perfluorododecane sulfonic acid	79780-39-5	< 15		< 15		
T-PFSA	Total PFSAs	CALC	0	0	0	0	0
FOSA	Perfluorooctane sulfonamide	754-91-6	< 10	< 1.8	< 10	< 1.7	< 1.9
NEtFOSA	N-Ethyl perfluorooctane sulfonamide	4151-50-2	< 25		< 25		
NMeFOSA	N-Methyl perfluorooctane sulfonamide	31506-32-8	< 15		< 15		
NEtFOSE	N-Ethyl perfluorooctane sulfonamidoethanol	1691-99-2	< 15		< 15		
NMeFOSE	N-Methyl perfluorooctane sulfonamidoethanol	24448-09-7	< 15		< 15		
NMeFOSAA	NMeFOSAA	2355-31-9	< 10	< 1.8	< 10	< 1.7	< 1.9
NEtFOSAA	NEtFOSAA	2991-50-6	< 15	< 2.7	< 15	< 2.6	< 2.9
4:2FTS	4:2 Fluorotelomer sulfonic acid	757124-72-4	< 10	< 1.8	< 10	< 1.7	< 1.9
6:2FTS	6:2 Fluorotelomer sulfonic acid	27619-97-2	< 25	< 4.5	< 25	< 4.4	< 4.8
8:2FTS	8:2 Fluorotelomer sulfonic acid	39108-34-4	< 15	< 2.7	< 15	< 2.6	< 2.9
10:2FTS	10:2 Fluorotelomer sulfonic acid	120226-60-0	< 25		< 25		
T-FTS	Total FTSs	CALC	0	0	0	0	0
HFPO-DA	Hexafluoropropylene oxide dimer acid	13252-13-6	< 15		< 15		
ADONA	4,8-dioxa-3H-perfluorononanoic acid	919005-14-4	< 10		< 10		
9Cl-PF3ONS	9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid	756426-58-1	< 10		< 10		
11Cl-PF3OUdS	11-chloroeicosafluoro-3-oxaundecane-1-sulfonic a	763051-92-9	< 10		< 10		
T-PFAS	Total PFAS	CALC	0	0	0	0	0

Notes:
Targets in TOP results list but not DoD list (per QSM 5.3 Table C-45)
Total PFCAs = Sum of DoD List Carboxylates
Total PFSAs = Sum of DoD List Sulfonates
Total FTSs = Sum of DoD List Fluortelomer Sulfonates
Total PFAS = Sum of DoD List PFAS Targets

Table 12
Relative Percent Difference
between Normal and Field Duplicate Samples
CT DEEP AFFF Decon Demonstration

		LOCATION	Foam Unit 7	Foam Unit 7	Engine 33 (ECFS)	Engine 33 (ECFS)	Foam Unit 6
		FIELD SAMPLE ID	RINSE 5-AM	RINSE 5-AM	FT1-RINSE3	FT1-RINSE3	TRAILER 2-RINSE
		COLLECTION DATE	9/9/2021	9/9/2021	10/8/2021	10/8/2021	10/13/2021
		UNIT	RPD (%)	RPD (%)	RPD (%)	RPD (%)	RPD (%)
ABBV.	CHEMICAL_NAME	CAS_RN					
PFBA	Perfluorobutanoic acid	375-22-4	NC	88	0	NC	NC
PFPeA	Perfluoropentanoic acid	2706-90-3	84	87	5	0	NC
PFHxA	Perfluorohexanoic acid	307-24-4	90	86	24	7	67
PFHpA	Perfluoroheptanoic acid	375-85-9	80	81	57	4	NC
PFOA	Perfluorooctanoic acid	335-67-1	73	78	69	5	55
PFNA	Perfluorononanoic acid	375-95-1	67	51	47	6	NC
PFDA	Perfluorodecanoic acid	335-76-2	66	55	53	5	NC
PFUnA	Perfluoroundecanoic acid	2058-94-8	65	43	37	NC	NC
PFDoA	Perfluorododecanoic acid	307-55-1	67	54	21	18	NC
PFTrDA	Perfluorotridecanoic acid	72629-94-8	NC	58	NC	NC	NC
PFTeDA	Perfluorotetradecanoic acid	376-06-7	NC	47	NC	NC	NC
PFHxDA	Perfluorohexadecanoic acid	67905-19-5					
PFODA	Perfluorooctadecanoic acid	16517-11-6					
T-PFCA	Total PFCAs	CALC	85	55	19	7	28
PFBS	Perfluorobutanesulfonic acid	375-73-5	NC	NC	NC	NC	NC
PFPeS	Perfluoropentane Sulfonic acid	2706-91-4	NC	NC	NC	NC	NC
PFHxS	Perfluorohexanesulfonic acid	355-46-4	NC	64	NC	NC	NC
PFHpS	Perfluoroheptanesulfonic acid	375-92-8	NC	NC	NC	NC	NC
PFOS	Perfluorooctanesulfonic acid	1763-23-1	NC	57	NC	0	NC
PFNS	Perfluorononanesulfonic acid	68259-12-1	NC	NC	NC	NC	NC
PFDS	Perfluorodecanesulfonic acid	335-77-3	NC	NC	NC	NC	NC
PFDoDS	Perfluorododecane sulfonic acid	79780-39-5					
T-PFSA	Total PFSAs	CALC	93	72	NC	0	NC
FOSA	Perfluorooctane sulfonamide	754-91-6	NC	NC	NC	NC	NC
NEtFOSA	N-Ethyl perfluorooctane sulfonamide	4151-50-2					
NMeFOSA	N-Methyl perfluorooctane sulfonamide	31506-32-8					
NEtFOSE	N-Ethyl perfluorooctane sulfonamidoethanol	1691-99-2					
NMeFOSE	N-Methyl perfluorooctane sulfonamidoethanol	24448-09-7					
NMeFOSAA	NMeFOSAA	2355-31-9	NC	NC	NC	NC	NC
NEtFOSAA	NEtFOSAA	2991-50-6	NC	NC	NC	NC	NC
4:2FTS	4:2 Fluorotelomer sulfonic acid	757124-72-4	NC	90	NC	NC	NC
6:2FTS	6:2 Fluorotelomer sulfonic acid	27619-97-2	NC	53	NC	0	42
8:2FTS	8:2 Fluorotelomer sulfonic acid	39108-34-4	NC	29	NC	19	56
10:2FTS	10:2 Fluorotelomer sulfonic acid	120226-60-0					
T-FTS	Total FTSs	CALC	NC	50	NC	8	46
HFPO-DA	Hexafluoropropylene oxide dimer acid	13252-13-6					
ADONA	4,8-dioxa-3H-perfluorononanoic acid	919005-14-4					
9Cl-PF3ONS	9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid	756426-58-1					
11Cl-PF3OUdS	11-chloroeicosafluoro-3-oxaundecane-1-sulfonic ac	763051-92-9					
T-PFAS	Total PFAS	CALC	NC	50	19	8	45

Notes:
Targets in TOP results list but not DoD list (per QSM 5.3 Table C-45)
Total PFCAs = Sum of DoD List Carboxylates
Total PFSAs = Sum of DoD List Sulfonates
Total FTSs = Sum of DoD List Fluortelomer Sulfonates
Total PFAS = Sum of DoD List PFAS Targets
Exceedances of the 30% RPD criteria

Appendices

AECOM

PHOTOGRAPH LOG

AFFF Decontamination Demonstration	**Site Location:** 1 Fire School Road, Willimantic, CT	**Project No.** 60662934

Photo No. 1	**Date:** 9/7/2021
Direction Photo Taken: Southeast	
Description: View of two 1,000 gallon settling tanks for water treatment, and the AFFF containing foam unit #7 trailer.	

Photo No. 2	**Date:** 9/7/2021
Direction Photo Taken: South	
Description: View of the settling tanks (right), 275 gallon IBC totes for water storage (front left), and two 200 pound carbon vessels (middle left) for water treatment.	

AECOM

PHOTOGRAPH LOG

AFFF Decontamination Demonstration	**Site Location:** 1 Fire School Road, Willimantic, CT	**Project No.** 60662934

Photo No. 3	**Date:** 9/7/2021

Direction Photo Taken:

Southeast

Description:

Rinse water from the initial freshwater flush being pumped into IBC totes via transfer pump for future offsite disposal.

Photo No. 4	**Date:** 9/7/2021

Direction Photo Taken:

North

Description:

View of Foam Unit #7 previously containing AFFF and is the subject of decontamination for this scope of work.

AECOM

PHOTOGRAPH LOG

AFFF Decontamination Demonstration	**Site Location:** 1 Fire School Road, Willimantic, CT	**Project No.** 60662934

Photo No. 5	**Date:** 9/7/2021
Direction Photo Taken: Southeast	
Description: Homogenizing the PerfluorAd chemical by heating and mixing prior to adding to heated water.	

Photo No. 6	**Date:** 9/7/2021
Direction Photo Taken: Northeast	
Description: View of water being transferred into settling tanks after agitation in the foam unit trailer. Water in the settling tank is mixed with carbon for 30 minutes and then allowed to settle for 60 minutes before going through the carbon vessels.	

AECOM

PHOTOGRAPH LOG

AFFF Decontamination Demonstration	**Site Location:** 1 Fire School Road, Willimantic, CT	**Project No.** 60662934

Photo No. 7	**Date:** 9/7/2021

Direction Photo Taken:

East

Description:

View of the carbon vessels used for water treatment. Water from the settling tanks were pumped through these vessels at 5 gallons per minute and were then put into the IBC totes for storage.

Photo No. 8	**Date:** 9/7/2021

Direction Photo Taken:

Northwest

Description:

View of process piping used to pump water from the settling tanks through the carbon vessels. The pump was situated near the top of the water to pull the clearest liquids in the tank.

AECOM

PHOTOGRAPH LOG

AFFF Decontamination Demonstration	**Site Location:** 1 Fire School Road, Willimantic, CT	**Project No.** 60662934

Photo No. 9	**Date:** 9/7/2021

Direction Photo Taken:

South

Description:

After water and/or water with PerfluorAd was added to the foam unit trailer, the trailer was attached to a vehicle and driven around to agitate the water and clean all surfaces.

Photo No. 10	**Date:** 9/10/2021

Direction Photo Taken:

Northwest

Description:

Piping and appurtenances attached to the front end of the foam unit trailer. Piping and proportioners used to mix the foam with water are present. Piping which may have contacted the diluted foam was decontaminated via potable water flushing.

AECOM

PHOTOGRAPH LOG

AFFF Decontamination Demonstration	**Site Location:** 1 Fire School Road, Willimantic, CT	**Project No.** 60662934

Photo No. 11	**Date:** 10/6/2021
Direction Photo Taken: Northwest	
Description: View of the recirculation loop for firetruck piping decontamination. The stainless-steel tank (foreground) pumps PerfluorAd® containing water to the truck. Water exits the truck from the rear and side valves, and returns to the stainless steel tank via the red and white fire hosing.	

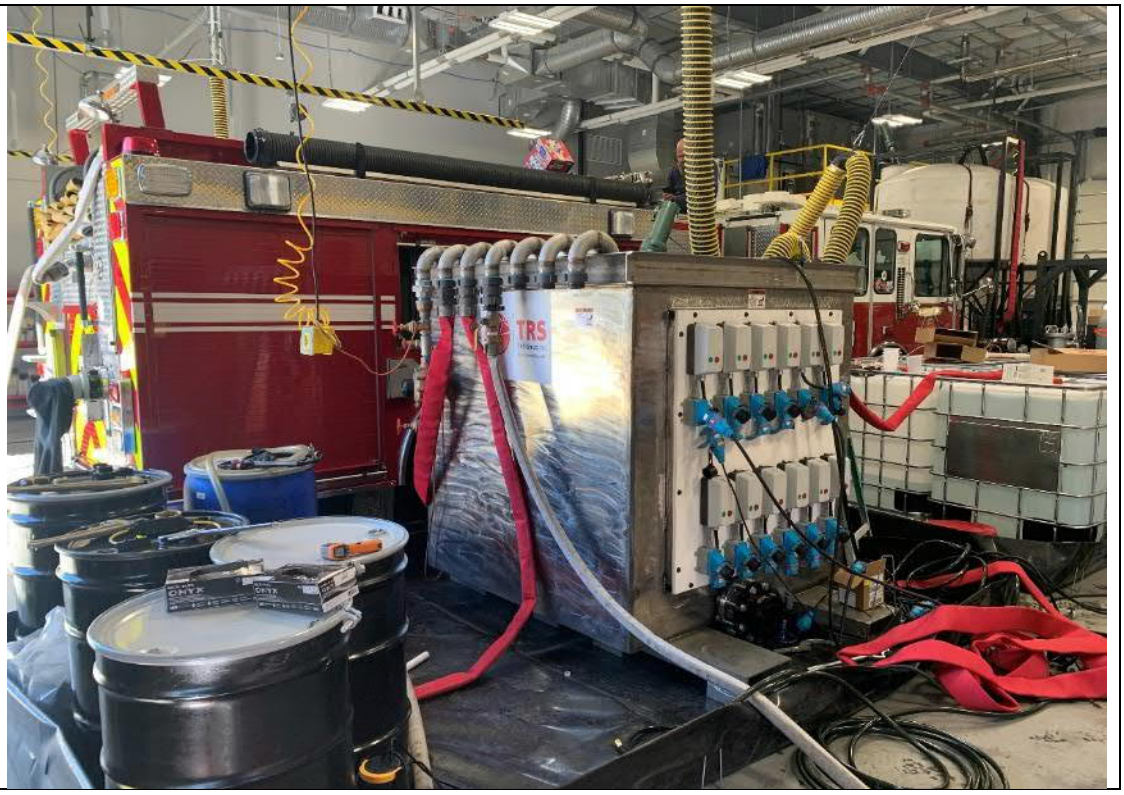


Photo No. 12	**Date:** 10/6/2021
Direction Photo Taken: Northwest	
Description: View of the connections between the stainless steel tank and the firetruck to begin the recirculation loop.	

AECOM

PHOTOGRAPH LOG

AFFF Decontamination Demonstration	**Site Location:** 1 Fire School Road, Willimantic, CT	**Project No.** 60662934

Photo No. 13	**Date:** 10/6/2021
Direction Photo Taken: North	
Description: View of the connections between the firetruck and stainless-steel tank and the end of the recirculation loop. Internal valves were exercised to redirect flow and allow for contact with Perfluorad® treated water.	

Photo No. 14	**Date:** 10/20/2021
Direction Photo Taken: South	
Description: View of the recirculation loop associated with each 30-gallon AFFF tank on each fire truck. The recirculation loop features a small transfer pump and various piping to increase agitation.	

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ANALYTICAL REPORT

Eurofins Lancaster Laboratories Env, LLC
2425 New Holland Pike
Lancaster, PA 17601
Tel: (717)656-2300

Laboratory Job ID: 410-54547-1
Client Project/Site: AFFF Tanks Cleaning

For:
AECOM
250 Apollo Drive
Chelmsford, Massachusetts 01824

Attn: Mr. Robert Kennedy

Authorized for release by:
11/1/2021 4:54:09 PM

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LINKS

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

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Analytical test results meet all requirements of the associated regulatory program (e.g., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis. Data qualifiers are applied to note exceptions. Noncompliant quality control (QC) is further explained in narrative comments.
· QC results that exceed the upper limits and are associated with non-detect samples are qualified but further narration is not required since the bias is high and does not change a non-detect result. Further narration is also not required with QC blank detection when the associated sample concentration is non-detect or more than ten times the level in the blank.
· Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD is performed, unless otherwise specified in the method.
· Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.
Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Measurement uncertainty values, as applicable, are available upon request.

Test results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" and tested in the laboratory are not performed within 15 minutes of collection.

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Hannah L. Cottman

Hannah Cottman
Operations Support Specialist
11/1/2021 4:54:09 PM

Table of Contents

Cover Page 1
Table of Contents 3
Definitions/Glossary 4
Case Narrative 5
Detection Summary 6
Client Sample Results 15
Surrogate Summary 36
Isotope Dilution Summary 38
QC Sample Results 48
QC Association Summary 72
Lab Chronicle 76
Certification Summary 79
Method Summary 80
Sample Summary 81
Chain of Custody 82
Receipt Checklists 83

Qualifiers

LCMS

Qualifier	Qualifier Description
*+	LCS and/or LCSD is outside acceptance limits, high biased.
*5-	Isotope dilution analyte is outside acceptance limits, low biased.
*5+	Isotope dilution analyte is outside acceptance limits, high biased.
E	Result exceeded calibration range.
H	Sample was prepped or analyzed beyond the specified holding time
I	Value is EMPC (estimated maximum possible concentration).

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
1C	Result is from the primary column on a dual-column method.
2C	Result is from the confirmation column on a dual-column method.
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Job ID: 410-54547-1

Laboratory: Eurofins Lancaster Laboratories Env, LLC

Narrative

Job Narrative
410-54547-1

Receipt
The samples were received on 9/9/2021 11:08 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 5.9°C

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

PFAS
Method 537_IDA_TOPS: The sample injection standard peak areas in the following sample: RINSE 2-1 (410-54547-4) are outside of the QC limits for both the initial injection and the re-injection. The values here are from the initial injection of the sample.

Method 537_IDA_TOPS: The results reported for target analyte: Perfluoroheptanoic acid is above the calibration range of the instrument and should be considered estimated for the following samples: RINSE 1 (410-54547-2).

Method 537_IDA_TOPS: The results reported for target analyte: Perfluoropentanoic acid is above the calibration range of the instrument and should be considered estimated for the following samples: CONCENTRATE-1 (410-54547-8).

Method PFC_IDA: The recovery for labeled isotope: d3-NMeFOSAA is outside the QC acceptance limits in the closing continuing calibration verification standard. Since the recovery for the labeled isotope is within QC limits in the following sample: HYDRANT-1 (410-54547-3), the data is reported.

Method PFC_IDA: The recovery for the labeled isotope(s) in the following sample: EFFLUENT-1 (410-54547-5) is outside the QC acceptance limits. Since the recovery is high and the native analyte is not detected in the sample, the data is reported.

Method PFC_IDA: The sample injection standard peak areas in the following sample: RINSE 3-1 (410-54547-6) are outside of the QC limits for both the initial injection and the re-injection. The values here are from the initial injection of the sample.The recovery for the labeled isotope(s) in the following sample: RINSE 3-1 (410-54547-6) is outside the QC acceptance limits due to the matrix of the sample.

Method PFC_IDA: The sample injection standard peak areas in the following sample: RINSE 2-1 (410-54547-4) are outside of the QC limits for both the initial injection and the re-injection. The values here are from the initial injection of the sample.

Method PFC_IDA: The recovery for the labeled isotope(s) in the following sample: EFFLUENT-2 (410-54547-7) is outside the QC acceptance limits. Since the recovery is high and the native analyte is not detected in the sample, the data is reported.

Method PFC_IDA: The results reported for target analyte: Perfluorononanoic acid is above the calibration range of the instrument and should be considered estimated.The recovery for the labeled isotope(s) in the following sample: RINSE 1 (410-54547-2) is outside the QC acceptance limits due to the matrix of the sample.The sample injection standard peak areas in the following sample: RINSE 1 (410-54547-2) are outside of the QC limits for both the initial injection and the re-injection. The values here are from the initial injection of the sample.

Method PFC_IDA: Reporting limits were raised for the following sample: RINSE 1 (410-54547-2) due to interference from the sample matrix

Method PFC_IDA: Reporting limits were raised for the following sample: CONCENTRATE-1 (410-54547-8) due to interference from the sample matrix.The recovery for the labeled isotope(s) in the following sample: CONCENTRATE-1 (410-54547-8) is outside the QC acceptance limits due to the matrix of the sample.

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

Detection Summary

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-54547-1

Client Sample ID: RINSE 1

Lab Sample ID: 410-54547-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorodecanoic acid	170000	H	20000	5000	ng/L	100		537 IDA	Pre-Treatment
Perfluorododecanoic acid	24000	H	20000	5000	ng/L	100		537 IDA	Pre-Treatment
Perfluoroheptanoic acid	240000	H	20000	5000	ng/L	100		537 IDA	Pre-Treatment
Perfluorohexanesulfonic acid	20000	H	20000	5000	ng/L	100		537 IDA	Pre-Treatment
Perfluorohexanoic acid	290000	H	20000	5000	ng/L	100		537 IDA	Pre-Treatment
Perfluorononanoic acid	8900000	H E	20000	5000	ng/L	100		537 IDA	Pre-Treatment
Perfluorooctanesulfonic acid	55000	H I	20000	5000	ng/L	100		537 IDA	Pre-Treatment
Perfluorooctanoic acid	540000	H	20000	5000	ng/L	100		537 IDA	Pre-Treatment
Perfluoropentanoic acid	28000	H	20000	5000	ng/L	100		537 IDA	Pre-Treatment
Perfluorotridecanoic acid	250000	H	20000	5000	ng/L	100		537 IDA	Pre-Treatment
Perfluoroundecanoic acid	3500000	H	20000	5000	ng/L	100		537 IDA	Pre-Treatment
8:2 Fluorotelomer sulfonic acid	440000	H	30000	10000	ng/L	100		537 IDA	Pre-Treatment
4:2 Fluorotelomer sulfonic acid	40000	H	20000	5000	ng/L	100		537 IDA	Pre-Treatment
6:2 Fluorotelomer sulfonic acid	910000	H	50000	20000	ng/L	100		537 IDA	Pre-Treatment
Perfluorodecanoic acid	5900000		100000	25000	ng/L	10		537 TOP	Post-Treatment
Perfluorododecanoic acid	2500000	I	100000	25000	ng/L	10		537 TOP	Post-Treatment
Perfluorohexadecanoic acid	280000		150000	50000	ng/L	10		537 TOP	Post-Treatment
Perfluorooctanoic acid	15000000		100000	25000	ng/L	10		537 TOP	Post-Treatment
Perfluorotetradecanoic acid	1400000		100000	25000	ng/L	10		537 TOP	Post-Treatment
Perfluorotridecanoic acid	1900000		100000	25000	ng/L	10		537 TOP	Post-Treatment
Perfluoroundecanoic acid	7700000		100000	25000	ng/L	10		537 TOP	Post-Treatment
Perfluorobutanoic acid - DL	31000000		2500000	1000000	ng/L	100		537 TOP	Post-Treatment
Perfluoroheptanoic acid - DL	40000000	E	1000000	250000	ng/L	100		537 TOP	Post-Treatment
Perfluorohexanoic acid - DL	33000000		1000000	250000	ng/L	100		537 TOP	Post-Treatment
Perfluorononanoic acid - DL	22000000		1000000	250000	ng/L	100		537 TOP	Post-Treatment
Perfluoropentanoic acid - DL	95000000		1000000	250000	ng/L	100		537 TOP	Post-Treatment
Perfluorobutanoic acid	31000000				ng/L	1		Total PFCA-Dif	Total/NA
Perfluoropentanoic acid	95000000				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorohexanoic acid	33000000				ng/L	1		Total PFCA-Dif	Total/NA
Perfluoroheptanoic acid	40000000				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorooctanoic acid	14000000				ng/L	1		Total PFCA-Dif	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: RINSE 1 (Continued) — Lab Sample ID: 410-54547-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorononanoic acid	13000000				ng/L	1		Total PFCA-Dif	Total/NA
Total PFCA	230000000				ng/L	1		Total PFCA-Dif	Total/NA
Perfluoropentanoic acid	28000	H	20000	5000	ng/L	1		Total PFCA-Sum	Pre-Treatment
Perfluorohexanoic acid	290000	H	20000	5000	ng/L	1		Total PFCA-Sum	Pre-Treatment
Perfluoroheptanoic acid	240000	H	20000	5000	ng/L	1		Total PFCA-Sum	Pre-Treatment
Perfluorooctanoic acid	540000	H	20000	5000	ng/L	1		Total PFCA-Sum	Pre-Treatment
Perfluorononanoic acid	8900000	H E	20000	5000	ng/L	1		Total PFCA-Sum	Pre-Treatment
Total PFCA	10000000		500	0.50	ng/L	1		Total PFCA-Sum	Pre-Treatment
Perfluorobutanoic acid	31000000		2500000	1000000	ng/L	1		Total PFCA-Sum	Post-Treatment
Perfluoropentanoic acid	95000000		1000000	250000	ng/L	1		Total PFCA-Sum	Post-Treatment
Perfluorohexanoic acid	33000000		1000000	250000	ng/L	1		Total PFCA-Sum	Post-Treatment
Perfluoroheptanoic acid	40000000	E	1000000	250000	ng/L	1		Total PFCA-Sum	Post-Treatment
Perfluorooctanoic acid	15000000		100000	25000	ng/L	1		Total PFCA-Sum	Post-Treatment
Perfluorononanoic acid	22000000		1000000	250000	ng/L	1		Total PFCA-Sum	Post-Treatment
Total PFCA	240000000		500	0.50	ng/L	1		Total PFCA-Sum	Post-Treatment

Client Sample ID: HYDRANT-1 — Lab Sample ID: 410-54547-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanesulfonic acid	4.5		1.7	0.43	ng/L	1		537 IDA	Total/NA
Perfluoroheptanoic acid	2.5		1.7	0.43	ng/L	1		537 IDA	Total/NA
Perfluorohexanesulfonic acid	74		1.7	0.43	ng/L	1		537 IDA	Total/NA
Perfluorohexanoic acid	13		1.7	0.43	ng/L	1		537 IDA	Total/NA
Perfluorooctanesulfonic acid	85		1.7	0.43	ng/L	1		537 IDA	Total/NA
Perfluorooctanoic acid	4.9		1.7	0.43	ng/L	1		537 IDA	Total/NA
Perfluoropentanesulfonic acid	4.8		1.7	0.43	ng/L	1		537 IDA	Total/NA
Perfluoropentanoic acid	5.4		1.7	0.43	ng/L	1		537 IDA	Total/NA

Client Sample ID: RINSE 2-1 — Lab Sample ID: 410-54547-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid	96		45	18	ng/L	10		537 IDA	Pre-Treatment
Perfluorodecanoic acid	60		18	4.5	ng/L	10		537 IDA	Pre-Treatment
Perfluorododecanoic acid	23		18	4.5	ng/L	10		537 IDA	Pre-Treatment
Perfluoroheptanoic acid	61		18	4.5	ng/L	10		537 IDA	Pre-Treatment
Perfluorohexanoic acid	200		18	4.5	ng/L	10		537 IDA	Pre-Treatment
Perfluorononanoic acid	3400		18	4.5	ng/L	10		537 IDA	Pre-Treatment

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-54547-1

Client Sample ID: RINSE 2-1 (Continued)

Lab Sample ID: 410-54547-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid	32	I	18	4.5	ng/L	10		537 IDA	Pre-Treatment
Perfluorooctanoic acid	170		18	4.5	ng/L	10		537 IDA	Pre-Treatment
Perfluoropentanoic acid	35		18	4.5	ng/L	10		537 IDA	Pre-Treatment
Perfluorotridecanoic acid	450		18	4.5	ng/L	10		537 IDA	Pre-Treatment
Perfluoroundecanoic acid	1400		18	4.5	ng/L	10		537 IDA	Pre-Treatment
8:2 Fluorotelomer sulfonic acid	1300		27	8.9	ng/L	10		537 IDA	Pre-Treatment
4:2 Fluorotelomer sulfonic acid	48		18	4.5	ng/L	10		537 IDA	Pre-Treatment
6:2 Fluorotelomer sulfonic acid - DL	4700		450	180	ng/L	100		537 IDA	Pre-Treatment
Perfluorodecanoic acid	5000		100	25	ng/L	1		537 TOP	Post-Treatment
Perfluorododecanoic acid	1800	I	100	25	ng/L	1		537 TOP	Post-Treatment
Perfluorohexadecanoic acid	320		150	50	ng/L	1		537 TOP	Post-Treatment
Perfluorooctanesulfonic acid	210		100	25	ng/L	1		537 TOP	Post-Treatment
Perfluorooctanoic acid	16000		100	25	ng/L	1		537 TOP	Post-Treatment
Perfluorotetradecanoic acid	1100		100	25	ng/L	1		537 TOP	Post-Treatment
Perfluorotridecanoic acid	1600		100	25	ng/L	1		537 TOP	Post-Treatment
Perfluoroundecanoic acid	5600		100	25	ng/L	1		537 TOP	Post-Treatment
Perfluorobutanoic acid - DL	72000		2500	1000	ng/L	10		537 TOP	Post-Treatment
Perfluorononanoic acid - DL	17000		1000	250	ng/L	10		537 TOP	Post-Treatment
Perfluoroheptanoic acid - DL2	45000		10000	2500	ng/L	100		537 TOP	Post-Treatment
Perfluorohexanoic acid - DL2	49000		10000	2500	ng/L	100		537 TOP	Post-Treatment
Perfluoropentanoic acid - DL2	170000		10000	2500	ng/L	100		537 TOP	Post-Treatment
Perfluorobutanoic acid	72000				ng/L	1		Total PFCA-Dif	Total/NA
Perfluoropentanoic acid	170000				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorohexanoic acid	49000				ng/L	1		Total PFCA-Dif	Total/NA
Perfluoroheptanoic acid	45000				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorooctanoic acid	15000				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorononanoic acid	14000				ng/L	1		Total PFCA-Dif	Total/NA
Total PFCA	370000				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorobutanoic acid	96		45	18	ng/L	1		Total PFCA-Sum	Pre-Treatment
Perfluoropentanoic acid	35		18	4.5	ng/L	1		Total PFCA-Sum	Pre-Treatment
Perfluorohexanoic acid	200		18	4.5	ng/L	1		Total PFCA-Sum	Pre-Treatment
Perfluoroheptanoic acid	61		18	4.5	ng/L	1		Total PFCA-Sum	Pre-Treatment

This Detection Summary does not include radiochemical test results.

Client Sample ID: RINSE 2-1 (Continued) — Lab Sample ID: 410-54547-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid	170		18	4.5	ng/L	1		Total PFCA-Sum	Pre-Treatment
Perfluorononanoic acid	3400		18	4.5	ng/L	1		Total PFCA-Sum	Pre-Treatment
Total PFCA	4000		500	0.50	ng/L	1		Total PFCA-Sum	Pre-Treatment
Perfluorobutanoic acid	72000		2500	1000	ng/L	1		Total PFCA-Sum	Post-Treatment
Perfluoropentanoic acid	170000		10000	2500	ng/L	1		Total PFCA-Sum	Post-Treatment
Perfluorohexanoic acid	49000		10000	2500	ng/L	1		Total PFCA-Sum	Post-Treatment
Perfluoroheptanoic acid	45000		10000	2500	ng/L	1		Total PFCA-Sum	Post-Treatment
Perfluorooctanoic acid	16000		100	25	ng/L	1		Total PFCA-Sum	Post-Treatment
Perfluorononanoic acid	17000		1000	250	ng/L	1		Total PFCA-Sum	Post-Treatment
Total PFCA	370000		500	0.50	ng/L	1		Total PFCA-Sum	Post-Treatment

Client Sample ID: EFFLUENT-1 — Lab Sample ID: 410-54547-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorododecanoic acid	4.8		1.7	0.43	ng/L	1		537 IDA	Pre-Treatment
Perfluorononanoic acid	3.2		1.7	0.43	ng/L	1		537 IDA	Pre-Treatment
Perfluorooctanesulfonic acid	1.8		1.7	0.43	ng/L	1		537 IDA	Pre-Treatment
Perfluorotetradecanoic acid	2.6		1.7	0.43	ng/L	1		537 IDA	Pre-Treatment
Perfluorotridecanoic acid	120		1.7	0.43	ng/L	1		537 IDA	Pre-Treatment
Perfluoroundecanoic acid	200		1.7	0.43	ng/L	1		537 IDA	Pre-Treatment
8:2 Fluorotelomer sulfonic acid	11		2.6	0.86	ng/L	1		537 IDA	Pre-Treatment
6:2 Fluorotelomer sulfonic acid	7.2		4.3	1.7	ng/L	1		537 IDA	Pre-Treatment
Perfluorobutanoic acid	170		25	10	ng/L	1		537 TOP	Post-Treatment
Perfluorodecanoic acid	180		10	2.5	ng/L	1		537 TOP	Post-Treatment
Perfluorododecanoic acid	150	I	10	2.5	ng/L	1		537 TOP	Post-Treatment
Perfluoroheptanoic acid	150		10	2.5	ng/L	1		537 TOP	Post-Treatment
Perfluorohexadecanoic acid	45		15	5.0	ng/L	1		537 TOP	Post-Treatment
Perfluorohexanoic acid	210		10	2.5	ng/L	1		537 TOP	Post-Treatment
Perfluorononanoic acid	180		10	2.5	ng/L	1		537 TOP	Post-Treatment
Perfluorooctanoic acid	150		10	2.5	ng/L	1		537 TOP	Post-Treatment
Perfluoropentanoic acid	360		10	2.5	ng/L	1		537 TOP	Post-Treatment

This Detection Summary does not include radiochemical test results.

Client Sample ID: EFFLUENT-1 (Continued) — Lab Sample ID: 410-54547-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorotetradecanoic acid	130		10	2.5	ng/L	1		537 TOP	Post-Treatment
Perfluorotridecanoic acid	180		10	2.5	ng/L	1		537 TOP	Post-Treatment
Perfluoroundecanoic acid	410		10	2.5	ng/L	1		537 TOP	Post-Treatment
Perfluorobutanoic acid	170				ng/L	1		Total PFCA-Dif	Total/NA
Perfluoropentanoic acid	360				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorohexanoic acid	210				ng/L	1		Total PFCA-Dif	Total/NA
Perfluoroheptanoic acid	150				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorooctanoic acid	150				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorononanoic acid	170				ng/L	1		Total PFCA-Dif	Total/NA
Total PFCA	1200				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorononanoic acid	3.2		1.7	0.43	ng/L	1		Total PFCA-Sum	Pre-Treatment
Perfluorobutanoic acid	170		25	10	ng/L	1		Total PFCA-Sum	Post-Treatment
Perfluoropentanoic acid	360		10	2.5	ng/L	1		Total PFCA-Sum	Post-Treatment
Perfluorohexanoic acid	210		10	2.5	ng/L	1		Total PFCA-Sum	Post-Treatment
Perfluoroheptanoic acid	150		10	2.5	ng/L	1		Total PFCA-Sum	Post-Treatment
Perfluorooctanoic acid	150		10	2.5	ng/L	1		Total PFCA-Sum	Post-Treatment
Perfluorononanoic acid	180		10	2.5	ng/L	1		Total PFCA-Sum	Post-Treatment
Total PFCA	1200		500	0.50	ng/L	1		Total PFCA-Sum	Post-Treatment

Client Sample ID: RINSE 3-1 — Lab Sample ID: 410-54547-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid	11		4.5	1.8	ng/L	1		537 IDA	Pre-Treatment
Perfluorodecanoic acid	49		1.8	0.45	ng/L	1		537 IDA	Pre-Treatment
Perfluorododecanoic acid	17		1.8	0.45	ng/L	1		537 IDA	Pre-Treatment
Perfluoroheptanoic acid	35		1.8	0.45	ng/L	1		537 IDA	Pre-Treatment
Perfluorohexanesulfonic acid	5.9		1.8	0.45	ng/L	1		537 IDA	Pre-Treatment
Perfluorohexanoic acid	59		1.8	0.45	ng/L	1		537 IDA	Pre-Treatment
Perfluorooctanesulfonic acid	16		1.8	0.45	ng/L	1		537 IDA	Pre-Treatment
Perfluorooctanoic acid	98		1.8	0.45	ng/L	1		537 IDA	Pre-Treatment
Perfluoropentanoic acid	5.5		1.8	0.45	ng/L	1		537 IDA	Pre-Treatment
Perfluorotetradecanoic acid	7.6		1.8	0.45	ng/L	1		537 IDA	Pre-Treatment
Perfluorotridecanoic acid	210		1.8	0.45	ng/L	1		537 IDA	Pre-Treatment
4:2 Fluorotelomer sulfonic acid	12		1.8	0.45	ng/L	1		537 IDA	Pre-Treatment

This Detection Summary does not include radiochemical test results.

Client Sample ID: RINSE 3-1 (Continued)

Lab Sample ID: 410-54547-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorononanoic acid - DL	2700		18	4.5	ng/L	10		537 IDA	Pre-Treatment
Perfluoroundecanoic acid - DL	1100		18	4.5	ng/L	10		537 IDA	Pre-Treatment
8:2 Fluorotelomer sulfonic acid - DL	970		27	8.9	ng/L	10		537 IDA	Pre-Treatment
6:2 Fluorotelomer sulfonic acid - DL	2100		45	18	ng/L	10		537 IDA	Pre-Treatment
Perfluorobutanoic acid	13000		250	100	ng/L	1		537 TOP	Post-Treatment
Perfluorodecanoic acid	730		100	25	ng/L	1		537 TOP	Post-Treatment
Perfluorododecanoic acid	230	I	100	25	ng/L	1		537 TOP	Post-Treatment
Perfluorononanoic acid	3800		100	25	ng/L	1		537 TOP	Post-Treatment
Perfluorooctanoic acid	3800		100	25	ng/L	1		537 TOP	Post-Treatment
Perfluorotetradecanoic acid	140		100	25	ng/L	1		537 TOP	Post-Treatment
Perfluorotridecanoic acid	230		100	25	ng/L	1		537 TOP	Post-Treatment
Perfluoroundecanoic acid	800		100	25	ng/L	1		537 TOP	Post-Treatment
Perfluoroheptanoic acid - DL	10000		1000	250	ng/L	10		537 TOP	Post-Treatment
Perfluorohexanoic acid - DL	12000		1000	250	ng/L	10		537 TOP	Post-Treatment
Perfluoropentanoic acid - DL	34000		1000	250	ng/L	10		537 TOP	Post-Treatment
Perfluorobutanoic acid	13000				ng/L	1		Total PFCA-Dif	Total/NA
Perfluoropentanoic acid	34000				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorohexanoic acid	12000				ng/L	1		Total PFCA-Dif	Total/NA
Perfluoroheptanoic acid	10000				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorooctanoic acid	3700				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorononanoic acid	1100				ng/L	1		Total PFCA-Dif	Total/NA
Total PFCA	74000				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorobutanoic acid	11		4.5	1.8	ng/L	1		Total PFCA-Sum	Pre-Treatment
Perfluoropentanoic acid	5.5		1.8	0.45	ng/L	1		Total PFCA-Sum	Pre-Treatment
Perfluorohexanoic acid	59		1.8	0.45	ng/L	1		Total PFCA-Sum	Pre-Treatment
Perfluoroheptanoic acid	35		1.8	0.45	ng/L	1		Total PFCA-Sum	Pre-Treatment
Perfluorooctanoic acid	98		1.8	0.45	ng/L	1		Total PFCA-Sum	Pre-Treatment
Perfluorononanoic acid	2700		18	4.5	ng/L	1		Total PFCA-Sum	Pre-Treatment
Total PFCA	2900		500	0.50	ng/L	1		Total PFCA-Sum	Pre-Treatment
Perfluorobutanoic acid	13000		250	100	ng/L	1		Total PFCA-Sum	Post-Treatment
Perfluoropentanoic acid	34000		1000	250	ng/L	1		Total PFCA-Sum	Post-Treatment
Perfluorohexanoic acid	12000		1000	250	ng/L	1		Total PFCA-Sum	Post-Treatment

This Detection Summary does not include radiochemical test results.

Client Sample ID: RINSE 3-1 (Continued) — Lab Sample ID: 410-54547-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluoroheptanoic acid	10000		1000	250	ng/L	1		Total PFCA-Sum	Post-Treatment
Perfluorooctanoic acid	3800		100	25	ng/L	1		Total PFCA-Sum	Post-Treatment
Perfluorononanoic acid	3800		100	25	ng/L	1		Total PFCA-Sum	Post-Treatment
Total PFCA	77000		500	0.50	ng/L	1		Total PFCA-Sum	Post-Treatment

Client Sample ID: EFFLUENT-2 — Lab Sample ID: 410-54547-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorotridecanoic acid	7.5		1.7	0.43	ng/L	1		537 IDA	Pre-Treatment
Perfluorobutanoic acid	30		25	10	ng/L	1		537 TOP	Post-Treatment
Perfluorodecanoic acid	20	I	10	2.5	ng/L	1		537 TOP	Post-Treatment
Perfluorododecanoic acid	21	I	10	2.5	ng/L	1		537 TOP	Post-Treatment
Perfluoroheptanoic acid	20		10	2.5	ng/L	1		537 TOP	Post-Treatment
Perfluorohexanoic acid	30		10	2.5	ng/L	1		537 TOP	Post-Treatment
Perfluorononanoic acid	19		10	2.5	ng/L	1		537 TOP	Post-Treatment
Perfluorooctanoic acid	22		10	2.5	ng/L	1		537 TOP	Post-Treatment
Perfluoropentanoic acid	59		10	2.5	ng/L	1		537 TOP	Post-Treatment
Perfluorotetradecanoic acid	19		10	2.5	ng/L	1		537 TOP	Post-Treatment
Perfluorotridecanoic acid	29		10	2.5	ng/L	1		537 TOP	Post-Treatment
Perfluoroundecanoic acid	34		10	2.5	ng/L	1		537 TOP	Post-Treatment
Perfluorobutanoic acid	30				ng/L	1		Total PFCA-Dif	Total/NA
Perfluoropentanoic acid	59				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorohexanoic acid	30				ng/L	1		Total PFCA-Dif	Total/NA
Perfluoroheptanoic acid	20				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorooctanoic acid	22				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorononanoic acid	19				ng/L	1		Total PFCA-Dif	Total/NA
Total PFCA	0.00				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorobutanoic acid	30		25	10	ng/L	1		Total PFCA-Sum	Post-Treatment
Perfluoropentanoic acid	59		10	2.5	ng/L	1		Total PFCA-Sum	Post-Treatment
Perfluorohexanoic acid	30		10	2.5	ng/L	1		Total PFCA-Sum	Post-Treatment
Perfluoroheptanoic acid	20		10	2.5	ng/L	1		Total PFCA-Sum	Post-Treatment
Perfluorooctanoic acid	22		10	2.5	ng/L	1		Total PFCA-Sum	Post-Treatment
Perfluorononanoic acid	19		10	2.5	ng/L	1		Total PFCA-Sum	Post-Treatment

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-54547-1

Client Sample ID: CONCENTRATE-1

Lab Sample ID: 410-54547-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorodecanoic acid	1400		60	20	ng/g	100		537 IDA	Pre-Treatment
Perfluorododecanoic acid	370		60	20	ng/g	100		537 IDA	Pre-Treatment
Perfluoroheptanoic acid	1600		60	20	ng/g	100		537 IDA	Pre-Treatment
Perfluorohexanesulfonic acid	110		60	20	ng/g	100		537 IDA	Pre-Treatment
Perfluorohexanoic acid	1800		60	20	ng/g	100		537 IDA	Pre-Treatment
Perfluorononanoic acid	82000	E	60	20	ng/g	100		537 IDA	Pre-Treatment
Perfluorooctanesulfonic acid	64	I	60	20	ng/g	100		537 IDA	Pre-Treatment
Perfluorooctanoic acid	3500		60	20	ng/g	100		537 IDA	Pre-Treatment
Perfluoropentanoic acid	140		60	20	ng/g	100		537 IDA	Pre-Treatment
Perfluorotetradecanoic acid	140		60	20	ng/g	100		537 IDA	Pre-Treatment
Perfluorotridecanoic acid	8100		60	20	ng/g	100		537 IDA	Pre-Treatment
Perfluoroundecanoic acid	29000	E	60	20	ng/g	100		537 IDA	Pre-Treatment
6:2 Fluorotelomer sulfonic acid	4500		200	60	ng/g	100		537 IDA	Pre-Treatment
8:2 Fluorotelomer sulfonic acid	3600		300	60	ng/g	100		537 IDA	Pre-Treatment
4:2 Fluorotelomer sulfonic acid	340		200	60	ng/g	100		537 IDA	Pre-Treatment
10:2 Fluorotelomer sulfonic acid	330		100	30	ng/g	10		537 TOP	Post-Treatment
Perfluorodecanoic acid	5300		30	10	ng/g	10		537 TOP	Post-Treatment
Perfluorododecanoic acid	2200	I	30	10	ng/g	10		537 TOP	Post-Treatment
Perfluorohexadecanoic acid	65		30	10	ng/g	10		537 TOP	Post-Treatment
Perfluorohexanesulfonic acid	63		30	10	ng/g	10		537 TOP	Post-Treatment
Perfluorooctanesulfonic acid	130		30	10	ng/g	10		537 TOP	Post-Treatment
Perfluoropentanesulfonic acid	32	*+	30	10	ng/g	10		537 TOP	Post-Treatment
Perfluorotetradecanoic acid	600		30	10	ng/g	10		537 TOP	Post-Treatment
Perfluorotridecanoic acid	3900		30	10	ng/g	10		537 TOP	Post-Treatment
Perfluorobutanoic acid - DL	53000		1000	400	ng/g	100		537 TOP	Post-Treatment
Perfluoroheptanoic acid - DL	45000		300	100	ng/g	100		537 TOP	Post-Treatment
Perfluorohexanoic acid - DL	67000		300	100	ng/g	100		537 TOP	Post-Treatment
Perfluorononanoic acid - DL	27000		300	100	ng/g	100		537 TOP	Post-Treatment
Perfluorooctanoic acid - DL	17000		300	100	ng/g	100		537 TOP	Post-Treatment

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-54547-1

Client Sample ID: CONCENTRATE-1 (Continued) — Lab Sample ID: 410-54547-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluoropentanoic acid - DL	100000	E	300	100	ng/g	100		537 TOP	Post-Treatment
Perfluoroundecanoic acid - DL	15000	I	300	100	ng/g	100		537 TOP	Post-Treatment
Perfluorobutanoic acid	53000				ng/g	1		Total PFCA-Dif	Total/NA
Perfluoropentanoic acid	100000				ng/g	1		Total PFCA-Dif	Total/NA
Perfluorohexanoic acid	65000				ng/g	1		Total PFCA-Dif	Total/NA
Perfluoroheptanoic acid	43000				ng/g	1		Total PFCA-Dif	Total/NA
Perfluorooctanoic acid	14000				ng/g	1		Total PFCA-Dif	Total/NA
Perfluorononanoic acid	0.00				ng/g	1		Total PFCA-Dif	Total/NA
Total PFCA	220000				ng/g	1		Total PFCA-Dif	Total/NA
Total PFCA	89000		0.30	0.10	ng/g	1		Total PFCA-Sum	Pre-Treatment
Total PFCA	310000		0.30	0.10	ng/g	1		Total PFCA-Sum	Post-Treatment

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-54547-1

Client Sample ID: RINSE 1

Date Collected: 09/01/21 13:15
Date Received: 09/09/21 11:08

Lab Sample ID: 410-54547-2

Matrix: Water

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid	ND	H	20000	5000	ng/L		09/20/21 07:54	09/22/21 17:16	100
Perfluorobutanoic acid	ND	H	50000	20000	ng/L		09/20/21 07:54	09/22/21 17:16	100
Perfluorodecanesulfonic acid	ND	H	20000	5000	ng/L		09/20/21 07:54	09/22/21 17:16	100
Perfluorodecanoic acid	**170000**	**H**	20000	5000	ng/L		09/20/21 07:54	09/22/21 17:16	100
Perfluorododecanoic acid	**24000**	**H**	20000	5000	ng/L		09/20/21 07:54	09/22/21 17:16	100
Perfluoroheptanesulfonic acid	ND	H	20000	5000	ng/L		09/20/21 07:54	09/22/21 17:16	100
Perfluoroheptanoic acid	**240000**	**H**	20000	5000	ng/L		09/20/21 07:54	09/22/21 17:16	100
Perfluorohexanesulfonic acid	**20000**	**H**	20000	5000	ng/L		09/20/21 07:54	09/22/21 17:16	100
Perfluorohexanoic acid	**290000**	**H**	20000	5000	ng/L		09/20/21 07:54	09/22/21 17:16	100
Perfluorononanesulfonic acid	ND	H	20000	5000	ng/L		09/20/21 07:54	09/22/21 17:16	100
Perfluorononanoic acid	**8900000**	**H E**	20000	5000	ng/L		09/20/21 07:54	09/22/21 17:16	100
Perfluorooctanesulfonamide	ND	H	20000	5000	ng/L		09/20/21 07:54	09/22/21 17:16	100
Perfluorooctanesulfonic acid	**55000**	**H I**	20000	5000	ng/L		09/20/21 07:54	09/22/21 17:16	100
Perfluorooctanoic acid	**540000**	**H**	20000	5000	ng/L		09/20/21 07:54	09/22/21 17:16	100
Perfluoropentanesulfonic acid	ND	H	20000	5000	ng/L		09/20/21 07:54	09/22/21 17:16	100
Perfluoropentanoic acid	**28000**	**H**	20000	5000	ng/L		09/20/21 07:54	09/22/21 17:16	100
Perfluorotetradecanoic acid	ND	H	20000	5000	ng/L		09/20/21 07:54	09/22/21 17:16	100
Perfluorotridecanoic acid	**250000**	**H**	20000	5000	ng/L		09/20/21 07:54	09/22/21 17:16	100
Perfluoroundecanoic acid	**3500000**	**H**	20000	5000	ng/L		09/20/21 07:54	09/22/21 17:16	100
8:2 Fluorotelomer sulfonic acid	**440000**	**H**	30000	10000	ng/L		09/20/21 07:54	09/22/21 17:16	100
4:2 Fluorotelomer sulfonic acid	**40000**	**H**	20000	5000	ng/L		09/20/21 07:54	09/22/21 17:16	100
6:2 Fluorotelomer sulfonic acid	**910000**	**H**	50000	20000	ng/L		09/20/21 07:54	09/22/21 17:16	100
NEtFOSAA	ND	H	30000	5000	ng/L		09/20/21 07:54	09/22/21 17:16	100
NMeFOSAA	ND	H	20000	6000	ng/L		09/20/21 07:54	09/22/21 17:16	100

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*84*		*41 - 132*	*09/20/21 07:54*	*09/22/21 17:16*	*100*
13C8 FOSA	*103*		*10 - 143*	*09/20/21 07:54*	*09/22/21 17:16*	*100*
13C4 PFHpA	*478*	**5+*	*30 - 144*	*09/20/21 07:54*	*09/22/21 17:16*	*100*
13C5 PFPeA	*81*		*33 - 155*	*09/20/21 07:54*	*09/22/21 17:16*	*100*
13C2 PFTeDA	*22*		*10 - 144*	*09/20/21 07:54*	*09/22/21 17:16*	*100*
d3-NMeFOSAA	*52*		*32 - 151*	*09/20/21 07:54*	*09/22/21 17:16*	*100*
d5-NEtFOSAA	*68*		*37 - 164*	*09/20/21 07:54*	*09/22/21 17:16*	*100*
M2-6:2 FTS	*1499*	**5+*	*29 - 189*	*09/20/21 07:54*	*09/22/21 17:16*	*100*
M2-8:2 FTS	*456*	**5+*	*34 - 182*	*09/20/21 07:54*	*09/22/21 17:16*	*100*
13C3 PFBS	*96*		*19 - 178*	*09/20/21 07:54*	*09/22/21 17:16*	*100*
M2-4:2 FTS	*848*	**5+*	*20 - 187*	*09/20/21 07:54*	*09/22/21 17:16*	*100*
13C8 PFOA	*94*		*49 - 127*	*09/20/21 07:54*	*09/22/21 17:16*	*100*
13C8 PFOS	*88*		*49 - 126*	*09/20/21 07:54*	*09/22/21 17:16*	*100*
13C5 PFHxA	*478*	**5+*	*31 - 142*	*09/20/21 07:54*	*09/22/21 17:16*	*100*
13C9 PFNA	*89*		*47 - 136*	*09/20/21 07:54*	*09/22/21 17:16*	*100*
13C6 PFDA	*66*		*47 - 128*	*09/20/21 07:54*	*09/22/21 17:16*	*100*
13C7 PFUnA	*41*		*40 - 135*	*09/20/21 07:54*	*09/22/21 17:16*	*100*
13C3 PFHxS	*457*	**5+*	*32 - 145*	*09/20/21 07:54*	*09/22/21 17:16*	*100*
13C2-PFDoDA	*25*	**5-*	*28 - 136*	*09/20/21 07:54*	*09/22/21 17:16*	*100*

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
10:2 Fluorotelomer sulfonic acid	ND		250000	50000	ng/L		10/07/21 15:25	10/11/21 12:53	10
11Cl-PF3OUdS	ND		100000	25000	ng/L		10/07/21 15:25	10/11/21 12:53	10

Client Sample ID: RINSE 1

Date Collected: 09/01/21 13:15
Date Received: 09/09/21 11:08

Lab Sample ID: 410-54547-2

Matrix: Water

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4:2 Fluorotelomer sulfonic acid	ND		100000	25000	ng/L		10/07/21 15:25	10/11/21 12:53	10
6:2 Fluorotelomer sulfonic acid	ND		250000	100000	ng/L		10/07/21 15:25	10/11/21 12:53	10
8:2 Fluorotelomer sulfonic acid	ND		150000	50000	ng/L		10/07/21 15:25	10/11/21 12:53	10
9Cl-PF3ONS	ND		100000	25000	ng/L		10/07/21 15:25	10/11/21 12:53	10
DONA	ND		100000	25000	ng/L		10/07/21 15:25	10/11/21 12:53	10
HFPODA	ND		150000	25000	ng/L		10/07/21 15:25	10/11/21 12:53	10
NEtFOSAA	ND		150000	25000	ng/L		10/07/21 15:25	10/11/21 12:53	10
NEtFOSA	ND		250000	50000	ng/L		10/07/21 15:25	10/11/21 12:53	10
NEtFOSE	ND		150000	50000	ng/L		10/07/21 15:25	10/11/21 12:53	10
NMeFOSAA	ND		100000	30000	ng/L		10/07/21 15:25	10/11/21 12:53	10
NMeFOSA	ND		150000	50000	ng/L		10/07/21 15:25	10/11/21 12:53	10
NMeFOSE	ND		150000	50000	ng/L		10/07/21 15:25	10/11/21 12:53	10
Perfluorobutanesulfonic acid	ND		100000	25000	ng/L		10/07/21 15:25	10/11/21 12:53	10
Perfluorodecanesulfonic acid	ND		100000	25000	ng/L		10/07/21 15:25	10/11/21 12:53	10
Perfluorodecanoic acid	**5900000**		100000	25000	ng/L		10/07/21 15:25	10/11/21 12:53	10
Perfluorododecanesulfonic acid (PFDoS)	ND		150000	25000	ng/L		10/07/21 15:25	10/11/21 12:53	10
Perfluorododecanoic acid	**2500000**	I	100000	25000	ng/L		10/07/21 15:25	10/11/21 12:53	10
Perfluoroheptanesulfonic acid	ND		100000	25000	ng/L		10/07/21 15:25	10/11/21 12:53	10
Perfluorohexadecanoic acid	**280000**		150000	50000	ng/L		10/07/21 15:25	10/11/21 12:53	10
Perfluorohexanesulfonic acid	ND		100000	25000	ng/L		10/07/21 15:25	10/11/21 12:53	10
Perfluorononanesulfonic acid	ND		100000	25000	ng/L		10/07/21 15:25	10/11/21 12:53	10
Perfluorooctadecanoic acid	ND		150000	50000	ng/L		10/07/21 15:25	10/11/21 12:53	10
Perfluorooctanesulfonamide	ND		100000	25000	ng/L		10/07/21 15:25	10/11/21 12:53	10
Perfluorooctanesulfonic acid	ND		100000	25000	ng/L		10/07/21 15:25	10/11/21 12:53	10
Perfluorooctanoic acid	**15000000**		100000	25000	ng/L		10/07/21 15:25	10/11/21 12:53	10
Perfluoropentanesulfonic acid	ND		100000	25000	ng/L		10/07/21 15:25	10/11/21 12:53	10
Perfluorotetradecanoic acid	**1400000**		100000	25000	ng/L		10/07/21 15:25	10/11/21 12:53	10
Perfluorotridecanoic acid	**1900000**		100000	25000	ng/L		10/07/21 15:25	10/11/21 12:53	10
Perfluoroundecanoic acid	**7700000**		100000	25000	ng/L		10/07/21 15:25	10/11/21 12:53	10

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-6:2 FTS	*98*		*55 - 167*	*10/07/21 15:25*	*10/11/21 12:53*	*10*
M2-8:2 FTS	*89*		*61 - 160*	*10/07/21 15:25*	*10/11/21 12:53*	*10*
13C2-PFDoDA	*94*		*47 - 118*	*10/07/21 15:25*	*10/11/21 12:53*	*10*
13C2 PFTeDA	*83*		*32 - 126*	*10/07/21 15:25*	*10/11/21 12:53*	*10*
13C3 HFPO-DA	*108*		*70 - 130*	*10/07/21 15:25*	*10/11/21 12:53*	*10*
13C3 PFBS	*158*		*18 - 177*	*10/07/21 15:25*	*10/11/21 12:53*	*10*
13C3 PFHxS	*77*		*55 - 115*	*10/07/21 15:25*	*10/11/21 12:53*	*10*
13C4 PFBA	*105*		*52 - 126*	*10/07/21 15:25*	*10/11/21 12:53*	*10*
13C4 PFHpA	*76*		*55 - 113*	*10/07/21 15:25*	*10/11/21 12:53*	*10*
13C5 PFHxA	*72*		*54 - 115*	*10/07/21 15:25*	*10/11/21 12:53*	*10*
13C5 PFPeA	*72*		*17 - 184*	*10/07/21 15:25*	*10/11/21 12:53*	*10*
13C6 PFDA	*98*		*56 - 114*	*10/07/21 15:25*	*10/11/21 12:53*	*10*
13C7 PFUnA	*94*		*50 - 120*	*10/07/21 15:25*	*10/11/21 12:53*	*10*
13C8 PFOA	*95*		*56 - 117*	*10/07/21 15:25*	*10/11/21 12:53*	*10*
13C8 PFOS	*99*		*56 - 112*	*10/07/21 15:25*	*10/11/21 12:53*	*10*
13C8 FOSA	*85*		*10 - 126*	*10/07/21 15:25*	*10/11/21 12:53*	*10*
13C9 PFNA	*99*		*54 - 122*	*10/07/21 15:25*	*10/11/21 12:53*	*10*
M2-4:2 FTS				*10/07/21 15:25*	*10/11/21 12:53*	*10*

Client Sample ID: RINSE 1

Date Collected: 09/01/21 13:15
Date Received: 09/09/21 11:08

Lab Sample ID: 410-54547-2

Matrix: Water

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
d3-NMeFOSAA				10/07/21 15:25	10/11/21 12:53	10
d3-NMePFOSA	29		10 - 51	10/07/21 15:25	10/11/21 12:53	10
d5-NEtFOSAA	116		65 - 134	10/07/21 15:25	10/11/21 12:53	10
d5-NEtPFOSA	26		10 - 51	10/07/21 15:25	10/11/21 12:53	10
d7-N-MeFOSE-M	66		10 - 105	10/07/21 15:25	10/11/21 12:53	10
d9-N-EtFOSE-M	45		10 - 112	10/07/21 15:25	10/11/21 12:53	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	79		40 - 173	10/07/21 15:25	10/11/21 12:53	10
13C2 PFUnA	80		49 - 132	10/07/21 15:25	10/11/21 12:53	10
13C4 PFOA	82		10 - 163	10/07/21 15:25	10/11/21 12:53	10

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid	31000000		2500000	1000000	ng/L		10/07/21 15:25	10/11/21 13:03	100
Perfluoroheptanoic acid	40000000	E	1000000	250000	ng/L		10/07/21 15:25	10/11/21 13:03	100
Perfluorohexanoic acid	33000000		1000000	250000	ng/L		10/07/21 15:25	10/11/21 13:03	100
Perfluorononanoic acid	22000000		1000000	250000	ng/L		10/07/21 15:25	10/11/21 13:03	100
Perfluoropentanoic acid	95000000		1000000	250000	ng/L		10/07/21 15:25	10/11/21 13:03	100

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	155	*5+	52 - 126	10/07/21 15:25	10/11/21 13:03	100
13C4 PFHpA	106		55 - 113	10/07/21 15:25	10/11/21 13:03	100
13C5 PFHxA	100		54 - 115	10/07/21 15:25	10/11/21 13:03	100
13C5 PFPeA	97		17 - 184	10/07/21 15:25	10/11/21 13:03	100
13C9 PFNA	113		54 - 122	10/07/21 15:25	10/11/21 13:03	100

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	101		40 - 173	10/07/21 15:25	10/11/21 13:03	100
13C2 PFUnA	92		49 - 132	10/07/21 15:25	10/11/21 13:03	100
13C4 PFOA	98		10 - 163	10/07/21 15:25	10/11/21 13:03	100

Method: Total PFCA-Dif - Total PFCA (Treatment Difference)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid	31000000				ng/L			10/14/21 10:45	1
Perfluoropentanoic acid	95000000				ng/L			10/14/21 10:45	1
Perfluorohexanoic acid	33000000				ng/L			10/14/21 10:45	1
Perfluoroheptanoic acid	40000000				ng/L			10/14/21 10:45	1
Perfluorooctanoic acid	14000000				ng/L			10/14/21 10:45	1
Perfluorononanoic acid	13000000				ng/L			10/14/21 10:45	1
Total PFCA	230000000				ng/L			10/14/21 10:45	1

Method: Total PFCA-Sum - Total PFCA (Summary) - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid	ND	H	50000	20000	ng/L			10/12/21 11:35	1
Perfluoropentanoic acid	28000	H	20000	5000	ng/L			10/12/21 11:35	1
Perfluorohexanoic acid	290000	H	20000	5000	ng/L			10/12/21 11:35	1
Perfluoroheptanoic acid	240000	H	20000	5000	ng/L			10/12/21 11:35	1
Perfluorooctanoic acid	540000	H	20000	5000	ng/L			10/12/21 11:35	1
Perfluorononanoic acid	8900000	H E	20000	5000	ng/L			10/12/21 11:35	1
Total PFCA	10000000		500	0.50	ng/L			10/12/21 11:35	1

Client Sample Results

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-54547-1

Client Sample ID: RINSE 1

Lab Sample ID: 410-54547-2
Date Collected: 09/01/21 13:15
Matrix: Water
Date Received: 09/09/21 11:08

Method: Total PFCA-Sum - Total PFCA (Summary) - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid	**31000000**		2500000	1000000	ng/L			10/12/21 11:35	1
Perfluoropentanoic acid	**95000000**		1000000	250000	ng/L			10/12/21 11:35	1
Perfluorohexanoic acid	**33000000**		1000000	250000	ng/L			10/12/21 11:35	1
Perfluoroheptanoic acid	**40000000**	**E**	1000000	250000	ng/L			10/12/21 11:35	1
Perfluorooctanoic acid	**15000000**		100000	25000	ng/L			10/12/21 11:35	1
Perfluorononanoic acid	**22000000**		1000000	250000	ng/L			10/12/21 11:35	1
Total PFCA	**240000000**		500	0.50	ng/L			10/12/21 11:35	1

Client Sample ID: HYDRANT-1

Lab Sample ID: 410-54547-3
Date Collected: 09/02/21 13:30
Matrix: Water
Date Received: 09/09/21 11:08

Method: 537 IDA - EPA 537 Isotope Dilution

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4:2 Fluorotelomer sulfonic acid	ND		1.7	0.43	ng/L		09/15/21 08:46	09/16/21 17:49	1
6:2 Fluorotelomer sulfonic acid	ND		4.3	1.7	ng/L		09/15/21 08:46	09/16/21 17:49	1
8:2 Fluorotelomer sulfonic acid	ND		2.6	0.86	ng/L		09/15/21 08:46	09/16/21 17:49	1
NEtFOSAA	ND		2.6	0.43	ng/L		09/15/21 08:46	09/16/21 17:49	1
NMeFOSAA	ND		1.7	0.52	ng/L		09/15/21 08:46	09/16/21 17:49	1
Perfluorobutanesulfonic acid	**4.5**		1.7	0.43	ng/L		09/15/21 08:46	09/16/21 17:49	1
Perfluorobutanoic acid	ND		4.3	1.7	ng/L		09/15/21 08:46	09/16/21 17:49	1
Perfluorodecanesulfonic acid	ND		1.7	0.43	ng/L		09/15/21 08:46	09/16/21 17:49	1
Perfluorodecanoic acid	ND		1.7	0.43	ng/L		09/15/21 08:46	09/16/21 17:49	1
Perfluorododecanoic acid	ND		1.7	0.43	ng/L		09/15/21 08:46	09/16/21 17:49	1
Perfluoroheptanesulfonic acid	ND		1.7	0.43	ng/L		09/15/21 08:46	09/16/21 17:49	1
Perfluoroheptanoic acid	**2.5**		1.7	0.43	ng/L		09/15/21 08:46	09/16/21 17:49	1
Perfluorohexanesulfonic acid	**74**		1.7	0.43	ng/L		09/15/21 08:46	09/16/21 17:49	1
Perfluorohexanoic acid	**13**		1.7	0.43	ng/L		09/15/21 08:46	09/16/21 17:49	1
Perfluorononanesulfonic acid	ND		1.7	0.43	ng/L		09/15/21 08:46	09/16/21 17:49	1
Perfluorononanoic acid	ND		1.7	0.43	ng/L		09/15/21 08:46	09/16/21 17:49	1
Perfluorooctanesulfonamide	ND		1.7	0.43	ng/L		09/15/21 08:46	09/16/21 17:49	1
Perfluorooctanesulfonic acid	**85**		1.7	0.43	ng/L		09/15/21 08:46	09/16/21 17:49	1
Perfluorooctanoic acid	**4.9**		1.7	0.43	ng/L		09/15/21 08:46	09/16/21 17:49	1
Perfluoropentanesulfonic acid	**4.8**		1.7	0.43	ng/L		09/15/21 08:46	09/16/21 17:49	1
Perfluoropentanoic acid	**5.4**		1.7	0.43	ng/L		09/15/21 08:46	09/16/21 17:49	1
Perfluorotetradecanoic acid	ND		1.7	0.43	ng/L		09/15/21 08:46	09/16/21 17:49	1
Perfluorotridecanoic acid	ND		1.7	0.43	ng/L		09/15/21 08:46	09/16/21 17:49	1
Perfluoroundecanoic acid	ND		1.7	0.43	ng/L		09/15/21 08:46	09/16/21 17:49	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-4:2 FTS	*94*		*20 - 187*	*09/15/21 08:46*	*09/16/21 17:49*	*1*
M2-6:2 FTS	*119*		*29 - 189*	*09/15/21 08:46*	*09/16/21 17:49*	*1*
M2-8:2 FTS	*117*		*34 - 182*	*09/15/21 08:46*	*09/16/21 17:49*	*1*
13C2 PFTeDA	*93*		*10 - 144*	*09/15/21 08:46*	*09/16/21 17:49*	*1*
13C3 PFBS	*105*		*19 - 178*	*09/15/21 08:46*	*09/16/21 17:49*	*1*
13C4 PFBA	*71*		*41 - 132*	*09/15/21 08:46*	*09/16/21 17:49*	*1*
13C4 PFHpA	*97*		*30 - 144*	*09/15/21 08:46*	*09/16/21 17:49*	*1*
13C5 PFPeA	*90*		*33 - 155*	*09/15/21 08:46*	*09/16/21 17:49*	*1*
13C8 PFOA	*92*		*49 - 127*	*09/15/21 08:46*	*09/16/21 17:49*	*1*
13C8 PFOS	*110*		*49 - 126*	*09/15/21 08:46*	*09/16/21 17:49*	*1*
d3-NMeFOSAA	*120*		*32 - 151*	*09/15/21 08:46*	*09/16/21 17:49*	*1*

Client Sample ID: HYDRANT-1

Lab Sample ID: 410-54547-3
Matrix: Water

Date Collected: 09/02/21 13:30
Date Received: 09/09/21 11:08

Method: 537 IDA - EPA 537 Isotope Dilution (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
d5-NEtFOSAA	120		37 - 164	09/15/21 08:46	09/16/21 17:49	1
13C3 PFHxS	89		32 - 145	09/15/21 08:46	09/16/21 17:49	1
13C5 PFHxA	82		31 - 142	09/15/21 08:46	09/16/21 17:49	1
13C6 PFDA	104		47 - 128	09/15/21 08:46	09/16/21 17:49	1
13C7 PFUnA	93		40 - 135	09/15/21 08:46	09/16/21 17:49	1
13C8 FOSA	95		10 - 143	09/15/21 08:46	09/16/21 17:49	1
13C2-PFDoDA	92		28 - 136	09/15/21 08:46	09/16/21 17:49	1
13C9 PFNA	110		47 - 136	09/15/21 08:46	09/16/21 17:49	1

Client Sample ID: RINSE 2-1

Lab Sample ID: 410-54547-4
Matrix: Water

Date Collected: 09/03/21 14:00
Date Received: 09/09/21 11:08

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid	ND		18	4.5	ng/L		09/16/21 09:14	09/18/21 20:50	10
Perfluorobutanoic acid	**96**		45	18	ng/L		09/16/21 09:14	09/18/21 20:50	10
Perfluorodecanesulfonic acid	ND		18	4.5	ng/L		09/16/21 09:14	09/18/21 20:50	10
Perfluorodecanoic acid	**60**		18	4.5	ng/L		09/16/21 09:14	09/18/21 20:50	10
Perfluorododecanoic acid	**23**		18	4.5	ng/L		09/16/21 09:14	09/18/21 20:50	10
Perfluoroheptanesulfonic acid	ND		18	4.5	ng/L		09/16/21 09:14	09/18/21 20:50	10
Perfluoroheptanoic acid	**61**		18	4.5	ng/L		09/16/21 09:14	09/18/21 20:50	10
Perfluorohexanesulfonic acid	ND		18	4.5	ng/L		09/16/21 09:14	09/18/21 20:50	10
Perfluorohexanoic acid	**200**		18	4.5	ng/L		09/16/21 09:14	09/18/21 20:50	10
Perfluorononanesulfonic acid	ND		18	4.5	ng/L		09/16/21 09:14	09/18/21 20:50	10
Perfluorononanoic acid	**3400**		18	4.5	ng/L		09/16/21 09:14	09/18/21 20:50	10
Perfluorooctanesulfonamide	ND		18	4.5	ng/L		09/16/21 09:14	09/18/21 20:50	10
Perfluorooctanesulfonic acid	**32**	**I**	18	4.5	ng/L		09/16/21 09:14	09/18/21 20:50	10
Perfluorooctanoic acid	**170**		18	4.5	ng/L		09/16/21 09:14	09/18/21 20:50	10
Perfluoropentanesulfonic acid	ND		18	4.5	ng/L		09/16/21 09:14	09/18/21 20:50	10
Perfluoropentanoic acid	**35**		18	4.5	ng/L		09/16/21 09:14	09/18/21 20:50	10
Perfluorotetradecanoic acid	ND		18	4.5	ng/L		09/16/21 09:14	09/18/21 20:50	10
Perfluorotridecanoic acid	**450**		18	4.5	ng/L		09/16/21 09:14	09/18/21 20:50	10
Perfluoroundecanoic acid	**1400**		18	4.5	ng/L		09/16/21 09:14	09/18/21 20:50	10
8:2 Fluorotelomer sulfonic acid	**1300**		27	8.9	ng/L		09/16/21 09:14	09/18/21 20:50	10
4:2 Fluorotelomer sulfonic acid	**48**		18	4.5	ng/L		09/16/21 09:14	09/18/21 20:50	10
NEtFOSAA	ND		27	4.5	ng/L		09/16/21 09:14	09/18/21 20:50	10
NMeFOSAA	ND		18	5.4	ng/L		09/16/21 09:14	09/18/21 20:50	10

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	220	*5+	41 - 132	09/16/21 09:14	09/18/21 20:50	10
13C8 FOSA	264	*5+	10 - 143	09/16/21 09:14	09/18/21 20:50	10
13C4 PFHpA	560	*5+	30 - 144	09/16/21 09:14	09/18/21 20:50	10
13C5 PFPeA	241	*5+	33 - 155	09/16/21 09:14	09/18/21 20:50	10
13C2 PFTeDA	250	*5+	10 - 144	09/16/21 09:14	09/18/21 20:50	10
d3-NMeFOSAA	247	*5+	32 - 151	09/16/21 09:14	09/18/21 20:50	10
d5-NEtFOSAA	259	*5+	37 - 164	09/16/21 09:14	09/18/21 20:50	10
M2-6:2 FTS	600	*5+	29 - 189	09/16/21 09:14	09/18/21 20:50	10
M2-8:2 FTS	303	*5+	34 - 182	09/16/21 09:14	09/18/21 20:50	10
13C3 PFBS	250	*5+	19 - 178	09/16/21 09:14	09/18/21 20:50	10
M2-4:2 FTS	711	*5+	20 - 187	09/16/21 09:14	09/18/21 20:50	10

Client Sample Results

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-54547-1

Client Sample ID: RINSE 2-1

Date Collected: 09/03/21 14:00
Date Received: 09/09/21 11:08

Lab Sample ID: 410-54547-4

Matrix: Water

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment (Continued)

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 PFOA	*234*	**5+*	*49 - 127*	*09/16/21 09:14*	*09/18/21 20:50*	*10*
13C8 PFOS	*226*	**5+*	*49 - 126*	*09/16/21 09:14*	*09/18/21 20:50*	*10*
13C5 PFHxA	*505*	**5+*	*31 - 142*	*09/16/21 09:14*	*09/18/21 20:50*	*10*
13C9 PFNA	*220*	**5+*	*47 - 136*	*09/16/21 09:14*	*09/18/21 20:50*	*10*
13C6 PFDA	*215*	**5+*	*47 - 128*	*09/16/21 09:14*	*09/18/21 20:50*	*10*
13C7 PFUnA	*202*	**5+*	*40 - 135*	*09/16/21 09:14*	*09/18/21 20:50*	*10*
13C3 PFHxS	*566*	**5+*	*32 - 145*	*09/16/21 09:14*	*09/18/21 20:50*	*10*
13C2-PFDoDA	*215*	**5+*	*28 - 136*	*09/16/21 09:14*	*09/18/21 20:50*	*10*

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
6:2 Fluorotelomer sulfonic acid	**4700**		450	180	ng/L		09/16/21 09:14	09/18/21 21:01	100

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-6:2 FTS	*502*	**5+*	*29 - 189*	*09/16/21 09:14*	*09/18/21 21:01*	*100*

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
10:2 Fluorotelomer sulfonic acid	ND		250	50	ng/L		10/07/21 15:25	10/11/21 13:14	1
11Cl-PF3OUdS	ND		100	25	ng/L		10/07/21 15:25	10/11/21 13:14	1
4:2 Fluorotelomer sulfonic acid	ND		100	25	ng/L		10/07/21 15:25	10/11/21 13:14	1
6:2 Fluorotelomer sulfonic acid	ND		250	100	ng/L		10/07/21 15:25	10/11/21 13:14	1
8:2 Fluorotelomer sulfonic acid	ND		150	50	ng/L		10/07/21 15:25	10/11/21 13:14	1
9Cl-PF3ONS	ND		100	25	ng/L		10/07/21 15:25	10/11/21 13:14	1
DONA	ND		100	25	ng/L		10/07/21 15:25	10/11/21 13:14	1
HFPODA	ND		150	25	ng/L		10/07/21 15:25	10/11/21 13:14	1
NEtFOSAA	ND		150	25	ng/L		10/07/21 15:25	10/11/21 13:14	1
NEtFOSA	ND		250	50	ng/L		10/07/21 15:25	10/11/21 13:14	1
NEtFOSE	ND		150	50	ng/L		10/07/21 15:25	10/11/21 13:14	1
NMeFOSAA	ND		100	30	ng/L		10/07/21 15:25	10/11/21 13:14	1
NMeFOSA	ND		150	50	ng/L		10/07/21 15:25	10/11/21 13:14	1
NMeFOSE	ND		150	50	ng/L		10/07/21 15:25	10/11/21 13:14	1
Perfluorobutanesulfonic acid	ND		100	25	ng/L		10/07/21 15:25	10/11/21 13:14	1
Perfluorodecanesulfonic acid	ND		100	25	ng/L		10/07/21 15:25	10/11/21 13:14	1
Perfluorodecanoic acid	**5000**		100	25	ng/L		10/07/21 15:25	10/11/21 13:14	1
Perfluorododecanesulfonic acid (PFDoS)	ND		150	25	ng/L		10/07/21 15:25	10/11/21 13:14	1
Perfluorododecanoic acid	**1800**	**I**	100	25	ng/L		10/07/21 15:25	10/11/21 13:14	1
Perfluoroheptanesulfonic acid	ND		100	25	ng/L		10/07/21 15:25	10/11/21 13:14	1
Perfluorohexadecanoic acid	**320**		150	50	ng/L		10/07/21 15:25	10/11/21 13:14	1
Perfluorohexanesulfonic acid	ND		100	25	ng/L		10/07/21 15:25	10/11/21 13:14	1
Perfluorononanesulfonic acid	ND		100	25	ng/L		10/07/21 15:25	10/11/21 13:14	1
Perfluorooctadecanoic acid	ND		150	50	ng/L		10/07/21 15:25	10/11/21 13:14	1
Perfluorooctanesulfonamide	ND		100	25	ng/L		10/07/21 15:25	10/11/21 13:14	1
Perfluorooctanesulfonic acid	**210**		100	25	ng/L		10/07/21 15:25	10/11/21 13:14	1
Perfluorooctanoic acid	**16000**		100	25	ng/L		10/07/21 15:25	10/11/21 13:14	1
Perfluoropentanesulfonic acid	ND		100	25	ng/L		10/07/21 15:25	10/11/21 13:14	1
Perfluorotetradecanoic acid	**1100**		100	25	ng/L		10/07/21 15:25	10/11/21 13:14	1
Perfluorotridecanoic acid	**1600**		100	25	ng/L		10/07/21 15:25	10/11/21 13:14	1
Perfluoroundecanoic acid	**5600**		100	25	ng/L		10/07/21 15:25	10/11/21 13:14	1

Client Sample Results

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-54547-1

Client Sample ID: RINSE 2-1

Date Collected: 09/03/21 14:00
Date Received: 09/09/21 11:08

Lab Sample ID: 410-54547-4

Matrix: Water

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
M2-6:2 FTS	96		55 - 167	10/07/21 15:25	10/11/21 13:14	1
M2-8:2 FTS	96		61 - 160	10/07/21 15:25	10/11/21 13:14	1
13C2-PFDoDA	93		47 - 118	10/07/21 15:25	10/11/21 13:14	1
13C2 PFTeDA	88		32 - 126	10/07/21 15:25	10/11/21 13:14	1
13C3 HFPO-DA	102		70 - 130	10/07/21 15:25	10/11/21 13:14	1
13C3 PFBS	198	*5+	18 - 177	10/07/21 15:25	10/11/21 13:14	1
13C3 PFHxS	75		55 - 115	10/07/21 15:25	10/11/21 13:14	1
13C4 PFBA	99		52 - 126	10/07/21 15:25	10/11/21 13:14	1
13C4 PFHpA	79		55 - 113	10/07/21 15:25	10/11/21 13:14	1
13C5 PFHxA	61		54 - 115	10/07/21 15:25	10/11/21 13:14	1
13C5 PFPeA	74		17 - 184	10/07/21 15:25	10/11/21 13:14	1
13C6 PFDA	95		56 - 114	10/07/21 15:25	10/11/21 13:14	1
13C7 PFUnA	95		50 - 120	10/07/21 15:25	10/11/21 13:14	1
13C8 PFOA	95		56 - 117	10/07/21 15:25	10/11/21 13:14	1
13C8 PFOS	100		56 - 112	10/07/21 15:25	10/11/21 13:14	1
13C8 FOSA	85		10 - 126	10/07/21 15:25	10/11/21 13:14	1
13C9 PFNA	106		54 - 122	10/07/21 15:25	10/11/21 13:14	1
M2-4:2 FTS				10/07/21 15:25	10/11/21 13:14	1
d3-NMeFOSAA				10/07/21 15:25	10/11/21 13:14	1
d3-NMePFOSA	56	*5+	10 - 51	10/07/21 15:25	10/11/21 13:14	1
d5-NEtFOSAA	97		65 - 134	10/07/21 15:25	10/11/21 13:14	1
d5-NEtPFOSA	54	*5+	10 - 51	10/07/21 15:25	10/11/21 13:14	1
d7-N-MeFOSE-M	80		10 - 105	10/07/21 15:25	10/11/21 13:14	1
d9-N-EtFOSE-M	82		10 - 112	10/07/21 15:25	10/11/21 13:14	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	58		40 - 173	10/07/21 15:25	10/11/21 13:14	1
13C2 PFUnA	88		49 - 132	10/07/21 15:25	10/11/21 13:14	1
13C4 PFOA	86		10 - 163	10/07/21 15:25	10/11/21 13:14	1

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid	72000		2500	1000	ng/L		10/07/21 15:25	10/11/21 13:35	10
Perfluorononanoic acid	17000		1000	250	ng/L		10/07/21 15:25	10/11/21 13:35	10

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	104		52 - 126	10/07/21 15:25	10/11/21 13:35	10
13C9 PFNA	110		54 - 122	10/07/21 15:25	10/11/21 13:35	10

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment - DL2

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoroheptanoic acid	45000		10000	2500	ng/L		10/07/21 15:25	10/11/21 13:46	100
Perfluorohexanoic acid	49000		10000	2500	ng/L		10/07/21 15:25	10/11/21 13:46	100
Perfluoropentanoic acid	170000		10000	2500	ng/L		10/07/21 15:25	10/11/21 13:46	100

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFHpA	112		55 - 113	10/07/21 15:25	10/11/21 13:46	100
13C5 PFHxA	124	*5+	54 - 115	10/07/21 15:25	10/11/21 13:46	100
13C5 PFPeA	111		17 - 184	10/07/21 15:25	10/11/21 13:46	100

Client Sample Results

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-54547-1

Client Sample ID: RINSE 2-1

Lab Sample ID: 410-54547-4

Date Collected: 09/03/21 14:00
Matrix: Water
Date Received: 09/09/21 11:08

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment - RA

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*71*		*40 - 173*	*10/07/21 15:25*	*10/11/21 13:24*	*1*
13C2 PFUnA	*105*		*49 - 132*	*10/07/21 15:25*	*10/11/21 13:24*	*1*
13C4 PFOA	*98*		*10 - 163*	*10/07/21 15:25*	*10/11/21 13:24*	*1*

Method: Total PFCA-Dif - Total PFCA (Treatment Difference)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid	**72000**				ng/L			10/14/21 10:45	1
Perfluoropentanoic acid	**170000**				ng/L			10/14/21 10:45	1
Perfluorohexanoic acid	**49000**				ng/L			10/14/21 10:45	1
Perfluoroheptanoic acid	**45000**				ng/L			10/14/21 10:45	1
Perfluorooctanoic acid	**15000**				ng/L			10/14/21 10:45	1
Perfluorononanoic acid	**14000**				ng/L			10/14/21 10:45	1
Total PFCA	**370000**				ng/L			10/14/21 10:45	1

Method: Total PFCA-Sum - Total PFCA (Summary) - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid	**96**		45	18	ng/L			10/12/21 11:35	1
Perfluoropentanoic acid	**35**		18	4.5	ng/L			10/12/21 11:35	1
Perfluorohexanoic acid	**200**		18	4.5	ng/L			10/12/21 11:35	1
Perfluoroheptanoic acid	**61**		18	4.5	ng/L			10/12/21 11:35	1
Perfluorooctanoic acid	**170**		18	4.5	ng/L			10/12/21 11:35	1
Perfluorononanoic acid	**3400**		18	4.5	ng/L			10/12/21 11:35	1
Total PFCA	**4000**		500	0.50	ng/L			10/12/21 11:35	1

Method: Total PFCA-Sum - Total PFCA (Summary) - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid	**72000**		2500	1000	ng/L			10/12/21 11:35	1
Perfluoropentanoic acid	**170000**		10000	2500	ng/L			10/12/21 11:35	1
Perfluorohexanoic acid	**49000**		10000	2500	ng/L			10/12/21 11:35	1
Perfluoroheptanoic acid	**45000**		10000	2500	ng/L			10/12/21 11:35	1
Perfluorooctanoic acid	**16000**		100	25	ng/L			10/12/21 11:35	1
Perfluorononanoic acid	**17000**		1000	250	ng/L			10/12/21 11:35	1
Total PFCA	**370000**		500	0.50	ng/L			10/12/21 11:35	1

Client Sample ID: EFFLUENT-1

Lab Sample ID: 410-54547-5

Date Collected: 09/07/21 14:30
Matrix: Water
Date Received: 09/09/21 11:08

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid	ND		1.7	0.43	ng/L		09/16/21 09:14	09/18/21 21:12	1
Perfluorobutanoic acid	ND		4.3	1.7	ng/L		09/16/21 09:14	09/18/21 21:12	1
Perfluorodecanesulfonic acid	ND		1.7	0.43	ng/L		09/16/21 09:14	09/18/21 21:12	1
Perfluorodecanoic acid	ND		1.7	0.43	ng/L		09/16/21 09:14	09/18/21 21:12	1
Perfluorododecanoic acid	**4.8**		1.7	0.43	ng/L		09/16/21 09:14	09/18/21 21:12	1
Perfluoroheptanesulfonic acid	ND		1.7	0.43	ng/L		09/16/21 09:14	09/18/21 21:12	1
Perfluoroheptanoic acid	ND		1.7	0.43	ng/L		09/16/21 09:14	09/18/21 21:12	1
Perfluorohexanesulfonic acid	ND		1.7	0.43	ng/L		09/16/21 09:14	09/18/21 21:12	1
Perfluorohexanoic acid	ND		1.7	0.43	ng/L		09/16/21 09:14	09/18/21 21:12	1
Perfluorononanesulfonic acid	ND		1.7	0.43	ng/L		09/16/21 09:14	09/18/21 21:12	1

Client Sample Results

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-54547-1

Client Sample ID: EFFLUENT-1

Date Collected: 09/07/21 14:30
Date Received: 09/09/21 11:08

Lab Sample ID: 410-54547-5

Matrix: Water

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorononanoic acid	**3.2**		1.7	0.43	ng/L		09/16/21 09:14	09/18/21 21:12	1
Perfluorooctanesulfonamide	ND		1.7	0.43	ng/L		09/16/21 09:14	09/18/21 21:12	1
Perfluorooctanesulfonic acid	**1.8**		1.7	0.43	ng/L		09/16/21 09:14	09/18/21 21:12	1
Perfluorooctanoic acid	ND		1.7	0.43	ng/L		09/16/21 09:14	09/18/21 21:12	1
Perfluoropentanesulfonic acid	ND		1.7	0.43	ng/L		09/16/21 09:14	09/18/21 21:12	1
Perfluoropentanoic acid	ND		1.7	0.43	ng/L		09/16/21 09:14	09/18/21 21:12	1
Perfluorotetradecanoic acid	**2.6**		1.7	0.43	ng/L		09/16/21 09:14	09/18/21 21:12	1
Perfluorotridecanoic acid	**120**		1.7	0.43	ng/L		09/16/21 09:14	09/18/21 21:12	1
Perfluoroundecanoic acid	**200**		1.7	0.43	ng/L		09/16/21 09:14	09/18/21 21:12	1
8:2 Fluorotelomer sulfonic acid	**11**		2.6	0.86	ng/L		09/16/21 09:14	09/18/21 21:12	1
4:2 Fluorotelomer sulfonic acid	ND		1.7	0.43	ng/L		09/16/21 09:14	09/18/21 21:12	1
6:2 Fluorotelomer sulfonic acid	**7.2**		4.3	1.7	ng/L		09/16/21 09:14	09/18/21 21:12	1
NEtFOSAA	ND		2.6	0.43	ng/L		09/16/21 09:14	09/18/21 21:12	1
NMeFOSAA	ND		1.7	0.52	ng/L		09/16/21 09:14	09/18/21 21:12	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*126*		*41 - 132*	*09/16/21 09:14*	*09/18/21 21:12*	*1*
13C8 FOSA	*112*		*10 - 143*	*09/16/21 09:14*	*09/18/21 21:12*	*1*
13C4 PFHpA	*141*		*30 - 144*	*09/16/21 09:14*	*09/18/21 21:12*	*1*
13C5 PFPeA	*125*		*33 - 155*	*09/16/21 09:14*	*09/18/21 21:12*	*1*
13C2 PFTeDA	*54*		*10 - 144*	*09/16/21 09:14*	*09/18/21 21:12*	*1*
d3-NMeFOSAA	*114*		*32 - 151*	*09/16/21 09:14*	*09/18/21 21:12*	*1*
d5-NEtFOSAA	*106*		*37 - 164*	*09/16/21 09:14*	*09/18/21 21:12*	*1*
M2-6:2 FTS	*149*		*29 - 189*	*09/16/21 09:14*	*09/18/21 21:12*	*1*
M2-8:2 FTS	*119*		*34 - 182*	*09/16/21 09:14*	*09/18/21 21:12*	*1*
13C3 PFBS	*140*		*19 - 178*	*09/16/21 09:14*	*09/18/21 21:12*	*1*
M2-4:2 FTS	*155*		*20 - 187*	*09/16/21 09:14*	*09/18/21 21:12*	*1*
13C8 PFOA	*134*	**5+*	*49 - 127*	*09/16/21 09:14*	*09/18/21 21:12*	*1*
13C8 PFOS	*108*		*49 - 126*	*09/16/21 09:14*	*09/18/21 21:12*	*1*
13C5 PFHxA	*133*		*31 - 142*	*09/16/21 09:14*	*09/18/21 21:12*	*1*
13C9 PFNA	*120*		*47 - 136*	*09/16/21 09:14*	*09/18/21 21:12*	*1*
13C6 PFDA	*114*		*47 - 128*	*09/16/21 09:14*	*09/18/21 21:12*	*1*
13C7 PFUnA	*87*		*40 - 135*	*09/16/21 09:14*	*09/18/21 21:12*	*1*
13C3 PFHxS	*145*		*32 - 145*	*09/16/21 09:14*	*09/18/21 21:12*	*1*
13C2-PFDoDA	*83*		*28 - 136*	*09/16/21 09:14*	*09/18/21 21:12*	*1*

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
10:2 Fluorotelomer sulfonic acid	ND		25	5.0	ng/L		10/07/21 15:25	10/11/21 13:56	1
11Cl-PF3OUdS	ND		10	2.5	ng/L		10/07/21 15:25	10/11/21 13:56	1
4:2 Fluorotelomer sulfonic acid	ND		10	2.5	ng/L		10/07/21 15:25	10/11/21 13:56	1
6:2 Fluorotelomer sulfonic acid	ND		25	10	ng/L		10/07/21 15:25	10/11/21 13:56	1
8:2 Fluorotelomer sulfonic acid	ND		15	5.0	ng/L		10/07/21 15:25	10/11/21 13:56	1
9Cl-PF3ONS	ND		10	2.5	ng/L		10/07/21 15:25	10/11/21 13:56	1
DONA	ND		10	2.5	ng/L		10/07/21 15:25	10/11/21 13:56	1
HFPODA	ND		15	2.5	ng/L		10/07/21 15:25	10/11/21 13:56	1
NEtFOSAA	ND		15	2.5	ng/L		10/07/21 15:25	10/11/21 13:56	1
NEtFOSA	ND		25	5.0	ng/L		10/07/21 15:25	10/11/21 13:56	1
NEtFOSE	ND		15	5.0	ng/L		10/07/21 15:25	10/11/21 13:56	1
NMeFOSAA	ND		10	3.0	ng/L		10/07/21 15:25	10/11/21 13:56	1

Client Sample ID: EFFLUENT-1

Lab Sample ID: 410-54547-5

Date Collected: 09/07/21 14:30
Matrix: Water
Date Received: 09/09/21 11:08

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NMeFOSA	ND		15	5.0	ng/L		10/07/21 15:25	10/11/21 13:56	1
NMeFOSE	ND		15	5.0	ng/L		10/07/21 15:25	10/11/21 13:56	1
Perfluorobutanesulfonic acid	ND		10	2.5	ng/L		10/07/21 15:25	10/11/21 13:56	1
Perfluorobutanoic acid	**170**		25	10	ng/L		10/07/21 15:25	10/11/21 13:56	1
Perfluorodecanesulfonic acid	ND		10	2.5	ng/L		10/07/21 15:25	10/11/21 13:56	1
Perfluorodecanoic acid	**180**		10	2.5	ng/L		10/07/21 15:25	10/11/21 13:56	1
Perfluorododecanesulfonic acid (PFDoS)	ND		15	2.5	ng/L		10/07/21 15:25	10/11/21 13:56	1
Perfluorododecanoic acid	**150**	I	10	2.5	ng/L		10/07/21 15:25	10/11/21 13:56	1
Perfluoroheptanesulfonic acid	ND		10	2.5	ng/L		10/07/21 15:25	10/11/21 13:56	1
Perfluoroheptanoic acid	**150**		10	2.5	ng/L		10/07/21 15:25	10/11/21 13:56	1
Perfluorohexadecanoic acid	**45**		15	5.0	ng/L		10/07/21 15:25	10/11/21 13:56	1
Perfluorohexanesulfonic acid	ND		10	2.5	ng/L		10/07/21 15:25	10/11/21 13:56	1
Perfluorohexanoic acid	**210**		10	2.5	ng/L		10/07/21 15:25	10/11/21 13:56	1
Perfluorononanesulfonic acid	ND		10	2.5	ng/L		10/07/21 15:25	10/11/21 13:56	1
Perfluorononanoic acid	**180**		10	2.5	ng/L		10/07/21 15:25	10/11/21 13:56	1
Perfluorooctadecanoic acid	ND		15	5.0	ng/L		10/07/21 15:25	10/11/21 13:56	1
Perfluorooctanesulfonamide	ND		10	2.5	ng/L		10/07/21 15:25	10/11/21 13:56	1
Perfluorooctanesulfonic acid	ND		10	2.5	ng/L		10/07/21 15:25	10/11/21 13:56	1
Perfluorooctanoic acid	**150**		10	2.5	ng/L		10/07/21 15:25	10/11/21 13:56	1
Perfluoropentanesulfonic acid	ND		10	2.5	ng/L		10/07/21 15:25	10/11/21 13:56	1
Perfluoropentanoic acid	**360**		10	2.5	ng/L		10/07/21 15:25	10/11/21 13:56	1
Perfluorotetradecanoic acid	**130**		10	2.5	ng/L		10/07/21 15:25	10/11/21 13:56	1
Perfluorotridecanoic acid	**180**		10	2.5	ng/L		10/07/21 15:25	10/11/21 13:56	1
Perfluoroundecanoic acid	**410**		10	2.5	ng/L		10/07/21 15:25	10/11/21 13:56	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-6:2 FTS	*109*		*55 - 167*	*10/07/21 15:25*	*10/11/21 13:56*	*1*
M2-8:2 FTS	*96*		*61 - 160*	*10/07/21 15:25*	*10/11/21 13:56*	*1*
13C2-PFDoDA	*88*		*47 - 118*	*10/07/21 15:25*	*10/11/21 13:56*	*1*
13C2 PFTeDA	*85*		*32 - 126*	*10/07/21 15:25*	*10/11/21 13:56*	*1*
13C3 HFPO-DA	*84*		*70 - 130*	*10/07/21 15:25*	*10/11/21 13:56*	*1*
13C3 PFBS	*90*		*18 - 177*	*10/07/21 15:25*	*10/11/21 13:56*	*1*
13C3 PFHxS	*96*		*55 - 115*	*10/07/21 15:25*	*10/11/21 13:56*	*1*
13C4 PFBA	*95*		*52 - 126*	*10/07/21 15:25*	*10/11/21 13:56*	*1*
13C4 PFHpA	*95*		*55 - 113*	*10/07/21 15:25*	*10/11/21 13:56*	*1*
13C5 PFHxA	*89*		*54 - 115*	*10/07/21 15:25*	*10/11/21 13:56*	*1*
13C5 PFPeA	*90*		*17 - 184*	*10/07/21 15:25*	*10/11/21 13:56*	*1*
13C6 PFDA	*96*		*56 - 114*	*10/07/21 15:25*	*10/11/21 13:56*	*1*
13C7 PFUnA	*92*		*50 - 120*	*10/07/21 15:25*	*10/11/21 13:56*	*1*
13C8 PFOA	*96*		*56 - 117*	*10/07/21 15:25*	*10/11/21 13:56*	*1*
13C8 PFOS	*93*		*56 - 112*	*10/07/21 15:25*	*10/11/21 13:56*	*1*
13C8 FOSA	*81*		*10 - 126*	*10/07/21 15:25*	*10/11/21 13:56*	*1*
13C9 PFNA	*109*		*54 - 122*	*10/07/21 15:25*	*10/11/21 13:56*	*1*
M2-4:2 FTS				*10/07/21 15:25*	*10/11/21 13:56*	*1*
d3-NMeFOSAA				*10/07/21 15:25*	*10/11/21 13:56*	*1*
d3-NMePFOSA	*30*		*10 - 51*	*10/07/21 15:25*	*10/11/21 13:56*	*1*
d5-NEtFOSAA	*102*		*65 - 134*	*10/07/21 15:25*	*10/11/21 13:56*	*1*
d5-NEtPFOSA	*26*		*10 - 51*	*10/07/21 15:25*	*10/11/21 13:56*	*1*
d7-N-MeFOSE-M	*74*		*10 - 105*	*10/07/21 15:25*	*10/11/21 13:56*	*1*

Client Sample ID: EFFLUENT-1

Lab Sample ID: 410-54547-5
Matrix: Water

Date Collected: 09/07/21 14:30
Date Received: 09/09/21 11:08

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment (Continued)

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
d9-N-EtFOSE-M	*71*		*10 - 112*	*10/07/21 15:25*	*10/11/21 13:56*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*84*		*40 - 173*	*10/07/21 15:25*	*10/11/21 13:56*	*1*
13C2 PFUnA	*82*		*49 - 132*	*10/07/21 15:25*	*10/11/21 13:56*	*1*
13C4 PFOA	*85*		*10 - 163*	*10/07/21 15:25*	*10/11/21 13:56*	*1*

Method: Total PFCA-Dif - Total PFCA (Treatment Difference)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid	**170**				ng/L			10/14/21 10:45	1
Perfluoropentanoic acid	**360**				ng/L			10/14/21 10:45	1
Perfluorohexanoic acid	**210**				ng/L			10/14/21 10:45	1
Perfluoroheptanoic acid	**150**				ng/L			10/14/21 10:45	1
Perfluorooctanoic acid	**150**				ng/L			10/14/21 10:45	1
Perfluorononanoic acid	**170**				ng/L			10/14/21 10:45	1
Total PFCA	**1200**				ng/L			10/14/21 10:45	1

Method: Total PFCA-Sum - Total PFCA (Summary) - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid	ND		4.3	1.7	ng/L			10/12/21 11:35	1
Perfluoropentanoic acid	ND		1.7	0.43	ng/L			10/12/21 11:35	1
Perfluorohexanoic acid	ND		1.7	0.43	ng/L			10/12/21 11:35	1
Perfluoroheptanoic acid	ND		1.7	0.43	ng/L			10/12/21 11:35	1
Perfluorooctanoic acid	ND		1.7	0.43	ng/L			10/12/21 11:35	1
Perfluorononanoic acid	**3.2**		1.7	0.43	ng/L			10/12/21 11:35	1
Total PFCA	ND		500	0.50	ng/L			10/12/21 11:35	1

Method: Total PFCA-Sum - Total PFCA (Summary) - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid	**170**		25	10	ng/L			10/12/21 11:35	1
Perfluoropentanoic acid	**360**		10	2.5	ng/L			10/12/21 11:35	1
Perfluorohexanoic acid	**210**		10	2.5	ng/L			10/12/21 11:35	1
Perfluoroheptanoic acid	**150**		10	2.5	ng/L			10/12/21 11:35	1
Perfluorooctanoic acid	**150**		10	2.5	ng/L			10/12/21 11:35	1
Perfluorononanoic acid	**180**		10	2.5	ng/L			10/12/21 11:35	1
Total PFCA	**1200**		500	0.50	ng/L			10/12/21 11:35	1

Client Sample ID: RINSE 3-1

Lab Sample ID: 410-54547-6
Matrix: Water

Date Collected: 09/07/21 17:00
Date Received: 09/09/21 11:08

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid	ND		1.8	0.45	ng/L		09/16/21 09:14	09/18/21 21:23	1
Perfluorobutanoic acid	**11**		4.5	1.8	ng/L		09/16/21 09:14	09/18/21 21:23	1
Perfluorodecanesulfonic acid	ND		1.8	0.45	ng/L		09/16/21 09:14	09/18/21 21:23	1
Perfluorodecanoic acid	**49**		1.8	0.45	ng/L		09/16/21 09:14	09/18/21 21:23	1
Perfluorododecanoic acid	**17**		1.8	0.45	ng/L		09/16/21 09:14	09/18/21 21:23	1
Perfluoroheptanesulfonic acid	ND		1.8	0.45	ng/L		09/16/21 09:14	09/18/21 21:23	1
Perfluoroheptanoic acid	**35**		1.8	0.45	ng/L		09/16/21 09:14	09/18/21 21:23	1
Perfluorohexanesulfonic acid	**5.9**		1.8	0.45	ng/L		09/16/21 09:14	09/18/21 21:23	1

Client Sample ID: RINSE 3-1

Date Collected: 09/07/21 17:00
Date Received: 09/09/21 11:08

Lab Sample ID: 410-54547-6

Matrix: Water

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid	**59**		1.8	0.45	ng/L		09/16/21 09:14	09/18/21 21:23	1
Perfluorononanesulfonic acid	ND		1.8	0.45	ng/L		09/16/21 09:14	09/18/21 21:23	1
Perfluorooctanesulfonamide	ND		1.8	0.45	ng/L		09/16/21 09:14	09/18/21 21:23	1
Perfluorooctanesulfonic acid	**16**		1.8	0.45	ng/L		09/16/21 09:14	09/18/21 21:23	1
Perfluorooctanoic acid	**98**		1.8	0.45	ng/L		09/16/21 09:14	09/18/21 21:23	1
Perfluoropentanesulfonic acid	ND		1.8	0.45	ng/L		09/16/21 09:14	09/18/21 21:23	1
Perfluoropentanoic acid	**5.5**		1.8	0.45	ng/L		09/16/21 09:14	09/18/21 21:23	1
Perfluorotetradecanoic acid	**7.6**		1.8	0.45	ng/L		09/16/21 09:14	09/18/21 21:23	1
Perfluorotridecanoic acid	**210**		1.8	0.45	ng/L		09/16/21 09:14	09/18/21 21:23	1
4:2 Fluorotelomer sulfonic acid	**12**		1.8	0.45	ng/L		09/16/21 09:14	09/18/21 21:23	1
NEtFOSAA	ND		2.7	0.45	ng/L		09/16/21 09:14	09/18/21 21:23	1
NMeFOSAA	ND		1.8	0.53	ng/L		09/16/21 09:14	09/18/21 21:23	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*110*		*41 - 132*	*09/16/21 09:14*	*09/18/21 21:23*	*1*
13C8 FOSA	*163*	**5+*	*10 - 143*	*09/16/21 09:14*	*09/18/21 21:23*	*1*
13C4 PFHpA	*428*	**5+*	*30 - 144*	*09/16/21 09:14*	*09/18/21 21:23*	*1*
13C5 PFPeA	*114*		*33 - 155*	*09/16/21 09:14*	*09/18/21 21:23*	*1*
13C2 PFTeDA	*13*		*10 - 144*	*09/16/21 09:14*	*09/18/21 21:23*	*1*
d3-NMeFOSAA	*147*		*32 - 151*	*09/16/21 09:14*	*09/18/21 21:23*	*1*
d5-NEtFOSAA	*153*		*37 - 164*	*09/16/21 09:14*	*09/18/21 21:23*	*1*
M2-6:2 FTS	*185*		*29 - 189*	*09/16/21 09:14*	*09/18/21 21:23*	*1*
M2-8:2 FTS	*119*		*34 - 182*	*09/16/21 09:14*	*09/18/21 21:23*	*1*
13C3 PFBS	*125*		*19 - 178*	*09/16/21 09:14*	*09/18/21 21:23*	*1*
M2-4:2 FTS	*564*	**5+*	*20 - 187*	*09/16/21 09:14*	*09/18/21 21:23*	*1*
13C8 PFOA	*118*		*49 - 127*	*09/16/21 09:14*	*09/18/21 21:23*	*1*
13C8 PFOS	*99*		*49 - 126*	*09/16/21 09:14*	*09/18/21 21:23*	*1*
13C5 PFHxA	*381*	**5+*	*31 - 142*	*09/16/21 09:14*	*09/18/21 21:23*	*1*
13C9 PFNA	*98*		*47 - 136*	*09/16/21 09:14*	*09/18/21 21:23*	*1*
13C6 PFDA	*104*		*47 - 128*	*09/16/21 09:14*	*09/18/21 21:23*	*1*
13C7 PFUnA	*123*		*40 - 135*	*09/16/21 09:14*	*09/18/21 21:23*	*1*
13C3 PFHxS	*448*	**5+*	*32 - 145*	*09/16/21 09:14*	*09/18/21 21:23*	*1*
13C2-PFDoDA	*134*		*28 - 136*	*09/16/21 09:14*	*09/18/21 21:23*	*1*

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorononanoic acid	**2700**		18	4.5	ng/L		09/16/21 09:14	09/18/21 21:34	10
Perfluoroundecanoic acid	**1100**		18	4.5	ng/L		09/16/21 09:14	09/18/21 21:34	10
8:2 Fluorotelomer sulfonic acid	**970**		27	8.9	ng/L		09/16/21 09:14	09/18/21 21:34	10
6:2 Fluorotelomer sulfonic acid	**2100**		45	18	ng/L		09/16/21 09:14	09/18/21 21:34	10

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-6:2 FTS	*354*	**5+*	*29 - 189*	*09/16/21 09:14*	*09/18/21 21:34*	*10*
M2-8:2 FTS	*251*	**5+*	*34 - 182*	*09/16/21 09:14*	*09/18/21 21:34*	*10*
13C9 PFNA	*206*	**5+*	*47 - 136*	*09/16/21 09:14*	*09/18/21 21:34*	*10*
13C7 PFUnA	*187*	**5+*	*40 - 135*	*09/16/21 09:14*	*09/18/21 21:34*	*10*

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
10:2 Fluorotelomer sulfonic acid	ND		250	50	ng/L		10/07/21 15:25	10/11/21 14:07	1
11Cl-PF3OUdS	ND		100	25	ng/L		10/07/21 15:25	10/11/21 14:07	1

Client Sample ID: RINSE 3-1

Date Collected: 09/07/21 17:00
Date Received: 09/09/21 11:08

Lab Sample ID: 410-54547-6

Matrix: Water

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4:2 Fluorotelomer sulfonic acid	ND		100	25	ng/L		10/07/21 15:25	10/11/21 14:07	1
6:2 Fluorotelomer sulfonic acid	ND		250	100	ng/L		10/07/21 15:25	10/11/21 14:07	1
8:2 Fluorotelomer sulfonic acid	ND		150	50	ng/L		10/07/21 15:25	10/11/21 14:07	1
9Cl-PF3ONS	ND		100	25	ng/L		10/07/21 15:25	10/11/21 14:07	1
DONA	ND		100	25	ng/L		10/07/21 15:25	10/11/21 14:07	1
HFPODA	ND		150	25	ng/L		10/07/21 15:25	10/11/21 14:07	1
NEtFOSAA	ND		150	25	ng/L		10/07/21 15:25	10/11/21 14:07	1
NEtFOSA	ND		250	50	ng/L		10/07/21 15:25	10/11/21 14:07	1
NEtFOSE	ND		150	50	ng/L		10/07/21 15:25	10/11/21 14:07	1
NMeFOSAA	ND		100	30	ng/L		10/07/21 15:25	10/11/21 14:07	1
NMeFOSA	ND		150	50	ng/L		10/07/21 15:25	10/11/21 14:07	1
NMeFOSE	ND		150	50	ng/L		10/07/21 15:25	10/11/21 14:07	1
Perfluorobutanesulfonic acid	ND		100	25	ng/L		10/07/21 15:25	10/11/21 14:07	1
Perfluorobutanoic acid	**13000**		250	100	ng/L		10/07/21 15:25	10/11/21 14:07	1
Perfluorodecanesulfonic acid	ND		100	25	ng/L		10/07/21 15:25	10/11/21 14:07	1
Perfluorodecanoic acid	**730**		100	25	ng/L		10/07/21 15:25	10/11/21 14:07	1
Perfluorododecanesulfonic acid (PFDoS)	ND		150	25	ng/L		10/07/21 15:25	10/11/21 14:07	1
Perfluorododecanoic acid	**230**	**I**	100	25	ng/L		10/07/21 15:25	10/11/21 14:07	1
Perfluoroheptanesulfonic acid	ND		100	25	ng/L		10/07/21 15:25	10/11/21 14:07	1
Perfluorohexadecanoic acid	ND		150	50	ng/L		10/07/21 15:25	10/11/21 14:07	1
Perfluorohexanesulfonic acid	ND		100	25	ng/L		10/07/21 15:25	10/11/21 14:07	1
Perfluorononanesulfonic acid	ND		100	25	ng/L		10/07/21 15:25	10/11/21 14:07	1
Perfluorononanoic acid	**3800**		100	25	ng/L		10/07/21 15:25	10/11/21 14:07	1
Perfluorooctadecanoic acid	ND		150	50	ng/L		10/07/21 15:25	10/11/21 14:07	1
Perfluorooctanesulfonamide	ND		100	25	ng/L		10/07/21 15:25	10/11/21 14:07	1
Perfluorooctanesulfonic acid	ND		100	25	ng/L		10/07/21 15:25	10/11/21 14:07	1
Perfluorooctanoic acid	**3800**		100	25	ng/L		10/07/21 15:25	10/11/21 14:07	1
Perfluoropentanesulfonic acid	ND		100	25	ng/L		10/07/21 15:25	10/11/21 14:07	1
Perfluorotetradecanoic acid	**140**		100	25	ng/L		10/07/21 15:25	10/11/21 14:07	1
Perfluorotridecanoic acid	**230**		100	25	ng/L		10/07/21 15:25	10/11/21 14:07	1
Perfluoroundecanoic acid	**800**		100	25	ng/L		10/07/21 15:25	10/11/21 14:07	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-6:2 FTS	*101*		*55 - 167*	*10/07/21 15:25*	*10/11/21 14:07*	*1*
M2-8:2 FTS	*102*		*61 - 160*	*10/07/21 15:25*	*10/11/21 14:07*	*1*
13C2-PFDoDA	*84*		*47 - 118*	*10/07/21 15:25*	*10/11/21 14:07*	*1*
13C2 PFTeDA	*78*		*32 - 126*	*10/07/21 15:25*	*10/11/21 14:07*	*1*
13C3 HFPO-DA	*83*		*70 - 130*	*10/07/21 15:25*	*10/11/21 14:07*	*1*
13C3 PFBS	*110*		*18 - 177*	*10/07/21 15:25*	*10/11/21 14:07*	*1*
13C3 PFHxS	*84*		*55 - 115*	*10/07/21 15:25*	*10/11/21 14:07*	*1*
13C4 PFBA	*96*		*52 - 126*	*10/07/21 15:25*	*10/11/21 14:07*	*1*
13C4 PFHpA	*85*		*55 - 113*	*10/07/21 15:25*	*10/11/21 14:07*	*1*
13C5 PFHxA	*75*		*54 - 115*	*10/07/21 15:25*	*10/11/21 14:07*	*1*
13C5 PFPeA	*80*		*17 - 184*	*10/07/21 15:25*	*10/11/21 14:07*	*1*
13C6 PFDA	*89*		*56 - 114*	*10/07/21 15:25*	*10/11/21 14:07*	*1*
13C7 PFUnA	*87*		*50 - 120*	*10/07/21 15:25*	*10/11/21 14:07*	*1*
13C8 PFOA	*91*		*56 - 117*	*10/07/21 15:25*	*10/11/21 14:07*	*1*
13C8 PFOS	*102*		*56 - 112*	*10/07/21 15:25*	*10/11/21 14:07*	*1*
13C8 FOSA	*73*		*10 - 126*	*10/07/21 15:25*	*10/11/21 14:07*	*1*

Client Sample ID: RINSE 3-1

Date Collected: 09/07/21 17:00
Date Received: 09/09/21 11:08

Lab Sample ID: 410-54547-6

Matrix: Water

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment (Continued)

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C9 PFNA	*114*		*54 - 122*	*10/07/21 15:25*	*10/11/21 14:07*	*1*
M2-4:2 FTS				*10/07/21 15:25*	*10/11/21 14:07*	*1*
d3-NMeFOSAA				*10/07/21 15:25*	*10/11/21 14:07*	*1*
d3-NMePFOSA	*18*		*10 - 51*	*10/07/21 15:25*	*10/11/21 14:07*	*1*
d5-NEtFOSAA	*92*		*65 - 134*	*10/07/21 15:25*	*10/11/21 14:07*	*1*
d5-NEtPFOSA	*15*		*10 - 51*	*10/07/21 15:25*	*10/11/21 14:07*	*1*
d7-N-MeFOSE-M	*66*		*10 - 105*	*10/07/21 15:25*	*10/11/21 14:07*	*1*
d9-N-EtFOSE-M	*64*		*10 - 112*	*10/07/21 15:25*	*10/11/21 14:07*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*72*		*40 - 173*	*10/07/21 15:25*	*10/11/21 14:07*	*1*
13C2 PFUnA	*82*		*49 - 132*	*10/07/21 15:25*	*10/11/21 14:07*	*1*
13C4 PFOA	*85*		*10 - 163*	*10/07/21 15:25*	*10/11/21 14:07*	*1*

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoroheptanoic acid	**10000**		1000	250	ng/L		10/07/21 15:25	10/11/21 14:17	10
Perfluorohexanoic acid	**12000**		1000	250	ng/L		10/07/21 15:25	10/11/21 14:17	10
Perfluoropentanoic acid	**34000**		1000	250	ng/L		10/07/21 15:25	10/11/21 14:17	10

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFHpA	*96*		*55 - 113*	*10/07/21 15:25*	*10/11/21 14:17*	*10*
13C5 PFHxA	*95*		*54 - 115*	*10/07/21 15:25*	*10/11/21 14:17*	*10*
13C5 PFPeA	*85*		*17 - 184*	*10/07/21 15:25*	*10/11/21 14:17*	*10*

Method: Total PFCA-Dif - Total PFCA (Treatment Difference)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid	**13000**				ng/L			10/14/21 10:45	1
Perfluoropentanoic acid	**34000**				ng/L			10/14/21 10:45	1
Perfluorohexanoic acid	**12000**				ng/L			10/14/21 10:45	1
Perfluoroheptanoic acid	**10000**				ng/L			10/14/21 10:45	1
Perfluorooctanoic acid	**3700**				ng/L			10/14/21 10:45	1
Perfluorononanoic acid	**1100**				ng/L			10/14/21 10:45	1
Total PFCA	**74000**				ng/L			10/14/21 10:45	1

Method: Total PFCA-Sum - Total PFCA (Summary) - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid	**11**		4.5	1.8	ng/L			10/12/21 11:35	1
Perfluoropentanoic acid	**5.5**		1.8	0.45	ng/L			10/12/21 11:35	1
Perfluorohexanoic acid	**59**		1.8	0.45	ng/L			10/12/21 11:35	1
Perfluoroheptanoic acid	**35**		1.8	0.45	ng/L			10/12/21 11:35	1
Perfluorooctanoic acid	**98**		1.8	0.45	ng/L			10/12/21 11:35	1
Perfluorononanoic acid	**2700**		18	4.5	ng/L			10/12/21 11:35	1
Total PFCA	**2900**		500	0.50	ng/L			10/12/21 11:35	1

Method: Total PFCA-Sum - Total PFCA (Summary) - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid	**13000**		250	100	ng/L			10/12/21 11:35	1
Perfluoropentanoic acid	**34000**		1000	250	ng/L			10/12/21 11:35	1
Perfluorohexanoic acid	**12000**		1000	250	ng/L			10/12/21 11:35	1
Perfluoroheptanoic acid	**10000**		1000	250	ng/L			10/12/21 11:35	1

Client Sample ID: RINSE 3-1

Lab Sample ID: 410-54547-6
Date Collected: 09/07/21 17:00
Matrix: Water
Date Received: 09/09/21 11:08

Method: Total PFCA-Sum - Total PFCA (Summary) - Post-Treatment (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid	**3800**		100	25	ng/L			10/12/21 11:35	1
Perfluorononanoic acid	**3800**		100	25	ng/L			10/12/21 11:35	1
Total PFCA	**77000**		500	0.50	ng/L			10/12/21 11:35	1

Client Sample ID: EFFLUENT-2

Lab Sample ID: 410-54547-7
Date Collected: 09/08/21 12:30
Matrix: Water
Date Received: 09/09/21 11:08

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid	ND		1.7	0.43	ng/L		09/16/21 09:14	09/23/21 14:52	1
Perfluorobutanoic acid	ND		4.3	1.7	ng/L		09/16/21 09:14	09/23/21 14:52	1
Perfluorodecanesulfonic acid	ND		1.7	0.43	ng/L		09/16/21 09:14	09/23/21 14:52	1
Perfluorodecanoic acid	ND		1.7	0.43	ng/L		09/16/21 09:14	09/23/21 14:52	1
Perfluorododecanoic acid	ND		1.7	0.43	ng/L		09/16/21 09:14	09/23/21 14:52	1
Perfluoroheptanesulfonic acid	ND		1.7	0.43	ng/L		09/16/21 09:14	09/23/21 14:52	1
Perfluoroheptanoic acid	ND		1.7	0.43	ng/L		09/16/21 09:14	09/23/21 14:52	1
Perfluorohexanesulfonic acid	ND		1.7	0.43	ng/L		09/16/21 09:14	09/23/21 14:52	1
Perfluorohexanoic acid	ND		1.7	0.43	ng/L		09/16/21 09:14	09/23/21 14:52	1
Perfluorononanesulfonic acid	ND		1.7	0.43	ng/L		09/16/21 09:14	09/23/21 14:52	1
Perfluorononanoic acid	ND		1.7	0.43	ng/L		09/16/21 09:14	09/23/21 14:52	1
Perfluorooctanesulfonamide	ND		1.7	0.43	ng/L		09/16/21 09:14	09/23/21 14:52	1
Perfluorooctanesulfonic acid	ND		1.7	0.43	ng/L		09/16/21 09:14	09/23/21 14:52	1
Perfluorooctanoic acid	ND		1.7	0.43	ng/L		09/16/21 09:14	09/23/21 14:52	1
Perfluoropentanesulfonic acid	ND		1.7	0.43	ng/L		09/16/21 09:14	09/23/21 14:52	1
Perfluoropentanoic acid	ND		1.7	0.43	ng/L		09/16/21 09:14	09/23/21 14:52	1
Perfluorotetradecanoic acid	ND		1.7	0.43	ng/L		09/16/21 09:14	09/23/21 14:52	1
Perfluorotridecanoic acid	**7.5**		1.7	0.43	ng/L		09/16/21 09:14	09/23/21 14:52	1
Perfluoroundecanoic acid	ND		1.7	0.43	ng/L		09/16/21 09:14	09/23/21 14:52	1
8:2 Fluorotelomer sulfonic acid	ND		2.6	0.86	ng/L		09/16/21 09:14	09/23/21 14:52	1
4:2 Fluorotelomer sulfonic acid	ND		1.7	0.43	ng/L		09/16/21 09:14	09/23/21 14:52	1
6:2 Fluorotelomer sulfonic acid	ND		4.3	1.7	ng/L		09/16/21 09:14	09/23/21 14:52	1
NEtFOSAA	ND		2.6	0.43	ng/L		09/16/21 09:14	09/23/21 14:52	1
NMeFOSAA	ND		1.7	0.52	ng/L		09/16/21 09:14	09/23/21 14:52	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*133*	**5+*	*41 - 132*	*09/16/21 09:14*	*09/23/21 14:52*	*1*
13C8 FOSA	*123*		*10 - 143*	*09/16/21 09:14*	*09/23/21 14:52*	*1*
13C4 PFHpA	*142*		*30 - 144*	*09/16/21 09:14*	*09/23/21 14:52*	*1*
13C5 PFPeA	*136*		*33 - 155*	*09/16/21 09:14*	*09/23/21 14:52*	*1*
13C2 PFTeDA	*92*		*10 - 144*	*09/16/21 09:14*	*09/23/21 14:52*	*1*
d3-NMeFOSAA	*143*		*32 - 151*	*09/16/21 09:14*	*09/23/21 14:52*	*1*
d5-NEtFOSAA	*142*		*37 - 164*	*09/16/21 09:14*	*09/23/21 14:52*	*1*
M2-6:2 FTS	*154*		*29 - 189*	*09/16/21 09:14*	*09/23/21 14:52*	*1*
M2-8:2 FTS	*145*		*34 - 182*	*09/16/21 09:14*	*09/23/21 14:52*	*1*
13C3 PFBS	*134*		*19 - 178*	*09/16/21 09:14*	*09/23/21 14:52*	*1*
M2-4:2 FTS	*184*		*20 - 187*	*09/16/21 09:14*	*09/23/21 14:52*	*1*
13C8 PFOA	*144*	**5+*	*49 - 127*	*09/16/21 09:14*	*09/23/21 14:52*	*1*
13C8 PFOS	*134*	**5+*	*49 - 126*	*09/16/21 09:14*	*09/23/21 14:52*	*1*
13C5 PFHxA	*137*		*31 - 142*	*09/16/21 09:14*	*09/23/21 14:52*	*1*
13C9 PFNA	*130*		*47 - 136*	*09/16/21 09:14*	*09/23/21 14:52*	*1*

Client Sample ID: EFFLUENT-2

Lab Sample ID: 410-54547-7

Date Collected: 09/08/21 12:30
Matrix: Water
Date Received: 09/09/21 11:08

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C6 PFDA	133	*5+	47 - 128	09/16/21 09:14	09/23/21 14:52	1
13C7 PFUnA	115		40 - 135	09/16/21 09:14	09/23/21 14:52	1
13C3 PFHxS	135		32 - 145	09/16/21 09:14	09/23/21 14:52	1
13C2-PFDoDA	109		28 - 136	09/16/21 09:14	09/23/21 14:52	1

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
10:2 Fluorotelomer sulfonic acid	ND		25	5.0	ng/L		10/07/21 15:25	10/11/21 14:28	1
11Cl-PF3OUdS	ND		10	2.5	ng/L		10/07/21 15:25	10/11/21 14:28	1
4:2 Fluorotelomer sulfonic acid	ND		10	2.5	ng/L		10/07/21 15:25	10/11/21 14:28	1
6:2 Fluorotelomer sulfonic acid	ND		25	10	ng/L		10/07/21 15:25	10/11/21 14:28	1
8:2 Fluorotelomer sulfonic acid	ND		15	5.0	ng/L		10/07/21 15:25	10/11/21 14:28	1
9Cl-PF3ONS	ND		10	2.5	ng/L		10/07/21 15:25	10/11/21 14:28	1
DONA	ND		10	2.5	ng/L		10/07/21 15:25	10/11/21 14:28	1
HFPODA	ND		15	2.5	ng/L		10/07/21 15:25	10/11/21 14:28	1
NEtFOSAA	ND		15	2.5	ng/L		10/07/21 15:25	10/11/21 14:28	1
NEtFOSA	ND		25	5.0	ng/L		10/07/21 15:25	10/11/21 14:28	1
NEtFOSE	ND		15	5.0	ng/L		10/07/21 15:25	10/11/21 14:28	1
NMeFOSAA	ND		10	3.0	ng/L		10/07/21 15:25	10/11/21 14:28	1
NMeFOSA	ND		15	5.0	ng/L		10/07/21 15:25	10/11/21 14:28	1
NMeFOSE	ND		15	5.0	ng/L		10/07/21 15:25	10/11/21 14:28	1
Perfluorobutanesulfonic acid	ND		10	2.5	ng/L		10/07/21 15:25	10/11/21 14:28	1
Perfluorobutanoic acid	**30**		25	10	ng/L		10/07/21 15:25	10/11/21 14:28	1
Perfluorodecanesulfonic acid	ND		10	2.5	ng/L		10/07/21 15:25	10/11/21 14:28	1
Perfluorodecanoic acid	**20**	I	10	2.5	ng/L		10/07/21 15:25	10/11/21 14:28	1
Perfluorododecanesulfonic acid (PFDoS)	ND		15	2.5	ng/L		10/07/21 15:25	10/11/21 14:28	1
Perfluorododecanoic acid	**21**	I	10	2.5	ng/L		10/07/21 15:25	10/11/21 14:28	1
Perfluoroheptanesulfonic acid	ND		10	2.5	ng/L		10/07/21 15:25	10/11/21 14:28	1
Perfluoroheptanoic acid	**20**		10	2.5	ng/L		10/07/21 15:25	10/11/21 14:28	1
Perfluorohexadecanoic acid	ND		15	5.0	ng/L		10/07/21 15:25	10/11/21 14:28	1
Perfluorohexanesulfonic acid	ND		10	2.5	ng/L		10/07/21 15:25	10/11/21 14:28	1
Perfluorohexanoic acid	**30**		10	2.5	ng/L		10/07/21 15:25	10/11/21 14:28	1
Perfluorononanesulfonic acid	ND		10	2.5	ng/L		10/07/21 15:25	10/11/21 14:28	1
Perfluorononanoic acid	**19**		10	2.5	ng/L		10/07/21 15:25	10/11/21 14:28	1
Perfluorooctadecanoic acid	ND		15	5.0	ng/L		10/07/21 15:25	10/11/21 14:28	1
Perfluorooctanesulfonamide	ND		10	2.5	ng/L		10/07/21 15:25	10/11/21 14:28	1
Perfluorooctanesulfonic acid	ND		10	2.5	ng/L		10/07/21 15:25	10/11/21 14:28	1
Perfluorooctanoic acid	**22**		10	2.5	ng/L		10/07/21 15:25	10/11/21 14:28	1
Perfluoropentanesulfonic acid	ND		10	2.5	ng/L		10/07/21 15:25	10/11/21 14:28	1
Perfluoropentanoic acid	**59**		10	2.5	ng/L		10/07/21 15:25	10/11/21 14:28	1
Perfluorotetradecanoic acid	**19**		10	2.5	ng/L		10/07/21 15:25	10/11/21 14:28	1
Perfluorotridecanoic acid	**29**		10	2.5	ng/L		10/07/21 15:25	10/11/21 14:28	1
Perfluoroundecanoic acid	**34**		10	2.5	ng/L		10/07/21 15:25	10/11/21 14:28	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
M2-6:2 FTS	113		55 - 167	10/07/21 15:25	10/11/21 14:28	1
M2-8:2 FTS	110		61 - 160	10/07/21 15:25	10/11/21 14:28	1
13C2-PFDoDA	88		47 - 118	10/07/21 15:25	10/11/21 14:28	1
13C2 PFTeDA	79		32 - 126	10/07/21 15:25	10/11/21 14:28	1
13C3 HFPO-DA	91		70 - 130	10/07/21 15:25	10/11/21 14:28	1

Client Sample ID: EFFLUENT-2

Lab Sample ID: 410-54547-7

Date Collected: 09/08/21 12:30

Matrix: Water

Date Received: 09/09/21 11:08

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment (Continued)

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C3 PFBS	*95*		*18 - 177*	*10/07/21 15:25*	*10/11/21 14:28*	*1*
13C3 PFHxS	*100*		*55 - 115*	*10/07/21 15:25*	*10/11/21 14:28*	*1*
13C4 PFBA	*95*		*52 - 126*	*10/07/21 15:25*	*10/11/21 14:28*	*1*
13C4 PFHpA	*100*		*55 - 113*	*10/07/21 15:25*	*10/11/21 14:28*	*1*
13C5 PFHxA	*89*		*54 - 115*	*10/07/21 15:25*	*10/11/21 14:28*	*1*
13C5 PFPeA	*97*		*17 - 184*	*10/07/21 15:25*	*10/11/21 14:28*	*1*
13C6 PFDA	*101*		*56 - 114*	*10/07/21 15:25*	*10/11/21 14:28*	*1*
13C7 PFUnA	*94*		*50 - 120*	*10/07/21 15:25*	*10/11/21 14:28*	*1*
13C8 PFOA	*99*		*56 - 117*	*10/07/21 15:25*	*10/11/21 14:28*	*1*
13C8 PFOS	*98*		*56 - 112*	*10/07/21 15:25*	*10/11/21 14:28*	*1*
13C8 FOSA	*77*		*10 - 126*	*10/07/21 15:25*	*10/11/21 14:28*	*1*
13C9 PFNA	*113*		*54 - 122*	*10/07/21 15:25*	*10/11/21 14:28*	*1*
M2-4:2 FTS				*10/07/21 15:25*	*10/11/21 14:28*	*1*
d3-NMeFOSAA				*10/07/21 15:25*	*10/11/21 14:28*	*1*
d3-NMePFOSA	*23*		*10 - 51*	*10/07/21 15:25*	*10/11/21 14:28*	*1*
d5-NEtFOSAA	*105*		*65 - 134*	*10/07/21 15:25*	*10/11/21 14:28*	*1*
d5-NEtPFOSA	*22*		*10 - 51*	*10/07/21 15:25*	*10/11/21 14:28*	*1*
d7-N-MeFOSE-M	*66*		*10 - 105*	*10/07/21 15:25*	*10/11/21 14:28*	*1*
d9-N-EtFOSE-M	*63*		*10 - 112*	*10/07/21 15:25*	*10/11/21 14:28*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*84*		*40 - 173*	*10/07/21 15:25*	*10/11/21 14:28*	*1*
13C2 PFUnA	*84*		*49 - 132*	*10/07/21 15:25*	*10/11/21 14:28*	*1*
13C4 PFOA	*91*		*10 - 163*	*10/07/21 15:25*	*10/11/21 14:28*	*1*

Method: Total PFCA-Dif - Total PFCA (Treatment Difference)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid	**30**				ng/L			10/14/21 10:45	1
Perfluoropentanoic acid	**59**				ng/L			10/14/21 10:45	1
Perfluorohexanoic acid	**30**				ng/L			10/14/21 10:45	1
Perfluoroheptanoic acid	**20**				ng/L			10/14/21 10:45	1
Perfluorooctanoic acid	**22**				ng/L			10/14/21 10:45	1
Perfluorononanoic acid	**19**				ng/L			10/14/21 10:45	1
Total PFCA	**0.00**				ng/L			10/14/21 10:45	1

Method: Total PFCA-Sum - Total PFCA (Summary) - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid	ND		4.3	1.7	ng/L			10/12/21 11:35	1
Perfluoropentanoic acid	ND		1.7	0.43	ng/L			10/12/21 11:35	1
Perfluorohexanoic acid	ND		1.7	0.43	ng/L			10/12/21 11:35	1
Perfluoroheptanoic acid	ND		1.7	0.43	ng/L			10/12/21 11:35	1
Perfluorooctanoic acid	ND		1.7	0.43	ng/L			10/12/21 11:35	1
Perfluorononanoic acid	ND		1.7	0.43	ng/L			10/12/21 11:35	1
Total PFCA	ND		500	0.50	ng/L			10/12/21 11:35	1

Method: Total PFCA-Sum - Total PFCA (Summary) - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid	**30**		25	10	ng/L			10/12/21 11:35	1
Perfluoropentanoic acid	**59**		10	2.5	ng/L			10/12/21 11:35	1
Perfluorohexanoic acid	**30**		10	2.5	ng/L			10/12/21 11:35	1

Client Sample Results

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-54547-1

Client Sample ID: EFFLUENT-2

Lab Sample ID: 410-54547-7
Date Collected: 09/08/21 12:30
Matrix: Water
Date Received: 09/09/21 11:08

Method: Total PFCA-Sum - Total PFCA (Summary) - Post-Treatment (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoroheptanoic acid	**20**		10	2.5	ng/L			10/12/21 11:35	1
Perfluorooctanoic acid	**22**		10	2.5	ng/L			10/12/21 11:35	1
Perfluorononanoic acid	**19**		10	2.5	ng/L			10/12/21 11:35	1
Total PFCA	ND		500	0.50	ng/L			10/12/21 11:35	1

Client Sample ID: CONCENTRATE-1

Lab Sample ID: 410-54547-8
Date Collected: 09/01/21 08:00
Matrix: Solid
Date Received: 09/09/21 11:08

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NEtFOSAA	ND		200	20	ng/g		09/17/21 13:16	09/21/21 02:50	100
NMeFOSAA	ND		200	20	ng/g		09/17/21 13:16	09/21/21 02:50	100
Perfluorobutanesulfonic acid	ND		200	40	ng/g		09/17/21 13:16	09/21/21 02:50	100
Perfluorobutanoic acid	ND		200	80	ng/g		09/17/21 13:16	09/21/21 02:50	100
Perfluorodecanesulfonic acid	ND		60	20	ng/g		09/17/21 13:16	09/21/21 02:50	100
Perfluorodecanoic acid	**1400**		60	20	ng/g		09/17/21 13:16	09/21/21 02:50	100
Perfluorododecanoic acid	**370**		60	20	ng/g		09/17/21 13:16	09/21/21 02:50	100
Perfluoroheptanesulfonic acid	ND	*+	60	20	ng/g		09/17/21 13:16	09/21/21 02:50	100
Perfluoroheptanoic acid	**1600**		60	20	ng/g		09/17/21 13:16	09/21/21 02:50	100
Perfluorohexanesulfonic acid	**110**		60	20	ng/g		09/17/21 13:16	09/21/21 02:50	100
Perfluorohexanoic acid	**1800**		60	20	ng/g		09/17/21 13:16	09/21/21 02:50	100
Perfluorononanesulfonic acid	ND		60	20	ng/g		09/17/21 13:16	09/21/21 02:50	100
Perfluorononanoic acid	**82000**	**E**	60	20	ng/g		09/17/21 13:16	09/21/21 02:50	100
Perfluorooctanesulfonamide	ND		60	20	ng/g		09/17/21 13:16	09/21/21 02:50	100
Perfluorooctanesulfonic acid	**64**	**I**	60	20	ng/g		09/17/21 13:16	09/21/21 02:50	100
Perfluorooctanoic acid	**3500**		60	20	ng/g		09/17/21 13:16	09/21/21 02:50	100
Perfluoropentanesulfonic acid	ND		60	20	ng/g		09/17/21 13:16	09/21/21 02:50	100
Perfluoropentanoic acid	**140**		60	20	ng/g		09/17/21 13:16	09/21/21 02:50	100
Perfluorotetradecanoic acid	**140**		60	20	ng/g		09/17/21 13:16	09/21/21 02:50	100
Perfluorotridecanoic acid	**8100**		60	20	ng/g		09/17/21 13:16	09/21/21 02:50	100
Perfluoroundecanoic acid	**29000**	**E**	60	20	ng/g		09/17/21 13:16	09/21/21 02:50	100
6:2 Fluorotelomer sulfonic acid	**4500**		200	60	ng/g		09/17/21 13:16	09/21/21 02:50	100
8:2 Fluorotelomer sulfonic acid	**3600**		300	60	ng/g		09/17/21 13:16	09/21/21 02:50	100
4:2 Fluorotelomer sulfonic acid	**340**		200	60	ng/g		09/17/21 13:16	09/21/21 02:50	100

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-4:2 FTS	*178*	**5+*	*10 - 169*	*09/17/21 13:16*	*09/21/21 02:50*	*100*
M2-6:2 FTS	*1243*	**5+*	*10 - 182*	*09/17/21 13:16*	*09/21/21 02:50*	*100*
M2-8:2 FTS	*665*	**5+*	*10 - 178*	*09/17/21 13:16*	*09/21/21 02:50*	*100*
13C2 PFTeDA	*88*		*10 - 138*	*09/17/21 13:16*	*09/21/21 02:50*	*100*
13C3 HFPO-DA	*1*	**5-*	*10 - 152*	*09/17/21 13:16*	*09/21/21 02:50*	*100*
13C3 PFBS	*86*		*23 - 130*	*09/17/21 13:16*	*09/21/21 02:50*	*100*
13C4 PFBA	*119*		*12 - 137*	*09/17/21 13:16*	*09/21/21 02:50*	*100*
13C4 PFHpA	*120*		*15 - 139*	*09/17/21 13:16*	*09/21/21 02:50*	*100*
13C5 PFPeA	*80*		*12 - 135*	*09/17/21 13:16*	*09/21/21 02:50*	*100*
13C8 PFOA	*63*		*21 - 133*	*09/17/21 13:16*	*09/21/21 02:50*	*100*
13C8 PFOS	*509*	**5+*	*31 - 130*	*09/17/21 13:16*	*09/21/21 02:50*	*100*
d3-NMeFOSAA	*106*		*10 - 172*	*09/17/21 13:16*	*09/21/21 02:50*	*100*
d5-NEtFOSAA	*100*		*10 - 176*	*09/17/21 13:16*	*09/21/21 02:50*	*100*
d9-N-EtFOSE-M	*215*	**5+*	*10 - 157*	*09/17/21 13:16*	*09/21/21 02:50*	*100*

Client Sample ID: CONCENTRATE-1

Lab Sample ID: 410-54547-8

Date Collected: 09/01/21 08:00

Matrix: Solid

Date Received: 09/09/21 11:08

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 PFHxS	136		24 - 136	09/17/21 13:16	09/21/21 02:50	100
13C5 PFHxA	124		11 - 138	09/17/21 13:16	09/21/21 02:50	100
13C6 PFDA	71		21 - 134	09/17/21 13:16	09/21/21 02:50	100
13C7 PFUnA	93		15 - 138	09/17/21 13:16	09/21/21 02:50	100
d3-NMePFOSA	88		10 - 148	09/17/21 13:16	09/21/21 02:50	100
d5-NEtPFOSA	148		10 - 151	09/17/21 13:16	09/21/21 02:50	100
13C8 FOSA	95		25 - 135	09/17/21 13:16	09/21/21 02:50	100
13C2-PFDoDA	102		28 - 126	09/17/21 13:16	09/21/21 02:50	100
13C9 PFNA	74		15 - 145	09/17/21 13:16	09/21/21 02:50	100

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
10:2 Fluorotelomer sulfonic acid	**330**		100	30	ng/g		10/25/21 08:48	10/30/21 14:16	10
11Cl-PF3OUdS	ND		30	10	ng/g		10/25/21 08:48	10/30/21 14:16	10
4:2 Fluorotelomer sulfonic acid	ND		100	30	ng/g		10/25/21 08:48	10/30/21 14:16	10
6:2 Fluorotelomer sulfonic acid	ND		100	30	ng/g		10/25/21 08:48	10/30/21 14:16	10
8:2 Fluorotelomer sulfonic acid	ND		150	30	ng/g		10/25/21 08:48	10/30/21 14:16	10
9Cl-PF3ONS	ND		100	10	ng/g		10/25/21 08:48	10/30/21 14:16	10
DONA	ND		30	10	ng/g		10/25/21 08:48	10/30/21 14:16	10
HFPODA	ND	*+	150	20	ng/g		10/25/21 08:48	10/30/21 14:16	10
NEtFOSAA	ND		100	10	ng/g		10/25/21 08:48	10/30/21 14:16	10
NEtFOSA	ND		100	25	ng/g		10/25/21 08:48	10/30/21 14:16	10
NEtFOSE	ND		100	25	ng/g		10/25/21 08:48	10/30/21 14:16	10
NMeFOSAA	ND		100	10	ng/g		10/25/21 08:48	10/30/21 14:16	10
NMeFOSA	ND		100	25	ng/g		10/25/21 08:48	10/30/21 14:16	10
NMeFOSE	ND		100	25	ng/g		10/25/21 08:48	10/30/21 14:16	10
Perfluorobutanesulfonic acid	ND		100	20	ng/g		10/25/21 08:48	10/30/21 14:16	10
Perfluorodecanesulfonic acid	ND		30	10	ng/g		10/25/21 08:48	10/30/21 14:16	10
Perfluorodecanoic acid	**5300**		30	10	ng/g		10/25/21 08:48	10/30/21 14:16	10
Perfluorododecanesulfonic acid (PFDoS)	ND		100	10	ng/g		10/25/21 08:48	10/30/21 14:16	10
Perfluorododecanoic acid	**2200**	**I**	30	10	ng/g		10/25/21 08:48	10/30/21 14:16	10
Perfluoroheptanesulfonic acid	ND	*+	30	10	ng/g		10/25/21 08:48	10/30/21 14:16	10
Perfluorohexadecanoic acid	**65**		30	10	ng/g		10/25/21 08:48	10/30/21 14:16	10
Perfluorohexanesulfonic acid	**63**		30	10	ng/g		10/25/21 08:48	10/30/21 14:16	10
Perfluorononanesulfonic acid	ND		30	10	ng/g		10/25/21 08:48	10/30/21 14:16	10
Perfluorooctadecanoic acid	ND		30	10	ng/g		10/25/21 08:48	10/30/21 14:16	10
Perfluorooctanesulfonamide	ND		30	10	ng/g		10/25/21 08:48	10/30/21 14:16	10
Perfluorooctanesulfonic acid	**130**		30	10	ng/g		10/25/21 08:48	10/30/21 14:16	10
Perfluoropentanesulfonic acid	**32**	***+**	30	10	ng/g		10/25/21 08:48	10/30/21 14:16	10
Perfluorotetradecanoic acid	**600**		30	10	ng/g		10/25/21 08:48	10/30/21 14:16	10
Perfluorotridecanoic acid	**3900**		30	10	ng/g		10/25/21 08:48	10/30/21 14:16	10

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
M2-6:2 FTS	76		64 - 211	10/25/21 08:48	10/30/21 14:16	10
M2-8:2 FTS	80	*5-	94 - 168	10/25/21 08:48	10/30/21 14:16	10
13C2-PFDoDA	103	*5+	55 - 101	10/25/21 08:48	10/30/21 14:16	10
13C2 PFTeDA	107	*5+	55 - 101	10/25/21 08:48	10/30/21 14:16	10
13C3 HFPO-DA	116		70 - 130	10/25/21 08:48	10/30/21 14:16	10
13C3 PFBS	189	*5+	51 - 114	10/25/21 08:48	10/30/21 14:16	10
13C3 PFHxS	63		39 - 131	10/25/21 08:48	10/30/21 14:16	10

Client Sample Results

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-54547-1

Client Sample ID: CONCENTRATE-1

Lab Sample ID: 410-54547-8
Matrix: Solid

Date Collected: 09/01/21 08:00
Date Received: 09/09/21 11:08

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	101		55 - 101	10/25/21 08:48	10/30/21 14:16	10
13C4 PFHpA	94		41 - 133	10/25/21 08:48	10/30/21 14:16	10
13C5 PFHxA	59		45 - 120	10/25/21 08:48	10/30/21 14:16	10
13C5 PFPeA	89		47 - 105	10/25/21 08:48	10/30/21 14:16	10
13C6 PFDA	98		52 - 107	10/25/21 08:48	10/30/21 14:16	10
13C7 PFUnA	83		60 - 97	10/25/21 08:48	10/30/21 14:16	10
13C8 PFOA	83		54 - 100	10/25/21 08:48	10/30/21 14:16	10
13C8 PFOS	101		54 - 102	10/25/21 08:48	10/30/21 14:16	10
13C8 FOSA	115	*5+	58 - 110	10/25/21 08:48	10/30/21 14:16	10
13C9 PFNA	104		42 - 116	10/25/21 08:48	10/30/21 14:16	10
M2-4:2 FTS				10/25/21 08:48	10/30/21 14:16	10
d3-NMeFOSAA				10/25/21 08:48	10/30/21 14:16	10
d3-NMePFOSA	85	*5+	21 - 81	10/25/21 08:48	10/30/21 14:16	10
d5-NEtFOSAA	79		79 - 130	10/25/21 08:48	10/30/21 14:16	10
d5-NEtPFOSA	93		25 - 96	10/25/21 08:48	10/30/21 14:16	10
d7-N-MeFOSE-M	126	*5+	63 - 103	10/25/21 08:48	10/30/21 14:16	10
d9-N-EtFOSE-M	127	*5+	68 - 110	10/25/21 08:48	10/30/21 14:16	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	74		10 - 125	10/25/21 08:48	10/30/21 14:16	10
13C2 PFUnA	52		20 - 154	10/25/21 08:48	10/30/21 14:16	10
13C4 PFOA	39		16 - 103	10/25/21 08:48	10/30/21 14:16	10

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid	53000		1000	400	ng/g		10/25/21 08:48	10/30/21 14:27	100
Perfluoroheptanoic acid	45000		300	100	ng/g		10/25/21 08:48	10/30/21 14:27	100
Perfluorohexanoic acid	67000		300	100	ng/g		10/25/21 08:48	10/30/21 14:27	100
Perfluorononanoic acid	27000		300	100	ng/g		10/25/21 08:48	10/30/21 14:27	100
Perfluorooctanoic acid	17000		300	100	ng/g		10/25/21 08:48	10/30/21 14:27	100
Perfluoropentanoic acid	100000	E	300	100	ng/g		10/25/21 08:48	10/30/21 14:27	100
Perfluoroundecanoic acid	15000	I	300	100	ng/g		10/25/21 08:48	10/30/21 14:27	100

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	157	*5+	55 - 101	10/25/21 08:48	10/30/21 14:27	100
13C4 PFHpA	105		41 - 133	10/25/21 08:48	10/30/21 14:27	100
13C5 PFPeA	102		47 - 105	10/25/21 08:48	10/30/21 14:27	100
13C7 PFUnA	114	*5+	60 - 97	10/25/21 08:48	10/30/21 14:27	100
13C9 PFNA	120	*5+	42 - 116	10/25/21 08:48	10/30/21 14:27	100

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	101		10 - 125	10/25/21 08:48	10/30/21 14:27	100
13C2 PFUnA	73		20 - 154	10/25/21 08:48	10/30/21 14:27	100
13C4 PFOA	58		16 - 103	10/25/21 08:48	10/30/21 14:27	100

Method: Total PFCA-Dif - Total PFCA (Treatment Difference)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid	53000				ng/g			11/01/21 13:04	1
Perfluoropentanoic acid	100000				ng/g			11/01/21 13:04	1
Perfluorohexanoic acid	65000				ng/g			11/01/21 13:04	1
Perfluoroheptanoic acid	43000				ng/g			11/01/21 13:04	1

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-54547-1

Client Sample ID: CONCENTRATE-1

Lab Sample ID: 410-54547-8

Date Collected: 09/01/21 08:00
Matrix: Solid
Date Received: 09/09/21 11:08

Method: Total PFCA-Dif - Total PFCA (Treatment Difference) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid	14000				ng/g			11/01/21 13:04	1
Perfluorononanoic acid	0.00				ng/g			11/01/21 13:04	1
Total PFCA	220000				ng/g			11/01/21 13:04	1

Method: Total PFCA-Sum - Total PFCA (Summary) - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total PFCA	89000		0.30	0.10	ng/g			11/01/21 13:03	1

Method: Total PFCA-Sum - Total PFCA (Summary) - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total PFCA	310000		0.30	0.10	ng/g			11/01/21 13:03	1

Surrogate Summary

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-54547-1

Method: 537 TOP - Fluorinated Alkyl Substances

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)		
		PFHxA	PFUnA	PFOA
Lab Sample ID	Client Sample ID	(10-125)	(20-154)	(16-103)
LCS 410-186594/3-B	Lab Control Sample	59	46	53
LCSD 410-186594/4-B	Lab Control Sample Dup	64	27	33

Surrogate Legend

PFHxA = 13C2 PFHxA
PFUnA = 13C2 PFUnA
PFOA = 13C4 PFOA

Method: 537 TOP - Fluorinated Alkyl Substances

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)		
		PFHxA	PFUnA	PFOA
Lab Sample ID	Client Sample ID			
MB 410-186594/1-B	Method Blank			
MB 410-186594/1-C	Method Blank			

Surrogate Legend

PFHxA = 13C2 PFHxA
PFUnA = 13C2 PFUnA
PFOA = 13C4 PFOA

Method: 537 TOP - Fluorinated Alkyl Substances

Matrix: Solid — **Prep Type: Post-Treatment**

		Percent Surrogate Recovery (Acceptance Limits)		
		PFHxA	PFUnA	PFOA
Lab Sample ID	Client Sample ID	(10-125)	(20-154)	(16-103)
410-54547-8	CONCENTRATE-1	74	52	39
410-54547-8 - DL	CONCENTRATE-1	101	73	58

Surrogate Legend

PFHxA = 13C2 PFHxA
PFUnA = 13C2 PFUnA
PFOA = 13C4 PFOA

Method: 537 TOP - Fluorinated Alkyl Substances

Matrix: Water — **Prep Type: Post-Treatment**

		Percent Surrogate Recovery (Acceptance Limits)		
		PFHxA	PFUnA	PFOA
Lab Sample ID	Client Sample ID	(40-173)	(49-132)	(10-163)
410-54547-2	RINSE 1	79	80	82
410-54547-2 - DL	RINSE 1	101	92	98
410-54547-4	RINSE 2-1	58	88	86
410-54547-4 - RA	RINSE 2-1	71	105	98
410-54547-5	EFFLUENT-1	84	82	85
410-54547-6	RINSE 3-1	72	82	85
410-54547-7	EFFLUENT-2	84	84	91
LCS 410-180223/3-A	Lab Control Sample	91	75	94
LCSD 410-180223/4-A	Lab Control Sample Dup	87	69	95
MB 410-180223/2-A	Method Blank	85	54	72

Surrogate Summary

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-54547-1

Surrogate Legend

PFHxA = 13C2 PFHxA
PFUnA = 13C2 PFUnA
PFOA = 13C4 PFOA

Isotope Dilution Summary

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-54547-1

Method: 537 IDA - EPA 537 Isotope Dilution

Matrix: Solid **Prep Type: Total/NA**

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		HFPODA	HFPODA	HFPODA	HFPODA	PFTDA	PFTDA	PFTDA	PFTDA
Lab Sample ID	Client Sample ID	(10-152)	(10-152)	(10-152)	(10-152)	(10-138)	(10-138)	(10-138)	(10-138)
LCS 410-172695/2-B	Lab Control Sample	49	49	49	49	55	55	55	55
LCSD 410-172695/3-B	Lab Control Sample Dup	32	32	32	32	57	57	57	57
MB 410-172695/1-B	Method Blank	53	53	53	53	207 *5+	207 *5+	207 *5+	207 *5+
MB 410-172695/1-B	Method Blank	18	18	18	18	63	63	63	63

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		PFBA	PFBA	PFBA	PFBA	C4PFHA	C4PFHA	C4PFHA	C4PFHA
Lab Sample ID	Client Sample ID	(12-137)	(12-137)	(12-137)	(12-137)	(15-139)	(15-139)	(15-139)	(15-139)
LCS 410-172695/2-B	Lab Control Sample	70	70	70	70	70	70	70	70
LCSD 410-172695/3-B	Lab Control Sample Dup	70	70	70	70	74	74	74	74
MB 410-172695/1-B	Method Blank	239 *5+	239 *5+	239 *5+	239 *5+	255 *5+	255 *5+	255 *5+	255 *5+
MB 410-172695/1-B	Method Blank	75	75	75	75	76	76	76	76

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		M262FTS	M262FTS	M262FTS	M262FTS	PFPeA	PFPeA	PFPeA	PFPeA
Lab Sample ID	Client Sample ID	(10-182)	(10-182)	(10-182)	(10-182)	(12-135)	(12-135)	(12-135)	(12-135)
LCS 410-172695/2-B	Lab Control Sample	76	76	76	76	75	75	75	75
LCSD 410-172695/3-B	Lab Control Sample Dup	80	80	80	80	73	73	73	73
MB 410-172695/1-B	Method Blank	297 *5+	297 *5+	297 *5+	297 *5+	241 *5+	241 *5+	241 *5+	241 *5+
MB 410-172695/1-B	Method Blank	91	91	91	91	77	77	77	77

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		M282FTS	M282FTS	M282FTS	M282FTS	C3PFBS	C3PFBS	C3PFBS	C3PFBS
Lab Sample ID	Client Sample ID	(10-178)	(10-178)	(10-178)	(10-178)	(23-130)	(23-130)	(23-130)	(23-130)
LCS 410-172695/2-B	Lab Control Sample	84	84	84	84	77	77	77	77
LCSD 410-172695/3-B	Lab Control Sample Dup	78	78	78	78	74	74	74	74
MB 410-172695/1-B	Method Blank	288 *5+	288 *5+	288 *5+	288 *5+	253 *5+	253 *5+	253 *5+	253 *5+
MB 410-172695/1-B	Method Blank	90	90	90	90	80	80	80	80

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		d3NMFOS	d3NMFOS	d3NMFOS	d3NMFOS	M242FTS	M242FTS	M242FTS	M242FTS
Lab Sample ID	Client Sample ID	(10-172)	(10-172)	(10-172)	(10-172)	(10-169)	(10-169)	(10-169)	(10-169)
LCS 410-172695/2-B	Lab Control Sample	78	78	78	78	90	90	90	90
LCSD 410-172695/3-B	Lab Control Sample Dup	75	75	75	75	90	90	90	90
MB 410-172695/1-B	Method Blank	263 *5+	263 *5+	263 *5+	263 *5+	318 *5+	318 *5+	318 *5+	318 *5+
MB 410-172695/1-B	Method Blank	81	81	81	81	92	92	92	92

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		NEFM	NEFM	NEFM	NEFM	C8PFOA	C8PFOA	C8PFOA	C8PFOA
Lab Sample ID	Client Sample ID	(10-157)	(10-157)	(10-157)	(10-157)	(21-133)	(21-133)	(21-133)	(21-133)
LCS 410-172695/2-B	Lab Control Sample	55	55	55	55	72	72	72	72
LCSD 410-172695/3-B	Lab Control Sample Dup	63	63	63	63	75	75	75	75
MB 410-172695/1-B	Method Blank	268 *5+	268 *5+	268 *5+	268 *5+	254 *5+	254 *5+	254 *5+	254 *5+
MB 410-172695/1-B	Method Blank	80	80	80	80	78	78	78	78

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		d5NEFOS	d5NEFOS	d5NEFOS	d5NEFOS	C8PFOS	C8PFOS	C8PFOS	C8PFOS
Lab Sample ID	Client Sample ID	(10-176)	(10-176)	(10-176)	(10-176)	(31-130)	(31-130)	(31-130)	(31-130)
LCS 410-172695/2-B	Lab Control Sample	74	74	74	74	72	72	72	72
LCSD 410-172695/3-B	Lab Control Sample Dup	80	80	80	80	74	74	74	74
MB 410-172695/1-B	Method Blank	294 *5+	294 *5+	294 *5+	294 *5+	251 *5+	251 *5+	251 *5+	251 *5+
MB 410-172695/1-B	Method Blank	85	85	85	85	77	77	77	77

Isotope Dilution Summary

Client: AECOM
Job ID: 410-54547-1
Project/Site: AFFF Tanks Cleaning

Method: 537 IDA - EPA 537 Isotope Dilution (Continued)

Matrix: Solid **Prep Type: Total/NA**

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		13C5PHA	13C5PHA	13C5PHA	13C5PHA	C6PFDA	C6PFDA	C6PFDA	C6PFDA
Lab Sample ID	**Client Sample ID**	(11-138)	(11-138)	(11-138)	(11-138)	(21-134)	(21-134)	(21-134)	(21-134)
LCS 410-172695/2-B	Lab Control Sample	70	70	70	70	71	71	71	71
LCSD 410-172695/3-B	Lab Control Sample Dup	71	71	71	71	71	71	71	71
MB 410-172695/1-B	Method Blank	250 *5+	250 *5+	250 *5+	250 *5+	249 *5+	249 *5+	249 *5+	249 *5+
MB 410-172695/1-B	Method Blank	78	78	78	78	74	74	74	74

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		d3NMFSA	d3NMFSA	d3NMFSA	d3NMFSA	13C7PUA	13C7PUA	13C7PUA	13C7PUA
Lab Sample ID	**Client Sample ID**	(10-148)	(10-148)	(10-148)	(10-148)	(15-138)	(15-138)	(15-138)	(15-138)
LCS 410-172695/2-B	Lab Control Sample	28	28	28	28	70	70	70	70
LCSD 410-172695/3-B	Lab Control Sample Dup	35	35	35	35	71	71	71	71
MB 410-172695/1-B	Method Blank	220 *5+	220 *5+	220 *5+	220 *5+	253 *5+	253 *5+	253 *5+	253 *5+
MB 410-172695/1-B	Method Blank	69	69	69	69	73	73	73	73

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		d5NPFSA	d5NPFSA	d5NPFSA	d5NPFSA	C3PFHS	C3PFHS	C3PFHS	C3PFHS
Lab Sample ID	**Client Sample ID**	(10-151)	(10-151)	(10-151)	(10-151)	(24-136)	(24-136)	(24-136)	(24-136)
LCS 410-172695/2-B	Lab Control Sample	26	26	26	26	71	71	71	71
LCSD 410-172695/3-B	Lab Control Sample Dup	34	34	34	34	68	68	68	68
MB 410-172695/1-B	Method Blank	232 *5+	232 *5+	232 *5+	232 *5+	240 *5+	240 *5+	240 *5+	240 *5+
MB 410-172695/1-B	Method Blank	70	70	70	70	73	73	73	73

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		PFOSA	PFOSA	PFOSA	PFOSA	PFDoDA	PFDoDA	PFDoDA	PFDoDA
Lab Sample ID	**Client Sample ID**	(25-135)	(25-135)	(25-135)	(25-135)	(28-126)	(28-126)	(28-126)	(28-126)
LCS 410-172695/2-B	Lab Control Sample	67	67	67	67	68	68	68	68
LCSD 410-172695/3-B	Lab Control Sample Dup	65	65	65	65	65	65	65	65
MB 410-172695/1-B	Method Blank	247 *5+	247 *5+	247 *5+	247 *5+	230 *5+	230 *5+	230 *5+	230 *5+
MB 410-172695/1-B	Method Blank	75	75	75	75	70	70	70	70

		Percent Isotope Dilution Recovery (Acceptance Limits)			
		C9PFNA	C9PFNA	C9PFNA	C9PFNA
Lab Sample ID	**Client Sample ID**	(15-145)	(15-145)	(15-145)	(15-145)
LCS 410-172695/2-B	Lab Control Sample	75	75	75	75
LCSD 410-172695/3-B	Lab Control Sample Dup	77	77	77	77
MB 410-172695/1-B	Method Blank	249 *5+	249 *5+	249 *5+	249 *5+
MB 410-172695/1-B	Method Blank	78	78	78	78

Surrogate Legend

HFPODA = 13C3 HFPO-DA
PFTDA = 13C2 PFTeDA
PFBA = 13C4 PFBA
C4PFHA = 13C4 PFHpA
M262FTS = M2-6:2 FTS
PFPeA = 13C5 PFPeA
M282FTS = M2-8:2 FTS
C3PFBS = 13C3 PFBS
d3NMFOS = d3-NMeFOSAA
M242FTS = M2-4:2 FTS
NEFM = d9-N-EtFOSE-M
C8PFOA = 13C8 PFOA
d5NEFOS = d5-NEtFOSAA
C8PFOS = 13C8 PFOS
13C5PHA = 13C5 PFHxA

C6PFDA = 13C6 PFDA
d3NMFSA = d3-NMePFOSA
13C7PUA = 13C7 PFUnA
d5NPFSA = d5-NEtPFOSA
C3PFHS = 13C3 PFHxS
PFOSA = 13C8 FOSA
PFDoDA = 13C2-PFDoDA
C9PFNA = 13C9 PFNA

Method: 537 IDA - EPA 537 Isotope Dilution

Matrix: Solid **Prep Type: Total/NA**

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		HFPODA	PFTDA	PFBA	C4PFHA	M262FTS	PFPeA	M282FTS	C3PFBS
Lab Sample ID	Client Sample ID								
LCSD 410-172695/3-B	Lab Control Sample Dup								

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		d3NMFOS	M242FTS	NEFM	C8PFOA	d5NEFOS	C8PFOS	13C5PHA	C6PFDA
Lab Sample ID	Client Sample ID								
LCSD 410-172695/3-B	Lab Control Sample Dup								

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		d3NMFSA	13C7PUA	d5NPFSA	C3PFHS	PFOSA	PFDoDA	C9PFNA	
Lab Sample ID	Client Sample ID								
LCSD 410-172695/3-B	Lab Control Sample Dup								

Surrogate Legend

HFPODA = 13C3 HFPO-DA
PFTDA = 13C2 PFTeDA
PFBA = 13C4 PFBA
C4PFHA = 13C4 PFHpA
M262FTS = M2-6:2 FTS
PFPeA = 13C5 PFPeA
M282FTS = M2-8:2 FTS
C3PFBS = 13C3 PFBS
d3NMFOS = d3-NMeFOSAA
M242FTS = M2-4:2 FTS
NEFM = d9-N-EtFOSE-M
C8PFOA = 13C8 PFOA
d5NEFOS = d5-NEtFOSAA
C8PFOS = 13C8 PFOS
13C5PHA = 13C5 PFHxA
C6PFDA = 13C6 PFDA
d3NMFSA = d3-NMePFOSA
13C7PUA = 13C7 PFUnA
d5NPFSA = d5-NEtPFOSA
C3PFHS = 13C3 PFHxS
PFOSA = 13C8 FOSA
PFDoDA = 13C2-PFDoDA
C9PFNA = 13C9 PFNA

Method: 537 IDA - EPA 537 Isotope Dilution

Matrix: Solid **Prep Type: Pre-Treatment**

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		M242FTS	M262FTS	M282FTS	PFTDA	HFPODA	C3PFBS	PFBA	C4PFHA
Lab Sample ID	Client Sample ID	(10-169)	(10-182)	(10-178)	(10-138)	(10-152)	(23-130)	(12-137)	(15-139)
410-54547-8	CONCENTRATE-1	178 *5+	1243 *5+	665 *5+	88	1 *5-	86	119	120

Isotope Dilution Summary

Client: AECOM
Job ID: 410-54547-1
Project/Site: AFFF Tanks Cleaning

Method: 537 IDA - EPA 537 Isotope Dilution (Continued)

Matrix: Solid **Prep Type: Pre-Treatment**

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFPeA (12-135)	C8PFOA (21-133)	C8PFOS (31-130)	d3NMFOS (10-172)	d5NEFOS (10-176)	NEFM (10-157)	C3PFHS (24-136)	13C5PHA (11-138)
410-54547-8	CONCENTRATE-1	80	63	509 *5+	106	100	215 *5+	136	124

		Percent Isotope Dilution Recovery (Acceptance Limits)						
Lab Sample ID	Client Sample ID	C6PFDA (21-134)	13C7PUA (15-138)	d3NMFSA (10-148)	d5NPFSA (10-151)	PFOSA (25-135)	PFDoDA (28-126)	C9PFNA (15-145)
410-54547-8	CONCENTRATE-1	71	93	88	148	95	102	74

Surrogate Legend

M242FTS = M2-4:2 FTS
M262FTS = M2-6:2 FTS
M282FTS = M2-8:2 FTS
PFTDA = 13C2 PFTeDA
HFPODA = 13C3 HFPO-DA
C3PFBS = 13C3 PFBS
PFBA = 13C4 PFBA
C4PFHA = 13C4 PFHpA
PFPeA = 13C5 PFPeA
C8PFOA = 13C8 PFOA
C8PFOS = 13C8 PFOS
d3NMFOS = d3-NMeFOSAA
d5NEFOS = d5-NEtFOSAA
NEFM = d9-N-EtFOSE-M
C3PFHS = 13C3 PFHxS
13C5PHA = 13C5 PFHxA
C6PFDA = 13C6 PFDA
13C7PUA = 13C7 PFUnA
d3NMFSA = d3-NMePFOSA
d5NPFSA = d5-NEtPFOSA
PFOSA = 13C8 FOSA
PFDoDA = 13C2-PFDoDA
C9PFNA = 13C9 PFNA

Method: 537 IDA - EPA 537 Isotope Dilution

Matrix: Water **Prep Type: Total/NA**

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	M242FTS (20-187)	M262FTS (29-189)	M282FTS (34-182)	PFTDA (10-144)	C3PFBS (19-178)	PFBA (41-132)	C4PFHA (30-144)	PFPeA (33-155)
410-54547-3	HYDRANT-1	94	119	117	93	105	71	97	90
LCS 410-171432/2-A	Lab Control Sample	109	106	107	100	100	100	103	95
LCSD 410-171432/3-A	Lab Control Sample Dup	99	106	118	101	105	102	101	99
MB 410-171432/1-A	Method Blank	88	93	97	85	91	84	85	87

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	C8PFOA (49-127)	C8PFOS (49-126)	d3NMFOS (32-151)	d5NEFOS (37-164)	C3PFHS (32-145)	13C5PHA (31-142)	C6PFDA (47-128)	13C7PUA (40-135)
410-54547-3	HYDRANT-1	92	110	120	120	89	82	104	93
LCS 410-171432/2-A	Lab Control Sample	104	108	133	130	108	104	104	99
LCSD 410-171432/3-A	Lab Control Sample Dup	101	108	137	129	103	102	113	100
MB 410-171432/1-A	Method Blank	87	86	105	117	89	88	87	89

Isotope Dilution Summary

Client: AECOM
Job ID: 410-54547-1
Project/Site: AFFF Tanks Cleaning

Method: 537 IDA - EPA 537 Isotope Dilution (Continued)

Matrix: Water **Prep Type: Total/NA**

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFOSA (10-143)	PFDoDA (28-136)	C9PFNA (47-136)					
410-54547-3	HYDRANT-1	95	92	110					
LCS 410-171432/2-A	Lab Control Sample	99	106	101					
LCSD 410-171432/3-A	Lab Control Sample Dup	99	108	103					
MB 410-171432/1-A	Method Blank	84	82	80					

Surrogate Legend

M242FTS = M2-4:2 FTS
M262FTS = M2-6:2 FTS
M282FTS = M2-8:2 FTS
PFTDA = 13C2 PFTeDA
C3PFBS = 13C3 PFBS
PFBA = 13C4 PFBA
C4PFHA = 13C4 PFHpA
PFPeA = 13C5 PFPeA
C8PFOA = 13C8 PFOA
C8PFOS = 13C8 PFOS
d3NMFOS = d3-NMeFOSAA
d5NEFOS = d5-NEtFOSAA
C3PFHS = 13C3 PFHxS
13C5PHA = 13C5 PFHxA
C6PFDA = 13C6 PFDA
13C7PUA = 13C7 PFUnA
PFOSA = 13C8 FOSA
PFDoDA = 13C2-PFDoDA
C9PFNA = 13C9 PFNA

Method: 537 IDA - EPA 537 Isotope Dilution

Matrix: Water **Prep Type: Pre-Treatment**

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFBA (41-132)	PFOSA (10-143)	C4PFHA (30-144)	PFPeA (33-155)	PFTDA (10-144)	d3NMFOS (32-151)	d5NEFOS (37-164)	M262FTS (29-189)
410-54547-2	RINSE 1	84	103	478 *5+	81	22	52	68	1499 *5+
410-54547-4	RINSE 2-1	220 *5+	264 *5+	560 *5+	241 *5+	250 *5+	247 *5+	259 *5+	600 *5+
410-54547-4 - DL	RINSE 2-1								502 *5+
410-54547-5	EFFLUENT-1	126	112	141	125	54	114	106	149
410-54547-6	RINSE 3-1	110	163 *5+	428 *5+	114	13	147	153	185
410-54547-6 - DL	RINSE 3-1								354 *5+
410-54547-7	EFFLUENT-2	133 *5+	123	142	136	92	143	142	154
LCS 410-171950/2-A	Lab Control Sample	111	107	113	109	110	121	125	127
LCS 410-173056/3-A	Lab Control Sample	93	88	96	94	91	86	94	91
LCSD 410-173056/4-A	Lab Control Sample Dup	94	89	94	97	97	90	96	94
MB 410-171950/1-A	Method Blank	115	103	118	111	104	118	117	129
MB 410-173056/1-A	Method Blank	90	83	90	92	88	85	86	95

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	M282FTS (34-182)	C3PFBS (19-178)	M242FTS (20-187)	C8PFOA (49-127)	C8PFOS (49-126)	13C5PHA (31-142)	C9PFNA (47-136)	C6PFDA (47-128)
410-54547-2	RINSE 1	456 *5+	96	848 *5+	94	88	478 *5+	89	66
410-54547-4	RINSE 2-1	303 *5+	250 *5+	711 *5+	234 *5+	226 *5+	505 *5+	220 *5+	215 *5+
410-54547-4 - DL	RINSE 2-1								
410-54547-5	EFFLUENT-1	119	140	155	134 *5+	108	133	120	114

Isotope Dilution Summary

Client: AECOM
Job ID: 410-54547-1
Project/Site: AFFF Tanks Cleaning

Method: 537 IDA - EPA 537 Isotope Dilution (Continued)

Matrix: Water **Prep Type: Pre-Treatment**

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	M282FTS (34-182)	C3PFBS (19-178)	M242FTS (20-187)	C8PFOA (49-127)	C8PFOS (49-126)	13C5PHA (31-142)	C9PFNA (47-136)	C6PFDA (47-128)
410-54547-6	RINSE 3-1	119	125	564 *5+	118	99	381 *5+	98	104
410-54547-6 - DL	RINSE 3-1	251 *5+						206 *5+	
410-54547-7	EFFLUENT-2	145	134	184	144 *5+	134 *5+	137	130	133 *5+
LCS 410-171950/2-A	Lab Control Sample	124	126	122	110	118	103	110	118
LCS 410-173056/3-A	Lab Control Sample	95	101	104	97	100	94	91	96
LCSD 410-173056/4-A	Lab Control Sample Dup	101	102	101	99	103	96	95	100
MB 410-171950/1-A	Method Blank	136	122	131	113	117	109	108	114
MB 410-173056/1-A	Method Blank	97	96	101	95	93	94	90	95

		Percent Isotope Dilution Recovery (Acceptance Limits)		
Lab Sample ID	Client Sample ID	13C7PUA (40-135)	C3PFHS (32-145)	PFDoDA (28-136)
410-54547-2	RINSE 1	41	457 *5+	25 *5-
410-54547-4	RINSE 2-1	202 *5+	566 *5+	215 *5+
410-54547-4 - DL	RINSE 2-1			
410-54547-5	EFFLUENT-1	87	145	83
410-54547-6	RINSE 3-1	123	448 *5+	134
410-54547-6 - DL	RINSE 3-1	187 *5+		
410-54547-7	EFFLUENT-2	115	135	109
LCS 410-171950/2-A	Lab Control Sample	113	115	110
LCS 410-173056/3-A	Lab Control Sample	91	98	88
LCSD 410-173056/4-A	Lab Control Sample Dup	96	95	98
MB 410-171950/1-A	Method Blank	104	125	104
MB 410-173056/1-A	Method Blank	86	93	88

Surrogate Legend

PFBA = 13C4 PFBA
PFOSA = 13C8 FOSA
C4PFHA = 13C4 PFHpA
PFPeA = 13C5 PFPeA
PFTDA = 13C2 PFTeDA
d3NMFOS = d3-NMeFOSAA
d5NEFOS = d5-NEtFOSAA
M262FTS = M2-6:2 FTS
M282FTS = M2-8:2 FTS
C3PFBS = 13C3 PFBS
M242FTS = M2-4:2 FTS
C8PFOA = 13C8 PFOA
C8PFOS = 13C8 PFOS
13C5PHA = 13C5 PFHxA
C9PFNA = 13C9 PFNA
C6PFDA = 13C6 PFDA
13C7PUA = 13C7 PFUnA
C3PFHS = 13C3 PFHxS
PFDoDA = 13C2-PFDoDA

Isotope Dilution Summary

Client: AECOM
Job ID: 410-54547-1
Project/Site: AFFF Tanks Cleaning

Method: 537 TOP - Fluorinated Alkyl Substances

Matrix: Solid **Prep Type: Total/NA**

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		M262FTS	M282FTS	PFDoDA	PFTDA	HFPODA	C3PFBS	C3PFHS	PFBA
Lab Sample ID	Client Sample ID	(64-211)	(94-168)	(55-101)	(55-101)	(70-130)	(51-114)	(39-131)	(55-101)
LCS 410-186594/3-B	Lab Control Sample	84	86 *5-	81	85	61 *5-	83	56	93
LCSD 410-186594/4-B	Lab Control Sample Dup	82	75 *5-	79	81	66 *5-	82	62	92
MB 410-186594/1-C	Method Blank	90	89 *5-	79	82	83	82	54	91

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		C4PFHA	13C5PHA	PFPeA	C6PFDA	13C7PUA	C8PFOA	C8PFOS	PFOSA
Lab Sample ID	Client Sample ID	(41-133)	(45-120)	(47-105)	(52-107)	(60-97)	(54-100)	(54-102)	(58-110)
LCS 410-186594/3-B	Lab Control Sample	83	73	98	85	74	77	99	82
LCSD 410-186594/4-B	Lab Control Sample Dup	96	76	91	82	84	77	164 *5+	78
MB 410-186594/1-C	Method Blank	93	80	91	81	86	84	85	79

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		C9PFNA	M242FTS	d3NMFOS	d3NMFSA	d5NEFOS	d5NPFSA	NMFM	NEFM
Lab Sample ID	Client Sample ID	(42-116)			(21-81)	(79-130)	(25-96)	(63-103)	(68-110)
LCS 410-186594/3-B	Lab Control Sample	116			72	89	74	95	89
LCSD 410-186594/4-B	Lab Control Sample Dup	180 *5+			62	91	64	80	78
MB 410-186594/1-C	Method Blank	112			62	91	65	80	77

Surrogate Legend

M262FTS = M2-6:2 FTS
M282FTS = M2-8:2 FTS
PFDoDA = 13C2-PFDoDA
PFTDA = 13C2 PFTeDA
HFPODA = 13C3 HFPO-DA
C3PFBS = 13C3 PFBS
C3PFHS = 13C3 PFHxS
PFBA = 13C4 PFBA
C4PFHA = 13C4 PFHpA
13C5PHA = 13C5 PFHxA
PFPeA = 13C5 PFPeA
C6PFDA = 13C6 PFDA
13C7PUA = 13C7 PFUnA
C8PFOA = 13C8 PFOA
C8PFOS = 13C8 PFOS
PFOSA = 13C8 FOSA
C9PFNA = 13C9 PFNA
M242FTS = M2-4:2 FTS
d3NMFOS = d3-NMeFOSAA
d3NMFSA = d3-NMePFOSA
d5NEFOS = d5-NEtFOSAA
d5NPFSA = d5-NEtPFOSA
NMFM = d7-N-MeFOSE-M
NEFM = d9-N-EtFOSE-M

Method: 537 TOP - Fluorinated Alkyl Substances

Matrix: Solid **Prep Type: Post-Treatment**

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		M262FTS	M282FTS	PFDoDA	PFTDA	HFPODA	C3PFBS	C3PFHS	PFBA
Lab Sample ID	Client Sample ID	(64-211)	(94-168)	(55-101)	(55-101)	(70-130)	(51-114)	(39-131)	(55-101)
410-54547-8	CONCENTRATE-1	76	80 *5-	103 *5+	107 *5+	116	189 *5+	63	101
410-54547-8 - DL	CONCENTRATE-1								157 *5+

Isotope Dilution Summary

Client: AECOM
Job ID: 410-54547-1
Project/Site: AFFF Tanks Cleaning

Method: 537 TOP - Fluorinated Alkyl Substances (Continued)

Matrix: Solid **Prep Type: Post-Treatment**

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	C4PFHA (41-133)	13C5PHA (45-120)	PFPeA (47-105)	C6PFDA (52-107)	13C7PUA (60-97)	C8PFOA (54-100)	C8PFOS (54-102)	PFOSA (58-110)
410-54547-8	CONCENTRATE-1	94	59	89	98	83	83	101	115 *5+
410-54547-8 - DL	CONCENTRATE-1	105		102		114 *5+			

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	C9PFNA (42-116)	M242FTS	d3NMFOS	d3NMFSA (21-81)	d5NEFOS (79-130)	d5NPFSA (25-96)	NMFM (63-103)	NEFM (68-110)
410-54547-8	CONCENTRATE-1	104			85 *5+	79	93	126 *5+	127 *5+
410-54547-8 - DL	CONCENTRATE-1	120 *5+							

Surrogate Legend

M262FTS = M2-6:2 FTS
M282FTS = M2-8:2 FTS
PFDoDA = 13C2-PFDoDA
PFTDA = 13C2 PFTeDA
HFPODA = 13C3 HFPO-DA
C3PFBS = 13C3 PFBS
C3PFHS = 13C3 PFHxS
PFBA = 13C4 PFBA
C4PFHA = 13C4 PFHpA
13C5PHA = 13C5 PFHxA
PFPeA = 13C5 PFPeA
C6PFDA = 13C6 PFDA
13C7PUA = 13C7 PFUnA
C8PFOA = 13C8 PFOA
C8PFOS = 13C8 PFOS
PFOSA = 13C8 FOSA
C9PFNA = 13C9 PFNA
M242FTS = M2-4:2 FTS
d3NMFOS = d3-NMeFOSAA
d3NMFSA = d3-NMePFOSA
d5NEFOS = d5-NEtFOSAA
d5NPFSA = d5-NEtPFOSA
NMFM = d7-N-MeFOSE-M
NEFM = d9-N-EtFOSE-M

Method: 537 TOP - Fluorinated Alkyl Substances

Matrix: Water **Prep Type: Post-Treatment**

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	M262FTS (55-167)	M282FTS (61-160)	PFDoDA (47-118)	PFTDA (32-126)	HFPODA (70-130)	C3PFBS (18-177)	C3PFHS (55-115)	PFBA (52-126)
410-54547-2	RINSE 1	98	89	94	83	108	158	77	105
410-54547-2 - DL	RINSE 1								155 *5+
410-54547-4 - DL	RINSE 2-1								104
410-54547-4 - DL2	RINSE 2-1								
410-54547-4	RINSE 2-1	96	96	93	88	102	198 *5+	75	99
410-54547-5	EFFLUENT-1	109	96	88	85	84	90	96	95
410-54547-6	RINSE 3-1	101	102	84	78	83	110	84	96
410-54547-6 - DL	RINSE 3-1								
410-54547-7	EFFLUENT-2	113	110	88	79	91	95	100	95
LCS 410-180223/3-A	Lab Control Sample	112	111	95	94	109	96	104	105
LCSD 410-180223/4-A	Lab Control Sample Dup	113	108	99	96	104	92	107	103

Isotope Dilution Summary

Client: AECOM
Job ID: 410-54547-1
Project/Site: AFFF Tanks Cleaning

Method: 537 TOP - Fluorinated Alkyl Substances (Continued)

Matrix: Water **Prep Type: Post-Treatment**

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	M262FTS (55-167)	M282FTS (61-160)	PFDoDA (47-118)	PFTDA (32-126)	HFPODA (70-130)	C3PFBS (18-177)	C3PFHS (55-115)	PFBA (52-126)
MB 410-180223/2-A	Method Blank	109	110	82	45	83	85	96	93

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	C4PFHA (55-113)	13C5PHA (54-115)	PFPeA (17-184)	C6PFDA (56-114)	13C7PUA (50-120)	C8PFOA (56-117)	C8PFOS (56-112)	PFOSA (10-126)
410-54547-2	RINSE 1	76	72	72	98	94	95	99	85
410-54547-2 - DL	RINSE 1	106	100	97					
410-54547-4 - DL	RINSE 2-1								
410-54547-4 - DL2	RINSE 2-1	112	124 *5+	111					
410-54547-4	RINSE 2-1	79	61	74	95	95	95	100	85
410-54547-5	EFFLUENT-1	95	89	90	96	92	96	93	81
410-54547-6	RINSE 3-1	85	75	80	89	87	91	102	73
410-54547-6 - DL	RINSE 3-1	96	95	85					
410-54547-7	EFFLUENT-2	100	89	97	101	94	99	98	77
LCS 410-180223/3-A	Lab Control Sample	99	95	110	104	103	104	106	90
LCSD 410-180223/4-A	Lab Control Sample Dup	105	94	102	106	105	104	105	86
MB 410-180223/2-A	Method Blank	93	88	92	94	88	96	93	75

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	C9PFNA (54-122)	M242FTS	d3NMFOS	d3NMFSA (10-51)	d5NEFOS (65-134)	d5NPFSA (10-51)	NMFM (10-105)	NEFM (10-112)
410-54547-2	RINSE 1	99			29	116	26	66	45
410-54547-2 - DL	RINSE 1	113							
410-54547-4 - DL	RINSE 2-1	110							
410-54547-4 - DL2	RINSE 2-1								
410-54547-4	RINSE 2-1	106			56 *5+	97	54 *5+	80	82
410-54547-5	EFFLUENT-1	109			30	102	26	74	71
410-54547-6	RINSE 3-1	114			18	92	15	66	64
410-54547-6 - DL	RINSE 3-1								
410-54547-7	EFFLUENT-2	113			23	105	22	66	63
LCS 410-180223/3-A	Lab Control Sample	104			70 *5+	118	75 *5+	89	90
LCSD 410-180223/4-A	Lab Control Sample Dup	112			70 *5+	111	76 *5+	91	91
MB 410-180223/2-A	Method Blank	108			32	91	34	71	72

Surrogate Legend

M262FTS = M2-6:2 FTS
M282FTS = M2-8:2 FTS
PFDoDA = 13C2-PFDoDA
PFTDA = 13C2 PFTeDA
HFPODA = 13C3 HFPO-DA
C3PFBS = 13C3 PFBS
C3PFHS = 13C3 PFHxS
PFBA = 13C4 PFBA
C4PFHA = 13C4 PFHpA
13C5PHA = 13C5 PFHxA
PFPeA = 13C5 PFPeA
C6PFDA = 13C6 PFDA
13C7PUA = 13C7 PFUnA
C8PFOA = 13C8 PFOA
C8PFOS = 13C8 PFOS
PFOSA = 13C8 FOSA
C9PFNA = 13C9 PFNA

Isotope Dilution Summary

Client: AECOM

Job ID: 410-54547-1

Project/Site: AFFF Tanks Cleaning

M242FTS = M2-4:2 FTS
d3NMFOS = d3-NMeFOSAA
d3NMFSA = d3-NMePFOSA
d5NEFOS = d5-NEtFOSAA
d5NPFSA = d5-NEtPFOSA
NMFM = d7-N-MeFOSE-M
NEFM = d9-N-EtFOSE-M

Method: 537 IDA - EPA 537 Isotope Dilution

Lab Sample ID: MB 410-171432/1-A
Matrix: Water
Analysis Batch: 172047

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 171432

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid	ND		2.0	0.50	ng/L		09/15/21 08:46	09/16/21 20:17	1
Perfluorobutanoic acid	ND		5.0	2.0	ng/L		09/15/21 08:46	09/16/21 20:17	1
Perfluorodecanesulfonic acid	ND		2.0	0.50	ng/L		09/15/21 08:46	09/16/21 20:17	1
Perfluorodecanoic acid	ND		2.0	0.50	ng/L		09/15/21 08:46	09/16/21 20:17	1
Perfluorododecanoic acid	ND		2.0	0.50	ng/L		09/15/21 08:46	09/16/21 20:17	1
Perfluoroheptanesulfonic acid	ND		2.0	0.50	ng/L		09/15/21 08:46	09/16/21 20:17	1
Perfluoroheptanoic acid	ND		2.0	0.50	ng/L		09/15/21 08:46	09/16/21 20:17	1
Perfluorohexanesulfonic acid	ND		2.0	0.50	ng/L		09/15/21 08:46	09/16/21 20:17	1
Perfluorohexanoic acid	ND		2.0	0.50	ng/L		09/15/21 08:46	09/16/21 20:17	1
Perfluorononanesulfonic acid	ND		2.0	0.50	ng/L		09/15/21 08:46	09/16/21 20:17	1
Perfluorononanoic acid	ND		2.0	0.50	ng/L		09/15/21 08:46	09/16/21 20:17	1
Perfluorooctanesulfonamide	ND		2.0	0.50	ng/L		09/15/21 08:46	09/16/21 20:17	1
Perfluorooctanesulfonic acid	ND		2.0	0.50	ng/L		09/15/21 08:46	09/16/21 20:17	1
Perfluorooctanoic acid	ND		2.0	0.50	ng/L		09/15/21 08:46	09/16/21 20:17	1
Perfluoropentanesulfonic acid	ND		2.0	0.50	ng/L		09/15/21 08:46	09/16/21 20:17	1
Perfluoropentanoic acid	ND		2.0	0.50	ng/L		09/15/21 08:46	09/16/21 20:17	1
Perfluorotetradecanoic acid	ND		2.0	0.50	ng/L		09/15/21 08:46	09/16/21 20:17	1
NEtFOSAA	ND		3.0	0.50	ng/L		09/15/21 08:46	09/16/21 20:17	1
Perfluorotridecanoic acid	ND		2.0	0.50	ng/L		09/15/21 08:46	09/16/21 20:17	1
NMeFOSAA	ND		2.0	0.60	ng/L		09/15/21 08:46	09/16/21 20:17	1
Perfluoroundecanoic acid	ND		2.0	0.50	ng/L		09/15/21 08:46	09/16/21 20:17	1
6:2 Fluorotelomer sulfonic acid	ND		5.0	2.0	ng/L		09/15/21 08:46	09/16/21 20:17	1
8:2 Fluorotelomer sulfonic acid	ND		3.0	1.0	ng/L		09/15/21 08:46	09/16/21 20:17	1
4:2 Fluorotelomer sulfonic acid	ND		2.0	0.50	ng/L		09/15/21 08:46	09/16/21 20:17	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFTeDA	*85*		*10 - 144*	*09/15/21 08:46*	*09/16/21 20:17*	*1*
13C4 PFBA	*84*		*41 - 132*	*09/15/21 08:46*	*09/16/21 20:17*	*1*
13C4 PFHpA	*85*		*30 - 144*	*09/15/21 08:46*	*09/16/21 20:17*	*1*
13C5 PFPeA	*87*		*33 - 155*	*09/15/21 08:46*	*09/16/21 20:17*	*1*
M2-6:2 FTS	*93*		*29 - 189*	*09/15/21 08:46*	*09/16/21 20:17*	*1*
M2-8:2 FTS	*97*		*34 - 182*	*09/15/21 08:46*	*09/16/21 20:17*	*1*
13C3 PFBS	*91*		*19 - 178*	*09/15/21 08:46*	*09/16/21 20:17*	*1*
d3-NMeFOSAA	*105*		*32 - 151*	*09/15/21 08:46*	*09/16/21 20:17*	*1*
M2-4:2 FTS	*88*		*20 - 187*	*09/15/21 08:46*	*09/16/21 20:17*	*1*
13C8 PFOA	*87*		*49 - 127*	*09/15/21 08:46*	*09/16/21 20:17*	*1*
d5-NEtFOSAA	*117*		*37 - 164*	*09/15/21 08:46*	*09/16/21 20:17*	*1*
13C8 PFOS	*86*		*49 - 126*	*09/15/21 08:46*	*09/16/21 20:17*	*1*
13C5 PFHxA	*88*		*31 - 142*	*09/15/21 08:46*	*09/16/21 20:17*	*1*
13C6 PFDA	*87*		*47 - 128*	*09/15/21 08:46*	*09/16/21 20:17*	*1*
13C7 PFUnA	*89*		*40 - 135*	*09/15/21 08:46*	*09/16/21 20:17*	*1*
13C3 PFHxS	*89*		*32 - 145*	*09/15/21 08:46*	*09/16/21 20:17*	*1*
13C8 FOSA	*84*		*10 - 143*	*09/15/21 08:46*	*09/16/21 20:17*	*1*
13C2-PFDoDA	*82*		*28 - 136*	*09/15/21 08:46*	*09/16/21 20:17*	*1*
13C9 PFNA	*80*		*47 - 136*	*09/15/21 08:46*	*09/16/21 20:17*	*1*

Method: 537 IDA - EPA 537 Isotope Dilution (Continued)

Lab Sample ID: LCS 410-171432/2-A
Matrix: Water
Analysis Batch: 172047

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 171432

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorobutanesulfonic acid	22.7	23.0		ng/L		102	65 - 132
Perfluorobutanoic acid	25.6	25.0		ng/L		98	62 - 156
Perfluorodecanesulfonic acid	24.7	22.8		ng/L		92	61 - 134
Perfluorodecanoic acid	25.6	23.6		ng/L		92	63 - 137
Perfluorododecanoic acid	25.6	27.3		ng/L		107	63 - 140
Perfluoroheptanesulfonic acid	24.4	27.7		ng/L		114	67 - 135
Perfluoroheptanoic acid	25.6	31.4		ng/L		123	66 - 141
Perfluorohexanesulfonic acid	23.3	23.2		ng/L		99	60 - 128
Perfluorohexanoic acid	25.6	30.3		ng/L		118	66 - 137
Perfluorononanesulfonic acid	24.6	22.5		ng/L		92	67 - 137
Perfluorononanoic acid	25.6	29.2		ng/L		114	65 - 140
Perfluorooctanesulfonamide	25.6	26.2		ng/L		102	55 - 130
Perfluorooctanesulfonic acid	23.7	22.1		ng/L		93	51 - 126
Perfluorooctanoic acid	25.6	27.7		ng/L		108	65 - 136
Perfluoropentanesulfonic acid	24.0	26.7		ng/L		111	71 - 136
Perfluoropentanoic acid	25.6	31.2		ng/L		122	72 - 139
Perfluorotetradecanoic acid	25.6	29.4		ng/L		115	64 - 141
NEtFOSAA	25.6	24.4		ng/L		95	54 - 134
Perfluorotridecanoic acid	25.6	28.5		ng/L		111	58 - 146
NMeFOSAA	25.6	22.6		ng/L		88	58 - 143
Perfluoroundecanoic acid	25.6	30.4		ng/L		119	62 - 138
6:2 Fluorotelomer sulfonic acid	24.3	24.5		ng/L		101	57 - 137
8:2 Fluorotelomer sulfonic acid	24.5	24.7		ng/L		101	56 - 140
4:2 Fluorotelomer sulfonic acid	23.9	21.3		ng/L		89	59 - 130

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C2 PFTeDA	*100*		*10 - 144*
13C4 PFBA	*100*		*41 - 132*
13C4 PFHpA	*103*		*30 - 144*
13C5 PFPeA	*95*		*33 - 155*
M2-6:2 FTS	*106*		*29 - 189*
M2-8:2 FTS	*107*		*34 - 182*
13C3 PFBS	*100*		*19 - 178*
d3-NMeFOSAA	*133*		*32 - 151*
M2-4:2 FTS	*109*		*20 - 187*
13C8 PFOA	*104*		*49 - 127*
d5-NEtFOSAA	*130*		*37 - 164*
13C8 PFOS	*108*		*49 - 126*
13C5 PFHxA	*104*		*31 - 142*
13C6 PFDA	*104*		*47 - 128*
13C7 PFUnA	*99*		*40 - 135*
13C3 PFHxS	*108*		*32 - 145*
13C8 FOSA	*99*		*10 - 143*
13C2-PFDoDA	*106*		*28 - 136*
13C9 PFNA	*101*		*47 - 136*

Method: 537 IDA - EPA 537 Isotope Dilution (Continued)

Lab Sample ID: LCSD 410-171432/3-A
Matrix: Water
Analysis Batch: 172047

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 171432

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorobutanesulfonic acid			22.7	23.8		ng/L		105	65 - 132	3	30
Perfluorobutanoic acid			25.6	26.3		ng/L		103	62 - 156	5	30
Perfluorodecanesulfonic acid			24.7	25.5		ng/L		103	61 - 134	11	30
Perfluorodecanoic acid			25.6	23.5		ng/L		92	63 - 137	0	30
Perfluorododecanoic acid			25.6	27.9		ng/L		109	63 - 140	2	30
Perfluoroheptanesulfonic acid			24.4	27.0		ng/L		111	67 - 135	3	30
Perfluoroheptanoic acid			25.6	31.6		ng/L		123	66 - 141	0	30
Perfluorohexanesulfonic acid			23.3	23.9		ng/L		102	60 - 128	3	30
Perfluorohexanoic acid			25.6	31.8		ng/L		124	66 - 137	5	30
Perfluorononanesulfonic acid			24.6	25.4		ng/L		103	67 - 137	12	30
Perfluorononanoic acid			25.6	31.9		ng/L		125	65 - 140	9	30
Perfluorooctanesulfonamide			25.6	27.9		ng/L		109	55 - 130	6	30
Perfluorooctanesulfonic acid			23.7	23.9		ng/L		101	51 - 126	8	30
Perfluorooctanoic acid			25.6	29.1		ng/L		114	65 - 136	5	30
Perfluoropentanesulfonic acid			24.0	27.6		ng/L		115	71 - 136	4	30
Perfluoropentanoic acid			25.6	32.4		ng/L		126	72 - 139	4	30
Perfluorotetradecanoic acid			25.6	30.4		ng/L		119	64 - 141	3	30
NEtFOSAA			25.6	24.5		ng/L		96	54 - 134	0	30
Perfluorotridecanoic acid			25.6	28.3		ng/L		111	58 - 146	1	30
NMeFOSAA			25.6	23.0		ng/L		90	58 - 143	2	30
Perfluoroundecanoic acid			25.6	29.4		ng/L		115	62 - 138	3	30
6:2 Fluorotelomer sulfonic acid			24.3	24.0		ng/L		99	57 - 137	2	30
8:2 Fluorotelomer sulfonic acid			24.5	25.1		ng/L		103	56 - 140	2	30
4:2 Fluorotelomer sulfonic acid			23.9	25.5		ng/L		107	59 - 130	18	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C2 PFTeDA	*101*		*10 - 144*
13C4 PFBA	*102*		*41 - 132*
13C4 PFHpA	*101*		*30 - 144*
13C5 PFPeA	*99*		*33 - 155*
M2-6:2 FTS	*106*		*29 - 189*
M2-8:2 FTS	*118*		*34 - 182*
13C3 PFBS	*105*		*19 - 178*
d3-NMeFOSAA	*137*		*32 - 151*
M2-4:2 FTS	*99*		*20 - 187*
13C8 PFOA	*101*		*49 - 127*
d5-NEtFOSAA	*129*		*37 - 164*
13C8 PFOS	*108*		*49 - 126*
13C5 PFHxA	*102*		*31 - 142*
13C6 PFDA	*113*		*47 - 128*
13C7 PFUnA	*100*		*40 - 135*
13C3 PFHxS	*103*		*32 - 145*
13C8 FOSA	*99*		*10 - 143*
13C2-PFDoDA	*108*		*28 - 136*
13C9 PFNA	*103*		*47 - 136*

Method: 537 IDA - EPA 537 Isotope Dilution (Continued)

Lab Sample ID: MB 410-172695/1-B
Matrix: Solid
Analysis Batch: 173101

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 172695

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid	ND		2.0	0.40	ng/g		09/17/21 13:16	09/21/21 01:55	1
Perfluorobutanoic acid	ND		2.0	0.80	ng/g		09/17/21 13:16	09/21/21 01:55	1
Perfluorodecanesulfonic acid	ND		0.60	0.20	ng/g		09/17/21 13:16	09/21/21 01:55	1
Perfluorodecanoic acid	ND		0.60	0.20	ng/g		09/17/21 13:16	09/21/21 01:55	1
Perfluorododecanoic acid	ND		0.60	0.20	ng/g		09/17/21 13:16	09/21/21 01:55	1
Perfluoroheptanesulfonic acid	ND		0.60	0.20	ng/g		09/17/21 13:16	09/21/21 01:55	1
Perfluoroheptanoic acid	ND		0.60	0.20	ng/g		09/17/21 13:16	09/21/21 01:55	1
Perfluorohexanesulfonic acid	ND		0.60	0.20	ng/g		09/17/21 13:16	09/21/21 01:55	1
Perfluorohexanoic acid	ND		0.60	0.20	ng/g		09/17/21 13:16	09/21/21 01:55	1
Perfluorononanesulfonic acid	ND		0.60	0.20	ng/g		09/17/21 13:16	09/21/21 01:55	1
Perfluorononanoic acid	ND		0.60	0.20	ng/g		09/17/21 13:16	09/21/21 01:55	1
Perfluorooctanesulfonamide	ND		0.60	0.20	ng/g		09/17/21 13:16	09/21/21 01:55	1
Perfluorooctanesulfonic acid	ND		0.60	0.20	ng/g		09/17/21 13:16	09/21/21 01:55	1
Perfluorooctanoic acid	ND		0.60	0.20	ng/g		09/17/21 13:16	09/21/21 01:55	1
Perfluoropentanesulfonic acid	ND		0.60	0.20	ng/g		09/17/21 13:16	09/21/21 01:55	1
Perfluoropentanoic acid	ND		0.60	0.20	ng/g		09/17/21 13:16	09/21/21 01:55	1
Perfluorotetradecanoic acid	ND		0.60	0.20	ng/g		09/17/21 13:16	09/21/21 01:55	1
NEtFOSAA	ND		2.0	0.20	ng/g		09/17/21 13:16	09/21/21 01:55	1
Perfluorotridecanoic acid	ND		0.60	0.20	ng/g		09/17/21 13:16	09/21/21 01:55	1
NMeFOSAA	ND		2.0	0.20	ng/g		09/17/21 13:16	09/21/21 01:55	1
Perfluoroundecanoic acid	ND		0.60	0.20	ng/g		09/17/21 13:16	09/21/21 01:55	1
6:2 Fluorotelomer sulfonic acid	ND		2.0	0.60	ng/g		09/17/21 13:16	09/21/21 01:55	1
8:2 Fluorotelomer sulfonic acid	ND		3.0	0.60	ng/g		09/17/21 13:16	09/21/21 01:55	1
4:2 Fluorotelomer sulfonic acid	ND		2.0	0.60	ng/g		09/17/21 13:16	09/21/21 01:55	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C3 HFPO-DA	*53*		*10 - 152*	*09/17/21 13:16*	*09/21/21 01:55*	*1*
13C2 PFTeDA	*207*	**5+*	*10 - 138*	*09/17/21 13:16*	*09/21/21 01:55*	*1*
13C4 PFBA	*239*	**5+*	*12 - 137*	*09/17/21 13:16*	*09/21/21 01:55*	*1*
13C4 PFHpA	*255*	**5+*	*15 - 139*	*09/17/21 13:16*	*09/21/21 01:55*	*1*
13C5 PFPeA	*241*	**5+*	*12 - 135*	*09/17/21 13:16*	*09/21/21 01:55*	*1*
M2-6:2 FTS	*297*	**5+*	*10 - 182*	*09/17/21 13:16*	*09/21/21 01:55*	*1*
M2-8:2 FTS	*288*	**5+*	*10 - 178*	*09/17/21 13:16*	*09/21/21 01:55*	*1*
13C3 PFBS	*253*	**5+*	*23 - 130*	*09/17/21 13:16*	*09/21/21 01:55*	*1*
d3-NMeFOSAA	*263*	**5+*	*10 - 172*	*09/17/21 13:16*	*09/21/21 01:55*	*1*
d9-N-EtFOSE-M	*268*	**5+*	*10 - 157*	*09/17/21 13:16*	*09/21/21 01:55*	*1*
M2-4:2 FTS	*318*	**5+*	*10 - 169*	*09/17/21 13:16*	*09/21/21 01:55*	*1*
13C8 PFOA	*254*	**5+*	*21 - 133*	*09/17/21 13:16*	*09/21/21 01:55*	*1*
d5-NEtFOSAA	*294*	**5+*	*10 - 176*	*09/17/21 13:16*	*09/21/21 01:55*	*1*
13C8 PFOS	*251*	**5+*	*31 - 130*	*09/17/21 13:16*	*09/21/21 01:55*	*1*
13C5 PFHxA	*250*	**5+*	*11 - 138*	*09/17/21 13:16*	*09/21/21 01:55*	*1*
13C6 PFDA	*249*	**5+*	*21 - 134*	*09/17/21 13:16*	*09/21/21 01:55*	*1*
d3-NMePFOSA	*220*	**5+*	*10 - 148*	*09/17/21 13:16*	*09/21/21 01:55*	*1*
13C7 PFUnA	*253*	**5+*	*15 - 138*	*09/17/21 13:16*	*09/21/21 01:55*	*1*
d5-NEtPFOSA	*232*	**5+*	*10 - 151*	*09/17/21 13:16*	*09/21/21 01:55*	*1*
13C3 PFHxS	*240*	**5+*	*24 - 136*	*09/17/21 13:16*	*09/21/21 01:55*	*1*
13C8 FOSA	*247*	**5+*	*25 - 135*	*09/17/21 13:16*	*09/21/21 01:55*	*1*
13C2-PFDoDA	*230*	**5+*	*28 - 126*	*09/17/21 13:16*	*09/21/21 01:55*	*1*

Method: 537 IDA - EPA 537 Isotope Dilution (Continued)

Lab Sample ID: MB 410-172695/1-B
Matrix: Solid
Analysis Batch: 173101

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 172695

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C9 PFNA	249	*5+	15 - 145	09/17/21 13:16	09/21/21 01:55	1

Lab Sample ID: MB 410-172695/1-B
Matrix: Solid
Analysis Batch: 173607

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 172695

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid	ND		2.0	0.40	ng/g		09/17/21 13:16	09/21/21 13:52	1
Perfluorobutanoic acid	ND		2.0	0.80	ng/g		09/17/21 13:16	09/21/21 13:52	1
Perfluorodecanesulfonic acid	ND		0.60	0.20	ng/g		09/17/21 13:16	09/21/21 13:52	1
Perfluorodecanoic acid	ND		0.60	0.20	ng/g		09/17/21 13:16	09/21/21 13:52	1
Perfluorododecanoic acid	ND		0.60	0.20	ng/g		09/17/21 13:16	09/21/21 13:52	1
Perfluoroheptanesulfonic acid	ND		0.60	0.20	ng/g		09/17/21 13:16	09/21/21 13:52	1
Perfluoroheptanoic acid	ND		0.60	0.20	ng/g		09/17/21 13:16	09/21/21 13:52	1
Perfluorohexanesulfonic acid	ND		0.60	0.20	ng/g		09/17/21 13:16	09/21/21 13:52	1
Perfluorohexanoic acid	ND		0.60	0.20	ng/g		09/17/21 13:16	09/21/21 13:52	1
Perfluorononanesulfonic acid	ND		0.60	0.20	ng/g		09/17/21 13:16	09/21/21 13:52	1
Perfluorononanoic acid	ND		0.60	0.20	ng/g		09/17/21 13:16	09/21/21 13:52	1
Perfluorooctanesulfonamide	ND		0.60	0.20	ng/g		09/17/21 13:16	09/21/21 13:52	1
Perfluorooctanesulfonic acid	ND		0.60	0.20	ng/g		09/17/21 13:16	09/21/21 13:52	1
Perfluorooctanoic acid	ND		0.60	0.20	ng/g		09/17/21 13:16	09/21/21 13:52	1
Perfluoropentanesulfonic acid	ND		0.60	0.20	ng/g		09/17/21 13:16	09/21/21 13:52	1
Perfluoropentanoic acid	ND		0.60	0.20	ng/g		09/17/21 13:16	09/21/21 13:52	1
Perfluorotetradecanoic acid	ND		0.60	0.20	ng/g		09/17/21 13:16	09/21/21 13:52	1
NEtFOSAA	ND		2.0	0.20	ng/g		09/17/21 13:16	09/21/21 13:52	1
Perfluorotridecanoic acid	ND		0.60	0.20	ng/g		09/17/21 13:16	09/21/21 13:52	1
NMeFOSAA	ND		2.0	0.20	ng/g		09/17/21 13:16	09/21/21 13:52	1
Perfluoroundecanoic acid	ND		0.60	0.20	ng/g		09/17/21 13:16	09/21/21 13:52	1
6:2 Fluorotelomer sulfonic acid	ND		2.0	0.60	ng/g		09/17/21 13:16	09/21/21 13:52	1
8:2 Fluorotelomer sulfonic acid	ND		3.0	0.60	ng/g		09/17/21 13:16	09/21/21 13:52	1
4:2 Fluorotelomer sulfonic acid	ND		2.0	0.60	ng/g		09/17/21 13:16	09/21/21 13:52	1

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	18		10 - 152	09/17/21 13:16	09/21/21 13:52	1
13C2 PFTeDA	63		10 - 138	09/17/21 13:16	09/21/21 13:52	1
13C4 PFBA	75		12 - 137	09/17/21 13:16	09/21/21 13:52	1
13C4 PFHpA	76		15 - 139	09/17/21 13:16	09/21/21 13:52	1
13C5 PFPeA	77		12 - 135	09/17/21 13:16	09/21/21 13:52	1
M2-6:2 FTS	91		10 - 182	09/17/21 13:16	09/21/21 13:52	1
M2-8:2 FTS	90		10 - 178	09/17/21 13:16	09/21/21 13:52	1
13C3 PFBS	80		23 - 130	09/17/21 13:16	09/21/21 13:52	1
d3-NMeFOSAA	81		10 - 172	09/17/21 13:16	09/21/21 13:52	1
d9-N-EtFOSE-M	80		10 - 157	09/17/21 13:16	09/21/21 13:52	1
M2-4:2 FTS	92		10 - 169	09/17/21 13:16	09/21/21 13:52	1
13C8 PFOA	78		21 - 133	09/17/21 13:16	09/21/21 13:52	1
d5-NEtFOSAA	85		10 - 176	09/17/21 13:16	09/21/21 13:52	1
13C8 PFOS	77		31 - 130	09/17/21 13:16	09/21/21 13:52	1
13C5 PFHxA	78		11 - 138	09/17/21 13:16	09/21/21 13:52	1
13C6 PFDA	74		21 - 134	09/17/21 13:16	09/21/21 13:52	1

Method: 537 IDA - EPA 537 Isotope Dilution (Continued)

Lab Sample ID: MB 410-172695/1-B
Matrix: Solid
Analysis Batch: 173607

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 172695

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
d3-NMePFOSA	69		10 - 148	09/17/21 13:16	09/21/21 13:52	1
13C7 PFUnA	73		15 - 138	09/17/21 13:16	09/21/21 13:52	1
d5-NEtPFOSA	70		10 - 151	09/17/21 13:16	09/21/21 13:52	1
13C3 PFHxS	73		24 - 136	09/17/21 13:16	09/21/21 13:52	1
13C8 FOSA	75		25 - 135	09/17/21 13:16	09/21/21 13:52	1
13C2-PFDoDA	70		28 - 126	09/17/21 13:16	09/21/21 13:52	1
13C9 PFNA	78		15 - 145	09/17/21 13:16	09/21/21 13:52	1

Lab Sample ID: LCS 410-172695/2-B
Matrix: Solid
Analysis Batch: 173101

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 172695

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorobutanesulfonic acid	5.66	6.27		ng/g		111	62 - 137
Perfluorobutanesulfonic acid	5.66	6.27		ng/g		111	62 - 137
Perfluorobutanoic acid	6.40	6.97		ng/g		109	50 - 185
Perfluorobutanoic acid	6.40	6.97		ng/g		109	50 - 185
Perfluorodecanesulfonic acid	6.17	7.44		ng/g		121	60 - 142
Perfluorodecanesulfonic acid	6.17	7.44		ng/g		121	60 - 142
Perfluorodecanoic acid	6.40	7.48		ng/g		117	62 - 142
Perfluorodecanoic acid	6.40	7.48		ng/g		117	62 - 142
Perfluorododecanoic acid	6.40	7.72		ng/g		121	60 - 147
Perfluorododecanoic acid	6.40	7.72		ng/g		121	60 - 147
Perfluoroheptanesulfonic acid	6.09	8.09		ng/g		133	67 - 138
Perfluoroheptanesulfonic acid	6.09	8.09		ng/g		133	67 - 138
Perfluoroheptanoic acid	6.40	7.81		ng/g		122	61 - 151
Perfluoroheptanoic acid	6.40	7.81		ng/g		122	61 - 151
Perfluorohexanesulfonic acid	5.84	6.26		ng/g		107	57 - 135
Perfluorohexanesulfonic acid	5.84	6.26		ng/g		107	57 - 135
Perfluorohexanoic acid	6.40	7.50		ng/g		117	61 - 147
Perfluorohexanoic acid	6.40	7.50		ng/g		117	61 - 147
Perfluorononanesulfonic acid	6.14	6.98		ng/g		114	63 - 143
Perfluorononanesulfonic acid	6.14	6.98		ng/g		114	63 - 143
Perfluorononanoic acid	6.40	7.81		ng/g		122	62 - 148
Perfluorononanoic acid	6.40	7.81		ng/g		122	62 - 148
Perfluorooctanesulfonamide	6.40	7.15		ng/g		112	52 - 132
Perfluorooctanesulfonamide	6.40	7.15		ng/g		112	52 - 132
Perfluorooctanesulfonic acid	5.92	6.64		ng/g		112	48 - 134
Perfluorooctanesulfonic acid	5.92	6.64		ng/g		112	48 - 134
Perfluorooctanoic acid	6.40	7.27		ng/g		114	62 - 144
Perfluorooctanoic acid	6.40	7.27		ng/g		114	62 - 144
Perfluoropentanesulfonic acid	6.00	7.16		ng/g		119	65 - 145
Perfluoropentanesulfonic acid	6.00	7.16		ng/g		119	65 - 145
Perfluoropentanoic acid	6.40	8.28		ng/g		129	69 - 144
Perfluoropentanoic acid	6.40	8.28		ng/g		129	69 - 144
Perfluorotetradecanoic acid	6.40	7.75		ng/g		121	60 - 147
Perfluorotetradecanoic acid	6.40	7.75		ng/g		121	60 - 147
NEtFOSAA	6.40	7.18		ng/g		112	50 - 140
NEtFOSAA	6.40	7.18		ng/g		112	50 - 140

Method: 537 IDA - EPA 537 Isotope Dilution (Continued)

Lab Sample ID: LCS 410-172695/2-B
Matrix: Solid
Analysis Batch: 173101

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 172695

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorotridecanoic acid	6.40	7.04		ng/g		110	57 - 152
Perfluorotridecanoic acid	6.40	7.04		ng/g		110	57 - 152
NMeFOSAA	6.40	6.72		ng/g		105	53 - 149
NMeFOSAA	6.40	6.72		ng/g		105	53 - 149
Perfluoroundecanoic acid	6.40	7.98		ng/g		125	62 - 144
Perfluoroundecanoic acid	6.40	7.98		ng/g		125	62 - 144
6:2 Fluorotelomer sulfonic acid	6.07	7.95		ng/g		131	53 - 137
6:2 Fluorotelomer sulfonic acid	6.07	7.95		ng/g		131	53 - 137
8:2 Fluorotelomer sulfonic acid	6.13	7.93		ng/g		129	50 - 147
8:2 Fluorotelomer sulfonic acid	6.13	7.93		ng/g		129	50 - 147
4:2 Fluorotelomer sulfonic acid	5.98	6.55		ng/g		110	55 - 132
4:2 Fluorotelomer sulfonic acid	5.98	6.55		ng/g		110	55 - 132

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C3 HFPO-DA	*49*		*10 - 152*
13C3 HFPO-DA	*49*		*10 - 152*
13C2 PFTeDA	*55*		*10 - 138*
13C2 PFTeDA	*55*		*10 - 138*
13C4 PFBA	*70*		*12 - 137*
13C4 PFBA	*70*		*12 - 137*
13C4 PFHpA	*70*		*15 - 139*
13C4 PFHpA	*70*		*15 - 139*
13C5 PFPeA	*75*		*12 - 135*
13C5 PFPeA	*75*		*12 - 135*
M2-6:2 FTS	*76*		*10 - 182*
M2-6:2 FTS	*76*		*10 - 182*
M2-8:2 FTS	*84*		*10 - 178*
M2-8:2 FTS	*84*		*10 - 178*
13C3 PFBS	*77*		*23 - 130*
13C3 PFBS	*77*		*23 - 130*
d3-NMeFOSAA	*78*		*10 - 172*
d3-NMeFOSAA	*78*		*10 - 172*
d9-N-EtFOSE-M	*55*		*10 - 157*
d9-N-EtFOSE-M	*55*		*10 - 157*
M2-4:2 FTS	*90*		*10 - 169*
M2-4:2 FTS	*90*		*10 - 169*
13C8 PFOA	*72*		*21 - 133*
13C8 PFOA	*72*		*21 - 133*
d5-NEtFOSAA	*74*		*10 - 176*
d5-NEtFOSAA	*74*		*10 - 176*
13C8 PFOS	*72*		*31 - 130*
13C8 PFOS	*72*		*31 - 130*
13C5 PFHxA	*70*		*11 - 138*
13C5 PFHxA	*70*		*11 - 138*
13C6 PFDA	*71*		*21 - 134*
13C6 PFDA	*71*		*21 - 134*
d3-NMePFOSA	*28*		*10 - 148*
d3-NMePFOSA	*28*		*10 - 148*
13C7 PFUnA	*70*		*15 - 138*

Method: 537 IDA - EPA 537 Isotope Dilution (Continued)

Lab Sample ID: LCS 410-172695/2-B
Matrix: Solid
Analysis Batch: 173101

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 172695

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C7 PFUnA	*70*		*15 - 138*
d5-NEtPFOSA	*26*		*10 - 151*
d5-NEtPFOSA	*26*		*10 - 151*
13C3 PFHxS	*71*		*24 - 136*
13C3 PFHxS	*71*		*24 - 136*
13C8 FOSA	*67*		*25 - 135*
13C8 FOSA	*67*		*25 - 135*
13C2-PFDoDA	*68*		*28 - 126*
13C2-PFDoDA	*68*		*28 - 126*
13C9 PFNA	*75*		*15 - 145*
13C9 PFNA	*75*		*15 - 145*

Lab Sample ID: LCSD 410-172695/3-B
Matrix: Solid
Analysis Batch: 173101

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 172695

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorobutanesulfonic acid			5.66	6.14		ng/g					
Perfluorobutanoic acid			6.40	6.99		ng/g					
Perfluorodecanesulfonic acid			6.17	7.08		ng/g					
Perfluorodecanoic acid			6.40	7.30		ng/g					
Perfluorododecanoic acid			6.40	7.72		ng/g					
Perfluoroheptanesulfonic acid			6.09	8.52		ng/g					
Perfluoroheptanoic acid			6.40	7.60		ng/g					
Perfluorohexanesulfonic acid			5.84	6.46		ng/g					
Perfluorohexanoic acid			6.40	7.44		ng/g					
Perfluorononanesulfonic acid			6.14	6.98		ng/g					
Perfluorononanoic acid			6.40	7.22		ng/g					
Perfluorooctanesulfonamide			6.40	7.27		ng/g					
Perfluorooctanesulfonic acid			5.92	6.72		ng/g					
Perfluorooctanoic acid			6.40	7.29		ng/g					
Perfluoropentanesulfonic acid			6.00	7.03		ng/g					
Perfluoropentanoic acid			6.40	7.92		ng/g					
Perfluorotetradecanoic acid			6.40	7.36		ng/g					
NEtFOSAA			6.40	6.91		ng/g					
Perfluorotridecanoic acid			6.40	7.15		ng/g					
NMeFOSAA			6.40	7.22		ng/g					
Perfluoroundecanoic acid			6.40	7.84		ng/g					
6:2 Fluorotelomer sulfonic acid			6.07	7.28		ng/g					
8:2 Fluorotelomer sulfonic acid			6.13	7.43		ng/g					
4:2 Fluorotelomer sulfonic acid			5.98	6.73		ng/g					

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C3 HFPO-DA			
13C2 PFTeDA			
13C4 PFBA			
13C4 PFHpA			
13C5 PFPeA			
M2-6:2 FTS			

Method: 537 IDA - EPA 537 Isotope Dilution (Continued)

Lab Sample ID: LCSD 410-172695/3-B
Matrix: Solid
Analysis Batch: 173101

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 172695

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
M2-8:2 FTS			
13C3 PFBS			
d3-NMeFOSAA			
d9-N-EtFOSE-M			
M2-4:2 FTS			
13C8 PFOA			
d5-NEtFOSAA			
13C8 PFOS			
13C5 PFHxA			
13C6 PFDA			
d3-NMePFOSA			
13C7 PFUnA			
d5-NEtPFOSA			
13C3 PFHxS			
13C8 FOSA			
13C2-PFDoDA			
13C9 PFNA			

Lab Sample ID: LCSD 410-172695/3-B
Matrix: Solid
Analysis Batch: 173607

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 172695

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorobutanesulfonic acid	5.66	6.25		ng/g		110	62 - 137	0	30
Perfluorobutanoic acid	6.40	7.03		ng/g		110	50 - 185	1	30
Perfluorodecanesulfonic acid	6.17	7.51		ng/g		122	60 - 142	1	30
Perfluorodecanoic acid	6.40	7.25		ng/g		113	62 - 142	3	30
Perfluorododecanoic acid	6.40	7.59		ng/g		119	60 - 147	2	30
Perfluoroheptanesulfonic acid	6.09	8.52	*+	ng/g		140	67 - 138	5	30
Perfluoroheptanoic acid	6.40	7.40		ng/g		116	61 - 151	5	30
Perfluorohexanesulfonic acid	5.84	6.54		ng/g		112	57 - 135	4	30
Perfluorohexanoic acid	6.40	7.34		ng/g		115	61 - 147	2	30
Perfluorononanesulfonic acid	6.14	6.88		ng/g		112	63 - 143	1	30
Perfluorononanoic acid	6.40	7.37		ng/g		115	62 - 148	6	30
Perfluorooctanesulfonamide	6.40	7.30		ng/g		114	52 - 132	2	30
Perfluorooctanesulfonic acid	5.92	6.82		ng/g		115	48 - 134	3	30
Perfluorooctanoic acid	6.40	7.10		ng/g		111	62 - 144	2	30
Perfluoropentanesulfonic acid	6.00	7.23		ng/g		120	65 - 145	1	30
Perfluoropentanoic acid	6.40	8.44		ng/g		132	69 - 144	2	30
Perfluorotetradecanoic acid	6.40	7.56		ng/g		118	60 - 147	2	30
NEtFOSAA	6.40	6.56		ng/g		102	50 - 140	9	30
Perfluorotridecanoic acid	6.40	6.79		ng/g		106	57 - 152	4	30
NMeFOSAA	6.40	6.41		ng/g		100	53 - 149	5	30
Perfluoroundecanoic acid	6.40	7.69		ng/g		120	62 - 144	4	30
6:2 Fluorotelomer sulfonic acid	6.07	7.70		ng/g		127	53 - 137	3	30
8:2 Fluorotelomer sulfonic acid	6.13	8.12		ng/g		132	50 - 147	2	30
4:2 Fluorotelomer sulfonic acid	5.98	6.48		ng/g		108	55 - 132	1	30

Method: 537 IDA - EPA 537 Isotope Dilution (Continued)

Isotope Dilution	LCSD %Recovery	LCSD Qualifier	Limits
13C3 HFPO-DA	32		10 - 152
13C2 PFTeDA	57		10 - 138
13C4 PFBA	70		12 - 137
13C4 PFHpA	74		15 - 139
13C5 PFPeA	73		12 - 135
M2-6:2 FTS	80		10 - 182
M2-8:2 FTS	78		10 - 178
13C3 PFBS	74		23 - 130
d3-NMeFOSAA	75		10 - 172
d9-N-EtFOSE-M	63		10 - 157
M2-4:2 FTS	90		10 - 169
13C8 PFOA	75		21 - 133
d5-NEtFOSAA	80		10 - 176
13C8 PFOS	74		31 - 130
13C5 PFHxA	71		11 - 138
13C6 PFDA	71		21 - 134
d3-NMePFOSA	35		10 - 148
13C7 PFUnA	71		15 - 138
d5-NEtPFOSA	34		10 - 151
13C3 PFHxS	68		24 - 136
13C8 FOSA	65		25 - 135
13C2-PFDoDA	65		28 - 126
13C9 PFNA	77		15 - 145

Lab Sample ID: MB 410-171950/1-A
Matrix: Water
Analysis Batch: 172861

Client Sample ID: Method Blank
Prep Type: Pre-Treatment
Prep Batch: 171950

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid	ND		2.0	0.50	ng/L		09/16/21 09:14	09/18/21 20:06	1
Perfluorobutanoic acid	ND		5.0	2.0	ng/L		09/16/21 09:14	09/18/21 20:06	1
Perfluorodecanesulfonic acid	ND		2.0	0.50	ng/L		09/16/21 09:14	09/18/21 20:06	1
Perfluorodecanoic acid	ND		2.0	0.50	ng/L		09/16/21 09:14	09/18/21 20:06	1
Perfluorododecanoic acid	ND		2.0	0.50	ng/L		09/16/21 09:14	09/18/21 20:06	1
Perfluoroheptanesulfonic acid	ND		2.0	0.50	ng/L		09/16/21 09:14	09/18/21 20:06	1
Perfluoroheptanoic acid	ND		2.0	0.50	ng/L		09/16/21 09:14	09/18/21 20:06	1
Perfluorohexanesulfonic acid	ND		2.0	0.50	ng/L		09/16/21 09:14	09/18/21 20:06	1
Perfluorohexanoic acid	ND		2.0	0.50	ng/L		09/16/21 09:14	09/18/21 20:06	1
Perfluorononanesulfonic acid	ND		2.0	0.50	ng/L		09/16/21 09:14	09/18/21 20:06	1
Perfluorononanoic acid	ND		2.0	0.50	ng/L		09/16/21 09:14	09/18/21 20:06	1
Perfluorooctanesulfonamide	ND		2.0	0.50	ng/L		09/16/21 09:14	09/18/21 20:06	1
Perfluorooctanesulfonic acid	ND		2.0	0.50	ng/L		09/16/21 09:14	09/18/21 20:06	1
Perfluorooctanoic acid	ND		2.0	0.50	ng/L		09/16/21 09:14	09/18/21 20:06	1
Perfluoropentanesulfonic acid	ND		2.0	0.50	ng/L		09/16/21 09:14	09/18/21 20:06	1
Perfluoropentanoic acid	ND		2.0	0.50	ng/L		09/16/21 09:14	09/18/21 20:06	1
Perfluorotetradecanoic acid	ND		2.0	0.50	ng/L		09/16/21 09:14	09/18/21 20:06	1
NEtFOSAA	ND		3.0	0.50	ng/L		09/16/21 09:14	09/18/21 20:06	1
Perfluorotridecanoic acid	ND		2.0	0.50	ng/L		09/16/21 09:14	09/18/21 20:06	1
NMeFOSAA	ND		2.0	0.60	ng/L		09/16/21 09:14	09/18/21 20:06	1
Perfluoroundecanoic acid	ND		2.0	0.50	ng/L		09/16/21 09:14	09/18/21 20:06	1
6:2 Fluorotelomer sulfonic acid	ND		5.0	2.0	ng/L		09/16/21 09:14	09/18/21 20:06	1
8:2 Fluorotelomer sulfonic acid	ND		3.0	1.0	ng/L		09/16/21 09:14	09/18/21 20:06	1

Method: 537 IDA - EPA 537 Isotope Dilution (Continued)

Lab Sample ID: MB 410-171950/1-A
Matrix: Water
Analysis Batch: 172861

Client Sample ID: Method Blank
Prep Type: Pre-Treatment
Prep Batch: 171950

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4:2 Fluorotelomer sulfonic acid	ND		2.0	0.50	ng/L		09/16/21 09:14	09/18/21 20:06	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFTeDA	*104*		*10 - 144*	*09/16/21 09:14*	*09/18/21 20:06*	*1*
13C4 PFBA	*115*		*41 - 132*	*09/16/21 09:14*	*09/18/21 20:06*	*1*
13C4 PFHpA	*118*		*30 - 144*	*09/16/21 09:14*	*09/18/21 20:06*	*1*
13C5 PFPeA	*111*		*33 - 155*	*09/16/21 09:14*	*09/18/21 20:06*	*1*
M2-6:2 FTS	*129*		*29 - 189*	*09/16/21 09:14*	*09/18/21 20:06*	*1*
M2-8:2 FTS	*136*		*34 - 182*	*09/16/21 09:14*	*09/18/21 20:06*	*1*
13C3 PFBS	*122*		*19 - 178*	*09/16/21 09:14*	*09/18/21 20:06*	*1*
d3-NMeFOSAA	*118*		*32 - 151*	*09/16/21 09:14*	*09/18/21 20:06*	*1*
M2-4:2 FTS	*131*		*20 - 187*	*09/16/21 09:14*	*09/18/21 20:06*	*1*
13C8 PFOA	*113*		*49 - 127*	*09/16/21 09:14*	*09/18/21 20:06*	*1*
d5-NEtFOSAA	*117*		*37 - 164*	*09/16/21 09:14*	*09/18/21 20:06*	*1*
13C8 PFOS	*117*		*49 - 126*	*09/16/21 09:14*	*09/18/21 20:06*	*1*
13C5 PFHxA	*109*		*31 - 142*	*09/16/21 09:14*	*09/18/21 20:06*	*1*
13C6 PFDA	*114*		*47 - 128*	*09/16/21 09:14*	*09/18/21 20:06*	*1*
13C7 PFUnA	*104*		*40 - 135*	*09/16/21 09:14*	*09/18/21 20:06*	*1*
13C3 PFHxS	*125*		*32 - 145*	*09/16/21 09:14*	*09/18/21 20:06*	*1*
13C8 FOSA	*103*		*10 - 143*	*09/16/21 09:14*	*09/18/21 20:06*	*1*
13C2-PFDoDA	*104*		*28 - 136*	*09/16/21 09:14*	*09/18/21 20:06*	*1*
13C9 PFNA	*108*		*47 - 136*	*09/16/21 09:14*	*09/18/21 20:06*	*1*

Lab Sample ID: LCS 410-171950/2-A
Matrix: Water
Analysis Batch: 172861

Client Sample ID: Lab Control Sample
Prep Type: Pre-Treatment
Prep Batch: 171950

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorobutanesulfonic acid	22.7	15.8		ng/L		70	65 - 132
Perfluorobutanoic acid	25.6	18.3		ng/L		72	62 - 156
Perfluorodecanesulfonic acid	24.7	18.7		ng/L		76	61 - 134
Perfluorodecanoic acid	25.6	19.3		ng/L		75	63 - 137
Perfluorododecanoic acid	25.6	21.2		ng/L		83	63 - 140
Perfluoroheptanesulfonic acid	24.4	20.1		ng/L		82	67 - 135
Perfluoroheptanoic acid	25.6	19.7		ng/L		77	66 - 141
Perfluorohexanesulfonic acid	23.3	18.0		ng/L		77	60 - 128
Perfluorohexanoic acid	25.6	20.8		ng/L		81	66 - 137
Perfluorononanesulfonic acid	24.6	17.7		ng/L		72	67 - 137
Perfluorononanoic acid	25.6	20.8		ng/L		81	65 - 140
Perfluorooctanesulfonamide	25.6	19.0		ng/L		74	55 - 130
Perfluorooctanesulfonic acid	23.7	17.2		ng/L		73	51 - 126
Perfluorooctanoic acid	25.6	20.1		ng/L		79	65 - 136
Perfluoropentanesulfonic acid	24.0	19.2		ng/L		80	71 - 136
Perfluoropentanoic acid	25.6	20.8		ng/L		81	72 - 139
Perfluorotetradecanoic acid	25.6	20.7		ng/L		81	64 - 141
NEtFOSAA	25.6	17.0		ng/L		66	54 - 134
Perfluorotridecanoic acid	25.6	21.5		ng/L		84	58 - 146
NMeFOSAA	25.6	19.1		ng/L		75	58 - 143
Perfluoroundecanoic acid	25.6	20.9		ng/L		82	62 - 138

Method: 537 IDA - EPA 537 Isotope Dilution (Continued)

Lab Sample ID: LCS 410-171950/2-A
Matrix: Water
Analysis Batch: 172861

Client Sample ID: Lab Control Sample
Prep Type: Pre-Treatment
Prep Batch: 171950

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
6:2 Fluorotelomer sulfonic acid	24.3	17.2		ng/L		71	57 - 137
8:2 Fluorotelomer sulfonic acid	24.5	21.2		ng/L		86	56 - 140
4:2 Fluorotelomer sulfonic acid	23.9	17.9		ng/L		75	59 - 130

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C2 PFTeDA	*110*		*10 - 144*
13C4 PFBA	*111*		*41 - 132*
13C4 PFHpA	*113*		*30 - 144*
13C5 PFPeA	*109*		*33 - 155*
M2-6:2 FTS	*127*		*29 - 189*
M2-8:2 FTS	*124*		*34 - 182*
13C3 PFBS	*126*		*19 - 178*
d3-NMeFOSAA	*121*		*32 - 151*
M2-4:2 FTS	*122*		*20 - 187*
13C8 PFOA	*110*		*49 - 127*
d5-NEtFOSAA	*125*		*37 - 164*
13C8 PFOS	*118*		*49 - 126*
13C5 PFHxA	*103*		*31 - 142*
13C6 PFDA	*118*		*47 - 128*
13C7 PFUnA	*113*		*40 - 135*
13C3 PFHxS	*115*		*32 - 145*
13C8 FOSA	*107*		*10 - 143*
13C2-PFDoDA	*110*		*28 - 136*
13C9 PFNA	*110*		*47 - 136*

Lab Sample ID: MB 410-173056/1-A
Matrix: Water
Analysis Batch: 174143

Client Sample ID: Method Blank
Prep Type: Pre-Treatment
Prep Batch: 173056

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid	ND		2.0	0.50	ng/L		09/20/21 07:54	09/22/21 16:34	1
Perfluorobutanoic acid	ND		5.0	2.0	ng/L		09/20/21 07:54	09/22/21 16:34	1
Perfluorodecanesulfonic acid	ND		2.0	0.50	ng/L		09/20/21 07:54	09/22/21 16:34	1
Perfluorodecanoic acid	ND		2.0	0.50	ng/L		09/20/21 07:54	09/22/21 16:34	1
Perfluorododecanoic acid	ND		2.0	0.50	ng/L		09/20/21 07:54	09/22/21 16:34	1
Perfluoroheptanesulfonic acid	ND		2.0	0.50	ng/L		09/20/21 07:54	09/22/21 16:34	1
Perfluoroheptanoic acid	ND		2.0	0.50	ng/L		09/20/21 07:54	09/22/21 16:34	1
Perfluorohexanesulfonic acid	ND		2.0	0.50	ng/L		09/20/21 07:54	09/22/21 16:34	1
Perfluorohexanoic acid	ND		2.0	0.50	ng/L		09/20/21 07:54	09/22/21 16:34	1
Perfluorononanesulfonic acid	ND		2.0	0.50	ng/L		09/20/21 07:54	09/22/21 16:34	1
Perfluorononanoic acid	ND		2.0	0.50	ng/L		09/20/21 07:54	09/22/21 16:34	1
Perfluorooctanesulfonamide	ND		2.0	0.50	ng/L		09/20/21 07:54	09/22/21 16:34	1
Perfluorooctanesulfonic acid	ND		2.0	0.50	ng/L		09/20/21 07:54	09/22/21 16:34	1
Perfluorooctanoic acid	ND		2.0	0.50	ng/L		09/20/21 07:54	09/22/21 16:34	1
Perfluoropentanesulfonic acid	ND		2.0	0.50	ng/L		09/20/21 07:54	09/22/21 16:34	1
Perfluoropentanoic acid	ND		2.0	0.50	ng/L		09/20/21 07:54	09/22/21 16:34	1
Perfluorotetradecanoic acid	ND		2.0	0.50	ng/L		09/20/21 07:54	09/22/21 16:34	1
NEtFOSAA	ND		3.0	0.50	ng/L		09/20/21 07:54	09/22/21 16:34	1
Perfluorotridecanoic acid	ND		2.0	0.50	ng/L		09/20/21 07:54	09/22/21 16:34	1

Method: 537 IDA - EPA 537 Isotope Dilution (Continued)

Lab Sample ID: MB 410-173056/1-A
Matrix: Water
Analysis Batch: 174143

Client Sample ID: Method Blank
Prep Type: Pre-Treatment
Prep Batch: 173056

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NMeFOSAA	ND		2.0	0.60	ng/L		09/20/21 07:54	09/22/21 16:34	1
Perfluoroundecanoic acid	ND		2.0	0.50	ng/L		09/20/21 07:54	09/22/21 16:34	1
6:2 Fluorotelomer sulfonic acid	ND		5.0	2.0	ng/L		09/20/21 07:54	09/22/21 16:34	1
8:2 Fluorotelomer sulfonic acid	ND		3.0	1.0	ng/L		09/20/21 07:54	09/22/21 16:34	1
4:2 Fluorotelomer sulfonic acid	ND		2.0	0.50	ng/L		09/20/21 07:54	09/22/21 16:34	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFTeDA	*88*		*10 - 144*	*09/20/21 07:54*	*09/22/21 16:34*	*1*
13C4 PFBA	*90*		*41 - 132*	*09/20/21 07:54*	*09/22/21 16:34*	*1*
13C4 PFHpA	*90*		*30 - 144*	*09/20/21 07:54*	*09/22/21 16:34*	*1*
13C5 PFPeA	*92*		*33 - 155*	*09/20/21 07:54*	*09/22/21 16:34*	*1*
M2-6:2 FTS	*95*		*29 - 189*	*09/20/21 07:54*	*09/22/21 16:34*	*1*
M2-8:2 FTS	*97*		*34 - 182*	*09/20/21 07:54*	*09/22/21 16:34*	*1*
13C3 PFBS	*96*		*19 - 178*	*09/20/21 07:54*	*09/22/21 16:34*	*1*
d3-NMeFOSAA	*85*		*32 - 151*	*09/20/21 07:54*	*09/22/21 16:34*	*1*
M2-4:2 FTS	*101*		*20 - 187*	*09/20/21 07:54*	*09/22/21 16:34*	*1*
13C8 PFOA	*95*		*49 - 127*	*09/20/21 07:54*	*09/22/21 16:34*	*1*
d5-NEtFOSAA	*86*		*37 - 164*	*09/20/21 07:54*	*09/22/21 16:34*	*1*
13C8 PFOS	*93*		*49 - 126*	*09/20/21 07:54*	*09/22/21 16:34*	*1*
13C5 PFHxA	*94*		*31 - 142*	*09/20/21 07:54*	*09/22/21 16:34*	*1*
13C6 PFDA	*95*		*47 - 128*	*09/20/21 07:54*	*09/22/21 16:34*	*1*
13C7 PFUnA	*86*		*40 - 135*	*09/20/21 07:54*	*09/22/21 16:34*	*1*
13C3 PFHxS	*93*		*32 - 145*	*09/20/21 07:54*	*09/22/21 16:34*	*1*
13C8 FOSA	*83*		*10 - 143*	*09/20/21 07:54*	*09/22/21 16:34*	*1*
13C2-PFDoDA	*88*		*28 - 136*	*09/20/21 07:54*	*09/22/21 16:34*	*1*
13C9 PFNA	*90*		*47 - 136*	*09/20/21 07:54*	*09/22/21 16:34*	*1*

Lab Sample ID: LCS 410-173056/3-A
Matrix: Water
Analysis Batch: 174143

Client Sample ID: Lab Control Sample
Prep Type: Pre-Treatment
Prep Batch: 173056

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorobutanesulfonic acid	22.7	23.1		ng/L		102	65 - 132
Perfluorobutanoic acid	25.6	26.5		ng/L		103	62 - 156
Perfluorodecanesulfonic acid	24.7	26.8		ng/L		109	61 - 134
Perfluorodecanoic acid	25.6	24.0		ng/L		94	63 - 137
Perfluorododecanoic acid	25.6	28.2		ng/L		110	63 - 140
Perfluoroheptanesulfonic acid	24.4	27.3		ng/L		112	67 - 135
Perfluoroheptanoic acid	25.6	29.6		ng/L		116	66 - 141
Perfluorohexanesulfonic acid	23.3	24.1		ng/L		103	60 - 128
Perfluorohexanoic acid	25.6	28.9		ng/L		113	66 - 137
Perfluorononanesulfonic acid	24.6	24.4		ng/L		99	67 - 137
Perfluorononanoic acid	25.6	29.9		ng/L		117	65 - 140
Perfluorooctanesulfonamide	25.6	28.1		ng/L		110	55 - 130
Perfluorooctanesulfonic acid	23.7	24.0		ng/L		101	51 - 126
Perfluorooctanoic acid	25.6	27.4		ng/L		107	65 - 136
Perfluoropentanesulfonic acid	24.0	27.8		ng/L		116	71 - 136
Perfluoropentanoic acid	25.6	33.8		ng/L		132	72 - 139
Perfluorotetradecanoic acid	25.6	29.7		ng/L		116	64 - 141

Method: 537 IDA - EPA 537 Isotope Dilution (Continued)

Lab Sample ID: LCS 410-173056/3-A
Matrix: Water
Analysis Batch: 174143

Client Sample ID: Lab Control Sample
Prep Type: Pre-Treatment
Prep Batch: 173056

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
NEtFOSAA	25.6	26.6		ng/L		104	54 - 134
Perfluorotridecanoic acid	25.6	30.5		ng/L		119	58 - 146
NMeFOSAA	25.6	25.8		ng/L		101	58 - 143
Perfluoroundecanoic acid	25.6	32.6		ng/L		127	62 - 138
6:2 Fluorotelomer sulfonic acid	24.3	26.3		ng/L		108	57 - 137
8:2 Fluorotelomer sulfonic acid	24.5	25.7		ng/L		105	56 - 140
4:2 Fluorotelomer sulfonic acid	23.9	25.0		ng/L		105	59 - 130

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C2 PFTeDA	*91*		*10 - 144*
13C4 PFBA	*93*		*41 - 132*
13C4 PFHpA	*96*		*30 - 144*
13C5 PFPeA	*94*		*33 - 155*
M2-6:2 FTS	*91*		*29 - 189*
M2-8:2 FTS	*95*		*34 - 182*
13C3 PFBS	*101*		*19 - 178*
d3-NMeFOSAA	*86*		*32 - 151*
M2-4:2 FTS	*104*		*20 - 187*
13C8 PFOA	*97*		*49 - 127*
d5-NEtFOSAA	*94*		*37 - 164*
13C8 PFOS	*100*		*49 - 126*
13C5 PFHxA	*94*		*31 - 142*
13C6 PFDA	*96*		*47 - 128*
13C7 PFUnA	*91*		*40 - 135*
13C3 PFHxS	*98*		*32 - 145*
13C8 FOSA	*88*		*10 - 143*
13C2-PFDoDA	*88*		*28 - 136*
13C9 PFNA	*91*		*47 - 136*

Lab Sample ID: LCSD 410-173056/4-A
Matrix: Water
Analysis Batch: 174143

Client Sample ID: Lab Control Sample Dup
Prep Type: Pre-Treatment
Prep Batch: 173056

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorobutanesulfonic acid	22.7	24.5		ng/L		108	65 - 132	6	30
Perfluorobutanoic acid	25.6	27.6		ng/L		108	62 - 156	4	30
Perfluorodecanesulfonic acid	24.7	28.4		ng/L		115	61 - 134	6	30
Perfluorodecanoic acid	25.6	27.2		ng/L		106	63 - 137	13	30
Perfluorododecanoic acid	25.6	27.6		ng/L		108	63 - 140	2	30
Perfluoroheptanesulfonic acid	24.4	30.5		ng/L		125	67 - 135	11	30
Perfluoroheptanoic acid	25.6	31.6		ng/L		123	66 - 141	6	30
Perfluorohexanesulfonic acid	23.3	26.2		ng/L		112	60 - 128	8	30
Perfluorohexanoic acid	25.6	29.4		ng/L		115	66 - 137	2	30
Perfluorononanesulfonic acid	24.6	25.3		ng/L		103	67 - 137	4	30
Perfluorononanoic acid	25.6	29.3		ng/L		114	65 - 140	2	30
Perfluorooctanesulfonamide	25.6	30.2		ng/L		118	55 - 130	7	30
Perfluorooctanesulfonic acid	23.7	24.4		ng/L		103	51 - 126	2	30
Perfluorooctanoic acid	25.6	28.7		ng/L		112	65 - 136	5	30
Perfluoropentanesulfonic acid	24.0	28.9		ng/L		120	71 - 136	4	30

Method: 537 IDA - EPA 537 Isotope Dilution (Continued)

Lab Sample ID: LCSD 410-173056/4-A
Matrix: Water
Analysis Batch: 174143

Client Sample ID: Lab Control Sample Dup
Prep Type: Pre-Treatment
Prep Batch: 173056

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluoropentanoic acid			25.6	31.9		ng/L		125	72 - 139	6	30
Perfluorotetradecanoic acid			25.6	30.0		ng/L		117	64 - 141	1	30
NEtFOSAA			25.6	27.8		ng/L		109	54 - 134	4	30
Perfluorotridecanoic acid			25.6	28.9		ng/L		113	58 - 146	5	30
NMeFOSAA			25.6	25.3		ng/L		99	58 - 143	2	30
Perfluoroundecanoic acid			25.6	31.8		ng/L		124	62 - 138	3	30
6:2 Fluorotelomer sulfonic acid			24.3	26.3		ng/L		108	57 - 137	0	30
8:2 Fluorotelomer sulfonic acid			24.5	27.3		ng/L		111	56 - 140	6	30
4:2 Fluorotelomer sulfonic acid			23.9	26.8		ng/L		112	59 - 130	7	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C2 PFTeDA	*97*		*10 - 144*
13C4 PFBA	*94*		*41 - 132*
13C4 PFHpA	*94*		*30 - 144*
13C5 PFPeA	*97*		*33 - 155*
M2-6:2 FTS	*94*		*29 - 189*
M2-8:2 FTS	*101*		*34 - 182*
13C3 PFBS	*102*		*19 - 178*
d3-NMeFOSAA	*90*		*32 - 151*
M2-4:2 FTS	*101*		*20 - 187*
13C8 PFOA	*99*		*49 - 127*
d5-NEtFOSAA	*96*		*37 - 164*
13C8 PFOS	*103*		*49 - 126*
13C5 PFHxA	*96*		*31 - 142*
13C6 PFDA	*100*		*47 - 128*
13C7 PFUnA	*96*		*40 - 135*
13C3 PFHxS	*95*		*32 - 145*
13C8 FOSA	*89*		*10 - 143*
13C2-PFDoDA	*98*		*28 - 136*
13C9 PFNA	*95*		*47 - 136*

Method: 537 TOP - Fluorinated Alkyl Substances

Lab Sample ID: MB 410-186594/1-B
Matrix: Solid
Analysis Batch: 188970

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 186594

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA				*10/25/21 08:48*	*10/30/21 13:34*	*1*
13C2 PFUnA				*10/25/21 08:48*	*10/30/21 13:34*	*1*
13C4 PFOA				*10/25/21 08:48*	*10/30/21 13:34*	*1*

Lab Sample ID: MB 410-186594/1-C
Matrix: Solid
Analysis Batch: 188970

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 186594

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
10:2 Fluorotelomer sulfonic acid	ND		2.0	0.60	ng/g		10/25/21 08:48	10/30/21 13:45	1
11Cl-PF3OUdS	ND		0.60	0.20	ng/g		10/25/21 08:48	10/30/21 13:45	1

Method: 537 TOP - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: MB 410-186594/1-C
Matrix: Solid
Analysis Batch: 188970

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 186594

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4:2 Fluorotelomer sulfonic acid	ND		2.0	0.60	ng/g		10/25/21 08:48	10/30/21 13:45	1
6:2 Fluorotelomer sulfonic acid	ND		2.0	0.60	ng/g		10/25/21 08:48	10/30/21 13:45	1
8:2 Fluorotelomer sulfonic acid	ND		3.0	0.60	ng/g		10/25/21 08:48	10/30/21 13:45	1
9Cl-PF3ONS	ND		2.0	0.20	ng/g		10/25/21 08:48	10/30/21 13:45	1
DONA	ND		0.60	0.20	ng/g		10/25/21 08:48	10/30/21 13:45	1
HFPODA	ND		3.0	0.40	ng/g		10/25/21 08:48	10/30/21 13:45	1
NEtFOSAA	ND		2.0	0.20	ng/g		10/25/21 08:48	10/30/21 13:45	1
NEtFOSA	ND		2.0	0.50	ng/g		10/25/21 08:48	10/30/21 13:45	1
NEtFOSE	ND		2.0	0.50	ng/g		10/25/21 08:48	10/30/21 13:45	1
NMeFOSAA	ND		2.0	0.20	ng/g		10/25/21 08:48	10/30/21 13:45	1
NMeFOSA	ND		2.0	0.50	ng/g		10/25/21 08:48	10/30/21 13:45	1
NMeFOSE	ND		2.0	0.50	ng/g		10/25/21 08:48	10/30/21 13:45	1
Perfluorobutanesulfonic acid	ND		2.0	0.40	ng/g		10/25/21 08:48	10/30/21 13:45	1
Perfluorobutanoic acid	ND		2.0	0.80	ng/g		10/25/21 08:48	10/30/21 13:45	1
Perfluorodecanesulfonic acid	ND		0.60	0.20	ng/g		10/25/21 08:48	10/30/21 13:45	1
Perfluorodecanoic acid	ND		0.60	0.20	ng/g		10/25/21 08:48	10/30/21 13:45	1
Perfluorododecanesulfonic acid (PFDoS)	ND		2.0	0.20	ng/g		10/25/21 08:48	10/30/21 13:45	1
Perfluorododecanoic acid	ND		0.60	0.20	ng/g		10/25/21 08:48	10/30/21 13:45	1
Perfluoroheptanesulfonic acid	ND		0.60	0.20	ng/g		10/25/21 08:48	10/30/21 13:45	1
Perfluoroheptanoic acid	ND		0.60	0.20	ng/g		10/25/21 08:48	10/30/21 13:45	1
Perfluorohexadecanoic acid	ND		0.60	0.20	ng/g		10/25/21 08:48	10/30/21 13:45	1
Perfluorohexanesulfonic acid	ND		0.60	0.20	ng/g		10/25/21 08:48	10/30/21 13:45	1
Perfluorohexanoic acid	ND		0.60	0.20	ng/g		10/25/21 08:48	10/30/21 13:45	1
Perfluorononanesulfonic acid	ND		0.60	0.20	ng/g		10/25/21 08:48	10/30/21 13:45	1
Perfluorononanoic acid	ND		0.60	0.20	ng/g		10/25/21 08:48	10/30/21 13:45	1
Perfluorooctadecanoic acid	ND		0.60	0.20	ng/g		10/25/21 08:48	10/30/21 13:45	1
Perfluorooctanesulfonamide	ND		0.60	0.20	ng/g		10/25/21 08:48	10/30/21 13:45	1
Perfluorooctanesulfonic acid	ND		0.60	0.20	ng/g		10/25/21 08:48	10/30/21 13:45	1
Perfluorooctanoic acid	ND		0.60	0.20	ng/g		10/25/21 08:48	10/30/21 13:45	1
Perfluoropentanesulfonic acid	ND		0.60	0.20	ng/g		10/25/21 08:48	10/30/21 13:45	1
Perfluoropentanoic acid	ND		0.60	0.20	ng/g		10/25/21 08:48	10/30/21 13:45	1
Perfluorotetradecanoic acid	ND		0.60	0.20	ng/g		10/25/21 08:48	10/30/21 13:45	1
Perfluorotridecanoic acid	ND		0.60	0.20	ng/g		10/25/21 08:48	10/30/21 13:45	1
Perfluoroundecanoic acid	ND		0.60	0.20	ng/g		10/25/21 08:48	10/30/21 13:45	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-6:2 FTS	*90*		*64 - 211*	*10/25/21 08:48*	*10/30/21 13:45*	*1*
M2-8:2 FTS	*89*	**5-*	*94 - 168*	*10/25/21 08:48*	*10/30/21 13:45*	*1*
13C2-PFDoDA	*79*		*55 - 101*	*10/25/21 08:48*	*10/30/21 13:45*	*1*
13C2 PFTeDA	*82*		*55 - 101*	*10/25/21 08:48*	*10/30/21 13:45*	*1*
13C3 HFPO-DA	*83*		*70 - 130*	*10/25/21 08:48*	*10/30/21 13:45*	*1*
13C3 PFBS	*82*		*51 - 114*	*10/25/21 08:48*	*10/30/21 13:45*	*1*
13C3 PFHxS	*54*		*39 - 131*	*10/25/21 08:48*	*10/30/21 13:45*	*1*
13C4 PFBA	*91*		*55 - 101*	*10/25/21 08:48*	*10/30/21 13:45*	*1*
13C4 PFHpA	*93*		*41 - 133*	*10/25/21 08:48*	*10/30/21 13:45*	*1*
13C5 PFHxA	*80*		*45 - 120*	*10/25/21 08:48*	*10/30/21 13:45*	*1*
13C5 PFPeA	*91*		*47 - 105*	*10/25/21 08:48*	*10/30/21 13:45*	*1*
13C6 PFDA	*81*		*52 - 107*	*10/25/21 08:48*	*10/30/21 13:45*	*1*

Method: 537 TOP - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: MB 410-186594/1-C
Matrix: Solid
Analysis Batch: 188970

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 186594

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C7 PFUnA	86		60 - 97	10/25/21 08:48	10/30/21 13:45	1
13C8 PFOA	84		54 - 100	10/25/21 08:48	10/30/21 13:45	1
13C8 PFOS	85		54 - 102	10/25/21 08:48	10/30/21 13:45	1
13C8 FOSA	79		58 - 110	10/25/21 08:48	10/30/21 13:45	1
13C9 PFNA	112		42 - 116	10/25/21 08:48	10/30/21 13:45	1
M2-4:2 FTS				10/25/21 08:48	10/30/21 13:45	1
d3-NMeFOSAA				10/25/21 08:48	10/30/21 13:45	1
d3-NMePFOSA	62		21 - 81	10/25/21 08:48	10/30/21 13:45	1
d5-NEtFOSAA	91		79 - 130	10/25/21 08:48	10/30/21 13:45	1
d5-NEtPFOSA	65		25 - 96	10/25/21 08:48	10/30/21 13:45	1
d7-N-MeFOSE-M	80		63 - 103	10/25/21 08:48	10/30/21 13:45	1
d9-N-EtFOSE-M	77		68 - 110	10/25/21 08:48	10/30/21 13:45	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA				10/25/21 08:48	10/30/21 13:45	1
13C2 PFUnA				10/25/21 08:48	10/30/21 13:45	1
13C4 PFOA				10/25/21 08:48	10/30/21 13:45	1

Lab Sample ID: LCS 410-186594/3-B
Matrix: Solid
Analysis Batch: 188970

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 186594

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
10:2 Fluorotelomer sulfonic acid	48.2	55.2	E	ng/g		115	70 - 130
11Cl-PF3OUdS	46.5	51.1		ng/g		110	70 - 130
4:2 Fluorotelomer sulfonic acid	46.7	39.8	E	ng/g		85	70 - 130
6:2 Fluorotelomer sulfonic acid	47.4	51.3	E	ng/g		108	70 - 130
8:2 Fluorotelomer sulfonic acid	47.9	48.8	E	ng/g		102	70 - 130
9Cl-PF3ONS	46.5	47.7		ng/g		103	70 - 130
DONA	47.3	44.1		ng/g		93	70 - 130
HFPODA	50.0	74.8	*+	ng/g		150	70 - 130
NEtFOSAA	50.0	49.7	E	ng/g		99	70 - 130
NEtFOSA	50.0	44.1		ng/g		88	70 - 130
NEtFOSE	50.0	43.8		ng/g		88	70 - 130
NMeFOSAA	50.0	45.8	E	ng/g		92	70 - 130
NMeFOSA	50.0	46.2		ng/g		92	70 - 130
NMeFOSE	50.0	45.9		ng/g		92	70 - 130
Perfluorobutanesulfonic acid	44.3	49.3		ng/g		111	70 - 130
Perfluorobutanoic acid	50.0	54.3		ng/g		109	70 - 130
Perfluorodecanesulfonic acid	48.2	54.9		ng/g		114	70 - 130
Perfluorodecanoic acid	50.0	55.9		ng/g		112	70 - 130
Perfluorododecanesulfonic acid (PFDoS)	48.4	45.9		ng/g		95	70 - 130
Perfluorododecanoic acid	50.0	53.2	I	ng/g		106	70 - 130
Perfluoroheptanesulfonic acid	47.6	65.3	*+	ng/g		137	70 - 130
Perfluoroheptanoic acid	50.0	41.3		ng/g		83	70 - 130
Perfluorohexadecanoic acid	50.0	53.1		ng/g		106	70 - 130
Perfluorohexanesulfonic acid	45.6	49.5		ng/g		109	70 - 130
Perfluorohexanoic acid	50.0	58.9		ng/g		118	70 - 130

Method: 537 TOP - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 410-186594/3-B
Matrix: Solid
Analysis Batch: 188970

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 186594

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorononanesulfonic acid	48.0	47.8		ng/g		100	70 - 130
Perfluorononanoic acid	50.0	46.9		ng/g		94	70 - 130
Perfluorooctadecanoic acid	50.0	49.2		ng/g		98	70 - 130
Perfluorooctanesulfonamide	50.0	47.2		ng/g		94	70 - 130
Perfluorooctanesulfonic acid	46.3	43.6		ng/g		94	70 - 130
Perfluorooctanoic acid	50.0	60.2		ng/g		120	70 - 130
Perfluoropentanesulfonic acid	46.9	58.9		ng/g		126	70 - 130
Perfluoropentanoic acid	50.0	49.9		ng/g		100	70 - 130
Perfluorotetradecanoic acid	50.0	55.2		ng/g		110	70 - 130
Perfluorotridecanoic acid	50.0	51.8		ng/g		104	70 - 130
Perfluoroundecanoic acid	50.0	60.5		ng/g		121	70 - 130

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
M2-6:2 FTS	*84*		*64 - 211*
M2-8:2 FTS	*86*	**5-*	*94 - 168*
13C2-PFDoDA	*81*		*55 - 101*
13C2 PFTeDA	*85*		*55 - 101*
13C3 HFPO-DA	*61*	**5-*	*70 - 130*
13C3 PFBS	*83*		*51 - 114*
13C3 PFHxS	*56*		*39 - 131*
13C4 PFBA	*93*		*55 - 101*
13C4 PFHpA	*83*		*41 - 133*
13C5 PFHxA	*73*		*45 - 120*
13C5 PFPeA	*98*		*47 - 105*
13C6 PFDA	*85*		*52 - 107*
13C7 PFUnA	*74*		*60 - 97*
13C8 PFOA	*77*		*54 - 100*
13C8 PFOS	*99*		*54 - 102*
13C8 FOSA	*82*		*58 - 110*
13C9 PFNA	*116*		*42 - 116*
d3-NMePFOSA	*72*		*21 - 81*
d5-NEtFOSAA	*89*		*79 - 130*
d5-NEtPFOSA	*74*		*25 - 96*
d7-N-MeFOSE-M	*95*		*63 - 103*
d9-N-EtFOSE-M	*89*		*68 - 110*

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C2 PFHxA	*59*		*10 - 125*
13C2 PFUnA	*46*		*20 - 154*
13C4 PFOA	*53*		*16 - 103*

Lab Sample ID: LCSD 410-186594/4-B
Matrix: Solid
Analysis Batch: 188970

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 186594

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
10:2 Fluorotelomer sulfonic acid	48.2	62.0	E	ng/g		129	70 - 130	12	30
11Cl-PF3OUdS	46.5	52.6		ng/g		113	70 - 130	3	30

Method: 537 TOP - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCSD 410-186594/4-B
Matrix: Solid
Analysis Batch: 188970

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 186594

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
4:2 Fluorotelomer sulfonic acid			46.7	39.5	E	ng/g		85	70 - 130	1	30
6:2 Fluorotelomer sulfonic acid			47.4	52.2	E	ng/g		110	70 - 130	2	30
8:2 Fluorotelomer sulfonic acid			47.9	54.2	E	ng/g		113	70 - 130	10	30
9Cl-PF3ONS			46.5	45.8		ng/g		99	70 - 130	4	30
DONA			47.3	46.3		ng/g		98	70 - 130	5	30
HFPODA			50.0	73.5	*+	ng/g		147	70 - 130	2	30
NEtFOSAA			50.0	50.0	E	ng/g		100	70 - 130	1	30
NEtFOSA			50.0	51.4		ng/g		103	70 - 130	15	30
NEtFOSE			50.0	45.8		ng/g		92	70 - 130	4	30
NMeFOSAA			50.0	44.7	E	ng/g		89	70 - 130	2	30
NMeFOSA			50.0	51.2		ng/g		102	70 - 130	10	30
NMeFOSE			50.0	51.3		ng/g		103	70 - 130	11	30
Perfluorobutanesulfonic acid			44.3	50.2		ng/g		113	70 - 130	2	30
Perfluorobutanoic acid			50.0	55.6		ng/g		111	70 - 130	2	30
Perfluorodecanesulfonic acid			48.2	56.5		ng/g		117	70 - 130	3	30
Perfluorodecanoic acid			50.0	57.1		ng/g		114	70 - 130	2	30
Perfluorododecanesulfonic acid (PFDoS)			48.4	46.5		ng/g		96	70 - 130	1	30
Perfluorododecanoic acid			50.0	53.7	I	ng/g		107	70 - 130	1	30
Perfluoroheptanesulfonic acid			47.6	62.9	*+	ng/g		132	70 - 130	4	30
Perfluoroheptanoic acid			50.0	38.9		ng/g		78	70 - 130	6	30
Perfluorohexadecanoic acid			50.0	54.2		ng/g		108	70 - 130	2	30
Perfluorohexanesulfonic acid			45.6	44.4		ng/g		97	70 - 130	11	30
Perfluorohexanoic acid			50.0	61.7		ng/g		123	70 - 130	5	30
Perfluorononanesulfonic acid			48.0	48.2		ng/g		100	70 - 130	1	30
Perfluorononanoic acid			50.0	51.7		ng/g		103	70 - 130	10	30
Perfluorooctadecanoic acid			50.0	49.0		ng/g		98	70 - 130	0	30
Perfluorooctanesulfonamide			50.0	48.2		ng/g		96	70 - 130	2	30
Perfluorooctanesulfonic acid			46.3	43.9		ng/g		95	70 - 130	1	30
Perfluorooctanoic acid			50.0	62.0		ng/g		124	70 - 130	3	30
Perfluoropentanesulfonic acid			46.9	62.2	*+	ng/g		133	70 - 130	5	30
Perfluoropentanoic acid			50.0	50.8		ng/g		102	70 - 130	2	30
Perfluorotetradecanoic acid			50.0	55.2		ng/g		110	70 - 130	0	30
Perfluorotridecanoic acid			50.0	54.4		ng/g		109	70 - 130	5	30
Perfluoroundecanoic acid			50.0	54.9		ng/g		110	70 - 130	10	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
M2-6:2 FTS	*82*		*64 - 211*
M2-8:2 FTS	*75*	**5-*	*94 - 168*
13C2-PFDoDA	*79*		*55 - 101*
13C2 PFTeDA	*81*		*55 - 101*
13C3 HFPO-DA	*66*	**5-*	*70 - 130*
13C3 PFBS	*82*		*51 - 114*
13C3 PFHxS	*62*		*39 - 131*
13C4 PFBA	*92*		*55 - 101*
13C4 PFHpA	*96*		*41 - 133*
13C5 PFHxA	*76*		*45 - 120*
13C5 PFPeA	*91*		*47 - 105*
13C6 PFDA	*82*		*52 - 107*

Method: 537 TOP - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCSD 410-186594/4-B
Matrix: Solid
Analysis Batch: 188970

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 186594

Isotope Dilution	LCSD %Recovery	LCSD Qualifier	Limits
13C7 PFUnA	84		60 - 97
13C8 PFOA	77		54 - 100
13C8 PFOS	164	*5+	54 - 102
13C8 FOSA	78		58 - 110
13C9 PFNA	180	*5+	42 - 116
d3-NMePFOSA	62		21 - 81
d5-NEtFOSAA	91		79 - 130
d5-NEtPFOSA	64		25 - 96
d7-N-MeFOSE-M	80		63 - 103
d9-N-EtFOSE-M	78		68 - 110

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
13C2 PFHxA	64		10 - 125
13C2 PFUnA	27		20 - 154
13C4 PFOA	33		16 - 103

Lab Sample ID: MB 410-180223/2-A
Matrix: Water
Analysis Batch: 181267

Client Sample ID: Method Blank
Prep Type: Post-Treatment
Prep Batch: 180223

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
10:2 Fluorotelomer sulfonic acid	ND		25	5.0	ng/L		10/07/21 15:25	10/11/21 12:21	1
11Cl-PF3OUdS	ND		10	2.5	ng/L		10/07/21 15:25	10/11/21 12:21	1
4:2 Fluorotelomer sulfonic acid	ND		10	2.5	ng/L		10/07/21 15:25	10/11/21 12:21	1
6:2 Fluorotelomer sulfonic acid	ND		25	10	ng/L		10/07/21 15:25	10/11/21 12:21	1
8:2 Fluorotelomer sulfonic acid	ND		15	5.0	ng/L		10/07/21 15:25	10/11/21 12:21	1
9Cl-PF3ONS	ND		10	2.5	ng/L		10/07/21 15:25	10/11/21 12:21	1
DONA	ND		10	2.5	ng/L		10/07/21 15:25	10/11/21 12:21	1
HFPODA	ND		15	2.5	ng/L		10/07/21 15:25	10/11/21 12:21	1
NEtFOSAA	ND		15	2.5	ng/L		10/07/21 15:25	10/11/21 12:21	1
NEtFOSA	ND		25	5.0	ng/L		10/07/21 15:25	10/11/21 12:21	1
NEtFOSE	ND		15	5.0	ng/L		10/07/21 15:25	10/11/21 12:21	1
NMeFOSAA	ND		10	3.0	ng/L		10/07/21 15:25	10/11/21 12:21	1
NMeFOSA	ND		15	5.0	ng/L		10/07/21 15:25	10/11/21 12:21	1
NMeFOSE	ND		15	5.0	ng/L		10/07/21 15:25	10/11/21 12:21	1
Perfluorobutanesulfonic acid	ND		10	2.5	ng/L		10/07/21 15:25	10/11/21 12:21	1
Perfluorobutanoic acid	ND		25	10	ng/L		10/07/21 15:25	10/11/21 12:21	1
Perfluorodecanesulfonic acid	ND		10	2.5	ng/L		10/07/21 15:25	10/11/21 12:21	1
Perfluorodecanoic acid	ND		10	2.5	ng/L		10/07/21 15:25	10/11/21 12:21	1
Perfluorododecanesulfonic acid (PFDoS)	ND		15	2.5	ng/L		10/07/21 15:25	10/11/21 12:21	1
Perfluorododecanoic acid	ND		10	2.5	ng/L		10/07/21 15:25	10/11/21 12:21	1
Perfluoroheptanesulfonic acid	ND		10	2.5	ng/L		10/07/21 15:25	10/11/21 12:21	1
Perfluoroheptanoic acid	ND		10	2.5	ng/L		10/07/21 15:25	10/11/21 12:21	1
Perfluorohexadecanoic acid	ND		15	5.0	ng/L		10/07/21 15:25	10/11/21 12:21	1
Perfluorohexanesulfonic acid	ND		10	2.5	ng/L		10/07/21 15:25	10/11/21 12:21	1
Perfluorohexanoic acid	ND		10	2.5	ng/L		10/07/21 15:25	10/11/21 12:21	1
Perfluorononanesulfonic acid	ND		10	2.5	ng/L		10/07/21 15:25	10/11/21 12:21	1
Perfluorononanoic acid	ND		10	2.5	ng/L		10/07/21 15:25	10/11/21 12:21	1

Method: 537 TOP - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: MB 410-180223/2-A
Matrix: Water
Analysis Batch: 181267

Client Sample ID: Method Blank
Prep Type: Post-Treatment
Prep Batch: 180223

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctadecanoic acid	ND		15	5.0	ng/L		10/07/21 15:25	10/11/21 12:21	1
Perfluorooctanesulfonamide	ND		10	2.5	ng/L		10/07/21 15:25	10/11/21 12:21	1
Perfluorooctanesulfonic acid	ND		10	2.5	ng/L		10/07/21 15:25	10/11/21 12:21	1
Perfluorooctanoic acid	ND		10	2.5	ng/L		10/07/21 15:25	10/11/21 12:21	1
Perfluoropentanesulfonic acid	ND		10	2.5	ng/L		10/07/21 15:25	10/11/21 12:21	1
Perfluoropentanoic acid	ND		10	2.5	ng/L		10/07/21 15:25	10/11/21 12:21	1
Perfluorotetradecanoic acid	ND		10	2.5	ng/L		10/07/21 15:25	10/11/21 12:21	1
Perfluorotridecanoic acid	ND		10	2.5	ng/L		10/07/21 15:25	10/11/21 12:21	1
Perfluoroundecanoic acid	ND		10	2.5	ng/L		10/07/21 15:25	10/11/21 12:21	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-6:2 FTS	*109*		*55 - 167*	*10/07/21 15:25*	*10/11/21 12:21*	*1*
M2-8:2 FTS	*110*		*61 - 160*	*10/07/21 15:25*	*10/11/21 12:21*	*1*
13C2-PFDoDA	*82*		*47 - 118*	*10/07/21 15:25*	*10/11/21 12:21*	*1*
13C2 PFTeDA	*45*		*32 - 126*	*10/07/21 15:25*	*10/11/21 12:21*	*1*
13C3 HFPO-DA	*83*		*70 - 130*	*10/07/21 15:25*	*10/11/21 12:21*	*1*
13C3 PFBS	*85*		*18 - 177*	*10/07/21 15:25*	*10/11/21 12:21*	*1*
13C3 PFHxS	*96*		*55 - 115*	*10/07/21 15:25*	*10/11/21 12:21*	*1*
13C4 PFBA	*93*		*52 - 126*	*10/07/21 15:25*	*10/11/21 12:21*	*1*
13C4 PFHpA	*93*		*55 - 113*	*10/07/21 15:25*	*10/11/21 12:21*	*1*
13C5 PFHxA	*88*		*54 - 115*	*10/07/21 15:25*	*10/11/21 12:21*	*1*
13C5 PFPeA	*92*		*17 - 184*	*10/07/21 15:25*	*10/11/21 12:21*	*1*
13C6 PFDA	*94*		*56 - 114*	*10/07/21 15:25*	*10/11/21 12:21*	*1*
13C7 PFUnA	*88*		*50 - 120*	*10/07/21 15:25*	*10/11/21 12:21*	*1*
13C8 PFOA	*96*		*56 - 117*	*10/07/21 15:25*	*10/11/21 12:21*	*1*
13C8 PFOS	*93*		*56 - 112*	*10/07/21 15:25*	*10/11/21 12:21*	*1*
13C8 FOSA	*75*		*10 - 126*	*10/07/21 15:25*	*10/11/21 12:21*	*1*
13C9 PFNA	*108*		*54 - 122*	*10/07/21 15:25*	*10/11/21 12:21*	*1*
M2-4:2 FTS				*10/07/21 15:25*	*10/11/21 12:21*	*1*
d3-NMeFOSAA				*10/07/21 15:25*	*10/11/21 12:21*	*1*
d3-NMePFOSA	*32*		*10 - 51*	*10/07/21 15:25*	*10/11/21 12:21*	*1*
d5-NEtFOSAA	*91*		*65 - 134*	*10/07/21 15:25*	*10/11/21 12:21*	*1*
d5-NEtPFOSA	*34*		*10 - 51*	*10/07/21 15:25*	*10/11/21 12:21*	*1*
d7-N-MeFOSE-M	*71*		*10 - 105*	*10/07/21 15:25*	*10/11/21 12:21*	*1*
d9-N-EtFOSE-M	*72*		*10 - 112*	*10/07/21 15:25*	*10/11/21 12:21*	*1*

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*85*		*40 - 173*	*10/07/21 15:25*	*10/11/21 12:21*	*1*
13C2 PFUnA	*54*		*49 - 132*	*10/07/21 15:25*	*10/11/21 12:21*	*1*
13C4 PFOA	*72*		*10 - 163*	*10/07/21 15:25*	*10/11/21 12:21*	*1*

Lab Sample ID: LCS 410-180223/3-A
Matrix: Water
Analysis Batch: 181267

Client Sample ID: Lab Control Sample
Prep Type: Post-Treatment
Prep Batch: 180223

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
10:2 Fluorotelomer sulfonic acid	123	111		ng/L		90	29 - 147
11Cl-PF3OUdS	119	132		ng/L		111	70 - 130

Method: 537 TOP - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 410-180223/3-A
Matrix: Water
Analysis Batch: 181267

Client Sample ID: Lab Control Sample
Prep Type: Post-Treatment
Prep Batch: 180223

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
4:2 Fluorotelomer sulfonic acid	120	71.8		ng/L		60	53 - 109
6:2 Fluorotelomer sulfonic acid	121	124		ng/L		102	58 - 136
8:2 Fluorotelomer sulfonic acid	123	114		ng/L		93	59 - 118
9Cl-PF3ONS	119	134		ng/L		113	70 - 130
DONA	121	130		ng/L		108	70 - 130
HFPODA	128	126		ng/L		99	70 - 130
NEtFOSAA	128	126		ng/L		98	53 - 119
NEtFOSA	128	124		ng/L		97	30 - 144
NEtFOSE	128	137		ng/L		107	35 - 142
NMeFOSAA	128	116		ng/L		91	43 - 122
NMeFOSA	128	128		ng/L		100	51 - 135
NMeFOSE	128	134		ng/L		105	57 - 120
Perfluorobutanesulfonic acid	113	124		ng/L		109	69 - 138
Perfluorobutanoic acid	128	148		ng/L		116	80 - 151
Perfluorodecanesulfonic acid	123	124		ng/L		100	52 - 149
Perfluorodecanoic acid	128	132		ng/L		103	69 - 142
Perfluorododecanesulfonic acid (PFDoS)	124	132		ng/L		106	53 - 151
Perfluorododecanoic acid	128	131	I	ng/L		102	71 - 145
Perfluoroheptanesulfonic acid	122	133		ng/L		109	64 - 140
Perfluoroheptanoic acid	128	132		ng/L		103	67 - 143
Perfluorohexadecanoic acid	128	116		ng/L		91	42 - 145
Perfluorohexanesulfonic acid	117	115		ng/L		98	67 - 136
Perfluorohexanoic acid	128	135		ng/L		105	65 - 152
Perfluorononanesulfonic acid	123	131		ng/L		107	60 - 144
Perfluorononanoic acid	128	131		ng/L		102	66 - 150
Perfluorooctadecanoic acid	128	100		ng/L		78	21 - 158
Perfluorooctanesulfonamide	128	138		ng/L		108	48 - 126
Perfluorooctanesulfonic acid	118	115		ng/L		97	68 - 142
Perfluorooctanoic acid	128	155		ng/L		121	71 - 144
Perfluoropentanesulfonic acid	120	131		ng/L		110	66 - 145
Perfluoropentanoic acid	128	144		ng/L		113	75 - 140
Perfluorotetradecanoic acid	128	137		ng/L		107	73 - 147
Perfluorotridecanoic acid	128	141		ng/L		110	64 - 160
Perfluoroundecanoic acid	128	141		ng/L		110	69 - 146

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
M2-6:2 FTS	*112*		*55 - 167*
M2-8:2 FTS	*111*		*61 - 160*
13C2-PFDoDA	*95*		*47 - 118*
13C2 PFTeDA	*94*		*32 - 126*
13C3 HFPO-DA	*109*		*70 - 130*
13C3 PFBS	*96*		*18 - 177*
13C3 PFHxS	*104*		*55 - 115*
13C4 PFBA	*105*		*52 - 126*
13C4 PFHpA	*99*		*55 - 113*
13C5 PFHxA	*95*		*54 - 115*
13C5 PFPeA	*110*		*17 - 184*
13C6 PFDA	*104*		*56 - 114*

Method: 537 TOP - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 410-180223/3-A
Matrix: Water
Analysis Batch: 181267

Client Sample ID: Lab Control Sample
Prep Type: Post-Treatment
Prep Batch: 180223

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C7 PFUnA	*103*		*50 - 120*
13C8 PFOA	*104*		*56 - 117*
13C8 PFOS	*106*		*56 - 112*
13C8 FOSA	*90*		*10 - 126*
13C9 PFNA	*104*		*54 - 122*
d3-NMePFOSA	*70*	**5+*	*10 - 51*
d5-NEtFOSAA	*118*		*65 - 134*
d5-NEtPFOSA	*75*	**5+*	*10 - 51*
d7-N-MeFOSE-M	*89*		*10 - 105*
d9-N-EtFOSE-M	*90*		*10 - 112*

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C2 PFHxA	*91*		*40 - 173*
13C2 PFUnA	*75*		*49 - 132*
13C4 PFOA	*94*		*10 - 163*

Lab Sample ID: LCSD 410-180223/4-A
Matrix: Water
Analysis Batch: 181267

Client Sample ID: Lab Control Sample Dup
Prep Type: Post-Treatment
Prep Batch: 180223

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
10:2 Fluorotelomer sulfonic acid	123	131		ng/L		106	29 - 147	17	30
11Cl-PF3OUdS	119	132		ng/L		111	70 - 130	1	30
4:2 Fluorotelomer sulfonic acid	120	70.1		ng/L		59	53 - 109	2	30
6:2 Fluorotelomer sulfonic acid	121	127		ng/L		105	58 - 136	2	30
8:2 Fluorotelomer sulfonic acid	123	124		ng/L		101	59 - 118	9	30
9Cl-PF3ONS	119	138		ng/L		116	70 - 130	3	30
DONA	121	122		ng/L		101	70 - 130	7	30
HFPODA	128	128		ng/L		100	70 - 130	1	30
NEtFOSAA	128	129		ng/L		101	53 - 119	3	30
NEtFOSA	128	117		ng/L		91	30 - 144	6	30
NEtFOSE	128	139		ng/L		108	35 - 142	1	30
NMeFOSAA	128	139		ng/L		108	43 - 122	18	30
NMeFOSA	128	130		ng/L		101	51 - 135	1	30
NMeFOSE	128	129		ng/L		101	57 - 120	4	30
Perfluorobutanesulfonic acid	113	123		ng/L		109	69 - 138	1	30
Perfluorobutanoic acid	128	147		ng/L		115	80 - 151	1	30
Perfluorodecanesulfonic acid	123	121		ng/L		98	52 - 149	2	30
Perfluorodecanoic acid	128	135		ng/L		106	69 - 142	3	30
Perfluorododecanesulfonic acid (PFDoS)	124	139		ng/L		112	53 - 151	5	30
Perfluorododecanoic acid	128	127	I	ng/L		99	71 - 145	3	30
Perfluoroheptanesulfonic acid	122	128		ng/L		105	64 - 140	4	30
Perfluoroheptanoic acid	128	125		ng/L		98	67 - 143	5	30
Perfluorohexadecanoic acid	128	116		ng/L		90	42 - 145	0	30
Perfluorohexanesulfonic acid	117	110		ng/L		94	67 - 136	4	30
Perfluorohexanoic acid	128	134		ng/L		105	65 - 152	1	30
Perfluorononanesulfonic acid	123	131		ng/L		106	60 - 144	0	30
Perfluorononanoic acid	128	129		ng/L		101	66 - 150	1	30

Method: 537 TOP - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCSD 410-180223/4-A
Matrix: Water
Analysis Batch: 181267

Client Sample ID: Lab Control Sample Dup
Prep Type: Post-Treatment
Prep Batch: 180223

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorooctadecanoic acid			128	96.7		ng/L		76	21 - 158	3	30
Perfluorooctanesulfonamide			128	145		ng/L		113	48 - 126	5	30
Perfluorooctanesulfonic acid			118	122		ng/L		103	68 - 142	6	30
Perfluorooctanoic acid			128	149		ng/L		117	71 - 144	4	30
Perfluoropentanesulfonic acid			120	132		ng/L		110	66 - 145	0	30
Perfluoropentanoic acid			128	146		ng/L		114	75 - 140	1	30
Perfluorotetradecanoic acid			128	133		ng/L		104	73 - 147	3	30
Perfluorotridecanoic acid			128	134		ng/L		104	64 - 160	5	30
Perfluoroundecanoic acid			128	146		ng/L		114	69 - 146	4	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
M2-6:2 FTS	*113*		*55 - 167*
M2-8:2 FTS	*108*		*61 - 160*
13C2-PFDoDA	*99*		*47 - 118*
13C2 PFTeDA	*96*		*32 - 126*
13C3 HFPO-DA	*104*		*70 - 130*
13C3 PFBS	*92*		*18 - 177*
13C3 PFHxS	*107*		*55 - 115*
13C4 PFBA	*103*		*52 - 126*
13C4 PFHpA	*105*		*55 - 113*
13C5 PFHxA	*94*		*54 - 115*
13C5 PFPeA	*102*		*17 - 184*
13C6 PFDA	*106*		*56 - 114*
13C7 PFUnA	*105*		*50 - 120*
13C8 PFOA	*104*		*56 - 117*
13C8 PFOS	*105*		*56 - 112*
13C8 FOSA	*86*		*10 - 126*
13C9 PFNA	*112*		*54 - 122*
d3-NMePFOSA	*70*	**5+*	*10 - 51*
d5-NEtFOSAA	*111*		*65 - 134*
d5-NEtPFOSA	*76*	**5+*	*10 - 51*
d7-N-MeFOSE-M	*91*		*10 - 105*
d9-N-EtFOSE-M	*91*		*10 - 112*

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C2 PFHxA	*87*		*40 - 173*
13C2 PFUnA	*69*		*49 - 132*
13C4 PFOA	*95*		*10 - 163*

QC Association Summary

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-54547-1

LCMS

Prep Batch: 171432

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-54547-3	HYDRANT-1	Total/NA	Water	537 IDA	
MB 410-171432/1-A	Method Blank	Total/NA	Water	537 IDA	
LCS 410-171432/2-A	Lab Control Sample	Total/NA	Water	537 IDA	
LCSD 410-171432/3-A	Lab Control Sample Dup	Total/NA	Water	537 IDA	

Prep Batch: 171950

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-54547-4	RINSE 2-1	Pre-Treatment	Water	TOP Pre - Prep	
410-54547-4 - DL	RINSE 2-1	Pre-Treatment	Water	TOP Pre - Prep	
410-54547-5	EFFLUENT-1	Pre-Treatment	Water	TOP Pre - Prep	
410-54547-6 - RA	RINSE 3-1	Pre-Treatment	Water	TOP Pre - Prep	
410-54547-6 - DL	RINSE 3-1	Pre-Treatment	Water	TOP Pre - Prep	
410-54547-6	RINSE 3-1	Pre-Treatment	Water	TOP Pre - Prep	
410-54547-7	EFFLUENT-2	Pre-Treatment	Water	TOP Pre - Prep	
MB 410-171950/1-A	Method Blank	Pre-Treatment	Water	TOP Pre - Prep	
LCS 410-171950/2-A	Lab Control Sample	Pre-Treatment	Water	TOP Pre - Prep	

Analysis Batch: 172047

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-54547-3	HYDRANT-1	Total/NA	Water	537 IDA	171432
MB 410-171432/1-A	Method Blank	Total/NA	Water	537 IDA	171432
LCS 410-171432/2-A	Lab Control Sample	Total/NA	Water	537 IDA	171432
LCSD 410-171432/3-A	Lab Control Sample Dup	Total/NA	Water	537 IDA	171432

Prep Batch: 172695

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-54547-8	CONCENTRATE-1	Pre-Treatment	Solid	TOP Pre-Prep	
MB 410-172695/1-B	Method Blank	Total/NA	Solid	TOP Pre-Prep	
LCS 410-172695/2-B	Lab Control Sample	Total/NA	Solid	TOP Pre-Prep	
LCSD 410-172695/3-B	Lab Control Sample Dup	Total/NA	Solid	TOP Pre-Prep	

Cleanup Batch: 172703

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-54547-8	CONCENTRATE-1	Pre-Treatment	Solid	Extract Aliquot	172695
MB 410-172695/1-B	Method Blank	Total/NA	Solid	Extract Aliquot	172695
LCS 410-172695/2-B	Lab Control Sample	Total/NA	Solid	Extract Aliquot	172695
LCSD 410-172695/3-B	Lab Control Sample Dup	Total/NA	Solid	Extract Aliquot	172695

Analysis Batch: 172861

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-54547-4	RINSE 2-1	Pre-Treatment	Water	537 IDA	171950
410-54547-4 - DL	RINSE 2-1	Pre-Treatment	Water	537 IDA	171950
410-54547-5	EFFLUENT-1	Pre-Treatment	Water	537 IDA	171950
410-54547-6	RINSE 3-1	Pre-Treatment	Water	537 IDA	171950
410-54547-6 - DL	RINSE 3-1	Pre-Treatment	Water	537 IDA	171950
MB 410-171950/1-A	Method Blank	Pre-Treatment	Water	537 IDA	171950
LCS 410-171950/2-A	Lab Control Sample	Pre-Treatment	Water	537 IDA	171950

Prep Batch: 173056

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-54547-2 - RA	RINSE 1	Pre-Treatment	Water	TOP Pre - Prep	

LCMS (Continued)

Prep Batch: 173056 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-54547-2	RINSE 1	Pre-Treatment	Water	TOP Pre - Prep	
MB 410-173056/1-A	Method Blank	Pre-Treatment	Water	TOP Pre - Prep	
LCS 410-173056/3-A	Lab Control Sample	Pre-Treatment	Water	TOP Pre - Prep	
LCSD 410-173056/4-A	Lab Control Sample Dup	Pre-Treatment	Water	TOP Pre - Prep	

Analysis Batch: 173101

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-54547-8	CONCENTRATE-1	Pre-Treatment	Solid	537 IDA	172703
MB 410-172695/1-B	Method Blank	Total/NA	Solid	537 IDA	172703
LCS 410-172695/2-B	Lab Control Sample	Total/NA	Solid	537 IDA	172703
LCSD 410-172695/3-B	Lab Control Sample Dup	Total/NA	Solid	537 IDA	172703

Prep Batch: 173586

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-54547-4 - RE	RINSE 2-1	Pre-Treatment	Water	TOP Pre - Prep	
MB 410-173586/1-A	Method Blank	Pre-Treatment	Water	TOP Pre - Prep	
LCS 410-173586/2-A	Lab Control Sample	Pre-Treatment	Water	TOP Pre - Prep	
LCSD 410-173586/3-A	Lab Control Sample Dup	Pre-Treatment	Water	TOP Pre - Prep	

Analysis Batch: 173607

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-54547-6 - RA	RINSE 3-1	Pre-Treatment	Water	537 IDA	171950
MB 410-172695/1-B	Method Blank	Total/NA	Solid	537 IDA	172703
LCSD 410-172695/3-B	Lab Control Sample Dup	Total/NA	Solid	537 IDA	172703

Analysis Batch: 174143

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-54547-2	RINSE 1	Pre-Treatment	Water	537 IDA	173056
410-54547-4 - RE	RINSE 2-1	Pre-Treatment	Water	537 IDA	173586
MB 410-173056/1-A	Method Blank	Pre-Treatment	Water	537 IDA	173056
MB 410-173586/1-A	Method Blank	Pre-Treatment	Water	537 IDA	173586
LCS 410-173056/3-A	Lab Control Sample	Pre-Treatment	Water	537 IDA	173056
LCS 410-173586/2-A	Lab Control Sample	Pre-Treatment	Water	537 IDA	173586
LCSD 410-173056/4-A	Lab Control Sample Dup	Pre-Treatment	Water	537 IDA	173056
LCSD 410-173586/3-A	Lab Control Sample Dup	Pre-Treatment	Water	537 IDA	173586

Analysis Batch: 174509

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-54547-7	EFFLUENT-2	Pre-Treatment	Water	537 IDA	171950

Analysis Batch: 174949

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-54547-2 - RA	RINSE 1	Pre-Treatment	Water	537 IDA	173056

Prep Batch: 180223

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-54547-2 - DL	RINSE 1	Post-Treatment	Water	TOP Post Prep	
410-54547-2	RINSE 1	Post-Treatment	Water	TOP Post Prep	
410-54547-4	RINSE 2-1	Post-Treatment	Water	TOP Post Prep	
410-54547-4 - DL	RINSE 2-1	Post-Treatment	Water	TOP Post Prep	
410-54547-4 - RA	RINSE 2-1	Post-Treatment	Water	TOP Post Prep	

LCMS (Continued)

Prep Batch: 180223 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-54547-4 - DL2	RINSE 2-1	Post-Treatment	Water	TOP Post Prep	
410-54547-5	EFFLUENT-1	Post-Treatment	Water	TOP Post Prep	
410-54547-6 - DL	RINSE 3-1	Post-Treatment	Water	TOP Post Prep	
410-54547-6	RINSE 3-1	Post-Treatment	Water	TOP Post Prep	
410-54547-7	EFFLUENT-2	Post-Treatment	Water	TOP Post Prep	
MB 410-180223/1-A	Method Blank	Post-Treatment	Water	TOP Post Prep	
MB 410-180223/2-A	Method Blank	Post-Treatment	Water	TOP Post Prep	
LCS 410-180223/3-A	Lab Control Sample	Post-Treatment	Water	TOP Post Prep	
LCSD 410-180223/4-A	Lab Control Sample Dup	Post-Treatment	Water	TOP Post Prep	

Analysis Batch: 181267

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-54547-2	RINSE 1	Post-Treatment	Water	537 TOP	180223
410-54547-2 - DL	RINSE 1	Post-Treatment	Water	537 TOP	180223
410-54547-4	RINSE 2-1	Post-Treatment	Water	537 TOP	180223
410-54547-4 - RA	RINSE 2-1	Post-Treatment	Water	537 TOP	180223
410-54547-4 - DL	RINSE 2-1	Post-Treatment	Water	537 TOP	180223
410-54547-4 - DL2	RINSE 2-1	Post-Treatment	Water	537 TOP	180223
410-54547-5	EFFLUENT-1	Post-Treatment	Water	537 TOP	180223
410-54547-6	RINSE 3-1	Post-Treatment	Water	537 TOP	180223
410-54547-6 - DL	RINSE 3-1	Post-Treatment	Water	537 TOP	180223
410-54547-7	EFFLUENT-2	Post-Treatment	Water	537 TOP	180223
MB 410-180223/1-A	Method Blank	Post-Treatment	Water	537 TOP	180223
MB 410-180223/2-A	Method Blank	Post-Treatment	Water	537 TOP	180223
LCS 410-180223/3-A	Lab Control Sample	Post-Treatment	Water	537 TOP	180223
LCSD 410-180223/4-A	Lab Control Sample Dup	Post-Treatment	Water	537 TOP	180223

Analysis Batch: 181775

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-54547-2	RINSE 1	Post-Treatment	Water	Total PFCA-Sum	
410-54547-2	RINSE 1	Pre-Treatment	Water	Total PFCA-Sum	
410-54547-4	RINSE 2-1	Post-Treatment	Water	Total PFCA-Sum	
410-54547-4	RINSE 2-1	Pre-Treatment	Water	Total PFCA-Sum	
410-54547-5	EFFLUENT-1	Post-Treatment	Water	Total PFCA-Sum	
410-54547-5	EFFLUENT-1	Pre-Treatment	Water	Total PFCA-Sum	
410-54547-6	RINSE 3-1	Post-Treatment	Water	Total PFCA-Sum	
410-54547-6	RINSE 3-1	Pre-Treatment	Water	Total PFCA-Sum	
410-54547-7	EFFLUENT-2	Post-Treatment	Water	Total PFCA-Sum	
410-54547-7	EFFLUENT-2	Pre-Treatment	Water	Total PFCA-Sum	

Analysis Batch: 182758

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-54547-2	RINSE 1	Total/NA	Water	Total PFCA-Dif	
410-54547-4	RINSE 2-1	Total/NA	Water	Total PFCA-Dif	
410-54547-5	EFFLUENT-1	Total/NA	Water	Total PFCA-Dif	
410-54547-6	RINSE 3-1	Total/NA	Water	Total PFCA-Dif	
410-54547-7	EFFLUENT-2	Total/NA	Water	Total PFCA-Dif	

Prep Batch: 186594

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-54547-8 - DL	CONCENTRATE-1	Post-Treatment	Solid	TOP Post-Prep	

LCMS (Continued)

Prep Batch: 186594 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-54547-8	CONCENTRATE-1	Post-Treatment	Solid	TOP Post-Prep	
MB 410-186594/1-B	Method Blank	Total/NA	Solid	TOP Post-Prep	
MB 410-186594/1-C	Method Blank	Total/NA	Solid	TOP Post-Prep	
LCS 410-186594/3-B	Lab Control Sample	Total/NA	Solid	TOP Post-Prep	
LCSD 410-186594/4-B	Lab Control Sample Dup	Total/NA	Solid	TOP Post-Prep	

Cleanup Batch: 188300

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-54547-8 - DL	CONCENTRATE-1	Post-Treatment	Solid	Extract Aliquot	186594
410-54547-8	CONCENTRATE-1	Post-Treatment	Solid	Extract Aliquot	186594
MB 410-186594/1-B	Method Blank	Total/NA	Solid	Extract Aliquot	186594
MB 410-186594/1-C	Method Blank	Total/NA	Solid	Extract Aliquot	186594
LCS 410-186594/3-B	Lab Control Sample	Total/NA	Solid	Extract Aliquot	186594
LCSD 410-186594/4-B	Lab Control Sample Dup	Total/NA	Solid	Extract Aliquot	186594

Analysis Batch: 188970

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-54547-8	CONCENTRATE-1	Post-Treatment	Solid	537 TOP	188300
410-54547-8 - DL	CONCENTRATE-1	Post-Treatment	Solid	537 TOP	188300
MB 410-186594/1-B	Method Blank	Total/NA	Solid	537 TOP	188300
MB 410-186594/1-C	Method Blank	Total/NA	Solid	537 TOP	188300
LCS 410-186594/3-B	Lab Control Sample	Total/NA	Solid	537 TOP	188300
LCSD 410-186594/4-B	Lab Control Sample Dup	Total/NA	Solid	537 TOP	188300

Analysis Batch: 189348

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-54547-8	CONCENTRATE-1	Post-Treatment	Solid	Total PFCA-Sum	
410-54547-8	CONCENTRATE-1	Pre-Treatment	Solid	Total PFCA-Sum	

Analysis Batch: 189349

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-54547-8	CONCENTRATE-1	Total/NA	Solid	Total PFCA-Dif	

Lab Chronicle

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-54547-1

Client Sample ID: RINSE 1

Lab Sample ID: 410-54547-2
Date Collected: 09/01/21 13:15
Matrix: Water
Date Received: 09/09/21 11:08

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Pre-Treatment	Prep	TOP Pre - Prep			173056	09/20/21 07:54	RC3V	ELLE
Pre-Treatment	Analysis	537 IDA		100	174143	09/22/21 17:16	PY4D	ELLE
Pre-Treatment	Prep	TOP Pre - Prep	RA		173056	09/20/21 07:54	RC3V	ELLE
Pre-Treatment	Analysis	537 IDA	RA	100	174949	09/24/21 15:53	QD9Y	ELLE
Post-Treatment	Prep	TOP Post Prep			180223	10/07/21 15:25	S7AC	ELLE
Post-Treatment	Analysis	537 TOP		10	181267	10/11/21 12:53	MT26	ELLE
Post-Treatment	Prep	TOP Post Prep	DL		180223	10/07/21 15:25	S7AC	ELLE
Post-Treatment	Analysis	537 TOP	DL	100	181267	10/11/21 13:03	MT26	ELLE
Total/NA	Analysis	Total PFCA-Dif		1	182758	10/14/21 10:45	V3JD	ELLE
Post-Treatment	Analysis	Total PFCA-Sum		1	181775	10/12/21 11:35	MT26	ELLE
Pre-Treatment	Analysis	Total PFCA-Sum		1	181775	10/12/21 11:35	MT26	ELLE

Client Sample ID: HYDRANT-1

Lab Sample ID: 410-54547-3
Date Collected: 09/02/21 13:30
Matrix: Water
Date Received: 09/09/21 11:08

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537 IDA			171432	09/15/21 08:46	AVS6	ELLE
Total/NA	Analysis	537 IDA		1	172047	09/16/21 17:49	PY4D	ELLE

Client Sample ID: RINSE 2-1

Lab Sample ID: 410-54547-4
Date Collected: 09/03/21 14:00
Matrix: Water
Date Received: 09/09/21 11:08

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Pre-Treatment	Prep	TOP Pre - Prep	RE		173586	09/21/21 08:55	S7AC	ELLE
Pre-Treatment	Analysis	537 IDA	RE	10	174143	09/22/21 20:26	PY4D	ELLE
Pre-Treatment	Prep	TOP Pre - Prep			171950	09/16/21 09:14	S7AC	ELLE
Pre-Treatment	Analysis	537 IDA		10	172861	09/18/21 20:50	PY4D	ELLE
Pre-Treatment	Prep	TOP Pre - Prep	DL		171950	09/16/21 09:14	S7AC	ELLE
Pre-Treatment	Analysis	537 IDA	DL	100	172861	09/18/21 21:01	PY4D	ELLE
Post-Treatment	Prep	TOP Post Prep			180223	10/07/21 15:25	S7AC	ELLE
Post-Treatment	Analysis	537 TOP		1	181267	10/11/21 13:14	MT26	ELLE
Post-Treatment	Prep	TOP Post Prep	RA		180223	10/07/21 15:25	S7AC	ELLE
Post-Treatment	Analysis	537 TOP	RA	1	181267	10/11/21 13:24	MT26	ELLE
Post-Treatment	Prep	TOP Post Prep	DL		180223	10/07/21 15:25	S7AC	ELLE
Post-Treatment	Analysis	537 TOP	DL	10	181267	10/11/21 13:35	MT26	ELLE
Post-Treatment	Prep	TOP Post Prep	DL2		180223	10/07/21 15:25	S7AC	ELLE
Post-Treatment	Analysis	537 TOP	DL2	100	181267	10/11/21 13:46	MT26	ELLE
Total/NA	Analysis	Total PFCA-Dif		1	182758	10/14/21 10:45	V3JD	ELLE
Post-Treatment	Analysis	Total PFCA-Sum		1	181775	10/12/21 11:35	MT26	ELLE
Pre-Treatment	Analysis	Total PFCA-Sum		1	181775	10/12/21 11:35	MT26	ELLE

Lab Chronicle

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-54547-1

Client Sample ID: EFFLUENT-1

Lab Sample ID: 410-54547-5
Date Collected: 09/07/21 14:30
Matrix: Water
Date Received: 09/09/21 11:08

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Pre-Treatment	Prep	TOP Pre - Prep			171950	09/16/21 09:14	S7AC	ELLE
Pre-Treatment	Analysis	537 IDA		1	172861	09/18/21 21:12	PY4D	ELLE
Post-Treatment	Prep	TOP Post Prep			180223	10/07/21 15:25	S7AC	ELLE
Post-Treatment	Analysis	537 TOP		1	181267	10/11/21 13:56	MT26	ELLE
Total/NA	Analysis	Total PFCA-Dif		1	182758	10/14/21 10:45	V3JD	ELLE
Post-Treatment	Analysis	Total PFCA-Sum		1	181775	10/12/21 11:35	MT26	ELLE
Pre-Treatment	Analysis	Total PFCA-Sum		1	181775	10/12/21 11:35	MT26	ELLE

Client Sample ID: RINSE 3-1

Lab Sample ID: 410-54547-6
Date Collected: 09/07/21 17:00
Matrix: Water
Date Received: 09/09/21 11:08

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Pre-Treatment	Prep	TOP Pre - Prep	RA		171950	09/16/21 09:14	S7AC	ELLE
Pre-Treatment	Analysis	537 IDA	RA	1	173607	09/21/21 19:44	ZG8V	ELLE
Pre-Treatment	Prep	TOP Pre - Prep			171950	09/16/21 09:14	S7AC	ELLE
Pre-Treatment	Analysis	537 IDA		1	172861	09/18/21 21:23	PY4D	ELLE
Pre-Treatment	Prep	TOP Pre - Prep	DL		171950	09/16/21 09:14	S7AC	ELLE
Pre-Treatment	Analysis	537 IDA	DL	10	172861	09/18/21 21:34	PY4D	ELLE
Post-Treatment	Prep	TOP Post Prep			180223	10/07/21 15:25	S7AC	ELLE
Post-Treatment	Analysis	537 TOP		1	181267	10/11/21 14:07	MT26	ELLE
Post-Treatment	Prep	TOP Post Prep	DL		180223	10/07/21 15:25	S7AC	ELLE
Post-Treatment	Analysis	537 TOP	DL	10	181267	10/11/21 14:17	MT26	ELLE
Total/NA	Analysis	Total PFCA-Dif		1	182758	10/14/21 10:45	V3JD	ELLE
Post-Treatment	Analysis	Total PFCA-Sum		1	181775	10/12/21 11:35	MT26	ELLE
Pre-Treatment	Analysis	Total PFCA-Sum		1	181775	10/12/21 11:35	MT26	ELLE

Client Sample ID: EFFLUENT-2

Lab Sample ID: 410-54547-7
Date Collected: 09/08/21 12:30
Matrix: Water
Date Received: 09/09/21 11:08

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Pre-Treatment	Prep	TOP Pre - Prep			171950	09/16/21 09:14	S7AC	ELLE
Pre-Treatment	Analysis	537 IDA		1	174509	09/23/21 14:52	ZG8V	ELLE
Post-Treatment	Prep	TOP Post Prep			180223	10/07/21 15:25	S7AC	ELLE
Post-Treatment	Analysis	537 TOP		1	181267	10/11/21 14:28	MT26	ELLE
Total/NA	Analysis	Total PFCA-Dif		1	182758	10/14/21 10:45	V3JD	ELLE
Post-Treatment	Analysis	Total PFCA-Sum		1	181775	10/12/21 11:35	MT26	ELLE
Pre-Treatment	Analysis	Total PFCA-Sum		1	181775	10/12/21 11:35	MT26	ELLE

Lab Chronicle

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-54547-1

Client Sample ID: CONCENTRATE-1

Lab Sample ID: 410-54547-8

Date Collected: 09/01/21 08:00

Matrix: Solid

Date Received: 09/09/21 11:08

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Pre-Treatment	Prep	TOP Pre-Prep			172695	09/17/21 13:16	S7AC	ELLE
Pre-Treatment	Cleanup	Extract Aliquot			172703	09/17/21 13:25	S7AC	ELLE
Pre-Treatment	Analysis	537 IDA		100	173101	09/21/21 02:50	JVK6	ELLE
Post-Treatment	Prep	TOP Post-Prep			186594	10/25/21 08:48	S7AC	ELLE
Post-Treatment	Cleanup	Extract Aliquot			188300	10/28/21 14:17	S7AC	ELLE
Post-Treatment	Analysis	537 TOP		10	188970	10/30/21 14:16	MT26	ELLE
Post-Treatment	Prep	TOP Post-Prep	DL		186594	10/25/21 08:48	S7AC	ELLE
Post-Treatment	Cleanup	Extract Aliquot	DL		188300	10/28/21 14:17	S7AC	ELLE
Post-Treatment	Analysis	537 TOP	DL	100	188970	10/30/21 14:27	MT26	ELLE
Total/NA	Analysis	Total PFCA-Dif		1	189349	11/01/21 13:04	MT26	ELLE
Post-Treatment	Analysis	Total PFCA-Sum		1	189348	11/01/21 13:03	MT26	ELLE
Pre-Treatment	Analysis	Total PFCA-Sum		1	189348	11/01/21 13:03	MT26	ELLE

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Env, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Accreditation/Certification Summary

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-54547-1

Laboratory: Eurofins Lancaster Laboratories Env, LLC

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

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	1.01	11-30-22
Alaska	State	PA00009	06-30-22
Alaska (UST)	State	17-027	02-28-22
Arizona	State	AZ0780	03-12-22
Arkansas DEQ	State	88-0660	08-10-22
California	State	2792	02-02-22
Colorado	State	PA00009	06-30-22
Connecticut	State	PH-0746	06-30-23
DE Haz. Subst. Cleanup Act (HSCA)	State	019-006 (PA cert)	01-31-22
Delaware (DW)	State	N/A	02-01-22
Florida	NELAP	E87997	06-30-22
Hawaii	State	N/A	01-31-22
Illinois	NELAP	004559	01-31-22
Iowa	State	361	03-02-22
Kansas	NELAP	E-10151	10-31-22
Kentucky (DW)	State	KY90088	01-01-22
Kentucky (UST)	State	1.01	11-30-22
Kentucky (WW)	State	KY90088	12-31-21
Louisiana	NELAP	02055	06-30-22
Maine	State	2019012	03-12-22
Maryland	State	100	06-30-22
Massachusetts	State	M-PA009	06-30-22
Michigan	State	9930	01-31-22
Minnesota	NELAP	042-999-487	12-31-21
Missouri	State	450	01-31-22
Montana (DW)	State	0098	01-01-22
Montana (UST)	State	0098	01-01-22
Nebraska	State	NE-OS-32-17	01-31-22
New Hampshire	NELAP	273019	01-10-22
New Jersey	NELAP	PA011	06-30-22
New York	NELAP	10670	04-01-22
North Carolina (DW)	State	42705	07-31-22
North Carolina (WW/SW)	State	521	12-31-21
North Dakota	State	R-205	01-31-22
Oklahoma	NELAP	R-205	08-31-22
Oregon	NELAP	PA200001-018	09-11-22
PALA	Canada	1978	09-16-24
Pennsylvania	NELAP	36-00037	01-31-22
Rhode Island	State	LAO00338	01-31-22
South Carolina	State	89002002	01-31-22
Tennessee	State	02838	01-31-22
Texas	NELAP	T104704194-21-40	08-31-22
Utah	NELAP	PA000092019-16	03-01-22
Virginia	NELAP	10561	06-14-22
Washington	State	C457	04-12-22
West Virginia (DW)	State	9906 C	12-31-21
West Virginia DEP	State	055	12-31-21
Wyoming	State	8TMS-L	01-31-22
Wyoming (UST)	A2LA	1.01	11-30-22

Method Summary

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-54547-1

Method	Method Description	Protocol	Laboratory
537 IDA	EPA 537 Isotope Dilution	EPA	ELLE
537 TOP	Fluorinated Alkyl Substances	EPA	ELLE
Total PFCA-Dif	Total PFCA (Treatment Difference)	TAL SOP	ELLE
Total PFCA-Sum	Total PFCA (Summary)	TAL SOP	ELLE
537 IDA	EPA 537 Isotope Dilution	EPA	ELLE
Extract Aliquot	Preparation, Extract Aliquot	None	ELLE
TOP Post Prep	Solid-Phase Extraction (SPE)	SW846	ELLE
TOP Post-Prep	Shake Extraction with Ultrasonic Bath Extraction	SW846	ELLE
TOP Pre - Prep	Solid-Phase Extraction (SPE)	SW846	ELLE
TOP Pre-Prep	Shake Extraction with Ultrasonic Bath Extraction	SW846	ELLE

Protocol References:

EPA = US Environmental Protection Agency
None = None
SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.
TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Env, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Sample Summary

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-54547-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
410-54547-2	RINSE 1	Water	09/01/21 13:15	09/09/21 11:08
410-54547-3	HYDRANT-1	Water	09/02/21 13:30	09/09/21 11:08
410-54547-4	RINSE 2-1	Water	09/03/21 14:00	09/09/21 11:08
410-54547-5	EFFLUENT-1	Water	09/07/21 14:30	09/09/21 11:08
410-54547-6	RINSE 3-1	Water	09/07/21 17:00	09/09/21 11:08
410-54547-7	EFFLUENT-2	Water	09/08/21 12:30	09/09/21 11:08
410-54547-8	CONCENTRATE-1	Solid	09/01/21 08:00	09/09/21 11:08

Eurofins Lancaster Laboratories Env, LLC
2425 New Holland Pike
Lancaster, PA 17601
Phone: 717-656-2300 Fax: 717-656-2681

Chain of Custody Record

410-54547 Chain of Custody

eurofins Environment Testing America

Client Information	Sampler: RYAN BOTT	Lab PM: Cottman, Hannah L	C No: 0-32700-10190.1
Client Contact: Mr. Robert Kennedy	Phone: 860-263-5867	E-Mail: Hannah.Cottman@eurofinset.com CT	Page: Page 1 of 3
Company: AECOM	PWSID:		Job #: 60662934
Address: 250 Apollo Drive	Due Date Requested:		
City: Chelmsford	TAT Requested (days): STANDARD		
State, Zip: MA, 01824	Compliance Project: Δ Yes Δ No		
Phone:	PO #: Purchase Order Requested 137991		
Email: robert.kennedy@aecom.com	WO #:		
Project Name: AFFF Tanks Cleaning	Project #: 41007527		
Site:	SSOW#:		

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Perform MS / MSD (Y/N)	PFC_IDA - 24 PFAS	PFC_IDA - 24 PFAS - TOP Assay	Total Number of containers	Special Instructions/Note:
CONCENTRATE-1	9/1/21	8:00	G	Water		X	X		AFFF FOAM
RINSE 1	9/1/21	13:15	G	Water		X	X		RESIDUAL AFFF
HYDRANT-1	9/2/21	13:30	G	Water		X	~~X~~ RB	4	
RINSE 2-1	9/3/21	14:00	G	Water		X	X	4	
EFFLUENT-1	9/7/21	14:30	G	Water		X	X		
RINSE 3-1	9/7/21	17:00	G	Water		X	X		
EFFLUENT-2	9/8/21	12:30	G	Water		X	X		
				Water					
				Water					
				Water					
				Water					

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by	Date/Time	Company	Received by	Date/Time	Company
Edwin Hernandez	8/27/21 1315				
AECOM	9/8/21 1500	AECOM			
				9/9/21 1100	

Custody Seals Intact: Δ Yes Δ No
Custody Seal No.:
Cooler Temperature(s) °C and Other Remarks: 4.6

Ver. 06/08/2021

11/1/2021

Login Sample Receipt Checklist

Client: AECOM

Job Number: 410-54547-1

Login Number: 54547
List Number: 1
Creator: Lugardo, Tamara

List Source: Eurofins Lancaster Laboratories Env, LLC

Question	Answer	Comment
The cooler's custody seal is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable (</=6C, not frozen).	True	
Cooler Temperature is recorded.	True	
WV: Container Temperature is acceptable (</=6C, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	True	
Sample custody seals are intact.	N/A	

eurofins | Environment Testing America

ANALYTICAL REPORT

Eurofins Lancaster Laboratories Env, LLC
2425 New Holland Pike
Lancaster, PA 17601
Tel: (717)656-2300

Laboratory Job ID: 410-54640-1
Client Project/Site: AFFF Tanks Cleaning

For:
AECOM
250 Apollo Drive
Chelmsford, Massachusetts 01824

Attn: Mr. Robert Kennedy

Authorized for release by:
10/14/2021 5:52:29 PM

Hannah Cottman, Operations Support Specialist
(717)556-7383
Hannah.Cottman@eurofinset.com

LINKS

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www.eurofinsus.com/Env

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

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

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

Analytical test results meet all requirements of the associated regulatory program (e.g., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis. Data qualifiers are applied to note exceptions. Noncompliant quality control (QC) is further explained in narrative comments.
· QC results that exceed the upper limits and are associated with non-detect samples are qualified but further narration is not required since the bias is high and does not change a non-detect result. Further narration is also not required with QC blank detection when the associated sample concentration is non-detect or more than ten times the level in the blank.
· Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD is performed, unless otherwise specified in the method.
· Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.
Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Measurement uncertainty values, as applicable, are available upon request.

Test results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" and tested in the laboratory are not performed within 15 minutes of collection.

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Hannah Cottman
Operations Support Specialist
10/14/2021 5:52:29 PM

Table of Contents

Cover Page 1
Table of Contents 3
Definitions/Glossary 4
Case Narrative 5
Detection Summary 6
Client Sample Results 14
Surrogate Summary 34
Isotope Dilution Summary 35
QC Sample Results 39
QC Association Summary 51
Lab Chronicle 54
Certification Summary 57
Method Summary 58
Sample Summary 59
Chain of Custody 60
Receipt Checklists 61

Definitions/Glossary

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-54640-1

Qualifiers

LCMS

Qualifier	Qualifier Description
*5+	Isotope dilution analyte is outside acceptance limits, high biased.
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
I	Value is EMPC (estimated maximum possible concentration).

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
1C	Result is from the primary column on a dual-column method.
2C	Result is from the confirmation column on a dual-column method.
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Job ID: 410-54640-1

Laboratory: Eurofins Lancaster Laboratories Env, LLC

Narrative

Job Narrative
410-54640-1

Receipt
The samples were received on 9/10/2021 10:53 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 3.9°C

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

PFAS
Method 537_IDA_TOPS: The sample injection standard peak areas in the following sample: RINSE 4-1 (410-54640-1) are outside of the QC limits for both the initial injection and the re-injection. The values here are from the initial injection of the sample.

Method PFC_IDA: The recovery for the labeled isotope(s) in the following sample: FIELD BLANK-1 (410-54640-5) is outside the QC acceptance limits. Since the recovery is high and the native analyte is not detected in the sample, the data is reported.

Method PFC_IDA: The sample injection standard peak areas in the following sample: RINSE 5-1 AM (410-54640-3) are outside of the QC limits for both the initial injection and the re-injection. The values here are from the initial injection of the sample.The recovery for the labeled isotope(s) in the following sample: RINSE 5-1 AM (410-54640-3) is outside the QC acceptance limits due to the matrix of the sample.

Method PFC_IDA: The recovery for the labeled isotope(s) in the following sample: RINSE 5-1 PM (410-54640-2) is outside the QC acceptance limits due to the matrix of the sample.

Method PFC_IDA: The sample injection standard peak areas in the following sample: RINSE 5-2 AM (410-54640-4) are outside of the QC limits for both the initial injection and the re-injection. The values here are from the initial injection of the sample.

Method PFC_IDA: The labeled isotope recovery is outside of the QC acceptance limits in the method blank and laboratory control spikes associated with the following sample: RINSE 4-1 (410-54640-1). Since the recoveries are biased high, no associated target analytes are detected in the method blank, and all associated target analytes are within the QC limits in the laboratory control spike(s), the data is reported.Reporting limits were raised for the following sample: RINSE 4-1 (410-54640-1) due to interference from the sample matrix.

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

Detection Summary

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-54640-1

Client Sample ID: RINSE 4-1 — Lab Sample ID: 410-54640-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorodecanoic acid	37		20	5.0	ng/L	10		537 IDA	Pre-Treatment
Perfluoroheptanoic acid	52		20	5.0	ng/L	10		537 IDA	Pre-Treatment
Perfluorohexanoic acid	92		20	5.0	ng/L	10		537 IDA	Pre-Treatment
Perfluorononanoic acid	2500		20	5.0	ng/L	10		537 IDA	Pre-Treatment
Perfluorooctanoic acid	130		20	5.0	ng/L	10		537 IDA	Pre-Treatment
Perfluorotridecanoic acid	340		20	5.0	ng/L	10		537 IDA	Pre-Treatment
Perfluoroundecanoic acid	880		20	5.0	ng/L	10		537 IDA	Pre-Treatment
8:2 Fluorotelomer sulfonic acid	1000		30	9.9	ng/L	10		537 IDA	Pre-Treatment
4:2 Fluorotelomer sulfonic acid	20		20	5.0	ng/L	10		537 IDA	Pre-Treatment
6:2 Fluorotelomer sulfonic acid - DL	3000		500	200	ng/L	100		537 IDA	Pre-Treatment
Perfluorodecanoic acid	3900		100	25	ng/L	1		537 TOP	Post-Treatment
Perfluorododecanoic acid	950	I	100	25	ng/L	1		537 TOP	Post-Treatment
Perfluorooctanoic acid	19000		100	25	ng/L	1		537 TOP	Post-Treatment
Perfluorotetradecanoic acid	440		100	25	ng/L	1		537 TOP	Post-Treatment
Perfluorotridecanoic acid	740		100	25	ng/L	1		537 TOP	Post-Treatment
Perfluoroundecanoic acid	3100	I	100	25	ng/L	1		537 TOP	Post-Treatment
Perfluorobutanoic acid - DL	70000		2500	1000	ng/L	10		537 TOP	Post-Treatment
Perfluorononanoic acid - DL	15000		1000	250	ng/L	10		537 TOP	Post-Treatment
Perfluoroheptanoic acid - DL2	59000		10000	2500	ng/L	100		537 TOP	Post-Treatment
Perfluorohexanoic acid - DL2	61000		10000	2500	ng/L	100		537 TOP	Post-Treatment
Perfluoropentanoic acid - DL2	190000		10000	2500	ng/L	100		537 TOP	Post-Treatment
Perfluorobutanoic acid	70000				ng/L	1		Total PFCA-Dif	Total/NA
Perfluoropentanoic acid	190000				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorohexanoic acid	61000				ng/L	1		Total PFCA-Dif	Total/NA
Perfluoroheptanoic acid	59000				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorooctanoic acid	19000				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorononanoic acid	12000				ng/L	1		Total PFCA-Dif	Total/NA
Total PFCA	410000				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorohexanoic acid	92		20	5.0	ng/L	1		Total PFCA-Sum	Pre-Treatment
Perfluoroheptanoic acid	52		20	5.0	ng/L	1		Total PFCA-Sum	Pre-Treatment
Perfluorooctanoic acid	130		20	5.0	ng/L	1		Total PFCA-Sum	Pre-Treatment
Perfluorononanoic acid	2500		20	5.0	ng/L	1		Total PFCA-Sum	Pre-Treatment

This Detection Summary does not include radiochemical test results.

Client Sample ID: RINSE 4-1 (Continued) — Lab Sample ID: 410-54640-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total PFCA	2800		500	0.50	ng/L	1		Total PFCA-Sum	Pre-Treatment
Perfluorobutanoic acid	70000		2500	1000	ng/L	1		Total PFCA-Sum	Post-Treatment
Perfluoropentanoic acid	190000		10000	2500	ng/L	1		Total PFCA-Sum	Post-Treatment
Perfluorohexanoic acid	61000		10000	2500	ng/L	1		Total PFCA-Sum	Post-Treatment
Perfluoroheptanoic acid	59000		10000	2500	ng/L	1		Total PFCA-Sum	Post-Treatment
Perfluorooctanoic acid	19000		100	25	ng/L	1		Total PFCA-Sum	Post-Treatment
Perfluorononanoic acid	15000		1000	250	ng/L	1		Total PFCA-Sum	Post-Treatment
Total PFCA	410000		500	0.50	ng/L	1		Total PFCA-Sum	Post-Treatment

Client Sample ID: RINSE 5-1 PM — Lab Sample ID: 410-54640-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid	9.6		4.6	1.9	ng/L	1		537 IDA	Pre-Treatment
Perfluorodecanoic acid	18		1.9	0.46	ng/L	1		537 IDA	Pre-Treatment
Perfluorododecanoic acid	6.1		1.9	0.46	ng/L	1		537 IDA	Pre-Treatment
Perfluoroheptanoic acid	17		1.9	0.46	ng/L	1		537 IDA	Pre-Treatment
Perfluorohexanoic acid	33		1.9	0.46	ng/L	1		537 IDA	Pre-Treatment
Perfluorooctanesulfonic acid	5.9		1.9	0.46	ng/L	1		537 IDA	Pre-Treatment
Perfluorooctanoic acid	41		1.9	0.46	ng/L	1		537 IDA	Pre-Treatment
Perfluoropentanoic acid	4.2		1.9	0.46	ng/L	1		537 IDA	Pre-Treatment
Perfluorotetradecanoic acid	2.5		1.9	0.46	ng/L	1		537 IDA	Pre-Treatment
Perfluorotridecanoic acid	86		1.9	0.46	ng/L	1		537 IDA	Pre-Treatment
4:2 Fluorotelomer sulfonic acid	6.7		1.9	0.46	ng/L	1		537 IDA	Pre-Treatment
Perfluorononanoic acid - DL	1100		19	4.6	ng/L	10		537 IDA	Pre-Treatment
Perfluoroundecanoic acid - DL	390		19	4.6	ng/L	10		537 IDA	Pre-Treatment
8:2 Fluorotelomer sulfonic acid - DL	440		28	9.3	ng/L	10		537 IDA	Pre-Treatment
6:2 Fluorotelomer sulfonic acid - DL	1100		46	19	ng/L	10		537 IDA	Pre-Treatment
Perfluorobutanoic acid	7300		250	100	ng/L	1		537 TOP	Post-Treatment
Perfluorodecanoic acid	300		100	25	ng/L	1		537 TOP	Post-Treatment
Perfluoroheptanoic acid	3600		100	25	ng/L	1		537 TOP	Post-Treatment
Perfluorononanoic acid	1700		100	25	ng/L	1		537 TOP	Post-Treatment

This Detection Summary does not include radiochemical test results.

Client Sample ID: RINSE 5-1 PM (Continued) — Lab Sample ID: 410-54640-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid	1600		100	25	ng/L	1		537 TOP	Post-Treatment
Perfluoroundecanoic acid	330	I	100	25	ng/L	1		537 TOP	Post-Treatment
Perfluorohexanoic acid - DL	6100		1000	250	ng/L	10		537 TOP	Post-Treatment
Perfluoropentanoic acid - DL	19000		1000	250	ng/L	10		537 TOP	Post-Treatment
Perfluorobutanoic acid	7300				ng/L	1		Total PFCA-Dif	Total/NA
Perfluoropentanoic acid	19000				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorohexanoic acid	6000				ng/L	1		Total PFCA-Dif	Total/NA
Perfluoroheptanoic acid	3600				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorooctanoic acid	1500				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorononanoic acid	640				ng/L	1		Total PFCA-Dif	Total/NA
Total PFCA	38000				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorobutanoic acid	9.6		4.6	1.9	ng/L	1		Total PFCA-Sum	Pre-Treatment
Perfluoropentanoic acid	4.2		1.9	0.46	ng/L	1		Total PFCA-Sum	Pre-Treatment
Perfluorohexanoic acid	33		1.9	0.46	ng/L	1		Total PFCA-Sum	Pre-Treatment
Perfluoroheptanoic acid	17		1.9	0.46	ng/L	1		Total PFCA-Sum	Pre-Treatment
Perfluorooctanoic acid	41		1.9	0.46	ng/L	1		Total PFCA-Sum	Pre-Treatment
Perfluorononanoic acid	1100		19	4.6	ng/L	1		Total PFCA-Sum	Pre-Treatment
Total PFCA	1200		500	0.50	ng/L	1		Total PFCA-Sum	Pre-Treatment
Perfluorobutanoic acid	7300		250	100	ng/L	1		Total PFCA-Sum	Post-Treatment
Perfluoropentanoic acid	19000		1000	250	ng/L	1		Total PFCA-Sum	Post-Treatment
Perfluorohexanoic acid	6100		1000	250	ng/L	1		Total PFCA-Sum	Post-Treatment
Perfluoroheptanoic acid	3600		100	25	ng/L	1		Total PFCA-Sum	Post-Treatment
Perfluorooctanoic acid	1600		100	25	ng/L	1		Total PFCA-Sum	Post-Treatment
Perfluorononanoic acid	1700		100	25	ng/L	1		Total PFCA-Sum	Post-Treatment
Total PFCA	39000		500	0.50	ng/L	1		Total PFCA-Sum	Post-Treatment

Client Sample ID: RINSE 5-1 AM — Lab Sample ID: 410-54640-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid	29		4.4	1.8	ng/L	1		537 IDA	Pre-Treatment
Perfluorodecanoic acid	20		1.8	0.44	ng/L	1		537 IDA	Pre-Treatment
Perfluorododecanoic acid	6.3		1.8	0.44	ng/L	1		537 IDA	Pre-Treatment
Perfluoroheptanoic acid	59		1.8	0.44	ng/L	1		537 IDA	Pre-Treatment
Perfluorohexanesulfonic acid	4.1		1.8	0.44	ng/L	1		537 IDA	Pre-Treatment

This Detection Summary does not include radiochemical test results.

Client Sample ID: RINSE 5-1 AM (Continued)

Lab Sample ID: 410-54640-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid	140		1.8	0.44	ng/L	1		537 IDA	Pre-Treatment
Perfluorooctanesulfonic acid	6.1		1.8	0.44	ng/L	1		537 IDA	Pre-Treatment
Perfluorooctanoic acid	110		1.8	0.44	ng/L	1		537 IDA	Pre-Treatment
Perfluoropentanoic acid	13		1.8	0.44	ng/L	1		537 IDA	Pre-Treatment
Perfluorotetradecanoic acid	3.1		1.8	0.44	ng/L	1		537 IDA	Pre-Treatment
Perfluorotridecanoic acid	110		1.8	0.44	ng/L	1		537 IDA	Pre-Treatment
4:2 Fluorotelomer sulfonic acid	30		1.8	0.44	ng/L	1		537 IDA	Pre-Treatment
Perfluorononanoic acid - DL	1900		18	4.4	ng/L	10		537 IDA	Pre-Treatment
Perfluoroundecanoic acid - DL	370		18	4.4	ng/L	10		537 IDA	Pre-Treatment
8:2 Fluorotelomer sulfonic acid - DL	550		27	8.9	ng/L	10		537 IDA	Pre-Treatment
6:2 Fluorotelomer sulfonic acid - DL	2800		44	18	ng/L	10		537 IDA	Pre-Treatment
Perfluorodecanoic acid	830		100	25	ng/L	1		537 TOP	Post-Treatment
Perfluorododecanoic acid	200	I	100	25	ng/L	1		537 TOP	Post-Treatment
Perfluorooctanoic acid	5600		100	25	ng/L	1		537 TOP	Post-Treatment
Perfluorotridecanoic acid	180		100	25	ng/L	1		537 TOP	Post-Treatment
Perfluoroundecanoic acid	710		100	25	ng/L	1		537 TOP	Post-Treatment
Perfluorobutanoic acid - DL	33000		2500	1000	ng/L	10		537 TOP	Post-Treatment
Perfluoroheptanoic acid - DL	15000		1000	250	ng/L	10		537 TOP	Post-Treatment
Perfluorohexanoic acid - DL	25000		1000	250	ng/L	10		537 TOP	Post-Treatment
Perfluorononanoic acid - DL	4600		1000	250	ng/L	10		537 TOP	Post-Treatment
Perfluoropentanoic acid - DL	78000		1000	250	ng/L	10		537 TOP	Post-Treatment
Perfluorobutanoic acid	33000				ng/L	1		Total PFCA-Dif	Total/NA
Perfluoropentanoic acid	78000				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorohexanoic acid	25000				ng/L	1		Total PFCA-Dif	Total/NA
Perfluoroheptanoic acid	15000				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorooctanoic acid	5500				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorononanoic acid	2700				ng/L	1		Total PFCA-Dif	Total/NA
Total PFCA	160000				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorobutanoic acid	29		4.4	1.8	ng/L	1		Total PFCA-Sum	Pre-Treatment
Perfluoropentanoic acid	13		1.8	0.44	ng/L	1		Total PFCA-Sum	Pre-Treatment
Perfluorohexanoic acid	140		1.8	0.44	ng/L	1		Total PFCA-Sum	Pre-Treatment
Perfluoroheptanoic acid	59		1.8	0.44	ng/L	1		Total PFCA-Sum	Pre-Treatment

This Detection Summary does not include radiochemical test results.

Client Sample ID: RINSE 5-1 AM (Continued) — Lab Sample ID: 410-54640-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid	110		1.8	0.44	ng/L	1		Total PFCA-Sum	Pre-Treatment
Perfluorononanoic acid	1900		18	4.4	ng/L	1		Total PFCA-Sum	Pre-Treatment
Total PFCA	2300		500	0.50	ng/L	1		Total PFCA-Sum	Pre-Treatment
Perfluorobutanoic acid	33000		2500	1000	ng/L	1		Total PFCA-Sum	Post-Treatment
Perfluoropentanoic acid	78000		1000	250	ng/L	1		Total PFCA-Sum	Post-Treatment
Perfluorohexanoic acid	25000		1000	250	ng/L	1		Total PFCA-Sum	Post-Treatment
Perfluoroheptanoic acid	15000		1000	250	ng/L	1		Total PFCA-Sum	Post-Treatment
Perfluorooctanoic acid	5600		100	25	ng/L	1		Total PFCA-Sum	Post-Treatment
Perfluorononanoic acid	4600		1000	250	ng/L	1		Total PFCA-Sum	Post-Treatment
Total PFCA	160000		500	0.50	ng/L	1		Total PFCA-Sum	Post-Treatment

Client Sample ID: RINSE 5-2 AM — Lab Sample ID: 410-54640-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanesulfonic acid	2.6	I	1.7	0.43	ng/L	1		537 IDA	Pre-Treatment
Perfluorobutanoic acid	75		4.3	1.7	ng/L	1		537 IDA	Pre-Treatment
Perfluorodecanoic acid	35		1.7	0.43	ng/L	1		537 IDA	Pre-Treatment
Perfluorododecanoic acid	11		1.7	0.43	ng/L	1		537 IDA	Pre-Treatment
Perfluoroheptanoic acid	140		1.7	0.43	ng/L	1		537 IDA	Pre-Treatment
Perfluorohexanesulfonic acid	8.0		1.7	0.43	ng/L	1		537 IDA	Pre-Treatment
Perfluorooctanesulfonic acid	11		1.7	0.43	ng/L	1		537 IDA	Pre-Treatment
Perfluorooctanoic acid	250		1.7	0.43	ng/L	1		537 IDA	Pre-Treatment
Perfluoropentanoic acid	33		1.7	0.43	ng/L	1		537 IDA	Pre-Treatment
Perfluorotetradecanoic acid	5.0		1.7	0.43	ng/L	1		537 IDA	Pre-Treatment
Perfluorotridecanoic acid	200		1.7	0.43	ng/L	1		537 IDA	Pre-Treatment
4:2 Fluorotelomer sulfonic acid	79		1.7	0.43	ng/L	1		537 IDA	Pre-Treatment
Perfluorohexanoic acid - DL	350		17	4.3	ng/L	10		537 IDA	Pre-Treatment
Perfluorononanoic acid - DL	3200		17	4.3	ng/L	10		537 IDA	Pre-Treatment
Perfluoroundecanoic acid - DL	570		17	4.3	ng/L	10		537 IDA	Pre-Treatment
8:2 Fluorotelomer sulfonic acid - DL	740		26	8.6	ng/L	10		537 IDA	Pre-Treatment
6:2 Fluorotelomer sulfonic acid - DL2	4800		430	170	ng/L	100		537 IDA	Pre-Treatment

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-54640-1

Client Sample ID: RINSE 5-2 AM (Continued) — Lab Sample ID: 410-54640-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid	12000		250	100	ng/L	1		537 TOP	Post-Treatment
Perfluorodecanoic acid	420		100	25	ng/L	1		537 TOP	Post-Treatment
Perfluorododecanoic acid	100	I	100	25	ng/L	1		537 TOP	Post-Treatment
Perfluorononanoic acid	2300		100	25	ng/L	1		537 TOP	Post-Treatment
Perfluorooctanoic acid	2600		100	25	ng/L	1		537 TOP	Post-Treatment
Perfluoroundecanoic acid	360		100	25	ng/L	1		537 TOP	Post-Treatment
Perfluoroheptanoic acid - DL	6400		1000	250	ng/L	10		537 TOP	Post-Treatment
Perfluorohexanoic acid - DL	9500		1000	250	ng/L	10		537 TOP	Post-Treatment
Perfluoropentanoic acid - DL	32000		1000	250	ng/L	10		537 TOP	Post-Treatment
Perfluorobutanoic acid	12000				ng/L	1		Total PFCA-Dif	Total/NA
Perfluoropentanoic acid	32000				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorohexanoic acid	9100				ng/L	1		Total PFCA-Dif	Total/NA
Perfluoroheptanoic acid	6200				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorooctanoic acid	2300				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorononanoic acid	0.00				ng/L	1		Total PFCA-Dif	Total/NA
Total PFCA	61000				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorobutanoic acid	75		4.3	1.7	ng/L	1		Total PFCA-Sum	Pre-Treatment
Perfluoropentanoic acid	33		1.7	0.43	ng/L	1		Total PFCA-Sum	Pre-Treatment
Perfluorohexanoic acid	350		17	4.3	ng/L	1		Total PFCA-Sum	Pre-Treatment
Perfluoroheptanoic acid	140		1.7	0.43	ng/L	1		Total PFCA-Sum	Pre-Treatment
Perfluorooctanoic acid	250		1.7	0.43	ng/L	1		Total PFCA-Sum	Pre-Treatment
Perfluorononanoic acid	3200		17	4.3	ng/L	1		Total PFCA-Sum	Pre-Treatment
Total PFCA	4000		500	0.50	ng/L	1		Total PFCA-Sum	Pre-Treatment
Perfluorobutanoic acid	12000		250	100	ng/L	1		Total PFCA-Sum	Post-Treatment
Perfluoropentanoic acid	32000		1000	250	ng/L	1		Total PFCA-Sum	Post-Treatment
Perfluorohexanoic acid	9500		1000	250	ng/L	1		Total PFCA-Sum	Post-Treatment
Perfluoroheptanoic acid	6400		1000	250	ng/L	1		Total PFCA-Sum	Post-Treatment
Perfluorooctanoic acid	2600		100	25	ng/L	1		Total PFCA-Sum	Post-Treatment
Perfluorononanoic acid	2300		100	25	ng/L	1		Total PFCA-Sum	Post-Treatment
Total PFCA	65000		500	0.50	ng/L	1		Total PFCA-Sum	Post-Treatment

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-54640-1

Client Sample ID: FIELD BLANK-1 — Lab Sample ID: 410-54640-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid	0.00				ng/L	1		Total PFCA-Dif	Total/NA
Perfluoropentanoic acid	0.00				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorohexanoic acid	0.00				ng/L	1		Total PFCA-Dif	Total/NA
Perfluoroheptanoic acid	0.00				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorooctanoic acid	0.00				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorononanoic acid	0.00				ng/L	1		Total PFCA-Dif	Total/NA
Total PFCA	0.00				ng/L	1		Total PFCA-Dif	Total/NA

Client Sample ID: EFFLUENT-3-1 — Lab Sample ID: 410-54640-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorododecanoic acid	2.3		1.8	0.44	ng/L	1		537 IDA	Pre-Treatment
Perfluorotetradecanoic acid	2.4		1.8	0.44	ng/L	1		537 IDA	Pre-Treatment
Perfluorotridecanoic acid	100		1.8	0.44	ng/L	1		537 IDA	Pre-Treatment
Perfluoroundecanoic acid	64		1.8	0.44	ng/L	1		537 IDA	Pre-Treatment
Perfluorobutanoic acid	29		25	10	ng/L	1		537 TOP	Post-Treatment
Perfluorodecanoic acid	79		10	2.5	ng/L	1		537 TOP	Post-Treatment
Perfluorododecanoic acid	67	I	10	2.5	ng/L	1		537 TOP	Post-Treatment
Perfluoroheptanoic acid	51		10	2.5	ng/L	1		537 TOP	Post-Treatment
Perfluorohexanoic acid	45		10	2.5	ng/L	1		537 TOP	Post-Treatment
Perfluorononanoic acid	67		10	2.5	ng/L	1		537 TOP	Post-Treatment
Perfluorooctanoic acid	58		10	2.5	ng/L	1		537 TOP	Post-Treatment
Perfluoropentanoic acid	63		10	2.5	ng/L	1		537 TOP	Post-Treatment
Perfluorotetradecanoic acid	43		10	2.5	ng/L	1		537 TOP	Post-Treatment
Perfluorotridecanoic acid	66		10	2.5	ng/L	1		537 TOP	Post-Treatment
Perfluoroundecanoic acid	170		10	2.5	ng/L	1		537 TOP	Post-Treatment
Perfluorobutanoic acid	29				ng/L	1		Total PFCA-Dif	Total/NA
Perfluoropentanoic acid	63				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorohexanoic acid	45				ng/L	1		Total PFCA-Dif	Total/NA
Perfluoroheptanoic acid	51				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorooctanoic acid	58				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorononanoic acid	67				ng/L	1		Total PFCA-Dif	Total/NA
Total PFCA	0.00				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorobutanoic acid	29		25	10	ng/L	1		Total PFCA-Sum	Post-Treatment
Perfluoropentanoic acid	63		10	2.5	ng/L	1		Total PFCA-Sum	Post-Treatment
Perfluorohexanoic acid	45		10	2.5	ng/L	1		Total PFCA-Sum	Post-Treatment
Perfluoroheptanoic acid	51		10	2.5	ng/L	1		Total PFCA-Sum	Post-Treatment

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-54640-1

Client Sample ID: EFFLUENT-3-1 (Continued)

Lab Sample ID: 410-54640-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid	58		10	2.5	ng/L	1		Total PFCA-Sum	Post-Treatment
Perfluorononanoic acid	67		10	2.5	ng/L	1		Total PFCA-Sum	Post-Treatment

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-54640-1

Client Sample ID: RINSE 4-1

Date Collected: 09/08/21 16:30
Date Received: 09/10/21 10:53

Lab Sample ID: 410-54640-1

Matrix: Water

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid	<20		20	5.0	ng/L		09/21/21 08:55	09/22/21 20:37	10
Perfluorobutanoic acid	<50		50	20	ng/L		09/21/21 08:55	09/22/21 20:37	10
Perfluorodecanesulfonic acid	<20		20	5.0	ng/L		09/21/21 08:55	09/22/21 20:37	10
Perfluorodecanoic acid	**37**		20	5.0	ng/L		09/21/21 08:55	09/22/21 20:37	10
Perfluorododecanoic acid	<20		20	5.0	ng/L		09/21/21 08:55	09/22/21 20:37	10
Perfluoroheptanesulfonic acid	<20		20	5.0	ng/L		09/21/21 08:55	09/22/21 20:37	10
Perfluoroheptanoic acid	**52**		20	5.0	ng/L		09/21/21 08:55	09/22/21 20:37	10
Perfluorohexanesulfonic acid	<20		20	5.0	ng/L		09/21/21 08:55	09/22/21 20:37	10
Perfluorohexanoic acid	**92**		20	5.0	ng/L		09/21/21 08:55	09/22/21 20:37	10
Perfluorononanesulfonic acid	<20		20	5.0	ng/L		09/21/21 08:55	09/22/21 20:37	10
Perfluorononanoic acid	**2500**		20	5.0	ng/L		09/21/21 08:55	09/22/21 20:37	10
Perfluorooctanesulfonamide	<20		20	5.0	ng/L		09/21/21 08:55	09/22/21 20:37	10
Perfluorooctanesulfonic acid	<20		20	5.0	ng/L		09/21/21 08:55	09/22/21 20:37	10
Perfluorooctanoic acid	**130**		20	5.0	ng/L		09/21/21 08:55	09/22/21 20:37	10
Perfluoropentanesulfonic acid	<20		20	5.0	ng/L		09/21/21 08:55	09/22/21 20:37	10
Perfluoropentanoic acid	<20		20	5.0	ng/L		09/21/21 08:55	09/22/21 20:37	10
Perfluorotetradecanoic acid	<20		20	5.0	ng/L		09/21/21 08:55	09/22/21 20:37	10
Perfluorotridecanoic acid	**340**		20	5.0	ng/L		09/21/21 08:55	09/22/21 20:37	10
Perfluoroundecanoic acid	**880**		20	5.0	ng/L		09/21/21 08:55	09/22/21 20:37	10
8:2 Fluorotelomer sulfonic acid	**1000**		30	9.9	ng/L		09/21/21 08:55	09/22/21 20:37	10
4:2 Fluorotelomer sulfonic acid	**20**		20	5.0	ng/L		09/21/21 08:55	09/22/21 20:37	10
NEtFOSAA	<30		30	5.0	ng/L		09/21/21 08:55	09/22/21 20:37	10
NMeFOSAA	<20		20	6.0	ng/L		09/21/21 08:55	09/22/21 20:37	10

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*106*		*41 - 132*	*09/21/21 08:55*	*09/22/21 20:37*	*10*
13C8 FOSA	*125*		*10 - 143*	*09/21/21 08:55*	*09/22/21 20:37*	*10*
13C4 PFHpA	*318*	**5+*	*30 - 144*	*09/21/21 08:55*	*09/22/21 20:37*	*10*
13C5 PFPeA	*117*		*33 - 155*	*09/21/21 08:55*	*09/22/21 20:37*	*10*
13C2 PFTeDA	*110*		*10 - 144*	*09/21/21 08:55*	*09/22/21 20:37*	*10*
d3-NMeFOSAA	*117*		*32 - 151*	*09/21/21 08:55*	*09/22/21 20:37*	*10*
d5-NEtFOSAA	*130*		*37 - 164*	*09/21/21 08:55*	*09/22/21 20:37*	*10*
M2-6:2 FTS	*160*		*29 - 189*	*09/21/21 08:55*	*09/22/21 20:37*	*10*
M2-8:2 FTS	*106*		*34 - 182*	*09/21/21 08:55*	*09/22/21 20:37*	*10*
13C3 PFBS	*120*		*19 - 178*	*09/21/21 08:55*	*09/22/21 20:37*	*10*
M2-4:2 FTS	*351*	**5+*	*20 - 187*	*09/21/21 08:55*	*09/22/21 20:37*	*10*
13C8 PFOA	*109*		*49 - 127*	*09/21/21 08:55*	*09/22/21 20:37*	*10*
13C8 PFOS	*103*		*49 - 126*	*09/21/21 08:55*	*09/22/21 20:37*	*10*
13C5 PFHxA	*288*	**5+*	*31 - 142*	*09/21/21 08:55*	*09/22/21 20:37*	*10*
13C9 PFNA	*122*		*47 - 136*	*09/21/21 08:55*	*09/22/21 20:37*	*10*
13C6 PFDA	*96*		*47 - 128*	*09/21/21 08:55*	*09/22/21 20:37*	*10*
13C7 PFUnA	*113*		*40 - 135*	*09/21/21 08:55*	*09/22/21 20:37*	*10*
13C3 PFHxS	*277*	**5+*	*32 - 145*	*09/21/21 08:55*	*09/22/21 20:37*	*10*
13C2-PFDoDA	*125*		*28 - 136*	*09/21/21 08:55*	*09/22/21 20:37*	*10*

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
6:2 Fluorotelomer sulfonic acid	**3000**		500	200	ng/L		09/21/21 08:55	09/23/21 22:07	100

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-6:2 FTS	*177*		*29 - 189*	*09/21/21 08:55*	*09/23/21 22:07*	*100*

Client Sample Results

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-54640-1

Client Sample ID: RINSE 4-1

Date Collected: 09/08/21 16:30
Date Received: 09/10/21 10:53

Lab Sample ID: 410-54640-1

Matrix: Water

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
10:2 Fluorotelomer sulfonic acid	<250		250	50	ng/L		10/07/21 15:25	10/11/21 14:49	1
11Cl-PF3OUdS	<100		100	25	ng/L		10/07/21 15:25	10/11/21 14:49	1
4:2 Fluorotelomer sulfonic acid	<100		100	25	ng/L		10/07/21 15:25	10/11/21 14:49	1
6:2 Fluorotelomer sulfonic acid	<250		250	100	ng/L		10/07/21 15:25	10/11/21 14:49	1
8:2 Fluorotelomer sulfonic acid	<150		150	50	ng/L		10/07/21 15:25	10/11/21 14:49	1
9Cl-PF3ONS	<100		100	25	ng/L		10/07/21 15:25	10/11/21 14:49	1
DONA	<100		100	25	ng/L		10/07/21 15:25	10/11/21 14:49	1
HFPODA	<150		150	25	ng/L		10/07/21 15:25	10/11/21 14:49	1
NEtFOSAA	<150		150	25	ng/L		10/07/21 15:25	10/11/21 14:49	1
NEtFOSA	<250		250	50	ng/L		10/07/21 15:25	10/11/21 14:49	1
NEtFOSE	<150		150	50	ng/L		10/07/21 15:25	10/11/21 14:49	1
NMeFOSAA	<100		100	30	ng/L		10/07/21 15:25	10/11/21 14:49	1
NMeFOSA	<150		150	50	ng/L		10/07/21 15:25	10/11/21 14:49	1
NMeFOSE	<150		150	50	ng/L		10/07/21 15:25	10/11/21 14:49	1
Perfluorobutanesulfonic acid	<100		100	25	ng/L		10/07/21 15:25	10/11/21 14:49	1
Perfluorodecanesulfonic acid	<100		100	25	ng/L		10/07/21 15:25	10/11/21 14:49	1
Perfluorodecanoic acid	**3900**		100	25	ng/L		10/07/21 15:25	10/11/21 14:49	1
Perfluorododecanesulfonic acid (PFDoS)	<150		150	25	ng/L		10/07/21 15:25	10/11/21 14:49	1
Perfluorododecanoic acid	**950**	**I**	100	25	ng/L		10/07/21 15:25	10/11/21 14:49	1
Perfluoroheptanesulfonic acid	<100		100	25	ng/L		10/07/21 15:25	10/11/21 14:49	1
Perfluorohexadecanoic acid	<150		150	50	ng/L		10/07/21 15:25	10/11/21 14:49	1
Perfluorohexanesulfonic acid	<100		100	25	ng/L		10/07/21 15:25	10/11/21 14:49	1
Perfluorononanesulfonic acid	<100		100	25	ng/L		10/07/21 15:25	10/11/21 14:49	1
Perfluorooctadecanoic acid	<150		150	50	ng/L		10/07/21 15:25	10/11/21 14:49	1
Perfluorooctanesulfonamide	<100		100	25	ng/L		10/07/21 15:25	10/11/21 14:49	1
Perfluorooctanesulfonic acid	<100		100	25	ng/L		10/07/21 15:25	10/11/21 14:49	1
Perfluorooctanoic acid	**19000**		100	25	ng/L		10/07/21 15:25	10/11/21 14:49	1
Perfluoropentanesulfonic acid	<100		100	25	ng/L		10/07/21 15:25	10/11/21 14:49	1
Perfluorotetradecanoic acid	**440**		100	25	ng/L		10/07/21 15:25	10/11/21 14:49	1
Perfluorotridecanoic acid	**740**		100	25	ng/L		10/07/21 15:25	10/11/21 14:49	1
Perfluoroundecanoic acid	**3100**	**I**	100	25	ng/L		10/07/21 15:25	10/11/21 14:49	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-6:2 FTS	*87*		*55 - 167*	*10/07/21 15:25*	*10/11/21 14:49*	*1*
M2-8:2 FTS	*95*		*61 - 160*	*10/07/21 15:25*	*10/11/21 14:49*	*1*
13C2-PFDoDA	*87*		*47 - 118*	*10/07/21 15:25*	*10/11/21 14:49*	*1*
13C2 PFTeDA	*75*		*32 - 126*	*10/07/21 15:25*	*10/11/21 14:49*	*1*
13C3 HFPO-DA	*105*		*70 - 130*	*10/07/21 15:25*	*10/11/21 14:49*	*1*
13C3 PFBS	*182*	**5+*	*18 - 177*	*10/07/21 15:25*	*10/11/21 14:49*	*1*
13C3 PFHxS	*70*		*55 - 115*	*10/07/21 15:25*	*10/11/21 14:49*	*1*
13C4 PFBA	*96*		*52 - 126*	*10/07/21 15:25*	*10/11/21 14:49*	*1*
13C4 PFHpA	*74*		*55 - 113*	*10/07/21 15:25*	*10/11/21 14:49*	*1*
13C5 PFHxA	*59*		*54 - 115*	*10/07/21 15:25*	*10/11/21 14:49*	*1*
13C5 PFPeA	*69*		*17 - 184*	*10/07/21 15:25*	*10/11/21 14:49*	*1*
13C6 PFDA	*92*		*56 - 114*	*10/07/21 15:25*	*10/11/21 14:49*	*1*
13C7 PFUnA	*90*		*50 - 120*	*10/07/21 15:25*	*10/11/21 14:49*	*1*
13C8 PFOA	*90*		*56 - 117*	*10/07/21 15:25*	*10/11/21 14:49*	*1*
13C8 PFOS	*94*		*56 - 112*	*10/07/21 15:25*	*10/11/21 14:49*	*1*
13C8 FOSA	*76*		*10 - 126*	*10/07/21 15:25*	*10/11/21 14:49*	*1*

Client Sample ID: RINSE 4-1

Date Collected: 09/08/21 16:30
Date Received: 09/10/21 10:53

Lab Sample ID: 410-54640-1

Matrix: Water

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C9 PFNA	102		54 - 122	10/07/21 15:25	10/11/21 14:49	1
M2-4:2 FTS				10/07/21 15:25	10/11/21 14:49	1
d3-NMeFOSAA				10/07/21 15:25	10/11/21 14:49	1
d3-NMePFOSA	24		10 - 51	10/07/21 15:25	10/11/21 14:49	1
d5-NEtFOSAA	98		65 - 134	10/07/21 15:25	10/11/21 14:49	1
d5-NEtPFOSA	21		10 - 51	10/07/21 15:25	10/11/21 14:49	1
d7-N-MeFOSE-M	65		10 - 105	10/07/21 15:25	10/11/21 14:49	1
d9-N-EtFOSE-M	63		10 - 112	10/07/21 15:25	10/11/21 14:49	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	60		40 - 173	10/07/21 15:25	10/11/21 14:49	1
13C2 PFUnA	85		49 - 132	10/07/21 15:25	10/11/21 14:49	1
13C4 PFOA	79		10 - 163	10/07/21 15:25	10/11/21 14:49	1

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid	**70000**		2500	1000	ng/L		10/07/21 15:25	10/11/21 15:10	10
Perfluorononanoic acid	**15000**		1000	250	ng/L		10/07/21 15:25	10/11/21 15:10	10

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	100		52 - 126	10/07/21 15:25	10/11/21 15:10	10
13C9 PFNA	111		54 - 122	10/07/21 15:25	10/11/21 15:10	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	77		40 - 173	10/07/21 15:25	10/11/21 15:10	10
13C2 PFUnA	85		49 - 132	10/07/21 15:25	10/11/21 15:10	10
13C4 PFOA	87		10 - 163	10/07/21 15:25	10/11/21 15:10	10

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment - DL2

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoroheptanoic acid	**59000**		10000	2500	ng/L		10/07/21 15:25	10/12/21 09:52	100
Perfluorohexanoic acid	**61000**		10000	2500	ng/L		10/07/21 15:25	10/12/21 09:52	100
Perfluoropentanoic acid	**190000**		10000	2500	ng/L		10/07/21 15:25	10/12/21 09:52	100

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFHpA	103		55 - 113	10/07/21 15:25	10/12/21 09:52	100
13C5 PFHxA	105		54 - 115	10/07/21 15:25	10/12/21 09:52	100
13C5 PFPeA	94		17 - 184	10/07/21 15:25	10/12/21 09:52	100

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	95		40 - 173	10/07/21 15:25	10/12/21 09:52	100
13C2 PFUnA	109		49 - 132	10/07/21 15:25	10/12/21 09:52	100
13C4 PFOA	103		10 - 163	10/07/21 15:25	10/12/21 09:52	100

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment - RA

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	64		40 - 173	10/07/21 15:25	10/11/21 15:00	1
13C2 PFUnA	89		49 - 132	10/07/21 15:25	10/11/21 15:00	1
13C4 PFOA	82		10 - 163	10/07/21 15:25	10/11/21 15:00	1

Client Sample Results

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-54640-1

Client Sample ID: RINSE 4-1

Lab Sample ID: 410-54640-1
Matrix: Water
Date Collected: 09/08/21 16:30
Date Received: 09/10/21 10:53

Method: Total PFCA-Dif - Total PFCA (Treatment Difference)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid	**70000**				ng/L			10/14/21 10:49	1
Perfluoropentanoic acid	**190000**				ng/L			10/14/21 10:49	1
Perfluorohexanoic acid	**61000**				ng/L			10/14/21 10:49	1
Perfluoroheptanoic acid	**59000**				ng/L			10/14/21 10:49	1
Perfluorooctanoic acid	**19000**				ng/L			10/14/21 10:49	1
Perfluorononanoic acid	**12000**				ng/L			10/14/21 10:49	1
Total PFCA	**410000**				ng/L			10/14/21 10:49	1

Method: Total PFCA-Sum - Total PFCA (Summary) - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid	<50		50	20	ng/L			10/14/21 10:50	1
Perfluoropentanoic acid	<20		20	5.0	ng/L			10/14/21 10:50	1
Perfluorohexanoic acid	**92**		20	5.0	ng/L			10/14/21 10:50	1
Perfluoroheptanoic acid	**52**		20	5.0	ng/L			10/14/21 10:50	1
Perfluorooctanoic acid	**130**		20	5.0	ng/L			10/14/21 10:50	1
Perfluorononanoic acid	**2500**		20	5.0	ng/L			10/14/21 10:50	1
Total PFCA	**2800**		500	0.50	ng/L			10/14/21 10:50	1

Method: Total PFCA-Sum - Total PFCA (Summary) - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid	**70000**		2500	1000	ng/L			10/14/21 10:50	1
Perfluoropentanoic acid	**190000**		10000	2500	ng/L			10/14/21 10:50	1
Perfluorohexanoic acid	**61000**		10000	2500	ng/L			10/14/21 10:50	1
Perfluoroheptanoic acid	**59000**		10000	2500	ng/L			10/14/21 10:50	1
Perfluorooctanoic acid	**19000**		100	25	ng/L			10/14/21 10:50	1
Perfluorononanoic acid	**15000**		1000	250	ng/L			10/14/21 10:50	1
Total PFCA	**410000**		500	0.50	ng/L			10/14/21 10:50	1

Client Sample ID: RINSE 5-1 PM

Lab Sample ID: 410-54640-2
Matrix: Water
Date Collected: 09/08/21 17:00
Date Received: 09/10/21 10:53

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid	<1.9		1.9	0.46	ng/L		09/16/21 09:14	09/21/21 20:20	1
Perfluorobutanoic acid	**9.6**		4.6	1.9	ng/L		09/16/21 09:14	09/21/21 20:20	1
Perfluorodecanesulfonic acid	<1.9		1.9	0.46	ng/L		09/16/21 09:14	09/21/21 20:20	1
Perfluorodecanoic acid	**18**		1.9	0.46	ng/L		09/16/21 09:14	09/21/21 20:20	1
Perfluorododecanoic acid	**6.1**		1.9	0.46	ng/L		09/16/21 09:14	09/21/21 20:20	1
Perfluoroheptanesulfonic acid	<1.9		1.9	0.46	ng/L		09/16/21 09:14	09/21/21 20:20	1
Perfluoroheptanoic acid	**17**		1.9	0.46	ng/L		09/16/21 09:14	09/21/21 20:20	1
Perfluorohexanesulfonic acid	<1.9		1.9	0.46	ng/L		09/16/21 09:14	09/21/21 20:20	1
Perfluorohexanoic acid	**33**		1.9	0.46	ng/L		09/16/21 09:14	09/21/21 20:20	1
Perfluorononanesulfonic acid	<1.9		1.9	0.46	ng/L		09/16/21 09:14	09/21/21 20:20	1
Perfluorooctanesulfonamide	<1.9		1.9	0.46	ng/L		09/16/21 09:14	09/21/21 20:20	1
Perfluorooctanesulfonic acid	**5.9**		1.9	0.46	ng/L		09/16/21 09:14	09/21/21 20:20	1
Perfluorooctanoic acid	**41**		1.9	0.46	ng/L		09/16/21 09:14	09/21/21 20:20	1
Perfluoropentanesulfonic acid	<1.9		1.9	0.46	ng/L		09/16/21 09:14	09/21/21 20:20	1
Perfluoropentanoic acid	**4.2**		1.9	0.46	ng/L		09/16/21 09:14	09/21/21 20:20	1
Perfluorotetradecanoic acid	**2.5**		1.9	0.46	ng/L		09/16/21 09:14	09/21/21 20:20	1

Client Sample ID: RINSE 5-1 PM

Lab Sample ID: 410-54640-2

Date Collected: 09/08/21 17:00
Date Received: 09/10/21 10:53

Matrix: Water

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorotridecanoic acid	**86**		1.9	0.46	ng/L		09/16/21 09:14	09/21/21 20:20	1
4:2 Fluorotelomer sulfonic acid	**6.7**		1.9	0.46	ng/L		09/16/21 09:14	09/21/21 20:20	1
NEtFOSAA	<2.8		2.8	0.46	ng/L		09/16/21 09:14	09/21/21 20:20	1
NMeFOSAA	<1.9		1.9	0.56	ng/L		09/16/21 09:14	09/21/21 20:20	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*121*		*41 - 132*	*09/16/21 09:14*	*09/21/21 20:20*	*1*
13C8 FOSA	*114*		*10 - 143*	*09/16/21 09:14*	*09/21/21 20:20*	*1*
13C4 PFHpA	*230*	**5+*	*30 - 144*	*09/16/21 09:14*	*09/21/21 20:20*	*1*
13C5 PFPeA	*126*		*33 - 155*	*09/16/21 09:14*	*09/21/21 20:20*	*1*
13C2 PFTeDA	*30*		*10 - 144*	*09/16/21 09:14*	*09/21/21 20:20*	*1*
d3-NMeFOSAA	*136*		*32 - 151*	*09/16/21 09:14*	*09/21/21 20:20*	*1*
d5-NEtFOSAA	*131*		*37 - 164*	*09/16/21 09:14*	*09/21/21 20:20*	*1*
M2-6:2 FTS	*166*		*29 - 189*	*09/16/21 09:14*	*09/21/21 20:20*	*1*
M2-8:2 FTS	*138*		*34 - 182*	*09/16/21 09:14*	*09/21/21 20:20*	*1*
13C3 PFBS	*130*		*19 - 178*	*09/16/21 09:14*	*09/21/21 20:20*	*1*
M2-4:2 FTS	*303*	**5+*	*20 - 187*	*09/16/21 09:14*	*09/21/21 20:20*	*1*
13C8 PFOA	*117*		*49 - 127*	*09/16/21 09:14*	*09/21/21 20:20*	*1*
13C8 PFOS	*114*		*49 - 126*	*09/16/21 09:14*	*09/21/21 20:20*	*1*
13C5 PFHxA	*226*	**5+*	*31 - 142*	*09/16/21 09:14*	*09/21/21 20:20*	*1*
13C9 PFNA	*119*		*47 - 136*	*09/16/21 09:14*	*09/21/21 20:20*	*1*
13C6 PFDA	*109*		*47 - 128*	*09/16/21 09:14*	*09/21/21 20:20*	*1*
13C7 PFUnA	*111*		*40 - 135*	*09/16/21 09:14*	*09/21/21 20:20*	*1*
13C3 PFHxS	*219*	**5+*	*32 - 145*	*09/16/21 09:14*	*09/21/21 20:20*	*1*
13C2-PFDoDA	*123*		*28 - 136*	*09/16/21 09:14*	*09/21/21 20:20*	*1*

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorononanoic acid	**1100**		19	4.6	ng/L		09/16/21 09:14	09/18/21 23:03	10
Perfluoroundecanoic acid	**390**		19	4.6	ng/L		09/16/21 09:14	09/18/21 23:03	10
8:2 Fluorotelomer sulfonic acid	**440**		28	9.3	ng/L		09/16/21 09:14	09/18/21 23:03	10
6:2 Fluorotelomer sulfonic acid	**1100**		46	19	ng/L		09/16/21 09:14	09/18/21 23:03	10

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-6:2 FTS	*330*	**5+*	*29 - 189*	*09/16/21 09:14*	*09/18/21 23:03*	*10*
M2-8:2 FTS	*267*	**5+*	*34 - 182*	*09/16/21 09:14*	*09/18/21 23:03*	*10*
13C9 PFNA	*223*	**5+*	*47 - 136*	*09/16/21 09:14*	*09/18/21 23:03*	*10*
13C7 PFUnA	*208*	**5+*	*40 - 135*	*09/16/21 09:14*	*09/18/21 23:03*	*10*

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
10:2 Fluorotelomer sulfonic acid	<250		250	50	ng/L		10/07/21 15:25	10/11/21 15:31	1
11Cl-PF3OUdS	<100		100	25	ng/L		10/07/21 15:25	10/11/21 15:31	1
4:2 Fluorotelomer sulfonic acid	<100		100	25	ng/L		10/07/21 15:25	10/11/21 15:31	1
6:2 Fluorotelomer sulfonic acid	<250		250	100	ng/L		10/07/21 15:25	10/11/21 15:31	1
8:2 Fluorotelomer sulfonic acid	<150		150	50	ng/L		10/07/21 15:25	10/11/21 15:31	1
9Cl-PF3ONS	<100		100	25	ng/L		10/07/21 15:25	10/11/21 15:31	1
DONA	<100		100	25	ng/L		10/07/21 15:25	10/11/21 15:31	1
HFPODA	<150		150	25	ng/L		10/07/21 15:25	10/11/21 15:31	1
NEtFOSAA	<150		150	25	ng/L		10/07/21 15:25	10/11/21 15:31	1
NEtFOSA	<250		250	50	ng/L		10/07/21 15:25	10/11/21 15:31	1

Client Sample ID: RINSE 5-1 PM

Date Collected: 09/08/21 17:00
Date Received: 09/10/21 10:53

Lab Sample ID: 410-54640-2

Matrix: Water

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NEtFOSE	<150		150	50	ng/L		10/07/21 15:25	10/11/21 15:31	1
NMeFOSAA	<100		100	30	ng/L		10/07/21 15:25	10/11/21 15:31	1
NMeFOSA	<150		150	50	ng/L		10/07/21 15:25	10/11/21 15:31	1
NMeFOSE	<150		150	50	ng/L		10/07/21 15:25	10/11/21 15:31	1
Perfluorobutanesulfonic acid	<100		100	25	ng/L		10/07/21 15:25	10/11/21 15:31	1
Perfluorobutanoic acid	**7300**		250	100	ng/L		10/07/21 15:25	10/11/21 15:31	1
Perfluorodecanesulfonic acid	<100		100	25	ng/L		10/07/21 15:25	10/11/21 15:31	1
Perfluorodecanoic acid	**300**		100	25	ng/L		10/07/21 15:25	10/11/21 15:31	1
Perfluorododecanesulfonic acid (PFDoS)	<150		150	25	ng/L		10/07/21 15:25	10/11/21 15:31	1
Perfluorododecanoic acid	<100		100	25	ng/L		10/07/21 15:25	10/11/21 15:31	1
Perfluoroheptanesulfonic acid	<100		100	25	ng/L		10/07/21 15:25	10/11/21 15:31	1
Perfluoroheptanoic acid	**3600**		100	25	ng/L		10/07/21 15:25	10/11/21 15:31	1
Perfluorohexadecanoic acid	<150		150	50	ng/L		10/07/21 15:25	10/11/21 15:31	1
Perfluorohexanesulfonic acid	<100		100	25	ng/L		10/07/21 15:25	10/11/21 15:31	1
Perfluorononanesulfonic acid	<100		100	25	ng/L		10/07/21 15:25	10/11/21 15:31	1
Perfluorononanoic acid	**1700**		100	25	ng/L		10/07/21 15:25	10/11/21 15:31	1
Perfluorooctadecanoic acid	<150		150	50	ng/L		10/07/21 15:25	10/11/21 15:31	1
Perfluorooctanesulfonamide	<100		100	25	ng/L		10/07/21 15:25	10/11/21 15:31	1
Perfluorooctanesulfonic acid	<100		100	25	ng/L		10/07/21 15:25	10/11/21 15:31	1
Perfluorooctanoic acid	**1600**		100	25	ng/L		10/07/21 15:25	10/11/21 15:31	1
Perfluoropentanesulfonic acid	<100		100	25	ng/L		10/07/21 15:25	10/11/21 15:31	1
Perfluorotetradecanoic acid	<100		100	25	ng/L		10/07/21 15:25	10/11/21 15:31	1
Perfluorotridecanoic acid	<100		100	25	ng/L		10/07/21 15:25	10/11/21 15:31	1
Perfluoroundecanoic acid	**330**	**I**	100	25	ng/L		10/07/21 15:25	10/11/21 15:31	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-6:2 FTS	*110*		*55 - 167*	*10/07/21 15:25*	*10/11/21 15:31*	*1*
M2-8:2 FTS	*100*		*61 - 160*	*10/07/21 15:25*	*10/11/21 15:31*	*1*
13C2-PFDoDA	*88*		*47 - 118*	*10/07/21 15:25*	*10/11/21 15:31*	*1*
13C2 PFTeDA	*79*		*32 - 126*	*10/07/21 15:25*	*10/11/21 15:31*	*1*
13C3 HFPO-DA	*88*		*70 - 130*	*10/07/21 15:25*	*10/11/21 15:31*	*1*
13C3 PFBS	*109*		*18 - 177*	*10/07/21 15:25*	*10/11/21 15:31*	*1*
13C3 PFHxS	*92*		*55 - 115*	*10/07/21 15:25*	*10/11/21 15:31*	*1*
13C4 PFBA	*100*		*52 - 126*	*10/07/21 15:25*	*10/11/21 15:31*	*1*
13C4 PFHpA	*94*		*55 - 113*	*10/07/21 15:25*	*10/11/21 15:31*	*1*
13C5 PFHxA	*83*		*54 - 115*	*10/07/21 15:25*	*10/11/21 15:31*	*1*
13C5 PFPeA	*91*		*17 - 184*	*10/07/21 15:25*	*10/11/21 15:31*	*1*
13C6 PFDA	*94*		*56 - 114*	*10/07/21 15:25*	*10/11/21 15:31*	*1*
13C7 PFUnA	*91*		*50 - 120*	*10/07/21 15:25*	*10/11/21 15:31*	*1*
13C8 PFOA	*99*		*56 - 117*	*10/07/21 15:25*	*10/11/21 15:31*	*1*
13C8 PFOS	*102*		*56 - 112*	*10/07/21 15:25*	*10/11/21 15:31*	*1*
13C8 FOSA	*79*		*10 - 126*	*10/07/21 15:25*	*10/11/21 15:31*	*1*
13C9 PFNA	*114*		*54 - 122*	*10/07/21 15:25*	*10/11/21 15:31*	*1*
M2-4:2 FTS				*10/07/21 15:25*	*10/11/21 15:31*	*1*
d3-NMeFOSAA				*10/07/21 15:25*	*10/11/21 15:31*	*1*
d3-NMePFOSA	*34*		*10 - 51*	*10/07/21 15:25*	*10/11/21 15:31*	*1*
d5-NEtFOSAA	*105*		*65 - 134*	*10/07/21 15:25*	*10/11/21 15:31*	*1*
d5-NEtPFOSA	*31*		*10 - 51*	*10/07/21 15:25*	*10/11/21 15:31*	*1*
d7-N-MeFOSE-M	*67*		*10 - 105*	*10/07/21 15:25*	*10/11/21 15:31*	*1*

Client Sample Results

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-54640-1

Client Sample ID: RINSE 5-1 PM

Date Collected: 09/08/21 17:00
Date Received: 09/10/21 10:53

Lab Sample ID: 410-54640-2

Matrix: Water

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment (Continued)

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
d9-N-EtFOSE-M	*62*		*10 - 112*	*10/07/21 15:25*	*10/11/21 15:31*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*79*		*40 - 173*	*10/07/21 15:25*	*10/11/21 15:31*	*1*
13C2 PFUnA	*84*		*49 - 132*	*10/07/21 15:25*	*10/11/21 15:31*	*1*
13C4 PFOA	*88*		*10 - 163*	*10/07/21 15:25*	*10/11/21 15:31*	*1*

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid	**6100**		1000	250	ng/L		10/07/21 15:25	10/11/21 15:42	10
Perfluoropentanoic acid	**19000**		1000	250	ng/L		10/07/21 15:25	10/11/21 15:42	10

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C5 PFHxA	*96*		*54 - 115*	*10/07/21 15:25*	*10/11/21 15:42*	*10*
13C5 PFPeA	*93*		*17 - 184*	*10/07/21 15:25*	*10/11/21 15:42*	*10*

Method: Total PFCA-Dif - Total PFCA (Treatment Difference)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid	**7300**				ng/L			10/14/21 10:45	1
Perfluoropentanoic acid	**19000**				ng/L			10/14/21 10:45	1
Perfluorohexanoic acid	**6000**				ng/L			10/14/21 10:45	1
Perfluoroheptanoic acid	**3600**				ng/L			10/14/21 10:45	1
Perfluorooctanoic acid	**1500**				ng/L			10/14/21 10:45	1
Perfluorononanoic acid	**640**				ng/L			10/14/21 10:45	1
Total PFCA	**38000**				ng/L			10/14/21 10:45	1

Method: Total PFCA-Sum - Total PFCA (Summary) - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid	**9.6**		4.6	1.9	ng/L			10/12/21 11:35	1
Perfluoropentanoic acid	**4.2**		1.9	0.46	ng/L			10/12/21 11:35	1
Perfluorohexanoic acid	**33**		1.9	0.46	ng/L			10/12/21 11:35	1
Perfluoroheptanoic acid	**17**		1.9	0.46	ng/L			10/12/21 11:35	1
Perfluorooctanoic acid	**41**		1.9	0.46	ng/L			10/12/21 11:35	1
Perfluorononanoic acid	**1100**		19	4.6	ng/L			10/12/21 11:35	1
Total PFCA	**1200**		500	0.50	ng/L			10/12/21 11:35	1

Method: Total PFCA-Sum - Total PFCA (Summary) - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid	**7300**		250	100	ng/L			10/12/21 11:35	1
Perfluoropentanoic acid	**19000**		1000	250	ng/L			10/12/21 11:35	1
Perfluorohexanoic acid	**6100**		1000	250	ng/L			10/12/21 11:35	1
Perfluoroheptanoic acid	**3600**		100	25	ng/L			10/12/21 11:35	1
Perfluorooctanoic acid	**1600**		100	25	ng/L			10/12/21 11:35	1
Perfluorononanoic acid	**1700**		100	25	ng/L			10/12/21 11:35	1
Total PFCA	**39000**		500	0.50	ng/L			10/12/21 11:35	1

Client Sample Results

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-54640-1

Client Sample ID: RINSE 5-1 AM

Date Collected: 09/09/21 07:55
Date Received: 09/10/21 10:53

Lab Sample ID: 410-54640-3

Matrix: Water

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid	<1.8		1.8	0.44	ng/L		09/16/21 09:14	09/18/21 23:25	1
Perfluorobutanoic acid	**29**		4.4	1.8	ng/L		09/16/21 09:14	09/18/21 23:25	1
Perfluorodecanesulfonic acid	<1.8		1.8	0.44	ng/L		09/16/21 09:14	09/18/21 23:25	1
Perfluorodecanoic acid	**20**		1.8	0.44	ng/L		09/16/21 09:14	09/18/21 23:25	1
Perfluorododecanoic acid	**6.3**		1.8	0.44	ng/L		09/16/21 09:14	09/18/21 23:25	1
Perfluoroheptanesulfonic acid	<1.8		1.8	0.44	ng/L		09/16/21 09:14	09/18/21 23:25	1
Perfluoroheptanoic acid	**59**		1.8	0.44	ng/L		09/16/21 09:14	09/18/21 23:25	1
Perfluorohexanesulfonic acid	**4.1**		1.8	0.44	ng/L		09/16/21 09:14	09/18/21 23:25	1
Perfluorohexanoic acid	**140**		1.8	0.44	ng/L		09/16/21 09:14	09/18/21 23:25	1
Perfluorononanesulfonic acid	<1.8		1.8	0.44	ng/L		09/16/21 09:14	09/18/21 23:25	1
Perfluorooctanesulfonamide	<1.8		1.8	0.44	ng/L		09/16/21 09:14	09/18/21 23:25	1
Perfluorooctanesulfonic acid	**6.1**		1.8	0.44	ng/L		09/16/21 09:14	09/18/21 23:25	1
Perfluorooctanoic acid	**110**		1.8	0.44	ng/L		09/16/21 09:14	09/18/21 23:25	1
Perfluoropentanesulfonic acid	<1.8		1.8	0.44	ng/L		09/16/21 09:14	09/18/21 23:25	1
Perfluoropentanoic acid	**13**		1.8	0.44	ng/L		09/16/21 09:14	09/18/21 23:25	1
Perfluorotetradecanoic acid	**3.1**		1.8	0.44	ng/L		09/16/21 09:14	09/18/21 23:25	1
Perfluorotridecanoic acid	**110**		1.8	0.44	ng/L		09/16/21 09:14	09/18/21 23:25	1
4:2 Fluorotelomer sulfonic acid	**30**		1.8	0.44	ng/L		09/16/21 09:14	09/18/21 23:25	1
NEtFOSAA	<2.7		2.7	0.44	ng/L		09/16/21 09:14	09/18/21 23:25	1
NMeFOSAA	<1.8		1.8	0.53	ng/L		09/16/21 09:14	09/18/21 23:25	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*127*		*41 - 132*	*09/16/21 09:14*	*09/18/21 23:25*	*1*
13C8 FOSA	*131*		*10 - 143*	*09/16/21 09:14*	*09/18/21 23:25*	*1*
13C4 PFHpA	*442*	**5+*	*30 - 144*	*09/16/21 09:14*	*09/18/21 23:25*	*1*
13C5 PFPeA	*122*		*33 - 155*	*09/16/21 09:14*	*09/18/21 23:25*	*1*
13C2 PFTeDA	*40*		*10 - 144*	*09/16/21 09:14*	*09/18/21 23:25*	*1*
d3-NMeFOSAA	*150*		*32 - 151*	*09/16/21 09:14*	*09/18/21 23:25*	*1*
d5-NEtFOSAA	*144*		*37 - 164*	*09/16/21 09:14*	*09/18/21 23:25*	*1*
M2-6:2 FTS	*194*	**5+*	*29 - 189*	*09/16/21 09:14*	*09/18/21 23:25*	*1*
M2-8:2 FTS	*125*		*34 - 182*	*09/16/21 09:14*	*09/18/21 23:25*	*1*
13C3 PFBS	*141*		*19 - 178*	*09/16/21 09:14*	*09/18/21 23:25*	*1*
M2-4:2 FTS	*582*	**5+*	*20 - 187*	*09/16/21 09:14*	*09/18/21 23:25*	*1*
13C8 PFOA	*121*		*49 - 127*	*09/16/21 09:14*	*09/18/21 23:25*	*1*
13C8 PFOS	*112*		*49 - 126*	*09/16/21 09:14*	*09/18/21 23:25*	*1*
13C5 PFHxA	*403*	**5+*	*31 - 142*	*09/16/21 09:14*	*09/18/21 23:25*	*1*
13C9 PFNA	*101*		*47 - 136*	*09/16/21 09:14*	*09/18/21 23:25*	*1*
13C6 PFDA	*115*		*47 - 128*	*09/16/21 09:14*	*09/18/21 23:25*	*1*
13C7 PFUnA	*128*		*40 - 135*	*09/16/21 09:14*	*09/18/21 23:25*	*1*
13C3 PFHxS	*445*	**5+*	*32 - 145*	*09/16/21 09:14*	*09/18/21 23:25*	*1*
13C2-PFDoDA	*144*	**5+*	*28 - 136*	*09/16/21 09:14*	*09/18/21 23:25*	*1*

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorononanoic acid	**1900**		18	4.4	ng/L		09/16/21 09:14	09/18/21 23:36	10
Perfluoroundecanoic acid	**370**		18	4.4	ng/L		09/16/21 09:14	09/18/21 23:36	10
8:2 Fluorotelomer sulfonic acid	**550**		27	8.9	ng/L		09/16/21 09:14	09/18/21 23:36	10
6:2 Fluorotelomer sulfonic acid	**2800**		44	18	ng/L		09/16/21 09:14	09/18/21 23:36	10

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-6:2 FTS	*375*	**5+*	*29 - 189*	*09/16/21 09:14*	*09/18/21 23:36*	*10*

Client Sample ID: RINSE 5-1 AM

Lab Sample ID: 410-54640-3

Date Collected: 09/09/21 07:55
Matrix: Water
Date Received: 09/10/21 10:53

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment - DL (Continued)

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-8:2 FTS	*262*	**5+*	*34 - 182*	*09/16/21 09:14*	*09/18/21 23:36*	*10*
13C9 PFNA	*216*	**5+*	*47 - 136*	*09/16/21 09:14*	*09/18/21 23:36*	*10*
13C7 PFUnA	*228*	**5+*	*40 - 135*	*09/16/21 09:14*	*09/18/21 23:36*	*10*

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
10:2 Fluorotelomer sulfonic acid	<250		250	50	ng/L		10/07/21 15:25	10/11/21 15:53	1
11Cl-PF3OUdS	<100		100	25	ng/L		10/07/21 15:25	10/11/21 15:53	1
4:2 Fluorotelomer sulfonic acid	<100		100	25	ng/L		10/07/21 15:25	10/11/21 15:53	1
6:2 Fluorotelomer sulfonic acid	<250		250	100	ng/L		10/07/21 15:25	10/11/21 15:53	1
8:2 Fluorotelomer sulfonic acid	<150		150	50	ng/L		10/07/21 15:25	10/11/21 15:53	1
9Cl-PF3ONS	<100		100	25	ng/L		10/07/21 15:25	10/11/21 15:53	1
DONA	<100		100	25	ng/L		10/07/21 15:25	10/11/21 15:53	1
HFPODA	<150		150	25	ng/L		10/07/21 15:25	10/11/21 15:53	1
NEtFOSAA	<150		150	25	ng/L		10/07/21 15:25	10/11/21 15:53	1
NEtFOSA	<250		250	50	ng/L		10/07/21 15:25	10/11/21 15:53	1
NEtFOSE	<150		150	50	ng/L		10/07/21 15:25	10/11/21 15:53	1
NMeFOSAA	<100		100	30	ng/L		10/07/21 15:25	10/11/21 15:53	1
NMeFOSA	<150		150	50	ng/L		10/07/21 15:25	10/11/21 15:53	1
NMeFOSE	<150		150	50	ng/L		10/07/21 15:25	10/11/21 15:53	1
Perfluorobutanesulfonic acid	<100		100	25	ng/L		10/07/21 15:25	10/11/21 15:53	1
Perfluorodecanesulfonic acid	<100		100	25	ng/L		10/07/21 15:25	10/11/21 15:53	1
Perfluorodecanoic acid	**830**		100	25	ng/L		10/07/21 15:25	10/11/21 15:53	1
Perfluorododecanesulfonic acid (PFDoS)	<150		150	25	ng/L		10/07/21 15:25	10/11/21 15:53	1
Perfluorododecanoic acid	**200**	**I**	100	25	ng/L		10/07/21 15:25	10/11/21 15:53	1
Perfluoroheptanesulfonic acid	<100		100	25	ng/L		10/07/21 15:25	10/11/21 15:53	1
Perfluorohexadecanoic acid	<150		150	50	ng/L		10/07/21 15:25	10/11/21 15:53	1
Perfluorohexanesulfonic acid	<100		100	25	ng/L		10/07/21 15:25	10/11/21 15:53	1
Perfluorononanesulfonic acid	<100		100	25	ng/L		10/07/21 15:25	10/11/21 15:53	1
Perfluorooctadecanoic acid	<150		150	50	ng/L		10/07/21 15:25	10/11/21 15:53	1
Perfluorooctanesulfonamide	<100		100	25	ng/L		10/07/21 15:25	10/11/21 15:53	1
Perfluorooctanesulfonic acid	<100		100	25	ng/L		10/07/21 15:25	10/11/21 15:53	1
Perfluorooctanoic acid	**5600**		100	25	ng/L		10/07/21 15:25	10/11/21 15:53	1
Perfluoropentanesulfonic acid	<100		100	25	ng/L		10/07/21 15:25	10/11/21 15:53	1
Perfluorotetradecanoic acid	<100		100	25	ng/L		10/07/21 15:25	10/11/21 15:53	1
Perfluorotridecanoic acid	**180**		100	25	ng/L		10/07/21 15:25	10/11/21 15:53	1
Perfluoroundecanoic acid	**710**		100	25	ng/L		10/07/21 15:25	10/11/21 15:53	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-6:2 FTS	*103*		*55 - 167*	*10/07/21 15:25*	*10/11/21 15:53*	*1*
M2-8:2 FTS	*109*		*61 - 160*	*10/07/21 15:25*	*10/11/21 15:53*	*1*
13C2-PFDoDA	*92*		*47 - 118*	*10/07/21 15:25*	*10/11/21 15:53*	*1*
13C2 PFTeDA	*85*		*32 - 126*	*10/07/21 15:25*	*10/11/21 15:53*	*1*
13C3 HFPO-DA	*96*		*70 - 130*	*10/07/21 15:25*	*10/11/21 15:53*	*1*
13C3 PFBS	*135*		*18 - 177*	*10/07/21 15:25*	*10/11/21 15:53*	*1*
13C3 PFHxS	*89*		*55 - 115*	*10/07/21 15:25*	*10/11/21 15:53*	*1*
13C4 PFBA	*97*		*52 - 126*	*10/07/21 15:25*	*10/11/21 15:53*	*1*
13C4 PFHpA	*91*		*55 - 113*	*10/07/21 15:25*	*10/11/21 15:53*	*1*
13C5 PFHxA	*69*		*54 - 115*	*10/07/21 15:25*	*10/11/21 15:53*	*1*
13C5 PFPeA	*73*		*17 - 184*	*10/07/21 15:25*	*10/11/21 15:53*	*1*

Client Sample Results

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-54640-1

Client Sample ID: RINSE 5-1 AM

Date Collected: 09/09/21 07:55
Date Received: 09/10/21 10:53

Lab Sample ID: 410-54640-3

Matrix: Water

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment (Continued)

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C6 PFDA	*100*		*56 - 114*	*10/07/21 15:25*	*10/11/21 15:53*	*1*
13C7 PFUnA	*96*		*50 - 120*	*10/07/21 15:25*	*10/11/21 15:53*	*1*
13C8 PFOA	*95*		*56 - 117*	*10/07/21 15:25*	*10/11/21 15:53*	*1*
13C8 PFOS	*102*		*56 - 112*	*10/07/21 15:25*	*10/11/21 15:53*	*1*
13C8 FOSA	*81*		*10 - 126*	*10/07/21 15:25*	*10/11/21 15:53*	*1*
13C9 PFNA	*113*		*54 - 122*	*10/07/21 15:25*	*10/11/21 15:53*	*1*
M2-4:2 FTS				*10/07/21 15:25*	*10/11/21 15:53*	*1*
d3-NMeFOSAA				*10/07/21 15:25*	*10/11/21 15:53*	*1*
d3-NMePFOSA	*28*		*10 - 51*	*10/07/21 15:25*	*10/11/21 15:53*	*1*
d5-NEtFOSAA	*108*		*65 - 134*	*10/07/21 15:25*	*10/11/21 15:53*	*1*
d5-NEtPFOSA	*29*		*10 - 51*	*10/07/21 15:25*	*10/11/21 15:53*	*1*
d7-N-MeFOSE-M	*71*		*10 - 105*	*10/07/21 15:25*	*10/11/21 15:53*	*1*
d9-N-EtFOSE-M	*72*		*10 - 112*	*10/07/21 15:25*	*10/11/21 15:53*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*67*		*40 - 173*	*10/07/21 15:25*	*10/11/21 15:53*	*1*
13C2 PFUnA	*79*		*49 - 132*	*10/07/21 15:25*	*10/11/21 15:53*	*1*
13C4 PFOA	*82*		*10 - 163*	*10/07/21 15:25*	*10/11/21 15:53*	*1*

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid	**33000**		2500	1000	ng/L		10/07/21 15:25	10/11/21 16:14	10
Perfluoroheptanoic acid	**15000**		1000	250	ng/L		10/07/21 15:25	10/11/21 16:14	10
Perfluorohexanoic acid	**25000**		1000	250	ng/L		10/07/21 15:25	10/11/21 16:14	10
Perfluorononanoic acid	**4600**		1000	250	ng/L		10/07/21 15:25	10/11/21 16:14	10
Perfluoropentanoic acid	**78000**		1000	250	ng/L		10/07/21 15:25	10/11/21 16:14	10

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*104*		*52 - 126*	*10/07/21 15:25*	*10/11/21 16:14*	*10*
13C4 PFHpA	*94*		*55 - 113*	*10/07/21 15:25*	*10/11/21 16:14*	*10*
13C5 PFHxA	*93*		*54 - 115*	*10/07/21 15:25*	*10/11/21 16:14*	*10*
13C5 PFPeA	*86*		*17 - 184*	*10/07/21 15:25*	*10/11/21 16:14*	*10*
13C9 PFNA	*107*		*54 - 122*	*10/07/21 15:25*	*10/11/21 16:14*	*10*

Method: Total PFCA-Dif - Total PFCA (Treatment Difference)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid	**33000**				ng/L			10/14/21 10:45	1
Perfluoropentanoic acid	**78000**				ng/L			10/14/21 10:45	1
Perfluorohexanoic acid	**25000**				ng/L			10/14/21 10:45	1
Perfluoroheptanoic acid	**15000**				ng/L			10/14/21 10:45	1
Perfluorooctanoic acid	**5500**				ng/L			10/14/21 10:45	1
Perfluorononanoic acid	**2700**				ng/L			10/14/21 10:45	1
Total PFCA	**160000**				ng/L			10/14/21 10:45	1

Method: Total PFCA-Sum - Total PFCA (Summary) - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid	**29**		4.4	1.8	ng/L			10/12/21 11:35	1
Perfluoropentanoic acid	**13**		1.8	0.44	ng/L			10/12/21 11:35	1
Perfluorohexanoic acid	**140**		1.8	0.44	ng/L			10/12/21 11:35	1
Perfluoroheptanoic acid	**59**		1.8	0.44	ng/L			10/12/21 11:35	1
Perfluorooctanoic acid	**110**		1.8	0.44	ng/L			10/12/21 11:35	1

Client Sample Results

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-54640-1

Client Sample ID: RINSE 5-1 AM

Lab Sample ID: 410-54640-3
Matrix: Water
Date Collected: 09/09/21 07:55
Date Received: 09/10/21 10:53

Method: Total PFCA-Sum - Total PFCA (Summary) - Pre-Treatment (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorononanoic acid	1900		18	4.4	ng/L			10/12/21 11:35	1
Total PFCA	2300		500	0.50	ng/L			10/12/21 11:35	1

Method: Total PFCA-Sum - Total PFCA (Summary) - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid	33000		2500	1000	ng/L			10/12/21 11:35	1
Perfluoropentanoic acid	78000		1000	250	ng/L			10/12/21 11:35	1
Perfluorohexanoic acid	25000		1000	250	ng/L			10/12/21 11:35	1
Perfluoroheptanoic acid	15000		1000	250	ng/L			10/12/21 11:35	1
Perfluorooctanoic acid	5600		100	25	ng/L			10/12/21 11:35	1
Perfluorononanoic acid	4600		1000	250	ng/L			10/12/21 11:35	1
Total PFCA	160000		500	0.50	ng/L			10/12/21 11:35	1

Client Sample ID: RINSE 5-2 AM

Lab Sample ID: 410-54640-4
Matrix: Water
Date Collected: 09/09/21 08:00
Date Received: 09/10/21 10:53

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid	2.6	I	1.7	0.43	ng/L		09/16/21 09:14	09/18/21 23:58	1
Perfluorobutanoic acid	75		4.3	1.7	ng/L		09/16/21 09:14	09/18/21 23:58	1
Perfluorodecanesulfonic acid	<1.7		1.7	0.43	ng/L		09/16/21 09:14	09/18/21 23:58	1
Perfluorodecanoic acid	35		1.7	0.43	ng/L		09/16/21 09:14	09/18/21 23:58	1
Perfluorododecanoic acid	11		1.7	0.43	ng/L		09/16/21 09:14	09/18/21 23:58	1
Perfluoroheptanesulfonic acid	<1.7		1.7	0.43	ng/L		09/16/21 09:14	09/18/21 23:58	1
Perfluoroheptanoic acid	140		1.7	0.43	ng/L		09/16/21 09:14	09/18/21 23:58	1
Perfluorohexanesulfonic acid	8.0		1.7	0.43	ng/L		09/16/21 09:14	09/18/21 23:58	1
Perfluorononanesulfonic acid	<1.7		1.7	0.43	ng/L		09/16/21 09:14	09/18/21 23:58	1
Perfluorooctanesulfonamide	<1.7		1.7	0.43	ng/L		09/16/21 09:14	09/18/21 23:58	1
Perfluorooctanesulfonic acid	11		1.7	0.43	ng/L		09/16/21 09:14	09/18/21 23:58	1
Perfluorooctanoic acid	250		1.7	0.43	ng/L		09/16/21 09:14	09/18/21 23:58	1
Perfluoropentanesulfonic acid	<1.7		1.7	0.43	ng/L		09/16/21 09:14	09/18/21 23:58	1
Perfluoropentanoic acid	33		1.7	0.43	ng/L		09/16/21 09:14	09/18/21 23:58	1
Perfluorotetradecanoic acid	5.0		1.7	0.43	ng/L		09/16/21 09:14	09/18/21 23:58	1
Perfluorotridecanoic acid	200		1.7	0.43	ng/L		09/16/21 09:14	09/18/21 23:58	1
4:2 Fluorotelomer sulfonic acid	79		1.7	0.43	ng/L		09/16/21 09:14	09/18/21 23:58	1
NEtFOSAA	<2.6		2.6	0.43	ng/L		09/16/21 09:14	09/18/21 23:58	1
NMeFOSAA	<1.7		1.7	0.52	ng/L		09/16/21 09:14	09/18/21 23:58	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*126*		*41 - 132*	*09/16/21 09:14*	*09/18/21 23:58*	*1*
13C8 FOSA	*159*	**5+*	*10 - 143*	*09/16/21 09:14*	*09/18/21 23:58*	*1*
13C4 PFHpA	*733*	**5+*	*30 - 144*	*09/16/21 09:14*	*09/18/21 23:58*	*1*
13C5 PFPeA	*120*		*33 - 155*	*09/16/21 09:14*	*09/18/21 23:58*	*1*
13C2 PFTeDA	*75*		*10 - 144*	*09/16/21 09:14*	*09/18/21 23:58*	*1*
d3-NMeFOSAA	*172*	**5+*	*32 - 151*	*09/16/21 09:14*	*09/18/21 23:58*	*1*
d5-NEtFOSAA	*184*	**5+*	*37 - 164*	*09/16/21 09:14*	*09/18/21 23:58*	*1*
M2-6:2 FTS	*300*	**5+*	*29 - 189*	*09/16/21 09:14*	*09/18/21 23:58*	*1*
M2-8:2 FTS	*136*		*34 - 182*	*09/16/21 09:14*	*09/18/21 23:58*	*1*
13C3 PFBS	*125*		*19 - 178*	*09/16/21 09:14*	*09/18/21 23:58*	*1*
M2-4:2 FTS	*965*	**5+*	*20 - 187*	*09/16/21 09:14*	*09/18/21 23:58*	*1*

Client Sample ID: RINSE 5-2 AM

Lab Sample ID: 410-54640-4

Date Collected: 09/09/21 08:00
Matrix: Water
Date Received: 09/10/21 10:53

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 PFOA	123		49 - 127	09/16/21 09:14	09/18/21 23:58	1
13C8 PFOS	114		49 - 126	09/16/21 09:14	09/18/21 23:58	1
13C5 PFHxA	672	*5+	31 - 142	09/16/21 09:14	09/18/21 23:58	1
13C9 PFNA	104		47 - 136	09/16/21 09:14	09/18/21 23:58	1
13C6 PFDA	114		47 - 128	09/16/21 09:14	09/18/21 23:58	1
13C7 PFUnA	148	*5+	40 - 135	09/16/21 09:14	09/18/21 23:58	1
13C3 PFHxS	768	*5+	32 - 145	09/16/21 09:14	09/18/21 23:58	1
13C2-PFDoDA	162	*5+	28 - 136	09/16/21 09:14	09/18/21 23:58	1

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid	**350**		17	4.3	ng/L		09/16/21 09:14	09/19/21 00:09	10
Perfluorononanoic acid	**3200**		17	4.3	ng/L		09/16/21 09:14	09/19/21 00:09	10
Perfluoroundecanoic acid	**570**		17	4.3	ng/L		09/16/21 09:14	09/19/21 00:09	10
8:2 Fluorotelomer sulfonic acid	**740**		26	8.6	ng/L		09/16/21 09:14	09/19/21 00:09	10

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
M2-8:2 FTS	296	*5+	34 - 182	09/16/21 09:14	09/19/21 00:09	10
13C5 PFHxA	541	*5+	31 - 142	09/16/21 09:14	09/19/21 00:09	10
13C9 PFNA	222	*5+	47 - 136	09/16/21 09:14	09/19/21 00:09	10
13C7 PFUnA	232	*5+	40 - 135	09/16/21 09:14	09/19/21 00:09	10

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment - DL2

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
6:2 Fluorotelomer sulfonic acid	**4800**		430	170	ng/L		09/16/21 09:14	09/19/21 00:20	100

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
M2-6:2 FTS	443	*5+	29 - 189	09/16/21 09:14	09/19/21 00:20	100

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
10:2 Fluorotelomer sulfonic acid	<250		250	50	ng/L		10/07/21 15:25	10/11/21 16:24	1
11Cl-PF3OUdS	<100		100	25	ng/L		10/07/21 15:25	10/11/21 16:24	1
4:2 Fluorotelomer sulfonic acid	<100		100	25	ng/L		10/07/21 15:25	10/11/21 16:24	1
6:2 Fluorotelomer sulfonic acid	<250		250	100	ng/L		10/07/21 15:25	10/11/21 16:24	1
8:2 Fluorotelomer sulfonic acid	<150		150	50	ng/L		10/07/21 15:25	10/11/21 16:24	1
9Cl-PF3ONS	<100		100	25	ng/L		10/07/21 15:25	10/11/21 16:24	1
DONA	<100		100	25	ng/L		10/07/21 15:25	10/11/21 16:24	1
HFPODA	<150		150	25	ng/L		10/07/21 15:25	10/11/21 16:24	1
NEtFOSAA	<150		150	25	ng/L		10/07/21 15:25	10/11/21 16:24	1
NEtFOSA	<250		250	50	ng/L		10/07/21 15:25	10/11/21 16:24	1
NEtFOSE	<150		150	50	ng/L		10/07/21 15:25	10/11/21 16:24	1
NMeFOSAA	<100		100	30	ng/L		10/07/21 15:25	10/11/21 16:24	1
NMeFOSA	<150		150	50	ng/L		10/07/21 15:25	10/11/21 16:24	1
NMeFOSE	<150		150	50	ng/L		10/07/21 15:25	10/11/21 16:24	1
Perfluorobutanesulfonic acid	<100		100	25	ng/L		10/07/21 15:25	10/11/21 16:24	1
Perfluorobutanoic acid	**12000**		250	100	ng/L		10/07/21 15:25	10/11/21 16:24	1
Perfluorodecanesulfonic acid	<100		100	25	ng/L		10/07/21 15:25	10/11/21 16:24	1
Perfluorodecanoic acid	**420**		100	25	ng/L		10/07/21 15:25	10/11/21 16:24	1
Perfluorododecanesulfonic acid (PFDoS)	<150		150	25	ng/L		10/07/21 15:25	10/11/21 16:24	1
Perfluorododecanoic acid	**100**	**I**	100	25	ng/L		10/07/21 15:25	10/11/21 16:24	1

Client Sample ID: RINSE 5-2 AM

Date Collected: 09/09/21 08:00
Date Received: 09/10/21 10:53

Lab Sample ID: 410-54640-4

Matrix: Water

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoroheptanesulfonic acid	<100		100	25	ng/L		10/07/21 15:25	10/11/21 16:24	1
Perfluorohexadecanoic acid	<150		150	50	ng/L		10/07/21 15:25	10/11/21 16:24	1
Perfluorohexanesulfonic acid	<100		100	25	ng/L		10/07/21 15:25	10/11/21 16:24	1
Perfluorononanesulfonic acid	<100		100	25	ng/L		10/07/21 15:25	10/11/21 16:24	1
Perfluorononanoic acid	**2300**		100	25	ng/L		10/07/21 15:25	10/11/21 16:24	1
Perfluorooctadecanoic acid	<150		150	50	ng/L		10/07/21 15:25	10/11/21 16:24	1
Perfluorooctanesulfonamide	<100		100	25	ng/L		10/07/21 15:25	10/11/21 16:24	1
Perfluorooctanesulfonic acid	<100		100	25	ng/L		10/07/21 15:25	10/11/21 16:24	1
Perfluorooctanoic acid	**2600**		100	25	ng/L		10/07/21 15:25	10/11/21 16:24	1
Perfluoropentanesulfonic acid	<100		100	25	ng/L		10/07/21 15:25	10/11/21 16:24	1
Perfluorotetradecanoic acid	<100		100	25	ng/L		10/07/21 15:25	10/11/21 16:24	1
Perfluorotridecanoic acid	<100		100	25	ng/L		10/07/21 15:25	10/11/21 16:24	1
Perfluoroundecanoic acid	**360**		100	25	ng/L		10/07/21 15:25	10/11/21 16:24	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-6:2 FTS	*108*		*55 - 167*	*10/07/21 15:25*	*10/11/21 16:24*	*1*
M2-8:2 FTS	*96*		*61 - 160*	*10/07/21 15:25*	*10/11/21 16:24*	*1*
13C2-PFDoDA	*86*		*47 - 118*	*10/07/21 15:25*	*10/11/21 16:24*	*1*
13C2 PFTeDA	*79*		*32 - 126*	*10/07/21 15:25*	*10/11/21 16:24*	*1*
13C3 HFPO-DA	*81*		*70 - 130*	*10/07/21 15:25*	*10/11/21 16:24*	*1*
13C3 PFBS	*108*		*18 - 177*	*10/07/21 15:25*	*10/11/21 16:24*	*1*
13C3 PFHxS	*93*		*55 - 115*	*10/07/21 15:25*	*10/11/21 16:24*	*1*
13C4 PFBA	*96*		*52 - 126*	*10/07/21 15:25*	*10/11/21 16:24*	*1*
13C4 PFHpA	*91*		*55 - 113*	*10/07/21 15:25*	*10/11/21 16:24*	*1*
13C5 PFHxA	*80*		*54 - 115*	*10/07/21 15:25*	*10/11/21 16:24*	*1*
13C5 PFPeA	*79*		*17 - 184*	*10/07/21 15:25*	*10/11/21 16:24*	*1*
13C6 PFDA	*94*		*56 - 114*	*10/07/21 15:25*	*10/11/21 16:24*	*1*
13C7 PFUnA	*92*		*50 - 120*	*10/07/21 15:25*	*10/11/21 16:24*	*1*
13C8 PFOA	*96*		*56 - 117*	*10/07/21 15:25*	*10/11/21 16:24*	*1*
13C8 PFOS	*96*		*56 - 112*	*10/07/21 15:25*	*10/11/21 16:24*	*1*
13C8 FOSA	*74*		*10 - 126*	*10/07/21 15:25*	*10/11/21 16:24*	*1*
13C9 PFNA	*114*		*54 - 122*	*10/07/21 15:25*	*10/11/21 16:24*	*1*
M2-4:2 FTS				*10/07/21 15:25*	*10/11/21 16:24*	*1*
d3-NMeFOSAA				*10/07/21 15:25*	*10/11/21 16:24*	*1*
d3-NMePFOSA	*22*		*10 - 51*	*10/07/21 15:25*	*10/11/21 16:24*	*1*
d5-NEtFOSAA	*103*		*65 - 134*	*10/07/21 15:25*	*10/11/21 16:24*	*1*
d5-NEtPFOSA	*20*		*10 - 51*	*10/07/21 15:25*	*10/11/21 16:24*	*1*
d7-N-MeFOSE-M	*64*		*10 - 105*	*10/07/21 15:25*	*10/11/21 16:24*	*1*
d9-N-EtFOSE-M	*66*		*10 - 112*	*10/07/21 15:25*	*10/11/21 16:24*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*79*		*40 - 173*	*10/07/21 15:25*	*10/11/21 16:24*	*1*
13C2 PFUnA	*91*		*49 - 132*	*10/07/21 15:25*	*10/11/21 16:24*	*1*
13C4 PFOA	*88*		*10 - 163*	*10/07/21 15:25*	*10/11/21 16:24*	*1*

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoroheptanoic acid	**6400**		1000	250	ng/L		10/07/21 15:25	10/12/21 05:25	10
Perfluorohexanoic acid	**9500**		1000	250	ng/L		10/07/21 15:25	10/12/21 05:25	10
Perfluoropentanoic acid	**32000**		1000	250	ng/L		10/07/21 15:25	10/12/21 05:25	10

Client Sample ID: RINSE 5-2 AM

Lab Sample ID: 410-54640-4

Date Collected: 09/09/21 08:00
Date Received: 09/10/21 10:53

Matrix: Water

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFHpA	*120*	**5+*	*55 - 113*	*10/07/21 15:25*	*10/12/21 05:25*	*10*
13C5 PFHxA	*122*	**5+*	*54 - 115*	*10/07/21 15:25*	*10/12/21 05:25*	*10*
13C5 PFPeA	*93*		*17 - 184*	*10/07/21 15:25*	*10/12/21 05:25*	*10*

Method: Total PFCA-Dif - Total PFCA (Treatment Difference)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid	**12000**				ng/L			10/14/21 10:45	1
Perfluoropentanoic acid	**32000**				ng/L			10/14/21 10:45	1
Perfluorohexanoic acid	**9100**				ng/L			10/14/21 10:45	1
Perfluoroheptanoic acid	**6200**				ng/L			10/14/21 10:45	1
Perfluorooctanoic acid	**2300**				ng/L			10/14/21 10:45	1
Perfluorononanoic acid	**0.00**				ng/L			10/14/21 10:45	1
Total PFCA	**61000**				ng/L			10/14/21 10:45	1

Method: Total PFCA-Sum - Total PFCA (Summary) - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid	**75**		4.3	1.7	ng/L			10/12/21 11:35	1
Perfluoropentanoic acid	**33**		1.7	0.43	ng/L			10/12/21 11:35	1
Perfluorohexanoic acid	**350**		17	4.3	ng/L			10/12/21 11:35	1
Perfluoroheptanoic acid	**140**		1.7	0.43	ng/L			10/12/21 11:35	1
Perfluorooctanoic acid	**250**		1.7	0.43	ng/L			10/12/21 11:35	1
Perfluorononanoic acid	**3200**		17	4.3	ng/L			10/12/21 11:35	1
Total PFCA	**4000**		500	0.50	ng/L			10/12/21 11:35	1

Method: Total PFCA-Sum - Total PFCA (Summary) - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid	**12000**		250	100	ng/L			10/12/21 11:35	1
Perfluoropentanoic acid	**32000**		1000	250	ng/L			10/12/21 11:35	1
Perfluorohexanoic acid	**9500**		1000	250	ng/L			10/12/21 11:35	1
Perfluoroheptanoic acid	**6400**		1000	250	ng/L			10/12/21 11:35	1
Perfluorooctanoic acid	**2600**		100	25	ng/L			10/12/21 11:35	1
Perfluorononanoic acid	**2300**		100	25	ng/L			10/12/21 11:35	1
Total PFCA	**65000**		500	0.50	ng/L			10/12/21 11:35	1

Client Sample ID: FIELD BLANK-1

Lab Sample ID: 410-54640-5

Date Collected: 09/09/21 07:45
Date Received: 09/10/21 10:53

Matrix: Water

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid	<1.7		1.7	0.44	ng/L		09/16/21 09:14	09/19/21 00:43	1
Perfluorobutanoic acid	<4.4		4.4	1.7	ng/L		09/16/21 09:14	09/19/21 00:43	1
Perfluorodecanesulfonic acid	<1.7		1.7	0.44	ng/L		09/16/21 09:14	09/19/21 00:43	1
Perfluorodecanoic acid	<1.7		1.7	0.44	ng/L		09/16/21 09:14	09/19/21 00:43	1
Perfluorododecanoic acid	<1.7		1.7	0.44	ng/L		09/16/21 09:14	09/19/21 00:43	1
Perfluoroheptanesulfonic acid	<1.7		1.7	0.44	ng/L		09/16/21 09:14	09/19/21 00:43	1
Perfluoroheptanoic acid	<1.7		1.7	0.44	ng/L		09/16/21 09:14	09/19/21 00:43	1
Perfluorohexanesulfonic acid	<1.7		1.7	0.44	ng/L		09/16/21 09:14	09/19/21 00:43	1
Perfluorohexanoic acid	<1.7		1.7	0.44	ng/L		09/16/21 09:14	09/19/21 00:43	1
Perfluorononanesulfonic acid	<1.7		1.7	0.44	ng/L		09/16/21 09:14	09/19/21 00:43	1
Perfluorononanoic acid	<1.7		1.7	0.44	ng/L		09/16/21 09:14	09/19/21 00:43	1
Perfluorooctanesulfonamide	<1.7		1.7	0.44	ng/L		09/16/21 09:14	09/19/21 00:43	1

Client Sample ID: FIELD BLANK-1

Lab Sample ID: 410-54640-5

Date Collected: 09/09/21 07:45
Matrix: Water
Date Received: 09/10/21 10:53

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid	<1.7		1.7	0.44	ng/L		09/16/21 09:14	09/19/21 00:43	1
Perfluorooctanoic acid	<1.7		1.7	0.44	ng/L		09/16/21 09:14	09/19/21 00:43	1
Perfluoropentanesulfonic acid	<1.7		1.7	0.44	ng/L		09/16/21 09:14	09/19/21 00:43	1
Perfluoropentanoic acid	<1.7		1.7	0.44	ng/L		09/16/21 09:14	09/19/21 00:43	1
Perfluorotetradecanoic acid	<1.7		1.7	0.44	ng/L		09/16/21 09:14	09/19/21 00:43	1
Perfluorotridecanoic acid	<1.7		1.7	0.44	ng/L		09/16/21 09:14	09/19/21 00:43	1
Perfluoroundecanoic acid	<1.7		1.7	0.44	ng/L		09/16/21 09:14	09/19/21 00:43	1
8:2 Fluorotelomer sulfonic acid	<2.6		2.6	0.87	ng/L		09/16/21 09:14	09/19/21 00:43	1
4:2 Fluorotelomer sulfonic acid	<1.7		1.7	0.44	ng/L		09/16/21 09:14	09/19/21 00:43	1
6:2 Fluorotelomer sulfonic acid	<4.4		4.4	1.7	ng/L		09/16/21 09:14	09/19/21 00:43	1
NEtFOSAA	<2.6		2.6	0.44	ng/L		09/16/21 09:14	09/19/21 00:43	1
NMeFOSAA	<1.7		1.7	0.52	ng/L		09/16/21 09:14	09/19/21 00:43	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*140*	**5+*	*41 - 132*	*09/16/21 09:14*	*09/19/21 00:43*	*1*
13C8 FOSA	*130*		*10 - 143*	*09/16/21 09:14*	*09/19/21 00:43*	*1*
13C4 PFHpA	*146*	**5+*	*30 - 144*	*09/16/21 09:14*	*09/19/21 00:43*	*1*
13C5 PFPeA	*136*		*33 - 155*	*09/16/21 09:14*	*09/19/21 00:43*	*1*
13C2 PFTeDA	*141*		*10 - 144*	*09/16/21 09:14*	*09/19/21 00:43*	*1*
d3-NMeFOSAA	*160*	**5+*	*32 - 151*	*09/16/21 09:14*	*09/19/21 00:43*	*1*
d5-NEtFOSAA	*172*	**5+*	*37 - 164*	*09/16/21 09:14*	*09/19/21 00:43*	*1*
M2-6:2 FTS	*167*		*29 - 189*	*09/16/21 09:14*	*09/19/21 00:43*	*1*
M2-8:2 FTS	*165*		*34 - 182*	*09/16/21 09:14*	*09/19/21 00:43*	*1*
13C3 PFBS	*153*		*19 - 178*	*09/16/21 09:14*	*09/19/21 00:43*	*1*
M2-4:2 FTS	*174*		*20 - 187*	*09/16/21 09:14*	*09/19/21 00:43*	*1*
13C8 PFOA	*141*	**5+*	*49 - 127*	*09/16/21 09:14*	*09/19/21 00:43*	*1*
13C8 PFOS	*153*	**5+*	*49 - 126*	*09/16/21 09:14*	*09/19/21 00:43*	*1*
13C5 PFHxA	*140*		*31 - 142*	*09/16/21 09:14*	*09/19/21 00:43*	*1*
13C9 PFNA	*136*		*47 - 136*	*09/16/21 09:14*	*09/19/21 00:43*	*1*
13C6 PFDA	*154*	**5+*	*47 - 128*	*09/16/21 09:14*	*09/19/21 00:43*	*1*
13C7 PFUnA	*147*	**5+*	*40 - 135*	*09/16/21 09:14*	*09/19/21 00:43*	*1*
13C3 PFHxS	*149*	**5+*	*32 - 145*	*09/16/21 09:14*	*09/19/21 00:43*	*1*
13C2-PFDoDA	*142*	**5+*	*28 - 136*	*09/16/21 09:14*	*09/19/21 00:43*	*1*

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
10:2 Fluorotelomer sulfonic acid	<25		25	5.0	ng/L		10/07/21 15:25	10/12/21 05:35	1
11Cl-PF3OUdS	<10		10	2.5	ng/L		10/07/21 15:25	10/12/21 05:35	1
4:2 Fluorotelomer sulfonic acid	<10		10	2.5	ng/L		10/07/21 15:25	10/12/21 05:35	1
6:2 Fluorotelomer sulfonic acid	<25		25	10	ng/L		10/07/21 15:25	10/12/21 05:35	1
8:2 Fluorotelomer sulfonic acid	<15		15	5.0	ng/L		10/07/21 15:25	10/12/21 05:35	1
9Cl-PF3ONS	<10		10	2.5	ng/L		10/07/21 15:25	10/12/21 05:35	1
DONA	<10		10	2.5	ng/L		10/07/21 15:25	10/12/21 05:35	1
HFPODA	<15		15	2.5	ng/L		10/07/21 15:25	10/12/21 05:35	1
NEtFOSAA	<15		15	2.5	ng/L		10/07/21 15:25	10/12/21 05:35	1
NEtFOSA	<25		25	5.0	ng/L		10/07/21 15:25	10/12/21 05:35	1
NEtFOSE	<15		15	5.0	ng/L		10/07/21 15:25	10/12/21 05:35	1
NMeFOSAA	<10		10	3.0	ng/L		10/07/21 15:25	10/12/21 05:35	1
NMeFOSA	<15		15	5.0	ng/L		10/07/21 15:25	10/12/21 05:35	1
NMeFOSE	<15		15	5.0	ng/L		10/07/21 15:25	10/12/21 05:35	1

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-54640-1

Client Sample ID: FIELD BLANK-1

Lab Sample ID: 410-54640-5

Date Collected: 09/09/21 07:45
Matrix: Water
Date Received: 09/10/21 10:53

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid	<10		10	2.5	ng/L		10/07/21 15:25	10/12/21 05:35	1
Perfluorobutanoic acid	<25		25	10	ng/L		10/07/21 15:25	10/12/21 05:35	1
Perfluorodecanesulfonic acid	<10		10	2.5	ng/L		10/07/21 15:25	10/12/21 05:35	1
Perfluorodecanoic acid	<10		10	2.5	ng/L		10/07/21 15:25	10/12/21 05:35	1
Perfluorododecanesulfonic acid (PFDoS)	<15		15	2.5	ng/L		10/07/21 15:25	10/12/21 05:35	1
Perfluorododecanoic acid	<10		10	2.5	ng/L		10/07/21 15:25	10/12/21 05:35	1
Perfluoroheptanesulfonic acid	<10		10	2.5	ng/L		10/07/21 15:25	10/12/21 05:35	1
Perfluoroheptanoic acid	<10		10	2.5	ng/L		10/07/21 15:25	10/12/21 05:35	1
Perfluorohexadecanoic acid	<15		15	5.0	ng/L		10/07/21 15:25	10/12/21 05:35	1
Perfluorohexanesulfonic acid	<10		10	2.5	ng/L		10/07/21 15:25	10/12/21 05:35	1
Perfluorohexanoic acid	<10		10	2.5	ng/L		10/07/21 15:25	10/12/21 05:35	1
Perfluorononanesulfonic acid	<10		10	2.5	ng/L		10/07/21 15:25	10/12/21 05:35	1
Perfluorononanoic acid	<10		10	2.5	ng/L		10/07/21 15:25	10/12/21 05:35	1
Perfluorooctadecanoic acid	<15		15	5.0	ng/L		10/07/21 15:25	10/12/21 05:35	1
Perfluorooctanesulfonamide	<10		10	2.5	ng/L		10/07/21 15:25	10/12/21 05:35	1
Perfluorooctanesulfonic acid	<10		10	2.5	ng/L		10/07/21 15:25	10/12/21 05:35	1
Perfluorooctanoic acid	<10		10	2.5	ng/L		10/07/21 15:25	10/12/21 05:35	1
Perfluoropentanesulfonic acid	<10		10	2.5	ng/L		10/07/21 15:25	10/12/21 05:35	1
Perfluoropentanoic acid	<10		10	2.5	ng/L		10/07/21 15:25	10/12/21 05:35	1
Perfluorotetradecanoic acid	<10		10	2.5	ng/L		10/07/21 15:25	10/12/21 05:35	1
Perfluorotridecanoic acid	<10		10	2.5	ng/L		10/07/21 15:25	10/12/21 05:35	1
Perfluoroundecanoic acid	<10		10	2.5	ng/L		10/07/21 15:25	10/12/21 05:35	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-6:2 FTS	*130*		*55 - 167*	*10/07/21 15:25*	*10/12/21 05:35*	*1*
M2-8:2 FTS	*138*		*61 - 160*	*10/07/21 15:25*	*10/12/21 05:35*	*1*
13C2-PFDoDA	*119*	**5+*	*47 - 118*	*10/07/21 15:25*	*10/12/21 05:35*	*1*
13C2 PFTeDA	*113*		*32 - 126*	*10/07/21 15:25*	*10/12/21 05:35*	*1*
13C3 HFPO-DA	*125*		*70 - 130*	*10/07/21 15:25*	*10/12/21 05:35*	*1*
13C3 PFBS	*100*		*18 - 177*	*10/07/21 15:25*	*10/12/21 05:35*	*1*
13C3 PFHxS	*120*	**5+*	*55 - 115*	*10/07/21 15:25*	*10/12/21 05:35*	*1*
13C4 PFBA	*116*		*52 - 126*	*10/07/21 15:25*	*10/12/21 05:35*	*1*
13C4 PFHpA	*121*	**5+*	*55 - 113*	*10/07/21 15:25*	*10/12/21 05:35*	*1*
13C5 PFHxA	*105*		*54 - 115*	*10/07/21 15:25*	*10/12/21 05:35*	*1*
13C5 PFPeA	*111*		*17 - 184*	*10/07/21 15:25*	*10/12/21 05:35*	*1*
13C6 PFDA	*127*	**5+*	*56 - 114*	*10/07/21 15:25*	*10/12/21 05:35*	*1*
13C7 PFUnA	*120*		*50 - 120*	*10/07/21 15:25*	*10/12/21 05:35*	*1*
13C8 PFOA	*120*	**5+*	*56 - 117*	*10/07/21 15:25*	*10/12/21 05:35*	*1*
13C8 PFOS	*117*	**5+*	*56 - 112*	*10/07/21 15:25*	*10/12/21 05:35*	*1*
13C8 FOSA	*102*		*10 - 126*	*10/07/21 15:25*	*10/12/21 05:35*	*1*
13C9 PFNA	*128*	**5+*	*54 - 122*	*10/07/21 15:25*	*10/12/21 05:35*	*1*
M2-4:2 FTS				*10/07/21 15:25*	*10/12/21 05:35*	*1*
d3-NMeFOSAA				*10/07/21 15:25*	*10/12/21 05:35*	*1*
d3-NMePFOSA	*77*	**5+*	*10 - 51*	*10/07/21 15:25*	*10/12/21 05:35*	*1*
d5-NEtFOSAA	*133*		*65 - 134*	*10/07/21 15:25*	*10/12/21 05:35*	*1*
d5-NEtPFOSA	*84*	**5+*	*10 - 51*	*10/07/21 15:25*	*10/12/21 05:35*	*1*
d7-N-MeFOSE-M	*106*	**5+*	*10 - 105*	*10/07/21 15:25*	*10/12/21 05:35*	*1*
d9-N-EtFOSE-M	*111*		*10 - 112*	*10/07/21 15:25*	*10/12/21 05:35*	*1*

Client Sample ID: FIELD BLANK-1

Lab Sample ID: 410-54640-5
Matrix: Water
Date Collected: 09/09/21 07:45
Date Received: 09/10/21 10:53

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*99*		*40 - 173*	*10/07/21 15:25*	*10/12/21 05:35*	*1*
13C2 PFUnA	*84*		*49 - 132*	*10/07/21 15:25*	*10/12/21 05:35*	*1*
13C4 PFOA	*105*		*10 - 163*	*10/07/21 15:25*	*10/12/21 05:35*	*1*

Method: Total PFCA-Dif - Total PFCA (Treatment Difference)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid	**0.00**				ng/L			10/14/21 10:45	1
Perfluoropentanoic acid	**0.00**				ng/L			10/14/21 10:45	1
Perfluorohexanoic acid	**0.00**				ng/L			10/14/21 10:45	1
Perfluoroheptanoic acid	**0.00**				ng/L			10/14/21 10:45	1
Perfluorooctanoic acid	**0.00**				ng/L			10/14/21 10:45	1
Perfluorononanoic acid	**0.00**				ng/L			10/14/21 10:45	1
Total PFCA	**0.00**				ng/L			10/14/21 10:45	1

Method: Total PFCA-Sum - Total PFCA (Summary) - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid	<4.4		4.4	1.7	ng/L			10/12/21 11:35	1
Perfluoropentanoic acid	<1.7		1.7	0.44	ng/L			10/12/21 11:35	1
Perfluorohexanoic acid	<1.7		1.7	0.44	ng/L			10/12/21 11:35	1
Perfluoroheptanoic acid	<1.7		1.7	0.44	ng/L			10/12/21 11:35	1
Perfluorooctanoic acid	<1.7		1.7	0.44	ng/L			10/12/21 11:35	1
Perfluorononanoic acid	<1.7		1.7	0.44	ng/L			10/12/21 11:35	1
Total PFCA	<500		500	0.50	ng/L			10/12/21 11:35	1

Method: Total PFCA-Sum - Total PFCA (Summary) - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid	<25		25	10	ng/L			10/12/21 11:35	1
Perfluoropentanoic acid	<10		10	2.5	ng/L			10/12/21 11:35	1
Perfluorohexanoic acid	<10		10	2.5	ng/L			10/12/21 11:35	1
Perfluoroheptanoic acid	<10		10	2.5	ng/L			10/12/21 11:35	1
Perfluorooctanoic acid	<10		10	2.5	ng/L			10/12/21 11:35	1
Perfluorononanoic acid	<10		10	2.5	ng/L			10/12/21 11:35	1
Total PFCA	<500		500	0.50	ng/L			10/12/21 11:35	1

Client Sample ID: EFFLUENT-3-1

Lab Sample ID: 410-54640-6
Matrix: Water
Date Collected: 09/09/21 10:45
Date Received: 09/10/21 10:53

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid	<1.8		1.8	0.44	ng/L		09/16/21 09:14	09/19/21 00:54	1
Perfluorobutanoic acid	<4.4		4.4	1.8	ng/L		09/16/21 09:14	09/19/21 00:54	1
Perfluorodecanesulfonic acid	<1.8		1.8	0.44	ng/L		09/16/21 09:14	09/19/21 00:54	1
Perfluorodecanoic acid	<1.8		1.8	0.44	ng/L		09/16/21 09:14	09/19/21 00:54	1
Perfluorododecanoic acid	**2.3**		1.8	0.44	ng/L		09/16/21 09:14	09/19/21 00:54	1
Perfluoroheptanesulfonic acid	<1.8		1.8	0.44	ng/L		09/16/21 09:14	09/19/21 00:54	1
Perfluoroheptanoic acid	<1.8		1.8	0.44	ng/L		09/16/21 09:14	09/19/21 00:54	1
Perfluorohexanesulfonic acid	<1.8		1.8	0.44	ng/L		09/16/21 09:14	09/19/21 00:54	1
Perfluorohexanoic acid	<1.8		1.8	0.44	ng/L		09/16/21 09:14	09/19/21 00:54	1
Perfluorononanesulfonic acid	<1.8		1.8	0.44	ng/L		09/16/21 09:14	09/19/21 00:54	1
Perfluorononanoic acid	<1.8		1.8	0.44	ng/L		09/16/21 09:14	09/19/21 00:54	1

Client Sample ID: EFFLUENT-3-1

Date Collected: 09/09/21 10:45
Date Received: 09/10/21 10:53

Lab Sample ID: 410-54640-6

Matrix: Water

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonamide	<1.8		1.8	0.44	ng/L		09/16/21 09:14	09/19/21 00:54	1
Perfluorooctanesulfonic acid	<1.8		1.8	0.44	ng/L		09/16/21 09:14	09/19/21 00:54	1
Perfluorooctanoic acid	<1.8		1.8	0.44	ng/L		09/16/21 09:14	09/19/21 00:54	1
Perfluoropentanesulfonic acid	<1.8		1.8	0.44	ng/L		09/16/21 09:14	09/19/21 00:54	1
Perfluoropentanoic acid	<1.8		1.8	0.44	ng/L		09/16/21 09:14	09/19/21 00:54	1
Perfluorotetradecanoic acid	**2.4**		1.8	0.44	ng/L		09/16/21 09:14	09/19/21 00:54	1
Perfluorotridecanoic acid	**100**		1.8	0.44	ng/L		09/16/21 09:14	09/19/21 00:54	1
Perfluoroundecanoic acid	**64**		1.8	0.44	ng/L		09/16/21 09:14	09/19/21 00:54	1
8:2 Fluorotelomer sulfonic acid	<2.6		2.6	0.88	ng/L		09/16/21 09:14	09/19/21 00:54	1
4:2 Fluorotelomer sulfonic acid	<1.8		1.8	0.44	ng/L		09/16/21 09:14	09/19/21 00:54	1
6:2 Fluorotelomer sulfonic acid	<4.4		4.4	1.8	ng/L		09/16/21 09:14	09/19/21 00:54	1
NEtFOSAA	<2.6		2.6	0.44	ng/L		09/16/21 09:14	09/19/21 00:54	1
NMeFOSAA	<1.8		1.8	0.53	ng/L		09/16/21 09:14	09/19/21 00:54	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*81*		*41 - 132*	*09/16/21 09:14*	*09/19/21 00:54*	*1*
13C8 FOSA	*82*		*10 - 143*	*09/16/21 09:14*	*09/19/21 00:54*	*1*
13C4 PFHpA	*93*		*30 - 144*	*09/16/21 09:14*	*09/19/21 00:54*	*1*
13C5 PFPeA	*82*		*33 - 155*	*09/16/21 09:14*	*09/19/21 00:54*	*1*
13C2 PFTeDA	*60*		*10 - 144*	*09/16/21 09:14*	*09/19/21 00:54*	*1*
d3-NMeFOSAA	*86*		*32 - 151*	*09/16/21 09:14*	*09/19/21 00:54*	*1*
d5-NEtFOSAA	*82*		*37 - 164*	*09/16/21 09:14*	*09/19/21 00:54*	*1*
M2-6:2 FTS	*100*		*29 - 189*	*09/16/21 09:14*	*09/19/21 00:54*	*1*
M2-8:2 FTS	*93*		*34 - 182*	*09/16/21 09:14*	*09/19/21 00:54*	*1*
13C3 PFBS	*95*		*19 - 178*	*09/16/21 09:14*	*09/19/21 00:54*	*1*
M2-4:2 FTS	*101*		*20 - 187*	*09/16/21 09:14*	*09/19/21 00:54*	*1*
13C8 PFOA	*88*		*49 - 127*	*09/16/21 09:14*	*09/19/21 00:54*	*1*
13C8 PFOS	*79*		*49 - 126*	*09/16/21 09:14*	*09/19/21 00:54*	*1*
13C5 PFHxA	*90*		*31 - 142*	*09/16/21 09:14*	*09/19/21 00:54*	*1*
13C9 PFNA	*82*		*47 - 136*	*09/16/21 09:14*	*09/19/21 00:54*	*1*
13C6 PFDA	*79*		*47 - 128*	*09/16/21 09:14*	*09/19/21 00:54*	*1*
13C7 PFUnA	*79*		*40 - 135*	*09/16/21 09:14*	*09/19/21 00:54*	*1*
13C3 PFHxS	*100*		*32 - 145*	*09/16/21 09:14*	*09/19/21 00:54*	*1*
13C2-PFDoDA	*68*		*28 - 136*	*09/16/21 09:14*	*09/19/21 00:54*	*1*

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
10:2 Fluorotelomer sulfonic acid	<25		25	5.0	ng/L		10/07/21 15:25	10/12/21 05:46	1
11Cl-PF3OUdS	<10		10	2.5	ng/L		10/07/21 15:25	10/12/21 05:46	1
4:2 Fluorotelomer sulfonic acid	<10		10	2.5	ng/L		10/07/21 15:25	10/12/21 05:46	1
6:2 Fluorotelomer sulfonic acid	<25		25	10	ng/L		10/07/21 15:25	10/12/21 05:46	1
8:2 Fluorotelomer sulfonic acid	<15		15	5.0	ng/L		10/07/21 15:25	10/12/21 05:46	1
9Cl-PF3ONS	<10		10	2.5	ng/L		10/07/21 15:25	10/12/21 05:46	1
DONA	<10		10	2.5	ng/L		10/07/21 15:25	10/12/21 05:46	1
HFPODA	<15		15	2.5	ng/L		10/07/21 15:25	10/12/21 05:46	1
NEtFOSAA	<15		15	2.5	ng/L		10/07/21 15:25	10/12/21 05:46	1
NEtFOSA	<25		25	5.0	ng/L		10/07/21 15:25	10/12/21 05:46	1
NEtFOSE	<15		15	5.0	ng/L		10/07/21 15:25	10/12/21 05:46	1
NMeFOSAA	<10		10	3.0	ng/L		10/07/21 15:25	10/12/21 05:46	1
NMeFOSA	<15		15	5.0	ng/L		10/07/21 15:25	10/12/21 05:46	1

Client Sample ID: EFFLUENT-3-1

Date Collected: 09/09/21 10:45
Date Received: 09/10/21 10:53

Lab Sample ID: 410-54640-6

Matrix: Water

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NMeFOSE	<15		15	5.0	ng/L		10/07/21 15:25	10/12/21 05:46	1
Perfluorobutanesulfonic acid	<10		10	2.5	ng/L		10/07/21 15:25	10/12/21 05:46	1
Perfluorobutanoic acid	**29**		25	10	ng/L		10/07/21 15:25	10/12/21 05:46	1
Perfluorodecanesulfonic acid	<10		10	2.5	ng/L		10/07/21 15:25	10/12/21 05:46	1
Perfluorodecanoic acid	**79**		10	2.5	ng/L		10/07/21 15:25	10/12/21 05:46	1
Perfluorododecanesulfonic acid (PFDoS)	<15		15	2.5	ng/L		10/07/21 15:25	10/12/21 05:46	1
Perfluorododecanoic acid	**67**	**I**	10	2.5	ng/L		10/07/21 15:25	10/12/21 05:46	1
Perfluoroheptanesulfonic acid	<10		10	2.5	ng/L		10/07/21 15:25	10/12/21 05:46	1
Perfluoroheptanoic acid	**51**		10	2.5	ng/L		10/07/21 15:25	10/12/21 05:46	1
Perfluorohexadecanoic acid	<15		15	5.0	ng/L		10/07/21 15:25	10/12/21 05:46	1
Perfluorohexanesulfonic acid	<10		10	2.5	ng/L		10/07/21 15:25	10/12/21 05:46	1
Perfluorohexanoic acid	**45**		10	2.5	ng/L		10/07/21 15:25	10/12/21 05:46	1
Perfluorononanesulfonic acid	<10		10	2.5	ng/L		10/07/21 15:25	10/12/21 05:46	1
Perfluorononanoic acid	**67**		10	2.5	ng/L		10/07/21 15:25	10/12/21 05:46	1
Perfluorooctadecanoic acid	<15		15	5.0	ng/L		10/07/21 15:25	10/12/21 05:46	1
Perfluorooctanesulfonamide	<10		10	2.5	ng/L		10/07/21 15:25	10/12/21 05:46	1
Perfluorooctanesulfonic acid	<10		10	2.5	ng/L		10/07/21 15:25	10/12/21 05:46	1
Perfluorooctanoic acid	**58**		10	2.5	ng/L		10/07/21 15:25	10/12/21 05:46	1
Perfluoropentanesulfonic acid	<10		10	2.5	ng/L		10/07/21 15:25	10/12/21 05:46	1
Perfluoropentanoic acid	**63**		10	2.5	ng/L		10/07/21 15:25	10/12/21 05:46	1
Perfluorotetradecanoic acid	**43**		10	2.5	ng/L		10/07/21 15:25	10/12/21 05:46	1
Perfluorotridecanoic acid	**66**		10	2.5	ng/L		10/07/21 15:25	10/12/21 05:46	1
Perfluoroundecanoic acid	**170**		10	2.5	ng/L		10/07/21 15:25	10/12/21 05:46	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-6:2 FTS	*105*		*55 - 167*	*10/07/21 15:25*	*10/12/21 05:46*	*1*
M2-8:2 FTS	*92*		*61 - 160*	*10/07/21 15:25*	*10/12/21 05:46*	*1*
13C2-PFDoDA	*81*		*47 - 118*	*10/07/21 15:25*	*10/12/21 05:46*	*1*
13C2 PFTeDA	*78*		*32 - 126*	*10/07/21 15:25*	*10/12/21 05:46*	*1*
13C3 HFPO-DA	*100*		*70 - 130*	*10/07/21 15:25*	*10/12/21 05:46*	*1*
13C3 PFBS	*84*		*18 - 177*	*10/07/21 15:25*	*10/12/21 05:46*	*1*
13C3 PFHxS	*96*		*55 - 115*	*10/07/21 15:25*	*10/12/21 05:46*	*1*
13C4 PFBA	*96*		*52 - 126*	*10/07/21 15:25*	*10/12/21 05:46*	*1*
13C4 PFHpA	*94*		*55 - 113*	*10/07/21 15:25*	*10/12/21 05:46*	*1*
13C5 PFHxA	*90*		*54 - 115*	*10/07/21 15:25*	*10/12/21 05:46*	*1*
13C5 PFPeA	*88*		*17 - 184*	*10/07/21 15:25*	*10/12/21 05:46*	*1*
13C6 PFDA	*89*		*56 - 114*	*10/07/21 15:25*	*10/12/21 05:46*	*1*
13C7 PFUnA	*81*		*50 - 120*	*10/07/21 15:25*	*10/12/21 05:46*	*1*
13C8 PFOA	*98*		*56 - 117*	*10/07/21 15:25*	*10/12/21 05:46*	*1*
13C8 PFOS	*98*		*56 - 112*	*10/07/21 15:25*	*10/12/21 05:46*	*1*
13C8 FOSA	*72*		*10 - 126*	*10/07/21 15:25*	*10/12/21 05:46*	*1*
13C9 PFNA	*106*		*54 - 122*	*10/07/21 15:25*	*10/12/21 05:46*	*1*
M2-4:2 FTS				*10/07/21 15:25*	*10/12/21 05:46*	*1*
d3-NMeFOSAA				*10/07/21 15:25*	*10/12/21 05:46*	*1*
d3-NMePFOSA	*32*		*10 - 51*	*10/07/21 15:25*	*10/12/21 05:46*	*1*
d5-NEtFOSAA	*93*		*65 - 134*	*10/07/21 15:25*	*10/12/21 05:46*	*1*
d5-NEtPFOSA	*29*		*10 - 51*	*10/07/21 15:25*	*10/12/21 05:46*	*1*
d7-N-MeFOSE-M	*66*		*10 - 105*	*10/07/21 15:25*	*10/12/21 05:46*	*1*
d9-N-EtFOSE-M	*63*		*10 - 112*	*10/07/21 15:25*	*10/12/21 05:46*	*1*

Client Sample Results

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-54640-1

Client Sample ID: EFFLUENT-3-1

Date Collected: 09/09/21 10:45
Date Received: 09/10/21 10:53

Lab Sample ID: 410-54640-6

Matrix: Water

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*84*		*40 - 173*	*10/07/21 15:25*	*10/12/21 05:46*	*1*
13C2 PFUnA	*79*		*49 - 132*	*10/07/21 15:25*	*10/12/21 05:46*	*1*
13C4 PFOA	*88*		*10 - 163*	*10/07/21 15:25*	*10/12/21 05:46*	*1*

Method: Total PFCA-Dif - Total PFCA (Treatment Difference)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid	**29**				ng/L			10/14/21 10:45	1
Perfluoropentanoic acid	**63**				ng/L			10/14/21 10:45	1
Perfluorohexanoic acid	**45**				ng/L			10/14/21 10:45	1
Perfluoroheptanoic acid	**51**				ng/L			10/14/21 10:45	1
Perfluorooctanoic acid	**58**				ng/L			10/14/21 10:45	1
Perfluorononanoic acid	**67**				ng/L			10/14/21 10:45	1
Total PFCA	**0.00**				ng/L			10/14/21 10:45	1

Method: Total PFCA-Sum - Total PFCA (Summary) - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid	<4.4		4.4	1.8	ng/L			10/12/21 11:35	1
Perfluoropentanoic acid	<1.8		1.8	0.44	ng/L			10/12/21 11:35	1
Perfluorohexanoic acid	<1.8		1.8	0.44	ng/L			10/12/21 11:35	1
Perfluoroheptanoic acid	<1.8		1.8	0.44	ng/L			10/12/21 11:35	1
Perfluorooctanoic acid	<1.8		1.8	0.44	ng/L			10/12/21 11:35	1
Perfluorononanoic acid	<1.8		1.8	0.44	ng/L			10/12/21 11:35	1
Total PFCA	<500		500	0.50	ng/L			10/12/21 11:35	1

Method: Total PFCA-Sum - Total PFCA (Summary) - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid	**29**		25	10	ng/L			10/12/21 11:35	1
Perfluoropentanoic acid	**63**		10	2.5	ng/L			10/12/21 11:35	1
Perfluorohexanoic acid	**45**		10	2.5	ng/L			10/12/21 11:35	1
Perfluoroheptanoic acid	**51**		10	2.5	ng/L			10/12/21 11:35	1
Perfluorooctanoic acid	**58**		10	2.5	ng/L			10/12/21 11:35	1
Perfluorononanoic acid	**67**		10	2.5	ng/L			10/12/21 11:35	1
Total PFCA	<500		500	0.50	ng/L			10/12/21 11:35	1

Surrogate Summary

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-54640-1

Method: 537 TOP - Fluorinated Alkyl Substances

Matrix: Water **Prep Type: Post-Treatment**

		Percent Surrogate Recovery (Acceptance Limits)		
		PFHxA	PFUnA	PFOA
Lab Sample ID	Client Sample ID	(40-173)	(49-132)	(10-163)
410-54640-1	RINSE 4-1	60	85	79
410-54640-1 - RA	RINSE 4-1	64	89	82
410-54640-1 - DL	RINSE 4-1	77	85	87
410-54640-1 - DL2	RINSE 4-1	95	109	103
410-54640-2	RINSE 5-1 PM	79	84	88
410-54640-3	RINSE 5-1 AM	67	79	82
410-54640-4	RINSE 5-2 AM	79	91	88
410-54640-5	FIELD BLANK-1	99	84	105
410-54640-6	EFFLUENT-3-1	84	79	88
LCS 410-180223/3-A	Lab Control Sample	91	75	94
LCSD 410-180223/4-A	Lab Control Sample Dup	87	69	95
MB 410-180223/2-A	Method Blank	85	54	72

Surrogate Legend

PFHxA = 13C2 PFHxA
PFUnA = 13C2 PFUnA
PFOA = 13C4 PFOA

Method: 537 TOP - Fluorinated Alkyl Substances

Matrix: Water **Prep Type: Post-Treatment**

		Percent Surrogate Recovery (Acceptance Limits)		
		PFHxA	PFUnA	PFOA
Lab Sample ID	Client Sample ID			
MB 410-180223/1-A	Method Blank			

Surrogate Legend

PFHxA = 13C2 PFHxA
PFUnA = 13C2 PFUnA
PFOA = 13C4 PFOA

Isotope Dilution Summary

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-54640-1

Method: 537 IDA - EPA 537 Isotope Dilution

Matrix: Water **Prep Type: Pre-Treatment**

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		PFBA	PFOSA	C4PFHA	PFPeA	PFTDA	d3NMFOS	d5NEFOS	M262FTS
Lab Sample ID	Client Sample ID	(41-132)	(10-143)	(30-144)	(33-155)	(10-144)	(32-151)	(37-164)	(29-189)
410-54640-1	RINSE 4-1	106	125	318 *5+	117	110	117	130	160
410-54640-1 - DL	RINSE 4-1								177
410-54640-2 - DL	RINSE 5-1 PM								330 *5+
410-54640-2	RINSE 5-1 PM	121	114	230 *5+	126	30	136	131	166
410-54640-3	RINSE 5-1 AM	127	131	442 *5+	122	40	150	144	194 *5+
410-54640-3 - DL	RINSE 5-1 AM								375 *5+
410-54640-4	RINSE 5-2 AM	126	159 *5+	733 *5+	120	75	172 *5+	184 *5+	300 *5+
410-54640-4 - DL	RINSE 5-2 AM								
410-54640-4 - DL2	RINSE 5-2 AM								443 *5+
410-54640-5	FIELD BLANK-1	140 *5+	130	146 *5+	136	141	160 *5+	172 *5+	167
410-54640-6	EFFLUENT-3-1	81	82	93	82	60	86	82	100
410-54640-6 MS	EFFLUENT-3-1	85	79	92	86	50	78	78	110
410-54640-6 MSD	EFFLUENT-3-1	82	81	88	81	50	80	82	97
LCS 410-171950/2-A	Lab Control Sample	111	107	113	109	110	121	125	127
LCS 410-173586/2-A	Lab Control Sample	119	116	121	123	122	120	125	119
LCSD 410-173586/3-A	Lab Control Sample Dup	125	120	122	129	128	123	131	121
MB 410-171950/1-A	Method Blank	115	103	118	111	104	118	117	129
MB 410-173586/1-A	Method Blank	120	116	117	122	119	119	123	128

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		M282FTS	C3PFBS	M242FTS	C8PFOA	C8PFOS	13C5PHA	C9PFNA	C6PFDA
Lab Sample ID	Client Sample ID	(34-182)	(19-178)	(20-187)	(49-127)	(49-126)	(31-142)	(47-136)	(47-128)
410-54640-1	RINSE 4-1	106	120	351 *5+	109	103	288 *5+	122	96
410-54640-1 - DL	RINSE 4-1								
410-54640-2 - DL	RINSE 5-1 PM	267 *5+						223 *5+	
410-54640-2	RINSE 5-1 PM	138	130	303 *5+	117	114	226 *5+	119	109
410-54640-3	RINSE 5-1 AM	125	141	582 *5+	121	112	403 *5+	101	115
410-54640-3 - DL	RINSE 5-1 AM	262 *5+						216 *5+	
410-54640-4	RINSE 5-2 AM	136	125	965 *5+	123	114	672 *5+	104	114
410-54640-4 - DL	RINSE 5-2 AM	296 *5+					541 *5+	222 *5+	
410-54640-4 - DL2	RINSE 5-2 AM								
410-54640-5	FIELD BLANK-1	165	153	174	141 *5+	153 *5+	140	136	154 *5+
410-54640-6	EFFLUENT-3-1	93	95	101	88	79	90	82	79
410-54640-6 MS	EFFLUENT-3-1	89	97	108	87	78	94	82	78
410-54640-6 MSD	EFFLUENT-3-1	90	96	101	85	78	85	83	77
LCS 410-171950/2-A	Lab Control Sample	124	126	122	110	118	103	110	118
LCS 410-173586/2-A	Lab Control Sample	127	128	130	126	134 *5+	121	121	126
LCSD 410-173586/3-A	Lab Control Sample Dup	130	137	135	125	133 *5+	123	126	132 *5+
MB 410-171950/1-A	Method Blank	136	122	131	113	117	109	108	114
MB 410-173586/1-A	Method Blank	131	128	134	126	130 *5+	119	119	120

		Percent Isotope Dilution Recovery (Acceptance Limits)		
		13C7PUA	C3PFHS	PFDoDA
Lab Sample ID	Client Sample ID	(40-135)	(32-145)	(28-136)
410-54640-1	RINSE 4-1	113	277 *5+	125
410-54640-1 - DL	RINSE 4-1			
410-54640-2 - DL	RINSE 5-1 PM	208 *5+		
410-54640-2	RINSE 5-1 PM	111	219 *5+	123
410-54640-3	RINSE 5-1 AM	128	445 *5+	144 *5+
410-54640-3 - DL	RINSE 5-1 AM	228 *5+		
410-54640-4	RINSE 5-2 AM	148 *5+	768 *5+	162 *5+

Isotope Dilution Summary

Client: AECOM
Job ID: 410-54640-1
Project/Site: AFFF Tanks Cleaning

Method: 537 IDA - EPA 537 Isotope Dilution (Continued)

Matrix: Water **Prep Type: Pre-Treatment**

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	13C7PUA (40-135)	C3PFHS (32-145)	PFDoDA (28-136)					
410-54640-4 - DL	RINSE 5-2 AM	232 *5+							
410-54640-4 - DL2	RINSE 5-2 AM								
410-54640-5	FIELD BLANK-1	147 *5+	149 *5+	142 *5+					
410-54640-6	EFFLUENT-3-1	79	100	68					
410-54640-6 MS	EFFLUENT-3-1	71	98	65					
410-54640-6 MSD	EFFLUENT-3-1	69	90	64					
LCS 410-171950/2-A	Lab Control Sample	113	115	110					
LCS 410-173586/2-A	Lab Control Sample	114	120	121					
LCSD 410-173586/3-A	Lab Control Sample Dup	127	127	126					
MB 410-171950/1-A	Method Blank	104	125	104					
MB 410-173586/1-A	Method Blank	116	120	119					

Surrogate Legend

PFBA = 13C4 PFBA
PFOSA = 13C8 FOSA
C4PFHA = 13C4 PFHpA
PFPeA = 13C5 PFPeA
PFTDA = 13C2 PFTeDA
d3NMFOS = d3-NMeFOSAA
d5NEFOS = d5-NEtFOSAA
M262FTS = M2-6:2 FTS
M282FTS = M2-8:2 FTS
C3PFBS = 13C3 PFBS
M242FTS = M2-4:2 FTS
C8PFOA = 13C8 PFOA
C8PFOS = 13C8 PFOS
13C5PHA = 13C5 PFHxA
C9PFNA = 13C9 PFNA
C6PFDA = 13C6 PFDA
13C7PUA = 13C7 PFUnA
C3PFHS = 13C3 PFHxS
PFDoDA = 13C2-PFDoDA

Method: 537 TOP - Fluorinated Alkyl Substances

Matrix: Water **Prep Type: Post-Treatment**

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	M262FTS (55-167)	M282FTS (61-160)	PFDoDA (47-118)	PFTDA (32-126)	HFPODA (70-130)	C3PFBS (18-177)	C3PFHS (55-115)	PFBA (52-126)
410-54640-1	RINSE 4-1	87	95	87	75	105	182 *5+	70	96
410-54640-1 - DL	RINSE 4-1								100
410-54640-1 - DL2	RINSE 4-1								
410-54640-2	RINSE 5-1 PM	110	100	88	79	88	109	92	100
410-54640-2 - DL	RINSE 5-1 PM								
410-54640-3	RINSE 5-1 AM	103	109	92	85	96	135	89	97
410-54640-3 - DL	RINSE 5-1 AM								104
410-54640-4	RINSE 5-2 AM	108	96	86	79	81	108	93	96
410-54640-4 - DL	RINSE 5-2 AM								
410-54640-5	FIELD BLANK-1	130	138	119 *5+	113	125	100	120 *5+	116
410-54640-6	EFFLUENT-3-1	105	92	81	78	100	84	96	96
LCS 410-180223/3-A	Lab Control Sample	112	111	95	94	109	96	104	105

Isotope Dilution Summary

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-54640-1

Method: 537 TOP - Fluorinated Alkyl Substances (Continued)

Matrix: Water

Prep Type: Post-Treatment

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	M262FTS (55-167)	M282FTS (61-160)	PFDoDA (47-118)	PFTDA (32-126)	HFPODA (70-130)	C3PFBS (18-177)	C3PFHS (55-115)	PFBA (52-126)
LCSD 410-180223/4-A	Lab Control Sample Dup	113	108	99	96	104	92	107	103
MB 410-180223/2-A	Method Blank	109	110	82	45	83	85	96	93

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	C4PFHA (55-113)	13C5PHA (54-115)	PFPeA (17-184)	C6PFDA (56-114)	13C7PUA (50-120)	C8PFOA (56-117)	C8PFOS (56-112)	PFOSA (10-126)
410-54640-1	RINSE 4-1	74	59	69	92	90	90	94	76
410-54640-1 - DL	RINSE 4-1								
410-54640-1 - DL2	RINSE 4-1	103	105	94					
410-54640-2	RINSE 5-1 PM	94	83	91	94	91	99	102	79
410-54640-2 - DL	RINSE 5-1 PM		96	93					
410-54640-3	RINSE 5-1 AM	91	69	73	100	96	95	102	81
410-54640-3 - DL	RINSE 5-1 AM	94	93	86					
410-54640-4	RINSE 5-2 AM	91	80	79	94	92	96	96	74
410-54640-4 - DL	RINSE 5-2 AM	120 *5+	122 *5+	93					
410-54640-5	FIELD BLANK-1	121 *5+	105	111	127 *5+	120	120 *5+	117 *5+	102
410-54640-6	EFFLUENT-3-1	94	90	88	89	81	98	98	72
LCS 410-180223/3-A	Lab Control Sample	99	95	110	104	103	104	106	90
LCSD 410-180223/4-A	Lab Control Sample Dup	105	94	102	106	105	104	105	86
MB 410-180223/2-A	Method Blank	93	88	92	94	88	96	93	75

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	C9PFNA (54-122)	M242FTS	d3NMFOS	d3NMFSA (10-51)	d5NEFOS (65-134)	d5NPFSA (10-51)	NMFM (10-105)	NEFM (10-112)
410-54640-1	RINSE 4-1	102			24	98	21	65	63
410-54640-1 - DL	RINSE 4-1	111							
410-54640-1 - DL2	RINSE 4-1								
410-54640-2	RINSE 5-1 PM	114			34	105	31	67	62
410-54640-2 - DL	RINSE 5-1 PM								
410-54640-3	RINSE 5-1 AM	113			28	108	29	71	72
410-54640-3 - DL	RINSE 5-1 AM	107							
410-54640-4	RINSE 5-2 AM	114			22	103	20	64	66
410-54640-4 - DL	RINSE 5-2 AM								
410-54640-5	FIELD BLANK-1	128 *5+			77 *5+	133	84 *5+	106 *5+	111
410-54640-6	EFFLUENT-3-1	106			32	93	29	66	63
LCS 410-180223/3-A	Lab Control Sample	104			70 *5+	118	75 *5+	89	90
LCSD 410-180223/4-A	Lab Control Sample Dup	112			70 *5+	111	76 *5+	91	91
MB 410-180223/2-A	Method Blank	108			32	91	34	71	72

Surrogate Legend

M262FTS = M2-6:2 FTS
M282FTS = M2-8:2 FTS
PFDoDA = 13C2-PFDoDA
PFTDA = 13C2 PFTeDA
HFPODA = 13C3 HFPO-DA
C3PFBS = 13C3 PFBS
C3PFHS = 13C3 PFHxS
PFBA = 13C4 PFBA
C4PFHA = 13C4 PFHpA
13C5PHA = 13C5 PFHxA
PFPeA = 13C5 PFPeA
C6PFDA = 13C6 PFDA

Isotope Dilution Summary

Client: AECOM

Job ID: 410-54640-1

Project/Site: AFFF Tanks Cleaning

13C7PUA = 13C7 PFUnA
C8PFOA = 13C8 PFOA
C8PFOS = 13C8 PFOS
PFOSA = 13C8 FOSA
C9PFNA = 13C9 PFNA
M242FTS = M2-4:2 FTS
d3NMFOS = d3-NMeFOSAA
d3NMFSA = d3-NMePFOSA
d5NEFOS = d5-NEtFOSAA
d5NPFSA = d5-NEtPFOSA
NMFM = d7-N-MeFOSE-M
NEFM = d9-N-EtFOSE-M

Method: 537 IDA - EPA 537 Isotope Dilution

Lab Sample ID: MB 410-171950/1-A
Matrix: Water
Analysis Batch: 172861

Client Sample ID: Method Blank
Prep Type: Pre-Treatment
Prep Batch: 171950

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid	<2.0		2.0	0.50	ng/L		09/16/21 09:14	09/18/21 20:06	1
Perfluorobutanoic acid	<5.0		5.0	2.0	ng/L		09/16/21 09:14	09/18/21 20:06	1
Perfluorodecanesulfonic acid	<2.0		2.0	0.50	ng/L		09/16/21 09:14	09/18/21 20:06	1
Perfluorodecanoic acid	<2.0		2.0	0.50	ng/L		09/16/21 09:14	09/18/21 20:06	1
Perfluorododecanoic acid	<2.0		2.0	0.50	ng/L		09/16/21 09:14	09/18/21 20:06	1
Perfluoroheptanesulfonic acid	<2.0		2.0	0.50	ng/L		09/16/21 09:14	09/18/21 20:06	1
Perfluoroheptanoic acid	<2.0		2.0	0.50	ng/L		09/16/21 09:14	09/18/21 20:06	1
Perfluorohexanesulfonic acid	<2.0		2.0	0.50	ng/L		09/16/21 09:14	09/18/21 20:06	1
Perfluorohexanoic acid	<2.0		2.0	0.50	ng/L		09/16/21 09:14	09/18/21 20:06	1
Perfluorononanesulfonic acid	<2.0		2.0	0.50	ng/L		09/16/21 09:14	09/18/21 20:06	1
Perfluorononanoic acid	<2.0		2.0	0.50	ng/L		09/16/21 09:14	09/18/21 20:06	1
Perfluorooctanesulfonamide	<2.0		2.0	0.50	ng/L		09/16/21 09:14	09/18/21 20:06	1
Perfluorooctanesulfonic acid	<2.0		2.0	0.50	ng/L		09/16/21 09:14	09/18/21 20:06	1
Perfluorooctanoic acid	<2.0		2.0	0.50	ng/L		09/16/21 09:14	09/18/21 20:06	1
Perfluoropentanesulfonic acid	<2.0		2.0	0.50	ng/L		09/16/21 09:14	09/18/21 20:06	1
Perfluoropentanoic acid	<2.0		2.0	0.50	ng/L		09/16/21 09:14	09/18/21 20:06	1
Perfluorotetradecanoic acid	<2.0		2.0	0.50	ng/L		09/16/21 09:14	09/18/21 20:06	1
Perfluorotridecanoic acid	<2.0		2.0	0.50	ng/L		09/16/21 09:14	09/18/21 20:06	1
Perfluoroundecanoic acid	<2.0		2.0	0.50	ng/L		09/16/21 09:14	09/18/21 20:06	1
8:2 Fluorotelomer sulfonic acid	<3.0		3.0	1.0	ng/L		09/16/21 09:14	09/18/21 20:06	1
4:2 Fluorotelomer sulfonic acid	<2.0		2.0	0.50	ng/L		09/16/21 09:14	09/18/21 20:06	1
6:2 Fluorotelomer sulfonic acid	<5.0		5.0	2.0	ng/L		09/16/21 09:14	09/18/21 20:06	1
NEtFOSAA	<3.0		3.0	0.50	ng/L		09/16/21 09:14	09/18/21 20:06	1
NMeFOSAA	<2.0		2.0	0.60	ng/L		09/16/21 09:14	09/18/21 20:06	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*115*		*41 - 132*	*09/16/21 09:14*	*09/18/21 20:06*	*1*
13C8 FOSA	*103*		*10 - 143*	*09/16/21 09:14*	*09/18/21 20:06*	*1*
13C4 PFHpA	*118*		*30 - 144*	*09/16/21 09:14*	*09/18/21 20:06*	*1*
13C5 PFPeA	*111*		*33 - 155*	*09/16/21 09:14*	*09/18/21 20:06*	*1*
13C2 PFTeDA	*104*		*10 - 144*	*09/16/21 09:14*	*09/18/21 20:06*	*1*
d3-NMeFOSAA	*118*		*32 - 151*	*09/16/21 09:14*	*09/18/21 20:06*	*1*
d5-NEtFOSAA	*117*		*37 - 164*	*09/16/21 09:14*	*09/18/21 20:06*	*1*
M2-6:2 FTS	*129*		*29 - 189*	*09/16/21 09:14*	*09/18/21 20:06*	*1*
M2-8:2 FTS	*136*		*34 - 182*	*09/16/21 09:14*	*09/18/21 20:06*	*1*
13C3 PFBS	*122*		*19 - 178*	*09/16/21 09:14*	*09/18/21 20:06*	*1*
M2-4:2 FTS	*131*		*20 - 187*	*09/16/21 09:14*	*09/18/21 20:06*	*1*
13C8 PFOA	*113*		*49 - 127*	*09/16/21 09:14*	*09/18/21 20:06*	*1*
13C8 PFOS	*117*		*49 - 126*	*09/16/21 09:14*	*09/18/21 20:06*	*1*
13C5 PFHxA	*109*		*31 - 142*	*09/16/21 09:14*	*09/18/21 20:06*	*1*
13C9 PFNA	*108*		*47 - 136*	*09/16/21 09:14*	*09/18/21 20:06*	*1*
13C6 PFDA	*114*		*47 - 128*	*09/16/21 09:14*	*09/18/21 20:06*	*1*
13C7 PFUnA	*104*		*40 - 135*	*09/16/21 09:14*	*09/18/21 20:06*	*1*
13C3 PFHxS	*125*		*32 - 145*	*09/16/21 09:14*	*09/18/21 20:06*	*1*
13C2-PFDoDA	*104*		*28 - 136*	*09/16/21 09:14*	*09/18/21 20:06*	*1*

Method: 537 IDA - EPA 537 Isotope Dilution (Continued)

Lab Sample ID: LCS 410-171950/2-A
Matrix: Water
Analysis Batch: 172861

Client Sample ID: Lab Control Sample
Prep Type: Pre-Treatment
Prep Batch: 171950

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorobutanesulfonic acid	22.7	15.8		ng/L		70	65 - 132
Perfluorobutanoic acid	25.6	18.3		ng/L		72	62 - 156
Perfluorodecanesulfonic acid	24.7	18.7		ng/L		76	61 - 134
Perfluorodecanoic acid	25.6	19.3		ng/L		75	63 - 137
Perfluorododecanoic acid	25.6	21.2		ng/L		83	63 - 140
Perfluoroheptanesulfonic acid	24.4	20.1		ng/L		82	67 - 135
Perfluoroheptanoic acid	25.6	19.7		ng/L		77	66 - 141
Perfluorohexanesulfonic acid	23.3	18.0		ng/L		77	60 - 128
Perfluorohexanoic acid	25.6	20.8		ng/L		81	66 - 137
Perfluorononanesulfonic acid	24.6	17.7		ng/L		72	67 - 137
Perfluorononanoic acid	25.6	20.8		ng/L		81	65 - 140
Perfluorooctanesulfonamide	25.6	19.0		ng/L		74	55 - 130
Perfluorooctanesulfonic acid	23.7	17.2		ng/L		73	51 - 126
Perfluorooctanoic acid	25.6	20.1		ng/L		79	65 - 136
Perfluoropentanesulfonic acid	24.0	19.2		ng/L		80	71 - 136
Perfluoropentanoic acid	25.6	20.8		ng/L		81	72 - 139
Perfluorotetradecanoic acid	25.6	20.7		ng/L		81	64 - 141
Perfluorotridecanoic acid	25.6	21.5		ng/L		84	58 - 146
Perfluoroundecanoic acid	25.6	20.9		ng/L		82	62 - 138
8:2 Fluorotelomer sulfonic acid	24.5	21.2		ng/L		86	56 - 140
4:2 Fluorotelomer sulfonic acid	23.9	17.9		ng/L		75	59 - 130
6:2 Fluorotelomer sulfonic acid	24.3	17.2		ng/L		71	57 - 137
NEtFOSAA	25.6	17.0		ng/L		66	54 - 134
NMeFOSAA	25.6	19.1		ng/L		75	58 - 143

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C4 PFBA	*111*		*41 - 132*
13C8 FOSA	*107*		*10 - 143*
13C4 PFHpA	*113*		*30 - 144*
13C5 PFPeA	*109*		*33 - 155*
13C2 PFTeDA	*110*		*10 - 144*
d3-NMeFOSAA	*121*		*32 - 151*
d5-NEtFOSAA	*125*		*37 - 164*
M2-6:2 FTS	*127*		*29 - 189*
M2-8:2 FTS	*124*		*34 - 182*
13C3 PFBS	*126*		*19 - 178*
M2-4:2 FTS	*122*		*20 - 187*
13C8 PFOA	*110*		*49 - 127*
13C8 PFOS	*118*		*49 - 126*
13C5 PFHxA	*103*		*31 - 142*
13C9 PFNA	*110*		*47 - 136*
13C6 PFDA	*118*		*47 - 128*
13C7 PFUnA	*113*		*40 - 135*
13C3 PFHxS	*115*		*32 - 145*
13C2-PFDoDA	*110*		*28 - 136*

Method: 537 IDA - EPA 537 Isotope Dilution (Continued)

Lab Sample ID: 410-54640-6 MS
Matrix: Water
Analysis Batch: 172861

Client Sample ID: EFFLUENT-3-1
Prep Type: Pre-Treatment
Prep Batch: 171950

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorobutanesulfonic acid	<1.8		19.7	21.1		ng/L		107	65 - 132
Perfluorobutanoic acid	<4.4		22.2	24.6		ng/L		111	62 - 156
Perfluorodecanesulfonic acid	<1.8		21.4	19.9		ng/L		93	61 - 134
Perfluorodecanoic acid	<1.8		22.2	25.8		ng/L		114	63 - 137
Perfluorododecanoic acid	2.3		22.2	28.8		ng/L		119	63 - 140
Perfluoroheptanesulfonic acid	<1.8		21.2	23.9		ng/L		113	67 - 135
Perfluoroheptanoic acid	<1.8		22.2	26.0		ng/L		117	66 - 141
Perfluorohexanesulfonic acid	<1.8		20.3	23.4		ng/L		115	60 - 128
Perfluorohexanoic acid	<1.8		22.2	24.4		ng/L		110	66 - 137
Perfluorononanesulfonic acid	<1.8		21.3	22.2		ng/L		104	67 - 137
Perfluorononanoic acid	<1.8		22.2	27.2		ng/L		120	65 - 140
Perfluorooctanesulfonamide	<1.8		22.2	24.8		ng/L		111	55 - 130
Perfluorooctanesulfonic acid	<1.8		20.6	24.2		ng/L		115	51 - 126
Perfluorooctanoic acid	<1.8		22.2	26.6		ng/L		120	65 - 136
Perfluoropentanesulfonic acid	<1.8		20.8	26.5		ng/L		127	71 - 136
Perfluoropentanoic acid	<1.8		22.2	27.8		ng/L		125	72 - 139
Perfluorotetradecanoic acid	2.4		22.2	29.5		ng/L		122	64 - 141
Perfluorotridecanoic acid	100		22.2	114	4	ng/L		63	58 - 146
Perfluoroundecanoic acid	64		22.2	92.1		ng/L		126	62 - 138
8:2 Fluorotelomer sulfonic acid	<2.6		21.3	28.9		ng/L		124	56 - 140
4:2 Fluorotelomer sulfonic acid	<1.8		20.8	22.6		ng/L		109	59 - 130
6:2 Fluorotelomer sulfonic acid	<4.4		21.1	21.0		ng/L		100	57 - 137
NEtFOSAA	<2.6		22.2	22.3		ng/L		100	54 - 134
NMeFOSAA	<1.8		22.2	24.7		ng/L		111	58 - 143

Isotope Dilution	*MS %Recovery*	*MS Qualifier*	*Limits*
13C4 PFBA	*85*		*41 - 132*
13C8 FOSA	*79*		*10 - 143*
13C4 PFHpA	*92*		*30 - 144*
13C5 PFPeA	*86*		*33 - 155*
13C2 PFTeDA	*50*		*10 - 144*
d3-NMeFOSAA	*78*		*32 - 151*
d5-NEtFOSAA	*78*		*37 - 164*
M2-6:2 FTS	*110*		*29 - 189*
M2-8:2 FTS	*89*		*34 - 182*
13C3 PFBS	*97*		*19 - 178*
M2-4:2 FTS	*108*		*20 - 187*
13C8 PFOA	*87*		*49 - 127*
13C8 PFOS	*78*		*49 - 126*
13C5 PFHxA	*94*		*31 - 142*
13C9 PFNA	*82*		*47 - 136*
13C6 PFDA	*78*		*47 - 128*
13C7 PFUnA	*71*		*40 - 135*
13C3 PFHxS	*98*		*32 - 145*
13C2-PFDoDA	*65*		*28 - 136*

Method: 537 IDA - EPA 537 Isotope Dilution (Continued)

Lab Sample ID: 410-54640-6 MSD
Matrix: Water
Analysis Batch: 172861

Client Sample ID: EFFLUENT-3-1
Prep Type: Pre-Treatment
Prep Batch: 171950

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorobutanesulfonic acid	<1.8		20.0	21.4		ng/L		107	65 - 132	1	30
Perfluorobutanoic acid	<4.4		22.6	24.9		ng/L		110	62 - 156	2	30
Perfluorodecanesulfonic acid	<1.8		21.8	21.8		ng/L		100	61 - 134	9	30
Perfluorodecanoic acid	<1.8		22.6	25.3		ng/L		110	63 - 137	2	30
Perfluorododecanoic acid	2.3		22.6	30.0		ng/L		123	63 - 140	4	30
Perfluoroheptanesulfonic acid	<1.8		21.5	24.9		ng/L		116	67 - 135	4	30
Perfluoroheptanoic acid	<1.8		22.6	25.4		ng/L		112	66 - 141	3	30
Perfluorohexanesulfonic acid	<1.8		20.6	23.0		ng/L		112	60 - 128	2	30
Perfluorohexanoic acid	<1.8		22.6	26.0		ng/L		115	66 - 137	7	30
Perfluorononanesulfonic acid	<1.8		21.7	22.4		ng/L		103	67 - 137	1	30
Perfluorononanoic acid	<1.8		22.6	27.3		ng/L		119	65 - 140	1	30
Perfluorooctanesulfonamide	<1.8		22.6	25.0		ng/L		111	55 - 130	1	30
Perfluorooctanesulfonic acid	<1.8		20.9	24.0		ng/L		113	51 - 126	1	30
Perfluorooctanoic acid	<1.8		22.6	25.2		ng/L		112	65 - 136	5	30
Perfluoropentanesulfonic acid	<1.8		21.2	25.3		ng/L		119	71 - 136	5	30
Perfluoropentanoic acid	<1.8		22.6	28.0		ng/L		124	72 - 139	1	30
Perfluorotetradecanoic acid	2.4		22.6	29.9		ng/L		122	64 - 141	1	30
Perfluorotridecanoic acid	100		22.6	114	4	ng/L		64	58 - 146	0	30
Perfluoroundecanoic acid	64		22.6	93.5		ng/L		131	62 - 138	2	30
8:2 Fluorotelomer sulfonic acid	<2.6		21.6	26.1		ng/L		110	56 - 140	10	30
4:2 Fluorotelomer sulfonic acid	<1.8		21.1	22.6		ng/L		107	59 - 130	0	30
6:2 Fluorotelomer sulfonic acid	<4.4		21.4	24.0		ng/L		112	57 - 137	13	30
NEtFOSAA	<2.6		22.6	19.6		ng/L		87	54 - 134	13	30
NMeFOSAA	<1.8		22.6	22.6		ng/L		100	58 - 143	9	30

Isotope Dilution	*MSD %Recovery*	*MSD Qualifier*	*Limits*
13C4 PFBA	*82*		*41 - 132*
13C8 FOSA	*81*		*10 - 143*
13C4 PFHpA	*88*		*30 - 144*
13C5 PFPeA	*81*		*33 - 155*
13C2 PFTeDA	*50*		*10 - 144*
d3-NMeFOSAA	*80*		*32 - 151*
d5-NEtFOSAA	*82*		*37 - 164*
M2-6:2 FTS	*97*		*29 - 189*
M2-8:2 FTS	*90*		*34 - 182*
13C3 PFBS	*96*		*19 - 178*
M2-4:2 FTS	*101*		*20 - 187*
13C8 PFOA	*85*		*49 - 127*
13C8 PFOS	*78*		*49 - 126*
13C5 PFHxA	*85*		*31 - 142*
13C9 PFNA	*83*		*47 - 136*
13C6 PFDA	*77*		*47 - 128*
13C7 PFUnA	*69*		*40 - 135*
13C3 PFHxS	*90*		*32 - 145*
13C2-PFDoDA	*64*		*28 - 136*

Method: 537 IDA - EPA 537 Isotope Dilution (Continued)

Lab Sample ID: MB 410-173586/1-A
Matrix: Water
Analysis Batch: 174143

Client Sample ID: Method Blank
Prep Type: Pre-Treatment
Prep Batch: 173586

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid	<2.0		2.0	0.50	ng/L		09/21/21 08:55	09/22/21 19:44	1
Perfluorobutanoic acid	<5.0		5.0	2.0	ng/L		09/21/21 08:55	09/22/21 19:44	1
Perfluorodecanesulfonic acid	<2.0		2.0	0.50	ng/L		09/21/21 08:55	09/22/21 19:44	1
Perfluorodecanoic acid	<2.0		2.0	0.50	ng/L		09/21/21 08:55	09/22/21 19:44	1
Perfluorododecanoic acid	<2.0		2.0	0.50	ng/L		09/21/21 08:55	09/22/21 19:44	1
Perfluoroheptanesulfonic acid	<2.0		2.0	0.50	ng/L		09/21/21 08:55	09/22/21 19:44	1
Perfluoroheptanoic acid	<2.0		2.0	0.50	ng/L		09/21/21 08:55	09/22/21 19:44	1
Perfluorohexanesulfonic acid	<2.0		2.0	0.50	ng/L		09/21/21 08:55	09/22/21 19:44	1
Perfluorohexanoic acid	<2.0		2.0	0.50	ng/L		09/21/21 08:55	09/22/21 19:44	1
Perfluorononanesulfonic acid	<2.0		2.0	0.50	ng/L		09/21/21 08:55	09/22/21 19:44	1
Perfluorononanoic acid	<2.0		2.0	0.50	ng/L		09/21/21 08:55	09/22/21 19:44	1
Perfluorooctanesulfonamide	<2.0		2.0	0.50	ng/L		09/21/21 08:55	09/22/21 19:44	1
Perfluorooctanesulfonic acid	<2.0		2.0	0.50	ng/L		09/21/21 08:55	09/22/21 19:44	1
Perfluorooctanoic acid	<2.0		2.0	0.50	ng/L		09/21/21 08:55	09/22/21 19:44	1
Perfluoropentanesulfonic acid	<2.0		2.0	0.50	ng/L		09/21/21 08:55	09/22/21 19:44	1
Perfluoropentanoic acid	<2.0		2.0	0.50	ng/L		09/21/21 08:55	09/22/21 19:44	1
Perfluorotetradecanoic acid	<2.0		2.0	0.50	ng/L		09/21/21 08:55	09/22/21 19:44	1
Perfluorotridecanoic acid	<2.0		2.0	0.50	ng/L		09/21/21 08:55	09/22/21 19:44	1
Perfluoroundecanoic acid	<2.0		2.0	0.50	ng/L		09/21/21 08:55	09/22/21 19:44	1
8:2 Fluorotelomer sulfonic acid	<3.0		3.0	1.0	ng/L		09/21/21 08:55	09/22/21 19:44	1
4:2 Fluorotelomer sulfonic acid	<2.0		2.0	0.50	ng/L		09/21/21 08:55	09/22/21 19:44	1
6:2 Fluorotelomer sulfonic acid	<5.0		5.0	2.0	ng/L		09/21/21 08:55	09/22/21 19:44	1
NEtFOSAA	<3.0		3.0	0.50	ng/L		09/21/21 08:55	09/22/21 19:44	1
NMeFOSAA	<2.0		2.0	0.60	ng/L		09/21/21 08:55	09/22/21 19:44	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*120*		*41 - 132*	*09/21/21 08:55*	*09/22/21 19:44*	*1*
13C8 FOSA	*116*		*10 - 143*	*09/21/21 08:55*	*09/22/21 19:44*	*1*
13C4 PFHpA	*117*		*30 - 144*	*09/21/21 08:55*	*09/22/21 19:44*	*1*
13C5 PFPeA	*122*		*33 - 155*	*09/21/21 08:55*	*09/22/21 19:44*	*1*
13C2 PFTeDA	*119*		*10 - 144*	*09/21/21 08:55*	*09/22/21 19:44*	*1*
d3-NMeFOSAA	*119*		*32 - 151*	*09/21/21 08:55*	*09/22/21 19:44*	*1*
d5-NEtFOSAA	*123*		*37 - 164*	*09/21/21 08:55*	*09/22/21 19:44*	*1*
M2-6:2 FTS	*128*		*29 - 189*	*09/21/21 08:55*	*09/22/21 19:44*	*1*
M2-8:2 FTS	*131*		*34 - 182*	*09/21/21 08:55*	*09/22/21 19:44*	*1*
13C3 PFBS	*128*		*19 - 178*	*09/21/21 08:55*	*09/22/21 19:44*	*1*
M2-4:2 FTS	*134*		*20 - 187*	*09/21/21 08:55*	*09/22/21 19:44*	*1*
13C8 PFOA	*126*		*49 - 127*	*09/21/21 08:55*	*09/22/21 19:44*	*1*
13C8 PFOS	*130*	**5+*	*49 - 126*	*09/21/21 08:55*	*09/22/21 19:44*	*1*
13C5 PFHxA	*119*		*31 - 142*	*09/21/21 08:55*	*09/22/21 19:44*	*1*
13C9 PFNA	*119*		*47 - 136*	*09/21/21 08:55*	*09/22/21 19:44*	*1*
13C6 PFDA	*120*		*47 - 128*	*09/21/21 08:55*	*09/22/21 19:44*	*1*
13C7 PFUnA	*116*		*40 - 135*	*09/21/21 08:55*	*09/22/21 19:44*	*1*
13C3 PFHxS	*120*		*32 - 145*	*09/21/21 08:55*	*09/22/21 19:44*	*1*
13C2-PFDoDA	*119*		*28 - 136*	*09/21/21 08:55*	*09/22/21 19:44*	*1*

Method: 537 IDA - EPA 537 Isotope Dilution (Continued)

Lab Sample ID: LCS 410-173586/2-A
Matrix: Water
Analysis Batch: 174143

Client Sample ID: Lab Control Sample
Prep Type: Pre-Treatment
Prep Batch: 173586

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorobutanesulfonic acid	22.7	19.4		ng/L		86	65 - 132
Perfluorobutanoic acid	25.6	22.0		ng/L		86	62 - 156
Perfluorodecanesulfonic acid	24.7	21.4		ng/L		87	61 - 134
Perfluorodecanoic acid	25.6	21.1		ng/L		83	63 - 137
Perfluorododecanoic acid	25.6	21.4		ng/L		83	63 - 140
Perfluoroheptanesulfonic acid	24.4	25.3		ng/L		104	67 - 135
Perfluoroheptanoic acid	25.6	24.4		ng/L		95	66 - 141
Perfluorohexanesulfonic acid	23.3	21.2		ng/L		91	60 - 128
Perfluorohexanoic acid	25.6	23.8		ng/L		93	66 - 137
Perfluorononanesulfonic acid	24.6	20.2		ng/L		82	67 - 137
Perfluorononanoic acid	25.6	23.4		ng/L		92	65 - 140
Perfluorooctanesulfonamide	25.6	22.2		ng/L		87	55 - 130
Perfluorooctanesulfonic acid	23.7	19.3		ng/L		81	51 - 126
Perfluorooctanoic acid	25.6	23.2		ng/L		90	65 - 136
Perfluoropentanesulfonic acid	24.0	23.9		ng/L		100	71 - 136
Perfluoropentanoic acid	25.6	27.1		ng/L		106	72 - 139
Perfluorotetradecanoic acid	25.6	23.7		ng/L		93	64 - 141
Perfluorotridecanoic acid	25.6	23.6		ng/L		92	58 - 146
Perfluoroundecanoic acid	25.6	26.4		ng/L		103	62 - 138
8:2 Fluorotelomer sulfonic acid	24.5	21.3		ng/L		87	56 - 140
4:2 Fluorotelomer sulfonic acid	23.9	20.8		ng/L		87	59 - 130
6:2 Fluorotelomer sulfonic acid	24.3	22.1		ng/L		91	57 - 137
NEtFOSAA	25.6	21.0		ng/L		82	54 - 134
NMeFOSAA	25.6	20.2		ng/L		79	58 - 143

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C4 PFBA	*119*		*41 - 132*
13C8 FOSA	*116*		*10 - 143*
13C4 PFHpA	*121*		*30 - 144*
13C5 PFPeA	*123*		*33 - 155*
13C2 PFTeDA	*122*		*10 - 144*
d3-NMeFOSAA	*120*		*32 - 151*
d5-NEtFOSAA	*125*		*37 - 164*
M2-6:2 FTS	*119*		*29 - 189*
M2-8:2 FTS	*127*		*34 - 182*
13C3 PFBS	*128*		*19 - 178*
M2-4:2 FTS	*130*		*20 - 187*
13C8 PFOA	*126*		*49 - 127*
13C8 PFOS	*134*	**5+*	*49 - 126*
13C5 PFHxA	*121*		*31 - 142*
13C9 PFNA	*121*		*47 - 136*
13C6 PFDA	*126*		*47 - 128*
13C7 PFUnA	*114*		*40 - 135*
13C3 PFHxS	*120*		*32 - 145*
13C2-PFDoDA	*121*		*28 - 136*

Method: 537 IDA - EPA 537 Isotope Dilution (Continued)

Lab Sample ID: LCSD 410-173586/3-A
Matrix: Water
Analysis Batch: 174143

Client Sample ID: Lab Control Sample Dup
Prep Type: Pre-Treatment
Prep Batch: 173586

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorobutanesulfonic acid			22.7	20.3		ng/L		89	65 - 132	4	30
Perfluorobutanoic acid			25.6	23.0		ng/L		90	62 - 156	4	30
Perfluorodecanesulfonic acid			24.7	23.0		ng/L		93	61 - 134	7	30
Perfluorodecanoic acid			25.6	22.5		ng/L		88	63 - 137	6	30
Perfluorododecanoic acid			25.6	23.1		ng/L		90	63 - 140	8	30
Perfluoroheptanesulfonic acid			24.4	24.5		ng/L		100	67 - 135	3	30
Perfluoroheptanoic acid			25.6	25.0		ng/L		98	66 - 141	2	30
Perfluorohexanesulfonic acid			23.3	21.1		ng/L		91	60 - 128	0	30
Perfluorohexanoic acid			25.6	24.7		ng/L		97	66 - 137	4	30
Perfluorononanesulfonic acid			24.6	21.5		ng/L		88	67 - 137	7	30
Perfluorononanoic acid			25.6	22.9		ng/L		89	65 - 140	2	30
Perfluorooctanesulfonamide			25.6	23.8		ng/L		93	55 - 130	7	30
Perfluorooctanesulfonic acid			23.7	20.8		ng/L		88	51 - 126	8	30
Perfluorooctanoic acid			25.6	24.2		ng/L		95	65 - 136	4	30
Perfluoropentanesulfonic acid			24.0	24.1		ng/L		100	71 - 136	1	30
Perfluoropentanoic acid			25.6	28.6		ng/L		112	72 - 139	5	30
Perfluorotetradecanoic acid			25.6	25.2		ng/L		99	64 - 141	6	30
Perfluorotridecanoic acid			25.6	24.9		ng/L		97	58 - 146	5	30
Perfluoroundecanoic acid			25.6	25.1		ng/L		98	62 - 138	5	30
8:2 Fluorotelomer sulfonic acid			24.5	21.9		ng/L		89	56 - 140	3	30
4:2 Fluorotelomer sulfonic acid			23.9	21.6		ng/L		90	59 - 130	4	30
6:2 Fluorotelomer sulfonic acid			24.3	22.1		ng/L		91	57 - 137	0	30
NEtFOSAA			25.6	22.0		ng/L		86	54 - 134	4	30
NMeFOSAA			25.6	21.8		ng/L		85	58 - 143	8	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C4 PFBA	*125*		*41 - 132*
13C8 FOSA	*120*		*10 - 143*
13C4 PFHpA	*122*		*30 - 144*
13C5 PFPeA	*129*		*33 - 155*
13C2 PFTeDA	*128*		*10 - 144*
d3-NMeFOSAA	*123*		*32 - 151*
d5-NEtFOSAA	*131*		*37 - 164*
M2-6:2 FTS	*121*		*29 - 189*
M2-8:2 FTS	*130*		*34 - 182*
13C3 PFBS	*137*		*19 - 178*
M2-4:2 FTS	*135*		*20 - 187*
13C8 PFOA	*125*		*49 - 127*
13C8 PFOS	*133*	**5+*	*49 - 126*
13C5 PFHxA	*123*		*31 - 142*
13C9 PFNA	*126*		*47 - 136*
13C6 PFDA	*132*	**5+*	*47 - 128*
13C7 PFUnA	*127*		*40 - 135*
13C3 PFHxS	*127*		*32 - 145*
13C2-PFDoDA	*126*		*28 - 136*

Method: 537 TOP - Fluorinated Alkyl Substances

Lab Sample ID: MB 410-180223/1-A
Matrix: Water
Analysis Batch: 181267

Client Sample ID: Method Blank
Prep Type: Post-Treatment
Prep Batch: 180223

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA				10/07/21 15:25	10/11/21 12:11	1
13C2 PFUnA				10/07/21 15:25	10/11/21 12:11	1
13C4 PFOA				10/07/21 15:25	10/11/21 12:11	1

Lab Sample ID: MB 410-180223/2-A
Matrix: Water
Analysis Batch: 181267

Client Sample ID: Method Blank
Prep Type: Post-Treatment
Prep Batch: 180223

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
10:2 Fluorotelomer sulfonic acid	<25		25	5.0	ng/L		10/07/21 15:25	10/11/21 12:21	1
11Cl-PF3OUdS	<10		10	2.5	ng/L		10/07/21 15:25	10/11/21 12:21	1
4:2 Fluorotelomer sulfonic acid	<10		10	2.5	ng/L		10/07/21 15:25	10/11/21 12:21	1
6:2 Fluorotelomer sulfonic acid	<25		25	10	ng/L		10/07/21 15:25	10/11/21 12:21	1
8:2 Fluorotelomer sulfonic acid	<15		15	5.0	ng/L		10/07/21 15:25	10/11/21 12:21	1
9Cl-PF3ONS	<10		10	2.5	ng/L		10/07/21 15:25	10/11/21 12:21	1
DONA	<10		10	2.5	ng/L		10/07/21 15:25	10/11/21 12:21	1
HFPODA	<15		15	2.5	ng/L		10/07/21 15:25	10/11/21 12:21	1
NEtFOSAA	<15		15	2.5	ng/L		10/07/21 15:25	10/11/21 12:21	1
NEtFOSA	<25		25	5.0	ng/L		10/07/21 15:25	10/11/21 12:21	1
NEtFOSE	<15		15	5.0	ng/L		10/07/21 15:25	10/11/21 12:21	1
NMeFOSAA	<10		10	3.0	ng/L		10/07/21 15:25	10/11/21 12:21	1
NMeFOSA	<15		15	5.0	ng/L		10/07/21 15:25	10/11/21 12:21	1
NMeFOSE	<15		15	5.0	ng/L		10/07/21 15:25	10/11/21 12:21	1
Perfluorobutanesulfonic acid	<10		10	2.5	ng/L		10/07/21 15:25	10/11/21 12:21	1
Perfluorobutanoic acid	<25		25	10	ng/L		10/07/21 15:25	10/11/21 12:21	1
Perfluorodecanesulfonic acid	<10		10	2.5	ng/L		10/07/21 15:25	10/11/21 12:21	1
Perfluorodecanoic acid	<10		10	2.5	ng/L		10/07/21 15:25	10/11/21 12:21	1
Perfluorododecanesulfonic acid (PFDoS)	<15		15	2.5	ng/L		10/07/21 15:25	10/11/21 12:21	1
Perfluorododecanoic acid	<10		10	2.5	ng/L		10/07/21 15:25	10/11/21 12:21	1
Perfluoroheptanesulfonic acid	<10		10	2.5	ng/L		10/07/21 15:25	10/11/21 12:21	1
Perfluoroheptanoic acid	<10		10	2.5	ng/L		10/07/21 15:25	10/11/21 12:21	1
Perfluorohexadecanoic acid	<15		15	5.0	ng/L		10/07/21 15:25	10/11/21 12:21	1
Perfluorohexanesulfonic acid	<10		10	2.5	ng/L		10/07/21 15:25	10/11/21 12:21	1
Perfluorohexanoic acid	<10		10	2.5	ng/L		10/07/21 15:25	10/11/21 12:21	1
Perfluorononanesulfonic acid	<10		10	2.5	ng/L		10/07/21 15:25	10/11/21 12:21	1
Perfluorononanoic acid	<10		10	2.5	ng/L		10/07/21 15:25	10/11/21 12:21	1
Perfluorooctadecanoic acid	<15		15	5.0	ng/L		10/07/21 15:25	10/11/21 12:21	1
Perfluorooctanesulfonamide	<10		10	2.5	ng/L		10/07/21 15:25	10/11/21 12:21	1
Perfluorooctanesulfonic acid	<10		10	2.5	ng/L		10/07/21 15:25	10/11/21 12:21	1
Perfluorooctanoic acid	<10		10	2.5	ng/L		10/07/21 15:25	10/11/21 12:21	1
Perfluoropentanesulfonic acid	<10		10	2.5	ng/L		10/07/21 15:25	10/11/21 12:21	1
Perfluoropentanoic acid	<10		10	2.5	ng/L		10/07/21 15:25	10/11/21 12:21	1
Perfluorotetradecanoic acid	<10		10	2.5	ng/L		10/07/21 15:25	10/11/21 12:21	1
Perfluorotridecanoic acid	<10		10	2.5	ng/L		10/07/21 15:25	10/11/21 12:21	1
Perfluoroundecanoic acid	<10		10	2.5	ng/L		10/07/21 15:25	10/11/21 12:21	1

Method: 537 TOP - Fluorinated Alkyl Substances (Continued)

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
M2-6:2 FTS	109		55 - 167	10/07/21 15:25	10/11/21 12:21	1
M2-8:2 FTS	110		61 - 160	10/07/21 15:25	10/11/21 12:21	1
13C2-PFDoDA	82		47 - 118	10/07/21 15:25	10/11/21 12:21	1
13C2 PFTeDA	45		32 - 126	10/07/21 15:25	10/11/21 12:21	1
13C3 HFPO-DA	83		70 - 130	10/07/21 15:25	10/11/21 12:21	1
13C3 PFBS	85		18 - 177	10/07/21 15:25	10/11/21 12:21	1
13C3 PFHxS	96		55 - 115	10/07/21 15:25	10/11/21 12:21	1
13C4 PFBA	93		52 - 126	10/07/21 15:25	10/11/21 12:21	1
13C4 PFHpA	93		55 - 113	10/07/21 15:25	10/11/21 12:21	1
13C5 PFHxA	88		54 - 115	10/07/21 15:25	10/11/21 12:21	1
13C5 PFPeA	92		17 - 184	10/07/21 15:25	10/11/21 12:21	1
13C6 PFDA	94		56 - 114	10/07/21 15:25	10/11/21 12:21	1
13C7 PFUnA	88		50 - 120	10/07/21 15:25	10/11/21 12:21	1
13C8 PFOA	96		56 - 117	10/07/21 15:25	10/11/21 12:21	1
13C8 PFOS	93		56 - 112	10/07/21 15:25	10/11/21 12:21	1
13C8 FOSA	75		10 - 126	10/07/21 15:25	10/11/21 12:21	1
13C9 PFNA	108		54 - 122	10/07/21 15:25	10/11/21 12:21	1
M2-4:2 FTS				10/07/21 15:25	10/11/21 12:21	1
d3-NMeFOSAA				10/07/21 15:25	10/11/21 12:21	1
d3-NMePFOSA	32		10 - 51	10/07/21 15:25	10/11/21 12:21	1
d5-NEtFOSAA	91		65 - 134	10/07/21 15:25	10/11/21 12:21	1
d5-NEtPFOSA	34		10 - 51	10/07/21 15:25	10/11/21 12:21	1
d7-N-MeFOSE-M	71		10 - 105	10/07/21 15:25	10/11/21 12:21	1
d9-N-EtFOSE-M	72		10 - 112	10/07/21 15:25	10/11/21 12:21	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	85		40 - 173	10/07/21 15:25	10/11/21 12:21	1
13C2 PFUnA	54		49 - 132	10/07/21 15:25	10/11/21 12:21	1
13C4 PFOA	72		10 - 163	10/07/21 15:25	10/11/21 12:21	1

Lab Sample ID: LCS 410-180223/3-A
Matrix: Water
Analysis Batch: 181267

Client Sample ID: Lab Control Sample
Prep Type: Post-Treatment
Prep Batch: 180223

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
10:2 Fluorotelomer sulfonic acid	123	111		ng/L		90	29 - 147
11Cl-PF3OUdS	119	132		ng/L		111	70 - 130
4:2 Fluorotelomer sulfonic acid	120	71.8		ng/L		60	53 - 109
6:2 Fluorotelomer sulfonic acid	121	124		ng/L		102	58 - 136
8:2 Fluorotelomer sulfonic acid	123	114		ng/L		93	59 - 118
9Cl-PF3ONS	119	134		ng/L		113	70 - 130
DONA	121	130		ng/L		108	70 - 130
HFPODA	128	126		ng/L		99	70 - 130
NEtFOSAA	128	126		ng/L		98	53 - 119
NEtFOSA	128	124		ng/L		97	30 - 144
NEtFOSE	128	137		ng/L		107	35 - 142
NMeFOSAA	128	116		ng/L		91	43 - 122
NMeFOSA	128	128		ng/L		100	51 - 135
NMeFOSE	128	134		ng/L		105	57 - 120
Perfluorobutanesulfonic acid	113	124		ng/L		109	69 - 138
Perfluorobutanoic acid	128	148		ng/L		116	80 - 151

Method: 537 TOP - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 410-180223/3-A
Matrix: Water
Analysis Batch: 181267

Client Sample ID: Lab Control Sample
Prep Type: Post-Treatment
Prep Batch: 180223

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorodecanesulfonic acid	123	124		ng/L		100	52 - 149
Perfluorodecanoic acid	128	132		ng/L		103	69 - 142
Perfluorododecanesulfonic acid (PFDoS)	124	132		ng/L		106	53 - 151
Perfluorododecanoic acid	128	131	I	ng/L		102	71 - 145
Perfluoroheptanesulfonic acid	122	133		ng/L		109	64 - 140
Perfluoroheptanoic acid	128	132		ng/L		103	67 - 143
Perfluorohexadecanoic acid	128	116		ng/L		91	42 - 145
Perfluorohexanesulfonic acid	117	115		ng/L		98	67 - 136
Perfluorohexanoic acid	128	135		ng/L		105	65 - 152
Perfluorononanesulfonic acid	123	131		ng/L		107	60 - 144
Perfluorononanoic acid	128	131		ng/L		102	66 - 150
Perfluorooctadecanoic acid	128	100		ng/L		78	21 - 158
Perfluorooctanesulfonamide	128	138		ng/L		108	48 - 126
Perfluorooctanesulfonic acid	118	115		ng/L		97	68 - 142
Perfluorooctanoic acid	128	155		ng/L		121	71 - 144
Perfluoropentanesulfonic acid	120	131		ng/L		110	66 - 145
Perfluoropentanoic acid	128	144		ng/L		113	75 - 140
Perfluorotetradecanoic acid	128	137		ng/L		107	73 - 147
Perfluorotridecanoic acid	128	141		ng/L		110	64 - 160
Perfluoroundecanoic acid	128	141		ng/L		110	69 - 146

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
M2-6:2 FTS	*112*		*55 - 167*
M2-8:2 FTS	*111*		*61 - 160*
13C2-PFDoDA	*95*		*47 - 118*
13C2 PFTeDA	*94*		*32 - 126*
13C3 HFPO-DA	*109*		*70 - 130*
13C3 PFBS	*96*		*18 - 177*
13C3 PFHxS	*104*		*55 - 115*
13C4 PFBA	*105*		*52 - 126*
13C4 PFHpA	*99*		*55 - 113*
13C5 PFHxA	*95*		*54 - 115*
13C5 PFPeA	*110*		*17 - 184*
13C6 PFDA	*104*		*56 - 114*
13C7 PFUnA	*103*		*50 - 120*
13C8 PFOA	*104*		*56 - 117*
13C8 PFOS	*106*		*56 - 112*
13C8 FOSA	*90*		*10 - 126*
13C9 PFNA	*104*		*54 - 122*
d3-NMePFOSA	*70*	**5+*	*10 - 51*
d5-NEtFOSAA	*118*		*65 - 134*
d5-NEtPFOSA	*75*	**5+*	*10 - 51*
d7-N-MeFOSE-M	*89*		*10 - 105*
d9-N-EtFOSE-M	*90*		*10 - 112*

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C2 PFHxA	*91*		*40 - 173*

Method: 537 TOP - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 410-180223/3-A
Matrix: Water
Analysis Batch: 181267

Client Sample ID: Lab Control Sample
Prep Type: Post-Treatment
Prep Batch: 180223

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C2 PFUnA	*75*		*49 - 132*
13C4 PFOA	*94*		*10 - 163*

Lab Sample ID: LCSD 410-180223/4-A
Matrix: Water
Analysis Batch: 181267

Client Sample ID: Lab Control Sample Dup
Prep Type: Post-Treatment
Prep Batch: 180223

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
10:2 Fluorotelomer sulfonic acid	123	131		ng/L		106	29 - 147	17	30
11Cl-PF3OUdS	119	132		ng/L		111	70 - 130	1	30
4:2 Fluorotelomer sulfonic acid	120	70.1		ng/L		59	53 - 109	2	30
6:2 Fluorotelomer sulfonic acid	121	127		ng/L		105	58 - 136	2	30
8:2 Fluorotelomer sulfonic acid	123	124		ng/L		101	59 - 118	9	30
9Cl-PF3ONS	119	138		ng/L		116	70 - 130	3	30
DONA	121	122		ng/L		101	70 - 130	7	30
HFPODA	128	128		ng/L		100	70 - 130	1	30
NEtFOSAA	128	129		ng/L		101	53 - 119	3	30
NEtFOSA	128	117		ng/L		91	30 - 144	6	30
NEtFOSE	128	139		ng/L		108	35 - 142	1	30
NMeFOSAA	128	139		ng/L		108	43 - 122	18	30
NMeFOSA	128	130		ng/L		101	51 - 135	1	30
NMeFOSE	128	129		ng/L		101	57 - 120	4	30
Perfluorobutanesulfonic acid	113	123		ng/L		109	69 - 138	1	30
Perfluorobutanoic acid	128	147		ng/L		115	80 - 151	1	30
Perfluorodecanesulfonic acid	123	121		ng/L		98	52 - 149	2	30
Perfluorodecanoic acid	128	135		ng/L		106	69 - 142	3	30
Perfluorododecanesulfonic acid (PFDoS)	124	139		ng/L		112	53 - 151	5	30
Perfluorododecanoic acid	128	127	I	ng/L		99	71 - 145	3	30
Perfluoroheptanesulfonic acid	122	128		ng/L		105	64 - 140	4	30
Perfluoroheptanoic acid	128	125		ng/L		98	67 - 143	5	30
Perfluorohexadecanoic acid	128	116		ng/L		90	42 - 145	0	30
Perfluorohexanesulfonic acid	117	110		ng/L		94	67 - 136	4	30
Perfluorohexanoic acid	128	134		ng/L		105	65 - 152	1	30
Perfluorononanesulfonic acid	123	131		ng/L		106	60 - 144	0	30
Perfluorononanoic acid	128	129		ng/L		101	66 - 150	1	30
Perfluorooctadecanoic acid	128	96.7		ng/L		76	21 - 158	3	30
Perfluorooctanesulfonamide	128	145		ng/L		113	48 - 126	5	30
Perfluorooctanesulfonic acid	118	122		ng/L		103	68 - 142	6	30
Perfluorooctanoic acid	128	149		ng/L		117	71 - 144	4	30
Perfluoropentanesulfonic acid	120	132		ng/L		110	66 - 145	0	30
Perfluoropentanoic acid	128	146		ng/L		114	75 - 140	1	30
Perfluorotetradecanoic acid	128	133		ng/L		104	73 - 147	3	30
Perfluorotridecanoic acid	128	134		ng/L		104	64 - 160	5	30
Perfluoroundecanoic acid	128	146		ng/L		114	69 - 146	4	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
M2-6:2 FTS	*113*		*55 - 167*
M2-8:2 FTS	*108*		*61 - 160*

Method: 537 TOP - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCSD 410-180223/4-A
Matrix: Water
Analysis Batch: 181267

Client Sample ID: Lab Control Sample Dup
Prep Type: Post-Treatment
Prep Batch: 180223

Isotope Dilution	LCSD %Recovery	LCSD Qualifier	Limits
13C2-PFDoDA	99		47 - 118
13C2 PFTeDA	96		32 - 126
13C3 HFPO-DA	104		70 - 130
13C3 PFBS	92		18 - 177
13C3 PFHxS	107		55 - 115
13C4 PFBA	103		52 - 126
13C4 PFHpA	105		55 - 113
13C5 PFHxA	94		54 - 115
13C5 PFPeA	102		17 - 184
13C6 PFDA	106		56 - 114
13C7 PFUnA	105		50 - 120
13C8 PFOA	104		56 - 117
13C8 PFOS	105		56 - 112
13C8 FOSA	86		10 - 126
13C9 PFNA	112		54 - 122
d3-NMePFOSA	70	*5+	10 - 51
d5-NEtFOSAA	111		65 - 134
d5-NEtPFOSA	76	*5+	10 - 51
d7-N-MeFOSE-M	91		10 - 105
d9-N-EtFOSE-M	91		10 - 112

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
13C2 PFHxA	87		40 - 173
13C2 PFUnA	69		49 - 132
13C4 PFOA	95		10 - 163

QC Association Summary

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-54640-1

LCMS

Prep Batch: 171950

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-54640-1 - RE	RINSE 4-1	Pre-Treatment	Water	TOP Pre - Prep	
410-54640-2	RINSE 5-1 PM	Pre-Treatment	Water	TOP Pre - Prep	
410-54640-2 - DL	RINSE 5-1 PM	Pre-Treatment	Water	TOP Pre - Prep	
410-54640-2 - RA	RINSE 5-1 PM	Pre-Treatment	Water	TOP Pre - Prep	
410-54640-3 - RA	RINSE 5-1 AM	Pre-Treatment	Water	TOP Pre - Prep	
410-54640-3	RINSE 5-1 AM	Pre-Treatment	Water	TOP Pre - Prep	
410-54640-3 - DL	RINSE 5-1 AM	Pre-Treatment	Water	TOP Pre - Prep	
410-54640-4 - DL	RINSE 5-2 AM	Pre-Treatment	Water	TOP Pre - Prep	
410-54640-4	RINSE 5-2 AM	Pre-Treatment	Water	TOP Pre - Prep	
410-54640-4 - DL2	RINSE 5-2 AM	Pre-Treatment	Water	TOP Pre - Prep	
410-54640-5	FIELD BLANK-1	Pre-Treatment	Water	TOP Pre - Prep	
410-54640-6	EFFLUENT-3-1	Pre-Treatment	Water	TOP Pre - Prep	
MB 410-171950/1-A	Method Blank	Pre-Treatment	Water	TOP Pre - Prep	
LCS 410-171950/2-A	Lab Control Sample	Pre-Treatment	Water	TOP Pre - Prep	
410-54640-6 MS	EFFLUENT-3-1	Pre-Treatment	Water	TOP Pre - Prep	
410-54640-6 MSD	EFFLUENT-3-1	Pre-Treatment	Water	TOP Pre - Prep	

Analysis Batch: 172861

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-54640-1 - RE	RINSE 4-1	Pre-Treatment	Water	537 IDA	171950
410-54640-2 - RA	RINSE 5-1 PM	Pre-Treatment	Water	537 IDA	171950
410-54640-2 - DL	RINSE 5-1 PM	Pre-Treatment	Water	537 IDA	171950
410-54640-3	RINSE 5-1 AM	Pre-Treatment	Water	537 IDA	171950
410-54640-3 - DL	RINSE 5-1 AM	Pre-Treatment	Water	537 IDA	171950
410-54640-4	RINSE 5-2 AM	Pre-Treatment	Water	537 IDA	171950
410-54640-4 - DL	RINSE 5-2 AM	Pre-Treatment	Water	537 IDA	171950
410-54640-4 - DL2	RINSE 5-2 AM	Pre-Treatment	Water	537 IDA	171950
410-54640-5	FIELD BLANK-1	Pre-Treatment	Water	537 IDA	171950
410-54640-6	EFFLUENT-3-1	Pre-Treatment	Water	537 IDA	171950
MB 410-171950/1-A	Method Blank	Pre-Treatment	Water	537 IDA	171950
LCS 410-171950/2-A	Lab Control Sample	Pre-Treatment	Water	537 IDA	171950
410-54640-6 MS	EFFLUENT-3-1	Pre-Treatment	Water	537 IDA	171950
410-54640-6 MSD	EFFLUENT-3-1	Pre-Treatment	Water	537 IDA	171950

Prep Batch: 173586

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-54640-1	RINSE 4-1	Pre-Treatment	Water	TOP Pre - Prep	
410-54640-1 - DL	RINSE 4-1	Pre-Treatment	Water	TOP Pre - Prep	
410-54640-4 - RE	RINSE 5-2 AM	Pre-Treatment	Water	TOP Pre - Prep	
MB 410-173586/1-A	Method Blank	Pre-Treatment	Water	TOP Pre - Prep	
LCS 410-173586/2-A	Lab Control Sample	Pre-Treatment	Water	TOP Pre - Prep	
LCSD 410-173586/3-A	Lab Control Sample Dup	Pre-Treatment	Water	TOP Pre - Prep	

Analysis Batch: 173607

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-54640-2	RINSE 5-1 PM	Pre-Treatment	Water	537 IDA	171950
410-54640-3 - RA	RINSE 5-1 AM	Pre-Treatment	Water	537 IDA	171950

Analysis Batch: 174143

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-54640-1	RINSE 4-1	Pre-Treatment	Water	537 IDA	173586

LCMS (Continued)

Analysis Batch: 174143 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-54640-4 - RE	RINSE 5-2 AM	Pre-Treatment	Water	537 IDA	173586
MB 410-173586/1-A	Method Blank	Pre-Treatment	Water	537 IDA	173586
LCS 410-173586/2-A	Lab Control Sample	Pre-Treatment	Water	537 IDA	173586
LCSD 410-173586/3-A	Lab Control Sample Dup	Pre-Treatment	Water	537 IDA	173586

Analysis Batch: 174510

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-54640-1 - DL	RINSE 4-1	Pre-Treatment	Water	537 IDA	173586

Prep Batch: 180223

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-54640-1 - DL	RINSE 4-1	Post-Treatment	Water	TOP Post Prep	
410-54640-1 - DL2	RINSE 4-1	Post-Treatment	Water	TOP Post Prep	
410-54640-1 - RA	RINSE 4-1	Post-Treatment	Water	TOP Post Prep	
410-54640-1	RINSE 4-1	Post-Treatment	Water	TOP Post Prep	
410-54640-2	RINSE 5-1 PM	Post-Treatment	Water	TOP Post Prep	
410-54640-2 - DL	RINSE 5-1 PM	Post-Treatment	Water	TOP Post Prep	
410-54640-3	RINSE 5-1 AM	Post-Treatment	Water	TOP Post Prep	
410-54640-3 - DL	RINSE 5-1 AM	Post-Treatment	Water	TOP Post Prep	
410-54640-4	RINSE 5-2 AM	Post-Treatment	Water	TOP Post Prep	
410-54640-4 - DL	RINSE 5-2 AM	Post-Treatment	Water	TOP Post Prep	
410-54640-5	FIELD BLANK-1	Post-Treatment	Water	TOP Post Prep	
410-54640-6	EFFLUENT-3-1	Post-Treatment	Water	TOP Post Prep	
MB 410-180223/1-A	Method Blank	Post-Treatment	Water	TOP Post Prep	
MB 410-180223/2-A	Method Blank	Post-Treatment	Water	TOP Post Prep	
LCS 410-180223/3-A	Lab Control Sample	Post-Treatment	Water	TOP Post Prep	
LCSD 410-180223/4-A	Lab Control Sample Dup	Post-Treatment	Water	TOP Post Prep	

Analysis Batch: 181267

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-54640-1	RINSE 4-1	Post-Treatment	Water	537 TOP	180223
410-54640-1 - RA	RINSE 4-1	Post-Treatment	Water	537 TOP	180223
410-54640-1 - DL	RINSE 4-1	Post-Treatment	Water	537 TOP	180223
410-54640-1 - DL2	RINSE 4-1	Post-Treatment	Water	537 TOP	180223
410-54640-2	RINSE 5-1 PM	Post-Treatment	Water	537 TOP	180223
410-54640-2 - DL	RINSE 5-1 PM	Post-Treatment	Water	537 TOP	180223
410-54640-3	RINSE 5-1 AM	Post-Treatment	Water	537 TOP	180223
410-54640-3 - DL	RINSE 5-1 AM	Post-Treatment	Water	537 TOP	180223
410-54640-4	RINSE 5-2 AM	Post-Treatment	Water	537 TOP	180223
410-54640-4 - DL	RINSE 5-2 AM	Post-Treatment	Water	537 TOP	180223
410-54640-5	FIELD BLANK-1	Post-Treatment	Water	537 TOP	180223
410-54640-6	EFFLUENT-3-1	Post-Treatment	Water	537 TOP	180223
MB 410-180223/1-A	Method Blank	Post-Treatment	Water	537 TOP	180223
MB 410-180223/2-A	Method Blank	Post-Treatment	Water	537 TOP	180223
LCS 410-180223/3-A	Lab Control Sample	Post-Treatment	Water	537 TOP	180223
LCSD 410-180223/4-A	Lab Control Sample Dup	Post-Treatment	Water	537 TOP	180223

Analysis Batch: 181775

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-54640-1	RINSE 4-1	Post-Treatment	Water	Total PFCA-Sum	
410-54640-1	RINSE 4-1	Pre-Treatment	Water	Total PFCA-Sum	

LCMS (Continued)

Analysis Batch: 181775 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-54640-2	RINSE 5-1 PM	Post-Treatment	Water	Total PFCA-Sum	
410-54640-2	RINSE 5-1 PM	Pre-Treatment	Water	Total PFCA-Sum	
410-54640-3	RINSE 5-1 AM	Post-Treatment	Water	Total PFCA-Sum	
410-54640-3	RINSE 5-1 AM	Pre-Treatment	Water	Total PFCA-Sum	
410-54640-4	RINSE 5-2 AM	Post-Treatment	Water	Total PFCA-Sum	
410-54640-4	RINSE 5-2 AM	Pre-Treatment	Water	Total PFCA-Sum	
410-54640-5	FIELD BLANK-1	Post-Treatment	Water	Total PFCA-Sum	
410-54640-5	FIELD BLANK-1	Pre-Treatment	Water	Total PFCA-Sum	
410-54640-6	EFFLUENT-3-1	Post-Treatment	Water	Total PFCA-Sum	
410-54640-6	EFFLUENT-3-1	Pre-Treatment	Water	Total PFCA-Sum	

Analysis Batch: 182758

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-54640-1	RINSE 4-1	Total/NA	Water	Total PFCA-Dif	
410-54640-2	RINSE 5-1 PM	Total/NA	Water	Total PFCA-Dif	
410-54640-3	RINSE 5-1 AM	Total/NA	Water	Total PFCA-Dif	
410-54640-4	RINSE 5-2 AM	Total/NA	Water	Total PFCA-Dif	
410-54640-5	FIELD BLANK-1	Total/NA	Water	Total PFCA-Dif	
410-54640-6	EFFLUENT-3-1	Total/NA	Water	Total PFCA-Dif	

Lab Chronicle

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-54640-1

Client Sample ID: RINSE 4-1

Lab Sample ID: 410-54640-1
Date Collected: 09/08/21 16:30
Matrix: Water
Date Received: 09/10/21 10:53

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Pre-Treatment	Prep	TOP Pre - Prep			173586	09/21/21 08:55	S7AC	ELLE
Pre-Treatment	Analysis	537 IDA		10	174143	09/22/21 20:37	PY4D	ELLE
Pre-Treatment	Prep	TOP Pre - Prep	DL		173586	09/21/21 08:55	S7AC	ELLE
Pre-Treatment	Analysis	537 IDA	DL	100	174510	09/23/21 22:07	UCD3	ELLE
Pre-Treatment	Prep	TOP Pre - Prep	RE		171950	09/16/21 09:14	S7AC	ELLE
Pre-Treatment	Analysis	537 IDA	RE	10	172861	09/18/21 22:19	PY4D	ELLE
Post-Treatment	Prep	TOP Post Prep			180223	10/07/21 15:25	S7AC	ELLE
Post-Treatment	Analysis	537 TOP		1	181267	10/11/21 14:49	MT26	ELLE
Post-Treatment	Prep	TOP Post Prep	RA		180223	10/07/21 15:25	S7AC	ELLE
Post-Treatment	Analysis	537 TOP	RA	1	181267	10/11/21 15:00	MT26	ELLE
Post-Treatment	Prep	TOP Post Prep	DL		180223	10/07/21 15:25	S7AC	ELLE
Post-Treatment	Analysis	537 TOP	DL	10	181267	10/11/21 15:10	MT26	ELLE
Post-Treatment	Prep	TOP Post Prep	DL2		180223	10/07/21 15:25	S7AC	ELLE
Post-Treatment	Analysis	537 TOP	DL2	100	181267	10/12/21 09:52	MT26	ELLE
Total/NA	Analysis	Total PFCA-Dif		1	182758	10/14/21 10:49	V3JD	ELLE
Post-Treatment	Analysis	Total PFCA-Sum		1	181775	10/14/21 10:50	MT26	ELLE
Pre-Treatment	Analysis	Total PFCA-Sum		1	181775	10/14/21 10:50	MT26	ELLE

Client Sample ID: RINSE 5-1 PM

Lab Sample ID: 410-54640-2
Date Collected: 09/08/21 17:00
Matrix: Water
Date Received: 09/10/21 10:53

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Pre-Treatment	Prep	TOP Pre - Prep			171950	09/16/21 09:14	S7AC	ELLE
Pre-Treatment	Analysis	537 IDA		1	173607	09/21/21 20:20	ZG8V	ELLE
Pre-Treatment	Prep	TOP Pre - Prep	RA		171950	09/16/21 09:14	S7AC	ELLE
Pre-Treatment	Analysis	537 IDA	RA	1	172861	09/18/21 22:52	PY4D	ELLE
Pre-Treatment	Prep	TOP Pre - Prep	DL		171950	09/16/21 09:14	S7AC	ELLE
Pre-Treatment	Analysis	537 IDA	DL	10	172861	09/18/21 23:03	PY4D	ELLE
Post-Treatment	Prep	TOP Post Prep			180223	10/07/21 15:25	S7AC	ELLE
Post-Treatment	Analysis	537 TOP		1	181267	10/11/21 15:31	MT26	ELLE
Post-Treatment	Prep	TOP Post Prep	DL		180223	10/07/21 15:25	S7AC	ELLE
Post-Treatment	Analysis	537 TOP	DL	10	181267	10/11/21 15:42	MT26	ELLE
Total/NA	Analysis	Total PFCA-Dif		1	182758	10/14/21 10:45	V3JD	ELLE
Post-Treatment	Analysis	Total PFCA-Sum		1	181775	10/12/21 11:35	MT26	ELLE
Pre-Treatment	Analysis	Total PFCA-Sum		1	181775	10/12/21 11:35	MT26	ELLE

Client Sample ID: RINSE 5-1 AM

Lab Sample ID: 410-54640-3
Date Collected: 09/09/21 07:55
Matrix: Water
Date Received: 09/10/21 10:53

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Pre-Treatment	Prep	TOP Pre - Prep	RA		171950	09/16/21 09:14	S7AC	ELLE
Pre-Treatment	Analysis	537 IDA	RA	1	173607	09/21/21 20:32	ZG8V	ELLE

Lab Chronicle

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-54640-1

Client Sample ID: RINSE 5-1 AM

Lab Sample ID: 410-54640-3
Date Collected: 09/09/21 07:55
Matrix: Water
Date Received: 09/10/21 10:53

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Pre-Treatment	Prep	TOP Pre - Prep			171950	09/16/21 09:14	S7AC	ELLE
Pre-Treatment	Analysis	537 IDA		1	172861	09/18/21 23:25	PY4D	ELLE
Pre-Treatment	Prep	TOP Pre - Prep	DL		171950	09/16/21 09:14	S7AC	ELLE
Pre-Treatment	Analysis	537 IDA	DL	10	172861	09/18/21 23:36	PY4D	ELLE
Post-Treatment	Prep	TOP Post Prep			180223	10/07/21 15:25	S7AC	ELLE
Post-Treatment	Analysis	537 TOP		1	181267	10/11/21 15:53	MT26	ELLE
Post-Treatment	Prep	TOP Post Prep	DL		180223	10/07/21 15:25	S7AC	ELLE
Post-Treatment	Analysis	537 TOP	DL	10	181267	10/11/21 16:14	MT26	ELLE
Total/NA	Analysis	Total PFCA-Dif		1	182758	10/14/21 10:45	V3JD	ELLE
Post-Treatment	Analysis	Total PFCA-Sum		1	181775	10/12/21 11:35	MT26	ELLE
Pre-Treatment	Analysis	Total PFCA-Sum		1	181775	10/12/21 11:35	MT26	ELLE

Client Sample ID: RINSE 5-2 AM

Lab Sample ID: 410-54640-4
Date Collected: 09/09/21 08:00
Matrix: Water
Date Received: 09/10/21 10:53

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Pre-Treatment	Prep	TOP Pre - Prep	RE		173586	09/21/21 08:55	S7AC	ELLE
Pre-Treatment	Analysis	537 IDA	RE	1	174143	09/22/21 20:47	PY4D	ELLE
Pre-Treatment	Prep	TOP Pre - Prep			171950	09/16/21 09:14	S7AC	ELLE
Pre-Treatment	Analysis	537 IDA		1	172861	09/18/21 23:58	PY4D	ELLE
Pre-Treatment	Prep	TOP Pre - Prep	DL		171950	09/16/21 09:14	S7AC	ELLE
Pre-Treatment	Analysis	537 IDA	DL	10	172861	09/19/21 00:09	PY4D	ELLE
Pre-Treatment	Prep	TOP Pre - Prep	DL2		171950	09/16/21 09:14	S7AC	ELLE
Pre-Treatment	Analysis	537 IDA	DL2	100	172861	09/19/21 00:20	PY4D	ELLE
Post-Treatment	Prep	TOP Post Prep			180223	10/07/21 15:25	S7AC	ELLE
Post-Treatment	Analysis	537 TOP		1	181267	10/11/21 16:24	MT26	ELLE
Post-Treatment	Prep	TOP Post Prep	DL		180223	10/07/21 15:25	S7AC	ELLE
Post-Treatment	Analysis	537 TOP	DL	10	181267	10/12/21 05:25	MT26	ELLE
Total/NA	Analysis	Total PFCA-Dif		1	182758	10/14/21 10:45	V3JD	ELLE
Post-Treatment	Analysis	Total PFCA-Sum		1	181775	10/12/21 11:35	MT26	ELLE
Pre-Treatment	Analysis	Total PFCA-Sum		1	181775	10/12/21 11:35	MT26	ELLE

Client Sample ID: FIELD BLANK-1

Lab Sample ID: 410-54640-5
Date Collected: 09/09/21 07:45
Matrix: Water
Date Received: 09/10/21 10:53

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Pre-Treatment	Prep	TOP Pre - Prep			171950	09/16/21 09:14	S7AC	ELLE
Pre-Treatment	Analysis	537 IDA		1	172861	09/19/21 00:43	PY4D	ELLE
Post-Treatment	Prep	TOP Post Prep			180223	10/07/21 15:25	S7AC	ELLE
Post-Treatment	Analysis	537 TOP		1	181267	10/12/21 05:35	MT26	ELLE
Total/NA	Analysis	Total PFCA-Dif		1	182758	10/14/21 10:45	V3JD	ELLE
Post-Treatment	Analysis	Total PFCA-Sum		1	181775	10/12/21 11:35	MT26	ELLE

Lab Chronicle

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-54640-1

Client Sample ID: FIELD BLANK-1

Lab Sample ID: 410-54640-5
Date Collected: 09/09/21 07:45
Matrix: Water
Date Received: 09/10/21 10:53

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Pre-Treatment	Analysis	Total PFCA-Sum		1	181775	10/12/21 11:35	MT26	ELLE

Client Sample ID: EFFLUENT-3-1

Lab Sample ID: 410-54640-6
Date Collected: 09/09/21 10:45
Matrix: Water
Date Received: 09/10/21 10:53

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Pre-Treatment	Prep	TOP Pre - Prep			171950	09/16/21 09:14	S7AC	ELLE
Pre-Treatment	Analysis	537 IDA		1	172861	09/19/21 00:54	PY4D	ELLE
Post-Treatment	Prep	TOP Post Prep			180223	10/07/21 15:25	S7AC	ELLE
Post-Treatment	Analysis	537 TOP		1	181267	10/12/21 05:46	MT26	ELLE
Total/NA	Analysis	Total PFCA-Dif		1	182758	10/14/21 10:45	V3JD	ELLE
Post-Treatment	Analysis	Total PFCA-Sum		1	181775	10/12/21 11:35	MT26	ELLE
Pre-Treatment	Analysis	Total PFCA-Sum		1	181775	10/12/21 11:35	MT26	ELLE

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Env, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Accreditation/Certification Summary

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-54640-1

Laboratory: Eurofins Lancaster Laboratories Env, LLC

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

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	1.01	11-30-22
Alaska	State	PA00009	06-30-22
Alaska (UST)	State	17-027	02-28-22
Arizona	State	AZ0780	03-12-22
Arkansas DEQ	State	19-053-0	08-10-22
California	State	2792	02-02-22
Colorado	State	PA00009	07-31-22
Connecticut	State	PH-0746	06-30-23
DE Haz. Subst. Cleanup Act (HSCA)	State	019-006 (PA cert)	01-31-22
Delaware (DW)	State	N/A	02-01-22
Florida	NELAP	E87997	06-30-22
Hawaii	State	N/A	01-31-22
Illinois	NELAP	004559	01-31-22
Iowa	State	361	03-02-22
Kansas	NELAP	E-10151	10-31-21
Kentucky (DW)	State	KY90088	01-01-22
Kentucky (UST)	State	1.01	11-30-22
Kentucky (WW)	State	KY90088	12-31-21
Louisiana	NELAP	02055	06-30-22
Maine	State	2019012	03-12-22
Maryland	State	100	06-30-22
Massachusetts	State	M-PA009	10-17-21
Michigan	State	9930	01-31-22
Minnesota	NELAP	042-999-487	12-31-21
Missouri	State	450	01-31-22
Montana (DW)	State	0098	01-01-22
Montana (UST)	State	0098	01-01-22
Nebraska	State	NE-OS-32-17	01-31-22
New Hampshire	NELAP	273019	01-10-22
New Jersey	NELAP	PA011	06-30-22
New York	NELAP	10670	04-01-22
North Carolina (DW)	State	42705	07-31-22
North Carolina (WW/SW)	State	521	12-31-21
North Dakota	State	R-205	01-31-22
Oklahoma	NELAP	R-205	08-31-22
Oregon	NELAP	PA200001-018	09-11-22
PALA	Canada	1978	09-16-24
Pennsylvania	NELAP	36-00037	01-31-22
Rhode Island	State	LAO00338	01-31-22
South Carolina	State	89002002	01-31-22
Tennessee	State	02838	01-31-22
Texas	NELAP	T104704194-20-38	08-31-22
Utah	NELAP	PA000092019-16	03-01-22
Vermont	State	VT - 36037	10-29-21
Virginia	NELAP	10561	06-14-22
Washington	State	C457	04-12-22
West Virginia (DW)	State	9906 C	12-31-21
West Virginia DEP	State	055	12-31-21
Wyoming	State	8TMS-L	01-31-22
Wyoming (UST)	A2LA	1.01	11-30-22

Method Summary

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-54640-1

Method	Method Description	Protocol	Laboratory
537 IDA	EPA 537 Isotope Dilution	EPA	ELLE
537 TOP	Fluorinated Alkyl Substances	EPA	ELLE
Total PFCA-Dif	Total PFCA (Treatment Difference)	TAL SOP	ELLE
Total PFCA-Sum	Total PFCA (Summary)	TAL SOP	ELLE
TOP Post Prep	Solid-Phase Extraction (SPE)	SW846	ELLE
TOP Pre - Prep	Solid-Phase Extraction (SPE)	SW846	ELLE

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Env, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Sample Summary

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-54640-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
410-54640-1	RINSE 4-1	Water	09/08/21 16:30	09/10/21 10:53
410-54640-2	RINSE 5-1 PM	Water	09/08/21 17:00	09/10/21 10:53
410-54640-3	RINSE 5-1 AM	Water	09/09/21 07:55	09/10/21 10:53
410-54640-4	RINSE 5-2 AM	Water	09/09/21 08:00	09/10/21 10:53
410-54640-5	FIELD BLANK-1	Water	09/09/21 07:45	09/10/21 10:53
410-54640-6	EFFLUENT-3-1	Water	09/09/21 10:45	09/10/21 10:53

Eurofins Lancaster Laboratories Env, LLC
2425 New Holland Pike
Lancaster, PA 17601
Phone: 717-656-2300 Fax: 717-656-2681

Chain of Custody Record

410-54640 Chain of Custody

eurofins Environment Testing America

Client Information	Sampler: RYAN BOTT	Lab PM: Cottman, Hannah L	COC No: 10-32700-10190.2
Client Contact: Mr. Robert Kennedy	Phone: 860-263-5867	E-Mail: Hannah.Cottman@eurofinset.com	State of Origin: CT
Company: AECOM	PWSID:		Page: ~~Page 2 of 3~~ 1 of 1 (RB)
Address: 250 Apollo Drive	Due Date Requested:		Job #: 60662934
City: Chelmsford	TAT Requested (days): STANDARD		
State, Zip: MA, 01824	Compliance Project: Δ Yes Δ No		
Phone:	PO #: Purchase Order Requested 137491		
Email: robert.kennedy@aecom.com	WO #:		
Project Name: AFFF Tanks Cleaning	Project #: 41007527		
Site: AFFF DECON DEMO	SSOW#:		

Analysis Requested

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA
M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Filtered Sample (Y or N)	MS/MSD (Y or N)	PFC_IDA - 24 PFAS	PFC_IDA - 24 PFAS - TOP Assay	Number of containers	Special Instructions/Note:
RINSE 4-1	9/8/21	1630	G	Water			X	X		
RINSE 5-1 PM	9/8/21	1700	G	Water			X	X		
~~RINSE 5-2~~	~~9/8/21~~	~~1701~~	~~G~~	~~Water~~			~~X~~	~~X~~		
RINSE 5-1 AM	9/9/21	755	G	Water			X	X		
RINSE 5-2 AM	9/9/21	800	G	Water			X	X		
FIELD BLANK-1	9/9/21	745	G	Water			X	X		
EFFLUENT-3-1	9/9/21	1045	G	Water		X	X	X	12	MS/MSD
				Water						
				Water						
				Water						
				Water						

RB

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by	Date/Time	Company	Received by	Date/Time	Company
[illegible]	9/9/21 1300	AECOM			
			[illegible]	9/10/21 1053	

Custody Seals Intact:	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:
Δ Yes Δ No		3.9

Ver: 06/08/2021

10/14/2021

Login Sample Receipt Checklist

Client: AECOM

Job Number: 410-54640-1

Login Number: 54640
List Number: 1
Creator: Reiff, Nicole L

List Source: Eurofins Lancaster Laboratories Env, LLC

Question	Answer	Comment
The cooler's custody seal is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable (</=6C, not frozen).	True	
Cooler Temperature is recorded.	True	
WV: Container Temperature is acceptable (</=6C, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	True	
Sample custody seals are intact.	N/A	

eurofins | Environment Testing America

ANALYTICAL REPORT

Eurofins Lancaster Laboratories Env, LLC
2425 New Holland Pike
Lancaster, PA 17601
Tel: (717)656-2300

Laboratory Job ID: 410-58547-1
Client Project/Site: AFFF Tanks Cleaning

For:
AECOM
250 Apollo Drive
Chelmsford, Massachusetts 01824

Attn: Mr. Robert Kennedy

Authorized for release by:
11/3/2021 5:43:56 PM

Hannah Cottman, Operations Support Specialist
(717)556-7383
Hannah.Cottman@eurofinset.com

LINKS

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www.eurofinsus.com/Env

The test results in this report meet all 2003 NELAC, 2009 TNI, and 2016 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

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

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

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

Analytical test results meet all requirements of the associated regulatory program (e.g., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis. Data qualifiers are applied to note exceptions. Noncompliant quality control (QC) is further explained in narrative comments.
· QC results that exceed the upper limits and are associated with non-detect samples are qualified but further narration is not required since the bias is high and does not change a non-detect result. Further narration is also not required with QC blank detection when the associated sample concentration is non-detect or more than ten times the level in the blank.
· Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD is performed, unless otherwise specified in the method.
· Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.
Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Measurement uncertainty values, as applicable, are available upon request.

Test results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" and tested in the laboratory are not performed within 15 minutes of collection.

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Hannah Cottman
Operations Support Specialist
11/3/2021 5:43:56 PM

Table of Contents

Cover Page 1
Table of Contents 3
Definitions/Glossary 4
Case Narrative 5
Detection Summary 6
Client Sample Results 14
Surrogate Summary 42
Isotope Dilution Summary 43
QC Sample Results 47
QC Association Summary 56
Lab Chronicle 59
Certification Summary 63
Method Summary 64
Sample Summary 65
Chain of Custody 66
Receipt Checklists 67

Qualifiers

LCMS

Qualifier	Qualifier Description
*5-	Isotope dilution analyte is outside acceptance limits, low biased.
*5+	Isotope dilution analyte is outside acceptance limits, high biased.
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
E	Result exceeded calibration range.
F1	MS and/or MSD recovery exceeds control limits.
F2	MS/MSD RPD exceeds control limits
I	Value is EMPC (estimated maximum possible concentration).
S1-	Surrogate recovery exceeds control limits, low biased.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
1C	Result is from the primary column on a dual-column method.
2C	Result is from the confirmation column on a dual-column method.
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Job ID: 410-58547-1

Laboratory: Eurofins Lancaster Laboratories Env, LLC

Narrative

Job Narrative
410-58547-1

Receipt
The samples were received on 10/9/2021 10:22 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 5.1°C

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

PFAS
Method 537_IDA_TOPS: Reporting limits were raised for the following samples: FT1-RINSE1-1 (410-58547-1) and FT1-RINSE3-1 (410-58547-7) due to interference from the sample matrix.

Method 537_IDA_TOPS: Reporting limits were raised for the following sample: FT1-RINSE2-1 (410-58547-4) due to interference from the sample matrix.

Method PFC_IDA: The labeled isotope recovery is outside of the QC acceptance limits in the Laboratory Control Spike associated with the following samples: FT1-RINSE-PIPE (410-58547-2), FT1-EFFLUENT1-1 (410-58547-3), FT1-RINSE-PIPE 2 (410-58547-5), FT1-EFFLUENT2-1 (410-58547-6), FT1-EFFLUENT2-1 (410-58547-6[MS]), FT1-EFFLUENT2-1 (410-58547-6[MSD]), FT1-RINSE3-1 (410-58547-7), FT1-RINSE3-2 (410-58547-8) and FB-FT1 (410-58547-9). Since the recovery is biased high and the associated target analyte is within the QC acceptance limits, the data is reported.

Method PFC_IDA: The labeled isotope recovery is outside of the QC acceptance limits in the following samples: FT1-EFFLUENT1-1 (410-58547-3) and FB-FT1 (410-58547-9). Since the recovery is biased high and the associated target analyte is not detected, the data is reported.

Method PFC_IDA: The labeled isotope recovery is outside of the QC acceptance limits in the following samples: FT1-EFFLUENT2-1 (410-58547-6), FT1-EFFLUENT2-1 (410-58547-6[MS]) and FT1-EFFLUENT2-1 (410-58547-6[MSD]). The labeled isotope recovery is also outside of the QC acceptance limits in the associated in the background, matrix spike and matrix spike duplicate therefore the data is reported.

Method PFC_IDA: The injection standard peak areas are outside of the QC acceptance limits in both the initial injection and the re-injection of the following samples: FT1-RINSE3-1 (410-58547-7). The values here are from the initial injection. The labeled isotopes are outside of the QC acceptance limits in the following sample due to interference from samples matrix: FT1-RINSE3-1 (410-58547-7).

Method PFC_IDA: The injection standard peak areas are outside of the QC acceptance limits in both the initial injection and the re-injection of the following samples: FT1-RINSE3-2 (410-58547-8). The values here are from the initial injection. The labeled isotopes are outside of the QC acceptance limits in the following sample due to interference from samples matrix: FT1-RINSE3-2 (410-58547-8).

Method PFC_IDA: Reporting limits were raised for the following sample: FT1-RINSE1-1 (410-58547-1) due to interference from the sample matrix.The sample injection standard peak areas in the following sample: FT1-RINSE1-1 (410-58547-1) are outside of the QC limits for both the initial injection and the re-injection. The values here are from the initial injection of the sample.

Method PFC_IDA: Reporting limits were raised for the following sample: FT1-RINSE2-1 (410-58547-4) due to interference from the sample matrix.The sample injection standard peak areas in the following sample: FT1-RINSE2-1 (410-58547-4) are outside of the QC limits for both the initial injection and the re-injection. The values here are from the initial injection of the sample.The results for target analyte 6:2 Fluorotelomer sulfonic acid is above the calibration range of the instrument in the following sample: FT1-RINSE2-1 (410-58547-4). The following action was taken: This sample was re-extracted outside of the required holding time and the results for target analyte 6:2 Fluorotelomer sulfonic acid is still above the calibration range of the instrument.

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

Detection Summary

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-58547-1

Client Sample ID: FT1-RINSE1-1 — Lab Sample ID: 410-58547-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorodecanoic acid	56000		2000	500	ng/L	100		537 IDA	Pre-Treatment
Perfluorododecanoic acid	8400		2000	500	ng/L	100		537 IDA	Pre-Treatment
Perfluoroheptanoic acid	35000		2000	500	ng/L	100		537 IDA	Pre-Treatment
Perfluorohexanoic acid	92000		2000	500	ng/L	100		537 IDA	Pre-Treatment
Perfluorononanoic acid	26000		2000	500	ng/L	100		537 IDA	Pre-Treatment
Perfluorooctanoic acid	270000		2000	500	ng/L	100		537 IDA	Pre-Treatment
Perfluorotetradecanoic acid	2300		2000	500	ng/L	100		537 IDA	Pre-Treatment
Perfluoroundecanoic acid	2600		2000	500	ng/L	100		537 IDA	Pre-Treatment
6:2 Fluorotelomer sulfonic acid	110000		5000	2000	ng/L	100		537 IDA	Pre-Treatment
8:2 Fluorotelomer sulfonic acid	61000		3000	990	ng/L	100		537 IDA	Pre-Treatment
Perfluorodecanoic acid	7600000		100000	25000	ng/L	10		537 TOP	Post-Treatment
Perfluorododecanoic acid	6300000	I	100000	25000	ng/L	10		537 TOP	Post-Treatment
Perfluorohexadecanoic acid	1400000		150000	50000	ng/L	10		537 TOP	Post-Treatment
Perfluorononanoic acid	12000000		100000	25000	ng/L	10		537 TOP	Post-Treatment
Perfluorooctadecanoic acid	230000		150000	50000	ng/L	10		537 TOP	Post-Treatment
Perfluorooctanoic acid	14000000		100000	25000	ng/L	10		537 TOP	Post-Treatment
Perfluorotetradecanoic acid	4700000		100000	25000	ng/L	10		537 TOP	Post-Treatment
Perfluorotridecanoic acid	3500000		100000	25000	ng/L	10		537 TOP	Post-Treatment
Perfluoroundecanoic acid	5700000		100000	25000	ng/L	10		537 TOP	Post-Treatment
Perfluorobutanoic acid - DL	37000000		2500000	1000000	ng/L	100		537 TOP	Post-Treatment
Perfluoroheptanoic acid - DL	59000000		1000000	250000	ng/L	100		537 TOP	Post-Treatment
Perfluorohexanoic acid - DL	42000000		1000000	250000	ng/L	100		537 TOP	Post-Treatment
Perfluoropentanoic acid - DL	120000000		1000000	250000	ng/L	100		537 TOP	Post-Treatment
Perfluorobutanoic acid	37000000				ng/L	1		Total PFCA-Dif	Total/NA
Perfluoropentanoic acid	120000000				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorohexanoic acid	42000000				ng/L	1		Total PFCA-Dif	Total/NA
Perfluoroheptanoic acid	59000000				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorooctanoic acid	14000000				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorononanoic acid	12000000				ng/L	1		Total PFCA-Dif	Total/NA
Total PFCA	280000000				ng/L	1		Total PFCA-Dif	Total/NA
Total PFCA	420000		500	0.50	ng/L	1		Total PFCA-Sum	Pre-Treatment
Total PFCA	280000000		500	0.50	ng/L	1		Total PFCA-Sum	Post-Treatment

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-58547-1

Client Sample ID: FT1-RINSE-PIPE

Lab Sample ID: 410-58547-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid	4.8		4.3	1.7	ng/L	1		537 IDA	Pre-Treatment
Perfluorodecanoic acid	6.0		1.7	0.43	ng/L	1		537 IDA	Pre-Treatment
Perfluorododecanoic acid	2.3		1.7	0.43	ng/L	1		537 IDA	Pre-Treatment
Perfluoroheptanoic acid	12		1.7	0.43	ng/L	1		537 IDA	Pre-Treatment
Perfluorohexanoic acid	34		1.7	0.43	ng/L	1		537 IDA	Pre-Treatment
Perfluorononanoic acid	340		1.7	0.43	ng/L	1		537 IDA	Pre-Treatment
Perfluorooctanesulfonic acid	5.7		1.7	0.43	ng/L	1		537 IDA	Pre-Treatment
Perfluorooctanoic acid	19		1.7	0.43	ng/L	1		537 IDA	Pre-Treatment
Perfluoropentanoic acid	7.3		1.7	0.43	ng/L	1		537 IDA	Pre-Treatment
Perfluorotridecanoic acid	62		1.7	0.43	ng/L	1		537 IDA	Pre-Treatment
Perfluoroundecanoic acid	130		1.7	0.43	ng/L	1		537 IDA	Pre-Treatment
4:2 Fluorotelomer sulfonic acid	2.5		1.7	0.43	ng/L	1		537 IDA	Pre-Treatment
8:2 Fluorotelomer sulfonic acid - DL	140		26	8.6	ng/L	10		537 IDA	Pre-Treatment
6:2 Fluorotelomer sulfonic acid - DL2	510		430	170	ng/L	100		537 IDA	Pre-Treatment
Perfluorodecanoic acid	120		10	2.5	ng/L	1		537 TOP	Post-Treatment
Perfluorododecanoic acid	79	I	10	2.5	ng/L	1		537 TOP	Post-Treatment
Perfluoroheptanoic acid	1300		10	2.5	ng/L	1		537 TOP	Post-Treatment
Perfluorohexadecanoic acid	18		15	5.0	ng/L	1		537 TOP	Post-Treatment
Perfluorohexanoic acid	1700		10	2.5	ng/L	1		537 TOP	Post-Treatment
Perfluorononanoic acid	490		10	2.5	ng/L	1		537 TOP	Post-Treatment
Perfluorooctanoic acid	350		10	2.5	ng/L	1		537 TOP	Post-Treatment
Perfluorotetradecanoic acid	51		10	2.5	ng/L	1		537 TOP	Post-Treatment
Perfluorotridecanoic acid	83		10	2.5	ng/L	1		537 TOP	Post-Treatment
Perfluoroundecanoic acid	200		10	2.5	ng/L	1		537 TOP	Post-Treatment
Perfluorobutanoic acid - DL	2100		250	100	ng/L	10		537 TOP	Post-Treatment
Perfluoropentanoic acid - DL	5700		100	25	ng/L	10		537 TOP	Post-Treatment
Perfluorobutanoic acid	2100				ng/L	1		Total PFCA-Dif	Total/NA
Perfluoropentanoic acid	5700				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorohexanoic acid	1600				ng/L	1		Total PFCA-Dif	Total/NA
Perfluoroheptanoic acid	1300				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorooctanoic acid	340				ng/L	1		Total PFCA-Dif	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: FT1-RINSE-PIPE (Continued) — Lab Sample ID: 410-58547-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorononanoic acid	160				ng/L	1		Total PFCA-Dif	Total/NA
Total PFCA	12000				ng/L	1		Total PFCA-Dif	Total/NA
Total PFCA	12000		500	0.50	ng/L	1		Total PFCA-Sum	Post-Treatment

Client Sample ID: FT1-EFFLUENT1-1 — Lab Sample ID: 410-58547-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid	0.00				ng/L	1		Total PFCA-Dif	Total/NA
Perfluoropentanoic acid	0.00				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorohexanoic acid	0.00				ng/L	1		Total PFCA-Dif	Total/NA
Perfluoroheptanoic acid	0.00				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorooctanoic acid	0.00				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorononanoic acid	0.00				ng/L	1		Total PFCA-Dif	Total/NA
Total PFCA	0.00				ng/L	1		Total PFCA-Dif	Total/NA

Client Sample ID: FT1-RINSE2-1 — Lab Sample ID: 410-58547-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid	1300		500	200	ng/L	10		537 IDA	Pre-Treatment
Perfluorodecanoic acid	4000		200	50	ng/L	10		537 IDA	Pre-Treatment
Perfluorododecanoic acid	360		200	50	ng/L	10		537 IDA	Pre-Treatment
Perfluoroheptanoic acid	2900		200	50	ng/L	10		537 IDA	Pre-Treatment
Perfluorohexanoic acid	10000		200	50	ng/L	10		537 IDA	Pre-Treatment
Perfluorononanoic acid	1500		200	50	ng/L	10		537 IDA	Pre-Treatment
Perfluorooctanoic acid	20000		200	50	ng/L	10		537 IDA	Pre-Treatment
Perfluoropentanoic acid	1200		200	50	ng/L	10		537 IDA	Pre-Treatment
Perfluoroundecanoic acid	230	I	200	50	ng/L	10		537 IDA	Pre-Treatment
6:2 Fluorotelomer sulfonic acid - DL	110000	E	5000	2000	ng/L	100		537 IDA	Pre-Treatment
8:2 Fluorotelomer sulfonic acid - DL	29000		3000	990	ng/L	100		537 IDA	Pre-Treatment
Perfluorobutanoic acid	3800000		250000	100000	ng/L	10		537 TOP	Post-Treatment
Perfluorodecanoic acid	570000	I	100000	25000	ng/L	10		537 TOP	Post-Treatment
Perfluorododecanoic acid	410000	I	100000	25000	ng/L	10		537 TOP	Post-Treatment
Perfluoroheptanoic acid	5700000		100000	25000	ng/L	10		537 TOP	Post-Treatment
Perfluorohexanoic acid	4300000		100000	25000	ng/L	10		537 TOP	Post-Treatment
Perfluorononanoic acid	1300000		100000	25000	ng/L	10		537 TOP	Post-Treatment
Perfluorooctanoic acid	1500000		100000	25000	ng/L	10		537 TOP	Post-Treatment
Perfluoropentanoic acid	11000000		100000	25000	ng/L	10		537 TOP	Post-Treatment

This Detection Summary does not include radiochemical test results.

Client Sample ID: FT1-RINSE2-1 (Continued) — Lab Sample ID: 410-58547-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorotetradecanoic acid	290000		100000	25000	ng/L	10		537 TOP	Post-Treatment
Perfluorotridecanoic acid	260000		100000	25000	ng/L	10		537 TOP	Post-Treatment
Perfluoroundecanoic acid	610000		100000	25000	ng/L	10		537 TOP	Post-Treatment
Perfluorobutanoic acid	3800000				ng/L	1		Total PFCA-Dif	Total/NA
Perfluoropentanoic acid	11000000				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorohexanoic acid	4300000				ng/L	1		Total PFCA-Dif	Total/NA
Perfluoroheptanoic acid	5700000				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorooctanoic acid	1500000				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorononanoic acid	1300000				ng/L	1		Total PFCA-Dif	Total/NA
Total PFCA	28000000				ng/L	1		Total PFCA-Dif	Total/NA
Total PFCA	37000		500	0.50	ng/L	1		Total PFCA-Sum	Pre-Treatment
Total PFCA	28000000		500	0.50	ng/L	1		Total PFCA-Sum	Post-Treatment

Client Sample ID: FT1-RINSE-PIPE 2 — Lab Sample ID: 410-58547-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluoroheptanoic acid	8.0		1.9	0.48	ng/L	1		537 IDA	Pre-Treatment
Perfluorohexanesulfonic acid	2.5		1.9	0.48	ng/L	1		537 IDA	Pre-Treatment
Perfluorohexanoic acid	36		1.9	0.48	ng/L	1		537 IDA	Pre-Treatment
Perfluorononanoic acid	51		1.9	0.48	ng/L	1		537 IDA	Pre-Treatment
Perfluorooctanesulfonic acid	8.9		1.9	0.48	ng/L	1		537 IDA	Pre-Treatment
Perfluorooctanoic acid	15		1.9	0.48	ng/L	1		537 IDA	Pre-Treatment
Perfluoropentanoic acid	3.8		1.9	0.48	ng/L	1		537 IDA	Pre-Treatment
Perfluorotridecanoic acid	5.8		1.9	0.48	ng/L	1		537 IDA	Pre-Treatment
Perfluoroundecanoic acid	18		1.9	0.48	ng/L	1		537 IDA	Pre-Treatment
8:2 Fluorotelomer sulfonic acid	25		2.9	0.95	ng/L	1		537 IDA	Pre-Treatment
6:2 Fluorotelomer sulfonic acid - DL	410		48	19	ng/L	10		537 IDA	Pre-Treatment
Perfluorobutanoic acid	150		25	10	ng/L	1		537 TOP	Post-Treatment
Perfluorodecanoic acid	11		10	2.5	ng/L	1		537 TOP	Post-Treatment
Perfluoroheptanoic acid	120		10	2.5	ng/L	1		537 TOP	Post-Treatment
Perfluorohexanoic acid	200		10	2.5	ng/L	1		537 TOP	Post-Treatment
Perfluorononanoic acid	35		10	2.5	ng/L	1		537 TOP	Post-Treatment
Perfluorooctanoic acid	46		10	2.5	ng/L	1		537 TOP	Post-Treatment
Perfluoropentanoic acid	330		10	2.5	ng/L	1		537 TOP	Post-Treatment

This Detection Summary does not include radiochemical test results.

Client Sample ID: FT1-RINSE-PIPE 2 (Continued) — Lab Sample ID: 410-58547-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluoroundecanoic acid	13	I	10	2.5	ng/L	1		537 TOP	Post-Treatment
Perfluorobutanoic acid	150				ng/L	1		Total PFCA-Dif	Total/NA
Perfluoropentanoic acid	320				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorohexanoic acid	170				ng/L	1		Total PFCA-Dif	Total/NA
Perfluoroheptanoic acid	110				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorooctanoic acid	32				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorononanoic acid	0.00				ng/L	1		Total PFCA-Dif	Total/NA
Total PFCA	880				ng/L	1		Total PFCA-Dif	Total/NA
Total PFCA	880		500	0.50	ng/L	1		Total PFCA-Sum	Post-Treatment

Client Sample ID: FT1-EFFLUENT2-1 — Lab Sample ID: 410-58547-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorodecanoic acid	25	F1	1.8	0.44	ng/L	1		537 IDA	Pre-Treatment
Perfluorododecanoic acid	29	F1 F2	1.8	0.44	ng/L	1		537 IDA	Pre-Treatment
Perfluorononanoic acid	2.5		1.8	0.44	ng/L	1		537 IDA	Pre-Treatment
Perfluorooctanoic acid	2.9		1.8	0.44	ng/L	1		537 IDA	Pre-Treatment
Perfluorotetradecanoic acid	14		1.8	0.44	ng/L	1		537 IDA	Pre-Treatment
Perfluorotridecanoic acid	3.5	F1 F2	1.8	0.44	ng/L	1		537 IDA	Pre-Treatment
Perfluoroundecanoic acid	7.8		1.8	0.44	ng/L	1		537 IDA	Pre-Treatment
6:2 Fluorotelomer sulfonic acid - DL	70		44	18	ng/L	10		537 IDA	Pre-Treatment
8:2 Fluorotelomer sulfonic acid - DL	570		26	8.8	ng/L	10		537 IDA	Pre-Treatment
Perfluorooctadecanoic acid	690		15	5.0	ng/L	1		537 TOP	Post-Treatment
Perfluorobutanoic acid - DL	4600		250	100	ng/L	10		537 TOP	Post-Treatment
Perfluorodecanoic acid - DL	6800		100	25	ng/L	10		537 TOP	Post-Treatment
Perfluorododecanoic acid - DL	9100	I	100	25	ng/L	10		537 TOP	Post-Treatment
Perfluoroheptanoic acid - DL	13000		100	25	ng/L	10		537 TOP	Post-Treatment
Perfluorohexadecanoic acid - DL	2700		150	50	ng/L	10		537 TOP	Post-Treatment
Perfluorohexanoic acid - DL	7600		100	25	ng/L	10		537 TOP	Post-Treatment
Perfluorononanoic acid - DL	9200		100	25	ng/L	10		537 TOP	Post-Treatment
Perfluorooctanoic acid - DL	7100		100	25	ng/L	10		537 TOP	Post-Treatment
Perfluoropentanoic acid - DL	9100		100	25	ng/L	10		537 TOP	Post-Treatment
Perfluorotetradecanoic acid - DL	7700		100	25	ng/L	10		537 TOP	Post-Treatment
Perfluorotridecanoic acid - DL	6000		100	25	ng/L	10		537 TOP	Post-Treatment

This Detection Summary does not include radiochemical test results.

Client Sample ID: FT1-EFFLUENT2-1 (Continued) — Lab Sample ID: 410-58547-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluoroundecanoic acid - DL	10000		100	25	ng/L	10		537 TOP	Post-Treatment
Perfluorobutanoic acid	4600				ng/L	1		Total PFCA-Dif	Total/NA
Perfluoropentanoic acid	9100				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorohexanoic acid	7600				ng/L	1		Total PFCA-Dif	Total/NA
Perfluoroheptanoic acid	13000				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorooctanoic acid	7100				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorononanoic acid	9200				ng/L	1		Total PFCA-Dif	Total/NA
Total PFCA	51000				ng/L	1		Total PFCA-Dif	Total/NA
Total PFCA	51000		500	0.50	ng/L	1		Total PFCA-Sum	Post-Treatment

Client Sample ID: FT1-RINSE3-1 — Lab Sample ID: 410-58547-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorodecanoic acid	36		1.8	0.46	ng/L	1		537 IDA	Pre-Treatment
Perfluorododecanoic acid	5.1		1.8	0.46	ng/L	1		537 IDA	Pre-Treatment
Perfluoroheptanoic acid	5.6		1.8	0.46	ng/L	1		537 IDA	Pre-Treatment
Perfluorohexanoic acid	13		1.8	0.46	ng/L	1		537 IDA	Pre-Treatment
Perfluorononanoic acid	15		1.8	0.46	ng/L	1		537 IDA	Pre-Treatment
Perfluorooctanesulfonic acid	2.2		1.8	0.46	ng/L	1		537 IDA	Pre-Treatment
Perfluorooctanoic acid	64		1.8	0.46	ng/L	1		537 IDA	Pre-Treatment
Perfluoropentanoic acid	1.9		1.8	0.46	ng/L	1		537 IDA	Pre-Treatment
8:2 Fluorotelomer sulfonic acid - DL	830		27	9.1	ng/L	10		537 IDA	Pre-Treatment
6:2 Fluorotelomer sulfonic acid - DL2	1100		460	180	ng/L	100		537 IDA	Pre-Treatment
Perfluorobutanoic acid	15000		1300	500	ng/L	1		537 TOP	Post-Treatment
Perfluorodecanoic acid	1100		500	130	ng/L	1		537 TOP	Post-Treatment
Perfluorododecanoic acid	680	I	500	130	ng/L	1		537 TOP	Post-Treatment
Perfluoroheptanoic acid	16000		500	130	ng/L	1		537 TOP	Post-Treatment
Perfluorohexanoic acid	19000		500	130	ng/L	1		537 TOP	Post-Treatment
Perfluorononanoic acid	2100		500	130	ng/L	1		537 TOP	Post-Treatment
Perfluorooctanoic acid	4500		500	130	ng/L	1		537 TOP	Post-Treatment
Perfluoropentanoic acid	40000		500	130	ng/L	1		537 TOP	Post-Treatment
Perfluoroundecanoic acid	1100	I	500	130	ng/L	1		537 TOP	Post-Treatment
Perfluorobutanoic acid	15000				ng/L	1		Total PFCA-Dif	Total/NA
Perfluoropentanoic acid	40000				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorohexanoic acid	19000				ng/L	1		Total PFCA-Dif	Total/NA
Perfluoroheptanoic acid	16000				ng/L	1		Total PFCA-Dif	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: FT1-RINSE3-1 (Continued) — Lab Sample ID: 410-58547-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid	4500				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorononanoic acid	2100				ng/L	1		Total PFCA-Dif	Total/NA
Total PFCA	97000				ng/L	1		Total PFCA-Dif	Total/NA
Total PFCA	97000		500	0.50	ng/L	1		Total PFCA-Sum	Post-Treatment

Client Sample ID: FT1-RINSE3-2 — Lab Sample ID: 410-58547-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorodecanoic acid	38		1.8	0.44	ng/L	1		537 IDA	Pre-Treatment
Perfluorododecanoic acid	6.1		1.8	0.44	ng/L	1		537 IDA	Pre-Treatment
Perfluoroheptanoic acid	5.8		1.8	0.44	ng/L	1		537 IDA	Pre-Treatment
Perfluorohexanoic acid	14		1.8	0.44	ng/L	1		537 IDA	Pre-Treatment
Perfluorononanoic acid	16	I	1.8	0.44	ng/L	1		537 IDA	Pre-Treatment
Perfluorooctanesulfonic acid	2.2		1.8	0.44	ng/L	1		537 IDA	Pre-Treatment
Perfluorooctanoic acid	67		1.8	0.44	ng/L	1		537 IDA	Pre-Treatment
Perfluoropentanoic acid	1.9		1.8	0.44	ng/L	1		537 IDA	Pre-Treatment
Perfluoroundecanoic acid	1.9		1.8	0.44	ng/L	1		537 IDA	Pre-Treatment
8:2 Fluorotelomer sulfonic acid - DL	1000		26	8.8	ng/L	10		537 IDA	Pre-Treatment
6:2 Fluorotelomer sulfonic acid - DL2	1100		440	180	ng/L	100		537 IDA	Pre-Treatment
Perfluorobutanoic acid	15000		1300	500	ng/L	1		537 TOP	Post-Treatment
Perfluorodecanoic acid	640		500	130	ng/L	1		537 TOP	Post-Treatment
Perfluorododecanoic acid	550	I	500	130	ng/L	1		537 TOP	Post-Treatment
Perfluoroheptanoic acid	8900		500	130	ng/L	1		537 TOP	Post-Treatment
Perfluorohexanoic acid	15000		500	130	ng/L	1		537 TOP	Post-Treatment
Perfluorononanoic acid	1300		500	130	ng/L	1		537 TOP	Post-Treatment
Perfluorooctanoic acid	2200		500	130	ng/L	1		537 TOP	Post-Treatment
Perfluoropentanoic acid	38000		500	130	ng/L	1		537 TOP	Post-Treatment
Perfluoroundecanoic acid	760		500	130	ng/L	1		537 TOP	Post-Treatment
Perfluorobutanoic acid	15000				ng/L	1		Total PFCA-Dif	Total/NA
Perfluoropentanoic acid	38000				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorohexanoic acid	15000				ng/L	1		Total PFCA-Dif	Total/NA
Perfluoroheptanoic acid	8900				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorooctanoic acid	2200				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorononanoic acid	1300				ng/L	1		Total PFCA-Dif	Total/NA
Total PFCA	80000				ng/L	1		Total PFCA-Dif	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-58547-1

Client Sample ID: FT1-RINSE3-2 (Continued) — Lab Sample ID: 410-58547-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total PFCA	80000		500	0.50	ng/L	1		Total PFCA-Sum	Post-Treatment

Client Sample ID: FB-FT1 — Lab Sample ID: 410-58547-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid	0.00				ng/L	1		Total PFCA-Dif	Total/NA
Perfluoropentanoic acid	0.00				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorohexanoic acid	0.00				ng/L	1		Total PFCA-Dif	Total/NA
Perfluoroheptanoic acid	0.00				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorooctanoic acid	0.00				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorononanoic acid	0.00				ng/L	1		Total PFCA-Dif	Total/NA
Total PFCA	0.00				ng/L	1		Total PFCA-Dif	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-58547-1

Client Sample ID: FT1-RINSE1-1

Date Collected: 10/05/21 16:00
Date Received: 10/09/21 10:22

Lab Sample ID: 410-58547-1

Matrix: Water

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NEtFOSAA	<3000		3000	500	ng/L		10/15/21 17:09	11/02/21 11:07	100
NMeFOSAA	<2000		2000	600	ng/L		10/15/21 17:09	11/02/21 11:07	100
Perfluorobutanesulfonic acid	<2000		2000	500	ng/L		10/15/21 17:09	11/02/21 11:07	100
Perfluorobutanoic acid	<5000		5000	2000	ng/L		10/15/21 17:09	11/02/21 11:07	100
Perfluorodecanesulfonic acid	<2000		2000	500	ng/L		10/15/21 17:09	11/02/21 11:07	100
Perfluorodecanoic acid	**56000**		2000	500	ng/L		10/15/21 17:09	11/02/21 11:07	100
Perfluorododecanoic acid	**8400**		2000	500	ng/L		10/15/21 17:09	11/02/21 11:07	100
Perfluoroheptanesulfonic acid	<2000		2000	500	ng/L		10/15/21 17:09	11/02/21 11:07	100
Perfluoroheptanoic acid	**35000**		2000	500	ng/L		10/15/21 17:09	11/02/21 11:07	100
Perfluorohexanesulfonic acid	<2000		2000	500	ng/L		10/15/21 17:09	11/02/21 11:07	100
Perfluorohexanoic acid	**92000**		2000	500	ng/L		10/15/21 17:09	11/02/21 11:07	100
Perfluorononanesulfonic acid	<2000		2000	500	ng/L		10/15/21 17:09	11/02/21 11:07	100
Perfluorononanoic acid	**26000**		2000	500	ng/L		10/15/21 17:09	11/02/21 11:07	100
Perfluorooctanesulfonamide	<2000		2000	500	ng/L		10/15/21 17:09	11/02/21 11:07	100
Perfluorooctanesulfonic acid	<2000		2000	500	ng/L		10/15/21 17:09	11/02/21 11:07	100
Perfluorooctanoic acid	**270000**		2000	500	ng/L		10/15/21 17:09	11/02/21 11:07	100
Perfluoropentanesulfonic acid	<2000		2000	500	ng/L		10/15/21 17:09	11/02/21 11:07	100
Perfluoropentanoic acid	<2000		2000	500	ng/L		10/15/21 17:09	11/02/21 11:07	100
Perfluorotetradecanoic acid	**2300**		2000	500	ng/L		10/15/21 17:09	11/02/21 11:07	100
Perfluorotridecanoic acid	<2000		2000	500	ng/L		10/15/21 17:09	11/02/21 11:07	100
Perfluoroundecanoic acid	**2600**		2000	500	ng/L		10/15/21 17:09	11/02/21 11:07	100
6:2 Fluorotelomer sulfonic acid	**110000**		5000	2000	ng/L		10/15/21 17:09	11/02/21 11:07	100
8:2 Fluorotelomer sulfonic acid	**61000**		3000	990	ng/L		10/15/21 17:09	11/02/21 11:07	100
4:2 Fluorotelomer sulfonic acid	<2000		2000	500	ng/L		10/15/21 17:09	11/02/21 11:07	100

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-4:2 FTS	*0*	**5-*	*20 - 187*	*10/15/21 17:09*	*11/02/21 11:07*	*100*
M2-6:2 FTS	*581*	**5+*	*29 - 189*	*10/15/21 17:09*	*11/02/21 11:07*	*100*
M2-8:2 FTS	*440*	**5+*	*34 - 182*	*10/15/21 17:09*	*11/02/21 11:07*	*100*
13C2 PFTeDA	*14*		*10 - 144*	*10/15/21 17:09*	*11/02/21 11:07*	*100*
13C3 HFPO-DA	*0*	**5-*	*20 - 153*	*10/15/21 17:09*	*11/02/21 11:07*	*100*
13C3 PFBS	*3*	**5-*	*19 - 178*	*10/15/21 17:09*	*11/02/21 11:07*	*100*
13C4 PFBA	*53*		*41 - 132*	*10/15/21 17:09*	*11/02/21 11:07*	*100*
13C4 PFHpA	*32*		*30 - 144*	*10/15/21 17:09*	*11/02/21 11:07*	*100*
13C5 PFPeA	*0*	**5-*	*33 - 155*	*10/15/21 17:09*	*11/02/21 11:07*	*100*
13C8 PFOA	*15*	**5-*	*49 - 127*	*10/15/21 17:09*	*11/02/21 11:07*	*100*
13C8 PFOS	*20*	**5-*	*49 - 126*	*10/15/21 17:09*	*11/02/21 11:07*	*100*
d3-NMeFOSAA	*25*	**5-*	*32 - 151*	*10/15/21 17:09*	*11/02/21 11:07*	*100*
d5-NEtFOSAA	*0*	**5-*	*37 - 164*	*10/15/21 17:09*	*11/02/21 11:07*	*100*
d9-N-EtFOSE-M	*0*	**5-*	*10 - 142*	*10/15/21 17:09*	*11/02/21 11:07*	*100*
13C3 PFHxS	*80*		*32 - 145*	*10/15/21 17:09*	*11/02/21 11:07*	*100*
13C5 PFHxA	*15*	**5-*	*31 - 142*	*10/15/21 17:09*	*11/02/21 11:07*	*100*
13C6 PFDA	*17*	**5-*	*47 - 128*	*10/15/21 17:09*	*11/02/21 11:07*	*100*
13C7 PFUnA	*26*	**5-*	*40 - 135*	*10/15/21 17:09*	*11/02/21 11:07*	*100*
d3-NMePFOSA	*0*	**5-*	*10 - 107*	*10/15/21 17:09*	*11/02/21 11:07*	*100*
d5-NEtPFOSA	*0*	**5-*	*10 - 108*	*10/15/21 17:09*	*11/02/21 11:07*	*100*
13C8 FOSA	*15*		*10 - 143*	*10/15/21 17:09*	*11/02/21 11:07*	*100*
13C2-PFDoDA	*21*	**5-*	*28 - 136*	*10/15/21 17:09*	*11/02/21 11:07*	*100*
13C9 PFNA	*16*	**5-*	*47 - 136*	*10/15/21 17:09*	*11/02/21 11:07*	*100*

Client Sample Results

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-58547-1

Client Sample ID: FT1-RINSE1-1

Date Collected: 10/05/21 16:00
Date Received: 10/09/21 10:22

Lab Sample ID: 410-58547-1

Matrix: Water

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment - RE

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
M2-6:2 FTS	487	*5+	29 - 189	10/27/21 07:29	11/01/21 22:35	100

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
10:2 Fluorotelomer sulfonic acid	<250000		250000	50000	ng/L		10/25/21 08:52	10/30/21 11:48	10
11Cl-PF3OUdS	<100000		100000	25000	ng/L		10/25/21 08:52	10/30/21 11:48	10
4:2 Fluorotelomer sulfonic acid	<100000		100000	25000	ng/L		10/25/21 08:52	10/30/21 11:48	10
6:2 Fluorotelomer sulfonic acid	<250000		250000	100000	ng/L		10/25/21 08:52	10/30/21 11:48	10
8:2 Fluorotelomer sulfonic acid	<150000		150000	50000	ng/L		10/25/21 08:52	10/30/21 11:48	10
9Cl-PF3ONS	<100000		100000	25000	ng/L		10/25/21 08:52	10/30/21 11:48	10
DONA	<100000		100000	25000	ng/L		10/25/21 08:52	10/30/21 11:48	10
HFPODA	<150000		150000	25000	ng/L		10/25/21 08:52	10/30/21 11:48	10
NEtFOSAA	<150000		150000	25000	ng/L		10/25/21 08:52	10/30/21 11:48	10
NEtFOSA	<250000		250000	50000	ng/L		10/25/21 08:52	10/30/21 11:48	10
NEtFOSE	<150000		150000	50000	ng/L		10/25/21 08:52	10/30/21 11:48	10
NMeFOSAA	<100000		100000	30000	ng/L		10/25/21 08:52	10/30/21 11:48	10
NMeFOSA	<150000		150000	50000	ng/L		10/25/21 08:52	10/30/21 11:48	10
NMeFOSE	<150000		150000	50000	ng/L		10/25/21 08:52	10/30/21 11:48	10
Perfluorobutanesulfonic acid	<100000		100000	25000	ng/L		10/25/21 08:52	10/30/21 11:48	10
Perfluorodecanesulfonic acid	<100000		100000	25000	ng/L		10/25/21 08:52	10/30/21 11:48	10
Perfluorodecanoic acid	**7600000**		100000	25000	ng/L		10/25/21 08:52	10/30/21 11:48	10
Perfluorododecanesulfonic acid (PFDoS)	<150000		150000	25000	ng/L		10/25/21 08:52	10/30/21 11:48	10
Perfluorododecanoic acid	**6300000**	**I**	100000	25000	ng/L		10/25/21 08:52	10/30/21 11:48	10
Perfluoroheptanesulfonic acid	<100000		100000	25000	ng/L		10/25/21 08:52	10/30/21 11:48	10
Perfluorohexadecanoic acid	**1400000**		150000	50000	ng/L		10/25/21 08:52	10/30/21 11:48	10
Perfluorohexanesulfonic acid	<100000		100000	25000	ng/L		10/25/21 08:52	10/30/21 11:48	10
Perfluorononanesulfonic acid	<100000		100000	25000	ng/L		10/25/21 08:52	10/30/21 11:48	10
Perfluorononanoic acid	**12000000**		100000	25000	ng/L		10/25/21 08:52	10/30/21 11:48	10
Perfluorooctadecanoic acid	**230000**		150000	50000	ng/L		10/25/21 08:52	10/30/21 11:48	10
Perfluorooctanesulfonamide	<100000		100000	25000	ng/L		10/25/21 08:52	10/30/21 11:48	10
Perfluorooctanesulfonic acid	<100000		100000	25000	ng/L		10/25/21 08:52	10/30/21 11:48	10
Perfluorooctanoic acid	**14000000**		100000	25000	ng/L		10/25/21 08:52	10/30/21 11:48	10
Perfluoropentanesulfonic acid	<100000		100000	25000	ng/L		10/25/21 08:52	10/30/21 11:48	10
Perfluorotetradecanoic acid	**4700000**		100000	25000	ng/L		10/25/21 08:52	10/30/21 11:48	10
Perfluorotridecanoic acid	**3500000**		100000	25000	ng/L		10/25/21 08:52	10/30/21 11:48	10
Perfluoroundecanoic acid	**5700000**		100000	25000	ng/L		10/25/21 08:52	10/30/21 11:48	10

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
M2-6:2 FTS	111		55 - 167	10/25/21 08:52	10/30/21 11:48	10
M2-8:2 FTS	117		61 - 160	10/25/21 08:52	10/30/21 11:48	10
13C2-PFDoDA	134	*5+	47 - 118	10/25/21 08:52	10/30/21 11:48	10
13C2 PFTeDA	138	*5+	32 - 126	10/25/21 08:52	10/30/21 11:48	10
13C3 HFPO-DA	150	*5+	70 - 130	10/25/21 08:52	10/30/21 11:48	10
13C3 PFBS	173		18 - 177	10/25/21 08:52	10/30/21 11:48	10
13C3 PFHxS	96		55 - 115	10/25/21 08:52	10/30/21 11:48	10
13C4 PFBA	121		52 - 126	10/25/21 08:52	10/30/21 11:48	10
13C4 PFHpA	119	*5+	55 - 113	10/25/21 08:52	10/30/21 11:48	10
13C5 PFHxA	103		54 - 115	10/25/21 08:52	10/30/21 11:48	10
13C5 PFPeA	97		17 - 184	10/25/21 08:52	10/30/21 11:48	10
13C6 PFDA	138	*5+	56 - 114	10/25/21 08:52	10/30/21 11:48	10

Client Sample ID: FT1-RINSE1-1

Date Collected: 10/05/21 16:00
Date Received: 10/09/21 10:22

Lab Sample ID: 410-58547-1

Matrix: Water

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C7 PFUnA	145	*5+	50 - 120	10/25/21 08:52	10/30/21 11:48	10
13C8 PFOA	132	*5+	56 - 117	10/25/21 08:52	10/30/21 11:48	10
13C8 PFOS	134	*5+	56 - 112	10/25/21 08:52	10/30/21 11:48	10
13C8 FOSA	136	*5+	10 - 126	10/25/21 08:52	10/30/21 11:48	10
13C9 PFNA	137	*5+	54 - 122	10/25/21 08:52	10/30/21 11:48	10
M2-4:2 FTS				10/25/21 08:52	10/30/21 11:48	10
d3-NMeFOSAA				10/25/21 08:52	10/30/21 11:48	10
d3-NMePFOSA	86	*5+	10 - 51	10/25/21 08:52	10/30/21 11:48	10
d5-NEtFOSAA	157	*5+	65 - 134	10/25/21 08:52	10/30/21 11:48	10
d5-NEtPFOSA	70	*5+	10 - 51	10/25/21 08:52	10/30/21 11:48	10
d7-N-MeFOSE-M	153	*5+	10 - 105	10/25/21 08:52	10/30/21 11:48	10
d9-N-EtFOSE-M	131	*5+	10 - 112	10/25/21 08:52	10/30/21 11:48	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	108		40 - 173	10/25/21 08:52	10/30/21 11:48	10
13C2 PFUnA	81		49 - 132	10/25/21 08:52	10/30/21 11:48	10
13C4 PFOA	85		10 - 163	10/25/21 08:52	10/30/21 11:48	10

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid	**37000000**		2500000	1000000	ng/L		10/25/21 08:52	10/30/21 11:59	100
Perfluoroheptanoic acid	**59000000**		1000000	250000	ng/L		10/25/21 08:52	10/30/21 11:59	100
Perfluorohexanoic acid	**42000000**		1000000	250000	ng/L		10/25/21 08:52	10/30/21 11:59	100
Perfluoropentanoic acid	**120000000**		1000000	250000	ng/L		10/25/21 08:52	10/30/21 11:59	100

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
M2-6:2 FTS	120		55 - 167	10/25/21 08:52	10/30/21 11:59	100
M2-8:2 FTS	146		61 - 160	10/25/21 08:52	10/30/21 11:59	100
13C2-PFDoDA	159	*5+	47 - 118	10/25/21 08:52	10/30/21 11:59	100
13C2 PFTeDA	142	*5+	32 - 126	10/25/21 08:52	10/30/21 11:59	100
13C3 HFPO-DA	174	*5+	70 - 130	10/25/21 08:52	10/30/21 11:59	100
13C3 PFBS	134		18 - 177	10/25/21 08:52	10/30/21 11:59	100
13C3 PFHxS	132	*5+	55 - 115	10/25/21 08:52	10/30/21 11:59	100
13C4 PFBA	169	*5+	52 - 126	10/25/21 08:52	10/30/21 11:59	100
13C4 PFHpA	139	*5+	55 - 113	10/25/21 08:52	10/30/21 11:59	100
13C5 PFHxA	141	*5+	54 - 115	10/25/21 08:52	10/30/21 11:59	100
13C5 PFPeA	126		17 - 184	10/25/21 08:52	10/30/21 11:59	100
13C6 PFDA	142	*5+	56 - 114	10/25/21 08:52	10/30/21 11:59	100
13C7 PFUnA	148	*5+	50 - 120	10/25/21 08:52	10/30/21 11:59	100
13C8 PFOA	145	*5+	56 - 117	10/25/21 08:52	10/30/21 11:59	100
13C8 PFOS	180	*5+	56 - 112	10/25/21 08:52	10/30/21 11:59	100
13C8 FOSA	147	*5+	10 - 126	10/25/21 08:52	10/30/21 11:59	100
13C9 PFNA	172	*5+	54 - 122	10/25/21 08:52	10/30/21 11:59	100
M2-4:2 FTS				10/25/21 08:52	10/30/21 11:59	100
d3-NMeFOSAA				10/25/21 08:52	10/30/21 11:59	100
d3-NMePFOSA	100	*5+	10 - 51	10/25/21 08:52	10/30/21 11:59	100
d5-NEtFOSAA	158	*5+	65 - 134	10/25/21 08:52	10/30/21 11:59	100
d5-NEtPFOSA	70	*5+	10 - 51	10/25/21 08:52	10/30/21 11:59	100
d7-N-MeFOSE-M	206	*5+	10 - 105	10/25/21 08:52	10/30/21 11:59	100
d9-N-EtFOSE-M	185	*5+	10 - 112	10/25/21 08:52	10/30/21 11:59	100

Client Sample ID: FT1-RINSE1-1

Lab Sample ID: 410-58547-1

Date Collected: 10/05/21 16:00
Date Received: 10/09/21 10:22

Matrix: Water

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*126*		*40 - 173*	*10/25/21 08:52*	*10/30/21 11:59*	*100*
13C2 PFUnA	*85*		*49 - 132*	*10/25/21 08:52*	*10/30/21 11:59*	*100*
13C4 PFOA	*112*		*10 - 163*	*10/25/21 08:52*	*10/30/21 11:59*	*100*

Method: Total PFCA-Dif - Total PFCA (Treatment Difference)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid	**37000000**				ng/L			11/02/21 14:54	1
Perfluoropentanoic acid	**120000000**				ng/L			11/02/21 14:54	1
Perfluorohexanoic acid	**42000000**				ng/L			11/02/21 14:54	1
Perfluoroheptanoic acid	**59000000**				ng/L			11/02/21 14:54	1
Perfluorooctanoic acid	**14000000**				ng/L			11/02/21 14:54	1
Perfluorononanoic acid	**12000000**				ng/L			11/02/21 14:54	1
Total PFCA	**280000000**				ng/L			11/02/21 14:54	1

Method: Total PFCA-Sum - Total PFCA (Summary) - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total PFCA	**420000**		500	0.50	ng/L			11/02/21 13:10	1

Method: Total PFCA-Sum - Total PFCA (Summary) - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total PFCA	**280000000**		500	0.50	ng/L			11/02/21 13:10	1

Client Sample ID: FT1-RINSE-PIPE

Lab Sample ID: 410-58547-2

Date Collected: 10/06/21 15:45
Date Received: 10/09/21 10:22

Matrix: Water

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NEtFOSAA	<2.6		2.6	0.43	ng/L		10/15/21 17:09	10/18/21 23:02	1
NMeFOSAA	<1.7		1.7	0.51	ng/L		10/15/21 17:09	10/18/21 23:02	1
Perfluorobutanesulfonic acid	<1.7		1.7	0.43	ng/L		10/15/21 17:09	10/18/21 23:02	1
Perfluorobutanoic acid	**4.8**		4.3	1.7	ng/L		10/15/21 17:09	10/18/21 23:02	1
Perfluorodecanesulfonic acid	<1.7		1.7	0.43	ng/L		10/15/21 17:09	10/18/21 23:02	1
Perfluorodecanoic acid	**6.0**		1.7	0.43	ng/L		10/15/21 17:09	10/18/21 23:02	1
Perfluorododecanoic acid	**2.3**		1.7	0.43	ng/L		10/15/21 17:09	10/18/21 23:02	1
Perfluoroheptanesulfonic acid	<1.7		1.7	0.43	ng/L		10/15/21 17:09	10/18/21 23:02	1
Perfluoroheptanoic acid	**12**		1.7	0.43	ng/L		10/15/21 17:09	10/18/21 23:02	1
Perfluorohexanesulfonic acid	<1.7		1.7	0.43	ng/L		10/15/21 17:09	10/18/21 23:02	1
Perfluorohexanoic acid	**34**		1.7	0.43	ng/L		10/15/21 17:09	10/18/21 23:02	1
Perfluorononanesulfonic acid	<1.7		1.7	0.43	ng/L		10/15/21 17:09	10/18/21 23:02	1
Perfluorononanoic acid	**340**		1.7	0.43	ng/L		10/15/21 17:09	10/18/21 23:02	1
Perfluorooctanesulfonamide	<1.7		1.7	0.43	ng/L		10/15/21 17:09	10/18/21 23:02	1
Perfluorooctanesulfonic acid	**5.7**		1.7	0.43	ng/L		10/15/21 17:09	10/18/21 23:02	1
Perfluorooctanoic acid	**19**		1.7	0.43	ng/L		10/15/21 17:09	10/18/21 23:02	1
Perfluoropentanesulfonic acid	<1.7		1.7	0.43	ng/L		10/15/21 17:09	10/18/21 23:02	1
Perfluoropentanoic acid	**7.3**		1.7	0.43	ng/L		10/15/21 17:09	10/18/21 23:02	1
Perfluorotetradecanoic acid	<1.7		1.7	0.43	ng/L		10/15/21 17:09	10/18/21 23:02	1
Perfluorotridecanoic acid	**62**		1.7	0.43	ng/L		10/15/21 17:09	10/18/21 23:02	1
Perfluoroundecanoic acid	**130**		1.7	0.43	ng/L		10/15/21 17:09	10/18/21 23:02	1
4:2 Fluorotelomer sulfonic acid	**2.5**		1.7	0.43	ng/L		10/15/21 17:09	10/18/21 23:02	1

Client Sample Results

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-58547-1

Client Sample ID: FT1-RINSE-PIPE

Date Collected: 10/06/21 15:45
Date Received: 10/09/21 10:22

Lab Sample ID: 410-58547-2

Matrix: Water

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-4:2 FTS	*213*	**5+*	*20 - 187*	*10/15/21 17:09*	*10/18/21 23:02*	*1*
M2-6:2 FTS	*87*		*29 - 189*	*10/15/21 17:09*	*10/18/21 23:02*	*1*
M2-8:2 FTS	*86*		*34 - 182*	*10/15/21 17:09*	*10/18/21 23:02*	*1*
13C2 PFTeDA	*134*		*10 - 144*	*10/15/21 17:09*	*10/18/21 23:02*	*1*
13C3 HFPO-DA	*143*		*20 - 153*	*10/15/21 17:09*	*10/18/21 23:02*	*1*
13C3 PFBS	*120*		*19 - 178*	*10/15/21 17:09*	*10/18/21 23:02*	*1*
13C4 PFBA	*113*		*41 - 132*	*10/15/21 17:09*	*10/18/21 23:02*	*1*
13C4 PFHpA	*134*		*30 - 144*	*10/15/21 17:09*	*10/18/21 23:02*	*1*
13C5 PFPeA	*110*		*33 - 155*	*10/15/21 17:09*	*10/18/21 23:02*	*1*
13C8 PFOA	*93*		*49 - 127*	*10/15/21 17:09*	*10/18/21 23:02*	*1*
13C8 PFOS	*79*		*49 - 126*	*10/15/21 17:09*	*10/18/21 23:02*	*1*
d3-NMeFOSAA	*118*		*32 - 151*	*10/15/21 17:09*	*10/18/21 23:02*	*1*
d5-NEtFOSAA	*165*	**5+*	*37 - 164*	*10/15/21 17:09*	*10/18/21 23:02*	*1*
d9-N-EtFOSE-M	*133*		*10 - 142*	*10/15/21 17:09*	*10/18/21 23:02*	*1*
13C3 PFHxS	*155*	**5+*	*32 - 145*	*10/15/21 17:09*	*10/18/21 23:02*	*1*
13C5 PFHxA	*173*	**5+*	*31 - 142*	*10/15/21 17:09*	*10/18/21 23:02*	*1*
13C6 PFDA	*77*		*47 - 128*	*10/15/21 17:09*	*10/18/21 23:02*	*1*
13C7 PFUnA	*110*		*40 - 135*	*10/15/21 17:09*	*10/18/21 23:02*	*1*
d3-NMePFOSA	*61*		*10 - 107*	*10/15/21 17:09*	*10/18/21 23:02*	*1*
d5-NEtPFOSA	*59*		*10 - 108*	*10/15/21 17:09*	*10/18/21 23:02*	*1*
13C8 FOSA	*99*		*10 - 143*	*10/15/21 17:09*	*10/18/21 23:02*	*1*
13C2-PFDoDA	*115*		*28 - 136*	*10/15/21 17:09*	*10/18/21 23:02*	*1*
13C9 PFNA	*102*		*47 - 136*	*10/15/21 17:09*	*10/18/21 23:02*	*1*

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
8:2 Fluorotelomer sulfonic acid	**140**		26	8.6	ng/L		10/15/21 17:09	10/21/21 18:40	10

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-8:2 FTS	*83*		*34 - 182*	*10/15/21 17:09*	*10/21/21 18:40*	*10*

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment - DL2

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
6:2 Fluorotelomer sulfonic acid	**510**		430	170	ng/L		10/15/21 17:09	10/25/21 17:14	100

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-6:2 FTS	*130*		*29 - 189*	*10/15/21 17:09*	*10/25/21 17:14*	*100*

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
10:2 Fluorotelomer sulfonic acid	<25		25	5.0	ng/L		10/25/21 08:52	10/30/21 12:09	1
11Cl-PF3OUdS	<10		10	2.5	ng/L		10/25/21 08:52	10/30/21 12:09	1
4:2 Fluorotelomer sulfonic acid	<10		10	2.5	ng/L		10/25/21 08:52	10/30/21 12:09	1
6:2 Fluorotelomer sulfonic acid	<25		25	10	ng/L		10/25/21 08:52	10/30/21 12:09	1
8:2 Fluorotelomer sulfonic acid	<15		15	5.0	ng/L		10/25/21 08:52	10/30/21 12:09	1
9Cl-PF3ONS	<10		10	2.5	ng/L		10/25/21 08:52	10/30/21 12:09	1
DONA	<10		10	2.5	ng/L		10/25/21 08:52	10/30/21 12:09	1
HFPODA	<15		15	2.5	ng/L		10/25/21 08:52	10/30/21 12:09	1
NEtFOSAA	<15		15	2.5	ng/L		10/25/21 08:52	10/30/21 12:09	1
NEtFOSA	<25		25	5.0	ng/L		10/25/21 08:52	10/30/21 12:09	1
NEtFOSE	<15		15	5.0	ng/L		10/25/21 08:52	10/30/21 12:09	1
NMeFOSAA	<10		10	3.0	ng/L		10/25/21 08:52	10/30/21 12:09	1
NMeFOSA	<15		15	5.0	ng/L		10/25/21 08:52	10/30/21 12:09	1

Client Sample ID: FT1-RINSE-PIPE

Date Collected: 10/06/21 15:45
Date Received: 10/09/21 10:22

Lab Sample ID: 410-58547-2

Matrix: Water

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NMeFOSE	<15		15	5.0	ng/L		10/25/21 08:52	10/30/21 12:09	1
Perfluorobutanesulfonic acid	<10		10	2.5	ng/L		10/25/21 08:52	10/30/21 12:09	1
Perfluorodecanesulfonic acid	<10		10	2.5	ng/L		10/25/21 08:52	10/30/21 12:09	1
Perfluorodecanoic acid	**120**		10	2.5	ng/L		10/25/21 08:52	10/30/21 12:09	1
Perfluorododecanesulfonic acid (PFDoS)	<15		15	2.5	ng/L		10/25/21 08:52	10/30/21 12:09	1
Perfluorododecanoic acid	**79**	**I**	10	2.5	ng/L		10/25/21 08:52	10/30/21 12:09	1
Perfluoroheptanesulfonic acid	<10		10	2.5	ng/L		10/25/21 08:52	10/30/21 12:09	1
Perfluoroheptanoic acid	**1300**		10	2.5	ng/L		10/25/21 08:52	10/30/21 12:09	1
Perfluorohexadecanoic acid	**18**		15	5.0	ng/L		10/25/21 08:52	10/30/21 12:09	1
Perfluorohexanesulfonic acid	<10		10	2.5	ng/L		10/25/21 08:52	10/30/21 12:09	1
Perfluorohexanoic acid	**1700**		10	2.5	ng/L		10/25/21 08:52	10/30/21 12:09	1
Perfluorononanesulfonic acid	<10		10	2.5	ng/L		10/25/21 08:52	10/30/21 12:09	1
Perfluorononanoic acid	**490**		10	2.5	ng/L		10/25/21 08:52	10/30/21 12:09	1
Perfluorooctadecanoic acid	<15		15	5.0	ng/L		10/25/21 08:52	10/30/21 12:09	1
Perfluorooctanesulfonamide	<10		10	2.5	ng/L		10/25/21 08:52	10/30/21 12:09	1
Perfluorooctanesulfonic acid	<10		10	2.5	ng/L		10/25/21 08:52	10/30/21 12:09	1
Perfluorooctanoic acid	**350**		10	2.5	ng/L		10/25/21 08:52	10/30/21 12:09	1
Perfluoropentanesulfonic acid	<10		10	2.5	ng/L		10/25/21 08:52	10/30/21 12:09	1
Perfluorotetradecanoic acid	**51**		10	2.5	ng/L		10/25/21 08:52	10/30/21 12:09	1
Perfluorotridecanoic acid	**83**		10	2.5	ng/L		10/25/21 08:52	10/30/21 12:09	1
Perfluoroundecanoic acid	**200**		10	2.5	ng/L		10/25/21 08:52	10/30/21 12:09	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-6:2 FTS	*101*		*55 - 167*	*10/25/21 08:52*	*10/30/21 12:09*	*1*
M2-8:2 FTS	*106*		*61 - 160*	*10/25/21 08:52*	*10/30/21 12:09*	*1*
13C2-PFDoDA	*111*		*47 - 118*	*10/25/21 08:52*	*10/30/21 12:09*	*1*
13C2 PFTeDA	*114*		*32 - 126*	*10/25/21 08:52*	*10/30/21 12:09*	*1*
13C3 HFPO-DA	*113*		*70 - 130*	*10/25/21 08:52*	*10/30/21 12:09*	*1*
13C3 PFBS	*137*		*18 - 177*	*10/25/21 08:52*	*10/30/21 12:09*	*1*
13C3 PFHxS	*102*		*55 - 115*	*10/25/21 08:52*	*10/30/21 12:09*	*1*
13C4 PFBA	*115*		*52 - 126*	*10/25/21 08:52*	*10/30/21 12:09*	*1*
13C4 PFHpA	*114*	**5+*	*55 - 113*	*10/25/21 08:52*	*10/30/21 12:09*	*1*
13C5 PFHxA	*101*		*54 - 115*	*10/25/21 08:52*	*10/30/21 12:09*	*1*
13C5 PFPeA	*101*		*17 - 184*	*10/25/21 08:52*	*10/30/21 12:09*	*1*
13C6 PFDA	*117*	**5+*	*56 - 114*	*10/25/21 08:52*	*10/30/21 12:09*	*1*
13C7 PFUnA	*104*		*50 - 120*	*10/25/21 08:52*	*10/30/21 12:09*	*1*
13C8 PFOA	*115*		*56 - 117*	*10/25/21 08:52*	*10/30/21 12:09*	*1*
13C8 PFOS	*114*	**5+*	*56 - 112*	*10/25/21 08:52*	*10/30/21 12:09*	*1*
13C8 FOSA	*107*		*10 - 126*	*10/25/21 08:52*	*10/30/21 12:09*	*1*
13C9 PFNA	*119*		*54 - 122*	*10/25/21 08:52*	*10/30/21 12:09*	*1*
M2-4:2 FTS				*10/25/21 08:52*	*10/30/21 12:09*	*1*
d3-NMeFOSAA				*10/25/21 08:52*	*10/30/21 12:09*	*1*
d3-NMePFOSA	*69*	**5+*	*10 - 51*	*10/25/21 08:52*	*10/30/21 12:09*	*1*
d5-NEtFOSAA	*111*		*65 - 134*	*10/25/21 08:52*	*10/30/21 12:09*	*1*
d5-NEtPFOSA	*71*	**5+*	*10 - 51*	*10/25/21 08:52*	*10/30/21 12:09*	*1*
d7-N-MeFOSE-M	*103*		*10 - 105*	*10/25/21 08:52*	*10/30/21 12:09*	*1*
d9-N-EtFOSE-M	*105*		*10 - 112*	*10/25/21 08:52*	*10/30/21 12:09*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*86*		*40 - 173*	*10/25/21 08:52*	*10/30/21 12:09*	*1*

Client Sample ID: FT1-RINSE-PIPE

Lab Sample ID: 410-58547-2

Date Collected: 10/06/21 15:45
Date Received: 10/09/21 10:22
Matrix: Water

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFUnA	*64*		*49 - 132*	*10/25/21 08:52*	*10/30/21 12:09*	*1*
13C4 PFOA	*74*		*10 - 163*	*10/25/21 08:52*	*10/30/21 12:09*	*1*

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid	**2100**		250	100	ng/L		10/25/21 08:52	10/29/21 12:08	10
Perfluoropentanoic acid	**5700**		100	25	ng/L		10/25/21 08:52	10/29/21 12:08	10

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*111*		*52 - 126*	*10/25/21 08:52*	*10/29/21 12:08*	*10*
13C5 PFPeA	*105*		*17 - 184*	*10/25/21 08:52*	*10/29/21 12:08*	*10*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*80*		*40 - 173*	*10/25/21 08:52*	*10/29/21 12:08*	*10*
13C2 PFUnA	*64*		*49 - 132*	*10/25/21 08:52*	*10/29/21 12:08*	*10*
13C4 PFOA	*76*		*10 - 163*	*10/25/21 08:52*	*10/29/21 12:08*	*10*

Method: Total PFCA-Dif - Total PFCA (Treatment Difference)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid	**2100**				ng/L			11/02/21 14:54	1
Perfluoropentanoic acid	**5700**				ng/L			11/02/21 14:54	1
Perfluorohexanoic acid	**1600**				ng/L			11/02/21 14:54	1
Perfluoroheptanoic acid	**1300**				ng/L			11/02/21 14:54	1
Perfluorooctanoic acid	**340**				ng/L			11/02/21 14:54	1
Perfluorononanoic acid	**160**				ng/L			11/02/21 14:54	1
Total PFCA	**12000**				ng/L			11/02/21 14:54	1

Method: Total PFCA-Sum - Total PFCA (Summary) - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total PFCA	<500		500	0.50	ng/L			11/02/21 13:10	1

Method: Total PFCA-Sum - Total PFCA (Summary) - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total PFCA	**12000**		500	0.50	ng/L			11/02/21 13:10	1

Client Sample ID: FT1-EFFLUENT1-1

Lab Sample ID: 410-58547-3

Date Collected: 10/07/21 10:00
Date Received: 10/09/21 10:22
Matrix: Water

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NEtFOSAA	<2.6		2.6	0.43	ng/L		10/15/21 17:09	10/18/21 23:13	1
NMeFOSAA	<1.7		1.7	0.52	ng/L		10/15/21 17:09	10/18/21 23:13	1
Perfluorobutanesulfonic acid	<1.7		1.7	0.43	ng/L		10/15/21 17:09	10/18/21 23:13	1
Perfluorobutanoic acid	<4.3		4.3	1.7	ng/L		10/15/21 17:09	10/18/21 23:13	1
Perfluorodecanesulfonic acid	<1.7		1.7	0.43	ng/L		10/15/21 17:09	10/18/21 23:13	1
Perfluorodecanoic acid	<1.7		1.7	0.43	ng/L		10/15/21 17:09	10/18/21 23:13	1
Perfluorododecanoic acid	<1.7		1.7	0.43	ng/L		10/15/21 17:09	10/18/21 23:13	1
Perfluoroheptanesulfonic acid	<1.7		1.7	0.43	ng/L		10/15/21 17:09	10/18/21 23:13	1
Perfluoroheptanoic acid	<1.7		1.7	0.43	ng/L		10/15/21 17:09	10/18/21 23:13	1
Perfluorohexanesulfonic acid	<1.7		1.7	0.43	ng/L		10/15/21 17:09	10/18/21 23:13	1

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-58547-1

Client Sample ID: FT1-EFFLUENT1-1

Lab Sample ID: 410-58547-3

Date Collected: 10/07/21 10:00
Date Received: 10/09/21 10:22

Matrix: Water

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid	<1.7		1.7	0.43	ng/L		10/15/21 17:09	10/18/21 23:13	1
Perfluorononanesulfonic acid	<1.7		1.7	0.43	ng/L		10/15/21 17:09	10/18/21 23:13	1
Perfluorononanoic acid	<1.7		1.7	0.43	ng/L		10/15/21 17:09	10/18/21 23:13	1
Perfluorooctanesulfonamide	<1.7		1.7	0.43	ng/L		10/15/21 17:09	10/18/21 23:13	1
Perfluorooctanesulfonic acid	<1.7		1.7	0.43	ng/L		10/15/21 17:09	10/18/21 23:13	1
Perfluorooctanoic acid	<1.7		1.7	0.43	ng/L		10/15/21 17:09	10/18/21 23:13	1
Perfluoropentanesulfonic acid	<1.7		1.7	0.43	ng/L		10/15/21 17:09	10/18/21 23:13	1
Perfluoropentanoic acid	<1.7		1.7	0.43	ng/L		10/15/21 17:09	10/18/21 23:13	1
Perfluorotetradecanoic acid	<1.7		1.7	0.43	ng/L		10/15/21 17:09	10/18/21 23:13	1
Perfluorotridecanoic acid	<1.7		1.7	0.43	ng/L		10/15/21 17:09	10/18/21 23:13	1
Perfluoroundecanoic acid	<1.7		1.7	0.43	ng/L		10/15/21 17:09	10/18/21 23:13	1
6:2 Fluorotelomer sulfonic acid	<4.3		4.3	1.7	ng/L		10/15/21 17:09	10/18/21 23:13	1
8:2 Fluorotelomer sulfonic acid	<2.6		2.6	0.86	ng/L		10/15/21 17:09	10/18/21 23:13	1
4:2 Fluorotelomer sulfonic acid	<1.7		1.7	0.43	ng/L		10/15/21 17:09	10/18/21 23:13	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-4:2 FTS	*144*		*20 - 187*	*10/15/21 17:09*	*10/18/21 23:13*	*1*
M2-6:2 FTS	*131*		*29 - 189*	*10/15/21 17:09*	*10/18/21 23:13*	*1*
M2-8:2 FTS	*133*		*34 - 182*	*10/15/21 17:09*	*10/18/21 23:13*	*1*
13C2 PFTeDA	*118*		*10 - 144*	*10/15/21 17:09*	*10/18/21 23:13*	*1*
13C3 HFPO-DA	*106*		*20 - 153*	*10/15/21 17:09*	*10/18/21 23:13*	*1*
13C3 PFBS	*125*		*19 - 178*	*10/15/21 17:09*	*10/18/21 23:13*	*1*
13C4 PFBA	*119*		*41 - 132*	*10/15/21 17:09*	*10/18/21 23:13*	*1*
13C4 PFHpA	*126*		*30 - 144*	*10/15/21 17:09*	*10/18/21 23:13*	*1*
13C5 PFPeA	*120*		*33 - 155*	*10/15/21 17:09*	*10/18/21 23:13*	*1*
13C8 PFOA	*123*		*49 - 127*	*10/15/21 17:09*	*10/18/21 23:13*	*1*
13C8 PFOS	*121*		*49 - 126*	*10/15/21 17:09*	*10/18/21 23:13*	*1*
d3-NMeFOSAA	*145*		*32 - 151*	*10/15/21 17:09*	*10/18/21 23:13*	*1*
d5-NEtFOSAA	*156*		*37 - 164*	*10/15/21 17:09*	*10/18/21 23:13*	*1*
d9-N-EtFOSE-M	*103*		*10 - 142*	*10/15/21 17:09*	*10/18/21 23:13*	*1*
13C3 PFHxS	*141*		*32 - 145*	*10/15/21 17:09*	*10/18/21 23:13*	*1*
13C5 PFHxA	*122*		*31 - 142*	*10/15/21 17:09*	*10/18/21 23:13*	*1*
13C6 PFDA	*113*		*47 - 128*	*10/15/21 17:09*	*10/18/21 23:13*	*1*
13C7 PFUnA	*120*		*40 - 135*	*10/15/21 17:09*	*10/18/21 23:13*	*1*
d3-NMePFOSA	*113*	**5+*	*10 - 107*	*10/15/21 17:09*	*10/18/21 23:13*	*1*
d5-NEtPFOSA	*103*		*10 - 108*	*10/15/21 17:09*	*10/18/21 23:13*	*1*
13C8 FOSA	*124*		*10 - 143*	*10/15/21 17:09*	*10/18/21 23:13*	*1*
13C2-PFDoDA	*111*		*28 - 136*	*10/15/21 17:09*	*10/18/21 23:13*	*1*
13C9 PFNA	*110*		*47 - 136*	*10/15/21 17:09*	*10/18/21 23:13*	*1*

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
10:2 Fluorotelomer sulfonic acid	<25		25	5.0	ng/L		10/25/21 08:52	10/29/21 12:40	1
11Cl-PF3OUdS	<10		10	2.5	ng/L		10/25/21 08:52	10/29/21 12:40	1
4:2 Fluorotelomer sulfonic acid	<10		10	2.5	ng/L		10/25/21 08:52	10/29/21 12:40	1
6:2 Fluorotelomer sulfonic acid	<25		25	10	ng/L		10/25/21 08:52	10/29/21 12:40	1
8:2 Fluorotelomer sulfonic acid	<15		15	5.0	ng/L		10/25/21 08:52	10/29/21 12:40	1
9Cl-PF3ONS	<10		10	2.5	ng/L		10/25/21 08:52	10/29/21 12:40	1
DONA	<10		10	2.5	ng/L		10/25/21 08:52	10/29/21 12:40	1
HFPODA	<15		15	2.5	ng/L		10/25/21 08:52	10/29/21 12:40	1

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-58547-1

Client Sample ID: FT1-EFFLUENT1-1

Lab Sample ID: 410-58547-3

Date Collected: 10/07/21 10:00
Date Received: 10/09/21 10:22

Matrix: Water

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NEtFOSAA	<15		15	2.5	ng/L		10/25/21 08:52	10/29/21 12:40	1
NEtFOSA	<25		25	5.0	ng/L		10/25/21 08:52	10/29/21 12:40	1
NEtFOSE	<15		15	5.0	ng/L		10/25/21 08:52	10/29/21 12:40	1
NMeFOSAA	<10		10	3.0	ng/L		10/25/21 08:52	10/29/21 12:40	1
NMeFOSA	<15		15	5.0	ng/L		10/25/21 08:52	10/29/21 12:40	1
NMeFOSE	<15		15	5.0	ng/L		10/25/21 08:52	10/29/21 12:40	1
Perfluorobutanesulfonic acid	<10		10	2.5	ng/L		10/25/21 08:52	10/29/21 12:40	1
Perfluorobutanoic acid	<25		25	10	ng/L		10/25/21 08:52	10/29/21 12:40	1
Perfluorodecanesulfonic acid	<10		10	2.5	ng/L		10/25/21 08:52	10/29/21 12:40	1
Perfluorodecanoic acid	<10		10	2.5	ng/L		10/25/21 08:52	10/29/21 12:40	1
Perfluorododecanesulfonic acid (PFDoS)	<15		15	2.5	ng/L		10/25/21 08:52	10/29/21 12:40	1
Perfluorododecanoic acid	<10		10	2.5	ng/L		10/25/21 08:52	10/29/21 12:40	1
Perfluoroheptanesulfonic acid	<10		10	2.5	ng/L		10/25/21 08:52	10/29/21 12:40	1
Perfluoroheptanoic acid	<10		10	2.5	ng/L		10/25/21 08:52	10/29/21 12:40	1
Perfluorohexadecanoic acid	<15		15	5.0	ng/L		10/25/21 08:52	10/29/21 12:40	1
Perfluorohexanesulfonic acid	<10		10	2.5	ng/L		10/25/21 08:52	10/29/21 12:40	1
Perfluorohexanoic acid	<10		10	2.5	ng/L		10/25/21 08:52	10/29/21 12:40	1
Perfluorononanesulfonic acid	<10		10	2.5	ng/L		10/25/21 08:52	10/29/21 12:40	1
Perfluorononanoic acid	<10		10	2.5	ng/L		10/25/21 08:52	10/29/21 12:40	1
Perfluorooctadecanoic acid	<15		15	5.0	ng/L		10/25/21 08:52	10/29/21 12:40	1
Perfluorooctanesulfonamide	<10		10	2.5	ng/L		10/25/21 08:52	10/29/21 12:40	1
Perfluorooctanesulfonic acid	<10		10	2.5	ng/L		10/25/21 08:52	10/29/21 12:40	1
Perfluorooctanoic acid	<10		10	2.5	ng/L		10/25/21 08:52	10/29/21 12:40	1
Perfluoropentanesulfonic acid	<10		10	2.5	ng/L		10/25/21 08:52	10/29/21 12:40	1
Perfluoropentanoic acid	<10		10	2.5	ng/L		10/25/21 08:52	10/29/21 12:40	1
Perfluorotetradecanoic acid	<10		10	2.5	ng/L		10/25/21 08:52	10/29/21 12:40	1
Perfluorotridecanoic acid	<10		10	2.5	ng/L		10/25/21 08:52	10/29/21 12:40	1
Perfluoroundecanoic acid	<10		10	2.5	ng/L		10/25/21 08:52	10/29/21 12:40	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-6:2 FTS	*116*		*55 - 167*	*10/25/21 08:52*	*10/29/21 12:40*	*1*
M2-8:2 FTS	*120*		*61 - 160*	*10/25/21 08:52*	*10/29/21 12:40*	*1*
13C2-PFDoDA	*116*		*47 - 118*	*10/25/21 08:52*	*10/29/21 12:40*	*1*
13C2 PFTeDA	*107*		*32 - 126*	*10/25/21 08:52*	*10/29/21 12:40*	*1*
13C3 HFPO-DA	*106*		*70 - 130*	*10/25/21 08:52*	*10/29/21 12:40*	*1*
13C3 PFBS	*111*		*18 - 177*	*10/25/21 08:52*	*10/29/21 12:40*	*1*
13C3 PFHxS	*125*	**5+*	*55 - 115*	*10/25/21 08:52*	*10/29/21 12:40*	*1*
13C4 PFBA	*114*		*52 - 126*	*10/25/21 08:52*	*10/29/21 12:40*	*1*
13C4 PFHpA	*122*	**5+*	*55 - 113*	*10/25/21 08:52*	*10/29/21 12:40*	*1*
13C5 PFHxA	*117*	**5+*	*54 - 115*	*10/25/21 08:52*	*10/29/21 12:40*	*1*
13C5 PFPeA	*119*		*17 - 184*	*10/25/21 08:52*	*10/29/21 12:40*	*1*
13C6 PFDA	*125*	**5+*	*56 - 114*	*10/25/21 08:52*	*10/29/21 12:40*	*1*
13C7 PFUnA	*120*		*50 - 120*	*10/25/21 08:52*	*10/29/21 12:40*	*1*
13C8 PFOA	*116*		*56 - 117*	*10/25/21 08:52*	*10/29/21 12:40*	*1*
13C8 PFOS	*112*		*56 - 112*	*10/25/21 08:52*	*10/29/21 12:40*	*1*
13C8 FOSA	*112*		*10 - 126*	*10/25/21 08:52*	*10/29/21 12:40*	*1*
13C9 PFNA	*114*		*54 - 122*	*10/25/21 08:52*	*10/29/21 12:40*	*1*
M2-4:2 FTS				*10/25/21 08:52*	*10/29/21 12:40*	*1*
d3-NMeFOSAA				*10/25/21 08:52*	*10/29/21 12:40*	*1*

Client Sample ID: FT1-EFFLUENT1-1

Lab Sample ID: 410-58547-3
Date Collected: 10/07/21 10:00
Matrix: Water
Date Received: 10/09/21 10:22

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment (Continued)

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
d3-NMePFOSA	*53*	**5+*	*10 - 51*	*10/25/21 08:52*	*10/29/21 12:40*	*1*
d5-NEtFOSAA	*129*		*65 - 134*	*10/25/21 08:52*	*10/29/21 12:40*	*1*
d5-NEtPFOSA	*50*		*10 - 51*	*10/25/21 08:52*	*10/29/21 12:40*	*1*
d7-N-MeFOSE-M	*115*	**5+*	*10 - 105*	*10/25/21 08:52*	*10/29/21 12:40*	*1*
d9-N-EtFOSE-M	*103*		*10 - 112*	*10/25/21 08:52*	*10/29/21 12:40*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*91*		*40 - 173*	*10/25/21 08:52*	*10/29/21 12:40*	*1*
13C2 PFUnA	*72*		*49 - 132*	*10/25/21 08:52*	*10/29/21 12:40*	*1*
13C4 PFOA	*76*		*10 - 163*	*10/25/21 08:52*	*10/29/21 12:40*	*1*

Method: Total PFCA-Dif - Total PFCA (Treatment Difference)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid	**0.00**				ng/L			11/02/21 13:16	1
Perfluoropentanoic acid	**0.00**				ng/L			11/02/21 13:16	1
Perfluorohexanoic acid	**0.00**				ng/L			11/02/21 13:16	1
Perfluoroheptanoic acid	**0.00**				ng/L			11/02/21 13:16	1
Perfluorooctanoic acid	**0.00**				ng/L			11/02/21 13:16	1
Perfluorononanoic acid	**0.00**				ng/L			11/02/21 13:16	1
Total PFCA	**0.00**				ng/L			11/02/21 13:16	1

Method: Total PFCA-Sum - Total PFCA (Summary) - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total PFCA	<500		500	0.50	ng/L			11/02/21 13:10	1

Method: Total PFCA-Sum - Total PFCA (Summary) - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total PFCA	<500		500	0.50	ng/L			11/02/21 13:10	1

Client Sample ID: FT1-RINSE2-1

Lab Sample ID: 410-58547-4
Date Collected: 10/07/21 11:30
Matrix: Water
Date Received: 10/09/21 10:22

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NEtFOSAA	<300		300	50	ng/L		10/15/21 17:09	10/21/21 18:51	10
NMeFOSAA	<200		200	60	ng/L		10/15/21 17:09	10/21/21 18:51	10
Perfluorobutanesulfonic acid	<200		200	50	ng/L		10/15/21 17:09	10/21/21 18:51	10
Perfluorobutanoic acid	**1300**		500	200	ng/L		10/15/21 17:09	10/21/21 18:51	10
Perfluorodecanesulfonic acid	<200		200	50	ng/L		10/15/21 17:09	10/21/21 18:51	10
Perfluorodecanoic acid	**4000**		200	50	ng/L		10/15/21 17:09	10/21/21 18:51	10
Perfluorododecanoic acid	**360**		200	50	ng/L		10/15/21 17:09	10/21/21 18:51	10
Perfluoroheptanesulfonic acid	<200		200	50	ng/L		10/15/21 17:09	10/21/21 18:51	10
Perfluoroheptanoic acid	**2900**		200	50	ng/L		10/15/21 17:09	10/21/21 18:51	10
Perfluorohexanesulfonic acid	<200		200	50	ng/L		10/15/21 17:09	10/21/21 18:51	10
Perfluorohexanoic acid	**10000**		200	50	ng/L		10/15/21 17:09	10/21/21 18:51	10
Perfluorononanesulfonic acid	<200		200	50	ng/L		10/15/21 17:09	10/21/21 18:51	10
Perfluorononanoic acid	**1500**		200	50	ng/L		10/15/21 17:09	10/21/21 18:51	10
Perfluorooctanesulfonamide	<200		200	50	ng/L		10/15/21 17:09	10/21/21 18:51	10
Perfluorooctanesulfonic acid	<200		200	50	ng/L		10/15/21 17:09	10/21/21 18:51	10
Perfluorooctanoic acid	**20000**		200	50	ng/L		10/15/21 17:09	10/21/21 18:51	10

Client Sample ID: FT1-RINSE2-1

Date Collected: 10/07/21 11:30
Date Received: 10/09/21 10:22

Lab Sample ID: 410-58547-4

Matrix: Water

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoropentanesulfonic acid	<200		200	50	ng/L		10/15/21 17:09	10/21/21 18:51	10
Perfluoropentanoic acid	**1200**		200	50	ng/L		10/15/21 17:09	10/21/21 18:51	10
Perfluorotetradecanoic acid	<200		200	50	ng/L		10/15/21 17:09	10/21/21 18:51	10
Perfluorotridecanoic acid	<200		200	50	ng/L		10/15/21 17:09	10/21/21 18:51	10
Perfluoroundecanoic acid	**230**	**I**	200	50	ng/L		10/15/21 17:09	10/21/21 18:51	10
4:2 Fluorotelomer sulfonic acid	<200		200	50	ng/L		10/15/21 17:09	10/21/21 18:51	10

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-4:2 FTS	*728*	**5+*	*20 - 187*	*10/15/21 17:09*	*10/21/21 18:51*	*10*
M2-6:2 FTS	*748*	**5+*	*29 - 189*	*10/15/21 17:09*	*10/21/21 18:51*	*10*
M2-8:2 FTS	*106*		*34 - 182*	*10/15/21 17:09*	*10/21/21 18:51*	*10*
13C2 PFTeDA	*40*		*10 - 144*	*10/15/21 17:09*	*10/21/21 18:51*	*10*
13C3 HFPO-DA	*600*	**5+*	*20 - 153*	*10/15/21 17:09*	*10/21/21 18:51*	*10*
13C3 PFBS	*120*		*19 - 178*	*10/15/21 17:09*	*10/21/21 18:51*	*10*
13C4 PFBA	*90*		*41 - 132*	*10/15/21 17:09*	*10/21/21 18:51*	*10*
13C4 PFHpA	*550*	**5+*	*30 - 144*	*10/15/21 17:09*	*10/21/21 18:51*	*10*
13C5 PFPeA	*106*		*33 - 155*	*10/15/21 17:09*	*10/21/21 18:51*	*10*
13C8 PFOA	*89*		*49 - 127*	*10/15/21 17:09*	*10/21/21 18:51*	*10*
13C8 PFOS	*26*	**5-*	*49 - 126*	*10/15/21 17:09*	*10/21/21 18:51*	*10*
d3-NMeFOSAA	*35*		*32 - 151*	*10/15/21 17:09*	*10/21/21 18:51*	*10*
d5-NEtFOSAA	*54*		*37 - 164*	*10/15/21 17:09*	*10/21/21 18:51*	*10*
d9-N-EtFOSE-M	*47*		*10 - 142*	*10/15/21 17:09*	*10/21/21 18:51*	*10*
13C3 PFHxS	*630*	**5+*	*32 - 145*	*10/15/21 17:09*	*10/21/21 18:51*	*10*
13C5 PFHxA	*613*	**5+*	*31 - 142*	*10/15/21 17:09*	*10/21/21 18:51*	*10*
13C6 PFDA	*27*	**5-*	*47 - 128*	*10/15/21 17:09*	*10/21/21 18:51*	*10*
13C7 PFUnA	*38*	**5-*	*40 - 135*	*10/15/21 17:09*	*10/21/21 18:51*	*10*
d3-NMePFOSA	*63*		*10 - 107*	*10/15/21 17:09*	*10/21/21 18:51*	*10*
d5-NEtPFOSA	*54*		*10 - 108*	*10/15/21 17:09*	*10/21/21 18:51*	*10*
13C8 FOSA	*52*		*10 - 143*	*10/15/21 17:09*	*10/21/21 18:51*	*10*
13C2-PFDoDA	*35*		*28 - 136*	*10/15/21 17:09*	*10/21/21 18:51*	*10*
13C9 PFNA	*69*		*47 - 136*	*10/15/21 17:09*	*10/21/21 18:51*	*10*

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
6:2 Fluorotelomer sulfonic acid	**110000**	**E**	5000	2000	ng/L		10/15/21 17:09	10/21/21 19:03	100
8:2 Fluorotelomer sulfonic acid	**29000**		3000	990	ng/L		10/15/21 17:09	10/21/21 19:03	100

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-6:2 FTS	*389*	**5+*	*29 - 189*	*10/15/21 17:09*	*10/21/21 19:03*	*100*
M2-8:2 FTS	*130*		*34 - 182*	*10/15/21 17:09*	*10/21/21 19:03*	*100*

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
10:2 Fluorotelomer sulfonic acid	<250000		250000	50000	ng/L		10/25/21 08:52	10/29/21 12:50	10
11Cl-PF3OUdS	<100000		100000	25000	ng/L		10/25/21 08:52	10/29/21 12:50	10
4:2 Fluorotelomer sulfonic acid	<100000		100000	25000	ng/L		10/25/21 08:52	10/29/21 12:50	10
6:2 Fluorotelomer sulfonic acid	<250000		250000	100000	ng/L		10/25/21 08:52	10/29/21 12:50	10
8:2 Fluorotelomer sulfonic acid	<150000		150000	50000	ng/L		10/25/21 08:52	10/29/21 12:50	10
9Cl-PF3ONS	<100000		100000	25000	ng/L		10/25/21 08:52	10/29/21 12:50	10
DONA	<100000		100000	25000	ng/L		10/25/21 08:52	10/29/21 12:50	10
HFPODA	<150000		150000	25000	ng/L		10/25/21 08:52	10/29/21 12:50	10

Client Sample Results

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-58547-1

Client Sample ID: FT1-RINSE2-1

Date Collected: 10/07/21 11:30
Date Received: 10/09/21 10:22

Lab Sample ID: 410-58547-4

Matrix: Water

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NEtFOSAA	<150000		150000	25000	ng/L		10/25/21 08:52	10/29/21 12:50	10
NEtFOSA	<250000		250000	50000	ng/L		10/25/21 08:52	10/29/21 12:50	10
NEtFOSE	<150000		150000	50000	ng/L		10/25/21 08:52	10/29/21 12:50	10
NMeFOSAA	<100000		100000	30000	ng/L		10/25/21 08:52	10/29/21 12:50	10
NMeFOSA	<150000		150000	50000	ng/L		10/25/21 08:52	10/29/21 12:50	10
NMeFOSE	<150000		150000	50000	ng/L		10/25/21 08:52	10/29/21 12:50	10
Perfluorobutanesulfonic acid	<100000		100000	25000	ng/L		10/25/21 08:52	10/29/21 12:50	10
Perfluorobutanoic acid	**3800000**		250000	100000	ng/L		10/25/21 08:52	10/29/21 12:50	10
Perfluorodecanesulfonic acid	<100000		100000	25000	ng/L		10/25/21 08:52	10/29/21 12:50	10
Perfluorodecanoic acid	**570000**	I	100000	25000	ng/L		10/25/21 08:52	10/29/21 12:50	10
Perfluorododecanesulfonic acid (PFDoS)	<150000		150000	25000	ng/L		10/25/21 08:52	10/29/21 12:50	10
Perfluorododecanoic acid	**410000**	I	100000	25000	ng/L		10/25/21 08:52	10/29/21 12:50	10
Perfluoroheptanesulfonic acid	<100000		100000	25000	ng/L		10/25/21 08:52	10/29/21 12:50	10
Perfluoroheptanoic acid	**5700000**		100000	25000	ng/L		10/25/21 08:52	10/29/21 12:50	10
Perfluorohexadecanoic acid	<150000		150000	50000	ng/L		10/25/21 08:52	10/29/21 12:50	10
Perfluorohexanesulfonic acid	<100000		100000	25000	ng/L		10/25/21 08:52	10/29/21 12:50	10
Perfluorohexanoic acid	**4300000**		100000	25000	ng/L		10/25/21 08:52	10/29/21 12:50	10
Perfluorononanesulfonic acid	<100000		100000	25000	ng/L		10/25/21 08:52	10/29/21 12:50	10
Perfluorononanoic acid	**1300000**		100000	25000	ng/L		10/25/21 08:52	10/29/21 12:50	10
Perfluorooctadecanoic acid	<150000		150000	50000	ng/L		10/25/21 08:52	10/29/21 12:50	10
Perfluorooctanesulfonamide	<100000		100000	25000	ng/L		10/25/21 08:52	10/29/21 12:50	10
Perfluorooctanesulfonic acid	<100000		100000	25000	ng/L		10/25/21 08:52	10/29/21 12:50	10
Perfluorooctanoic acid	**1500000**		100000	25000	ng/L		10/25/21 08:52	10/29/21 12:50	10
Perfluoropentanesulfonic acid	<100000		100000	25000	ng/L		10/25/21 08:52	10/29/21 12:50	10
Perfluoropentanoic acid	**11000000**		100000	25000	ng/L		10/25/21 08:52	10/29/21 12:50	10
Perfluorotetradecanoic acid	**290000**		100000	25000	ng/L		10/25/21 08:52	10/29/21 12:50	10
Perfluorotridecanoic acid	**260000**		100000	25000	ng/L		10/25/21 08:52	10/29/21 12:50	10
Perfluoroundecanoic acid	**610000**		100000	25000	ng/L		10/25/21 08:52	10/29/21 12:50	10

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-6:2 FTS	*114*		*55 - 167*	*10/25/21 08:52*	*10/29/21 12:50*	*10*
M2-8:2 FTS	*116*		*61 - 160*	*10/25/21 08:52*	*10/29/21 12:50*	*10*
13C2-PFDoDA	*118*		*47 - 118*	*10/25/21 08:52*	*10/29/21 12:50*	*10*
13C2 PFTeDA	*113*		*32 - 126*	*10/25/21 08:52*	*10/29/21 12:50*	*10*
13C3 HFPO-DA	*105*		*70 - 130*	*10/25/21 08:52*	*10/29/21 12:50*	*10*
13C3 PFBS	*107*		*18 - 177*	*10/25/21 08:52*	*10/29/21 12:50*	*10*
13C3 PFHxS	*113*		*55 - 115*	*10/25/21 08:52*	*10/29/21 12:50*	*10*
13C4 PFBA	*100*		*52 - 126*	*10/25/21 08:52*	*10/29/21 12:50*	*10*
13C4 PFHpA	*106*		*55 - 113*	*10/25/21 08:52*	*10/29/21 12:50*	*10*
13C5 PFHxA	*110*		*54 - 115*	*10/25/21 08:52*	*10/29/21 12:50*	*10*
13C5 PFPeA	*103*		*17 - 184*	*10/25/21 08:52*	*10/29/21 12:50*	*10*
13C6 PFDA	*115*	**5+*	*56 - 114*	*10/25/21 08:52*	*10/29/21 12:50*	*10*
13C7 PFUnA	*124*	**5+*	*50 - 120*	*10/25/21 08:52*	*10/29/21 12:50*	*10*
13C8 PFOA	*104*		*56 - 117*	*10/25/21 08:52*	*10/29/21 12:50*	*10*
13C8 PFOS	*102*		*56 - 112*	*10/25/21 08:52*	*10/29/21 12:50*	*10*
13C8 FOSA	*106*		*10 - 126*	*10/25/21 08:52*	*10/29/21 12:50*	*10*
13C9 PFNA	*101*		*54 - 122*	*10/25/21 08:52*	*10/29/21 12:50*	*10*
M2-4:2 FTS				*10/25/21 08:52*	*10/29/21 12:50*	*10*
d3-NMeFOSAA				*10/25/21 08:52*	*10/29/21 12:50*	*10*

Client Sample ID: FT1-RINSE2-1

Lab Sample ID: 410-58547-4
Matrix: Water

Date Collected: 10/07/21 11:30
Date Received: 10/09/21 10:22

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
d3-NMePFOSA	53	*5+	10 - 51	10/25/21 08:52	10/29/21 12:50	10
d5-NEtFOSAA	124		65 - 134	10/25/21 08:52	10/29/21 12:50	10
d5-NEtPFOSA	42		10 - 51	10/25/21 08:52	10/29/21 12:50	10
d7-N-MeFOSE-M	102		10 - 105	10/25/21 08:52	10/29/21 12:50	10
d9-N-EtFOSE-M	97		10 - 112	10/25/21 08:52	10/29/21 12:50	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	78		40 - 173	10/25/21 08:52	10/29/21 12:50	10
13C2 PFUnA	65		49 - 132	10/25/21 08:52	10/29/21 12:50	10
13C4 PFOA	76		10 - 163	10/25/21 08:52	10/29/21 12:50	10

Method: Total PFCA-Dif - Total PFCA (Treatment Difference)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid	**3800000**				ng/L			11/02/21 14:54	1
Perfluoropentanoic acid	**11000000**				ng/L			11/02/21 14:54	1
Perfluorohexanoic acid	**4300000**				ng/L			11/02/21 14:54	1
Perfluoroheptanoic acid	**5700000**				ng/L			11/02/21 14:54	1
Perfluorooctanoic acid	**1500000**				ng/L			11/02/21 14:54	1
Perfluorononanoic acid	**1300000**				ng/L			11/02/21 14:54	1
Total PFCA	**28000000**				ng/L			11/02/21 14:54	1

Method: Total PFCA-Sum - Total PFCA (Summary) - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total PFCA	**37000**		500	0.50	ng/L			11/02/21 13:10	1

Method: Total PFCA-Sum - Total PFCA (Summary) - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total PFCA	**28000000**		500	0.50	ng/L			11/02/21 13:10	1

Client Sample ID: FT1-RINSE-PIPE 2

Lab Sample ID: 410-58547-5
Matrix: Water

Date Collected: 10/07/21 15:50
Date Received: 10/09/21 10:22

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NEtFOSAA	<2.9		2.9	0.48	ng/L		10/15/21 17:09	10/18/21 23:35	1
NMeFOSAA	<1.9		1.9	0.57	ng/L		10/15/21 17:09	10/18/21 23:35	1
Perfluorobutanesulfonic acid	<1.9		1.9	0.48	ng/L		10/15/21 17:09	10/18/21 23:35	1
Perfluorobutanoic acid	<4.8		4.8	1.9	ng/L		10/15/21 17:09	10/18/21 23:35	1
Perfluorodecanesulfonic acid	<1.9		1.9	0.48	ng/L		10/15/21 17:09	10/18/21 23:35	1
Perfluorodecanoic acid	<1.9		1.9	0.48	ng/L		10/15/21 17:09	10/18/21 23:35	1
Perfluorododecanoic acid	<1.9		1.9	0.48	ng/L		10/15/21 17:09	10/18/21 23:35	1
Perfluoroheptanesulfonic acid	<1.9		1.9	0.48	ng/L		10/15/21 17:09	10/18/21 23:35	1
Perfluoroheptanoic acid	**8.0**		1.9	0.48	ng/L		10/15/21 17:09	10/18/21 23:35	1
Perfluorohexanesulfonic acid	**2.5**		1.9	0.48	ng/L		10/15/21 17:09	10/18/21 23:35	1
Perfluorohexanoic acid	**36**		1.9	0.48	ng/L		10/15/21 17:09	10/18/21 23:35	1
Perfluorononanesulfonic acid	<1.9		1.9	0.48	ng/L		10/15/21 17:09	10/18/21 23:35	1
Perfluorononanoic acid	**51**		1.9	0.48	ng/L		10/15/21 17:09	10/18/21 23:35	1
Perfluorooctanesulfonamide	<1.9		1.9	0.48	ng/L		10/15/21 17:09	10/18/21 23:35	1
Perfluorooctanesulfonic acid	**8.9**		1.9	0.48	ng/L		10/15/21 17:09	10/18/21 23:35	1
Perfluorooctanoic acid	**15**		1.9	0.48	ng/L		10/15/21 17:09	10/18/21 23:35	1

Client Sample Results

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-58547-1

Client Sample ID: FT1-RINSE-PIPE 2

Date Collected: 10/07/21 15:50
Date Received: 10/09/21 10:22

Lab Sample ID: 410-58547-5

Matrix: Water

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoropentanesulfonic acid	<1.9		1.9	0.48	ng/L		10/15/21 17:09	10/18/21 23:35	1
Perfluoropentanoic acid	**3.8**		1.9	0.48	ng/L		10/15/21 17:09	10/18/21 23:35	1
Perfluorotetradecanoic acid	<1.9		1.9	0.48	ng/L		10/15/21 17:09	10/18/21 23:35	1
Perfluorotridecanoic acid	**5.8**		1.9	0.48	ng/L		10/15/21 17:09	10/18/21 23:35	1
Perfluoroundecanoic acid	**18**		1.9	0.48	ng/L		10/15/21 17:09	10/18/21 23:35	1
8:2 Fluorotelomer sulfonic acid	**25**		2.9	0.95	ng/L		10/15/21 17:09	10/18/21 23:35	1
4:2 Fluorotelomer sulfonic acid	<1.9		1.9	0.48	ng/L		10/15/21 17:09	10/18/21 23:35	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-4:2 FTS	*128*		*20 - 187*	*10/15/21 17:09*	*10/18/21 23:35*	*1*
M2-6:2 FTS	*117*		*29 - 189*	*10/15/21 17:09*	*10/18/21 23:35*	*1*
M2-8:2 FTS	*127*		*34 - 182*	*10/15/21 17:09*	*10/18/21 23:35*	*1*
13C2 PFTeDA	*83*		*10 - 144*	*10/15/21 17:09*	*10/18/21 23:35*	*1*
13C3 HFPO-DA	*98*		*20 - 153*	*10/15/21 17:09*	*10/18/21 23:35*	*1*
13C3 PFBS	*135*		*19 - 178*	*10/15/21 17:09*	*10/18/21 23:35*	*1*
13C4 PFBA	*111*		*41 - 132*	*10/15/21 17:09*	*10/18/21 23:35*	*1*
13C4 PFHpA	*119*		*30 - 144*	*10/15/21 17:09*	*10/18/21 23:35*	*1*
13C5 PFPeA	*122*		*33 - 155*	*10/15/21 17:09*	*10/18/21 23:35*	*1*
13C8 PFOA	*101*		*49 - 127*	*10/15/21 17:09*	*10/18/21 23:35*	*1*
13C8 PFOS	*86*		*49 - 126*	*10/15/21 17:09*	*10/18/21 23:35*	*1*
d3-NMeFOSAA	*105*		*32 - 151*	*10/15/21 17:09*	*10/18/21 23:35*	*1*
d5-NEtFOSAA	*111*		*37 - 164*	*10/15/21 17:09*	*10/18/21 23:35*	*1*
d9-N-EtFOSE-M	*71*		*10 - 142*	*10/15/21 17:09*	*10/18/21 23:35*	*1*
13C3 PFHxS	*115*		*32 - 145*	*10/15/21 17:09*	*10/18/21 23:35*	*1*
13C5 PFHxA	*119*		*31 - 142*	*10/15/21 17:09*	*10/18/21 23:35*	*1*
13C6 PFDA	*88*		*47 - 128*	*10/15/21 17:09*	*10/18/21 23:35*	*1*
13C7 PFUnA	*84*		*40 - 135*	*10/15/21 17:09*	*10/18/21 23:35*	*1*
d3-NMePFOSA	*57*		*10 - 107*	*10/15/21 17:09*	*10/18/21 23:35*	*1*
d5-NEtPFOSA	*53*		*10 - 108*	*10/15/21 17:09*	*10/18/21 23:35*	*1*
13C8 FOSA	*87*		*10 - 143*	*10/15/21 17:09*	*10/18/21 23:35*	*1*
13C2-PFDoDA	*83*		*28 - 136*	*10/15/21 17:09*	*10/18/21 23:35*	*1*
13C9 PFNA	*112*		*47 - 136*	*10/15/21 17:09*	*10/18/21 23:35*	*1*

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
6:2 Fluorotelomer sulfonic acid	**410**		48	19	ng/L		10/15/21 17:09	10/21/21 19:14	10

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-6:2 FTS	*119*		*29 - 189*	*10/15/21 17:09*	*10/21/21 19:14*	*10*

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
10:2 Fluorotelomer sulfonic acid	<25		25	5.0	ng/L		10/25/21 08:52	10/30/21 12:20	1
11Cl-PF3OUdS	<10		10	2.5	ng/L		10/25/21 08:52	10/30/21 12:20	1
4:2 Fluorotelomer sulfonic acid	<10		10	2.5	ng/L		10/25/21 08:52	10/30/21 12:20	1
6:2 Fluorotelomer sulfonic acid	<25		25	10	ng/L		10/25/21 08:52	10/30/21 12:20	1
8:2 Fluorotelomer sulfonic acid	<15		15	5.0	ng/L		10/25/21 08:52	10/30/21 12:20	1
9Cl-PF3ONS	<10		10	2.5	ng/L		10/25/21 08:52	10/30/21 12:20	1
DONA	<10		10	2.5	ng/L		10/25/21 08:52	10/30/21 12:20	1
HFPODA	<15		15	2.5	ng/L		10/25/21 08:52	10/30/21 12:20	1
NEtFOSAA	<15		15	2.5	ng/L		10/25/21 08:52	10/30/21 12:20	1

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-58547-1

Client Sample ID: FT1-RINSE-PIPE 2

Lab Sample ID: 410-58547-5

Date Collected: 10/07/21 15:50
Date Received: 10/09/21 10:22

Matrix: Water

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NEtFOSA	<25		25	5.0	ng/L		10/25/21 08:52	10/30/21 12:20	1
NEtFOSE	<15		15	5.0	ng/L		10/25/21 08:52	10/30/21 12:20	1
NMeFOSAA	<10		10	3.0	ng/L		10/25/21 08:52	10/30/21 12:20	1
NMeFOSA	<15		15	5.0	ng/L		10/25/21 08:52	10/30/21 12:20	1
NMeFOSE	<15		15	5.0	ng/L		10/25/21 08:52	10/30/21 12:20	1
Perfluorobutanesulfonic acid	<10		10	2.5	ng/L		10/25/21 08:52	10/30/21 12:20	1
Perfluorobutanoic acid	**150**		25	10	ng/L		10/25/21 08:52	10/30/21 12:20	1
Perfluorodecanesulfonic acid	<10		10	2.5	ng/L		10/25/21 08:52	10/30/21 12:20	1
Perfluorodecanoic acid	**11**		10	2.5	ng/L		10/25/21 08:52	10/30/21 12:20	1
Perfluorododecanesulfonic acid (PFDoS)	<15		15	2.5	ng/L		10/25/21 08:52	10/30/21 12:20	1
Perfluorododecanoic acid	<10		10	2.5	ng/L		10/25/21 08:52	10/30/21 12:20	1
Perfluoroheptanesulfonic acid	<10		10	2.5	ng/L		10/25/21 08:52	10/30/21 12:20	1
Perfluoroheptanoic acid	**120**		10	2.5	ng/L		10/25/21 08:52	10/30/21 12:20	1
Perfluorohexadecanoic acid	<15		15	5.0	ng/L		10/25/21 08:52	10/30/21 12:20	1
Perfluorohexanesulfonic acid	<10		10	2.5	ng/L		10/25/21 08:52	10/30/21 12:20	1
Perfluorohexanoic acid	**200**		10	2.5	ng/L		10/25/21 08:52	10/30/21 12:20	1
Perfluorononanesulfonic acid	<10		10	2.5	ng/L		10/25/21 08:52	10/30/21 12:20	1
Perfluorononanoic acid	**35**		10	2.5	ng/L		10/25/21 08:52	10/30/21 12:20	1
Perfluorooctadecanoic acid	<15		15	5.0	ng/L		10/25/21 08:52	10/30/21 12:20	1
Perfluorooctanesulfonamide	<10		10	2.5	ng/L		10/25/21 08:52	10/30/21 12:20	1
Perfluorooctanesulfonic acid	<10		10	2.5	ng/L		10/25/21 08:52	10/30/21 12:20	1
Perfluorooctanoic acid	**46**		10	2.5	ng/L		10/25/21 08:52	10/30/21 12:20	1
Perfluoropentanesulfonic acid	<10		10	2.5	ng/L		10/25/21 08:52	10/30/21 12:20	1
Perfluoropentanoic acid	**330**		10	2.5	ng/L		10/25/21 08:52	10/30/21 12:20	1
Perfluorotetradecanoic acid	<10		10	2.5	ng/L		10/25/21 08:52	10/30/21 12:20	1
Perfluorotridecanoic acid	<10		10	2.5	ng/L		10/25/21 08:52	10/30/21 12:20	1
Perfluoroundecanoic acid	**13**	**I**	10	2.5	ng/L		10/25/21 08:52	10/30/21 12:20	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-6:2 FTS	*98*		*55 - 167*	*10/25/21 08:52*	*10/30/21 12:20*	*1*
M2-8:2 FTS	*101*		*61 - 160*	*10/25/21 08:52*	*10/30/21 12:20*	*1*
13C2-PFDoDA	*102*		*47 - 118*	*10/25/21 08:52*	*10/30/21 12:20*	*1*
13C2 PFTeDA	*109*		*32 - 126*	*10/25/21 08:52*	*10/30/21 12:20*	*1*
13C3 HFPO-DA	*92*		*70 - 130*	*10/25/21 08:52*	*10/30/21 12:20*	*1*
13C3 PFBS	*102*		*18 - 177*	*10/25/21 08:52*	*10/30/21 12:20*	*1*
13C3 PFHxS	*102*		*55 - 115*	*10/25/21 08:52*	*10/30/21 12:20*	*1*
13C4 PFBA	*91*		*52 - 126*	*10/25/21 08:52*	*10/30/21 12:20*	*1*
13C4 PFHpA	*115*	**5+*	*55 - 113*	*10/25/21 08:52*	*10/30/21 12:20*	*1*
13C5 PFHxA	*101*		*54 - 115*	*10/25/21 08:52*	*10/30/21 12:20*	*1*
13C5 PFPeA	*106*		*17 - 184*	*10/25/21 08:52*	*10/30/21 12:20*	*1*
13C6 PFDA	*106*		*56 - 114*	*10/25/21 08:52*	*10/30/21 12:20*	*1*
13C7 PFUnA	*104*		*50 - 120*	*10/25/21 08:52*	*10/30/21 12:20*	*1*
13C8 PFOA	*94*		*56 - 117*	*10/25/21 08:52*	*10/30/21 12:20*	*1*
13C8 PFOS	*110*		*56 - 112*	*10/25/21 08:52*	*10/30/21 12:20*	*1*
13C8 FOSA	*98*		*10 - 126*	*10/25/21 08:52*	*10/30/21 12:20*	*1*
13C9 PFNA	*110*		*54 - 122*	*10/25/21 08:52*	*10/30/21 12:20*	*1*
M2-4:2 FTS				*10/25/21 08:52*	*10/30/21 12:20*	*1*
d3-NMeFOSAA				*10/25/21 08:52*	*10/30/21 12:20*	*1*
d3-NMePFOSA	*73*	**5+*	*10 - 51*	*10/25/21 08:52*	*10/30/21 12:20*	*1*

Client Sample ID: FT1-RINSE-PIPE 2

Lab Sample ID: 410-58547-5
Matrix: Water

Date Collected: 10/07/21 15:50
Date Received: 10/09/21 10:22

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment (Continued)

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
d5-NEtFOSAA	*113*		*65 - 134*	*10/25/21 08:52*	*10/30/21 12:20*	*1*
d5-NEtPFOSA	*65*	**5+*	*10 - 51*	*10/25/21 08:52*	*10/30/21 12:20*	*1*
d7-N-MeFOSE-M	*98*		*10 - 105*	*10/25/21 08:52*	*10/30/21 12:20*	*1*
d9-N-EtFOSE-M	*103*		*10 - 112*	*10/25/21 08:52*	*10/30/21 12:20*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*84*		*40 - 173*	*10/25/21 08:52*	*10/30/21 12:20*	*1*
13C2 PFUnA	*63*		*49 - 132*	*10/25/21 08:52*	*10/30/21 12:20*	*1*
13C4 PFOA	*73*		*10 - 163*	*10/25/21 08:52*	*10/30/21 12:20*	*1*

Method: Total PFCA-Dif - Total PFCA (Treatment Difference)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid	**150**				ng/L			11/02/21 13:16	1
Perfluoropentanoic acid	**320**				ng/L			11/02/21 13:16	1
Perfluorohexanoic acid	**170**				ng/L			11/02/21 13:16	1
Perfluoroheptanoic acid	**110**				ng/L			11/02/21 13:16	1
Perfluorooctanoic acid	**32**				ng/L			11/02/21 13:16	1
Perfluorononanoic acid	**0.00**				ng/L			11/02/21 13:16	1
Total PFCA	**880**				ng/L			11/02/21 13:16	1

Method: Total PFCA-Sum - Total PFCA (Summary) - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total PFCA	<500		500	0.50	ng/L			11/02/21 13:10	1

Method: Total PFCA-Sum - Total PFCA (Summary) - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total PFCA	**880**		500	0.50	ng/L			11/02/21 13:10	1

Client Sample ID: FT1-EFFLUENT2-1

Lab Sample ID: 410-58547-6
Matrix: Water

Date Collected: 10/08/21 08:30
Date Received: 10/09/21 10:22

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NEtFOSAA	<2.6		2.6	0.44	ng/L		10/15/21 17:09	10/18/21 23:46	1
NMeFOSAA	<1.8		1.8	0.53	ng/L		10/15/21 17:09	10/18/21 23:46	1
Perfluorobutanesulfonic acid	<1.8		1.8	0.44	ng/L		10/15/21 17:09	10/18/21 23:46	1
Perfluorobutanoic acid	<4.4		4.4	1.8	ng/L		10/15/21 17:09	10/18/21 23:46	1
Perfluorodecanesulfonic acid	<1.8	F1	1.8	0.44	ng/L		10/15/21 17:09	10/18/21 23:46	1
Perfluorodecanoic acid	**25**	**F1**	1.8	0.44	ng/L		10/15/21 17:09	10/18/21 23:46	1
Perfluorododecanoic acid	**29**	**F1 F2**	1.8	0.44	ng/L		10/15/21 17:09	10/18/21 23:46	1
Perfluoroheptanesulfonic acid	<1.8	F1	1.8	0.44	ng/L		10/15/21 17:09	10/18/21 23:46	1
Perfluoroheptanoic acid	<1.8		1.8	0.44	ng/L		10/15/21 17:09	10/18/21 23:46	1
Perfluorohexanesulfonic acid	<1.8		1.8	0.44	ng/L		10/15/21 17:09	10/18/21 23:46	1
Perfluorohexanoic acid	<1.8		1.8	0.44	ng/L		10/15/21 17:09	10/18/21 23:46	1
Perfluorononanesulfonic acid	<1.8	F1	1.8	0.44	ng/L		10/15/21 17:09	10/18/21 23:46	1
Perfluorononanoic acid	**2.5**		1.8	0.44	ng/L		10/15/21 17:09	10/18/21 23:46	1
Perfluorooctanesulfonamide	<1.8		1.8	0.44	ng/L		10/15/21 17:09	10/18/21 23:46	1
Perfluorooctanesulfonic acid	<1.8		1.8	0.44	ng/L		10/15/21 17:09	10/18/21 23:46	1
Perfluorooctanoic acid	**2.9**		1.8	0.44	ng/L		10/15/21 17:09	10/18/21 23:46	1
Perfluoropentanesulfonic acid	<1.8		1.8	0.44	ng/L		10/15/21 17:09	10/18/21 23:46	1

Client Sample ID: FT1-EFFLUENT2-1

Lab Sample ID: 410-58547-6

Date Collected: 10/08/21 08:30
Matrix: Water
Date Received: 10/09/21 10:22

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoropentanoic acid	<1.8		1.8	0.44	ng/L		10/15/21 17:09	10/18/21 23:46	1
Perfluorotetradecanoic acid	**14**		1.8	0.44	ng/L		10/15/21 17:09	10/18/21 23:46	1
Perfluorotridecanoic acid	**3.5**	**F1 F2**	1.8	0.44	ng/L		10/15/21 17:09	10/18/21 23:46	1
Perfluoroundecanoic acid	**7.8**		1.8	0.44	ng/L		10/15/21 17:09	10/18/21 23:46	1
4:2 Fluorotelomer sulfonic acid	<1.8		1.8	0.44	ng/L		10/15/21 17:09	10/18/21 23:46	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-4:2 FTS	*220*	**5+*	*20 - 187*	*10/15/21 17:09*	*10/18/21 23:46*	*1*
M2-6:2 FTS	*76*		*29 - 189*	*10/15/21 17:09*	*10/18/21 23:46*	*1*
M2-8:2 FTS	*55*		*34 - 182*	*10/15/21 17:09*	*10/18/21 23:46*	*1*
13C2 PFTeDA	*39*		*10 - 144*	*10/15/21 17:09*	*10/18/21 23:46*	*1*
13C3 HFPO-DA	*170*	**5+*	*20 - 153*	*10/15/21 17:09*	*10/18/21 23:46*	*1*
13C3 PFBS	*114*		*19 - 178*	*10/15/21 17:09*	*10/18/21 23:46*	*1*
13C4 PFBA	*112*		*41 - 132*	*10/15/21 17:09*	*10/18/21 23:46*	*1*
13C4 PFHpA	*181*	**5+*	*30 - 144*	*10/15/21 17:09*	*10/18/21 23:46*	*1*
13C5 PFPeA	*104*		*33 - 155*	*10/15/21 17:09*	*10/18/21 23:46*	*1*
13C8 PFOA	*109*		*49 - 127*	*10/15/21 17:09*	*10/18/21 23:46*	*1*
13C8 PFOS	*26*	**5-*	*49 - 126*	*10/15/21 17:09*	*10/18/21 23:46*	*1*
d3-NMeFOSAA	*118*		*32 - 151*	*10/15/21 17:09*	*10/18/21 23:46*	*1*
d5-NEtFOSAA	*120*		*37 - 164*	*10/15/21 17:09*	*10/18/21 23:46*	*1*
d9-N-EtFOSE-M	*56*		*10 - 142*	*10/15/21 17:09*	*10/18/21 23:46*	*1*
13C3 PFHxS	*154*	**5+*	*32 - 145*	*10/15/21 17:09*	*10/18/21 23:46*	*1*
13C5 PFHxA	*193*	**5+*	*31 - 142*	*10/15/21 17:09*	*10/18/21 23:46*	*1*
13C6 PFDA	*46*	**5-*	*47 - 128*	*10/15/21 17:09*	*10/18/21 23:46*	*1*
13C7 PFUnA	*62*		*40 - 135*	*10/15/21 17:09*	*10/18/21 23:46*	*1*
d3-NMePFOSA	*113*	**5+*	*10 - 107*	*10/15/21 17:09*	*10/18/21 23:46*	*1*
d5-NEtPFOSA	*107*		*10 - 108*	*10/15/21 17:09*	*10/18/21 23:46*	*1*
13C8 FOSA	*118*		*10 - 143*	*10/15/21 17:09*	*10/18/21 23:46*	*1*
13C2-PFDoDA	*43*		*28 - 136*	*10/15/21 17:09*	*10/18/21 23:46*	*1*
13C9 PFNA	*83*		*47 - 136*	*10/15/21 17:09*	*10/18/21 23:46*	*1*

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
6:2 Fluorotelomer sulfonic acid	**70**		44	18	ng/L		10/15/21 17:09	10/21/21 19:25	10
8:2 Fluorotelomer sulfonic acid	**570**		26	8.8	ng/L		10/15/21 17:09	10/21/21 19:25	10

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-6:2 FTS	*120*		*29 - 189*	*10/15/21 17:09*	*10/21/21 19:25*	*10*
M2-8:2 FTS	*72*		*34 - 182*	*10/15/21 17:09*	*10/21/21 19:25*	*10*

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
10:2 Fluorotelomer sulfonic acid	<25		25	5.0	ng/L		10/25/21 08:52	10/29/21 14:30	1
11Cl-PF3OUdS	<10		10	2.5	ng/L		10/25/21 08:52	10/29/21 14:30	1
4:2 Fluorotelomer sulfonic acid	<10		10	2.5	ng/L		10/25/21 08:52	10/29/21 14:30	1
6:2 Fluorotelomer sulfonic acid	<25		25	10	ng/L		10/25/21 08:52	10/29/21 14:30	1
8:2 Fluorotelomer sulfonic acid	<15		15	5.0	ng/L		10/25/21 08:52	10/29/21 14:30	1
9Cl-PF3ONS	<10		10	2.5	ng/L		10/25/21 08:52	10/29/21 14:30	1
DONA	<10		10	2.5	ng/L		10/25/21 08:52	10/29/21 14:30	1
HFPODA	<15		15	2.5	ng/L		10/25/21 08:52	10/29/21 14:30	1
NEtFOSAA	<15		15	2.5	ng/L		10/25/21 08:52	10/29/21 14:30	1

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-58547-1

Client Sample ID: FT1-EFFLUENT2-1

Date Collected: 10/08/21 08:30
Date Received: 10/09/21 10:22

Lab Sample ID: 410-58547-6

Matrix: Water

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NEtFOSA	<25		25	5.0	ng/L		10/25/21 08:52	10/29/21 14:30	1
NEtFOSE	<15		15	5.0	ng/L		10/25/21 08:52	10/29/21 14:30	1
NMeFOSAA	<10		10	3.0	ng/L		10/25/21 08:52	10/29/21 14:30	1
NMeFOSA	<15		15	5.0	ng/L		10/25/21 08:52	10/29/21 14:30	1
NMeFOSE	<15		15	5.0	ng/L		10/25/21 08:52	10/29/21 14:30	1
Perfluorobutanesulfonic acid	<10		10	2.5	ng/L		10/25/21 08:52	10/29/21 14:30	1
Perfluorodecanesulfonic acid	<10		10	2.5	ng/L		10/25/21 08:52	10/29/21 14:30	1
Perfluorododecanesulfonic acid (PFDoS)	<15		15	2.5	ng/L		10/25/21 08:52	10/29/21 14:30	1
Perfluoroheptanesulfonic acid	<10		10	2.5	ng/L		10/25/21 08:52	10/29/21 14:30	1
Perfluorohexanesulfonic acid	<10		10	2.5	ng/L		10/25/21 08:52	10/29/21 14:30	1
Perfluorononanesulfonic acid	<10		10	2.5	ng/L		10/25/21 08:52	10/29/21 14:30	1
Perfluorooctadecanoic acid	**690**		15	5.0	ng/L		10/25/21 08:52	10/29/21 14:30	1
Perfluorooctanesulfonamide	<10		10	2.5	ng/L		10/25/21 08:52	10/29/21 14:30	1
Perfluorooctanesulfonic acid	<10		10	2.5	ng/L		10/25/21 08:52	10/29/21 14:30	1
Perfluoropentanesulfonic acid	<10		10	2.5	ng/L		10/25/21 08:52	10/29/21 14:30	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-6:2 FTS	*62*		*55 - 167*	*10/25/21 08:52*	*10/29/21 14:30*	*1*
M2-8:2 FTS	*52*	**5-*	*61 - 160*	*10/25/21 08:52*	*10/29/21 14:30*	*1*
13C2-PFDoDA	*63*		*47 - 118*	*10/25/21 08:52*	*10/29/21 14:30*	*1*
13C2 PFTeDA	*78*		*32 - 126*	*10/25/21 08:52*	*10/29/21 14:30*	*1*
13C3 HFPO-DA	*109*		*70 - 130*	*10/25/21 08:52*	*10/29/21 14:30*	*1*
13C3 PFBS	*143*		*18 - 177*	*10/25/21 08:52*	*10/29/21 14:30*	*1*
13C3 PFHxS	*69*		*55 - 115*	*10/25/21 08:52*	*10/29/21 14:30*	*1*
13C4 PFBA	*103*		*52 - 126*	*10/25/21 08:52*	*10/29/21 14:30*	*1*
13C4 PFHpA	*92*		*55 - 113*	*10/25/21 08:52*	*10/29/21 14:30*	*1*
13C5 PFHxA	*83*		*54 - 115*	*10/25/21 08:52*	*10/29/21 14:30*	*1*
13C5 PFPeA	*110*		*17 - 184*	*10/25/21 08:52*	*10/29/21 14:30*	*1*
13C6 PFDA	*71*		*56 - 114*	*10/25/21 08:52*	*10/29/21 14:30*	*1*
13C7 PFUnA	*67*		*50 - 120*	*10/25/21 08:52*	*10/29/21 14:30*	*1*
13C8 PFOA	*84*		*56 - 117*	*10/25/21 08:52*	*10/29/21 14:30*	*1*
13C8 PFOS	*102*		*56 - 112*	*10/25/21 08:52*	*10/29/21 14:30*	*1*
13C8 FOSA	*109*		*10 - 126*	*10/25/21 08:52*	*10/29/21 14:30*	*1*
13C9 PFNA	*105*		*54 - 122*	*10/25/21 08:52*	*10/29/21 14:30*	*1*
M2-4:2 FTS				*10/25/21 08:52*	*10/29/21 14:30*	*1*
d3-NMeFOSAA				*10/25/21 08:52*	*10/29/21 14:30*	*1*
d3-NMePFOSA	*73*	**5+*	*10 - 51*	*10/25/21 08:52*	*10/29/21 14:30*	*1*
d5-NEtFOSAA	*74*		*65 - 134*	*10/25/21 08:52*	*10/29/21 14:30*	*1*
d5-NEtPFOSA	*69*	**5+*	*10 - 51*	*10/25/21 08:52*	*10/29/21 14:30*	*1*
d7-N-MeFOSE-M	*100*		*10 - 105*	*10/25/21 08:52*	*10/29/21 14:30*	*1*
d9-N-EtFOSE-M	*106*		*10 - 112*	*10/25/21 08:52*	*10/29/21 14:30*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*74*		*40 - 173*	*10/25/21 08:52*	*10/29/21 14:30*	*1*
13C2 PFUnA	*48*	*S1-*	*49 - 132*	*10/25/21 08:52*	*10/29/21 14:30*	*1*
13C4 PFOA	*64*		*10 - 163*	*10/25/21 08:52*	*10/29/21 14:30*	*1*

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid	**4600**		250	100	ng/L		10/25/21 08:52	10/29/21 14:41	10

Client Sample ID: FT1-EFFLUENT2-1

Lab Sample ID: 410-58547-6

Date Collected: 10/08/21 08:30
Matrix: Water
Date Received: 10/09/21 10:22

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment - DL (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorodecanoic acid	6800		100	25	ng/L		10/25/21 08:52	10/29/21 14:41	10
Perfluorododecanoic acid	9100	I	100	25	ng/L		10/25/21 08:52	10/29/21 14:41	10
Perfluoroheptanoic acid	13000		100	25	ng/L		10/25/21 08:52	10/29/21 14:41	10
Perfluorohexadecanoic acid	2700		150	50	ng/L		10/25/21 08:52	10/29/21 14:41	10
Perfluorohexanoic acid	7600		100	25	ng/L		10/25/21 08:52	10/29/21 14:41	10
Perfluorononanoic acid	9200		100	25	ng/L		10/25/21 08:52	10/29/21 14:41	10
Perfluorooctanoic acid	7100		100	25	ng/L		10/25/21 08:52	10/29/21 14:41	10
Perfluoropentanoic acid	9100		100	25	ng/L		10/25/21 08:52	10/29/21 14:41	10
Perfluorotetradecanoic acid	7700		100	25	ng/L		10/25/21 08:52	10/29/21 14:41	10
Perfluorotridecanoic acid	6000		100	25	ng/L		10/25/21 08:52	10/29/21 14:41	10
Perfluoroundecanoic acid	10000		100	25	ng/L		10/25/21 08:52	10/29/21 14:41	10

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2-PFDoDA	*103*		*47 - 118*	*10/25/21 08:52*	*10/29/21 14:41*	*10*
13C2 PFTeDA	*116*		*32 - 126*	*10/25/21 08:52*	*10/29/21 14:41*	*10*
13C4 PFBA	*109*		*52 - 126*	*10/25/21 08:52*	*10/29/21 14:41*	*10*
13C4 PFHpA	*115*	*5+	*55 - 113*	*10/25/21 08:52*	*10/29/21 14:41*	*10*
13C5 PFHxA	*110*		*54 - 115*	*10/25/21 08:52*	*10/29/21 14:41*	*10*
13C5 PFPeA	*137*		*17 - 184*	*10/25/21 08:52*	*10/29/21 14:41*	*10*
13C6 PFDA	*104*		*56 - 114*	*10/25/21 08:52*	*10/29/21 14:41*	*10*
13C7 PFUnA	*101*		*50 - 120*	*10/25/21 08:52*	*10/29/21 14:41*	*10*
13C8 PFOA	*102*		*56 - 117*	*10/25/21 08:52*	*10/29/21 14:41*	*10*
13C9 PFNA	*108*		*54 - 122*	*10/25/21 08:52*	*10/29/21 14:41*	*10*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*81*		*40 - 173*	*10/25/21 08:52*	*10/29/21 14:41*	*10*
13C2 PFUnA	*69*		*49 - 132*	*10/25/21 08:52*	*10/29/21 14:41*	*10*
13C4 PFOA	*74*		*10 - 163*	*10/25/21 08:52*	*10/29/21 14:41*	*10*

Method: Total PFCA-Dif - Total PFCA (Treatment Difference)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid	4600				ng/L			11/02/21 13:16	1
Perfluoropentanoic acid	9100				ng/L			11/02/21 13:16	1
Perfluorohexanoic acid	7600				ng/L			11/02/21 13:16	1
Perfluoroheptanoic acid	13000				ng/L			11/02/21 13:16	1
Perfluorooctanoic acid	7100				ng/L			11/02/21 13:16	1
Perfluorononanoic acid	9200				ng/L			11/02/21 13:16	1
Total PFCA	51000				ng/L			11/02/21 13:16	1

Method: Total PFCA-Sum - Total PFCA (Summary) - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total PFCA	<500		500	0.50	ng/L			11/02/21 13:10	1

Method: Total PFCA-Sum - Total PFCA (Summary) - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total PFCA	51000		500	0.50	ng/L			11/02/21 13:10	1

Client Sample Results

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-58547-1

Client Sample ID: FT1-RINSE3-1

Date Collected: 10/08/21 09:00
Date Received: 10/09/21 10:22

Lab Sample ID: 410-58547-7

Matrix: Water

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NEtFOSAA	<2.7		2.7	0.46	ng/L		10/15/21 17:09	10/19/21 00:19	1
NMeFOSAA	<1.8		1.8	0.55	ng/L		10/15/21 17:09	10/19/21 00:19	1
Perfluorobutanesulfonic acid	<1.8		1.8	0.46	ng/L		10/15/21 17:09	10/19/21 00:19	1
Perfluorobutanoic acid	<4.6		4.6	1.8	ng/L		10/15/21 17:09	10/19/21 00:19	1
Perfluorodecanesulfonic acid	<1.8		1.8	0.46	ng/L		10/15/21 17:09	10/19/21 00:19	1
Perfluorodecanoic acid	**36**		1.8	0.46	ng/L		10/15/21 17:09	10/19/21 00:19	1
Perfluorododecanoic acid	**5.1**		1.8	0.46	ng/L		10/15/21 17:09	10/19/21 00:19	1
Perfluoroheptanesulfonic acid	<1.8		1.8	0.46	ng/L		10/15/21 17:09	10/19/21 00:19	1
Perfluoroheptanoic acid	**5.6**		1.8	0.46	ng/L		10/15/21 17:09	10/19/21 00:19	1
Perfluorohexanesulfonic acid	<1.8		1.8	0.46	ng/L		10/15/21 17:09	10/19/21 00:19	1
Perfluorohexanoic acid	**13**		1.8	0.46	ng/L		10/15/21 17:09	10/19/21 00:19	1
Perfluorononanesulfonic acid	<1.8		1.8	0.46	ng/L		10/15/21 17:09	10/19/21 00:19	1
Perfluorononanoic acid	**15**		1.8	0.46	ng/L		10/15/21 17:09	10/19/21 00:19	1
Perfluorooctanesulfonamide	<1.8		1.8	0.46	ng/L		10/15/21 17:09	10/19/21 00:19	1
Perfluorooctanesulfonic acid	**2.2**		1.8	0.46	ng/L		10/15/21 17:09	10/19/21 00:19	1
Perfluorooctanoic acid	**64**		1.8	0.46	ng/L		10/15/21 17:09	10/19/21 00:19	1
Perfluoropentanesulfonic acid	<1.8		1.8	0.46	ng/L		10/15/21 17:09	10/19/21 00:19	1
Perfluoropentanoic acid	**1.9**		1.8	0.46	ng/L		10/15/21 17:09	10/19/21 00:19	1
Perfluorotetradecanoic acid	<1.8		1.8	0.46	ng/L		10/15/21 17:09	10/19/21 00:19	1
Perfluorotridecanoic acid	<1.8		1.8	0.46	ng/L		10/15/21 17:09	10/19/21 00:19	1
Perfluoroundecanoic acid	<1.8		1.8	0.46	ng/L		10/15/21 17:09	10/19/21 00:19	1
4:2 Fluorotelomer sulfonic acid	<1.8		1.8	0.46	ng/L		10/15/21 17:09	10/19/21 00:19	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-4:2 FTS	*482*	**5+*	*20 - 187*	*10/15/21 17:09*	*10/19/21 00:19*	*1*
M2-6:2 FTS	*87*		*29 - 189*	*10/15/21 17:09*	*10/19/21 00:19*	*1*
M2-8:2 FTS	*89*		*34 - 182*	*10/15/21 17:09*	*10/19/21 00:19*	*1*
13C2 PFTeDA	*182*	**5+*	*10 - 144*	*10/15/21 17:09*	*10/19/21 00:19*	*1*
13C3 HFPO-DA	*398*	**5+*	*20 - 153*	*10/15/21 17:09*	*10/19/21 00:19*	*1*
13C3 PFBS	*132*		*19 - 178*	*10/15/21 17:09*	*10/19/21 00:19*	*1*
13C4 PFBA	*113*		*41 - 132*	*10/15/21 17:09*	*10/19/21 00:19*	*1*
13C4 PFHpA	*472*	**5+*	*30 - 144*	*10/15/21 17:09*	*10/19/21 00:19*	*1*
13C5 PFPeA	*113*		*33 - 155*	*10/15/21 17:09*	*10/19/21 00:19*	*1*
13C8 PFOA	*96*		*49 - 127*	*10/15/21 17:09*	*10/19/21 00:19*	*1*
13C8 PFOS	*100*		*49 - 126*	*10/15/21 17:09*	*10/19/21 00:19*	*1*
d3-NMeFOSAA	*247*	**5+*	*32 - 151*	*10/15/21 17:09*	*10/19/21 00:19*	*1*
d5-NEtFOSAA	*319*	**5+*	*37 - 164*	*10/15/21 17:09*	*10/19/21 00:19*	*1*
d9-N-EtFOSE-M	*219*	**5+*	*10 - 142*	*10/15/21 17:09*	*10/19/21 00:19*	*1*
13C3 PFHxS	*518*	**5+*	*32 - 145*	*10/15/21 17:09*	*10/19/21 00:19*	*1*
13C5 PFHxA	*460*	**5+*	*31 - 142*	*10/15/21 17:09*	*10/19/21 00:19*	*1*
13C6 PFDA	*96*		*47 - 128*	*10/15/21 17:09*	*10/19/21 00:19*	*1*
13C7 PFUnA	*226*	**5+*	*40 - 135*	*10/15/21 17:09*	*10/19/21 00:19*	*1*
d3-NMePFOSA	*274*	**5+*	*10 - 107*	*10/15/21 17:09*	*10/19/21 00:19*	*1*
d5-NEtPFOSA	*245*	**5+*	*10 - 108*	*10/15/21 17:09*	*10/19/21 00:19*	*1*
13C8 FOSA	*238*	**5+*	*10 - 143*	*10/15/21 17:09*	*10/19/21 00:19*	*1*
13C2-PFDoDA	*172*	**5+*	*28 - 136*	*10/15/21 17:09*	*10/19/21 00:19*	*1*
13C9 PFNA	*104*		*47 - 136*	*10/15/21 17:09*	*10/19/21 00:19*	*1*

Client Sample Results

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-58547-1

Client Sample ID: FT1-RINSE3-1

Date Collected: 10/08/21 09:00
Date Received: 10/09/21 10:22

Lab Sample ID: 410-58547-7

Matrix: Water

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
8:2 Fluorotelomer sulfonic acid	**830**		27	9.1	ng/L		10/15/21 17:09	10/21/21 19:47	10

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-8:2 FTS	*128*		*34 - 182*	*10/15/21 17:09*	*10/21/21 19:47*	*10*

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment - DL2

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
6:2 Fluorotelomer sulfonic acid	**1100**		460	180	ng/L		10/15/21 17:09	10/21/21 19:58	100

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-6:2 FTS	*150*		*29 - 189*	*10/15/21 17:09*	*10/21/21 19:58*	*100*

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
10:2 Fluorotelomer sulfonic acid	<1300		1300	250	ng/L		10/25/21 08:52	10/30/21 12:31	1
11Cl-PF3OUdS	<500		500	130	ng/L		10/25/21 08:52	10/30/21 12:31	1
4:2 Fluorotelomer sulfonic acid	<500		500	130	ng/L		10/25/21 08:52	10/30/21 12:31	1
6:2 Fluorotelomer sulfonic acid	<1300		1300	500	ng/L		10/25/21 08:52	10/30/21 12:31	1
8:2 Fluorotelomer sulfonic acid	<750		750	250	ng/L		10/25/21 08:52	10/30/21 12:31	1
9Cl-PF3ONS	<500		500	130	ng/L		10/25/21 08:52	10/30/21 12:31	1
DONA	<500		500	130	ng/L		10/25/21 08:52	10/30/21 12:31	1
HFPODA	<750		750	130	ng/L		10/25/21 08:52	10/30/21 12:31	1
NEtFOSAA	<750		750	130	ng/L		10/25/21 08:52	10/30/21 12:31	1
NEtFOSA	<1300		1300	250	ng/L		10/25/21 08:52	10/30/21 12:31	1
NEtFOSE	<750		750	250	ng/L		10/25/21 08:52	10/30/21 12:31	1
NMeFOSAA	<500		500	150	ng/L		10/25/21 08:52	10/30/21 12:31	1
NMeFOSA	<750		750	250	ng/L		10/25/21 08:52	10/30/21 12:31	1
NMeFOSE	<750		750	250	ng/L		10/25/21 08:52	10/30/21 12:31	1
Perfluorobutanesulfonic acid	<500		500	130	ng/L		10/25/21 08:52	10/30/21 12:31	1
Perfluorobutanoic acid	**15000**		1300	500	ng/L		10/25/21 08:52	10/30/21 12:31	1
Perfluorodecanesulfonic acid	<500		500	130	ng/L		10/25/21 08:52	10/30/21 12:31	1
Perfluorodecanoic acid	**1100**		500	130	ng/L		10/25/21 08:52	10/30/21 12:31	1
Perfluorododecanesulfonic acid (PFDoS)	<750		750	130	ng/L		10/25/21 08:52	10/30/21 12:31	1
Perfluorododecanoic acid	**680**	I	500	130	ng/L		10/25/21 08:52	10/30/21 12:31	1
Perfluoroheptanesulfonic acid	<500		500	130	ng/L		10/25/21 08:52	10/30/21 12:31	1
Perfluoroheptanoic acid	**16000**		500	130	ng/L		10/25/21 08:52	10/30/21 12:31	1
Perfluorohexadecanoic acid	<750		750	250	ng/L		10/25/21 08:52	10/30/21 12:31	1
Perfluorohexanesulfonic acid	<500		500	130	ng/L		10/25/21 08:52	10/30/21 12:31	1
Perfluorohexanoic acid	**19000**		500	130	ng/L		10/25/21 08:52	10/30/21 12:31	1
Perfluorononanesulfonic acid	<500		500	130	ng/L		10/25/21 08:52	10/30/21 12:31	1
Perfluorononanoic acid	**2100**		500	130	ng/L		10/25/21 08:52	10/30/21 12:31	1
Perfluorooctadecanoic acid	<750		750	250	ng/L		10/25/21 08:52	10/30/21 12:31	1
Perfluorooctanesulfonamide	<500		500	130	ng/L		10/25/21 08:52	10/30/21 12:31	1
Perfluorooctanesulfonic acid	<500		500	130	ng/L		10/25/21 08:52	10/30/21 12:31	1
Perfluorooctanoic acid	**4500**		500	130	ng/L		10/25/21 08:52	10/30/21 12:31	1
Perfluoropentanesulfonic acid	<500		500	130	ng/L		10/25/21 08:52	10/30/21 12:31	1
Perfluoropentanoic acid	**40000**		500	130	ng/L		10/25/21 08:52	10/30/21 12:31	1
Perfluorotetradecanoic acid	<500		500	130	ng/L		10/25/21 08:52	10/30/21 12:31	1
Perfluorotridecanoic acid	<500		500	130	ng/L		10/25/21 08:52	10/30/21 12:31	1
Perfluoroundecanoic acid	**1100**	I	500	130	ng/L		10/25/21 08:52	10/30/21 12:31	1

Client Sample Results

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-58547-1

Client Sample ID: FT1-RINSE3-1

Date Collected: 10/08/21 09:00
Date Received: 10/09/21 10:22

Lab Sample ID: 410-58547-7

Matrix: Water

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
M2-6:2 FTS	99		55 - 167	10/25/21 08:52	10/30/21 12:31	1
M2-8:2 FTS	94		61 - 160	10/25/21 08:52	10/30/21 12:31	1
13C2-PFDoDA	94		47 - 118	10/25/21 08:52	10/30/21 12:31	1
13C2 PFTeDA	97		32 - 126	10/25/21 08:52	10/30/21 12:31	1
13C3 HFPO-DA	85		70 - 130	10/25/21 08:52	10/30/21 12:31	1
13C3 PFBS	101		18 - 177	10/25/21 08:52	10/30/21 12:31	1
13C3 PFHxS	96		55 - 115	10/25/21 08:52	10/30/21 12:31	1
13C4 PFBA	101		52 - 126	10/25/21 08:52	10/30/21 12:31	1
13C4 PFHpA	100		55 - 113	10/25/21 08:52	10/30/21 12:31	1
13C5 PFHxA	95		54 - 115	10/25/21 08:52	10/30/21 12:31	1
13C5 PFPeA	99		17 - 184	10/25/21 08:52	10/30/21 12:31	1
13C6 PFDA	98		56 - 114	10/25/21 08:52	10/30/21 12:31	1
13C7 PFUnA	97		50 - 120	10/25/21 08:52	10/30/21 12:31	1
13C8 PFOA	97		56 - 117	10/25/21 08:52	10/30/21 12:31	1
13C8 PFOS	102		56 - 112	10/25/21 08:52	10/30/21 12:31	1
13C8 FOSA	88		10 - 126	10/25/21 08:52	10/30/21 12:31	1
13C9 PFNA	105		54 - 122	10/25/21 08:52	10/30/21 12:31	1
M2-4:2 FTS				10/25/21 08:52	10/30/21 12:31	1
d3-NMeFOSAA				10/25/21 08:52	10/30/21 12:31	1
d3-NMePFOSA	69	*5+	10 - 51	10/25/21 08:52	10/30/21 12:31	1
d5-NEtFOSAA	101		65 - 134	10/25/21 08:52	10/30/21 12:31	1
d5-NEtPFOSA	67	*5+	10 - 51	10/25/21 08:52	10/30/21 12:31	1
d7-N-MeFOSE-M	87		10 - 105	10/25/21 08:52	10/30/21 12:31	1
d9-N-EtFOSE-M	91		10 - 112	10/25/21 08:52	10/30/21 12:31	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	73		40 - 173	10/25/21 08:52	10/30/21 12:31	1
13C2 PFUnA	60		49 - 132	10/25/21 08:52	10/30/21 12:31	1
13C4 PFOA	63		10 - 163	10/25/21 08:52	10/30/21 12:31	1

Method: Total PFCA-Dif - Total PFCA (Treatment Difference)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid	**15000**				ng/L			11/02/21 13:16	1
Perfluoropentanoic acid	**40000**				ng/L			11/02/21 13:16	1
Perfluorohexanoic acid	**19000**				ng/L			11/02/21 13:16	1
Perfluoroheptanoic acid	**16000**				ng/L			11/02/21 13:16	1
Perfluorooctanoic acid	**4500**				ng/L			11/02/21 13:16	1
Perfluorononanoic acid	**2100**				ng/L			11/02/21 13:16	1
Total PFCA	**97000**				ng/L			11/02/21 13:16	1

Method: Total PFCA-Sum - Total PFCA (Summary) - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total PFCA	<500		500	0.50	ng/L			11/02/21 13:10	1

Method: Total PFCA-Sum - Total PFCA (Summary) - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total PFCA	**97000**		500	0.50	ng/L			11/02/21 13:10	1

Client Sample Results

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-58547-1

Client Sample ID: FT1-RINSE3-2

Date Collected: 10/08/21 09:05
Date Received: 10/09/21 10:22

Lab Sample ID: 410-58547-8

Matrix: Water

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NEtFOSAA	<2.6		2.6	0.44	ng/L		10/15/21 17:09	10/19/21 00:30	1
NMeFOSAA	<1.8		1.8	0.53	ng/L		10/15/21 17:09	10/19/21 00:30	1
Perfluorobutanesulfonic acid	<1.8		1.8	0.44	ng/L		10/15/21 17:09	10/19/21 00:30	1
Perfluorobutanoic acid	<4.4		4.4	1.8	ng/L		10/15/21 17:09	10/19/21 00:30	1
Perfluorodecanesulfonic acid	<1.8		1.8	0.44	ng/L		10/15/21 17:09	10/19/21 00:30	1
Perfluorodecanoic acid	**38**		1.8	0.44	ng/L		10/15/21 17:09	10/19/21 00:30	1
Perfluorododecanoic acid	**6.1**		1.8	0.44	ng/L		10/15/21 17:09	10/19/21 00:30	1
Perfluoroheptanesulfonic acid	<1.8		1.8	0.44	ng/L		10/15/21 17:09	10/19/21 00:30	1
Perfluoroheptanoic acid	**5.8**		1.8	0.44	ng/L		10/15/21 17:09	10/19/21 00:30	1
Perfluorohexanesulfonic acid	<1.8		1.8	0.44	ng/L		10/15/21 17:09	10/19/21 00:30	1
Perfluorohexanoic acid	**14**		1.8	0.44	ng/L		10/15/21 17:09	10/19/21 00:30	1
Perfluorononanesulfonic acid	<1.8		1.8	0.44	ng/L		10/15/21 17:09	10/19/21 00:30	1
Perfluorononanoic acid	**16**	**I**	1.8	0.44	ng/L		10/15/21 17:09	10/19/21 00:30	1
Perfluorooctanesulfonamide	<1.8		1.8	0.44	ng/L		10/15/21 17:09	10/19/21 00:30	1
Perfluorooctanesulfonic acid	**2.2**		1.8	0.44	ng/L		10/15/21 17:09	10/19/21 00:30	1
Perfluorooctanoic acid	**67**		1.8	0.44	ng/L		10/15/21 17:09	10/19/21 00:30	1
Perfluoropentanesulfonic acid	<1.8		1.8	0.44	ng/L		10/15/21 17:09	10/19/21 00:30	1
Perfluoropentanoic acid	**1.9**		1.8	0.44	ng/L		10/15/21 17:09	10/19/21 00:30	1
Perfluorotetradecanoic acid	<1.8		1.8	0.44	ng/L		10/15/21 17:09	10/19/21 00:30	1
Perfluorotridecanoic acid	<1.8		1.8	0.44	ng/L		10/15/21 17:09	10/19/21 00:30	1
Perfluoroundecanoic acid	**1.9**		1.8	0.44	ng/L		10/15/21 17:09	10/19/21 00:30	1
4:2 Fluorotelomer sulfonic acid	<1.8		1.8	0.44	ng/L		10/15/21 17:09	10/19/21 00:30	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-4:2 FTS	*457*	**5+*	*20 - 187*	*10/15/21 17:09*	*10/19/21 00:30*	*1*
M2-6:2 FTS	*81*		*29 - 189*	*10/15/21 17:09*	*10/19/21 00:30*	*1*
M2-8:2 FTS	*96*		*34 - 182*	*10/15/21 17:09*	*10/19/21 00:30*	*1*
13C2 PFTeDA	*134*		*10 - 144*	*10/15/21 17:09*	*10/19/21 00:30*	*1*
13C3 HFPO-DA	*408*	**5+*	*20 - 153*	*10/15/21 17:09*	*10/19/21 00:30*	*1*
13C3 PFBS	*124*		*19 - 178*	*10/15/21 17:09*	*10/19/21 00:30*	*1*
13C4 PFBA	*106*		*41 - 132*	*10/15/21 17:09*	*10/19/21 00:30*	*1*
13C4 PFHpA	*452*	**5+*	*30 - 144*	*10/15/21 17:09*	*10/19/21 00:30*	*1*
13C5 PFPeA	*114*		*33 - 155*	*10/15/21 17:09*	*10/19/21 00:30*	*1*
13C8 PFOA	*90*		*49 - 127*	*10/15/21 17:09*	*10/19/21 00:30*	*1*
13C8 PFOS	*96*		*49 - 126*	*10/15/21 17:09*	*10/19/21 00:30*	*1*
d3-NMeFOSAA	*242*	**5+*	*32 - 151*	*10/15/21 17:09*	*10/19/21 00:30*	*1*
d5-NEtFOSAA	*335*	**5+*	*37 - 164*	*10/15/21 17:09*	*10/19/21 00:30*	*1*
d9-N-EtFOSE-M	*200*	**5+*	*10 - 142*	*10/15/21 17:09*	*10/19/21 00:30*	*1*
13C3 PFHxS	*499*	**5+*	*32 - 145*	*10/15/21 17:09*	*10/19/21 00:30*	*1*
13C5 PFHxA	*457*	**5+*	*31 - 142*	*10/15/21 17:09*	*10/19/21 00:30*	*1*
13C6 PFDA	*94*		*47 - 128*	*10/15/21 17:09*	*10/19/21 00:30*	*1*
13C7 PFUnA	*232*	**5+*	*40 - 135*	*10/15/21 17:09*	*10/19/21 00:30*	*1*
d3-NMePFOSA	*281*	**5+*	*10 - 107*	*10/15/21 17:09*	*10/19/21 00:30*	*1*
d5-NEtPFOSA	*283*	**5+*	*10 - 108*	*10/15/21 17:09*	*10/19/21 00:30*	*1*
13C8 FOSA	*260*	**5+*	*10 - 143*	*10/15/21 17:09*	*10/19/21 00:30*	*1*
13C2-PFDoDA	*144*	**5+*	*28 - 136*	*10/15/21 17:09*	*10/19/21 00:30*	*1*
13C9 PFNA	*102*		*47 - 136*	*10/15/21 17:09*	*10/19/21 00:30*	*1*

Client Sample Results

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-58547-1

Client Sample ID: FT1-RINSE3-2

Date Collected: 10/08/21 09:05
Date Received: 10/09/21 10:22

Lab Sample ID: 410-58547-8

Matrix: Water

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
8:2 Fluorotelomer sulfonic acid	**1000**		26	8.8	ng/L		10/15/21 17:09	10/21/21 20:31	10

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-8:2 FTS	*100*		*34 - 182*	*10/15/21 17:09*	*10/21/21 20:31*	*10*

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment - DL2

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
6:2 Fluorotelomer sulfonic acid	**1100**		440	180	ng/L		10/15/21 17:09	10/21/21 20:42	100

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-6:2 FTS	*152*		*29 - 189*	*10/15/21 17:09*	*10/21/21 20:42*	*100*

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
10:2 Fluorotelomer sulfonic acid	<1300		1300	250	ng/L		10/25/21 08:52	10/30/21 12:41	1
11Cl-PF3OUdS	<500		500	130	ng/L		10/25/21 08:52	10/30/21 12:41	1
4:2 Fluorotelomer sulfonic acid	<500		500	130	ng/L		10/25/21 08:52	10/30/21 12:41	1
6:2 Fluorotelomer sulfonic acid	<1300		1300	500	ng/L		10/25/21 08:52	10/30/21 12:41	1
8:2 Fluorotelomer sulfonic acid	<750		750	250	ng/L		10/25/21 08:52	10/30/21 12:41	1
9Cl-PF3ONS	<500		500	130	ng/L		10/25/21 08:52	10/30/21 12:41	1
DONA	<500		500	130	ng/L		10/25/21 08:52	10/30/21 12:41	1
HFPODA	<750		750	130	ng/L		10/25/21 08:52	10/30/21 12:41	1
NEtFOSAA	<750		750	130	ng/L		10/25/21 08:52	10/30/21 12:41	1
NEtFOSA	<1300		1300	250	ng/L		10/25/21 08:52	10/30/21 12:41	1
NEtFOSE	<750		750	250	ng/L		10/25/21 08:52	10/30/21 12:41	1
NMeFOSAA	<500		500	150	ng/L		10/25/21 08:52	10/30/21 12:41	1
NMeFOSA	<750		750	250	ng/L		10/25/21 08:52	10/30/21 12:41	1
NMeFOSE	<750		750	250	ng/L		10/25/21 08:52	10/30/21 12:41	1
Perfluorobutanesulfonic acid	<500		500	130	ng/L		10/25/21 08:52	10/30/21 12:41	1
Perfluorobutanoic acid	**15000**		1300	500	ng/L		10/25/21 08:52	10/30/21 12:41	1
Perfluorodecanesulfonic acid	<500		500	130	ng/L		10/25/21 08:52	10/30/21 12:41	1
Perfluorodecanoic acid	**640**		500	130	ng/L		10/25/21 08:52	10/30/21 12:41	1
Perfluorododecanesulfonic acid (PFDoS)	<750		750	130	ng/L		10/25/21 08:52	10/30/21 12:41	1
Perfluorododecanoic acid	**550**	**I**	500	130	ng/L		10/25/21 08:52	10/30/21 12:41	1
Perfluoroheptanesulfonic acid	<500		500	130	ng/L		10/25/21 08:52	10/30/21 12:41	1
Perfluoroheptanoic acid	**8900**		500	130	ng/L		10/25/21 08:52	10/30/21 12:41	1
Perfluorohexadecanoic acid	<750		750	250	ng/L		10/25/21 08:52	10/30/21 12:41	1
Perfluorohexanesulfonic acid	<500		500	130	ng/L		10/25/21 08:52	10/30/21 12:41	1
Perfluorohexanoic acid	**15000**		500	130	ng/L		10/25/21 08:52	10/30/21 12:41	1
Perfluorononanesulfonic acid	<500		500	130	ng/L		10/25/21 08:52	10/30/21 12:41	1
Perfluorononanoic acid	**1300**		500	130	ng/L		10/25/21 08:52	10/30/21 12:41	1
Perfluorooctadecanoic acid	<750		750	250	ng/L		10/25/21 08:52	10/30/21 12:41	1
Perfluorooctanesulfonamide	<500		500	130	ng/L		10/25/21 08:52	10/30/21 12:41	1
Perfluorooctanesulfonic acid	<500		500	130	ng/L		10/25/21 08:52	10/30/21 12:41	1
Perfluorooctanoic acid	**2200**		500	130	ng/L		10/25/21 08:52	10/30/21 12:41	1
Perfluoropentanesulfonic acid	<500		500	130	ng/L		10/25/21 08:52	10/30/21 12:41	1
Perfluoropentanoic acid	**38000**		500	130	ng/L		10/25/21 08:52	10/30/21 12:41	1
Perfluorotetradecanoic acid	<500		500	130	ng/L		10/25/21 08:52	10/30/21 12:41	1
Perfluorotridecanoic acid	<500		500	130	ng/L		10/25/21 08:52	10/30/21 12:41	1
Perfluoroundecanoic acid	**760**		500	130	ng/L		10/25/21 08:52	10/30/21 12:41	1

Client Sample Results

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-58547-1

Client Sample ID: FT1-RINSE3-2

Date Collected: 10/08/21 09:05
Date Received: 10/09/21 10:22

Lab Sample ID: 410-58547-8

Matrix: Water

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
M2-6:2 FTS	99		55 - 167	10/25/21 08:52	10/30/21 12:41	1
M2-8:2 FTS	114		61 - 160	10/25/21 08:52	10/30/21 12:41	1
13C2-PFDoDA	108		47 - 118	10/25/21 08:52	10/30/21 12:41	1
13C2 PFTeDA	114		32 - 126	10/25/21 08:52	10/30/21 12:41	1
13C3 HFPO-DA	97		70 - 130	10/25/21 08:52	10/30/21 12:41	1
13C3 PFBS	109		18 - 177	10/25/21 08:52	10/30/21 12:41	1
13C3 PFHxS	98		55 - 115	10/25/21 08:52	10/30/21 12:41	1
13C4 PFBA	108		52 - 126	10/25/21 08:52	10/30/21 12:41	1
13C4 PFHpA	112		55 - 113	10/25/21 08:52	10/30/21 12:41	1
13C5 PFHxA	98		54 - 115	10/25/21 08:52	10/30/21 12:41	1
13C5 PFPeA	105		17 - 184	10/25/21 08:52	10/30/21 12:41	1
13C6 PFDA	118	*5+	56 - 114	10/25/21 08:52	10/30/21 12:41	1
13C7 PFUnA	115		50 - 120	10/25/21 08:52	10/30/21 12:41	1
13C8 PFOA	105		56 - 117	10/25/21 08:52	10/30/21 12:41	1
13C8 PFOS	117	*5+	56 - 112	10/25/21 08:52	10/30/21 12:41	1
13C8 FOSA	100		10 - 126	10/25/21 08:52	10/30/21 12:41	1
13C9 PFNA	119		54 - 122	10/25/21 08:52	10/30/21 12:41	1
M2-4:2 FTS				10/25/21 08:52	10/30/21 12:41	1
d3-NMeFOSAA				10/25/21 08:52	10/30/21 12:41	1
d3-NMePFOSA	75	*5+	10 - 51	10/25/21 08:52	10/30/21 12:41	1
d5-NEtFOSAA	124		65 - 134	10/25/21 08:52	10/30/21 12:41	1
d5-NEtPFOSA	78	*5+	10 - 51	10/25/21 08:52	10/30/21 12:41	1
d7-N-MeFOSE-M	103		10 - 105	10/25/21 08:52	10/30/21 12:41	1
d9-N-EtFOSE-M	109		10 - 112	10/25/21 08:52	10/30/21 12:41	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	77		40 - 173	10/25/21 08:52	10/30/21 12:41	1
13C2 PFUnA	61		49 - 132	10/25/21 08:52	10/30/21 12:41	1
13C4 PFOA	69		10 - 163	10/25/21 08:52	10/30/21 12:41	1

Method: Total PFCA-Dif - Total PFCA (Treatment Difference)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid	**15000**				ng/L			11/02/21 13:16	1
Perfluoropentanoic acid	**38000**				ng/L			11/02/21 13:16	1
Perfluorohexanoic acid	**15000**				ng/L			11/02/21 13:16	1
Perfluoroheptanoic acid	**8900**				ng/L			11/02/21 13:16	1
Perfluorooctanoic acid	**2200**				ng/L			11/02/21 13:16	1
Perfluorononanoic acid	**1300**				ng/L			11/02/21 13:16	1
Total PFCA	**80000**				ng/L			11/02/21 13:16	1

Method: Total PFCA-Sum - Total PFCA (Summary) - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total PFCA	<500		500	0.50	ng/L			11/02/21 13:10	1

Method: Total PFCA-Sum - Total PFCA (Summary) - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total PFCA	**80000**		500	0.50	ng/L			11/02/21 13:10	1

Client Sample Results

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-58547-1

Client Sample ID: FB-FT1

Date Collected: 10/08/21 11:33
Date Received: 10/09/21 10:22

Lab Sample ID: 410-58547-9

Matrix: Water

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NEtFOSAA	<2.7		2.7	0.45	ng/L		10/15/21 17:09	10/19/21 00:53	1
NMeFOSAA	<1.8		1.8	0.54	ng/L		10/15/21 17:09	10/19/21 00:53	1
Perfluorobutanesulfonic acid	<1.8		1.8	0.45	ng/L		10/15/21 17:09	10/19/21 00:53	1
Perfluorobutanoic acid	<4.5		4.5	1.8	ng/L		10/15/21 17:09	10/19/21 00:53	1
Perfluorodecanesulfonic acid	<1.8		1.8	0.45	ng/L		10/15/21 17:09	10/19/21 00:53	1
Perfluorodecanoic acid	<1.8		1.8	0.45	ng/L		10/15/21 17:09	10/19/21 00:53	1
Perfluorododecanoic acid	<1.8		1.8	0.45	ng/L		10/15/21 17:09	10/19/21 00:53	1
Perfluoroheptanesulfonic acid	<1.8		1.8	0.45	ng/L		10/15/21 17:09	10/19/21 00:53	1
Perfluoroheptanoic acid	<1.8		1.8	0.45	ng/L		10/15/21 17:09	10/19/21 00:53	1
Perfluorohexanesulfonic acid	<1.8		1.8	0.45	ng/L		10/15/21 17:09	10/19/21 00:53	1
Perfluorohexanoic acid	<1.8		1.8	0.45	ng/L		10/15/21 17:09	10/19/21 00:53	1
Perfluorononanesulfonic acid	<1.8		1.8	0.45	ng/L		10/15/21 17:09	10/19/21 00:53	1
Perfluorononanoic acid	<1.8		1.8	0.45	ng/L		10/15/21 17:09	10/19/21 00:53	1
Perfluorooctanesulfonamide	<1.8		1.8	0.45	ng/L		10/15/21 17:09	10/19/21 00:53	1
Perfluorooctanesulfonic acid	<1.8		1.8	0.45	ng/L		10/15/21 17:09	10/19/21 00:53	1
Perfluorooctanoic acid	<1.8		1.8	0.45	ng/L		10/15/21 17:09	10/19/21 00:53	1
Perfluoropentanesulfonic acid	<1.8		1.8	0.45	ng/L		10/15/21 17:09	10/19/21 00:53	1
Perfluoropentanoic acid	<1.8		1.8	0.45	ng/L		10/15/21 17:09	10/19/21 00:53	1
Perfluorotetradecanoic acid	<1.8		1.8	0.45	ng/L		10/15/21 17:09	10/19/21 00:53	1
Perfluorotridecanoic acid	<1.8		1.8	0.45	ng/L		10/15/21 17:09	10/19/21 00:53	1
Perfluoroundecanoic acid	<1.8		1.8	0.45	ng/L		10/15/21 17:09	10/19/21 00:53	1
6:2 Fluorotelomer sulfonic acid	<4.5		4.5	1.8	ng/L		10/15/21 17:09	10/19/21 00:53	1
8:2 Fluorotelomer sulfonic acid	<2.7		2.7	0.91	ng/L		10/15/21 17:09	10/19/21 00:53	1
4:2 Fluorotelomer sulfonic acid	<1.8		1.8	0.45	ng/L		10/15/21 17:09	10/19/21 00:53	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-4:2 FTS	*136*		*20 - 187*	*10/15/21 17:09*	*10/19/21 00:53*	*1*
M2-6:2 FTS	*120*		*29 - 189*	*10/15/21 17:09*	*10/19/21 00:53*	*1*
M2-8:2 FTS	*127*		*34 - 182*	*10/15/21 17:09*	*10/19/21 00:53*	*1*
13C2 PFTeDA	*102*		*10 - 144*	*10/15/21 17:09*	*10/19/21 00:53*	*1*
13C3 HFPO-DA	*122*		*20 - 153*	*10/15/21 17:09*	*10/19/21 00:53*	*1*
13C3 PFBS	*121*		*19 - 178*	*10/15/21 17:09*	*10/19/21 00:53*	*1*
13C4 PFBA	*122*		*41 - 132*	*10/15/21 17:09*	*10/19/21 00:53*	*1*
13C4 PFHpA	*119*		*30 - 144*	*10/15/21 17:09*	*10/19/21 00:53*	*1*
13C5 PFPeA	*119*		*33 - 155*	*10/15/21 17:09*	*10/19/21 00:53*	*1*
13C8 PFOA	*121*		*49 - 127*	*10/15/21 17:09*	*10/19/21 00:53*	*1*
13C8 PFOS	*120*		*49 - 126*	*10/15/21 17:09*	*10/19/21 00:53*	*1*
d3-NMeFOSAA	*158*	**5+*	*32 - 151*	*10/15/21 17:09*	*10/19/21 00:53*	*1*
d5-NEtFOSAA	*162*		*37 - 164*	*10/15/21 17:09*	*10/19/21 00:53*	*1*
d9-N-EtFOSE-M	*108*		*10 - 142*	*10/15/21 17:09*	*10/19/21 00:53*	*1*
13C3 PFHxS	*131*		*32 - 145*	*10/15/21 17:09*	*10/19/21 00:53*	*1*
13C5 PFHxA	*119*		*31 - 142*	*10/15/21 17:09*	*10/19/21 00:53*	*1*
13C6 PFDA	*113*		*47 - 128*	*10/15/21 17:09*	*10/19/21 00:53*	*1*
13C7 PFUnA	*122*		*40 - 135*	*10/15/21 17:09*	*10/19/21 00:53*	*1*
d3-NMePFOSA	*107*		*10 - 107*	*10/15/21 17:09*	*10/19/21 00:53*	*1*
d5-NEtPFOSA	*102*		*10 - 108*	*10/15/21 17:09*	*10/19/21 00:53*	*1*
13C8 FOSA	*111*		*10 - 143*	*10/15/21 17:09*	*10/19/21 00:53*	*1*
13C2-PFDoDA	*112*		*28 - 136*	*10/15/21 17:09*	*10/19/21 00:53*	*1*
13C9 PFNA	*112*		*47 - 136*	*10/15/21 17:09*	*10/19/21 00:53*	*1*

Client Sample Results

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-58547-1

Client Sample ID: FB-FT1

Date Collected: 10/08/21 11:33
Date Received: 10/09/21 10:22

Lab Sample ID: 410-58547-9

Matrix: Water

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
10:2 Fluorotelomer sulfonic acid	<25		25	5.0	ng/L		10/25/21 08:52	10/30/21 13:02	1
11Cl-PF3OUdS	<10		10	2.5	ng/L		10/25/21 08:52	10/30/21 13:02	1
4:2 Fluorotelomer sulfonic acid	<10		10	2.5	ng/L		10/25/21 08:52	10/30/21 13:02	1
6:2 Fluorotelomer sulfonic acid	<25		25	10	ng/L		10/25/21 08:52	10/30/21 13:02	1
8:2 Fluorotelomer sulfonic acid	<15		15	5.0	ng/L		10/25/21 08:52	10/30/21 13:02	1
9Cl-PF3ONS	<10		10	2.5	ng/L		10/25/21 08:52	10/30/21 13:02	1
DONA	<10		10	2.5	ng/L		10/25/21 08:52	10/30/21 13:02	1
HFPODA	<15		15	2.5	ng/L		10/25/21 08:52	10/30/21 13:02	1
NEtFOSAA	<15		15	2.5	ng/L		10/25/21 08:52	10/30/21 13:02	1
NEtFOSA	<25		25	5.0	ng/L		10/25/21 08:52	10/30/21 13:02	1
NEtFOSE	<15		15	5.0	ng/L		10/25/21 08:52	10/30/21 13:02	1
NMeFOSAA	<10		10	3.0	ng/L		10/25/21 08:52	10/30/21 13:02	1
NMeFOSA	<15		15	5.0	ng/L		10/25/21 08:52	10/30/21 13:02	1
NMeFOSE	<15		15	5.0	ng/L		10/25/21 08:52	10/30/21 13:02	1
Perfluorobutanesulfonic acid	<10		10	2.5	ng/L		10/25/21 08:52	10/30/21 13:02	1
Perfluorobutanoic acid	<25		25	10	ng/L		10/25/21 08:52	10/30/21 13:02	1
Perfluorodecanesulfonic acid	<10		10	2.5	ng/L		10/25/21 08:52	10/30/21 13:02	1
Perfluorodecanoic acid	<10		10	2.5	ng/L		10/25/21 08:52	10/30/21 13:02	1
Perfluorododecanesulfonic acid (PFDoS)	<15		15	2.5	ng/L		10/25/21 08:52	10/30/21 13:02	1
Perfluorododecanoic acid	<10		10	2.5	ng/L		10/25/21 08:52	10/30/21 13:02	1
Perfluoroheptanesulfonic acid	<10		10	2.5	ng/L		10/25/21 08:52	10/30/21 13:02	1
Perfluoroheptanoic acid	<10		10	2.5	ng/L		10/25/21 08:52	10/30/21 13:02	1
Perfluorohexadecanoic acid	<15		15	5.0	ng/L		10/25/21 08:52	10/30/21 13:02	1
Perfluorohexanesulfonic acid	<10		10	2.5	ng/L		10/25/21 08:52	10/30/21 13:02	1
Perfluorohexanoic acid	<10		10	2.5	ng/L		10/25/21 08:52	10/30/21 13:02	1
Perfluorononanesulfonic acid	<10		10	2.5	ng/L		10/25/21 08:52	10/30/21 13:02	1
Perfluorononanoic acid	<10		10	2.5	ng/L		10/25/21 08:52	10/30/21 13:02	1
Perfluorooctadecanoic acid	<15		15	5.0	ng/L		10/25/21 08:52	10/30/21 13:02	1
Perfluorooctanesulfonamide	<10		10	2.5	ng/L		10/25/21 08:52	10/30/21 13:02	1
Perfluorooctanesulfonic acid	<10		10	2.5	ng/L		10/25/21 08:52	10/30/21 13:02	1
Perfluorooctanoic acid	<10		10	2.5	ng/L		10/25/21 08:52	10/30/21 13:02	1
Perfluoropentanesulfonic acid	<10		10	2.5	ng/L		10/25/21 08:52	10/30/21 13:02	1
Perfluoropentanoic acid	<10		10	2.5	ng/L		10/25/21 08:52	10/30/21 13:02	1
Perfluorotetradecanoic acid	<10		10	2.5	ng/L		10/25/21 08:52	10/30/21 13:02	1
Perfluorotridecanoic acid	<10		10	2.5	ng/L		10/25/21 08:52	10/30/21 13:02	1
Perfluoroundecanoic acid	<10		10	2.5	ng/L		10/25/21 08:52	10/30/21 13:02	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-6:2 FTS	*128*		*55 - 167*	*10/25/21 08:52*	*10/30/21 13:02*	*1*
M2-8:2 FTS	*126*		*61 - 160*	*10/25/21 08:52*	*10/30/21 13:02*	*1*
13C2-PFDoDA	*120*	**5+*	*47 - 118*	*10/25/21 08:52*	*10/30/21 13:02*	*1*
13C2 PFTeDA	*121*		*32 - 126*	*10/25/21 08:52*	*10/30/21 13:02*	*1*
13C3 HFPO-DA	*122*		*70 - 130*	*10/25/21 08:52*	*10/30/21 13:02*	*1*
13C3 PFBS	*123*		*18 - 177*	*10/25/21 08:52*	*10/30/21 13:02*	*1*
13C3 PFHxS	*118*	**5+*	*55 - 115*	*10/25/21 08:52*	*10/30/21 13:02*	*1*
13C4 PFBA	*129*	**5+*	*52 - 126*	*10/25/21 08:52*	*10/30/21 13:02*	*1*
13C4 PFHpA	*124*	**5+*	*55 - 113*	*10/25/21 08:52*	*10/30/21 13:02*	*1*
13C5 PFHxA	*121*	**5+*	*54 - 115*	*10/25/21 08:52*	*10/30/21 13:02*	*1*
13C5 PFPeA	*136*		*17 - 184*	*10/25/21 08:52*	*10/30/21 13:02*	*1*

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-58547-1

Client Sample ID: FB-FT1

Date Collected: 10/08/21 11:33
Date Received: 10/09/21 10:22

Lab Sample ID: 410-58547-9

Matrix: Water

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment (Continued)

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C6 PFDA	*120*	**5+*	*56 - 114*	*10/25/21 08:52*	*10/30/21 13:02*	*1*
13C7 PFUnA	*115*		*50 - 120*	*10/25/21 08:52*	*10/30/21 13:02*	*1*
13C8 PFOA	*118*	**5+*	*56 - 117*	*10/25/21 08:52*	*10/30/21 13:02*	*1*
13C8 PFOS	*134*	**5+*	*56 - 112*	*10/25/21 08:52*	*10/30/21 13:02*	*1*
13C8 FOSA	*108*		*10 - 126*	*10/25/21 08:52*	*10/30/21 13:02*	*1*
13C9 PFNA	*149*	**5+*	*54 - 122*	*10/25/21 08:52*	*10/30/21 13:02*	*1*
M2-4:2 FTS				*10/25/21 08:52*	*10/30/21 13:02*	*1*
d3-NMeFOSAA				*10/25/21 08:52*	*10/30/21 13:02*	*1*
d3-NMePFOSA	*78*	**5+*	*10 - 51*	*10/25/21 08:52*	*10/30/21 13:02*	*1*
d5-NEtFOSAA	*115*		*65 - 134*	*10/25/21 08:52*	*10/30/21 13:02*	*1*
d5-NEtPFOSA	*82*	**5+*	*10 - 51*	*10/25/21 08:52*	*10/30/21 13:02*	*1*
d7-N-MeFOSE-M	*118*	**5+*	*10 - 105*	*10/25/21 08:52*	*10/30/21 13:02*	*1*
d9-N-EtFOSE-M	*111*		*10 - 112*	*10/25/21 08:52*	*10/30/21 13:02*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*101*		*40 - 173*	*10/25/21 08:52*	*10/30/21 13:02*	*1*
13C2 PFUnA	*83*		*49 - 132*	*10/25/21 08:52*	*10/30/21 13:02*	*1*
13C4 PFOA	*88*		*10 - 163*	*10/25/21 08:52*	*10/30/21 13:02*	*1*

Method: Total PFCA-Dif - Total PFCA (Treatment Difference)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid	**0.00**				ng/L			11/02/21 13:16	1
Perfluoropentanoic acid	**0.00**				ng/L			11/02/21 13:16	1
Perfluorohexanoic acid	**0.00**				ng/L			11/02/21 13:16	1
Perfluoroheptanoic acid	**0.00**				ng/L			11/02/21 13:16	1
Perfluorooctanoic acid	**0.00**				ng/L			11/02/21 13:16	1
Perfluorononanoic acid	**0.00**				ng/L			11/02/21 13:16	1
Total PFCA	**0.00**				ng/L			11/02/21 13:16	1

Method: Total PFCA-Sum - Total PFCA (Summary) - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total PFCA	<500		500	0.50	ng/L			11/02/21 13:10	1

Method: Total PFCA-Sum - Total PFCA (Summary) - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total PFCA	<500		500	0.50	ng/L			11/02/21 13:10	1

Surrogate Summary

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-58547-1

Method: 537 TOP - Fluorinated Alkyl Substances

Matrix: Water **Prep Type: Post-Treatment**

		Percent Surrogate Recovery (Acceptance Limits)		
		PFHxA	PFUnA	PFOA
Lab Sample ID	Client Sample ID	(40-173)	(49-132)	(10-163)
410-58547-1	FT1-RINSE1-1	108	81	85
410-58547-1 - DL	FT1-RINSE1-1	126	85	112
410-58547-2 - DL	FT1-RINSE-PIPE	80	64	76
410-58547-2	FT1-RINSE-PIPE	86	64	74
410-58547-3	FT1-EFFLUENT1-1	91	72	76
410-58547-4	FT1-RINSE2-1	78	65	76
410-58547-5	FT1-RINSE-PIPE 2	84	63	73
410-58547-6	FT1-EFFLUENT2-1	74	48 S1-	64
410-58547-6 - DL	FT1-EFFLUENT2-1	81	69	74
410-58547-7	FT1-RINSE3-1	73	60	63
410-58547-8	FT1-RINSE3-2	77	61	69
410-58547-9	FB-FT1	101	83	88
LCS 410-186604/3-A	Lab Control Sample	83	73	84
LCSD 410-186604/4-A	Lab Control Sample Dup	81	76	74
MB 410-186604/2-A	Method Blank	99	102	99

Surrogate Legend

PFHxA = 13C2 PFHxA
PFUnA = 13C2 PFUnA
PFOA = 13C4 PFOA

Method: 537 TOP - Fluorinated Alkyl Substances

Matrix: Water **Prep Type: Post-Treatment**

		Percent Surrogate Recovery (Acceptance Limits)		
		PFHxA	PFUnA	PFOA
Lab Sample ID	Client Sample ID			
MB 410-186604/1-A	Method Blank			

Surrogate Legend

PFHxA = 13C2 PFHxA
PFUnA = 13C2 PFUnA
PFOA = 13C4 PFOA

Isotope Dilution Summary

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-58547-1

Method: 537 IDA - EPA 537 Isotope Dilution

Matrix: Water **Prep Type: Pre-Treatment**

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	M242FTS (20-187)	M262FTS (29-189)	M282FTS (34-182)	PFTDA (10-144)	HFPODA (20-153)	C3PFBS (19-178)	PFBA (41-132)	C4PFHA (30-144)
410-58547-1 - RE	FT1-RINSE1-1		487 *5+						
410-58547-1	FT1-RINSE1-1	0 *5-	581 *5+	440 *5+	14	0 *5-	3 *5-	53	32
410-58547-2	FT1-RINSE-PIPE	213 *5+	87	86	134	143	120	113	134
410-58547-2 - DL	FT1-RINSE-PIPE			83					
410-58547-2 - DL2	FT1-RINSE-PIPE		130						
410-58547-3	FT1-EFFLUENT1-1	144	131	133	118	106	125	119	126
410-58547-4	FT1-RINSE2-1	728 *5+	748 *5+	106	40	600 *5+	120	90	550 *5+
410-58547-4 - DL	FT1-RINSE2-1		389 *5+	130					
410-58547-5	FT1-RINSE-PIPE 2	128	117	127	83	98	135	111	119
410-58547-5 - DL	FT1-RINSE-PIPE 2		119						
410-58547-6	FT1-EFFLUENT2-1	220 *5+	76	55	39	170 *5+	114	112	181 *5+
410-58547-6 - DL	FT1-EFFLUENT2-1		120	72					
410-58547-6 MS	FT1-EFFLUENT2-1	210 *5+	71	47	5 *5-	174 *5+	118	115	191 *5+
410-58547-6 MSD	FT1-EFFLUENT2-1	205 *5+	79	49	28	164 *5+	116	118	184 *5+
410-58547-7	FT1-RINSE3-1	482 *5+	87	89	182 *5+	398 *5+	132	113	472 *5+
410-58547-7 - DL	FT1-RINSE3-1			128					
410-58547-7 - DL2	FT1-RINSE3-1		150						
410-58547-8	FT1-RINSE3-2	457 *5+	81	96	134	408 *5+	124	106	452 *5+
410-58547-8 - DL	FT1-RINSE3-2			100					
410-58547-8 - DL2	FT1-RINSE3-2		152						
410-58547-9	FB-FT1	136	120	127	102	122	121	122	119
LCS 410-183493/2-A	Lab Control Sample	141	123	120	110	112	119	115	116
MB 410-183493/1-A	Method Blank	135	113	125	104	83	108	106	111

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFPeA (33-155)	C8PFOA (49-127)	C8PFOS (49-126)	d3NMFOS (32-151)	d5NEFOS (37-164)	NEFM (10-142)	C3PFHS (32-145)	13C5PHA (31-142)
410-58547-1 - RE	FT1-RINSE1-1								
410-58547-1	FT1-RINSE1-1	0 *5-	15 *5-	20 *5-	25 *5-	0 *5-	0 *5-	80	15 *5-
410-58547-2	FT1-RINSE-PIPE	110	93	79	118	165 *5+	133	155 *5+	173 *5+
410-58547-2 - DL	FT1-RINSE-PIPE								
410-58547-2 - DL2	FT1-RINSE-PIPE								
410-58547-3	FT1-EFFLUENT1-1	120	123	121	145	156	103	141	122
410-58547-4	FT1-RINSE2-1	106	89	26 *5-	35	54	47	630 *5+	613 *5+
410-58547-4 - DL	FT1-RINSE2-1								
410-58547-5	FT1-RINSE-PIPE 2	122	101	86	105	111	71	115	119
410-58547-5 - DL	FT1-RINSE-PIPE 2								
410-58547-6	FT1-EFFLUENT2-1	104	109	26 *5-	118	120	56	154 *5+	193 *5+
410-58547-6 - DL	FT1-EFFLUENT2-1								
410-58547-6 MS	FT1-EFFLUENT2-1	109	107	26 *5-	90	95	38	164 *5+	184 *5+
410-58547-6 MSD	FT1-EFFLUENT2-1	114	103	27 *5-	89	97	42	152 *5+	184 *5+
410-58547-7	FT1-RINSE3-1	113	96	100	247 *5+	319 *5+	219 *5+	518 *5+	460 *5+
410-58547-7 - DL	FT1-RINSE3-1								
410-58547-7 - DL2	FT1-RINSE3-1								
410-58547-8	FT1-RINSE3-2	114	90	96	242 *5+	335 *5+	200 *5+	499 *5+	457 *5+
410-58547-8 - DL	FT1-RINSE3-2								
410-58547-8 - DL2	FT1-RINSE3-2								
410-58547-9	FB-FT1	119	121	120	158 *5+	162	108	131	119
LCS 410-183493/2-A	Lab Control Sample	111	127	122	152 *5+	153	102	136	118
MB 410-183493/1-A	Method Blank	105	112	114	144	142	94	123	109

Isotope Dilution Summary

Client: AECOM
Job ID: 410-58547-1
Project/Site: AFFF Tanks Cleaning

Method: 537 IDA - EPA 537 Isotope Dilution (Continued)

Matrix: Water **Prep Type: Pre-Treatment**

		Percent Isotope Dilution Recovery (Acceptance Limits)						
Lab Sample ID	Client Sample ID	C6PFDA (47-128)	13C7PUA (40-135)	d3NMFSA (10-107)	d5NPFSA (10-108)	PFOSA (10-143)	PFDoDA (28-136)	C9PFNA (47-136)
410-58547-1 - RE	FT1-RINSE1-1							
410-58547-1	FT1-RINSE1-1	17 *5-	26 *5-	0 *5-	0 *5-	15	21 *5-	16 *5-
410-58547-2	FT1-RINSE-PIPE	77	110	61	59	99	115	102
410-58547-2 - DL	FT1-RINSE-PIPE							
410-58547-2 - DL2	FT1-RINSE-PIPE							
410-58547-3	FT1-EFFLUENT1-1	113	120	113 *5+	103	124	111	110
410-58547-4	FT1-RINSE2-1	27 *5-	38 *5-	63	54	52	35	69
410-58547-4 - DL	FT1-RINSE2-1							
410-58547-5	FT1-RINSE-PIPE 2	88	84	57	53	87	83	112
410-58547-5 - DL	FT1-RINSE-PIPE 2							
410-58547-6	FT1-EFFLUENT2-1	46 *5-	62	113 *5+	107	118	43	83
410-58547-6 - DL	FT1-EFFLUENT2-1							
410-58547-6 MS	FT1-EFFLUENT2-1	50	46	95	88	100	28	85
410-58547-6 MSD	FT1-EFFLUENT2-1	50	50	95	85	98	31	83
410-58547-7	FT1-RINSE3-1	96	226 *5+	274 *5+	245 *5+	238 *5+	172 *5+	104
410-58547-7 - DL	FT1-RINSE3-1							
410-58547-7 - DL2	FT1-RINSE3-1							
410-58547-8	FT1-RINSE3-2	94	232 *5+	281 *5+	283 *5+	260 *5+	144 *5+	102
410-58547-8 - DL	FT1-RINSE3-2							
410-58547-8 - DL2	FT1-RINSE3-2							
410-58547-9	FB-FT1	113	122	107	102	111	112	112
LCS 410-183493/2-A	Lab Control Sample	123	113	95	94	111	107	116
MB 410-183493/1-A	Method Blank	108	112	84	87	110	103	108

Surrogate Legend

M242FTS = M2-4:2 FTS
M262FTS = M2-6:2 FTS
M282FTS = M2-8:2 FTS
PFTDA = 13C2 PFTeDA
HFPODA = 13C3 HFPO-DA
C3PFBS = 13C3 PFBS
PFBA = 13C4 PFBA
C4PFHA = 13C4 PFHpA
PFPeA = 13C5 PFPeA
C8PFOA = 13C8 PFOA
C8PFOS = 13C8 PFOS
d3NMFOS = d3-NMeFOSAA
d5NEFOS = d5-NEtFOSAA
NEFM = d9-N-EtFOSE-M
C3PFHS = 13C3 PFHxS
13C5PHA = 13C5 PFHxA
C6PFDA = 13C6 PFDA
13C7PUA = 13C7 PFUnA
d3NMFSA = d3-NMePFOSA
d5NPFSA = d5-NEtPFOSA
PFOSA = 13C8 FOSA
PFDoDA = 13C2-PFDoDA
C9PFNA = 13C9 PFNA

Isotope Dilution Summary

Client: AECOM
Job ID: 410-58547-1
Project/Site: AFFF Tanks Cleaning

Method: 537 TOP - Fluorinated Alkyl Substances

Matrix: Water **Prep Type: Post-Treatment**

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	M262FTS (55-167)	M282FTS (61-160)	PFDoDA (47-118)	PFTDA (32-126)	HFPODA (70-130)	C3PFBS (18-177)	C3PFHS (55-115)	PFBA (52-126)
410-58547-1	FT1-RINSE1-1	111	117	134 *5+	138 *5+	150 *5+	173	96	121
410-58547-1 - DL	FT1-RINSE1-1	120	146	159 *5+	142 *5+	174 *5+	134	132 *5+	169 *5+
410-58547-2 - DL	FT1-RINSE-PIPE								111
410-58547-2	FT1-RINSE-PIPE	101	106	111	114	113	137	102	115
410-58547-3	FT1-EFFLUENT1-1	116	120	116	107	106	111	125 *5+	114
410-58547-4	FT1-RINSE2-1	114	116	118	113	105	107	113	100
410-58547-5	FT1-RINSE-PIPE 2	98	101	102	109	92	102	102	91
410-58547-6	FT1-EFFLUENT2-1	62	52 *5-	63	78	109	143	69	103
410-58547-6 - DL	FT1-EFFLUENT2-1			103	116				109
410-58547-7	FT1-RINSE3-1	99	94	94	97	85	101	96	101
410-58547-8	FT1-RINSE3-2	99	114	108	114	97	109	98	108
410-58547-9	FB-FT1	128	126	120 *5+	121	122	123	118 *5+	129 *5+
LCS 410-186604/3-A	Lab Control Sample	102	108	115	114	101	101	125 *5+	102
LCSD 410-186604/4-A	Lab Control Sample Dup	96	132	129 *5+	130 *5+	102	107	118 *5+	107
MB 410-186604/2-A	Method Blank	127	138	139 *5+	97	117	134	129 *5+	135 *5+

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	C4PFHA (55-113)	13C5PHA (54-115)	PFPeA (17-184)	C6PFDA (56-114)	13C7PUA (50-120)	C8PFOA (56-117)	C8PFOS (56-112)	PFOSA (10-126)
410-58547-1	FT1-RINSE1-1	119 *5+	103	97	138 *5+	145 *5+	132 *5+	134 *5+	136 *5+
410-58547-1 - DL	FT1-RINSE1-1	139 *5+	141 *5+	126	142 *5+	148 *5+	145 *5+	180 *5+	147 *5+
410-58547-2 - DL	FT1-RINSE-PIPE			105					
410-58547-2	FT1-RINSE-PIPE	114 *5+	101	101	117 *5+	104	115	114 *5+	107
410-58547-3	FT1-EFFLUENT1-1	122 *5+	117 *5+	119	125 *5+	120	116	112	112
410-58547-4	FT1-RINSE2-1	106	110	103	115 *5+	124 *5+	104	102	106
410-58547-5	FT1-RINSE-PIPE 2	115 *5+	101	106	106	104	94	110	98
410-58547-6	FT1-EFFLUENT2-1	92	83	110	71	67	84	102	109
410-58547-6 - DL	FT1-EFFLUENT2-1	115 *5+	110	137	104	101	102		
410-58547-7	FT1-RINSE3-1	100	95	99	98	97	97	102	88
410-58547-8	FT1-RINSE3-2	112	98	105	118 *5+	115	105	117 *5+	100
410-58547-9	FB-FT1	124 *5+	121 *5+	136	120 *5+	115	118 *5+	134 *5+	108
LCS 410-186604/3-A	Lab Control Sample	115 *5+	115	108	112	110	101	109	106
LCSD 410-186604/4-A	Lab Control Sample Dup	115 *5+	108	116	138 *5+	133 *5+	108	114 *5+	124
MB 410-186604/2-A	Method Blank	133 *5+	134 *5+	153	145 *5+	146 *5+	124 *5+	150 *5+	132 *5+

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	C9PFNA (54-122)	M242FTS	d3NMFOS	d3NMFSA (10-51)	d5NEFOS (65-134)	d5NPFSA (10-51)	NMFM (10-105)	NEFM (10-112)
410-58547-1	FT1-RINSE1-1	137 *5+			86 *5+	157 *5+	70 *5+	153 *5+	131 *5+
410-58547-1 - DL	FT1-RINSE1-1	172 *5+			100 *5+	158 *5+	70 *5+	206 *5+	185 *5+
410-58547-2 - DL	FT1-RINSE-PIPE								
410-58547-2	FT1-RINSE-PIPE	119			69 *5+	111	71 *5+	103	105
410-58547-3	FT1-EFFLUENT1-1	114			53 *5+	129	50	115 *5+	103
410-58547-4	FT1-RINSE2-1	101			53 *5+	124	42	102	97
410-58547-5	FT1-RINSE-PIPE 2	110			73 *5+	113	65 *5+	98	103
410-58547-6	FT1-EFFLUENT2-1	105			73 *5+	74	69 *5+	100	106
410-58547-6 - DL	FT1-EFFLUENT2-1	108							
410-58547-7	FT1-RINSE3-1	105			69 *5+	101	67 *5+	87	91
410-58547-8	FT1-RINSE3-2	119			75 *5+	124	78 *5+	103	109
410-58547-9	FB-FT1	149 *5+			78 *5+	115	82 *5+	118 *5+	111
LCS 410-186604/3-A	Lab Control Sample	99			87 *5+	119	84 *5+	111 *5+	109

Isotope Dilution Summary

Client: AECOM
Job ID: 410-58547-1
Project/Site: AFFF Tanks Cleaning

Method: 537 TOP - Fluorinated Alkyl Substances (Continued)

Matrix: Water **Prep Type: Post-Treatment**

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	**Client Sample ID**	**C9PFNA (54-122)**	**M242FTS**	**d3NMFOS**	**d3NMFSA (10-51)**	**d5NEFOS (65-134)**	**d5NPFSA (10-51)**	**NMFM (10-105)**	**NEFM (10-112)**
LCSD 410-186604/4-A	Lab Control Sample Dup	117			84 *5+	133	75 *5+	131 *5+	128 *5+
MB 410-186604/2-A	Method Blank	157 *5+			64 *5+	150 *5+	59 *5+	126 *5+	128 *5+

Surrogate Legend

M262FTS = M2-6:2 FTS
M282FTS = M2-8:2 FTS
PFDoDA = 13C2-PFDoDA
PFTDA = 13C2 PFTeDA
HFPODA = 13C3 HFPO-DA
C3PFBS = 13C3 PFBS
C3PFHS = 13C3 PFHxS
PFBA = 13C4 PFBA
C4PFHA = 13C4 PFHpA
13C5PHA = 13C5 PFHxA
PFPeA = 13C5 PFPeA
C6PFDA = 13C6 PFDA
13C7PUA = 13C7 PFUnA
C8PFOA = 13C8 PFOA
C8PFOS = 13C8 PFOS
PFOSA = 13C8 FOSA
C9PFNA = 13C9 PFNA
M242FTS = M2-4:2 FTS
d3NMFOS = d3-NMeFOSAA
d3NMFSA = d3-NMePFOSA
d5NEFOS = d5-NEtFOSAA
d5NPFSA = d5-NEtPFOSA
NMFM = d7-N-MeFOSE-M
NEFM = d9-N-EtFOSE-M

Method: 537 IDA - EPA 537 Isotope Dilution

Lab Sample ID: MB 410-183493/1-A
Matrix: Water
Analysis Batch: 184081

Client Sample ID: Method Blank
Prep Type: Pre-Treatment
Prep Batch: 183493

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NEtFOSAA	<3.0		3.0	0.50	ng/L		10/15/21 17:09	10/18/21 22:28	1
NMeFOSAA	<2.0		2.0	0.60	ng/L		10/15/21 17:09	10/18/21 22:28	1
Perfluorobutanesulfonic acid	<2.0		2.0	0.50	ng/L		10/15/21 17:09	10/18/21 22:28	1
Perfluorobutanoic acid	<5.0		5.0	2.0	ng/L		10/15/21 17:09	10/18/21 22:28	1
Perfluorodecanesulfonic acid	<2.0		2.0	0.50	ng/L		10/15/21 17:09	10/18/21 22:28	1
Perfluorodecanoic acid	<2.0		2.0	0.50	ng/L		10/15/21 17:09	10/18/21 22:28	1
Perfluorododecanoic acid	<2.0		2.0	0.50	ng/L		10/15/21 17:09	10/18/21 22:28	1
Perfluoroheptanesulfonic acid	<2.0		2.0	0.50	ng/L		10/15/21 17:09	10/18/21 22:28	1
Perfluoroheptanoic acid	<2.0		2.0	0.50	ng/L		10/15/21 17:09	10/18/21 22:28	1
Perfluorohexanesulfonic acid	<2.0		2.0	0.50	ng/L		10/15/21 17:09	10/18/21 22:28	1
Perfluorohexanoic acid	<2.0		2.0	0.50	ng/L		10/15/21 17:09	10/18/21 22:28	1
Perfluorononanesulfonic acid	<2.0		2.0	0.50	ng/L		10/15/21 17:09	10/18/21 22:28	1
Perfluorononanoic acid	<2.0		2.0	0.50	ng/L		10/15/21 17:09	10/18/21 22:28	1
Perfluorooctanesulfonamide	<2.0		2.0	0.50	ng/L		10/15/21 17:09	10/18/21 22:28	1
Perfluorooctanesulfonic acid	<2.0		2.0	0.50	ng/L		10/15/21 17:09	10/18/21 22:28	1
Perfluorooctanoic acid	<2.0		2.0	0.50	ng/L		10/15/21 17:09	10/18/21 22:28	1
Perfluoropentanesulfonic acid	<2.0		2.0	0.50	ng/L		10/15/21 17:09	10/18/21 22:28	1
Perfluoropentanoic acid	<2.0		2.0	0.50	ng/L		10/15/21 17:09	10/18/21 22:28	1
Perfluorotetradecanoic acid	<2.0		2.0	0.50	ng/L		10/15/21 17:09	10/18/21 22:28	1
Perfluorotridecanoic acid	<2.0		2.0	0.50	ng/L		10/15/21 17:09	10/18/21 22:28	1
Perfluoroundecanoic acid	<2.0		2.0	0.50	ng/L		10/15/21 17:09	10/18/21 22:28	1
6:2 Fluorotelomer sulfonic acid	<5.0		5.0	2.0	ng/L		10/15/21 17:09	10/18/21 22:28	1
8:2 Fluorotelomer sulfonic acid	<3.0		3.0	1.0	ng/L		10/15/21 17:09	10/18/21 22:28	1
4:2 Fluorotelomer sulfonic acid	<2.0		2.0	0.50	ng/L		10/15/21 17:09	10/18/21 22:28	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-4:2 FTS	*135*		*20 - 187*	*10/15/21 17:09*	*10/18/21 22:28*	*1*
M2-6:2 FTS	*113*		*29 - 189*	*10/15/21 17:09*	*10/18/21 22:28*	*1*
M2-8:2 FTS	*125*		*34 - 182*	*10/15/21 17:09*	*10/18/21 22:28*	*1*
13C2 PFTeDA	*104*		*10 - 144*	*10/15/21 17:09*	*10/18/21 22:28*	*1*
13C3 HFPO-DA	*83*		*20 - 153*	*10/15/21 17:09*	*10/18/21 22:28*	*1*
13C3 PFBS	*108*		*19 - 178*	*10/15/21 17:09*	*10/18/21 22:28*	*1*
13C4 PFBA	*106*		*41 - 132*	*10/15/21 17:09*	*10/18/21 22:28*	*1*
13C4 PFHpA	*111*		*30 - 144*	*10/15/21 17:09*	*10/18/21 22:28*	*1*
13C5 PFPeA	*105*		*33 - 155*	*10/15/21 17:09*	*10/18/21 22:28*	*1*
13C8 PFOA	*112*		*49 - 127*	*10/15/21 17:09*	*10/18/21 22:28*	*1*
13C8 PFOS	*114*		*49 - 126*	*10/15/21 17:09*	*10/18/21 22:28*	*1*
d3-NMeFOSAA	*144*		*32 - 151*	*10/15/21 17:09*	*10/18/21 22:28*	*1*
d5-NEtFOSAA	*142*		*37 - 164*	*10/15/21 17:09*	*10/18/21 22:28*	*1*
d9-N-EtFOSE-M	*94*		*10 - 142*	*10/15/21 17:09*	*10/18/21 22:28*	*1*
13C3 PFHxS	*123*		*32 - 145*	*10/15/21 17:09*	*10/18/21 22:28*	*1*
13C5 PFHxA	*109*		*31 - 142*	*10/15/21 17:09*	*10/18/21 22:28*	*1*
13C6 PFDA	*108*		*47 - 128*	*10/15/21 17:09*	*10/18/21 22:28*	*1*
13C7 PFUnA	*112*		*40 - 135*	*10/15/21 17:09*	*10/18/21 22:28*	*1*
d3-NMePFOSA	*84*		*10 - 107*	*10/15/21 17:09*	*10/18/21 22:28*	*1*
d5-NEtPFOSA	*87*		*10 - 108*	*10/15/21 17:09*	*10/18/21 22:28*	*1*
13C8 FOSA	*110*		*10 - 143*	*10/15/21 17:09*	*10/18/21 22:28*	*1*
13C2-PFDoDA	*103*		*28 - 136*	*10/15/21 17:09*	*10/18/21 22:28*	*1*

Method: 537 IDA - EPA 537 Isotope Dilution (Continued)

Lab Sample ID: MB 410-183493/1-A
Matrix: Water
Analysis Batch: 184081

Client Sample ID: Method Blank
Prep Type: Pre-Treatment
Prep Batch: 183493

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C9 PFNA	108		47 - 136	10/15/21 17:09	10/18/21 22:28	1

Lab Sample ID: LCS 410-183493/2-A
Matrix: Water
Analysis Batch: 184081

Client Sample ID: Lab Control Sample
Prep Type: Pre-Treatment
Prep Batch: 183493

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
NEtFOSAA	25.6	19.2		ng/L		75	54 - 134
NMeFOSAA	25.6	19.3		ng/L		75	58 - 143
Perfluorobutanesulfonic acid	22.7	17.7		ng/L		78	65 - 132
Perfluorobutanoic acid	25.6	17.7		ng/L		69	62 - 156
Perfluorodecanesulfonic acid	24.7	19.2		ng/L		78	61 - 134
Perfluorodecanoic acid	25.6	18.5		ng/L		72	63 - 137
Perfluorododecanoic acid	25.6	21.1		ng/L		83	63 - 140
Perfluoroheptanesulfonic acid	24.4	17.5		ng/L		72	67 - 135
Perfluoroheptanoic acid	25.6	22.0		ng/L		86	66 - 141
Perfluorohexanesulfonic acid	23.3	17.3		ng/L		74	60 - 128
Perfluorohexanoic acid	25.6	20.6		ng/L		81	66 - 137
Perfluorononanesulfonic acid	24.6	19.7		ng/L		80	67 - 137
Perfluorononanoic acid	25.6	21.5		ng/L		84	65 - 140
Perfluorooctanesulfonamide	25.6	19.4		ng/L		76	55 - 130
Perfluorooctanesulfonic acid	23.7	19.2		ng/L		81	51 - 126
Perfluorooctanoic acid	25.6	19.9		ng/L		78	65 - 136
Perfluoropentanesulfonic acid	24.0	18.9		ng/L		79	71 - 136
Perfluoropentanoic acid	25.6	20.1		ng/L		79	72 - 139
Perfluorotetradecanoic acid	25.6	21.2		ng/L		83	64 - 141
Perfluorotridecanoic acid	25.6	21.8		ng/L		85	58 - 146
Perfluoroundecanoic acid	25.6	22.3		ng/L		87	62 - 138
6:2 Fluorotelomer sulfonic acid	24.3	17.7		ng/L		73	57 - 137
8:2 Fluorotelomer sulfonic acid	24.5	18.7		ng/L		76	56 - 140
4:2 Fluorotelomer sulfonic acid	23.9	18.0		ng/L		75	59 - 130

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
M2-4:2 FTS	141		20 - 187
M2-6:2 FTS	123		29 - 189
M2-8:2 FTS	120		34 - 182
13C2 PFTeDA	110		10 - 144
13C3 HFPO-DA	112		20 - 153
13C3 PFBS	119		19 - 178
13C4 PFBA	115		41 - 132
13C4 PFHpA	116		30 - 144
13C5 PFPeA	111		33 - 155
13C8 PFOA	127		49 - 127
13C8 PFOS	122		49 - 126
d3-NMeFOSAA	152	*5+	32 - 151
d5-NEtFOSAA	153		37 - 164
d9-N-EtFOSE-M	102		10 - 142
13C3 PFHxS	136		32 - 145
13C5 PFHxA	118		31 - 142

Method: 537 IDA - EPA 537 Isotope Dilution (Continued)

Lab Sample ID: LCS 410-183493/2-A
Matrix: Water
Analysis Batch: 184081

Client Sample ID: Lab Control Sample
Prep Type: Pre-Treatment
Prep Batch: 183493

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C6 PFDA	*123*		*47 - 128*
13C7 PFUnA	*113*		*40 - 135*
d3-NMePFOSA	*95*		*10 - 107*
d5-NEtPFOSA	*94*		*10 - 108*
13C8 FOSA	*111*		*10 - 143*
13C2-PFDoDA	*107*		*28 - 136*
13C9 PFNA	*116*		*47 - 136*

Lab Sample ID: 410-58547-6 MS
Matrix: Water
Analysis Batch: 184081

Client Sample ID: FT1-EFFLUENT2-1
Prep Type: Pre-Treatment
Prep Batch: 183493

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
NEtFOSAA	<2.6		22.6	19.7		ng/L		80	54 - 134
NMeFOSAA	<1.8		22.6	17.3		ng/L		76	58 - 143
Perfluorobutanesulfonic acid	<1.8		20.0	14.8		ng/L		74	65 - 132
Perfluorobutanoic acid	<4.4		22.6	15.5		ng/L		69	62 - 156
Perfluorodecanesulfonic acid	<1.8	F1	21.8	13.1	F1	ng/L		60	61 - 134
Perfluorodecanoic acid	25	F1	22.6	37.5	F1	ng/L		56	63 - 137
Perfluorododecanoic acid	29	F1 F2	22.6	40.5	F1	ng/L		49	63 - 140
Perfluoroheptanesulfonic acid	<1.8	F1	21.5	3.94	F1	ng/L		18	67 - 135
Perfluoroheptanoic acid	<1.8		22.6	18.0		ng/L		78	66 - 141
Perfluorohexanesulfonic acid	<1.8		20.6	14.9		ng/L		72	60 - 128
Perfluorohexanoic acid	<1.8		22.6	18.1		ng/L		75	66 - 137
Perfluorononanesulfonic acid	<1.8	F1	21.7	10.2	F1	ng/L		47	67 - 137
Perfluorononanoic acid	2.5		22.6	21.6		ng/L		84	65 - 140
Perfluorooctanesulfonamide	<1.8		22.6	17.8		ng/L		79	55 - 130
Perfluorooctanesulfonic acid	<1.8		20.9	19.0		ng/L		86	51 - 126
Perfluorooctanoic acid	2.9		22.6	20.5		ng/L		78	65 - 136
Perfluoropentanesulfonic acid	<1.8		21.2	15.8		ng/L		74	71 - 136
Perfluoropentanoic acid	<1.8		22.6	17.8		ng/L		79	72 - 139
Perfluorotetradecanoic acid	14		22.6	32.5		ng/L		80	64 - 141
Perfluorotridecanoic acid	3.5	F1 F2	22.6	16.0	F1	ng/L		55	58 - 146
Perfluoroundecanoic acid	7.8		22.6	28.1		ng/L		90	62 - 138
6:2 Fluorotelomer sulfonic acid	69	E F1	21.4	88.4	E	ng/L		89	57 - 137
8:2 Fluorotelomer sulfonic acid	550	E	21.7	596	E 4	ng/L		198	56 - 140
4:2 Fluorotelomer sulfonic acid	<1.8		21.1	16.7		ng/L		79	59 - 130

Isotope Dilution	*MS %Recovery*	*MS Qualifier*	*Limits*
M2-4:2 FTS	*210*	**5+*	*20 - 187*
M2-6:2 FTS	*71*		*29 - 189*
M2-8:2 FTS	*47*		*34 - 182*
13C2 PFTeDA	*5*	**5-*	*10 - 144*
13C3 HFPO-DA	*174*	**5+*	*20 - 153*
13C3 PFBS	*118*		*19 - 178*
13C4 PFBA	*115*		*41 - 132*
13C4 PFHpA	*191*	**5+*	*30 - 144*
13C5 PFPeA	*109*		*33 - 155*
13C8 PFOA	*107*		*49 - 127*

Method: 537 IDA - EPA 537 Isotope Dilution (Continued)

Lab Sample ID: 410-58547-6 MS
Matrix: Water
Analysis Batch: 184081

Client Sample ID: FT1-EFFLUENT2-1
Prep Type: Pre-Treatment
Prep Batch: 183493

Isotope Dilution	MS %Recovery	MS Qualifier	Limits
13C8 PFOS	26	*5-	49 - 126
d3-NMeFOSAA	90		32 - 151
d5-NEtFOSAA	95		37 - 164
d9-N-EtFOSE-M	38		10 - 142
13C3 PFHxS	164	*5+	32 - 145
13C5 PFHxA	184	*5+	31 - 142
13C6 PFDA	50		47 - 128
13C7 PFUnA	46		40 - 135
d3-NMePFOSA	95		10 - 107
d5-NEtPFOSA	88		10 - 108
13C8 FOSA	100		10 - 143
13C2-PFDoDA	28		28 - 136
13C9 PFNA	85		47 - 136

Lab Sample ID: 410-58547-6 MSD
Matrix: Water
Analysis Batch: 184081

Client Sample ID: FT1-EFFLUENT2-1
Prep Type: Pre-Treatment
Prep Batch: 183493

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
NEtFOSAA	<2.6		23.0	18.7		ng/L		74	54 - 134	5	30
NMeFOSAA	<1.8		23.0	17.8		ng/L		78	58 - 143	3	30
Perfluorobutanesulfonic acid	<1.8		20.4	15.9		ng/L		78	65 - 132	7	30
Perfluorobutanoic acid	<4.4		23.0	15.9		ng/L		69	62 - 156	2	30
Perfluorodecanesulfonic acid	<1.8	F1	22.2	15.6		ng/L		71	61 - 134	17	30
Perfluorodecanoic acid	25	F1	23.0	38.0	F1	ng/L		57	63 - 137	1	30
Perfluorododecanoic acid	29	F1 F2	23.0	55.4	F2	ng/L		113	63 - 140	31	30
Perfluoroheptanesulfonic acid	<1.8	F1	21.9	4.22	F1	ng/L		19	67 - 135	7	30
Perfluoroheptanoic acid	<1.8		23.0	19.3		ng/L		82	66 - 141	7	30
Perfluorohexanesulfonic acid	<1.8		21.0	15.2		ng/L		72	60 - 128	2	30
Perfluorohexanoic acid	<1.8		23.0	19.1		ng/L		78	66 - 137	5	30
Perfluorononanesulfonic acid	<1.8	F1	22.1	11.0	F1	ng/L		50	67 - 137	7	30
Perfluorononanoic acid	2.5		23.0	22.7		ng/L		88	65 - 140	5	30
Perfluorooctanesulfonamide	<1.8		23.0	17.5		ng/L		76	55 - 130	1	30
Perfluorooctanesulfonic acid	<1.8		21.3	19.1		ng/L		84	51 - 126	0	30
Perfluorooctanoic acid	2.9		23.0	22.1		ng/L		83	65 - 136	7	30
Perfluoropentanesulfonic acid	<1.8		21.6	16.7		ng/L		77	71 - 136	6	30
Perfluoropentanoic acid	<1.8		23.0	18.0		ng/L		78	72 - 139	1	30
Perfluorotetradecanoic acid	14		23.0	35.5		ng/L		91	64 - 141	9	30
Perfluorotridecanoic acid	3.5	F1 F2	23.0	24.0	F2	ng/L		89	58 - 146	40	30
Perfluoroundecanoic acid	7.8		23.0	27.2		ng/L		84	62 - 138	3	30
6:2 Fluorotelomer sulfonic acid	69	E F1	21.8	79.1	E F1	ng/L		45	57 - 137	11	30
8:2 Fluorotelomer sulfonic acid	550	E	22.0	565	E 4	ng/L		52	56 - 140	5	30
4:2 Fluorotelomer sulfonic acid	<1.8		21.5	16.9		ng/L		79	59 - 130	2	30

Isotope Dilution	MSD %Recovery	MSD Qualifier	Limits
M2-4:2 FTS	205	*5+	20 - 187
M2-6:2 FTS	79		29 - 189
M2-8:2 FTS	49		34 - 182
13C2 PFTeDA	28		10 - 144

Method: 537 IDA - EPA 537 Isotope Dilution (Continued)

Lab Sample ID: 410-58547-6 MSD
Matrix: Water
Analysis Batch: 184081

Client Sample ID: FT1-EFFLUENT2-1
Prep Type: Pre-Treatment
Prep Batch: 183493

Isotope Dilution	MSD %Recovery	MSD Qualifier	Limits
13C3 HFPO-DA	164	*5+	20 - 153
13C3 PFBS	116		19 - 178
13C4 PFBA	118		41 - 132
13C4 PFHpA	184	*5+	30 - 144
13C5 PFPeA	114		33 - 155
13C8 PFOA	103		49 - 127
13C8 PFOS	27	*5-	49 - 126
d3-NMeFOSAA	89		32 - 151
d5-NEtFOSAA	97		37 - 164
d9-N-EtFOSE-M	42		10 - 142
13C3 PFHxS	152	*5+	32 - 145
13C5 PFHxA	184	*5+	31 - 142
13C6 PFDA	50		47 - 128
13C7 PFUnA	50		40 - 135
d3-NMePFOSA	95		10 - 107
d5-NEtPFOSA	85		10 - 108
13C8 FOSA	98		10 - 143
13C2-PFDoDA	31		28 - 136
13C9 PFNA	83		47 - 136

Method: 537 TOP - Fluorinated Alkyl Substances

Lab Sample ID: MB 410-186604/1-A
Matrix: Water
Analysis Batch: 188569

Client Sample ID: Method Blank
Prep Type: Post-Treatment
Prep Batch: 186604

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA				10/25/21 08:52	10/29/21 09:50	1
13C2 PFUnA				10/25/21 08:52	10/29/21 09:50	1
13C4 PFOA				10/25/21 08:52	10/29/21 09:50	1

Lab Sample ID: MB 410-186604/2-A
Matrix: Water
Analysis Batch: 188970

Client Sample ID: Method Blank
Prep Type: Post-Treatment
Prep Batch: 186604

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
10:2 Fluorotelomer sulfonic acid	<25		25	5.0	ng/L		10/25/21 08:52	10/30/21 11:27	1
11Cl-PF3OUdS	<10		10	2.5	ng/L		10/25/21 08:52	10/30/21 11:27	1
4:2 Fluorotelomer sulfonic acid	<10		10	2.5	ng/L		10/25/21 08:52	10/30/21 11:27	1
6:2 Fluorotelomer sulfonic acid	<25		25	10	ng/L		10/25/21 08:52	10/30/21 11:27	1
8:2 Fluorotelomer sulfonic acid	<15		15	5.0	ng/L		10/25/21 08:52	10/30/21 11:27	1
9Cl-PF3ONS	<10		10	2.5	ng/L		10/25/21 08:52	10/30/21 11:27	1
DONA	<10		10	2.5	ng/L		10/25/21 08:52	10/30/21 11:27	1
HFPODA	<15		15	2.5	ng/L		10/25/21 08:52	10/30/21 11:27	1
NEtFOSAA	<15		15	2.5	ng/L		10/25/21 08:52	10/30/21 11:27	1
NEtFOSA	<25		25	5.0	ng/L		10/25/21 08:52	10/30/21 11:27	1
NEtFOSE	<15		15	5.0	ng/L		10/25/21 08:52	10/30/21 11:27	1
NMeFOSAA	<10		10	3.0	ng/L		10/25/21 08:52	10/30/21 11:27	1
NMeFOSA	<15		15	5.0	ng/L		10/25/21 08:52	10/30/21 11:27	1

Method: 537 TOP - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: MB 410-186604/2-A
Matrix: Water
Analysis Batch: 188970

Client Sample ID: Method Blank
Prep Type: Post-Treatment
Prep Batch: 186604

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NMeFOSE	<15		15	5.0	ng/L		10/25/21 08:52	10/30/21 11:27	1
Perfluorobutanesulfonic acid	<10		10	2.5	ng/L		10/25/21 08:52	10/30/21 11:27	1
Perfluorobutanoic acid	<25		25	10	ng/L		10/25/21 08:52	10/30/21 11:27	1
Perfluorodecanesulfonic acid	<10		10	2.5	ng/L		10/25/21 08:52	10/30/21 11:27	1
Perfluorodecanoic acid	<10		10	2.5	ng/L		10/25/21 08:52	10/30/21 11:27	1
Perfluorododecanesulfonic acid (PFDoS)	<15		15	2.5	ng/L		10/25/21 08:52	10/30/21 11:27	1
Perfluorododecanoic acid	<10		10	2.5	ng/L		10/25/21 08:52	10/30/21 11:27	1
Perfluoroheptanesulfonic acid	<10		10	2.5	ng/L		10/25/21 08:52	10/30/21 11:27	1
Perfluoroheptanoic acid	<10		10	2.5	ng/L		10/25/21 08:52	10/30/21 11:27	1
Perfluorohexadecanoic acid	<15		15	5.0	ng/L		10/25/21 08:52	10/30/21 11:27	1
Perfluorohexanesulfonic acid	<10		10	2.5	ng/L		10/25/21 08:52	10/30/21 11:27	1
Perfluorohexanoic acid	<10		10	2.5	ng/L		10/25/21 08:52	10/30/21 11:27	1
Perfluorononanesulfonic acid	<10		10	2.5	ng/L		10/25/21 08:52	10/30/21 11:27	1
Perfluorononanoic acid	<10		10	2.5	ng/L		10/25/21 08:52	10/30/21 11:27	1
Perfluorooctadecanoic acid	<15		15	5.0	ng/L		10/25/21 08:52	10/30/21 11:27	1
Perfluorooctanesulfonamide	<10		10	2.5	ng/L		10/25/21 08:52	10/30/21 11:27	1
Perfluorooctanesulfonic acid	<10		10	2.5	ng/L		10/25/21 08:52	10/30/21 11:27	1
Perfluorooctanoic acid	<10		10	2.5	ng/L		10/25/21 08:52	10/30/21 11:27	1
Perfluoropentanesulfonic acid	<10		10	2.5	ng/L		10/25/21 08:52	10/30/21 11:27	1
Perfluoropentanoic acid	<10		10	2.5	ng/L		10/25/21 08:52	10/30/21 11:27	1
Perfluorotetradecanoic acid	<10		10	2.5	ng/L		10/25/21 08:52	10/30/21 11:27	1
Perfluorotridecanoic acid	<10		10	2.5	ng/L		10/25/21 08:52	10/30/21 11:27	1
Perfluoroundecanoic acid	<10		10	2.5	ng/L		10/25/21 08:52	10/30/21 11:27	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-6:2 FTS	*127*		*55 - 167*	*10/25/21 08:52*	*10/30/21 11:27*	*1*
M2-8:2 FTS	*138*		*61 - 160*	*10/25/21 08:52*	*10/30/21 11:27*	*1*
13C2-PFDoDA	*139*	**5+*	*47 - 118*	*10/25/21 08:52*	*10/30/21 11:27*	*1*
13C2 PFTeDA	*97*		*32 - 126*	*10/25/21 08:52*	*10/30/21 11:27*	*1*
13C3 HFPO-DA	*117*		*70 - 130*	*10/25/21 08:52*	*10/30/21 11:27*	*1*
13C3 PFBS	*134*		*18 - 177*	*10/25/21 08:52*	*10/30/21 11:27*	*1*
13C3 PFHxS	*129*	**5+*	*55 - 115*	*10/25/21 08:52*	*10/30/21 11:27*	*1*
13C4 PFBA	*135*	**5+*	*52 - 126*	*10/25/21 08:52*	*10/30/21 11:27*	*1*
13C4 PFHpA	*133*	**5+*	*55 - 113*	*10/25/21 08:52*	*10/30/21 11:27*	*1*
13C5 PFHxA	*134*	**5+*	*54 - 115*	*10/25/21 08:52*	*10/30/21 11:27*	*1*
13C5 PFPeA	*153*		*17 - 184*	*10/25/21 08:52*	*10/30/21 11:27*	*1*
13C6 PFDA	*145*	**5+*	*56 - 114*	*10/25/21 08:52*	*10/30/21 11:27*	*1*
13C7 PFUnA	*146*	**5+*	*50 - 120*	*10/25/21 08:52*	*10/30/21 11:27*	*1*
13C8 PFOA	*124*	**5+*	*56 - 117*	*10/25/21 08:52*	*10/30/21 11:27*	*1*
13C8 PFOS	*150*	**5+*	*56 - 112*	*10/25/21 08:52*	*10/30/21 11:27*	*1*
13C8 FOSA	*132*	**5+*	*10 - 126*	*10/25/21 08:52*	*10/30/21 11:27*	*1*
13C9 PFNA	*157*	**5+*	*54 - 122*	*10/25/21 08:52*	*10/30/21 11:27*	*1*
M2-4:2 FTS				*10/25/21 08:52*	*10/30/21 11:27*	*1*
d3-NMeFOSAA				*10/25/21 08:52*	*10/30/21 11:27*	*1*
d3-NMePFOSA	*64*	**5+*	*10 - 51*	*10/25/21 08:52*	*10/30/21 11:27*	*1*
d5-NEtFOSAA	*150*	**5+*	*65 - 134*	*10/25/21 08:52*	*10/30/21 11:27*	*1*
d5-NEtPFOSA	*59*	**5+*	*10 - 51*	*10/25/21 08:52*	*10/30/21 11:27*	*1*
d7-N-MeFOSE-M	*126*	**5+*	*10 - 105*	*10/25/21 08:52*	*10/30/21 11:27*	*1*

Method: 537 TOP - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: MB 410-186604/2-A
Matrix: Water
Analysis Batch: 188970

Client Sample ID: Method Blank
Prep Type: Post-Treatment
Prep Batch: 186604

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
d9-N-EtFOSE-M	128	*5+	10 - 112	10/25/21 08:52	10/30/21 11:27	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	99		40 - 173	10/25/21 08:52	10/30/21 11:27	1
13C2 PFUnA	102		49 - 132	10/25/21 08:52	10/30/21 11:27	1
13C4 PFOA	99		10 - 163	10/25/21 08:52	10/30/21 11:27	1

Lab Sample ID: LCS 410-186604/3-A
Matrix: Water
Analysis Batch: 188569

Client Sample ID: Lab Control Sample
Prep Type: Post-Treatment
Prep Batch: 186604

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
10:2 Fluorotelomer sulfonic acid	123	134		ng/L		108	29 - 147
11Cl-PF3OUdS	119	103		ng/L		86	70 - 130
4:2 Fluorotelomer sulfonic acid	120	124		ng/L		104	53 - 109
6:2 Fluorotelomer sulfonic acid	121	128		ng/L		106	58 - 136
8:2 Fluorotelomer sulfonic acid	123	143		ng/L		117	59 - 118
9Cl-PF3ONS	119	95.5		ng/L		80	70 - 130
DONA	121	105		ng/L		86	70 - 130
HFPODA	128	137		ng/L		107	70 - 130
NEtFOSAA	128	110		ng/L		86	53 - 119
NEtFOSA	128	144		ng/L		113	30 - 144
NEtFOSE	128	125		ng/L		98	35 - 142
NMeFOSAA	128	109		ng/L		85	43 - 122
NMeFOSA	128	134		ng/L		105	51 - 135
NMeFOSE	128	126		ng/L		98	57 - 120
Perfluorobutanesulfonic acid	113	105		ng/L		93	69 - 138
Perfluorobutanoic acid	128	115		ng/L		90	80 - 151
Perfluorodecanesulfonic acid	123	103		ng/L		83	52 - 149
Perfluorodecanoic acid	128	110		ng/L		86	69 - 142
Perfluorododecanesulfonic acid (PFDoS)	124	94.6		ng/L		76	53 - 151
Perfluorododecanoic acid	128	112	I	ng/L		87	71 - 145
Perfluoroheptanesulfonic acid	122	102		ng/L		84	64 - 140
Perfluoroheptanoic acid	128	128		ng/L		100	67 - 143
Perfluorohexadecanoic acid	128	107		ng/L		84	42 - 145
Perfluorohexanesulfonic acid	117	92.9		ng/L		80	67 - 136
Perfluorohexanoic acid	128	110		ng/L		86	65 - 152
Perfluorononanesulfonic acid	123	120		ng/L		98	60 - 144
Perfluorononanoic acid	128	108		ng/L		84	66 - 150
Perfluorooctadecanoic acid	128	104		ng/L		81	21 - 158
Perfluorooctanesulfonamide	128	112		ng/L		87	48 - 126
Perfluorooctanesulfonic acid	118	104		ng/L		87	68 - 142
Perfluorooctanoic acid	128	121		ng/L		95	71 - 144
Perfluoropentanesulfonic acid	120	126		ng/L		105	66 - 145
Perfluoropentanoic acid	128	124		ng/L		97	75 - 140
Perfluorotetradecanoic acid	128	117		ng/L		91	73 - 147
Perfluorotridecanoic acid	128	120		ng/L		94	64 - 160
Perfluoroundecanoic acid	128	135		ng/L		106	69 - 146

Method: 537 TOP - Fluorinated Alkyl Substances (Continued)

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
M2-6:2 FTS	102		55 - 167
M2-8:2 FTS	108		61 - 160
13C2-PFDoDA	115		47 - 118
13C2 PFTeDA	114		32 - 126
13C3 HFPO-DA	101		70 - 130
13C3 PFBS	101		18 - 177
13C3 PFHxS	125	*5+	55 - 115
13C4 PFBA	102		52 - 126
13C4 PFHpA	115	*5+	55 - 113
13C5 PFHxA	115		54 - 115
13C5 PFPeA	108		17 - 184
13C6 PFDA	112		56 - 114
13C7 PFUnA	110		50 - 120
13C8 PFOA	101		56 - 117
13C8 PFOS	109		56 - 112
13C8 FOSA	106		10 - 126
13C9 PFNA	99		54 - 122
d3-NMePFOSA	87	*5+	10 - 51
d5-NEtFOSAA	119		65 - 134
d5-NEtPFOSA	84	*5+	10 - 51
d7-N-MeFOSE-M	111	*5+	10 - 105
d9-N-EtFOSE-M	109		10 - 112

Surrogate	LCS %Recovery	LCS Qualifier	Limits
13C2 PFHxA	83		40 - 173
13C2 PFUnA	73		49 - 132
13C4 PFOA	84		10 - 163

Lab Sample ID: LCSD 410-186604/4-A
Matrix: Water
Analysis Batch: 188569

Client Sample ID: Lab Control Sample Dup
Prep Type: Post-Treatment
Prep Batch: 186604

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
10:2 Fluorotelomer sulfonic acid			123	130		ng/L		106	29 - 147	2	30
11Cl-PF3OUdS			119	119		ng/L		100	70 - 130	15	30
4:2 Fluorotelomer sulfonic acid			120	129		ng/L		108	53 - 109	4	30
6:2 Fluorotelomer sulfonic acid			121	139		ng/L		115	58 - 136	8	30
8:2 Fluorotelomer sulfonic acid			123	131		ng/L		106	59 - 118	9	30
9Cl-PF3ONS			119	113		ng/L		95	70 - 130	17	30
DONA			121	113		ng/L		93	70 - 130	8	30
HFPODA			128	134		ng/L		104	70 - 130	2	30
NEtFOSAA			128	120		ng/L		94	53 - 119	9	30
NEtFOSA			128	141		ng/L		110	30 - 144	2	30
NEtFOSE			128	126		ng/L		99	35 - 142	1	30
NMeFOSAA			128	121		ng/L		95	43 - 122	11	30
NMeFOSA			128	129		ng/L		100	51 - 135	4	30
NMeFOSE			128	135		ng/L		106	57 - 120	7	30
Perfluorobutanesulfonic acid			113	113		ng/L		100	69 - 138	7	30
Perfluorobutanoic acid			128	121		ng/L		94	80 - 151	5	30
Perfluorodecanesulfonic acid			123	117		ng/L		95	52 - 149	12	30
Perfluorodecanoic acid			128	104		ng/L		82	69 - 142	5	30

Method: 537 TOP - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCSD 410-186604/4-A
Matrix: Water
Analysis Batch: 188569

Client Sample ID: Lab Control Sample Dup
Prep Type: Post-Treatment
Prep Batch: 186604

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorododecanesulfonic acid (PFDoS)			124	116		ng/L		93	53 - 151	20	30
Perfluorododecanoic acid			128	126	I	ng/L		98	71 - 145	12	30
Perfluoroheptanesulfonic acid			122	110		ng/L		90	64 - 140	7	30
Perfluoroheptanoic acid			128	133		ng/L		104	67 - 143	4	30
Perfluorohexadecanoic acid			128	119		ng/L		93	42 - 145	10	30
Perfluorohexanesulfonic acid			117	93.4		ng/L		80	67 - 136	0	30
Perfluorohexanoic acid			128	125		ng/L		98	65 - 152	13	30
Perfluorononanesulfonic acid			123	125		ng/L		102	60 - 144	4	30
Perfluorononanoic acid			128	121		ng/L		94	66 - 150	11	30
Perfluorooctadecanoic acid			128	103		ng/L		80	21 - 158	1	30
Perfluorooctanesulfonamide			128	118		ng/L		92	48 - 126	5	30
Perfluorooctanesulfonic acid			118	118		ng/L		100	68 - 142	13	30
Perfluorooctanoic acid			128	114		ng/L		89	71 - 144	6	30
Perfluoropentanesulfonic acid			120	133		ng/L		111	66 - 145	6	30
Perfluoropentanoic acid			128	128		ng/L		100	75 - 140	4	30
Perfluorotetradecanoic acid			128	126		ng/L		98	73 - 147	7	30
Perfluorotridecanoic acid			128	136		ng/L		106	64 - 160	12	30
Perfluoroundecanoic acid			128	137	I	ng/L		107	69 - 146	2	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
M2-6:2 FTS	*96*		*55 - 167*
M2-8:2 FTS	*132*		*61 - 160*
13C2-PFDoDA	*129*	**5+*	*47 - 118*
13C2 PFTeDA	*130*	**5+*	*32 - 126*
13C3 HFPO-DA	*102*		*70 - 130*
13C3 PFBS	*107*		*18 - 177*
13C3 PFHxS	*118*	**5+*	*55 - 115*
13C4 PFBA	*107*		*52 - 126*
13C4 PFHpA	*115*	**5+*	*55 - 113*
13C5 PFHxA	*108*		*54 - 115*
13C5 PFPeA	*116*		*17 - 184*
13C6 PFDA	*138*	**5+*	*56 - 114*
13C7 PFUnA	*133*	**5+*	*50 - 120*
13C8 PFOA	*108*		*56 - 117*
13C8 PFOS	*114*	**5+*	*56 - 112*
13C8 FOSA	*124*		*10 - 126*
13C9 PFNA	*117*		*54 - 122*
d3-NMePFOSA	*84*	**5+*	*10 - 51*
d5-NEtFOSAA	*133*		*65 - 134*
d5-NEtPFOSA	*75*	**5+*	*10 - 51*
d7-N-MeFOSE-M	*131*	**5+*	*10 - 105*
d9-N-EtFOSE-M	*128*	**5+*	*10 - 112*

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C2 PFHxA	*81*		*40 - 173*
13C2 PFUnA	*76*		*49 - 132*
13C4 PFOA	*74*		*10 - 163*

QC Association Summary

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-58547-1

LCMS

Prep Batch: 183493

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-58547-1	FT1-RINSE1-1	Pre-Treatment	Water	TOP Pre - Prep	
410-58547-1 - RA	FT1-RINSE1-1	Pre-Treatment	Water	TOP Pre - Prep	
410-58547-2 - DL	FT1-RINSE-PIPE	Pre-Treatment	Water	TOP Pre - Prep	
410-58547-2 - DL2	FT1-RINSE-PIPE	Pre-Treatment	Water	TOP Pre - Prep	
410-58547-2	FT1-RINSE-PIPE	Pre-Treatment	Water	TOP Pre - Prep	
410-58547-3	FT1-EFFLUENT1-1	Pre-Treatment	Water	TOP Pre - Prep	
410-58547-4	FT1-RINSE2-1	Pre-Treatment	Water	TOP Pre - Prep	
410-58547-4 - DL	FT1-RINSE2-1	Pre-Treatment	Water	TOP Pre - Prep	
410-58547-5	FT1-RINSE-PIPE 2	Pre-Treatment	Water	TOP Pre - Prep	
410-58547-5 - DL	FT1-RINSE-PIPE 2	Pre-Treatment	Water	TOP Pre - Prep	
410-58547-6 - DL	FT1-EFFLUENT2-1	Pre-Treatment	Water	TOP Pre - Prep	
410-58547-6	FT1-EFFLUENT2-1	Pre-Treatment	Water	TOP Pre - Prep	
410-58547-7 - DL2	FT1-RINSE3-1	Pre-Treatment	Water	TOP Pre - Prep	
410-58547-7 - RA	FT1-RINSE3-1	Pre-Treatment	Water	TOP Pre - Prep	
410-58547-7	FT1-RINSE3-1	Pre-Treatment	Water	TOP Pre - Prep	
410-58547-7 - DL	FT1-RINSE3-1	Pre-Treatment	Water	TOP Pre - Prep	
410-58547-8	FT1-RINSE3-2	Pre-Treatment	Water	TOP Pre - Prep	
410-58547-8 - DL2	FT1-RINSE3-2	Pre-Treatment	Water	TOP Pre - Prep	
410-58547-8 - DL	FT1-RINSE3-2	Pre-Treatment	Water	TOP Pre - Prep	
410-58547-8 - RA	FT1-RINSE3-2	Pre-Treatment	Water	TOP Pre - Prep	
410-58547-9	FB-FT1	Pre-Treatment	Water	TOP Pre - Prep	
MB 410-183493/1-A	Method Blank	Pre-Treatment	Water	TOP Pre - Prep	
LCS 410-183493/2-A	Lab Control Sample	Pre-Treatment	Water	TOP Pre - Prep	
410-58547-6 MS	FT1-EFFLUENT2-1	Pre-Treatment	Water	TOP Pre - Prep	
410-58547-6 MSD	FT1-EFFLUENT2-1	Pre-Treatment	Water	TOP Pre - Prep	

Analysis Batch: 184081

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-58547-2	FT1-RINSE-PIPE	Pre-Treatment	Water	537 IDA	183493
410-58547-3	FT1-EFFLUENT1-1	Pre-Treatment	Water	537 IDA	183493
410-58547-5	FT1-RINSE-PIPE 2	Pre-Treatment	Water	537 IDA	183493
410-58547-6	FT1-EFFLUENT2-1	Pre-Treatment	Water	537 IDA	183493
410-58547-7	FT1-RINSE3-1	Pre-Treatment	Water	537 IDA	183493
410-58547-8	FT1-RINSE3-2	Pre-Treatment	Water	537 IDA	183493
410-58547-9	FB-FT1	Pre-Treatment	Water	537 IDA	183493
MB 410-183493/1-A	Method Blank	Pre-Treatment	Water	537 IDA	183493
LCS 410-183493/2-A	Lab Control Sample	Pre-Treatment	Water	537 IDA	183493
410-58547-6 MS	FT1-EFFLUENT2-1	Pre-Treatment	Water	537 IDA	183493
410-58547-6 MSD	FT1-EFFLUENT2-1	Pre-Treatment	Water	537 IDA	183493

Analysis Batch: 185169

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-58547-1 - RA	FT1-RINSE1-1	Pre-Treatment	Water	537 IDA	183493
410-58547-2 - DL	FT1-RINSE-PIPE	Pre-Treatment	Water	537 IDA	183493
410-58547-4	FT1-RINSE2-1	Pre-Treatment	Water	537 IDA	183493
410-58547-4 - DL	FT1-RINSE2-1	Pre-Treatment	Water	537 IDA	183493
410-58547-5 - DL	FT1-RINSE-PIPE 2	Pre-Treatment	Water	537 IDA	183493
410-58547-6 - DL	FT1-EFFLUENT2-1	Pre-Treatment	Water	537 IDA	183493
410-58547-7 - RA	FT1-RINSE3-1	Pre-Treatment	Water	537 IDA	183493
410-58547-7 - DL	FT1-RINSE3-1	Pre-Treatment	Water	537 IDA	183493
410-58547-7 - DL2	FT1-RINSE3-1	Pre-Treatment	Water	537 IDA	183493

LCMS (Continued)

Analysis Batch: 185169 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-58547-8 - RA	FT1-RINSE3-2	Pre-Treatment	Water	537 IDA	183493
410-58547-8 - DL	FT1-RINSE3-2	Pre-Treatment	Water	537 IDA	183493
410-58547-8 - DL2	FT1-RINSE3-2	Pre-Treatment	Water	537 IDA	183493

Prep Batch: 186604

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-58547-1 - DL	FT1-RINSE1-1	Post-Treatment	Water	TOP Post Prep	
410-58547-1	FT1-RINSE1-1	Post-Treatment	Water	TOP Post Prep	
410-58547-2	FT1-RINSE-PIPE	Post-Treatment	Water	TOP Post Prep	
410-58547-2 - DL	FT1-RINSE-PIPE	Post-Treatment	Water	TOP Post Prep	
410-58547-3	FT1-EFFLUENT1-1	Post-Treatment	Water	TOP Post Prep	
410-58547-4	FT1-RINSE2-1	Post-Treatment	Water	TOP Post Prep	
410-58547-5	FT1-RINSE-PIPE 2	Post-Treatment	Water	TOP Post Prep	
410-58547-6	FT1-EFFLUENT2-1	Post-Treatment	Water	TOP Post Prep	
410-58547-6 - DL	FT1-EFFLUENT2-1	Post-Treatment	Water	TOP Post Prep	
410-58547-7	FT1-RINSE3-1	Post-Treatment	Water	TOP Post Prep	
410-58547-8	FT1-RINSE3-2	Post-Treatment	Water	TOP Post Prep	
410-58547-9	FB-FT1	Post-Treatment	Water	TOP Post Prep	
MB 410-186604/1-A	Method Blank	Post-Treatment	Water	TOP Post Prep	
MB 410-186604/2-A	Method Blank	Post-Treatment	Water	TOP Post Prep	
LCS 410-186604/3-A	Lab Control Sample	Post-Treatment	Water	TOP Post Prep	
LCSD 410-186604/4-A	Lab Control Sample Dup	Post-Treatment	Water	TOP Post Prep	

Analysis Batch: 186653

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-58547-2 - DL2	FT1-RINSE-PIPE	Pre-Treatment	Water	537 IDA	183493

Prep Batch: 187575

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-58547-1 - RE	FT1-RINSE1-1	Pre-Treatment	Water	TOP Pre - Prep	
410-58547-2 - RE	FT1-RINSE-PIPE	Pre-Treatment	Water	TOP Pre - Prep	
410-58547-4 - RE	FT1-RINSE2-1	Pre-Treatment	Water	TOP Pre - Prep	

Analysis Batch: 188569

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-58547-2 - DL	FT1-RINSE-PIPE	Post-Treatment	Water	537 TOP	186604
410-58547-3	FT1-EFFLUENT1-1	Post-Treatment	Water	537 TOP	186604
410-58547-4	FT1-RINSE2-1	Post-Treatment	Water	537 TOP	186604
410-58547-6	FT1-EFFLUENT2-1	Post-Treatment	Water	537 TOP	186604
410-58547-6 - DL	FT1-EFFLUENT2-1	Post-Treatment	Water	537 TOP	186604
MB 410-186604/1-A	Method Blank	Post-Treatment	Water	537 TOP	186604
LCS 410-186604/3-A	Lab Control Sample	Post-Treatment	Water	537 TOP	186604
LCSD 410-186604/4-A	Lab Control Sample Dup	Post-Treatment	Water	537 TOP	186604

Analysis Batch: 188970

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-58547-1	FT1-RINSE1-1	Post-Treatment	Water	537 TOP	186604
410-58547-1 - DL	FT1-RINSE1-1	Post-Treatment	Water	537 TOP	186604
410-58547-2	FT1-RINSE-PIPE	Post-Treatment	Water	537 TOP	186604
410-58547-5	FT1-RINSE-PIPE 2	Post-Treatment	Water	537 TOP	186604
410-58547-7	FT1-RINSE3-1	Post-Treatment	Water	537 TOP	186604

LCMS (Continued)

Analysis Batch: 188970 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-58547-8	FT1-RINSE3-2	Post-Treatment	Water	537 TOP	186604
410-58547-9	FB-FT1	Post-Treatment	Water	537 TOP	186604
MB 410-186604/2-A	Method Blank	Post-Treatment	Water	537 TOP	186604

Analysis Batch: 189298

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-58547-1 - RE	FT1-RINSE1-1	Pre-Treatment	Water	537 IDA	187575
410-58547-2 - RE	FT1-RINSE-PIPE	Pre-Treatment	Water	537 IDA	187575
410-58547-4 - RE	FT1-RINSE2-1	Pre-Treatment	Water	537 IDA	187575

Analysis Batch: 189672

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-58547-1	FT1-RINSE1-1	Pre-Treatment	Water	537 IDA	183493

Analysis Batch: 189807

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-58547-1	FT1-RINSE1-1	Post-Treatment	Water	Total PFCA-Sum	
410-58547-1	FT1-RINSE1-1	Pre-Treatment	Water	Total PFCA-Sum	
410-58547-2	FT1-RINSE-PIPE	Post-Treatment	Water	Total PFCA-Sum	
410-58547-2	FT1-RINSE-PIPE	Pre-Treatment	Water	Total PFCA-Sum	
410-58547-3	FT1-EFFLUENT1-1	Post-Treatment	Water	Total PFCA-Sum	
410-58547-3	FT1-EFFLUENT1-1	Pre-Treatment	Water	Total PFCA-Sum	
410-58547-4	FT1-RINSE2-1	Post-Treatment	Water	Total PFCA-Sum	
410-58547-4	FT1-RINSE2-1	Pre-Treatment	Water	Total PFCA-Sum	
410-58547-5	FT1-RINSE-PIPE 2	Post-Treatment	Water	Total PFCA-Sum	
410-58547-5	FT1-RINSE-PIPE 2	Pre-Treatment	Water	Total PFCA-Sum	
410-58547-6	FT1-EFFLUENT2-1	Post-Treatment	Water	Total PFCA-Sum	
410-58547-6	FT1-EFFLUENT2-1	Pre-Treatment	Water	Total PFCA-Sum	
410-58547-7	FT1-RINSE3-1	Post-Treatment	Water	Total PFCA-Sum	
410-58547-7	FT1-RINSE3-1	Pre-Treatment	Water	Total PFCA-Sum	
410-58547-8	FT1-RINSE3-2	Post-Treatment	Water	Total PFCA-Sum	
410-58547-8	FT1-RINSE3-2	Pre-Treatment	Water	Total PFCA-Sum	
410-58547-9	FB-FT1	Post-Treatment	Water	Total PFCA-Sum	
410-58547-9	FB-FT1	Pre-Treatment	Water	Total PFCA-Sum	

Analysis Batch: 189809

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-58547-3	FT1-EFFLUENT1-1	Total/NA	Water	Total PFCA-Dif	
410-58547-5	FT1-RINSE-PIPE 2	Total/NA	Water	Total PFCA-Dif	
410-58547-6	FT1-EFFLUENT2-1	Total/NA	Water	Total PFCA-Dif	
410-58547-7	FT1-RINSE3-1	Total/NA	Water	Total PFCA-Dif	
410-58547-8	FT1-RINSE3-2	Total/NA	Water	Total PFCA-Dif	
410-58547-9	FB-FT1	Total/NA	Water	Total PFCA-Dif	

Analysis Batch: 189863

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-58547-1	FT1-RINSE1-1	Total/NA	Water	Total PFCA-Dif	
410-58547-2	FT1-RINSE-PIPE	Total/NA	Water	Total PFCA-Dif	
410-58547-4	FT1-RINSE2-1	Total/NA	Water	Total PFCA-Dif	

Lab Chronicle

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-58547-1

Client Sample ID: FT1-RINSE1-1

Lab Sample ID: 410-58547-1
Date Collected: 10/05/21 16:00
Matrix: Water
Date Received: 10/09/21 10:22

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Pre-Treatment	Prep	TOP Pre - Prep	RE		187575	10/27/21 07:29	RDL8	ELLE
Pre-Treatment	Analysis	537 IDA	RE	100	189298	11/01/21 22:35	ZG8V	ELLE
Pre-Treatment	Prep	TOP Pre - Prep			183493	10/15/21 17:09	GU2F	ELLE
Pre-Treatment	Analysis	537 IDA		100	189672	11/02/21 11:07	UCD3	ELLE
Pre-Treatment	Prep	TOP Pre - Prep	RA		183493	10/15/21 17:09	GU2F	ELLE
Pre-Treatment	Analysis	537 IDA	RA	100	185169	10/21/21 18:29	JVK6	ELLE
Post-Treatment	Prep	TOP Post Prep			186604	10/25/21 08:52	S7AC	ELLE
Post-Treatment	Analysis	537 TOP		10	188970	10/30/21 11:48	MT26	ELLE
Post-Treatment	Prep	TOP Post Prep	DL		186604	10/25/21 08:52	S7AC	ELLE
Post-Treatment	Analysis	537 TOP	DL	100	188970	10/30/21 11:59	MT26	ELLE
Total/NA	Analysis	Total PFCA-Dif		1	189863	11/02/21 14:54	MT26	ELLE
Post-Treatment	Analysis	Total PFCA-Sum		1	189807	11/02/21 13:10	MT26	ELLE
Pre-Treatment	Analysis	Total PFCA-Sum		1	189807	11/02/21 13:10	MT26	ELLE

Client Sample ID: FT1-RINSE-PIPE

Lab Sample ID: 410-58547-2
Date Collected: 10/06/21 15:45
Matrix: Water
Date Received: 10/09/21 10:22

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Pre-Treatment	Prep	TOP Pre - Prep	RE		187575	10/27/21 07:29	RDL8	ELLE
Pre-Treatment	Analysis	537 IDA	RE	1	189298	11/01/21 16:18	ZG8V	ELLE
Pre-Treatment	Prep	TOP Pre - Prep			183493	10/15/21 17:09	GU2F	ELLE
Pre-Treatment	Analysis	537 IDA		1	184081	10/18/21 23:02	JVK6	ELLE
Pre-Treatment	Prep	TOP Pre - Prep	DL		183493	10/15/21 17:09	GU2F	ELLE
Pre-Treatment	Analysis	537 IDA	DL	10	185169	10/21/21 18:40	JVK6	ELLE
Pre-Treatment	Prep	TOP Pre - Prep	DL2		183493	10/15/21 17:09	GU2F	ELLE
Pre-Treatment	Analysis	537 IDA	DL2	100	186653	10/25/21 17:14	QD9Y	ELLE
Post-Treatment	Prep	TOP Post Prep	DL		186604	10/25/21 08:52	S7AC	ELLE
Post-Treatment	Analysis	537 TOP	DL	10	188569	10/29/21 12:08	MT26	ELLE
Post-Treatment	Prep	TOP Post Prep			186604	10/25/21 08:52	S7AC	ELLE
Post-Treatment	Analysis	537 TOP		1	188970	10/30/21 12:09	MT26	ELLE
Total/NA	Analysis	Total PFCA-Dif		1	189863	11/02/21 14:54	MT26	ELLE
Post-Treatment	Analysis	Total PFCA-Sum		1	189807	11/02/21 13:10	MT26	ELLE
Pre-Treatment	Analysis	Total PFCA-Sum		1	189807	11/02/21 13:10	MT26	ELLE

Client Sample ID: FT1-EFFLUENT1-1

Lab Sample ID: 410-58547-3
Date Collected: 10/07/21 10:00
Matrix: Water
Date Received: 10/09/21 10:22

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Pre-Treatment	Prep	TOP Pre - Prep			183493	10/15/21 17:09	GU2F	ELLE
Pre-Treatment	Analysis	537 IDA		1	184081	10/18/21 23:13	JVK6	ELLE
Post-Treatment	Prep	TOP Post Prep			186604	10/25/21 08:52	S7AC	ELLE
Post-Treatment	Analysis	537 TOP		1	188569	10/29/21 12:40	MT26	ELLE

Lab Chronicle

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-58547-1

Client Sample ID: FT1-EFFLUENT1-1
Lab Sample ID: 410-58547-3
Date Collected: 10/07/21 10:00
Matrix: Water
Date Received: 10/09/21 10:22

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Total PFCA-Dif		1	189809	11/02/21 13:16	MT26	ELLE
Post-Treatment	Analysis	Total PFCA-Sum		1	189807	11/02/21 13:10	MT26	ELLE
Pre-Treatment	Analysis	Total PFCA-Sum		1	189807	11/02/21 13:10	MT26	ELLE

Client Sample ID: FT1-RINSE2-1
Lab Sample ID: 410-58547-4
Date Collected: 10/07/21 11:30
Matrix: Water
Date Received: 10/09/21 10:22

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Pre-Treatment	Prep	TOP Pre - Prep	RE		187575	10/27/21 07:29	RDL8	ELLE
Pre-Treatment	Analysis	537 IDA	RE	1	189298	11/01/21 16:51	ZG8V	ELLE
Pre-Treatment	Prep	TOP Pre - Prep			183493	10/15/21 17:09	GU2F	ELLE
Pre-Treatment	Analysis	537 IDA		10	185169	10/21/21 18:51	JVK6	ELLE
Pre-Treatment	Prep	TOP Pre - Prep	DL		183493	10/15/21 17:09	GU2F	ELLE
Pre-Treatment	Analysis	537 IDA	DL	100	185169	10/21/21 19:03	JVK6	ELLE
Post-Treatment	Prep	TOP Post Prep			186604	10/25/21 08:52	S7AC	ELLE
Post-Treatment	Analysis	537 TOP		10	188569	10/29/21 12:50	MT26	ELLE
Total/NA	Analysis	Total PFCA-Dif		1	189863	11/02/21 14:54	MT26	ELLE
Post-Treatment	Analysis	Total PFCA-Sum		1	189807	11/02/21 13:10	MT26	ELLE
Pre-Treatment	Analysis	Total PFCA-Sum		1	189807	11/02/21 13:10	MT26	ELLE

Client Sample ID: FT1-RINSE-PIPE 2
Lab Sample ID: 410-58547-5
Date Collected: 10/07/21 15:50
Matrix: Water
Date Received: 10/09/21 10:22

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Pre-Treatment	Prep	TOP Pre - Prep			183493	10/15/21 17:09	GU2F	ELLE
Pre-Treatment	Analysis	537 IDA		1	184081	10/18/21 23:35	JVK6	ELLE
Pre-Treatment	Prep	TOP Pre - Prep	DL		183493	10/15/21 17:09	GU2F	ELLE
Pre-Treatment	Analysis	537 IDA	DL	10	185169	10/21/21 19:14	JVK6	ELLE
Post-Treatment	Prep	TOP Post Prep			186604	10/25/21 08:52	S7AC	ELLE
Post-Treatment	Analysis	537 TOP		1	188970	10/30/21 12:20	MT26	ELLE
Total/NA	Analysis	Total PFCA-Dif		1	189809	11/02/21 13:16	MT26	ELLE
Post-Treatment	Analysis	Total PFCA-Sum		1	189807	11/02/21 13:10	MT26	ELLE
Pre-Treatment	Analysis	Total PFCA-Sum		1	189807	11/02/21 13:10	MT26	ELLE

Client Sample ID: FT1-EFFLUENT2-1
Lab Sample ID: 410-58547-6
Date Collected: 10/08/21 08:30
Matrix: Water
Date Received: 10/09/21 10:22

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Pre-Treatment	Prep	TOP Pre - Prep			183493	10/15/21 17:09	GU2F	ELLE
Pre-Treatment	Analysis	537 IDA		1	184081	10/18/21 23:46	JVK6	ELLE

Lab Chronicle

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-58547-1

Client Sample ID: FT1-EFFLUENT2-1

Lab Sample ID: 410-58547-6
Date Collected: 10/08/21 08:30
Matrix: Water
Date Received: 10/09/21 10:22

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Pre-Treatment	Prep	TOP Pre - Prep	DL		183493	10/15/21 17:09	GU2F	ELLE
Pre-Treatment	Analysis	537 IDA	DL	10	185169	10/21/21 19:25	JVK6	ELLE
Post-Treatment	Prep	TOP Post Prep			186604	10/25/21 08:52	S7AC	ELLE
Post-Treatment	Analysis	537 TOP		1	188569	10/29/21 14:30	MT26	ELLE
Post-Treatment	Prep	TOP Post Prep	DL		186604	10/25/21 08:52	S7AC	ELLE
Post-Treatment	Analysis	537 TOP	DL	10	188569	10/29/21 14:41	MT26	ELLE
Total/NA	Analysis	Total PFCA-Dif		1	189809	11/02/21 13:16	MT26	ELLE
Post-Treatment	Analysis	Total PFCA-Sum		1	189807	11/02/21 13:10	MT26	ELLE
Pre-Treatment	Analysis	Total PFCA-Sum		1	189807	11/02/21 13:10	MT26	ELLE

Client Sample ID: FT1-RINSE3-1

Lab Sample ID: 410-58547-7
Date Collected: 10/08/21 09:00
Matrix: Water
Date Received: 10/09/21 10:22

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Pre-Treatment	Prep	TOP Pre - Prep			183493	10/15/21 17:09	GU2F	ELLE
Pre-Treatment	Analysis	537 IDA		1	184081	10/19/21 00:19	JVK6	ELLE
Pre-Treatment	Prep	TOP Pre - Prep	RA		183493	10/15/21 17:09	GU2F	ELLE
Pre-Treatment	Analysis	537 IDA	RA	1	185169	10/21/21 19:36	JVK6	ELLE
Pre-Treatment	Prep	TOP Pre - Prep	DL		183493	10/15/21 17:09	GU2F	ELLE
Pre-Treatment	Analysis	537 IDA	DL	10	185169	10/21/21 19:47	JVK6	ELLE
Pre-Treatment	Prep	TOP Pre - Prep	DL2		183493	10/15/21 17:09	GU2F	ELLE
Pre-Treatment	Analysis	537 IDA	DL2	100	185169	10/21/21 19:58	JVK6	ELLE
Post-Treatment	Prep	TOP Post Prep			186604	10/25/21 08:52	S7AC	ELLE
Post-Treatment	Analysis	537 TOP		1	188970	10/30/21 12:31	MT26	ELLE
Total/NA	Analysis	Total PFCA-Dif		1	189809	11/02/21 13:16	MT26	ELLE
Post-Treatment	Analysis	Total PFCA-Sum		1	189807	11/02/21 13:10	MT26	ELLE
Pre-Treatment	Analysis	Total PFCA-Sum		1	189807	11/02/21 13:10	MT26	ELLE

Client Sample ID: FT1-RINSE3-2

Lab Sample ID: 410-58547-8
Date Collected: 10/08/21 09:05
Matrix: Water
Date Received: 10/09/21 10:22

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Pre-Treatment	Prep	TOP Pre - Prep			183493	10/15/21 17:09	GU2F	ELLE
Pre-Treatment	Analysis	537 IDA		1	184081	10/19/21 00:30	JVK6	ELLE
Pre-Treatment	Prep	TOP Pre - Prep	RA		183493	10/15/21 17:09	GU2F	ELLE
Pre-Treatment	Analysis	537 IDA	RA	1	185169	10/21/21 20:09	JVK6	ELLE
Pre-Treatment	Prep	TOP Pre - Prep	DL		183493	10/15/21 17:09	GU2F	ELLE
Pre-Treatment	Analysis	537 IDA	DL	10	185169	10/21/21 20:31	JVK6	ELLE
Pre-Treatment	Prep	TOP Pre - Prep	DL2		183493	10/15/21 17:09	GU2F	ELLE
Pre-Treatment	Analysis	537 IDA	DL2	100	185169	10/21/21 20:42	JVK6	ELLE
Post-Treatment	Prep	TOP Post Prep			186604	10/25/21 08:52	S7AC	ELLE
Post-Treatment	Analysis	537 TOP		1	188970	10/30/21 12:41	MT26	ELLE

Lab Chronicle

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-58547-1

Client Sample ID: FT1-RINSE3-2

Lab Sample ID: 410-58547-8
Date Collected: 10/08/21 09:05
Matrix: Water
Date Received: 10/09/21 10:22

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Total PFCA-Dif		1	189809	11/02/21 13:16	MT26	ELLE
Post-Treatment	Analysis	Total PFCA-Sum		1	189807	11/02/21 13:10	MT26	ELLE
Pre-Treatment	Analysis	Total PFCA-Sum		1	189807	11/02/21 13:10	MT26	ELLE

Client Sample ID: FB-FT1

Lab Sample ID: 410-58547-9
Date Collected: 10/08/21 11:33
Matrix: Water
Date Received: 10/09/21 10:22

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Pre-Treatment	Prep	TOP Pre - Prep			183493	10/15/21 17:09	GU2F	ELLE
Pre-Treatment	Analysis	537 IDA		1	184081	10/19/21 00:53	JVK6	ELLE
Post-Treatment	Prep	TOP Post Prep			186604	10/25/21 08:52	S7AC	ELLE
Post-Treatment	Analysis	537 TOP		1	188970	10/30/21 13:02	MT26	ELLE
Total/NA	Analysis	Total PFCA-Dif		1	189809	11/02/21 13:16	MT26	ELLE
Post-Treatment	Analysis	Total PFCA-Sum		1	189807	11/02/21 13:10	MT26	ELLE
Pre-Treatment	Analysis	Total PFCA-Sum		1	189807	11/02/21 13:10	MT26	ELLE

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Env, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Accreditation/Certification Summary

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-58547-1

Laboratory: Eurofins Lancaster Laboratories Env, LLC

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

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	1.01	11-30-22
Alaska	State	PA00009	06-30-22
Alaska (UST)	State	17-027	02-28-22
Arizona	State	AZ0780	03-12-22
Arkansas DEQ	State	88-0660	08-10-22
California	State	2792	02-02-22
Colorado	State	PA00009	06-30-22
Connecticut	State	PH-0746	06-30-23
DE Haz. Subst. Cleanup Act (HSCA)	State	019-006 (PA cert)	01-31-22
Delaware (DW)	State	N/A	02-01-22
Florida	NELAP	E87997	06-30-22
Hawaii	State	N/A	01-31-22
Illinois	NELAP	004559	01-31-22
Iowa	State	361	03-02-22
Kansas	NELAP	E-10151	10-31-22
Kentucky (DW)	State	KY90088	01-01-22
Kentucky (UST)	State	1.01	11-30-22
Kentucky (WW)	State	KY90088	12-31-21
Louisiana	NELAP	02055	06-30-22
Maine	State	2019012	03-12-22
Maryland	State	100	06-30-22
Massachusetts	State	M-PA009	06-30-22
Michigan	State	9930	01-31-22
Minnesota	NELAP	042-999-487	12-31-21
Missouri	State	450	01-31-22
Montana (DW)	State	0098	01-01-22
Montana (UST)	State	0098	01-01-22
Nebraska	State	NE-OS-32-17	01-31-22
New Hampshire	NELAP	273019	01-10-22
New Jersey	NELAP	PA011	06-30-22
New York	NELAP	10670	04-01-22
North Carolina (DW)	State	42705	07-31-22
North Carolina (WW/SW)	State	521	12-31-21
North Dakota	State	R-205	01-31-22
Oklahoma	NELAP	R-205	08-31-22
Oregon	NELAP	PA200001-018	09-11-22
PALA	Canada	1978	09-16-24
Pennsylvania	NELAP	36-00037	01-31-22
Rhode Island	State	LAO00338	01-31-22
South Carolina	State	89002002	01-31-22
Tennessee	State	02838	01-31-22
Texas	NELAP	T104704194-21-40	08-31-22
Utah	NELAP	PA000092019-16	03-01-22
Virginia	NELAP	10561	06-14-22
Washington	State	C457	04-12-22
West Virginia (DW)	State	9906 C	12-31-21
West Virginia DEP	State	055	12-31-21
Wyoming	State	8TMS-L	01-31-22
Wyoming (UST)	A2LA	1.01	11-30-22

Method Summary

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-58547-1

Method	Method Description	Protocol	Laboratory
537 IDA	EPA 537 Isotope Dilution	EPA	ELLE
537 TOP	Fluorinated Alkyl Substances	EPA	ELLE
Total PFCA-Dif	Total PFCA (Treatment Difference)	TAL SOP	ELLE
Total PFCA-Sum	Total PFCA (Summary)	TAL SOP	ELLE
TOP Post Prep	Solid-Phase Extraction (SPE)	SW846	ELLE
TOP Pre - Prep	Solid-Phase Extraction (SPE)	SW846	ELLE

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Env, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Sample Summary

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-58547-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
410-58547-1	FT1-RINSE1-1	Water	10/05/21 16:00	10/09/21 10:22
410-58547-2	FT1-RINSE-PIPE	Water	10/06/21 15:45	10/09/21 10:22
410-58547-3	FT1-EFFLUENT1-1	Water	10/07/21 10:00	10/09/21 10:22
410-58547-4	FT1-RINSE2-1	Water	10/07/21 11:30	10/09/21 10:22
410-58547-5	FT1-RINSE-PIPE 2	Water	10/07/21 15:50	10/09/21 10:22
410-58547-6	FT1-EFFLUENT2-1	Water	10/08/21 08:30	10/09/21 10:22
410-58547-7	FT1-RINSE3-1	Water	10/08/21 09:00	10/09/21 10:22
410-58547-8	FT1-RINSE3-2	Water	10/08/21 09:05	10/09/21 10:22
410-58547-9	FB-FT1	Water	10/08/21 11:33	10/09/21 10:22

Eurofins Lancaster Laboratories Env, LLC
2425 New Holland Pike
Lancaster, PA 17601
Phone: 717-656-2300 Fax: 717-656-2681

Chain of Custody Record

410-58547 Chain of Custody

eurofins Environment Testing America

Client Information	Sampler: RYAN BOTT	Lab PM: Cottman, Hannah L	COC No: 10-32700-10190.3
Client Contact: Mr. Robert Kennedy	Phone: 860-263-5867	E-Mail: Hannah.Cottman@eurofinset.com	State of Origin: CT
Company: AECOM	PWSID:		Page: ~~Page 3 of 3~~ 1 of 1
Address: 250 Apollo Drive	Due Date Requested:		Job #:
City: Chelmsford	TAT Requested (days): STANDARD		
State, Zip: MA, 01824	Compliance Project: Δ Yes Δ No		
Phone:	PO #: Purchase Order Requested		
Email: robert.kennedy@aecom.com	WO #:		
Project Name: AFFF Tanks Cleaning	Project #: 41007527		
Site:	SSOW#:		

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA
M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Filtered Sample (Y/N)	MS/MSD (Y/N)	PFC_IDA - 24 PFAS	PFC_IDA - 24 PFAS - TOP Assay	Total Number	Special Instructions/Note:
			Preservation Code:		X	X	N	N	X	
FT1-RINSE 1-1	10/5/21	1600	G	Water			X	X	2	HIGH CONC. AFFF EXPECTED
FT1-RINSE ~~[illegible]~~ (1B) -PIPE	10/6/21	1545	G	Water			X	X	2	
FT1-EFFLUENT 1-1	10/7/21	1000	G	Water			X	X	2	
FT1-RINSE 2-1	10/7/21	1130	G	Water			X	X	2	
FT1-RINSE-PIPE 2	10/7/21	1550	G	Water			X	X	2	
FT1-EFFLUENT 2-1	10/8/21	830	G	Water		X	X	X	2	
FT1-RINSE3-1	10/8/21	900	G	WATER			X	X	2	
FT1-RINSE3-2	10/8/21	905	G	WATER			X	X	2	
FB-FT1	10/8/21	1133	G	WATER			X	X	2	

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify) STANDARD

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:		
Relinquished by:	Date/Time: 10/8/21 12:00	Company: AECOM	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time	Company	Received by:	Date/Time: 10/9/21 1022	Company

Custody Seals Intact: Δ Yes Δ No
Custody Seal No.:
Cooler Temperature(s) °C and Other Remarks: 5.1

Ver: 06/08/2021

11/3/2021

Login Sample Receipt Checklist

Client: AECOM

Job Number: 410-58547-1

Login Number: 58547
List Number: 1
Creator: Cyms, Carolyn M

List Source: Eurofins Lancaster Laboratories Env, LLC

Question	Answer	Comment
The cooler's custody seal is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable (</=6C, not frozen).	True	
Cooler Temperature is recorded.	True	
WV: Container Temperature is acceptable (</=6C, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	True	
Sample custody seals are intact.	N/A	

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ANALYTICAL REPORT

Eurofins Lancaster Laboratories Env, LLC
2425 New Holland Pike
Lancaster, PA 17601
Tel: (717)656-2300

Laboratory Job ID: 410-59688-1
Client Project/Site: AFFF Tanks Cleaning

For:
AECOM
250 Apollo Drive
Chelmsford, Massachusetts 01824

Attn: Mr. Robert Kennedy

Authorized for release by:
12/27/2021 5:13:53 PM

Hannah Cottman, Operations Support Specialist
(717)556-7383
Hannah.Cottman@eurofinset.com

LINKS

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

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

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

Analytical test results meet all requirements of the associated regulatory program (e.g., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis. Data qualifiers are applied to note exceptions. Noncompliant quality control (QC) is further explained in narrative comments.
· QC results that exceed the upper limits and are associated with non-detect samples are qualified but further narration is not required since the bias is high and does not change a non-detect result. Further narration is also not required with QC blank detection when the associated sample concentration is non-detect or more than ten times the level in the blank.
· Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD is performed, unless otherwise specified in the method.
· Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.
Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Measurement uncertainty values, as applicable, are available upon request.

Test results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" and tested in the laboratory are not performed within 15 minutes of collection.

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Hannah Cottman
Operations Support Specialist
12/27/2021 5:13:53 PM

Table of Contents

Cover Page 1
Table of Contents 3
Definitions/Glossary 4
Case Narrative 5
Detection Summary 7
Client Sample Results 14
Surrogate Summary 35
Isotope Dilution Summary 36
QC Sample Results 41
QC Association Summary 54
Lab Chronicle 58
Certification Summary 61
Method Summary 63
Sample Summary 64
Chain of Custody 65
Receipt Checklists 66

Qualifiers

LCMS

Qualifier	Qualifier Description
*+	LCS and/or LCSD is outside acceptance limits, high biased.
*5-	Isotope dilution analyte is outside acceptance limits, low biased.
*5+	Isotope dilution analyte is outside acceptance limits, high biased.
cn	Refer to Case Narrative for further detail
I	Value is EMPC (estimated maximum possible concentration).
S1-	Surrogate recovery exceeds control limits, low biased.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
1C	Result is from the primary column on a dual-column method.
2C	Result is from the confirmation column on a dual-column method.
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Job ID: 410-59688-1

Laboratory: Eurofins Lancaster Laboratories Env, LLC

Narrative

Job Narrative
410-59688-1

Receipt
The samples were received on 10/16/2021 9:45 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 1.7°C

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

PFAS
Method PFC_IDA: The labeled isotope recovery is outside of the QC acceptance limits in the Laboratory Control Spike associated with the following sample: TRAILER 2 -RINSE 4-2 (410-59688-6). Since the recovery is biased high and the recovery for the associated target analytes is within the QC limits, the data is reported.

Method PFC_IDA: The labeled isotope recovery is outside of the QC acceptance limits in the Laboratory Control Spike associated with the following sample: TOTE 10-11-GAC-2 (410-59688-7). Since the recovery is biased high and the recovery for the associated target analytes is within the QC limits, the data is reported.The injection standard peak areas are outside of the QC acceptance limits in both the initial extraction and the re-extraction of the following sample: TOTE 10-11-GAC-2 (410-59688-7). The values here are from the re-extracted sample.

Method PFC_IDA: The sample injection standard peak areas in the following sample: TRAILER 2 -RINSE 1-1 (410-59688-1) are outside of the QC limits for both the initial injection and the re-injection. The values here are from the initial injection of the sample.The recovery for the labeled isotope(s) in the following sample: TRAILER 2 -RINSE 1-1 (410-59688-1) is outside the QC acceptance limits due to the matrix of the sample.

Method PFC_IDA: The recovery for the labeled isotope(s) in the following samples: TRAILER 2 -EFF 1-1 (410-59688-3), TRAILER 2 -RINSE 3-1 (410-59688-4) and TRAILER 1-RINSE-1 (410-59688-9) is outside the QC acceptance limits due to the matrix of the sample.

Method PFC_IDA: The recovery for the labeled isotope(s) in the following sample: TRAILER 2 -RINSE 4-1 (410-59688-5) is outside the QC acceptance limits. Since the recovery is high and the native analyte is not detected in the sample, the data is reported.

Method PFC_IDA: The recovery for the labeled isotope(s) in the following sample: TRAILER 2 -RINSE 2-1 (410-59688-2) is outside the QC acceptance limits. Since the recovery is high and the native analyte is not detected in the sample, the data is reported.The sample injection standard peak areas in the following sample: TRAILER 2 -RINSE 2-1 (410-59688-2) are outside of the QC limits for both the initial injection and the re-injection. The values here are from the initial injection of the sample.

Method PFC_IDA: The sample injection standard peak areas in the following sample: TRAILER 2 -EFF 1-1 (410-59688-3) are outside of the QC limits for both the initial injection and the re-injection. The values here are from the initial injection of the sample.Reporting limits were raised for the following sample: TRAILER 2 -EFF 1-1 (410-59688-3) due to interference from the sample matrix.

Method PFC_IDA: Reporting limits were raised for the following sample: TRAILER 2 -RINSE 1-1 (410-59688-1) due to interference from the sample matrix.

Method PFC_IDA: Reporting limits were raised for the following samples: TRAILER 2 -RINSE 1-1 (410-59688-1), TRAILER 2 -RINSE 2-1 (410-59688-2), TRAILER 2 -RINSE 4-1 (410-59688-5) and TRAILER 1-RINSE-1 (410-59688-9) due to interference from the sample matrix.

Method PFC_IDA: Reporting limits were raised for the following sample: TRAILER 2 -RINSE 3-1 (410-59688-4) due to interference from the sample matrix

Method PFC_IDA: The recovery for the labeled isotope(s) in the following sample: TRAILER 2 -RINSE 3-1 (410-59688-4) is outside the QC acceptance limits.The following action was taken: This sample was re-extracted outside of the required holding time and the recovery for labeled isotope(s) was within QC acceptance limits.

Job ID: 410-59688-1 (Continued)

Laboratory: Eurofins Lancaster Laboratories Env, LLC (Contii

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

Detection Summary

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-59688-1

Client Sample ID: TRAILER 2 -RINSE 1-1 — Lab Sample ID: 410-59688-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid	6500	cn	5000	2000	ng/L	10		537 IDA	Pre-Treatment
Perfluorodecanoic acid	2000	cn	2000	500	ng/L	10		537 IDA	Pre-Treatment
Perfluorohexanoic acid	40000	cn	2000	500	ng/L	10		537 IDA	Pre-Treatment
Perfluorooctanoic acid	12000	cn	2000	500	ng/L	10		537 IDA	Pre-Treatment
Perfluoropentanoic acid	2000	cn	2000	500	ng/L	10		537 IDA	Pre-Treatment
4:2 Fluorotelomer sulfonic acid	6100	cn	2000	500	ng/L	10		537 IDA	Pre-Treatment
6:2 Fluorotelomer sulfonic acid - DL	480000	cn	50000	20000	ng/L	100		537 IDA	Pre-Treatment
8:2 Fluorotelomer sulfonic acid - DL	95000	cn	30000	10000	ng/L	100		537 IDA	Pre-Treatment
Perfluorodecanoic acid	2200000		20000	5000	ng/L	1		537 TOP	Post-Treatment
Perfluorododecanoic acid	1000000	I	20000	5000	ng/L	1		537 TOP	Post-Treatment
Perfluorohexadecanoic acid	150000		30000	10000	ng/L	1		537 TOP	Post-Treatment
Perfluorooctadecanoic acid	45000		30000	10000	ng/L	1		537 TOP	Post-Treatment
Perfluorotetradecanoic acid	470000		20000	5000	ng/L	1		537 TOP	Post-Treatment
Perfluorotridecanoic acid	540000		20000	5000	ng/L	1		537 TOP	Post-Treatment
Perfluoroundecanoic acid	1500000		20000	5000	ng/L	1		537 TOP	Post-Treatment
Perfluorobutanoic acid - DL	11000000		500000	200000	ng/L	10		537 TOP	Post-Treatment
Perfluoroheptanoic acid - DL	14000000		200000	50000	ng/L	10		537 TOP	Post-Treatment
Perfluorohexanoic acid - DL	12000000		200000	50000	ng/L	10		537 TOP	Post-Treatment
Perfluorononanoic acid - DL	5500000		200000	50000	ng/L	10		537 TOP	Post-Treatment
Perfluorooctanoic acid - DL	5200000		200000	50000	ng/L	10		537 TOP	Post-Treatment
Perfluoropentanoic acid - DL	30000000		200000	50000	ng/L	10		537 TOP	Post-Treatment
Perfluorobutanoic acid	11000000				ng/L	1		Total PFCA-Dif	Total/NA
Perfluoropentanoic acid	30000000				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorohexanoic acid	12000000				ng/L	1		Total PFCA-Dif	Total/NA
Perfluoroheptanoic acid	14000000				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorooctanoic acid	5200000				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorononanoic acid	5500000				ng/L	1		Total PFCA-Dif	Total/NA
Total PFCA	78000000				ng/L	1		Total PFCA-Dif	Total/NA
Total PFCA	61000		500	0.50	ng/L	1		Total PFCA-Sum	Pre-Treatment
Total PFCA	78000000		500	0.50	ng/L	1		Total PFCA-Sum	Post-Treatment

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-59688-1

Client Sample ID: TRAILER 2 -RINSE 2-1 — Lab Sample ID: 410-59688-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorodecanoic acid	330	cn	200	50	ng/L	1		537 IDA	Pre-Treatment
Perfluoroheptanoic acid	240	cn	200	50	ng/L	1		537 IDA	Pre-Treatment
Perfluorohexanoic acid	940	cn	200	50	ng/L	1		537 IDA	Pre-Treatment
Perfluorooctanoic acid	580	cn	200	50	ng/L	1		537 IDA	Pre-Treatment
6:2 Fluorotelomer sulfonic acid - DL	44000	cn	5000	2000	ng/L	10		537 IDA	Pre-Treatment
8:2 Fluorotelomer sulfonic acid - DL	15000	cn	3000	1000	ng/L	10		537 IDA	Pre-Treatment
Perfluorobutanoic acid	960000		50000	20000	ng/L	1		537 TOP	Post-Treatment
Perfluorodecanoic acid	190000		20000	5000	ng/L	1		537 TOP	Post-Treatment
Perfluorododecanoic acid	80000	I	20000	5000	ng/L	1		537 TOP	Post-Treatment
Perfluoroheptanoic acid	1200000		20000	5000	ng/L	1		537 TOP	Post-Treatment
Perfluorohexanoic acid	1100000		20000	5000	ng/L	1		537 TOP	Post-Treatment
Perfluorononanoic acid	370000		20000	5000	ng/L	1		537 TOP	Post-Treatment
Perfluorooctanoic acid	460000		20000	5000	ng/L	1		537 TOP	Post-Treatment
Perfluoropentanoic acid	2500000		20000	5000	ng/L	1		537 TOP	Post-Treatment
Perfluorotetradecanoic acid	35000		20000	5000	ng/L	1		537 TOP	Post-Treatment
Perfluorotridecanoic acid	43000		20000	5000	ng/L	1		537 TOP	Post-Treatment
Perfluoroundecanoic acid	140000		20000	5000	ng/L	1		537 TOP	Post-Treatment
Perfluorobutanoic acid	960000				ng/L	1		Total PFCA-Dif	Total/NA
Perfluoropentanoic acid	2500000				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorohexanoic acid	1100000				ng/L	1		Total PFCA-Dif	Total/NA
Perfluoroheptanoic acid	1200000				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorooctanoic acid	460000				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorononanoic acid	370000				ng/L	1		Total PFCA-Dif	Total/NA
Total PFCA	6600000				ng/L	1		Total PFCA-Dif	Total/NA
Total PFCA	1800		500	0.50	ng/L	1		Total PFCA-Sum	Pre-Treatment
Total PFCA	6600000		500	0.50	ng/L	1		Total PFCA-Sum	Post-Treatment

Client Sample ID: TRAILER 2 -EFF 1-1 — Lab Sample ID: 410-59688-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorodecanoic acid	520	I cn	20	5.0	ng/L	1		537 IDA	Pre-Treatment
Perfluorododecanoic acid	200	cn	20	5.0	ng/L	1		537 IDA	Pre-Treatment
Perfluorohexanoic acid	51	cn	20	5.0	ng/L	1		537 IDA	Pre-Treatment
Perfluorononanoic acid	110	I cn	20	5.0	ng/L	1		537 IDA	Pre-Treatment

This Detection Summary does not include radiochemical test results.

Eurofins Lancaster Laboratories Env, LLC

Client Sample ID: TRAILER 2 -EFF 1-1 (Continued) — Lab Sample ID: 410-59688-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid	50	I cn	20	5.0	ng/L	1		537 IDA	Pre-Treatment
Perfluorooctanoic acid	140	cn	20	5.0	ng/L	1		537 IDA	Pre-Treatment
Perfluoropentanoic acid	21	cn	20	5.0	ng/L	1		537 IDA	Pre-Treatment
Perfluorotetradecanoic acid	120	cn	20	5.0	ng/L	1		537 IDA	Pre-Treatment
6:2 Fluorotelomer sulfonic acid - DL	8800	cn	5000	2000	ng/L	100		537 IDA	Pre-Treatment
8:2 Fluorotelomer sulfonic acid - DL	13000	cn	3000	1000	ng/L	100		537 IDA	Pre-Treatment
10:2 Fluorotelomer sulfonic acid	1600		1300	250	ng/L	1		537 TOP	Post-Treatment
Perfluorohexadecanoic acid	54000		750	250	ng/L	1		537 TOP	Post-Treatment
Perfluorooctadecanoic acid	8400		750	250	ng/L	1		537 TOP	Post-Treatment
Perfluorobutanoic acid - DL	220000		130000	50000	ng/L	100		537 TOP	Post-Treatment
Perfluorodecanoic acid - DL	490000		50000	13000	ng/L	100		537 TOP	Post-Treatment
Perfluorododecanoic acid - DL	290000	I	50000	13000	ng/L	100		537 TOP	Post-Treatment
Perfluoroheptanoic acid - DL	890000		50000	13000	ng/L	100		537 TOP	Post-Treatment
Perfluorohexanoic acid - DL	440000		50000	13000	ng/L	100		537 TOP	Post-Treatment
Perfluorononanoic acid - DL	480000		50000	13000	ng/L	100		537 TOP	Post-Treatment
Perfluorooctanoic acid - DL	320000		50000	13000	ng/L	100		537 TOP	Post-Treatment
Perfluoropentanoic acid - DL	860000		50000	13000	ng/L	100		537 TOP	Post-Treatment
Perfluorotetradecanoic acid - DL	180000		50000	13000	ng/L	100		537 TOP	Post-Treatment
Perfluorotridecanoic acid - DL	140000		50000	13000	ng/L	100		537 TOP	Post-Treatment
Perfluoroundecanoic acid - DL	380000	I	50000	13000	ng/L	100		537 TOP	Post-Treatment
Perfluorobutanoic acid	220000				ng/L	1		Total PFCA-Dif	Total/NA
Perfluoropentanoic acid	860000				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorohexanoic acid	440000				ng/L	1		Total PFCA-Dif	Total/NA
Perfluoroheptanoic acid	890000				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorooctanoic acid	320000				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorononanoic acid	480000				ng/L	1		Total PFCA-Dif	Total/NA
Total PFCA	3200000				ng/L	1		Total PFCA-Dif	Total/NA
Total PFCA	3200000		500	0.50	ng/L	1		Total PFCA-Sum	Post-Treatment

Client Sample ID: TRAILER 2 -RINSE 3-1 — Lab Sample ID: 410-59688-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorodecanoic acid	78	cn	20	4.9	ng/L	1		537 IDA	Pre-Treatment
Perfluorododecanoic acid	38	cn	20	4.9	ng/L	1		537 IDA	Pre-Treatment

This Detection Summary does not include radiochemical test results.

Client Sample ID: TRAILER 2 -RINSE 3-1 (Continued) — Lab Sample ID: 410-59688-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluoroheptanoic acid	110	cn	20	4.9	ng/L	1		537 IDA	Pre-Treatment
Perfluorohexanoic acid	210	cn	20	4.9	ng/L	1		537 IDA	Pre-Treatment
Perfluorononanoic acid	41	cn	20	4.9	ng/L	1		537 IDA	Pre-Treatment
Perfluorooctanoic acid	130	cn	20	4.9	ng/L	1		537 IDA	Pre-Treatment
Perfluoropentanoic acid	22	cn	20	4.9	ng/L	1		537 IDA	Pre-Treatment
Perfluorotridecanoic acid	31	cn	20	4.9	ng/L	1		537 IDA	Pre-Treatment
Perfluoroundecanoic acid	38	cn	20	4.9	ng/L	1		537 IDA	Pre-Treatment
6:2 Fluorotelomer sulfonic acid - DL	3900	cn	490	200	ng/L	10		537 IDA	Pre-Treatment
8:2 Fluorotelomer sulfonic acid - DL	2400	cn	290	98	ng/L	10		537 IDA	Pre-Treatment
Perfluorobutanoic acid	8600		500	200	ng/L	1		537 TOP	Post-Treatment
Perfluorodecanoic acid	2300	I	200	50	ng/L	1		537 TOP	Post-Treatment
Perfluorododecanoic acid	2200	I	200	50	ng/L	1		537 TOP	Post-Treatment
Perfluoroheptanoic acid	16000		200	50	ng/L	1		537 TOP	Post-Treatment
Perfluorohexadecanoic acid	490		300	100	ng/L	1		537 TOP	Post-Treatment
Perfluorohexanoic acid	12000		200	50	ng/L	1		537 TOP	Post-Treatment
Perfluorononanoic acid	3700		200	50	ng/L	1		537 TOP	Post-Treatment
Perfluorooctanoic acid	5800		200	50	ng/L	1		537 TOP	Post-Treatment
Perfluoropentanoic acid	20000		200	50	ng/L	1		537 TOP	Post-Treatment
Perfluorotetradecanoic acid	1400		200	50	ng/L	1		537 TOP	Post-Treatment
Perfluorotridecanoic acid	1400		200	50	ng/L	1		537 TOP	Post-Treatment
Perfluoroundecanoic acid	2700	I	200	50	ng/L	1		537 TOP	Post-Treatment
Perfluorobutanoic acid	8600				ng/L	1		Total PFCA-Dif	Total/NA
Perfluoropentanoic acid	20000				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorohexanoic acid	12000				ng/L	1		Total PFCA-Dif	Total/NA
Perfluoroheptanoic acid	16000				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorooctanoic acid	5700				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorononanoic acid	3700				ng/L	1		Total PFCA-Dif	Total/NA
Total PFCA	66000				ng/L	1		Total PFCA-Dif	Total/NA
Total PFCA	510		500	0.50	ng/L	1		Total PFCA-Sum	Pre-Treatment
Total PFCA	66000		500	0.50	ng/L	1		Total PFCA-Sum	Post-Treatment

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-59688-1

Client Sample ID: TRAILER 2 -RINSE 4-1 — Lab Sample ID: 410-59688-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid	28	cn	20	5.0	ng/L	1		537 IDA	Pre-Treatment
Perfluorooctanoic acid	21	cn	20	5.0	ng/L	1		537 IDA	Pre-Treatment
8:2 Fluorotelomer sulfonic acid	410	cn	30	10	ng/L	1		537 IDA	Pre-Treatment
6:2 Fluorotelomer sulfonic acid - DL	1000	cn	500	200	ng/L	10		537 IDA	Pre-Treatment
Perfluorobutanoic acid	1900		130	50	ng/L	1		537 TOP	Post-Treatment
Perfluorodecanoic acid	150		50	13	ng/L	1		537 TOP	Post-Treatment
Perfluoroheptanoic acid	2300		50	13	ng/L	1		537 TOP	Post-Treatment
Perfluorohexanoic acid	2000		50	13	ng/L	1		537 TOP	Post-Treatment
Perfluorononanoic acid	340		50	13	ng/L	1		537 TOP	Post-Treatment
Perfluorooctanesulfonic acid	56		50	13	ng/L	1		537 TOP	Post-Treatment
Perfluorooctanoic acid	810		50	13	ng/L	1		537 TOP	Post-Treatment
Perfluoropentanoic acid	5000		50	13	ng/L	1		537 TOP	Post-Treatment
Perfluoroundecanoic acid	86		50	13	ng/L	1		537 TOP	Post-Treatment
Perfluorobutanoic acid	1900				ng/L	1		Total PFCA-Dif	Total/NA
Perfluoropentanoic acid	5000				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorohexanoic acid	2000				ng/L	1		Total PFCA-Dif	Total/NA
Perfluoroheptanoic acid	2300				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorooctanoic acid	790				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorononanoic acid	340				ng/L	1		Total PFCA-Dif	Total/NA
Total PFCA	12000				ng/L	1		Total PFCA-Dif	Total/NA
Total PFCA	12000		500	0.50	ng/L	1		Total PFCA-Sum	Post-Treatment

Client Sample ID: TRAILER 2 -RINSE 4-2 — Lab Sample ID: 410-59688-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
4:2 Fluorotelomer sulfonic acid	2.6	cn	1.7	0.44	ng/L	1		537 IDA	Total/NA
8:2 Fluorotelomer sulfonic acid	230	cn	2.6	0.87	ng/L	1		537 IDA	Total/NA
Perfluorodecanoic acid	3.4	cn	1.7	0.44	ng/L	1		537 IDA	Total/NA
Perfluoroheptanoic acid	2.6	cn	1.7	0.44	ng/L	1		537 IDA	Total/NA
Perfluorohexanoic acid	14	cn	1.7	0.44	ng/L	1		537 IDA	Total/NA
Perfluorononanoic acid	3.0	cn	1.7	0.44	ng/L	1		537 IDA	Total/NA
Perfluorooctanesulfonic acid	2.0	cn	1.7	0.44	ng/L	1		537 IDA	Total/NA
Perfluorooctanoic acid	12	cn	1.7	0.44	ng/L	1		537 IDA	Total/NA
Perfluoropentanoic acid	2.0	cn	1.7	0.44	ng/L	1		537 IDA	Total/NA
6:2 Fluorotelomer sulfonic acid - DL	650	cn	440	170	ng/L	100		537 IDA	Total/NA

Client Sample ID: TOTE 10-11-GAC-2 — Lab Sample ID: 410-59688-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
NEtFOSAA	5.5	I cn	2.9	0.48	ng/L	1		537 IDA	Total/NA
Perfluorobutanoic acid	8.0	cn	4.8	1.9	ng/L	1		537 IDA	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Lancaster Laboratories Env, LLC

Client Sample ID: TOTE 10-11-GAC-2 (Continued) — Lab Sample ID: 410-59688-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorododecanoic acid	220	cn	1.9	0.48	ng/L	1		537 IDA	Total/NA
Perfluoroheptanoic acid	15	cn	1.9	0.48	ng/L	1		537 IDA	Total/NA
Perfluorohexanoic acid	42	cn	1.9	0.48	ng/L	1		537 IDA	Total/NA
Perfluorononanoic acid	74	cn	1.9	0.48	ng/L	1		537 IDA	Total/NA
Perfluorooctanesulfonic acid	35	I cn	1.9	0.48	ng/L	1		537 IDA	Total/NA
Perfluorooctanoic acid	150	cn	1.9	0.48	ng/L	1		537 IDA	Total/NA
Perfluoropentanoic acid	15	cn	1.9	0.48	ng/L	1		537 IDA	Total/NA
Perfluorotetradecanoic acid	98	cn	1.9	0.48	ng/L	1		537 IDA	Total/NA
Perfluorotridecanoic acid	78	cn	1.9	0.48	ng/L	1		537 IDA	Total/NA
Perfluoroundecanoic acid	88	cn	1.9	0.48	ng/L	1		537 IDA	Total/NA
Perfluorodecanoic acid - DL	410	cn	19	4.8	ng/L	10		537 IDA	Total/NA
6:2 Fluorotelomer sulfonic acid - DL2	4500	cn	480	190	ng/L	100		537 IDA	Total/NA
8:2 Fluorotelomer sulfonic acid - DL2	14000	cn	290	96	ng/L	100		537 IDA	Total/NA

Client Sample ID: TRAILER 1-RINSE-1 — Lab Sample ID: 410-59688-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorodecanoic acid	86	I cn	20	4.9	ng/L	1		537 IDA	Pre-Treatment
Perfluorododecanoic acid	27	cn	20	4.9	ng/L	1		537 IDA	Pre-Treatment
Perfluoroheptanoic acid	120	cn	20	4.9	ng/L	1		537 IDA	Pre-Treatment
Perfluorohexanoic acid	150	cn	20	4.9	ng/L	1		537 IDA	Pre-Treatment
Perfluorononanoic acid	3600	cn	20	4.9	ng/L	1		537 IDA	Pre-Treatment
Perfluorooctanesulfonic acid	38	cn	20	4.9	ng/L	1		537 IDA	Pre-Treatment
Perfluorooctanoic acid	170	cn	20	4.9	ng/L	1		537 IDA	Pre-Treatment
Perfluorotridecanoic acid	400	cn	20	4.9	ng/L	1		537 IDA	Pre-Treatment
Perfluoroundecanoic acid	1600	cn	20	4.9	ng/L	1		537 IDA	Pre-Treatment
6:2 Fluorotelomer sulfonic acid - DL	4300	cn	490	200	ng/L	10		537 IDA	Pre-Treatment
8:2 Fluorotelomer sulfonic acid - DL	1900	cn	300	99	ng/L	10		537 IDA	Pre-Treatment
Perfluorobutanoic acid	15000		500	200	ng/L	1		537 TOP	Post-Treatment
Perfluorodecanoic acid	1500		200	50	ng/L	1		537 TOP	Post-Treatment
Perfluorododecanoic acid	730	I	200	50	ng/L	1		537 TOP	Post-Treatment
Perfluoroheptanoic acid	17000		200	50	ng/L	1		537 TOP	Post-Treatment
Perfluorohexanoic acid	18000		200	50	ng/L	1		537 TOP	Post-Treatment
Perfluorononanoic acid	5900		200	50	ng/L	1		537 TOP	Post-Treatment
Perfluorooctanoic acid	5900		200	50	ng/L	1		537 TOP	Post-Treatment
Perfluoropentanoic acid	38000		200	50	ng/L	1		537 TOP	Post-Treatment

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-59688-1

Client Sample ID: TRAILER 1-RINSE-1 (Continued) — Lab Sample ID: 410-59688-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorotetradecanoic acid	430		200	50	ng/L	1		537 TOP	Post-Treatment
Perfluorotridecanoic acid	630		200	50	ng/L	1		537 TOP	Post-Treatment
Perfluoroundecanoic acid	2000		200	50	ng/L	1		537 TOP	Post-Treatment
Perfluorobutanoic acid	15000				ng/L	1		Total PFCA-Dif	Total/NA
Perfluoropentanoic acid	38000				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorohexanoic acid	18000				ng/L	1		Total PFCA-Dif	Total/NA
Perfluoroheptanoic acid	17000				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorooctanoic acid	5700				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorononanoic acid	2300				ng/L	1		Total PFCA-Dif	Total/NA
Total PFCA	96000				ng/L	1		Total PFCA-Dif	Total/NA
Total PFCA	4000		500	0.50	ng/L	1		Total PFCA-Sum	Pre-Treatment
Total PFCA	100000		500	0.50	ng/L	1		Total PFCA-Sum	Post-Treatment

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-59688-1

Client Sample ID: TRAILER 2 -RINSE 1-1

Lab Sample ID: 410-59688-1

Date Collected: 10/12/21 08:45
Date Received: 10/16/21 09:45

Matrix: Water

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NEtFOSAA	<3000	cn	3000	500	ng/L		10/20/21 15:53	10/24/21 06:43	10
NMeFOSAA	<2000	cn	2000	600	ng/L		10/20/21 15:53	10/24/21 06:43	10
Perfluorobutanesulfonic acid	<2000	cn	2000	500	ng/L		10/20/21 15:53	10/24/21 06:43	10
Perfluorobutanoic acid	**6500**	**cn**	5000	2000	ng/L		10/20/21 15:53	10/24/21 06:43	10
Perfluorodecanesulfonic acid	<2000	cn	2000	500	ng/L		10/20/21 15:53	10/24/21 06:43	10
Perfluorodecanoic acid	**2000**	**cn**	2000	500	ng/L		10/20/21 15:53	10/24/21 06:43	10
Perfluorododecanoic acid	<2000	cn	2000	500	ng/L		10/20/21 15:53	10/24/21 06:43	10
Perfluoroheptanesulfonic acid	<2000	cn	2000	500	ng/L		10/20/21 15:53	10/24/21 06:43	10
Perfluoroheptanoic acid	<2000	cn	2000	500	ng/L		10/20/21 15:53	10/24/21 06:43	10
Perfluorohexanesulfonic acid	<2000	cn	2000	500	ng/L		10/20/21 15:53	10/24/21 06:43	10
Perfluorohexanoic acid	**40000**	**cn**	2000	500	ng/L		10/20/21 15:53	10/24/21 06:43	10
Perfluorononanesulfonic acid	<2000	cn	2000	500	ng/L		10/20/21 15:53	10/24/21 06:43	10
Perfluorononanoic acid	<2000	cn	2000	500	ng/L		10/20/21 15:53	10/24/21 06:43	10
Perfluorooctanesulfonamide	<2000	cn	2000	500	ng/L		10/20/21 15:53	10/24/21 06:43	10
Perfluorooctanesulfonic acid	<2000	cn	2000	500	ng/L		10/20/21 15:53	10/24/21 06:43	10
Perfluorooctanoic acid	**12000**	**cn**	2000	500	ng/L		10/20/21 15:53	10/24/21 06:43	10
Perfluoropentanesulfonic acid	<2000	cn	2000	500	ng/L		10/20/21 15:53	10/24/21 06:43	10
Perfluoropentanoic acid	**2000**	**cn**	2000	500	ng/L		10/20/21 15:53	10/24/21 06:43	10
Perfluorotetradecanoic acid	<2000	cn	2000	500	ng/L		10/20/21 15:53	10/24/21 06:43	10
Perfluorotridecanoic acid	<2000	cn	2000	500	ng/L		10/20/21 15:53	10/24/21 06:43	10
Perfluoroundecanoic acid	<2000	cn	2000	500	ng/L		10/20/21 15:53	10/24/21 06:43	10
4:2 Fluorotelomer sulfonic acid	**6100**	**cn**	2000	500	ng/L		10/20/21 15:53	10/24/21 06:43	10

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-4:2 FTS	*299*	**5+ cn*	*20 - 187*	*10/20/21 15:53*	*10/24/21 06:43*	*10*
M2-6:2 FTS	*238*	**5+ cn*	*29 - 189*	*10/20/21 15:53*	*10/24/21 06:43*	*10*
M2-8:2 FTS	*98*	*cn*	*34 - 182*	*10/20/21 15:53*	*10/24/21 06:43*	*10*
13C2 PFTeDA	*44*	*cn*	*10 - 144*	*10/20/21 15:53*	*10/24/21 06:43*	*10*
13C3 PFBS	*112*	*cn*	*19 - 178*	*10/20/21 15:53*	*10/24/21 06:43*	*10*
13C4 PFBA	*112*	*cn*	*41 - 132*	*10/20/21 15:53*	*10/24/21 06:43*	*10*
13C4 PFHpA	*250*	**5+ cn*	*30 - 144*	*10/20/21 15:53*	*10/24/21 06:43*	*10*
13C5 PFPeA	*108*	*cn*	*33 - 155*	*10/20/21 15:53*	*10/24/21 06:43*	*10*
13C8 PFOA	*92*	*cn*	*49 - 127*	*10/20/21 15:53*	*10/24/21 06:43*	*10*
13C8 PFOS	*104*	*cn*	*49 - 126*	*10/20/21 15:53*	*10/24/21 06:43*	*10*
d3-NMeFOSAA	*84*	*cn*	*32 - 151*	*10/20/21 15:53*	*10/24/21 06:43*	*10*
d5-NEtFOSAA	*102*	*cn*	*37 - 164*	*10/20/21 15:53*	*10/24/21 06:43*	*10*
d9-N-EtFOSE-M	*54*	*cn*	*10 - 142*	*10/20/21 15:53*	*10/24/21 06:43*	*10*
13C3 PFHxS	*291*	**5+ cn*	*32 - 145*	*10/20/21 15:53*	*10/24/21 06:43*	*10*
13C5 PFHxA	*260*	**5+ cn*	*31 - 142*	*10/20/21 15:53*	*10/24/21 06:43*	*10*
13C6 PFDA	*83*	*cn*	*47 - 128*	*10/20/21 15:53*	*10/24/21 06:43*	*10*
13C7 PFUnA	*79*	*cn*	*40 - 135*	*10/20/21 15:53*	*10/24/21 06:43*	*10*
d3-NMePFOSA	*48*	*cn*	*10 - 107*	*10/20/21 15:53*	*10/24/21 06:43*	*10*
d5-NEtPFOSA	*54*	*cn*	*10 - 108*	*10/20/21 15:53*	*10/24/21 06:43*	*10*
13C8 FOSA	*61*	*cn*	*10 - 143*	*10/20/21 15:53*	*10/24/21 06:43*	*10*
13C2-PFDoDA	*53*	*cn*	*28 - 136*	*10/20/21 15:53*	*10/24/21 06:43*	*10*
13C9 PFNA	*137*	**5+ cn*	*47 - 136*	*10/20/21 15:53*	*10/24/21 06:43*	*10*

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
6:2 Fluorotelomer sulfonic acid	**480000**	**cn**	50000	20000	ng/L		10/20/21 15:53	10/23/21 12:34	100

Client Sample ID: TRAILER 2 -RINSE 1-1

Lab Sample ID: 410-59688-1

Date Collected: 10/12/21 08:45
Matrix: Water
Date Received: 10/16/21 09:45

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment - DL (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
8:2 Fluorotelomer sulfonic acid	**95000**	**cn**	30000	10000	ng/L		10/20/21 15:53	10/23/21 12:34	100

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-6:2 FTS	*242*	**5+ cn*	*29 - 189*	*10/20/21 15:53*	*10/23/21 12:34*	*100*
M2-8:2 FTS	*132*	*cn*	*34 - 182*	*10/20/21 15:53*	*10/23/21 12:34*	*100*

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
10:2 Fluorotelomer sulfonic acid	<50000		50000	10000	ng/L		11/01/21 07:50	11/05/21 12:14	1
11Cl-PF3OUdS	<20000		20000	5000	ng/L		11/01/21 07:50	11/05/21 12:14	1
4:2 Fluorotelomer sulfonic acid	<20000	*+	20000	5000	ng/L		11/01/21 07:50	11/05/21 12:14	1
6:2 Fluorotelomer sulfonic acid	<50000		50000	20000	ng/L		11/01/21 07:50	11/05/21 12:14	1
8:2 Fluorotelomer sulfonic acid	<30000	*+	30000	10000	ng/L		11/01/21 07:50	11/05/21 12:14	1
9Cl-PF3ONS	<20000		20000	5000	ng/L		11/01/21 07:50	11/05/21 12:14	1
DONA	<20000	*+	20000	5000	ng/L		11/01/21 07:50	11/05/21 12:14	1
HFPODA	<30000		30000	5000	ng/L		11/01/21 07:50	11/05/21 12:14	1
NEtFOSAA	<30000		30000	5000	ng/L		11/01/21 07:50	11/05/21 12:14	1
NEtFOSA	<50000		50000	10000	ng/L		11/01/21 07:50	11/05/21 12:14	1
NEtFOSE	<30000		30000	10000	ng/L		11/01/21 07:50	11/05/21 12:14	1
NMeFOSAA	<20000		20000	6000	ng/L		11/01/21 07:50	11/05/21 12:14	1
NMeFOSA	<30000		30000	10000	ng/L		11/01/21 07:50	11/05/21 12:14	1
NMeFOSE	<30000	*+	30000	10000	ng/L		11/01/21 07:50	11/05/21 12:14	1
Perfluorobutanesulfonic acid	<20000		20000	5000	ng/L		11/01/21 07:50	11/05/21 12:14	1
Perfluorodecanesulfonic acid	<20000		20000	5000	ng/L		11/01/21 07:50	11/05/21 12:14	1
Perfluorodecanoic acid	**2200000**		20000	5000	ng/L		11/01/21 07:50	11/05/21 12:14	1
Perfluorododecanesulfonic acid (PFDoS)	<30000		30000	5000	ng/L		11/01/21 07:50	11/05/21 12:14	1
Perfluorododecanoic acid	**1000000**	**I**	20000	5000	ng/L		11/01/21 07:50	11/05/21 12:14	1
Perfluoroheptanesulfonic acid	<20000		20000	5000	ng/L		11/01/21 07:50	11/05/21 12:14	1
Perfluorohexadecanoic acid	**150000**		30000	10000	ng/L		11/01/21 07:50	11/05/21 12:14	1
Perfluorohexanesulfonic acid	<20000		20000	5000	ng/L		11/01/21 07:50	11/05/21 12:14	1
Perfluorononanesulfonic acid	<20000		20000	5000	ng/L		11/01/21 07:50	11/05/21 12:14	1
Perfluorooctadecanoic acid	**45000**		30000	10000	ng/L		11/01/21 07:50	11/05/21 12:14	1
Perfluorooctanesulfonamide	<20000		20000	5000	ng/L		11/01/21 07:50	11/05/21 12:14	1
Perfluorooctanesulfonic acid	<20000		20000	5000	ng/L		11/01/21 07:50	11/05/21 12:14	1
Perfluoropentanesulfonic acid	<20000		20000	5000	ng/L		11/01/21 07:50	11/05/21 12:14	1
Perfluorotetradecanoic acid	**470000**		20000	5000	ng/L		11/01/21 07:50	11/05/21 12:14	1
Perfluorotridecanoic acid	**540000**		20000	5000	ng/L		11/01/21 07:50	11/05/21 12:14	1
Perfluoroundecanoic acid	**1500000**		20000	5000	ng/L		11/01/21 07:50	11/05/21 12:14	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-6:2 FTS	*65*		*55 - 167*	*11/01/21 07:50*	*11/05/21 12:14*	*1*
M2-8:2 FTS	*75*		*61 - 160*	*11/01/21 07:50*	*11/05/21 12:14*	*1*
13C2-PFDoDA	*77*		*47 - 118*	*11/01/21 07:50*	*11/05/21 12:14*	*1*
13C2 PFTeDA	*79*		*32 - 126*	*11/01/21 07:50*	*11/05/21 12:14*	*1*
13C3 HFPO-DA	*84*		*70 - 130*	*11/01/21 07:50*	*11/05/21 12:14*	*1*
13C3 PFBS	*128*		*18 - 177*	*11/01/21 07:50*	*11/05/21 12:14*	*1*
13C3 PFHxS	*50*	**5-*	*55 - 115*	*11/01/21 07:50*	*11/05/21 12:14*	*1*
13C4 PFBA	*78*		*52 - 126*	*11/01/21 07:50*	*11/05/21 12:14*	*1*
13C4 PFHpA	*68*		*55 - 113*	*11/01/21 07:50*	*11/05/21 12:14*	*1*
13C5 PFHxA	*56*		*54 - 115*	*11/01/21 07:50*	*11/05/21 12:14*	*1*

Client Sample ID: TRAILER 2 -RINSE 1-1

Lab Sample ID: 410-59688-1

Date Collected: 10/12/21 08:45

Matrix: Water

Date Received: 10/16/21 09:45

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C5 PFPeA	58		17 - 184	11/01/21 07:50	11/05/21 12:14	1
13C6 PFDA	79		56 - 114	11/01/21 07:50	11/05/21 12:14	1
13C7 PFUnA	78		50 - 120	11/01/21 07:50	11/05/21 12:14	1
13C8 PFOA	66		56 - 117	11/01/21 07:50	11/05/21 12:14	1
13C8 PFOS	83		56 - 112	11/01/21 07:50	11/05/21 12:14	1
13C8 FOSA	85		10 - 126	11/01/21 07:50	11/05/21 12:14	1
13C9 PFNA	80		54 - 122	11/01/21 07:50	11/05/21 12:14	1
d3-NMePFOSA	65	*5+	10 - 51	11/01/21 07:50	11/05/21 12:14	1
d5-NEtFOSAA	82		65 - 134	11/01/21 07:50	11/05/21 12:14	1
d5-NEtPFOSA	64	*5+	10 - 51	11/01/21 07:50	11/05/21 12:14	1
d7-N-MeFOSE-M	76		10 - 105	11/01/21 07:50	11/05/21 12:14	1
d9-N-EtFOSE-M	71		10 - 112	11/01/21 07:50	11/05/21 12:14	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	58		40 - 173	11/01/21 07:50	11/05/21 12:14	1
13C2 PFUnA	71		49 - 132	11/01/21 07:50	11/05/21 12:14	1
13C4 PFOA	59		10 - 163	11/01/21 07:50	11/05/21 12:14	1

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid	11000000		500000	200000	ng/L		11/01/21 07:50	11/05/21 12:24	10
Perfluoroheptanoic acid	14000000		200000	50000	ng/L		11/01/21 07:50	11/05/21 12:24	10
Perfluorohexanoic acid	12000000		200000	50000	ng/L		11/01/21 07:50	11/05/21 12:24	10
Perfluorononanoic acid	5500000		200000	50000	ng/L		11/01/21 07:50	11/05/21 12:24	10
Perfluorooctanoic acid	5200000		200000	50000	ng/L		11/01/21 07:50	11/05/21 12:24	10
Perfluoropentanoic acid	30000000		200000	50000	ng/L		11/01/21 07:50	11/05/21 12:24	10

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	129	*5+	52 - 126	11/01/21 07:50	11/05/21 12:24	10
13C4 PFHpA	130	*5+	55 - 113	11/01/21 07:50	11/05/21 12:24	10
13C5 PFHxA	123	*5+	54 - 115	11/01/21 07:50	11/05/21 12:24	10
13C5 PFPeA	110		17 - 184	11/01/21 07:50	11/05/21 12:24	10
13C8 PFOA	127	*5+	56 - 117	11/01/21 07:50	11/05/21 12:24	10
13C9 PFNA	144	*5+	54 - 122	11/01/21 07:50	11/05/21 12:24	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	106		40 - 173	11/01/21 07:50	11/05/21 12:24	10
13C2 PFUnA	121		49 - 132	11/01/21 07:50	11/05/21 12:24	10
13C4 PFOA	112		10 - 163	11/01/21 07:50	11/05/21 12:24	10

Method: Total PFCA-Dif - Total PFCA (Treatment Difference)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid	11000000				ng/L			11/08/21 11:26	1
Perfluoropentanoic acid	30000000				ng/L			11/08/21 11:26	1
Perfluorohexanoic acid	12000000				ng/L			11/08/21 11:26	1
Perfluoroheptanoic acid	14000000				ng/L			11/08/21 11:26	1
Perfluorooctanoic acid	5200000				ng/L			11/08/21 11:26	1
Perfluorononanoic acid	5500000				ng/L			11/08/21 11:26	1
Total PFCA	78000000				ng/L			11/08/21 11:26	1

Client Sample Results

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-59688-1

Client Sample ID: TRAILER 2 -RINSE 1-1

Lab Sample ID: 410-59688-1
Date Collected: 10/12/21 08:45
Matrix: Water
Date Received: 10/16/21 09:45

Method: Total PFCA-Sum - Total PFCA (Summary) - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total PFCA	**61000**		500	0.50	ng/L			11/08/21 11:22	1

Method: Total PFCA-Sum - Total PFCA (Summary) - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total PFCA	**78000000**		500	0.50	ng/L			11/08/21 11:22	1

Client Sample ID: TRAILER 2 -RINSE 2-1

Lab Sample ID: 410-59688-2
Date Collected: 10/12/21 17:00
Matrix: Water
Date Received: 10/16/21 09:45

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NEtFOSAA	<300	cn	300	50	ng/L		10/20/21 15:53	10/26/21 17:51	1
NMeFOSAA	<200	cn	200	60	ng/L		10/20/21 15:53	10/26/21 17:51	1
Perfluorobutanesulfonic acid	<200	cn	200	50	ng/L		10/20/21 15:53	10/26/21 17:51	1
Perfluorobutanoic acid	<500	cn	500	200	ng/L		10/20/21 15:53	10/26/21 17:51	1
Perfluorodecanesulfonic acid	<200	cn	200	50	ng/L		10/20/21 15:53	10/26/21 17:51	1
Perfluorodecanoic acid	**330**	**cn**	200	50	ng/L		10/20/21 15:53	10/26/21 17:51	1
Perfluorododecanoic acid	<200	cn	200	50	ng/L		10/20/21 15:53	10/26/21 17:51	1
Perfluoroheptanesulfonic acid	<200	cn	200	50	ng/L		10/20/21 15:53	10/26/21 17:51	1
Perfluoroheptanoic acid	**240**	**cn**	200	50	ng/L		10/20/21 15:53	10/26/21 17:51	1
Perfluorohexanesulfonic acid	<200	cn	200	50	ng/L		10/20/21 15:53	10/26/21 17:51	1
Perfluorohexanoic acid	**940**	**cn**	200	50	ng/L		10/20/21 15:53	10/26/21 17:51	1
Perfluorononanesulfonic acid	<200	cn	200	50	ng/L		10/20/21 15:53	10/26/21 17:51	1
Perfluorononanoic acid	<200	cn	200	50	ng/L		10/20/21 15:53	10/26/21 17:51	1
Perfluorooctanesulfonamide	<200	cn	200	50	ng/L		10/20/21 15:53	10/26/21 17:51	1
Perfluorooctanesulfonic acid	<200	cn	200	50	ng/L		10/20/21 15:53	10/26/21 17:51	1
Perfluorooctanoic acid	**580**	**cn**	200	50	ng/L		10/20/21 15:53	10/26/21 17:51	1
Perfluoropentanesulfonic acid	<200	cn	200	50	ng/L		10/20/21 15:53	10/26/21 17:51	1
Perfluoropentanoic acid	<200	cn	200	50	ng/L		10/20/21 15:53	10/26/21 17:51	1
Perfluorotetradecanoic acid	<200	cn	200	50	ng/L		10/20/21 15:53	10/26/21 17:51	1
Perfluorotridecanoic acid	<200	cn	200	50	ng/L		10/20/21 15:53	10/26/21 17:51	1
Perfluoroundecanoic acid	<200	cn	200	50	ng/L		10/20/21 15:53	10/26/21 17:51	1
4:2 Fluorotelomer sulfonic acid	<200	cn	200	50	ng/L		10/20/21 15:53	10/26/21 17:51	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-4:2 FTS	*323*	**5+ cn*	*20 - 187*	*10/20/21 15:53*	*10/26/21 17:51*	*1*
M2-6:2 FTS	*125*	*cn*	*29 - 189*	*10/20/21 15:53*	*10/26/21 17:51*	*1*
M2-8:2 FTS	*85*	*cn*	*34 - 182*	*10/20/21 15:53*	*10/26/21 17:51*	*1*
13C2 PFTeDA	*117*	*cn*	*10 - 144*	*10/20/21 15:53*	*10/26/21 17:51*	*1*
13C3 PFBS	*119*	*cn*	*19 - 178*	*10/20/21 15:53*	*10/26/21 17:51*	*1*
13C4 PFBA	*120*	*cn*	*41 - 132*	*10/20/21 15:53*	*10/26/21 17:51*	*1*
13C4 PFHpA	*285*	**5+ cn*	*30 - 144*	*10/20/21 15:53*	*10/26/21 17:51*	*1*
13C5 PFPeA	*112*	*cn*	*33 - 155*	*10/20/21 15:53*	*10/26/21 17:51*	*1*
13C8 PFOA	*110*	*cn*	*49 - 127*	*10/20/21 15:53*	*10/26/21 17:51*	*1*
13C8 PFOS	*120*	*cn*	*49 - 126*	*10/20/21 15:53*	*10/26/21 17:51*	*1*
d3-NMeFOSAA	*135*	*cn*	*32 - 151*	*10/20/21 15:53*	*10/26/21 17:51*	*1*
d5-NEtFOSAA	*151*	*cn*	*37 - 164*	*10/20/21 15:53*	*10/26/21 17:51*	*1*
d9-N-EtFOSE-M	*124*	*cn*	*10 - 142*	*10/20/21 15:53*	*10/26/21 17:51*	*1*
13C3 PFHxS	*306*	**5+ cn*	*32 - 145*	*10/20/21 15:53*	*10/26/21 17:51*	*1*
13C5 PFHxA	*283*	**5+ cn*	*31 - 142*	*10/20/21 15:53*	*10/26/21 17:51*	*1*

Client Sample ID: TRAILER 2 -RINSE 2-1

Lab Sample ID: 410-59688-2

Date Collected: 10/12/21 17:00

Matrix: Water

Date Received: 10/16/21 09:45

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment (Continued)

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C6 PFDA	*95*	*cn*	*47 - 128*	*10/20/21 15:53*	*10/26/21 17:51*	*1*
13C7 PFUnA	*131*	*cn*	*40 - 135*	*10/20/21 15:53*	*10/26/21 17:51*	*1*
d3-NMePFOSA	*86*	*cn*	*10 - 107*	*10/20/21 15:53*	*10/26/21 17:51*	*1*
d5-NEtPFOSA	*88*	*cn*	*10 - 108*	*10/20/21 15:53*	*10/26/21 17:51*	*1*
13C8 FOSA	*103*	*cn*	*10 - 143*	*10/20/21 15:53*	*10/26/21 17:51*	*1*
13C2-PFDoDA	*126*	*cn*	*28 - 136*	*10/20/21 15:53*	*10/26/21 17:51*	*1*
13C9 PFNA	*158*	**5+ cn*	*47 - 136*	*10/20/21 15:53*	*10/26/21 17:51*	*1*

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
6:2 Fluorotelomer sulfonic acid	**44000**	**cn**	5000	2000	ng/L		10/20/21 15:53	10/24/21 06:54	10
8:2 Fluorotelomer sulfonic acid	**15000**	**cn**	3000	1000	ng/L		10/20/21 15:53	10/24/21 06:54	10

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-6:2 FTS	*165*	*cn*	*29 - 189*	*10/20/21 15:53*	*10/24/21 06:54*	*10*
M2-8:2 FTS	*151*	*cn*	*34 - 182*	*10/20/21 15:53*	*10/24/21 06:54*	*10*

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
10:2 Fluorotelomer sulfonic acid	<50000		50000	10000	ng/L		11/01/21 07:50	11/05/21 12:35	1
11Cl-PF3OUdS	<20000		20000	5000	ng/L		11/01/21 07:50	11/05/21 12:35	1
4:2 Fluorotelomer sulfonic acid	<20000	*+	20000	5000	ng/L		11/01/21 07:50	11/05/21 12:35	1
6:2 Fluorotelomer sulfonic acid	<50000		50000	20000	ng/L		11/01/21 07:50	11/05/21 12:35	1
8:2 Fluorotelomer sulfonic acid	<30000	*+	30000	10000	ng/L		11/01/21 07:50	11/05/21 12:35	1
9Cl-PF3ONS	<20000		20000	5000	ng/L		11/01/21 07:50	11/05/21 12:35	1
DONA	<20000	*+	20000	5000	ng/L		11/01/21 07:50	11/05/21 12:35	1
HFPODA	<30000		30000	5000	ng/L		11/01/21 07:50	11/05/21 12:35	1
NEtFOSAA	<30000		30000	5000	ng/L		11/01/21 07:50	11/05/21 12:35	1
NEtFOSA	<50000		50000	10000	ng/L		11/01/21 07:50	11/05/21 12:35	1
NEtFOSE	<30000		30000	10000	ng/L		11/01/21 07:50	11/05/21 12:35	1
NMeFOSAA	<20000		20000	6000	ng/L		11/01/21 07:50	11/05/21 12:35	1
NMeFOSA	<30000		30000	10000	ng/L		11/01/21 07:50	11/05/21 12:35	1
NMeFOSE	<30000	*+	30000	10000	ng/L		11/01/21 07:50	11/05/21 12:35	1
Perfluorobutanesulfonic acid	<20000		20000	5000	ng/L		11/01/21 07:50	11/05/21 12:35	1
Perfluorobutanoic acid	**960000**		50000	20000	ng/L		11/01/21 07:50	11/05/21 12:35	1
Perfluorodecanesulfonic acid	<20000		20000	5000	ng/L		11/01/21 07:50	11/05/21 12:35	1
Perfluorodecanoic acid	**190000**		20000	5000	ng/L		11/01/21 07:50	11/05/21 12:35	1
Perfluorododecanesulfonic acid (PFDoS)	<30000		30000	5000	ng/L		11/01/21 07:50	11/05/21 12:35	1
Perfluorododecanoic acid	**80000**	**I**	20000	5000	ng/L		11/01/21 07:50	11/05/21 12:35	1
Perfluoroheptanesulfonic acid	<20000		20000	5000	ng/L		11/01/21 07:50	11/05/21 12:35	1
Perfluoroheptanoic acid	**1200000**		20000	5000	ng/L		11/01/21 07:50	11/05/21 12:35	1
Perfluorohexadecanoic acid	<30000		30000	10000	ng/L		11/01/21 07:50	11/05/21 12:35	1
Perfluorohexanesulfonic acid	<20000		20000	5000	ng/L		11/01/21 07:50	11/05/21 12:35	1
Perfluorohexanoic acid	**1100000**		20000	5000	ng/L		11/01/21 07:50	11/05/21 12:35	1
Perfluorononanesulfonic acid	<20000		20000	5000	ng/L		11/01/21 07:50	11/05/21 12:35	1
Perfluorononanoic acid	**370000**		20000	5000	ng/L		11/01/21 07:50	11/05/21 12:35	1
Perfluorooctadecanoic acid	<30000		30000	10000	ng/L		11/01/21 07:50	11/05/21 12:35	1
Perfluorooctanesulfonamide	<20000		20000	5000	ng/L		11/01/21 07:50	11/05/21 12:35	1
Perfluorooctanesulfonic acid	<20000		20000	5000	ng/L		11/01/21 07:50	11/05/21 12:35	1
Perfluorooctanoic acid	**460000**		20000	5000	ng/L		11/01/21 07:50	11/05/21 12:35	1

Client Sample Results

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-59688-1

Client Sample ID: TRAILER 2 -RINSE 2-1

Lab Sample ID: 410-59688-2

Date Collected: 10/12/21 17:00
Matrix: Water
Date Received: 10/16/21 09:45

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoropentanesulfonic acid	<20000		20000	5000	ng/L		11/01/21 07:50	11/05/21 12:35	1
Perfluoropentanoic acid	**2500000**		20000	5000	ng/L		11/01/21 07:50	11/05/21 12:35	1
Perfluorotetradecanoic acid	**35000**		20000	5000	ng/L		11/01/21 07:50	11/05/21 12:35	1
Perfluorotridecanoic acid	**43000**		20000	5000	ng/L		11/01/21 07:50	11/05/21 12:35	1
Perfluoroundecanoic acid	**140000**		20000	5000	ng/L		11/01/21 07:50	11/05/21 12:35	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-6:2 FTS	*78*		*55 - 167*	*11/01/21 07:50*	*11/05/21 12:35*	*1*
M2-8:2 FTS	*88*		*61 - 160*	*11/01/21 07:50*	*11/05/21 12:35*	*1*
13C2-PFDoDA	*73*		*47 - 118*	*11/01/21 07:50*	*11/05/21 12:35*	*1*
13C2 PFTeDA	*72*		*32 - 126*	*11/01/21 07:50*	*11/05/21 12:35*	*1*
13C3 HFPO-DA	*70*		*70 - 130*	*11/01/21 07:50*	*11/05/21 12:35*	*1*
13C3 PFBS	*82*		*18 - 177*	*11/01/21 07:50*	*11/05/21 12:35*	*1*
13C3 PFHxS	*71*		*55 - 115*	*11/01/21 07:50*	*11/05/21 12:35*	*1*
13C4 PFBA	*76*		*52 - 126*	*11/01/21 07:50*	*11/05/21 12:35*	*1*
13C4 PFHpA	*77*		*55 - 113*	*11/01/21 07:50*	*11/05/21 12:35*	*1*
13C5 PFHxA	*73*		*54 - 115*	*11/01/21 07:50*	*11/05/21 12:35*	*1*
13C5 PFPeA	*73*		*17 - 184*	*11/01/21 07:50*	*11/05/21 12:35*	*1*
13C6 PFDA	*81*		*56 - 114*	*11/01/21 07:50*	*11/05/21 12:35*	*1*
13C7 PFUnA	*76*		*50 - 120*	*11/01/21 07:50*	*11/05/21 12:35*	*1*
13C8 PFOA	*74*		*56 - 117*	*11/01/21 07:50*	*11/05/21 12:35*	*1*
13C8 PFOS	*82*		*56 - 112*	*11/01/21 07:50*	*11/05/21 12:35*	*1*
13C8 FOSA	*78*		*10 - 126*	*11/01/21 07:50*	*11/05/21 12:35*	*1*
13C9 PFNA	*84*		*54 - 122*	*11/01/21 07:50*	*11/05/21 12:35*	*1*
d3-NMePFOSA	*52*	**5+*	*10 - 51*	*11/01/21 07:50*	*11/05/21 12:35*	*1*
d5-NEtFOSAA	*83*		*65 - 134*	*11/01/21 07:50*	*11/05/21 12:35*	*1*
d5-NEtPFOSA	*48*		*10 - 51*	*11/01/21 07:50*	*11/05/21 12:35*	*1*
d7-N-MeFOSE-M	*67*		*10 - 105*	*11/01/21 07:50*	*11/05/21 12:35*	*1*
d9-N-EtFOSE-M	*64*		*10 - 112*	*11/01/21 07:50*	*11/05/21 12:35*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*65*		*40 - 173*	*11/01/21 07:50*	*11/05/21 12:35*	*1*
13C2 PFUnA	*70*		*49 - 132*	*11/01/21 07:50*	*11/05/21 12:35*	*1*
13C4 PFOA	*68*		*10 - 163*	*11/01/21 07:50*	*11/05/21 12:35*	*1*

Method: Total PFCA-Dif - Total PFCA (Treatment Difference)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid	**960000**				ng/L			11/08/21 11:26	1
Perfluoropentanoic acid	**2500000**				ng/L			11/08/21 11:26	1
Perfluorohexanoic acid	**1100000**				ng/L			11/08/21 11:26	1
Perfluoroheptanoic acid	**1200000**				ng/L			11/08/21 11:26	1
Perfluorooctanoic acid	**460000**				ng/L			11/08/21 11:26	1
Perfluorononanoic acid	**370000**				ng/L			11/08/21 11:26	1
Total PFCA	**6600000**				ng/L			11/08/21 11:26	1

Method: Total PFCA-Sum - Total PFCA (Summary) - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total PFCA	**1800**		500	0.50	ng/L			11/08/21 11:22	1

Client Sample Results

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-59688-1

Client Sample ID: TRAILER 2 -RINSE 2-1

Lab Sample ID: 410-59688-2
Date Collected: 10/12/21 17:00
Matrix: Water
Date Received: 10/16/21 09:45

Method: Total PFCA-Sum - Total PFCA (Summary) - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total PFCA	**6600000**		500	0.50	ng/L			11/08/21 11:22	1

Client Sample ID: TRAILER 2 -EFF 1-1

Lab Sample ID: 410-59688-3
Date Collected: 10/13/21 11:45
Matrix: Water
Date Received: 10/16/21 09:45

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NEtFOSAA	<30	cn	30	5.0	ng/L		10/20/21 15:53	10/29/21 08:36	1
NMeFOSAA	<20	cn	20	6.0	ng/L		10/20/21 15:53	10/29/21 08:36	1
Perfluorobutanesulfonic acid	<20	cn	20	5.0	ng/L		10/20/21 15:53	10/29/21 08:36	1
Perfluorobutanoic acid	<50	cn	50	20	ng/L		10/20/21 15:53	10/29/21 08:36	1
Perfluorodecanesulfonic acid	<20	cn	20	5.0	ng/L		10/20/21 15:53	10/29/21 08:36	1
Perfluorodecanoic acid	**520**	**I cn**	20	5.0	ng/L		10/20/21 15:53	10/29/21 08:36	1
Perfluorododecanoic acid	**200**	**cn**	20	5.0	ng/L		10/20/21 15:53	10/29/21 08:36	1
Perfluoroheptanesulfonic acid	<20	cn	20	5.0	ng/L		10/20/21 15:53	10/29/21 08:36	1
Perfluoroheptanoic acid	<20	cn	20	5.0	ng/L		10/20/21 15:53	10/29/21 08:36	1
Perfluorohexanesulfonic acid	<20	cn	20	5.0	ng/L		10/20/21 15:53	10/29/21 08:36	1
Perfluorohexanoic acid	**51**	**cn**	20	5.0	ng/L		10/20/21 15:53	10/29/21 08:36	1
Perfluorononanesulfonic acid	<20	cn	20	5.0	ng/L		10/20/21 15:53	10/29/21 08:36	1
Perfluorononanoic acid	**110**	**I cn**	20	5.0	ng/L		10/20/21 15:53	10/29/21 08:36	1
Perfluorooctanesulfonamide	<20	cn	20	5.0	ng/L		10/20/21 15:53	10/29/21 08:36	1
Perfluorooctanesulfonic acid	**50**	**I cn**	20	5.0	ng/L		10/20/21 15:53	10/29/21 08:36	1
Perfluorooctanoic acid	**140**	**cn**	20	5.0	ng/L		10/20/21 15:53	10/29/21 08:36	1
Perfluoropentanesulfonic acid	<20	cn	20	5.0	ng/L		10/20/21 15:53	10/29/21 08:36	1
Perfluoropentanoic acid	**21**	**cn**	20	5.0	ng/L		10/20/21 15:53	10/29/21 08:36	1
Perfluorotetradecanoic acid	**120**	**cn**	20	5.0	ng/L		10/20/21 15:53	10/29/21 08:36	1
Perfluorotridecanoic acid	<20	cn	20	5.0	ng/L		10/20/21 15:53	10/29/21 08:36	1
Perfluoroundecanoic acid	<20	cn	20	5.0	ng/L		10/20/21 15:53	10/29/21 08:36	1
4:2 Fluorotelomer sulfonic acid	<20	cn	20	5.0	ng/L		10/20/21 15:53	10/29/21 08:36	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-4:2 FTS	*571*	**5+ cn*	*20 - 187*	*10/20/21 15:53*	*10/29/21 08:36*	*1*
M2-6:2 FTS	*71*	*cn*	*29 - 189*	*10/20/21 15:53*	*10/29/21 08:36*	*1*
M2-8:2 FTS	*21*	**5- cn*	*34 - 182*	*10/20/21 15:53*	*10/29/21 08:36*	*1*
13C2 PFTeDA	*43*	*cn*	*10 - 144*	*10/20/21 15:53*	*10/29/21 08:36*	*1*
13C3 PFBS	*106*	*cn*	*19 - 178*	*10/20/21 15:53*	*10/29/21 08:36*	*1*
13C4 PFBA	*102*	*cn*	*41 - 132*	*10/20/21 15:53*	*10/29/21 08:36*	*1*
13C4 PFHpA	*427*	**5+ cn*	*30 - 144*	*10/20/21 15:53*	*10/29/21 08:36*	*1*
13C5 PFPeA	*97*	*cn*	*33 - 155*	*10/20/21 15:53*	*10/29/21 08:36*	*1*
13C8 PFOA	*54*	*cn*	*49 - 127*	*10/20/21 15:53*	*10/29/21 08:36*	*1*
13C8 PFOS	*8*	**5- cn*	*49 - 126*	*10/20/21 15:53*	*10/29/21 08:36*	*1*
d3-NMeFOSAA	*32*	*cn*	*32 - 151*	*10/20/21 15:53*	*10/29/21 08:36*	*1*
d5-NEtFOSAA	*46*	*cn*	*37 - 164*	*10/20/21 15:53*	*10/29/21 08:36*	*1*
d9-N-EtFOSE-M	*48*	*cn*	*10 - 142*	*10/20/21 15:53*	*10/29/21 08:36*	*1*
13C3 PFHxS	*164*	**5+ cn*	*32 - 145*	*10/20/21 15:53*	*10/29/21 08:36*	*1*
13C5 PFHxA	*461*	**5+ cn*	*31 - 142*	*10/20/21 15:53*	*10/29/21 08:36*	*1*
13C6 PFDA	*13*	**5- cn*	*47 - 128*	*10/20/21 15:53*	*10/29/21 08:36*	*1*
13C7 PFUnA	*38*	**5- cn*	*40 - 135*	*10/20/21 15:53*	*10/29/21 08:36*	*1*
d3-NMePFOSA	*31*	*cn*	*10 - 107*	*10/20/21 15:53*	*10/29/21 08:36*	*1*
d5-NEtPFOSA	*40*	*cn*	*10 - 108*	*10/20/21 15:53*	*10/29/21 08:36*	*1*

Client Sample ID: TRAILER 2 -EFF 1-1

Lab Sample ID: 410-59688-3

Date Collected: 10/13/21 11:45
Matrix: Water
Date Received: 10/16/21 09:45

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 FOSA	23	cn	10 - 143	10/20/21 15:53	10/29/21 08:36	1
13C2-PFDoDA	30	cn	28 - 136	10/20/21 15:53	10/29/21 08:36	1
13C9 PFNA	28	*5- cn	47 - 136	10/20/21 15:53	10/29/21 08:36	1

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
6:2 Fluorotelomer sulfonic acid	**8800**	**cn**	5000	2000	ng/L		10/20/21 15:53	10/23/21 12:55	100
8:2 Fluorotelomer sulfonic acid	**13000**	**cn**	3000	1000	ng/L		10/20/21 15:53	10/23/21 12:55	100

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
M2-6:2 FTS	146	cn	29 - 189	10/20/21 15:53	10/23/21 12:55	100
M2-8:2 FTS	47	cn	34 - 182	10/20/21 15:53	10/23/21 12:55	100

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
10:2 Fluorotelomer sulfonic acid	**1600**		1300	250	ng/L		11/01/21 07:50	11/05/21 12:45	1
11Cl-PF3OUdS	<500		500	130	ng/L		11/01/21 07:50	11/05/21 12:45	1
4:2 Fluorotelomer sulfonic acid	<500	*+	500	130	ng/L		11/01/21 07:50	11/05/21 12:45	1
6:2 Fluorotelomer sulfonic acid	<1300		1300	500	ng/L		11/01/21 07:50	11/05/21 12:45	1
8:2 Fluorotelomer sulfonic acid	<750	*+	750	250	ng/L		11/01/21 07:50	11/05/21 12:45	1
9Cl-PF3ONS	<500		500	130	ng/L		11/01/21 07:50	11/05/21 12:45	1
DONA	<500	*+	500	130	ng/L		11/01/21 07:50	11/05/21 12:45	1
HFPODA	<750		750	130	ng/L		11/01/21 07:50	11/05/21 12:45	1
NEtFOSAA	<750		750	130	ng/L		11/01/21 07:50	11/05/21 12:45	1
NEtFOSA	<1300		1300	250	ng/L		11/01/21 07:50	11/05/21 12:45	1
NEtFOSE	<750		750	250	ng/L		11/01/21 07:50	11/05/21 12:45	1
NMeFOSAA	<500		500	150	ng/L		11/01/21 07:50	11/05/21 12:45	1
NMeFOSA	<750		750	250	ng/L		11/01/21 07:50	11/05/21 12:45	1
NMeFOSE	<750	*+	750	250	ng/L		11/01/21 07:50	11/05/21 12:45	1
Perfluorobutanesulfonic acid	<500		500	130	ng/L		11/01/21 07:50	11/05/21 12:45	1
Perfluorodecanesulfonic acid	<500		500	130	ng/L		11/01/21 07:50	11/05/21 12:45	1
Perfluorododecanesulfonic acid (PFDoS)	<750		750	130	ng/L		11/01/21 07:50	11/05/21 12:45	1
Perfluoroheptanesulfonic acid	<500		500	130	ng/L		11/01/21 07:50	11/05/21 12:45	1
Perfluorohexadecanoic acid	**54000**		750	250	ng/L		11/01/21 07:50	11/05/21 12:45	1
Perfluorohexanesulfonic acid	<500		500	130	ng/L		11/01/21 07:50	11/05/21 12:45	1
Perfluorononanesulfonic acid	<500		500	130	ng/L		11/01/21 07:50	11/05/21 12:45	1
Perfluorooctadecanoic acid	**8400**		750	250	ng/L		11/01/21 07:50	11/05/21 12:45	1
Perfluorooctanesulfonamide	<500		500	130	ng/L		11/01/21 07:50	11/05/21 12:45	1
Perfluorooctanesulfonic acid	<500		500	130	ng/L		11/01/21 07:50	11/05/21 12:45	1
Perfluoropentanesulfonic acid	<500		500	130	ng/L		11/01/21 07:50	11/05/21 12:45	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
M2-6:2 FTS	55		55 - 167	11/01/21 07:50	11/05/21 12:45	1
M2-8:2 FTS	52	*5-	61 - 160	11/01/21 07:50	11/05/21 12:45	1
13C2-PFDoDA	62		47 - 118	11/01/21 07:50	11/05/21 12:45	1
13C2 PFTeDA	71		32 - 126	11/01/21 07:50	11/05/21 12:45	1
13C3 HFPO-DA	98		70 - 130	11/01/21 07:50	11/05/21 12:45	1
13C3 PFBS	131		18 - 177	11/01/21 07:50	11/05/21 12:45	1
13C3 PFHxS	48	*5-	55 - 115	11/01/21 07:50	11/05/21 12:45	1
13C4 PFBA	78		52 - 126	11/01/21 07:50	11/05/21 12:45	1
13C4 PFHpA	69		55 - 113	11/01/21 07:50	11/05/21 12:45	1

Client Sample ID: TRAILER 2 -EFF 1-1

Lab Sample ID: 410-59688-3

Date Collected: 10/13/21 11:45
Matrix: Water
Date Received: 10/16/21 09:45

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C5 PFHxA	60		54 - 115	11/01/21 07:50	11/05/21 12:45	1
13C5 PFPeA	56		17 - 184	11/01/21 07:50	11/05/21 12:45	1
13C6 PFDA	66		56 - 114	11/01/21 07:50	11/05/21 12:45	1
13C7 PFUnA	64		50 - 120	11/01/21 07:50	11/05/21 12:45	1
13C8 PFOA	60		56 - 117	11/01/21 07:50	11/05/21 12:45	1
13C8 PFOS	83		56 - 112	11/01/21 07:50	11/05/21 12:45	1
13C8 FOSA	105		10 - 126	11/01/21 07:50	11/05/21 12:45	1
13C9 PFNA	77		54 - 122	11/01/21 07:50	11/05/21 12:45	1
d3-NMePFOSA	49		10 - 51	11/01/21 07:50	11/05/21 12:45	1
d5-NEtFOSAA	65		65 - 134	11/01/21 07:50	11/05/21 12:45	1
d5-NEtPFOSA	40		10 - 51	11/01/21 07:50	11/05/21 12:45	1
d7-N-MeFOSE-M	82		10 - 105	11/01/21 07:50	11/05/21 12:45	1
d9-N-EtFOSE-M	82		10 - 112	11/01/21 07:50	11/05/21 12:45	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	65		40 - 173	11/01/21 07:50	11/05/21 12:45	1
13C2 PFUnA	52		49 - 132	11/01/21 07:50	11/05/21 12:45	1
13C4 PFOA	60		10 - 163	11/01/21 07:50	11/05/21 12:45	1

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid	220000		130000	50000	ng/L		11/01/21 07:50	11/05/21 13:07	100
Perfluorodecanoic acid	490000		50000	13000	ng/L		11/01/21 07:50	11/05/21 13:07	100
Perfluorododecanoic acid	290000	I	50000	13000	ng/L		11/01/21 07:50	11/05/21 13:07	100
Perfluoroheptanoic acid	890000		50000	13000	ng/L		11/01/21 07:50	11/05/21 13:07	100
Perfluorohexanoic acid	440000		50000	13000	ng/L		11/01/21 07:50	11/05/21 13:07	100
Perfluorononanoic acid	480000		50000	13000	ng/L		11/01/21 07:50	11/05/21 13:07	100
Perfluorooctanoic acid	320000		50000	13000	ng/L		11/01/21 07:50	11/05/21 13:07	100
Perfluoropentanoic acid	860000		50000	13000	ng/L		11/01/21 07:50	11/05/21 13:07	100
Perfluorotetradecanoic acid	180000		50000	13000	ng/L		11/01/21 07:50	11/05/21 13:07	100
Perfluorotridecanoic acid	140000		50000	13000	ng/L		11/01/21 07:50	11/05/21 13:07	100
Perfluoroundecanoic acid	380000	I	50000	13000	ng/L		11/01/21 07:50	11/05/21 13:07	100

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2-PFDoDA	147	*5+	47 - 118	11/01/21 07:50	11/05/21 13:07	100
13C4 PFBA	165	*5+	52 - 126	11/01/21 07:50	11/05/21 13:07	100
13C4 PFHpA	105		55 - 113	11/01/21 07:50	11/05/21 13:07	100
13C5 PFHxA	114		54 - 115	11/01/21 07:50	11/05/21 13:07	100
13C5 PFPeA	110		17 - 184	11/01/21 07:50	11/05/21 13:07	100
13C6 PFDA	135	*5+	56 - 114	11/01/21 07:50	11/05/21 13:07	100
13C7 PFUnA	131	*5+	50 - 120	11/01/21 07:50	11/05/21 13:07	100
13C8 PFOA	132	*5+	56 - 117	11/01/21 07:50	11/05/21 13:07	100
13C9 PFNA	128	*5+	54 - 122	11/01/21 07:50	11/05/21 13:07	100

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	103		40 - 173	11/01/21 07:50	11/05/21 13:07	100
13C2 PFUnA	119		49 - 132	11/01/21 07:50	11/05/21 13:07	100
13C4 PFOA	108		10 - 163	11/01/21 07:50	11/05/21 13:07	100

Client Sample ID: TRAILER 2 -EFF 1-1

Lab Sample ID: 410-59688-3

Date Collected: 10/13/21 11:45
Matrix: Water
Date Received: 10/16/21 09:45

Method: Total PFCA-Dif - Total PFCA (Treatment Difference)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid	**220000**				ng/L			11/08/21 11:26	1
Perfluoropentanoic acid	**860000**				ng/L			11/08/21 11:26	1
Perfluorohexanoic acid	**440000**				ng/L			11/08/21 11:26	1
Perfluoroheptanoic acid	**890000**				ng/L			11/08/21 11:26	1
Perfluorooctanoic acid	**320000**				ng/L			11/08/21 11:26	1
Perfluorononanoic acid	**480000**				ng/L			11/08/21 11:26	1
Total PFCA	**3200000**				ng/L			11/08/21 11:26	1

Method: Total PFCA-Sum - Total PFCA (Summary) - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total PFCA	<500		500	0.50	ng/L			11/08/21 11:22	1

Method: Total PFCA-Sum - Total PFCA (Summary) - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total PFCA	**3200000**		500	0.50	ng/L			11/08/21 11:22	1

Client Sample ID: TRAILER 2 -RINSE 3-1

Lab Sample ID: 410-59688-4

Date Collected: 10/13/21 14:00
Matrix: Water
Date Received: 10/16/21 09:45

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NEtFOSAA	<29	cn	29	4.9	ng/L		10/20/21 15:53	10/26/21 18:13	1
NMeFOSAA	<20	cn	20	5.9	ng/L		10/20/21 15:53	10/26/21 18:13	1
Perfluorobutanesulfonic acid	<20	cn	20	4.9	ng/L		10/20/21 15:53	10/26/21 18:13	1
Perfluorobutanoic acid	<49	cn	49	20	ng/L		10/20/21 15:53	10/26/21 18:13	1
Perfluorodecanesulfonic acid	<20	cn	20	4.9	ng/L		10/20/21 15:53	10/26/21 18:13	1
Perfluorodecanoic acid	**78**	**cn**	20	4.9	ng/L		10/20/21 15:53	10/26/21 18:13	1
Perfluorododecanoic acid	**38**	**cn**	20	4.9	ng/L		10/20/21 15:53	10/26/21 18:13	1
Perfluoroheptanesulfonic acid	<20	cn	20	4.9	ng/L		10/20/21 15:53	10/26/21 18:13	1
Perfluoroheptanoic acid	**110**	**cn**	20	4.9	ng/L		10/20/21 15:53	10/26/21 18:13	1
Perfluorohexanesulfonic acid	<20	cn	20	4.9	ng/L		10/20/21 15:53	10/26/21 18:13	1
Perfluorohexanoic acid	**210**	**cn**	20	4.9	ng/L		10/20/21 15:53	10/26/21 18:13	1
Perfluorononanesulfonic acid	<20	cn	20	4.9	ng/L		10/20/21 15:53	10/26/21 18:13	1
Perfluorononanoic acid	**41**	**cn**	20	4.9	ng/L		10/20/21 15:53	10/26/21 18:13	1
Perfluorooctanesulfonamide	<20	cn	20	4.9	ng/L		10/20/21 15:53	10/26/21 18:13	1
Perfluorooctanesulfonic acid	<20	cn	20	4.9	ng/L		10/20/21 15:53	10/26/21 18:13	1
Perfluorooctanoic acid	**130**	**cn**	20	4.9	ng/L		10/20/21 15:53	10/26/21 18:13	1
Perfluoropentanesulfonic acid	<20	cn	20	4.9	ng/L		10/20/21 15:53	10/26/21 18:13	1
Perfluoropentanoic acid	**22**	**cn**	20	4.9	ng/L		10/20/21 15:53	10/26/21 18:13	1
Perfluorotetradecanoic acid	<20	cn	20	4.9	ng/L		10/20/21 15:53	10/26/21 18:13	1
Perfluorotridecanoic acid	**31**	**cn**	20	4.9	ng/L		10/20/21 15:53	10/26/21 18:13	1
Perfluoroundecanoic acid	**38**	**cn**	20	4.9	ng/L		10/20/21 15:53	10/26/21 18:13	1
4:2 Fluorotelomer sulfonic acid	<20	cn	20	4.9	ng/L		10/20/21 15:53	10/26/21 18:13	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-4:2 FTS	*214*	**5+ cn*	*20 - 187*	*10/20/21 15:53*	*10/26/21 18:13*	*1*
M2-6:2 FTS	*129*	*cn*	*29 - 189*	*10/20/21 15:53*	*10/26/21 18:13*	*1*
M2-8:2 FTS	*94*	*cn*	*34 - 182*	*10/20/21 15:53*	*10/26/21 18:13*	*1*
13C2 PFTeDA	*120*	*cn*	*10 - 144*	*10/20/21 15:53*	*10/26/21 18:13*	*1*
13C3 PFBS	*122*	*cn*	*19 - 178*	*10/20/21 15:53*	*10/26/21 18:13*	*1*

Client Sample ID: TRAILER 2 -RINSE 3-1

Lab Sample ID: 410-59688-4

Date Collected: 10/13/21 14:00
Matrix: Water
Date Received: 10/16/21 09:45

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	118	cn	41 - 132	10/20/21 15:53	10/26/21 18:13	1
13C4 PFHpA	203	*5+ cn	30 - 144	10/20/21 15:53	10/26/21 18:13	1
13C5 PFPeA	115	cn	33 - 155	10/20/21 15:53	10/26/21 18:13	1
13C8 PFOA	113	cn	49 - 127	10/20/21 15:53	10/26/21 18:13	1
13C8 PFOS	119	cn	49 - 126	10/20/21 15:53	10/26/21 18:13	1
d3-NMeFOSAA	154	*5+ cn	32 - 151	10/20/21 15:53	10/26/21 18:13	1
d5-NEtFOSAA	189	*5+ cn	37 - 164	10/20/21 15:53	10/26/21 18:13	1
d9-N-EtFOSE-M	130	cn	10 - 142	10/20/21 15:53	10/26/21 18:13	1
13C3 PFHxS	213	*5+ cn	32 - 145	10/20/21 15:53	10/26/21 18:13	1
13C5 PFHxA	193	*5+ cn	31 - 142	10/20/21 15:53	10/26/21 18:13	1
13C6 PFDA	100	cn	47 - 128	10/20/21 15:53	10/26/21 18:13	1
13C7 PFUnA	140	*5+ cn	40 - 135	10/20/21 15:53	10/26/21 18:13	1
d3-NMePFOSA	85	cn	10 - 107	10/20/21 15:53	10/26/21 18:13	1
d5-NEtPFOSA	89	cn	10 - 108	10/20/21 15:53	10/26/21 18:13	1
13C8 FOSA	113	cn	10 - 143	10/20/21 15:53	10/26/21 18:13	1
13C2-PFDoDA	122	cn	28 - 136	10/20/21 15:53	10/26/21 18:13	1
13C9 PFNA	154	*5+ cn	47 - 136	10/20/21 15:53	10/26/21 18:13	1

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
6:2 Fluorotelomer sulfonic acid	**3900**	**cn**	490	200	ng/L		10/20/21 15:53	10/24/21 07:15	10
8:2 Fluorotelomer sulfonic acid	**2400**	**cn**	290	98	ng/L		10/20/21 15:53	10/24/21 07:15	10

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
M2-6:2 FTS	148	cn	29 - 189	10/20/21 15:53	10/24/21 07:15	10
M2-8:2 FTS	153	cn	34 - 182	10/20/21 15:53	10/24/21 07:15	10

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
10:2 Fluorotelomer sulfonic acid	<500		500	100	ng/L		11/01/21 07:50	11/05/21 13:18	1
11Cl-PF3OUdS	<200		200	50	ng/L		11/01/21 07:50	11/05/21 13:18	1
4:2 Fluorotelomer sulfonic acid	<200	*+	200	50	ng/L		11/01/21 07:50	11/05/21 13:18	1
6:2 Fluorotelomer sulfonic acid	<500		500	200	ng/L		11/01/21 07:50	11/05/21 13:18	1
8:2 Fluorotelomer sulfonic acid	<300	*+	300	100	ng/L		11/01/21 07:50	11/05/21 13:18	1
9Cl-PF3ONS	<200		200	50	ng/L		11/01/21 07:50	11/05/21 13:18	1
DONA	<200	*+	200	50	ng/L		11/01/21 07:50	11/05/21 13:18	1
HFPODA	<300		300	50	ng/L		11/01/21 07:50	11/05/21 13:18	1
NEtFOSAA	<300		300	50	ng/L		11/01/21 07:50	11/05/21 13:18	1
NEtFOSA	<500		500	100	ng/L		11/01/21 07:50	11/05/21 13:18	1
NEtFOSE	<300		300	100	ng/L		11/01/21 07:50	11/05/21 13:18	1
NMeFOSAA	<200		200	60	ng/L		11/01/21 07:50	11/05/21 13:18	1
NMeFOSA	<300		300	100	ng/L		11/01/21 07:50	11/05/21 13:18	1
NMeFOSE	<300	*+	300	100	ng/L		11/01/21 07:50	11/05/21 13:18	1
Perfluorobutanesulfonic acid	<200		200	50	ng/L		11/01/21 07:50	11/05/21 13:18	1
Perfluorobutanoic acid	**8600**		500	200	ng/L		11/01/21 07:50	11/05/21 13:18	1
Perfluorodecanesulfonic acid	<200		200	50	ng/L		11/01/21 07:50	11/05/21 13:18	1
Perfluorodecanoic acid	**2300**	**I**	200	50	ng/L		11/01/21 07:50	11/05/21 13:18	1
Perfluorododecanesulfonic acid (PFDoS)	<300		300	50	ng/L		11/01/21 07:50	11/05/21 13:18	1
Perfluorododecanoic acid	**2200**	**I**	200	50	ng/L		11/01/21 07:50	11/05/21 13:18	1
Perfluoroheptanesulfonic acid	<200		200	50	ng/L		11/01/21 07:50	11/05/21 13:18	1

Client Sample ID: TRAILER 2 -RINSE 3-1

Lab Sample ID: 410-59688-4

Date Collected: 10/13/21 14:00
Matrix: Water
Date Received: 10/16/21 09:45

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoroheptanoic acid	**16000**		200	50	ng/L		11/01/21 07:50	11/05/21 13:18	1
Perfluorohexadecanoic acid	**490**		300	100	ng/L		11/01/21 07:50	11/05/21 13:18	1
Perfluorohexanesulfonic acid	<200		200	50	ng/L		11/01/21 07:50	11/05/21 13:18	1
Perfluorohexanoic acid	**12000**		200	50	ng/L		11/01/21 07:50	11/05/21 13:18	1
Perfluorononanesulfonic acid	<200		200	50	ng/L		11/01/21 07:50	11/05/21 13:18	1
Perfluorononanoic acid	**3700**		200	50	ng/L		11/01/21 07:50	11/05/21 13:18	1
Perfluorooctadecanoic acid	<300		300	100	ng/L		11/01/21 07:50	11/05/21 13:18	1
Perfluorooctanesulfonamide	<200		200	50	ng/L		11/01/21 07:50	11/05/21 13:18	1
Perfluorooctanesulfonic acid	<200		200	50	ng/L		11/01/21 07:50	11/05/21 13:18	1
Perfluorooctanoic acid	**5800**		200	50	ng/L		11/01/21 07:50	11/05/21 13:18	1
Perfluoropentanesulfonic acid	<200		200	50	ng/L		11/01/21 07:50	11/05/21 13:18	1
Perfluoropentanoic acid	**20000**		200	50	ng/L		11/01/21 07:50	11/05/21 13:18	1
Perfluorotetradecanoic acid	**1400**		200	50	ng/L		11/01/21 07:50	11/05/21 13:18	1
Perfluorotridecanoic acid	**1400**		200	50	ng/L		11/01/21 07:50	11/05/21 13:18	1
Perfluoroundecanoic acid	**2700**	I	200	50	ng/L		11/01/21 07:50	11/05/21 13:18	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-6:2 FTS	*81*		*55 - 167*	*11/01/21 07:50*	*11/05/21 13:18*	*1*
M2-8:2 FTS	*92*		*61 - 160*	*11/01/21 07:50*	*11/05/21 13:18*	*1*
13C2-PFDoDA	*80*		*47 - 118*	*11/01/21 07:50*	*11/05/21 13:18*	*1*
13C2 PFTeDA	*80*		*32 - 126*	*11/01/21 07:50*	*11/05/21 13:18*	*1*
13C3 HFPO-DA	*81*		*70 - 130*	*11/01/21 07:50*	*11/05/21 13:18*	*1*
13C3 PFBS	*85*		*18 - 177*	*11/01/21 07:50*	*11/05/21 13:18*	*1*
13C3 PFHxS	*72*		*55 - 115*	*11/01/21 07:50*	*11/05/21 13:18*	*1*
13C4 PFBA	*80*		*52 - 126*	*11/01/21 07:50*	*11/05/21 13:18*	*1*
13C4 PFHpA	*79*		*55 - 113*	*11/01/21 07:50*	*11/05/21 13:18*	*1*
13C5 PFHxA	*75*		*54 - 115*	*11/01/21 07:50*	*11/05/21 13:18*	*1*
13C5 PFPeA	*79*		*17 - 184*	*11/01/21 07:50*	*11/05/21 13:18*	*1*
13C6 PFDA	*84*		*56 - 114*	*11/01/21 07:50*	*11/05/21 13:18*	*1*
13C7 PFUnA	*83*		*50 - 120*	*11/01/21 07:50*	*11/05/21 13:18*	*1*
13C8 PFOA	*77*		*56 - 117*	*11/01/21 07:50*	*11/05/21 13:18*	*1*
13C8 PFOS	*83*		*56 - 112*	*11/01/21 07:50*	*11/05/21 13:18*	*1*
13C8 FOSA	*77*		*10 - 126*	*11/01/21 07:50*	*11/05/21 13:18*	*1*
13C9 PFNA	*88*		*54 - 122*	*11/01/21 07:50*	*11/05/21 13:18*	*1*
d3-NMePFOSA	*55*	**5+*	*10 - 51*	*11/01/21 07:50*	*11/05/21 13:18*	*1*
d5-NEtFOSAA	*88*		*65 - 134*	*11/01/21 07:50*	*11/05/21 13:18*	*1*
d5-NEtPFOSA	*53*	**5+*	*10 - 51*	*11/01/21 07:50*	*11/05/21 13:18*	*1*
d7-N-MeFOSE-M	*68*		*10 - 105*	*11/01/21 07:50*	*11/05/21 13:18*	*1*
d9-N-EtFOSE-M	*64*		*10 - 112*	*11/01/21 07:50*	*11/05/21 13:18*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*58*		*40 - 173*	*11/01/21 07:50*	*11/05/21 13:18*	*1*
13C2 PFUnA	*72*		*49 - 132*	*11/01/21 07:50*	*11/05/21 13:18*	*1*
13C4 PFOA	*67*		*10 - 163*	*11/01/21 07:50*	*11/05/21 13:18*	*1*

Method: Total PFCA-Dif - Total PFCA (Treatment Difference)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid	**8600**				ng/L			11/08/21 11:26	1
Perfluoropentanoic acid	**20000**				ng/L			11/08/21 11:26	1
Perfluorohexanoic acid	**12000**				ng/L			11/08/21 11:26	1
Perfluoroheptanoic acid	**16000**				ng/L			11/08/21 11:26	1

Client Sample ID: TRAILER 2 -RINSE 3-1

Lab Sample ID: 410-59688-4

Date Collected: 10/13/21 14:00
Date Received: 10/16/21 09:45
Matrix: Water

Method: Total PFCA-Dif - Total PFCA (Treatment Difference) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid	**5700**				ng/L			11/08/21 11:26	1
Perfluorononanoic acid	**3700**				ng/L			11/08/21 11:26	1
Total PFCA	**66000**				ng/L			11/08/21 11:26	1

Method: Total PFCA-Sum - Total PFCA (Summary) - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total PFCA	**510**		500	0.50	ng/L			11/08/21 11:22	1

Method: Total PFCA-Sum - Total PFCA (Summary) - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total PFCA	**66000**		500	0.50	ng/L			11/08/21 11:22	1

Client Sample ID: TRAILER 2 -RINSE 4-1

Lab Sample ID: 410-59688-5

Date Collected: 10/13/21 16:00
Date Received: 10/16/21 09:45
Matrix: Water

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NEtFOSAA	<30	cn	30	5.0	ng/L		10/20/21 15:53	10/26/21 18:23	1
NMeFOSAA	<20	cn	20	6.0	ng/L		10/20/21 15:53	10/26/21 18:23	1
Perfluorobutanesulfonic acid	<20	cn	20	5.0	ng/L		10/20/21 15:53	10/26/21 18:23	1
Perfluorobutanoic acid	<50	cn	50	20	ng/L		10/20/21 15:53	10/26/21 18:23	1
Perfluorodecanesulfonic acid	<20	cn	20	5.0	ng/L		10/20/21 15:53	10/26/21 18:23	1
Perfluorodecanoic acid	<20	cn	20	5.0	ng/L		10/20/21 15:53	10/26/21 18:23	1
Perfluorododecanoic acid	<20	cn	20	5.0	ng/L		10/20/21 15:53	10/26/21 18:23	1
Perfluoroheptanesulfonic acid	<20	cn	20	5.0	ng/L		10/20/21 15:53	10/26/21 18:23	1
Perfluoroheptanoic acid	<20	cn	20	5.0	ng/L		10/20/21 15:53	10/26/21 18:23	1
Perfluorohexanesulfonic acid	<20	cn	20	5.0	ng/L		10/20/21 15:53	10/26/21 18:23	1
Perfluorohexanoic acid	**28**	**cn**	20	5.0	ng/L		10/20/21 15:53	10/26/21 18:23	1
Perfluorononanesulfonic acid	<20	cn	20	5.0	ng/L		10/20/21 15:53	10/26/21 18:23	1
Perfluorononanoic acid	<20	cn	20	5.0	ng/L		10/20/21 15:53	10/26/21 18:23	1
Perfluorooctanesulfonamide	<20	cn	20	5.0	ng/L		10/20/21 15:53	10/26/21 18:23	1
Perfluorooctanesulfonic acid	<20	cn	20	5.0	ng/L		10/20/21 15:53	10/26/21 18:23	1
Perfluorooctanoic acid	**21**	**cn**	20	5.0	ng/L		10/20/21 15:53	10/26/21 18:23	1
Perfluoropentanesulfonic acid	<20	cn	20	5.0	ng/L		10/20/21 15:53	10/26/21 18:23	1
Perfluoropentanoic acid	<20	cn	20	5.0	ng/L		10/20/21 15:53	10/26/21 18:23	1
Perfluorotetradecanoic acid	<20	cn	20	5.0	ng/L		10/20/21 15:53	10/26/21 18:23	1
Perfluorotridecanoic acid	<20	cn	20	5.0	ng/L		10/20/21 15:53	10/26/21 18:23	1
Perfluoroundecanoic acid	<20	cn	20	5.0	ng/L		10/20/21 15:53	10/26/21 18:23	1
8:2 Fluorotelomer sulfonic acid	**410**	**cn**	30	10	ng/L		10/20/21 15:53	10/26/21 18:23	1
4:2 Fluorotelomer sulfonic acid	<20	cn	20	5.0	ng/L		10/20/21 15:53	10/26/21 18:23	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-4:2 FTS	*143*	*cn*	*20 - 187*	*10/20/21 15:53*	*10/26/21 18:23*	*1*
M2-6:2 FTS	*140*	*cn*	*29 - 189*	*10/20/21 15:53*	*10/26/21 18:23*	*1*
M2-8:2 FTS	*119*	*cn*	*34 - 182*	*10/20/21 15:53*	*10/26/21 18:23*	*1*
13C2 PFTeDA	*103*	*cn*	*10 - 144*	*10/20/21 15:53*	*10/26/21 18:23*	*1*
13C3 PFBS	*124*	*cn*	*19 - 178*	*10/20/21 15:53*	*10/26/21 18:23*	*1*
13C4 PFBA	*118*	*cn*	*41 - 132*	*10/20/21 15:53*	*10/26/21 18:23*	*1*
13C4 PFHpA	*135*	*cn*	*30 - 144*	*10/20/21 15:53*	*10/26/21 18:23*	*1*
13C5 PFPeA	*114*	*cn*	*33 - 155*	*10/20/21 15:53*	*10/26/21 18:23*	*1*

Client Sample ID: TRAILER 2 -RINSE 4-1

Lab Sample ID: 410-59688-5

Date Collected: 10/13/21 16:00
Matrix: Water
Date Received: 10/16/21 09:45

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment (Continued)

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 PFOA	*118*	*cn*	*49 - 127*	*10/20/21 15:53*	*10/26/21 18:23*	*1*
13C8 PFOS	*119*	*cn*	*49 - 126*	*10/20/21 15:53*	*10/26/21 18:23*	*1*
d3-NMeFOSAA	*133*	*cn*	*32 - 151*	*10/20/21 15:53*	*10/26/21 18:23*	*1*
d5-NEtFOSAA	*143*	*cn*	*37 - 164*	*10/20/21 15:53*	*10/26/21 18:23*	*1*
d9-N-EtFOSE-M	*109*	*cn*	*10 - 142*	*10/20/21 15:53*	*10/26/21 18:23*	*1*
13C3 PFHxS	*149*	**5+ cn*	*32 - 145*	*10/20/21 15:53*	*10/26/21 18:23*	*1*
13C5 PFHxA	*131*	*cn*	*31 - 142*	*10/20/21 15:53*	*10/26/21 18:23*	*1*
13C6 PFDA	*106*	*cn*	*47 - 128*	*10/20/21 15:53*	*10/26/21 18:23*	*1*
13C7 PFUnA	*124*	*cn*	*40 - 135*	*10/20/21 15:53*	*10/26/21 18:23*	*1*
d3-NMePFOSA	*92*	*cn*	*10 - 107*	*10/20/21 15:53*	*10/26/21 18:23*	*1*
d5-NEtPFOSA	*94*	*cn*	*10 - 108*	*10/20/21 15:53*	*10/26/21 18:23*	*1*
13C8 FOSA	*97*	*cn*	*10 - 143*	*10/20/21 15:53*	*10/26/21 18:23*	*1*
13C2-PFDoDA	*116*	*cn*	*28 - 136*	*10/20/21 15:53*	*10/26/21 18:23*	*1*
13C9 PFNA	*129*	*cn*	*47 - 136*	*10/20/21 15:53*	*10/26/21 18:23*	*1*

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
6:2 Fluorotelomer sulfonic acid	**1000**	**cn**	500	200	ng/L		10/20/21 15:53	10/24/21 07:25	10

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-6:2 FTS	*150*	*cn*	*29 - 189*	*10/20/21 15:53*	*10/24/21 07:25*	*10*

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
10:2 Fluorotelomer sulfonic acid	<130		130	25	ng/L		11/01/21 07:50	11/08/21 10:44	1
11Cl-PF3OUdS	<50		50	13	ng/L		11/01/21 07:50	11/08/21 10:44	1
4:2 Fluorotelomer sulfonic acid	<50	*+	50	13	ng/L		11/01/21 07:50	11/08/21 10:44	1
6:2 Fluorotelomer sulfonic acid	<130		130	50	ng/L		11/01/21 07:50	11/08/21 10:44	1
8:2 Fluorotelomer sulfonic acid	<75	*+	75	25	ng/L		11/01/21 07:50	11/08/21 10:44	1
9Cl-PF3ONS	<50		50	13	ng/L		11/01/21 07:50	11/08/21 10:44	1
DONA	<50	*+	50	13	ng/L		11/01/21 07:50	11/08/21 10:44	1
HFPODA	<75		75	13	ng/L		11/01/21 07:50	11/08/21 10:44	1
NEtFOSAA	<75		75	13	ng/L		11/01/21 07:50	11/08/21 10:44	1
NEtFOSA	<130		130	25	ng/L		11/01/21 07:50	11/08/21 10:44	1
NEtFOSE	<75		75	25	ng/L		11/01/21 07:50	11/08/21 10:44	1
NMeFOSAA	<50		50	15	ng/L		11/01/21 07:50	11/08/21 10:44	1
NMeFOSA	<75		75	25	ng/L		11/01/21 07:50	11/08/21 10:44	1
NMeFOSE	<75	*+	75	25	ng/L		11/01/21 07:50	11/08/21 10:44	1
Perfluorobutanesulfonic acid	<50		50	13	ng/L		11/01/21 07:50	11/08/21 10:44	1
Perfluorobutanoic acid	**1900**		130	50	ng/L		11/01/21 07:50	11/08/21 10:44	1
Perfluorodecanesulfonic acid	<50		50	13	ng/L		11/01/21 07:50	11/08/21 10:44	1
Perfluorodecanoic acid	**150**		50	13	ng/L		11/01/21 07:50	11/08/21 10:44	1
Perfluorododecanesulfonic acid (PFDoS)	<75		75	13	ng/L		11/01/21 07:50	11/08/21 10:44	1
Perfluorododecanoic acid	<50		50	13	ng/L		11/01/21 07:50	11/08/21 10:44	1
Perfluoroheptanesulfonic acid	<50		50	13	ng/L		11/01/21 07:50	11/08/21 10:44	1
Perfluoroheptanoic acid	**2300**		50	13	ng/L		11/01/21 07:50	11/08/21 10:44	1
Perfluorohexadecanoic acid	<75		75	25	ng/L		11/01/21 07:50	11/08/21 10:44	1
Perfluorohexanesulfonic acid	<50		50	13	ng/L		11/01/21 07:50	11/08/21 10:44	1
Perfluorohexanoic acid	**2000**		50	13	ng/L		11/01/21 07:50	11/08/21 10:44	1
Perfluorononanesulfonic acid	<50		50	13	ng/L		11/01/21 07:50	11/08/21 10:44	1

Client Sample Results

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-59688-1

Client Sample ID: TRAILER 2 -RINSE 4-1

Lab Sample ID: 410-59688-5

Date Collected: 10/13/21 16:00
Matrix: Water
Date Received: 10/16/21 09:45

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorononanoic acid	**340**		50	13	ng/L		11/01/21 07:50	11/08/21 10:44	1
Perfluorooctadecanoic acid	<75		75	25	ng/L		11/01/21 07:50	11/08/21 10:44	1
Perfluorooctanesulfonamide	<50		50	13	ng/L		11/01/21 07:50	11/08/21 10:44	1
Perfluorooctanesulfonic acid	**56**		50	13	ng/L		11/01/21 07:50	11/08/21 10:44	1
Perfluorooctanoic acid	**810**		50	13	ng/L		11/01/21 07:50	11/08/21 10:44	1
Perfluoropentanesulfonic acid	<50		50	13	ng/L		11/01/21 07:50	11/08/21 10:44	1
Perfluoropentanoic acid	**5000**		50	13	ng/L		11/01/21 07:50	11/08/21 10:44	1
Perfluorotetradecanoic acid	<50		50	13	ng/L		11/01/21 07:50	11/08/21 10:44	1
Perfluorotridecanoic acid	<50		50	13	ng/L		11/01/21 07:50	11/08/21 10:44	1
Perfluoroundecanoic acid	**86**		50	13	ng/L		11/01/21 07:50	11/08/21 10:44	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-6:2 FTS	*124*		*55 - 167*	*11/01/21 07:50*	*11/08/21 10:44*	*1*
M2-8:2 FTS	*116*		*61 - 160*	*11/01/21 07:50*	*11/08/21 10:44*	*1*
13C2-PFDoDA	*104*		*47 - 118*	*11/01/21 07:50*	*11/08/21 10:44*	*1*
13C2 PFTeDA	*103*		*32 - 126*	*11/01/21 07:50*	*11/08/21 10:44*	*1*
13C3 HFPO-DA	*156*	**5+*	*70 - 130*	*11/01/21 07:50*	*11/08/21 10:44*	*1*
13C3 PFBS	*124*		*18 - 177*	*11/01/21 07:50*	*11/08/21 10:44*	*1*
13C3 PFHxS	*108*		*55 - 115*	*11/01/21 07:50*	*11/08/21 10:44*	*1*
13C4 PFBA	*116*		*52 - 126*	*11/01/21 07:50*	*11/08/21 10:44*	*1*
13C4 PFHpA	*116*	**5+*	*55 - 113*	*11/01/21 07:50*	*11/08/21 10:44*	*1*
13C5 PFHxA	*113*		*54 - 115*	*11/01/21 07:50*	*11/08/21 10:44*	*1*
13C5 PFPeA	*112*		*17 - 184*	*11/01/21 07:50*	*11/08/21 10:44*	*1*
13C6 PFDA	*112*		*56 - 114*	*11/01/21 07:50*	*11/08/21 10:44*	*1*
13C7 PFUnA	*108*		*50 - 120*	*11/01/21 07:50*	*11/08/21 10:44*	*1*
13C8 PFOA	*117*		*56 - 117*	*11/01/21 07:50*	*11/08/21 10:44*	*1*
13C8 PFOS	*110*		*56 - 112*	*11/01/21 07:50*	*11/08/21 10:44*	*1*
13C8 FOSA	*99*		*10 - 126*	*11/01/21 07:50*	*11/08/21 10:44*	*1*
13C9 PFNA	*123*	**5+*	*54 - 122*	*11/01/21 07:50*	*11/08/21 10:44*	*1*
d3-NMePFOSA	*73*	**5+*	*10 - 51*	*11/01/21 07:50*	*11/08/21 10:44*	*1*
d5-NEtFOSAA	*101*		*65 - 134*	*11/01/21 07:50*	*11/08/21 10:44*	*1*
d5-NEtPFOSA	*75*	**5+*	*10 - 51*	*11/01/21 07:50*	*11/08/21 10:44*	*1*
d7-N-MeFOSE-M	*91*		*10 - 105*	*11/01/21 07:50*	*11/08/21 10:44*	*1*
d9-N-EtFOSE-M	*88*		*10 - 112*	*11/01/21 07:50*	*11/08/21 10:44*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*47*		*40 - 173*	*11/01/21 07:50*	*11/08/21 10:44*	*1*
13C2 PFUnA	*108*		*49 - 132*	*11/01/21 07:50*	*11/08/21 10:44*	*1*
13C4 PFOA	*93*		*10 - 163*	*11/01/21 07:50*	*11/08/21 10:44*	*1*

Method: Total PFCA-Dif - Total PFCA (Treatment Difference)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid	**1900**				ng/L			11/08/21 14:22	1
Perfluoropentanoic acid	**5000**				ng/L			11/08/21 14:22	1
Perfluorohexanoic acid	**2000**				ng/L			11/08/21 14:22	1
Perfluoroheptanoic acid	**2300**				ng/L			11/08/21 14:22	1
Perfluorooctanoic acid	**790**				ng/L			11/08/21 14:22	1
Perfluorononanoic acid	**340**				ng/L			11/08/21 14:22	1
Total PFCA	**12000**				ng/L			11/08/21 14:22	1

Client Sample Results

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-59688-1

Client Sample ID: TRAILER 2 -RINSE 4-1

Lab Sample ID: 410-59688-5
Date Collected: 10/13/21 16:00
Matrix: Water
Date Received: 10/16/21 09:45

Method: Total PFCA-Sum - Total PFCA (Summary) - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total PFCA	<500		500	0.50	ng/L			11/08/21 14:11	1

Method: Total PFCA-Sum - Total PFCA (Summary) - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total PFCA	**12000**		500	0.50	ng/L			11/08/21 14:11	1

Client Sample ID: TRAILER 2 -RINSE 4-2

Lab Sample ID: 410-59688-6
Date Collected: 10/13/21 16:05
Matrix: Water
Date Received: 10/16/21 09:45

Method: 537 IDA - EPA 537 Isotope Dilution

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4:2 Fluorotelomer sulfonic acid	**2.6**	**cn**	1.7	0.44	ng/L		10/27/21 17:42	10/30/21 09:51	1
8:2 Fluorotelomer sulfonic acid	**230**	**cn**	2.6	0.87	ng/L		10/27/21 17:42	10/30/21 09:51	1
NEtFOSAA	<2.6	cn	2.6	0.44	ng/L		10/27/21 17:42	10/30/21 09:51	1
NMeFOSAA	<1.7	cn	1.7	0.52	ng/L		10/27/21 17:42	10/30/21 09:51	1
Perfluorobutanesulfonic acid	<1.7	cn	1.7	0.44	ng/L		10/27/21 17:42	10/30/21 09:51	1
Perfluorobutanoic acid	<4.4	cn	4.4	1.7	ng/L		10/27/21 17:42	10/30/21 09:51	1
Perfluorodecanesulfonic acid	<1.7	cn	1.7	0.44	ng/L		10/27/21 17:42	10/30/21 09:51	1
Perfluorodecanoic acid	**3.4**	**cn**	1.7	0.44	ng/L		10/27/21 17:42	10/30/21 09:51	1
Perfluorododecanoic acid	<1.7	cn	1.7	0.44	ng/L		10/27/21 17:42	10/30/21 09:51	1
Perfluoroheptanesulfonic acid	<1.7	cn	1.7	0.44	ng/L		10/27/21 17:42	10/30/21 09:51	1
Perfluoroheptanoic acid	**2.6**	**cn**	1.7	0.44	ng/L		10/27/21 17:42	10/30/21 09:51	1
Perfluorohexanesulfonic acid	<1.7	cn	1.7	0.44	ng/L		10/27/21 17:42	10/30/21 09:51	1
Perfluorohexanoic acid	**14**	**cn**	1.7	0.44	ng/L		10/27/21 17:42	10/30/21 09:51	1
Perfluorononanesulfonic acid	<1.7	cn	1.7	0.44	ng/L		10/27/21 17:42	10/30/21 09:51	1
Perfluorononanoic acid	**3.0**	**cn**	1.7	0.44	ng/L		10/27/21 17:42	10/30/21 09:51	1
Perfluorooctanesulfonamide	<1.7	cn	1.7	0.44	ng/L		10/27/21 17:42	10/30/21 09:51	1
Perfluorooctanesulfonic acid	**2.0**	**cn**	1.7	0.44	ng/L		10/27/21 17:42	10/30/21 09:51	1
Perfluorooctanoic acid	**12**	**cn**	1.7	0.44	ng/L		10/27/21 17:42	10/30/21 09:51	1
Perfluoropentanesulfonic acid	<1.7	cn	1.7	0.44	ng/L		10/27/21 17:42	10/30/21 09:51	1
Perfluoropentanoic acid	**2.0**	**cn**	1.7	0.44	ng/L		10/27/21 17:42	10/30/21 09:51	1
Perfluorotetradecanoic acid	<1.7	cn	1.7	0.44	ng/L		10/27/21 17:42	10/30/21 09:51	1
Perfluorotridecanoic acid	<1.7	cn	1.7	0.44	ng/L		10/27/21 17:42	10/30/21 09:51	1
Perfluoroundecanoic acid	<1.7	cn	1.7	0.44	ng/L		10/27/21 17:42	10/30/21 09:51	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-4:2 FTS	*160*	*cn*	*20 - 187*	*10/27/21 17:42*	*10/30/21 09:51*	*1*
M2-6:2 FTS	*122*	*cn*	*29 - 189*	*10/27/21 17:42*	*10/30/21 09:51*	*1*
M2-8:2 FTS	*131*	*cn*	*34 - 182*	*10/27/21 17:42*	*10/30/21 09:51*	*1*
13C2 PFTeDA	*114*	*cn*	*10 - 144*	*10/27/21 17:42*	*10/30/21 09:51*	*1*
13C3 PFBS	*152*	*cn*	*19 - 178*	*10/27/21 17:42*	*10/30/21 09:51*	*1*
13C4 PFBA	*124*	*cn*	*41 - 132*	*10/27/21 17:42*	*10/30/21 09:51*	*1*
13C4 PFHpA	*166*	**5+ cn*	*30 - 144*	*10/27/21 17:42*	*10/30/21 09:51*	*1*
13C5 PFPeA	*132*	*cn*	*33 - 155*	*10/27/21 17:42*	*10/30/21 09:51*	*1*
13C8 PFOA	*112*	*cn*	*49 - 127*	*10/27/21 17:42*	*10/30/21 09:51*	*1*
13C8 PFOS	*111*	*cn*	*49 - 126*	*10/27/21 17:42*	*10/30/21 09:51*	*1*
d3-NMeFOSAA	*125*	*cn*	*32 - 151*	*10/27/21 17:42*	*10/30/21 09:51*	*1*
d5-NEtFOSAA	*124*	*cn*	*37 - 164*	*10/27/21 17:42*	*10/30/21 09:51*	*1*
13C3 PFHxS	*161*	**5+ cn*	*32 - 145*	*10/27/21 17:42*	*10/30/21 09:51*	*1*
13C5 PFHxA	*152*	**5+ cn*	*31 - 142*	*10/27/21 17:42*	*10/30/21 09:51*	*1*

Client Sample ID: TRAILER 2 -RINSE 4-2

Lab Sample ID: 410-59688-6
Matrix: Water
Date Collected: 10/13/21 16:05
Date Received: 10/16/21 09:45

Method: 537 IDA - EPA 537 Isotope Dilution (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C6 PFDA	114	cn	47 - 128	10/27/21 17:42	10/30/21 09:51	1
13C7 PFUnA	126	cn	40 - 135	10/27/21 17:42	10/30/21 09:51	1
13C8 FOSA	130	cn	10 - 143	10/27/21 17:42	10/30/21 09:51	1
13C2-PFDoDA	112	cn	28 - 136	10/27/21 17:42	10/30/21 09:51	1
13C9 PFNA	127	cn	47 - 136	10/27/21 17:42	10/30/21 09:51	1

Method: 537 IDA - EPA 537 Isotope Dilution - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
6:2 Fluorotelomer sulfonic acid	**650**	**cn**	440	170	ng/L		10/27/21 17:42	11/01/21 20:07	100

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
M2-6:2 FTS	137	cn	29 - 189	10/27/21 17:42	11/01/21 20:07	100

Client Sample ID: TOTE 10-11-GAC-2

Lab Sample ID: 410-59688-7
Matrix: Water
Date Collected: 10/13/21 17:00
Date Received: 10/16/21 09:45

Method: 537 IDA - EPA 537 Isotope Dilution

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4:2 Fluorotelomer sulfonic acid	<1.9	cn	1.9	0.48	ng/L		10/27/21 17:42	10/30/21 10:13	1
NEtFOSAA	**5.5**	**I cn**	2.9	0.48	ng/L		10/27/21 17:42	10/30/21 10:13	1
NMeFOSAA	<1.9	cn	1.9	0.58	ng/L		10/27/21 17:42	10/30/21 10:13	1
Perfluorobutanesulfonic acid	<1.9	cn	1.9	0.48	ng/L		10/27/21 17:42	10/30/21 10:13	1
Perfluorobutanoic acid	**8.0**	**cn**	4.8	1.9	ng/L		10/27/21 17:42	10/30/21 10:13	1
Perfluorodecanesulfonic acid	<1.9	cn	1.9	0.48	ng/L		10/27/21 17:42	10/30/21 10:13	1
Perfluorododecanoic acid	**220**	**cn**	1.9	0.48	ng/L		10/27/21 17:42	10/30/21 10:13	1
Perfluoroheptanesulfonic acid	<1.9	cn	1.9	0.48	ng/L		10/27/21 17:42	10/30/21 10:13	1
Perfluoroheptanoic acid	**15**	**cn**	1.9	0.48	ng/L		10/27/21 17:42	10/30/21 10:13	1
Perfluorohexanesulfonic acid	<1.9	cn	1.9	0.48	ng/L		10/27/21 17:42	10/30/21 10:13	1
Perfluorohexanoic acid	**42**	**cn**	1.9	0.48	ng/L		10/27/21 17:42	10/30/21 10:13	1
Perfluorononanesulfonic acid	<1.9	cn	1.9	0.48	ng/L		10/27/21 17:42	10/30/21 10:13	1
Perfluorononanoic acid	**74**	**cn**	1.9	0.48	ng/L		10/27/21 17:42	10/30/21 10:13	1
Perfluorooctanesulfonamide	<1.9	cn	1.9	0.48	ng/L		10/27/21 17:42	10/30/21 10:13	1
Perfluorooctanesulfonic acid	**35**	**I cn**	1.9	0.48	ng/L		10/27/21 17:42	10/30/21 10:13	1
Perfluorooctanoic acid	**150**	**cn**	1.9	0.48	ng/L		10/27/21 17:42	10/30/21 10:13	1
Perfluoropentanesulfonic acid	<1.9	cn	1.9	0.48	ng/L		10/27/21 17:42	10/30/21 10:13	1
Perfluoropentanoic acid	**15**	**cn**	1.9	0.48	ng/L		10/27/21 17:42	10/30/21 10:13	1
Perfluorotetradecanoic acid	**98**	**cn**	1.9	0.48	ng/L		10/27/21 17:42	10/30/21 10:13	1
Perfluorotridecanoic acid	**78**	**cn**	1.9	0.48	ng/L		10/27/21 17:42	10/30/21 10:13	1
Perfluoroundecanoic acid	**88**	**cn**	1.9	0.48	ng/L		10/27/21 17:42	10/30/21 10:13	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
M2-4:2 FTS	1058	*5+ cn	20 - 187	10/27/21 17:42	10/30/21 10:13	1
M2-6:2 FTS	95	cn	29 - 189	10/27/21 17:42	10/30/21 10:13	1
M2-8:2 FTS	61	cn	34 - 182	10/27/21 17:42	10/30/21 10:13	1
13C2 PFTeDA	57	cn	10 - 144	10/27/21 17:42	10/30/21 10:13	1
13C3 PFBS	115	cn	19 - 178	10/27/21 17:42	10/30/21 10:13	1
13C4 PFBA	113	cn	41 - 132	10/27/21 17:42	10/30/21 10:13	1
13C4 PFHpA	852	*5+ cn	30 - 144	10/27/21 17:42	10/30/21 10:13	1
13C5 PFPeA	116	cn	33 - 155	10/27/21 17:42	10/30/21 10:13	1
13C8 PFOA	51	cn	49 - 127	10/27/21 17:42	10/30/21 10:13	1
13C8 PFOS	6	*5- cn	49 - 126	10/27/21 17:42	10/30/21 10:13	1

Client Sample ID: TOTE 10-11-GAC-2

Lab Sample ID: 410-59688-7

Date Collected: 10/13/21 17:00
Matrix: Water
Date Received: 10/16/21 09:45

Method: 537 IDA - EPA 537 Isotope Dilution (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
d3-NMeFOSAA	39	cn	32 - 151	10/27/21 17:42	10/30/21 10:13	1
d5-NEtFOSAA	44	cn	37 - 164	10/27/21 17:42	10/30/21 10:13	1
13C3 PFHxS	272	*5+ cn	32 - 145	10/27/21 17:42	10/30/21 10:13	1
13C5 PFHxA	853	*5+ cn	31 - 142	10/27/21 17:42	10/30/21 10:13	1
13C6 PFDA	9	*5- cn	47 - 128	10/27/21 17:42	10/30/21 10:13	1
13C7 PFUnA	35	*5- cn	40 - 135	10/27/21 17:42	10/30/21 10:13	1
13C8 FOSA	67	cn	10 - 143	10/27/21 17:42	10/30/21 10:13	1
13C2-PFDoDA	27	*5- cn	28 - 136	10/27/21 17:42	10/30/21 10:13	1
13C9 PFNA	24	*5- cn	47 - 136	10/27/21 17:42	10/30/21 10:13	1

Method: 537 IDA - EPA 537 Isotope Dilution - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorodecanoic acid	**410**	**cn**	19	4.8	ng/L		10/27/21 17:42	10/30/21 10:25	10

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C6 PFDA	9	*5- cn	47 - 128	10/27/21 17:42	10/30/21 10:25	10

Method: 537 IDA - EPA 537 Isotope Dilution - DL2

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
6:2 Fluorotelomer sulfonic acid	**4500**	**cn**	480	190	ng/L		10/27/21 17:42	10/30/21 10:36	100
8:2 Fluorotelomer sulfonic acid	**14000**	**cn**	290	96	ng/L		10/27/21 17:42	10/30/21 10:36	100

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
M2-6:2 FTS	135	cn	29 - 189	10/27/21 17:42	10/30/21 10:36	100
M2-8:2 FTS	15	*5- cn	34 - 182	10/27/21 17:42	10/30/21 10:36	100

Client Sample ID: TRAILER 1-RINSE-1

Lab Sample ID: 410-59688-9

Date Collected: 10/14/21 15:00
Matrix: Water
Date Received: 10/16/21 09:45

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NEtFOSAA	<30	cn	30	4.9	ng/L		10/20/21 15:53	10/26/21 18:34	1
NMeFOSAA	<20	cn	20	5.9	ng/L		10/20/21 15:53	10/26/21 18:34	1
Perfluorobutanesulfonic acid	<20	cn	20	4.9	ng/L		10/20/21 15:53	10/26/21 18:34	1
Perfluorobutanoic acid	<49	cn	49	20	ng/L		10/20/21 15:53	10/26/21 18:34	1
Perfluorodecanesulfonic acid	<20	cn	20	4.9	ng/L		10/20/21 15:53	10/26/21 18:34	1
Perfluorodecanoic acid	**86**	**I cn**	20	4.9	ng/L		10/20/21 15:53	10/26/21 18:34	1
Perfluorododecanoic acid	**27**	**cn**	20	4.9	ng/L		10/20/21 15:53	10/26/21 18:34	1
Perfluoroheptanesulfonic acid	<20	cn	20	4.9	ng/L		10/20/21 15:53	10/26/21 18:34	1
Perfluoroheptanoic acid	**120**	**cn**	20	4.9	ng/L		10/20/21 15:53	10/26/21 18:34	1
Perfluorohexanesulfonic acid	<20	cn	20	4.9	ng/L		10/20/21 15:53	10/26/21 18:34	1
Perfluorohexanoic acid	**150**	**cn**	20	4.9	ng/L		10/20/21 15:53	10/26/21 18:34	1
Perfluorononanesulfonic acid	<20	cn	20	4.9	ng/L		10/20/21 15:53	10/26/21 18:34	1
Perfluorononanoic acid	**3600**	**cn**	20	4.9	ng/L		10/20/21 15:53	10/26/21 18:34	1
Perfluorooctanesulfonamide	<20	cn	20	4.9	ng/L		10/20/21 15:53	10/26/21 18:34	1
Perfluorooctanesulfonic acid	**38**	**cn**	20	4.9	ng/L		10/20/21 15:53	10/26/21 18:34	1
Perfluorooctanoic acid	**170**	**cn**	20	4.9	ng/L		10/20/21 15:53	10/26/21 18:34	1
Perfluoropentanesulfonic acid	<20	cn	20	4.9	ng/L		10/20/21 15:53	10/26/21 18:34	1
Perfluoropentanoic acid	<20	cn	20	4.9	ng/L		10/20/21 15:53	10/26/21 18:34	1
Perfluorotetradecanoic acid	<20	cn	20	4.9	ng/L		10/20/21 15:53	10/26/21 18:34	1
Perfluorotridecanoic acid	**400**	**cn**	20	4.9	ng/L		10/20/21 15:53	10/26/21 18:34	1

Client Sample ID: TRAILER 1-RINSE-1

Lab Sample ID: 410-59688-9

Date Collected: 10/14/21 15:00
Date Received: 10/16/21 09:45

Matrix: Water

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoroundecanoic acid	**1600**	**cn**	20	4.9	ng/L		10/20/21 15:53	10/26/21 18:34	1
4:2 Fluorotelomer sulfonic acid	<20	cn	20	4.9	ng/L		10/20/21 15:53	10/26/21 18:34	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-4:2 FTS	*240*	**5+ cn*	*20 - 187*	*10/20/21 15:53*	*10/26/21 18:34*	*1*
M2-6:2 FTS	*122*	*cn*	*29 - 189*	*10/20/21 15:53*	*10/26/21 18:34*	*1*
M2-8:2 FTS	*84*	*cn*	*34 - 182*	*10/20/21 15:53*	*10/26/21 18:34*	*1*
13C2 PFTeDA	*104*	*cn*	*10 - 144*	*10/20/21 15:53*	*10/26/21 18:34*	*1*
13C3 PFBS	*114*	*cn*	*19 - 178*	*10/20/21 15:53*	*10/26/21 18:34*	*1*
13C4 PFBA	*106*	*cn*	*41 - 132*	*10/20/21 15:53*	*10/26/21 18:34*	*1*
13C4 PFHpA	*217*	**5+ cn*	*30 - 144*	*10/20/21 15:53*	*10/26/21 18:34*	*1*
13C5 PFPeA	*105*	*cn*	*33 - 155*	*10/20/21 15:53*	*10/26/21 18:34*	*1*
13C8 PFOA	*105*	*cn*	*49 - 127*	*10/20/21 15:53*	*10/26/21 18:34*	*1*
13C8 PFOS	*106*	*cn*	*49 - 126*	*10/20/21 15:53*	*10/26/21 18:34*	*1*
d3-NMeFOSAA	*111*	*cn*	*32 - 151*	*10/20/21 15:53*	*10/26/21 18:34*	*1*
d5-NEtFOSAA	*125*	*cn*	*37 - 164*	*10/20/21 15:53*	*10/26/21 18:34*	*1*
d9-N-EtFOSE-M	*115*	*cn*	*10 - 142*	*10/20/21 15:53*	*10/26/21 18:34*	*1*
13C3 PFHxS	*222*	**5+ cn*	*32 - 145*	*10/20/21 15:53*	*10/26/21 18:34*	*1*
13C5 PFHxA	*211*	**5+ cn*	*31 - 142*	*10/20/21 15:53*	*10/26/21 18:34*	*1*
13C6 PFDA	*90*	*cn*	*47 - 128*	*10/20/21 15:53*	*10/26/21 18:34*	*1*
13C7 PFUnA	*108*	*cn*	*40 - 135*	*10/20/21 15:53*	*10/26/21 18:34*	*1*
d3-NMePFOSA	*72*	*cn*	*10 - 107*	*10/20/21 15:53*	*10/26/21 18:34*	*1*
d5-NEtPFOSA	*72*	*cn*	*10 - 108*	*10/20/21 15:53*	*10/26/21 18:34*	*1*
13C8 FOSA	*94*	*cn*	*10 - 143*	*10/20/21 15:53*	*10/26/21 18:34*	*1*
13C2-PFDoDA	*109*	*cn*	*28 - 136*	*10/20/21 15:53*	*10/26/21 18:34*	*1*
13C9 PFNA	*117*	*cn*	*47 - 136*	*10/20/21 15:53*	*10/26/21 18:34*	*1*

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
6:2 Fluorotelomer sulfonic acid	**4300**	**cn**	490	200	ng/L		10/20/21 15:53	10/24/21 07:36	10
8:2 Fluorotelomer sulfonic acid	**1900**	**cn**	300	99	ng/L		10/20/21 15:53	10/24/21 07:36	10

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-6:2 FTS	*164*	*cn*	*29 - 189*	*10/20/21 15:53*	*10/24/21 07:36*	*10*
M2-8:2 FTS	*137*	*cn*	*34 - 182*	*10/20/21 15:53*	*10/24/21 07:36*	*10*

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
10:2 Fluorotelomer sulfonic acid	<500		500	100	ng/L		11/01/21 07:50	11/05/21 14:12	1
11Cl-PF3OUdS	<200		200	50	ng/L		11/01/21 07:50	11/05/21 14:12	1
4:2 Fluorotelomer sulfonic acid	<200	*+	200	50	ng/L		11/01/21 07:50	11/05/21 14:12	1
6:2 Fluorotelomer sulfonic acid	<500		500	200	ng/L		11/01/21 07:50	11/05/21 14:12	1
8:2 Fluorotelomer sulfonic acid	<300	*+	300	100	ng/L		11/01/21 07:50	11/05/21 14:12	1
9Cl-PF3ONS	<200		200	50	ng/L		11/01/21 07:50	11/05/21 14:12	1
DONA	<200	*+	200	50	ng/L		11/01/21 07:50	11/05/21 14:12	1
HFPODA	<300		300	50	ng/L		11/01/21 07:50	11/05/21 14:12	1
NEtFOSAA	<300		300	50	ng/L		11/01/21 07:50	11/05/21 14:12	1
NEtFOSA	<500		500	100	ng/L		11/01/21 07:50	11/05/21 14:12	1
NEtFOSE	<300		300	100	ng/L		11/01/21 07:50	11/05/21 14:12	1
NMeFOSAA	<200		200	60	ng/L		11/01/21 07:50	11/05/21 14:12	1
NMeFOSA	<300		300	100	ng/L		11/01/21 07:50	11/05/21 14:12	1

Client Sample ID: TRAILER 1-RINSE-1

Lab Sample ID: 410-59688-9

Date Collected: 10/14/21 15:00
Matrix: Water
Date Received: 10/16/21 09:45

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NMeFOSE	<300	*+	300	100	ng/L		11/01/21 07:50	11/05/21 14:12	1
Perfluorobutanesulfonic acid	<200		200	50	ng/L		11/01/21 07:50	11/05/21 14:12	1
Perfluorobutanoic acid	**15000**		500	200	ng/L		11/01/21 07:50	11/05/21 14:12	1
Perfluorodecanesulfonic acid	<200		200	50	ng/L		11/01/21 07:50	11/05/21 14:12	1
Perfluorodecanoic acid	**1500**		200	50	ng/L		11/01/21 07:50	11/05/21 14:12	1
Perfluorododecanesulfonic acid (PFDoS)	<300		300	50	ng/L		11/01/21 07:50	11/05/21 14:12	1
Perfluorododecanoic acid	**730**	**I**	200	50	ng/L		11/01/21 07:50	11/05/21 14:12	1
Perfluoroheptanesulfonic acid	<200		200	50	ng/L		11/01/21 07:50	11/05/21 14:12	1
Perfluoroheptanoic acid	**17000**		200	50	ng/L		11/01/21 07:50	11/05/21 14:12	1
Perfluorohexadecanoic acid	<300		300	100	ng/L		11/01/21 07:50	11/05/21 14:12	1
Perfluorohexanesulfonic acid	<200		200	50	ng/L		11/01/21 07:50	11/05/21 14:12	1
Perfluorohexanoic acid	**18000**		200	50	ng/L		11/01/21 07:50	11/05/21 14:12	1
Perfluorononanesulfonic acid	<200		200	50	ng/L		11/01/21 07:50	11/05/21 14:12	1
Perfluorononanoic acid	**5900**		200	50	ng/L		11/01/21 07:50	11/05/21 14:12	1
Perfluorooctadecanoic acid	<300		300	100	ng/L		11/01/21 07:50	11/05/21 14:12	1
Perfluorooctanesulfonamide	<200		200	50	ng/L		11/01/21 07:50	11/05/21 14:12	1
Perfluorooctanesulfonic acid	<200		200	50	ng/L		11/01/21 07:50	11/05/21 14:12	1
Perfluorooctanoic acid	**5900**		200	50	ng/L		11/01/21 07:50	11/05/21 14:12	1
Perfluoropentanesulfonic acid	<200		200	50	ng/L		11/01/21 07:50	11/05/21 14:12	1
Perfluoropentanoic acid	**38000**		200	50	ng/L		11/01/21 07:50	11/05/21 14:12	1
Perfluorotetradecanoic acid	**430**		200	50	ng/L		11/01/21 07:50	11/05/21 14:12	1
Perfluorotridecanoic acid	**630**		200	50	ng/L		11/01/21 07:50	11/05/21 14:12	1
Perfluoroundecanoic acid	**2000**		200	50	ng/L		11/01/21 07:50	11/05/21 14:12	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-6:2 FTS	*80*		*55 - 167*	*11/01/21 07:50*	*11/05/21 14:12*	*1*
M2-8:2 FTS	*92*		*61 - 160*	*11/01/21 07:50*	*11/05/21 14:12*	*1*
13C2-PFDoDA	*80*		*47 - 118*	*11/01/21 07:50*	*11/05/21 14:12*	*1*
13C2 PFTeDA	*80*		*32 - 126*	*11/01/21 07:50*	*11/05/21 14:12*	*1*
13C3 HFPO-DA	*93*		*70 - 130*	*11/01/21 07:50*	*11/05/21 14:12*	*1*
13C3 PFBS	*91*		*18 - 177*	*11/01/21 07:50*	*11/05/21 14:12*	*1*
13C3 PFHxS	*72*		*55 - 115*	*11/01/21 07:50*	*11/05/21 14:12*	*1*
13C4 PFBA	*82*		*52 - 126*	*11/01/21 07:50*	*11/05/21 14:12*	*1*
13C4 PFHpA	*81*		*55 - 113*	*11/01/21 07:50*	*11/05/21 14:12*	*1*
13C5 PFHxA	*73*		*54 - 115*	*11/01/21 07:50*	*11/05/21 14:12*	*1*
13C5 PFPeA	*73*		*17 - 184*	*11/01/21 07:50*	*11/05/21 14:12*	*1*
13C6 PFDA	*81*		*56 - 114*	*11/01/21 07:50*	*11/05/21 14:12*	*1*
13C7 PFUnA	*79*		*50 - 120*	*11/01/21 07:50*	*11/05/21 14:12*	*1*
13C8 PFOA	*79*		*56 - 117*	*11/01/21 07:50*	*11/05/21 14:12*	*1*
13C8 PFOS	*83*		*56 - 112*	*11/01/21 07:50*	*11/05/21 14:12*	*1*
13C8 FOSA	*82*		*10 - 126*	*11/01/21 07:50*	*11/05/21 14:12*	*1*
13C9 PFNA	*90*		*54 - 122*	*11/01/21 07:50*	*11/05/21 14:12*	*1*
d3-NMePFOSA	*68*	**5+*	*10 - 51*	*11/01/21 07:50*	*11/05/21 14:12*	*1*
d5-NEtFOSAA	*83*		*65 - 134*	*11/01/21 07:50*	*11/05/21 14:12*	*1*
d5-NEtPFOSA	*62*	**5+*	*10 - 51*	*11/01/21 07:50*	*11/05/21 14:12*	*1*
d7-N-MeFOSE-M	*72*		*10 - 105*	*11/01/21 07:50*	*11/05/21 14:12*	*1*
d9-N-EtFOSE-M	*73*		*10 - 112*	*11/01/21 07:50*	*11/05/21 14:12*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*66*		*40 - 173*	*11/01/21 07:50*	*11/05/21 14:12*	*1*

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-59688-1

Client Sample ID: TRAILER 1-RINSE-1

Lab Sample ID: 410-59688-9

Date Collected: 10/14/21 15:00
Matrix: Water
Date Received: 10/16/21 09:45

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFUnA	*73*		*49 - 132*	*11/01/21 07:50*	*11/05/21 14:12*	*1*
13C4 PFOA	*71*		*10 - 163*	*11/01/21 07:50*	*11/05/21 14:12*	*1*

Method: Total PFCA-Dif - Total PFCA (Treatment Difference)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid	**15000**				ng/L			11/08/21 11:26	1
Perfluoropentanoic acid	**38000**				ng/L			11/08/21 11:26	1
Perfluorohexanoic acid	**18000**				ng/L			11/08/21 11:26	1
Perfluoroheptanoic acid	**17000**				ng/L			11/08/21 11:26	1
Perfluorooctanoic acid	**5700**				ng/L			11/08/21 11:26	1
Perfluorononanoic acid	**2300**				ng/L			11/08/21 11:26	1
Total PFCA	**96000**				ng/L			11/08/21 11:26	1

Method: Total PFCA-Sum - Total PFCA (Summary) - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total PFCA	**4000**		500	0.50	ng/L			11/08/21 11:22	1

Method: Total PFCA-Sum - Total PFCA (Summary) - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total PFCA	**100000**		500	0.50	ng/L			11/08/21 11:22	1

Surrogate Summary

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-59688-1

Method: 537 TOP - Fluorinated Alkyl Substances

Matrix: Water **Prep Type: Post-Treatment**

		Percent Surrogate Recovery (Acceptance Limits)		
		PFHxA	PFUnA	PFOA
Lab Sample ID	**Client Sample ID**	**(40-173)**	**(49-132)**	**(10-163)**
410-59688-1	TRAILER 2 -RINSE 1-1	58	71	59
410-59688-1 - DL	TRAILER 2 -RINSE 1-1	106	121	112
410-59688-2	TRAILER 2 -RINSE 2-1	65	70	68
410-59688-3	TRAILER 2 -EFF 1-1	65	52	60
410-59688-3 - DL	TRAILER 2 -EFF 1-1	103	119	108
410-59688-4	TRAILER 2 -RINSE 3-1	58	72	67
410-59688-5	TRAILER 2 -RINSE 4-1	47	108	93
410-59688-9	TRAILER 1-RINSE-1	66	73	71
LCS 410-189201/3-A	Lab Control Sample	65	73	69
LCSD 410-189201/4-A	Lab Control Sample Dup	30 S1-	71	55
MB 410-189201/2-A	Method Blank	116	72	99

Surrogate Legend

PFHxA = 13C2 PFHxA
PFUnA = 13C2 PFUnA
PFOA = 13C4 PFOA

Isotope Dilution Summary

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-59688-1

Method: 537 IDA - EPA 537 Isotope Dilution

Matrix: Water **Prep Type: Total/NA**

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	M242FTS (20-187)	M262FTS (29-189)	M282FTS (34-182)	PFTDA (10-144)	C3PFBS (19-178)	PFBA (41-132)	C4PFHA (30-144)	PFPeA (33-155)
410-59688-6	TRAILER 2 -RINSE 4-2	160 cn	122 cn	131 cn	114 cn	152 cn	124 cn	166 *5+ cn	132 cn
410-59688-6 - DL	TRAILER 2 -RINSE 4-2		137 cn						
410-59688-7	TOTE 10-11-GAC-2	1058 *5+ cn	95 cn	61 cn	57 cn	115 cn	113 cn	852 *5+ cn	116 cn
410-59688-7 - DL	TOTE 10-11-GAC-2								
410-59688-7 - DL2	TOTE 10-11-GAC-2		135 cn	15 *5- cn					
LCS 410-185716/2-A	Lab Control Sample	103	100	106	95	109	105	101	101
LCS 410-187892/2-A	Lab Control Sample	160	136	132	117	125	122	149 *5+	129
LCSD 410-185716/3-A	Lab Control Sample Dup	115	117	113	103	117	113	114	107
MB 410-185716/1-A	Method Blank	107	111	112	90	102	101	108	94
MB 410-187892/1-A	Method Blank	123	106	127	125	107	112	110	109

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	C8PFOA (49-127)	C8PFOS (49-126)	d3NMFOS (32-151)	d5NEFOS (37-164)	C3PFHS (32-145)	13C5PHA (31-142)	C6PFDA (47-128)	13C7PUA (40-135)
410-59688-6	TRAILER 2 -RINSE 4-2	112 cn	111 cn	125 cn	124 cn	161 *5+ cn	152 *5+ cn	114 cn	126 cn
410-59688-6 - DL	TRAILER 2 -RINSE 4-2								
410-59688-7	TOTE 10-11-GAC-2	51 cn	6 *5- cn	39 cn	44 cn	272 *5+ cn	853 *5+ cn	9 *5- cn	35 *5- cn
410-59688-7 - DL	TOTE 10-11-GAC-2							9 *5- cn	
410-59688-7 - DL2	TOTE 10-11-GAC-2								
LCS 410-185716/2-A	Lab Control Sample	104	105	112	123	114	107	98	101
LCS 410-187892/2-A	Lab Control Sample	134 *5+	125	124	122	135	133	126	130
LCSD 410-185716/3-A	Lab Control Sample Dup	119	118	124	130	131	117	108	115
MB 410-185716/1-A	Method Blank	111	109	112	122	115	107	99	107
MB 410-187892/1-A	Method Blank	112	106	125	130	105	109	126	128

		Percent Isotope Dilution Recovery (Acceptance Limits)		
Lab Sample ID	Client Sample ID	PFOSA (10-143)	PFDoDA (28-136)	C9PFNA (47-136)
410-59688-6	TRAILER 2 -RINSE 4-2	130 cn	112 cn	127 cn
410-59688-6 - DL	TRAILER 2 -RINSE 4-2			
410-59688-7	TOTE 10-11-GAC-2	67 cn	27 *5- cn	24 *5- cn
410-59688-7 - DL	TOTE 10-11-GAC-2			
410-59688-7 - DL2	TOTE 10-11-GAC-2			
LCS 410-185716/2-A	Lab Control Sample	89	97	103
LCS 410-187892/2-A	Lab Control Sample	107	122	129
LCSD 410-185716/3-A	Lab Control Sample Dup	101	105	112
MB 410-185716/1-A	Method Blank	87	90	109
MB 410-187892/1-A	Method Blank	108	123	127

Surrogate Legend

M242FTS = M2-4:2 FTS
M262FTS = M2-6:2 FTS
M282FTS = M2-8:2 FTS
PFTDA = 13C2 PFTeDA
C3PFBS = 13C3 PFBS
PFBA = 13C4 PFBA
C4PFHA = 13C4 PFHpA
PFPeA = 13C5 PFPeA

Isotope Dilution Summary

Client: AECOM
Job ID: 410-59688-1
Project/Site: AFFF Tanks Cleaning

C8PFOA = 13C8 PFOA
C8PFOS = 13C8 PFOS
d3NMFOS = d3-NMeFOSAA
d5NEFOS = d5-NEtFOSAA
C3PFHS = 13C3 PFHxS
13C5PHA = 13C5 PFHxA
C6PFDA = 13C6 PFDA
13C7PUA = 13C7 PFUnA
PFOSA = 13C8 FOSA
PFDoDA = 13C2-PFDoDA
C9PFNA = 13C9 PFNA

Method: 537 IDA - EPA 537 Isotope Dilution

Matrix: Water **Prep Type: Pre-Treatment**

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		M242FTS	M262FTS	M282FTS	PFTDA	C3PFBS	PFBA	C4PFHA	PFPeA
Lab Sample ID	Client Sample ID	(20-187)	(29-189)	(34-182)	(10-144)	(19-178)	(41-132)	(30-144)	(33-155)
410-59688-1 - DL	TRAILER 2 -RINSE 1-1		242 *5+ cn	132 cn					
410-59688-2 - DL	TRAILER 2 -RINSE 2-1		165 cn	151 cn					
410-59688-3 - DL	TRAILER 2 -EFF 1-1		146 cn	47 cn					
410-59688-4 - DL	TRAILER 2 -RINSE 3-1		148 cn	153 cn					
410-59688-5 - DL	TRAILER 2 -RINSE 4-1		150 cn						
410-59688-9 - DL	TRAILER 1-RINSE-1		164 cn	137 cn					

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		C8PFOA	C8PFOS	d3NMFOS	d5NEFOS	NEFM	C3PFHS	13C5PHA	C6PFDA
Lab Sample ID	Client Sample ID	(49-127)	(49-126)	(32-151)	(37-164)	(10-142)	(32-145)	(31-142)	(47-128)
410-59688-1 - DL	TRAILER 2 -RINSE 1-1								
410-59688-2 - DL	TRAILER 2 -RINSE 2-1								
410-59688-3 - DL	TRAILER 2 -EFF 1-1								
410-59688-4 - DL	TRAILER 2 -RINSE 3-1								
410-59688-5 - DL	TRAILER 2 -RINSE 4-1								
410-59688-9 - DL	TRAILER 1-RINSE-1								

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		13C7PUA	d3NMFSA	d5NPFSA	PFOSA	PFDoDA	C9PFNA		
Lab Sample ID	Client Sample ID	(40-135)	(10-107)	(10-108)	(10-143)	(28-136)	(47-136)		
410-59688-1 - DL	TRAILER 2 -RINSE 1-1								
410-59688-2 - DL	TRAILER 2 -RINSE 2-1								
410-59688-3 - DL	TRAILER 2 -EFF 1-1								
410-59688-4 - DL	TRAILER 2 -RINSE 3-1								
410-59688-5 - DL	TRAILER 2 -RINSE 4-1								
410-59688-9 - DL	TRAILER 1-RINSE-1								

Surrogate Legend

M262FTS = M2-6:2 FTS
M282FTS = M2-8:2 FTS

Method: 537 IDA - EPA 537 Isotope Dilution

Matrix: Water **Prep Type: Pre-Treatment**

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		M242FTS	M262FTS	M282FTS	PFTDA	HFPODA	C3PFBS	PFBA	C4PFHA
Lab Sample ID	Client Sample ID	(20-187)	(29-189)	(34-182)	(10-144)	(20-153)	(19-178)	(41-132)	(30-144)
410-59688-1	TRAILER 2 -RINSE 1-1	299 *5+ cn	238 *5+ cn	98 cn	44 cn		112 cn	112 cn	250 *5+ cn
410-59688-2	TRAILER 2 -RINSE 2-1	323 *5+ cn	125 cn	85 cn	117 cn		119 cn	120 cn	285 *5+ cn

Isotope Dilution Summary

Client: AECOM
Job ID: 410-59688-1
Project/Site: AFFF Tanks Cleaning

Method: 537 IDA - EPA 537 Isotope Dilution (Continued)

Matrix: Water **Prep Type: Pre-Treatment**

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	M242FTS (20-187)	M262FTS (29-189)	M282FTS (34-182)	PFTDA (10-144)	HFPODA (20-153)	C3PFBS (19-178)	PFBA (41-132)	C4PFHA (30-144)
410-59688-3	TRAILER 2 -EFF 1-1	571 *5+ cn	71 cn	21 *5- cn	43 cn		106 cn	102 cn	427 *5+ cn
410-59688-4	TRAILER 2 -RINSE 3-1	214 *5+ cn	129 cn	94 cn	120 cn		122 cn	118 cn	203 *5+ cn
410-59688-5	TRAILER 2 -RINSE 4-1	143 cn	140 cn	119 cn	103 cn		124 cn	118 cn	135 cn
410-59688-9	TRAILER 1-RINSE-1	240 *5+ cn	122 cn	84 cn	104 cn		114 cn	106 cn	217 *5+ cn
LCS 410-185154/2-A	Lab Control Sample	117	108	127	124	127	118	110	108
LCSD 410-185154/3-A	Lab Control Sample Dup	129	122	124	112	127	124	114	116
MB 410-185154/1-A	Method Blank	118	120	126	105	116	112	106	110

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFPeA (33-155)	C8PFOA (49-127)	C8PFOS (49-126)	d3NMFOS (32-151)	d5NEFOS (37-164)	NEFM (10-142)	C3PFHS (32-145)	13C5PHA (31-142)
410-59688-1	TRAILER 2 -RINSE 1-1	108 cn	92 cn	104 cn	84 cn	102 cn	54 cn	291 *5+ cn	260 *5+ cn
410-59688-2	TRAILER 2 -RINSE 2-1	112 cn	110 cn	120 cn	135 cn	151 cn	124 cn	306 *5+ cn	283 *5+ cn
410-59688-3	TRAILER 2 -EFF 1-1	97 cn	54 cn	8 *5- cn	32 cn	46 cn	48 cn	164 *5+ cn	461 *5+ cn
410-59688-4	TRAILER 2 -RINSE 3-1	115 cn	113 cn	119 cn	154 *5+ cn	189 *5+ cn	130 cn	213 *5+ cn	193 *5+ cn
410-59688-5	TRAILER 2 -RINSE 4-1	114 cn	118 cn	119 cn	133 cn	143 cn	109 cn	149 *5+ cn	131 cn
410-59688-9	TRAILER 1-RINSE-1	105 cn	105 cn	106 cn	111 cn	125 cn	115 cn	222 *5+ cn	211 *5+ cn
LCS 410-185154/2-A	Lab Control Sample	111	110	118	120	137	107	123	109
LCSD 410-185154/3-A	Lab Control Sample Dup	114	122	113	122	126	110	129	116
MB 410-185154/1-A	Method Blank	104	115	113	117	125	96	126	113

		Percent Isotope Dilution Recovery (Acceptance Limits)						
Lab Sample ID	Client Sample ID	C6PFDA (47-128)	13C7PUA (40-135)	d3NMFSA (10-107)	d5NPFSA (10-108)	PFOSA (10-143)	PFDoDA (28-136)	C9PFNA (47-136)
410-59688-1	TRAILER 2 -RINSE 1-1	83 cn	79 cn	48 cn	54 cn	61 cn	53 cn	137 *5+ cn
410-59688-2	TRAILER 2 -RINSE 2-1	95 cn	131 cn	86 cn	88 cn	103 cn	126 cn	158 *5+ cn
410-59688-3	TRAILER 2 -EFF 1-1	13 *5- cn	38 *5- cn	31 cn	40 cn	23 cn	30 cn	28 *5- cn
410-59688-4	TRAILER 2 -RINSE 3-1	100 cn	140 *5+ cn	85 cn	89 cn	113 cn	122 cn	154 *5+ cn
410-59688-5	TRAILER 2 -RINSE 4-1	106 cn	124 cn	92 cn	94 cn	97 cn	116 cn	129 cn
410-59688-9	TRAILER 1-RINSE-1	90 cn	108 cn	72 cn	72 cn	94 cn	109 cn	117 cn
LCS 410-185154/2-A	Lab Control Sample	113	127	95	93	115	120	110
LCSD 410-185154/3-A	Lab Control Sample Dup	113	114	92	90	106	112	104
MB 410-185154/1-A	Method Blank	107	108	68	70	102	101	107

Surrogate Legend

M242FTS = M2-4:2 FTS
M262FTS = M2-6:2 FTS
M282FTS = M2-8:2 FTS
PFTDA = 13C2 PFTeDA
HFPODA = 13C3 HFPO-DA
C3PFBS = 13C3 PFBS
PFBA = 13C4 PFBA
C4PFHA = 13C4 PFHpA

Isotope Dilution Summary

Client: AECOM
Job ID: 410-59688-1
Project/Site: AFFF Tanks Cleaning

PFPeA = 13C5 PFPeA
C8PFOA = 13C8 PFOA
C8PFOS = 13C8 PFOS
d3NMFOS = d3-NMeFOSAA
d5NEFOS = d5-NEtFOSAA
NEFM = d9-N-EtFOSE-M
C3PFHS = 13C3 PFHxS
13C5PHA = 13C5 PFHxA
C6PFDA = 13C6 PFDA
13C7PUA = 13C7 PFUnA
d3NMFSA = d3-NMePFOSA
d5NPFSA = d5-NEtPFOSA
PFOSA = 13C8 FOSA
PFDoDA = 13C2-PFDoDA
C9PFNA = 13C9 PFNA

Method: 537 TOP - Fluorinated Alkyl Substances

Matrix: Water **Prep Type: Post-Treatment**

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		M262FTS	M282FTS	PFDoDA	PFTDA	HFPODA	C3PFBS	C3PFHS	PFBA
Lab Sample ID	Client Sample ID	(55-167)	(61-160)	(47-118)	(32-126)	(70-130)	(18-177)	(55-115)	(52-126)
410-59688-1	TRAILER 2 -RINSE 1-1	65	75	77	79	84	128	50 *5-	78
410-59688-1 - DL	TRAILER 2 -RINSE 1-1								129 *5+
410-59688-2	TRAILER 2 -RINSE 2-1	78	88	73	72	70	82	71	76
410-59688-3	TRAILER 2 -EFF 1-1	55	52 *5-	62	71	98	131	48 *5-	78
410-59688-3 - DL	TRAILER 2 -EFF 1-1			147 *5+					165 *5+
410-59688-4	TRAILER 2 -RINSE 3-1	81	92	80	80	81	85	72	80
410-59688-5	TRAILER 2 -RINSE 4-1	124	116	104	103	156 *5+	124	108	116
410-59688-9	TRAILER 1-RINSE-1	80	92	80	80	93	91	72	82
LCS 410-189201/3-A	Lab Control Sample	82	88	75	76	68 *5-	81	79	80
LCSD 410-189201/4-A	Lab Control Sample Dup	83	80	70	71	74	74	78	75
MB 410-189201/2-A	Method Blank	124	148	130 *5+	131 *5+	90	133	118 *5+	128 *5+

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		C4PFHA	13C5PHA	PFPeA	C6PFDA	13C7PUA	C8PFOA	C8PFOS	PFOSA
Lab Sample ID	Client Sample ID	(55-113)	(54-115)	(17-184)	(56-114)	(50-120)	(56-117)	(56-112)	(10-126)
410-59688-1	TRAILER 2 -RINSE 1-1	68	56	58	79	78	66	83	85
410-59688-1 - DL	TRAILER 2 -RINSE 1-1	130 *5+	123 *5+	110			127 *5+		
410-59688-2	TRAILER 2 -RINSE 2-1	77	73	73	81	76	74	82	78
410-59688-3	TRAILER 2 -EFF 1-1	69	60	56	66	64	60	83	105
410-59688-3 - DL	TRAILER 2 -EFF 1-1	105	114	110	135 *5+	131 *5+	132 *5+		
410-59688-4	TRAILER 2 -RINSE 3-1	79	75	79	84	83	77	83	77
410-59688-5	TRAILER 2 -RINSE 4-1	116 *5+	113	112	112	108	117	110	99
410-59688-9	TRAILER 1-RINSE-1	81	73	73	81	79	79	83	82
LCS 410-189201/3-A	Lab Control Sample	80	82	84	86	84	79	78	73
LCSD 410-189201/4-A	Lab Control Sample Dup	74	81	80	74	76	79	75	75
MB 410-189201/2-A	Method Blank	134 *5+	121 *5+	132	137 *5+	137 *5+	122 *5+	130 *5+	115

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		C9PFNA	d3NMFSA	d5NEFOS	d5NPFSA	NMFM	NEFM		
Lab Sample ID	Client Sample ID	(54-122)	(10-51)	(65-134)	(10-51)	(10-105)	(10-112)		
410-59688-1	TRAILER 2 -RINSE 1-1	80	65 *5+	82	64 *5+	76	71		
410-59688-1 - DL	TRAILER 2 -RINSE 1-1	144 *5+							
410-59688-2	TRAILER 2 -RINSE 2-1	84	52 *5+	83	48	67	64		
410-59688-3	TRAILER 2 -EFF 1-1	77	49	65	40	82	82		
410-59688-3 - DL	TRAILER 2 -EFF 1-1	128 *5+							
410-59688-4	TRAILER 2 -RINSE 3-1	88	55 *5+	88	53 *5+	68	64		

Isotope Dilution Summary

Client: AECOM
Job ID: 410-59688-1
Project/Site: AFFF Tanks Cleaning

Method: 537 TOP - Fluorinated Alkyl Substances (Continued)

Matrix: Water
Prep Type: Post-Treatment

		Percent Isotope Dilution Recovery (Acceptance Limits)					
Lab Sample ID	**Client Sample ID**	**C9PFNA (54-122)**	**d3NMFSA (10-51)**	**d5NEFOS (65-134)**	**d5NPFSA (10-51)**	**NMFM (10-105)**	**NEFM (10-112)**
410-59688-5	TRAILER 2 -RINSE 4-1	123 *5+	73 *5+	101	75 *5+	91	88
410-59688-9	TRAILER 1-RINSE-1	90	68 *5+	83	62 *5+	72	73
LCS 410-189201/3-A	Lab Control Sample	88	45	82	42	65	62
LCSD 410-189201/4-A	Lab Control Sample Dup	83	41	82	41	65	63
MB 410-189201/2-A	Method Blank	164 *5+	61 *5+	123	55 *5+	107 *5+	106

Surrogate Legend

M262FTS = M2-6:2 FTS
M282FTS = M2-8:2 FTS
PFDoDA = 13C2-PFDoDA
PFTDA = 13C2 PFTeDA
HFPODA = 13C3 HFPO-DA
C3PFBS = 13C3 PFBS
C3PFHS = 13C3 PFHxS
PFBA = 13C4 PFBA
C4PFHA = 13C4 PFHpA
13C5PHA = 13C5 PFHxA
PFPeA = 13C5 PFPeA
C6PFDA = 13C6 PFDA
13C7PUA = 13C7 PFUnA
C8PFOA = 13C8 PFOA
C8PFOS = 13C8 PFOS
PFOSA = 13C8 FOSA
C9PFNA = 13C9 PFNA
d3NMFSA = d3-NMePFOSA
d5NEFOS = d5-NEtFOSAA
d5NPFSA = d5-NEtPFOSA
NMFM = d7-N-MeFOSE-M
NEFM = d9-N-EtFOSE-M

Method: 537 IDA - EPA 537 Isotope Dilution

Lab Sample ID: MB 410-185716/1-A
Matrix: Water
Analysis Batch: 186774

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 185716

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NEtFOSAA	<3.0		3.0	0.50	ng/L		10/21/21 16:50	10/26/21 05:01	1
NMeFOSAA	<2.0		2.0	0.60	ng/L		10/21/21 16:50	10/26/21 05:01	1
Perfluorobutanesulfonic acid	<2.0		2.0	0.50	ng/L		10/21/21 16:50	10/26/21 05:01	1
Perfluorobutanoic acid	<5.0		5.0	2.0	ng/L		10/21/21 16:50	10/26/21 05:01	1
Perfluorodecanesulfonic acid	<2.0		2.0	0.50	ng/L		10/21/21 16:50	10/26/21 05:01	1
Perfluorodecanoic acid	<2.0		2.0	0.50	ng/L		10/21/21 16:50	10/26/21 05:01	1
Perfluorododecanoic acid	<2.0		2.0	0.50	ng/L		10/21/21 16:50	10/26/21 05:01	1
Perfluoroheptanesulfonic acid	<2.0		2.0	0.50	ng/L		10/21/21 16:50	10/26/21 05:01	1
Perfluoroheptanoic acid	<2.0		2.0	0.50	ng/L		10/21/21 16:50	10/26/21 05:01	1
Perfluorohexanesulfonic acid	<2.0		2.0	0.50	ng/L		10/21/21 16:50	10/26/21 05:01	1
Perfluorohexanoic acid	<2.0		2.0	0.50	ng/L		10/21/21 16:50	10/26/21 05:01	1
Perfluorononanesulfonic acid	<2.0		2.0	0.50	ng/L		10/21/21 16:50	10/26/21 05:01	1
Perfluorononanoic acid	<2.0		2.0	0.50	ng/L		10/21/21 16:50	10/26/21 05:01	1
Perfluorooctanesulfonamide	<2.0		2.0	0.50	ng/L		10/21/21 16:50	10/26/21 05:01	1
Perfluorooctanesulfonic acid	<2.0		2.0	0.50	ng/L		10/21/21 16:50	10/26/21 05:01	1
Perfluorooctanoic acid	<2.0		2.0	0.50	ng/L		10/21/21 16:50	10/26/21 05:01	1
Perfluoropentanesulfonic acid	<2.0		2.0	0.50	ng/L		10/21/21 16:50	10/26/21 05:01	1
Perfluoropentanoic acid	<2.0		2.0	0.50	ng/L		10/21/21 16:50	10/26/21 05:01	1
Perfluorotetradecanoic acid	<2.0		2.0	0.50	ng/L		10/21/21 16:50	10/26/21 05:01	1
Perfluorotridecanoic acid	<2.0		2.0	0.50	ng/L		10/21/21 16:50	10/26/21 05:01	1
Perfluoroundecanoic acid	<2.0		2.0	0.50	ng/L		10/21/21 16:50	10/26/21 05:01	1
6:2 Fluorotelomer sulfonic acid	<5.0		5.0	2.0	ng/L		10/21/21 16:50	10/26/21 05:01	1
8:2 Fluorotelomer sulfonic acid	<3.0		3.0	1.0	ng/L		10/21/21 16:50	10/26/21 05:01	1
4:2 Fluorotelomer sulfonic acid	<2.0		2.0	0.50	ng/L		10/21/21 16:50	10/26/21 05:01	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-4:2 FTS	*107*		*20 - 187*	*10/21/21 16:50*	*10/26/21 05:01*	*1*
M2-6:2 FTS	*111*		*29 - 189*	*10/21/21 16:50*	*10/26/21 05:01*	*1*
M2-8:2 FTS	*112*		*34 - 182*	*10/21/21 16:50*	*10/26/21 05:01*	*1*
13C2 PFTeDA	*90*		*10 - 144*	*10/21/21 16:50*	*10/26/21 05:01*	*1*
13C3 PFBS	*102*		*19 - 178*	*10/21/21 16:50*	*10/26/21 05:01*	*1*
13C4 PFBA	*101*		*41 - 132*	*10/21/21 16:50*	*10/26/21 05:01*	*1*
13C4 PFHpA	*108*		*30 - 144*	*10/21/21 16:50*	*10/26/21 05:01*	*1*
13C5 PFPeA	*94*		*33 - 155*	*10/21/21 16:50*	*10/26/21 05:01*	*1*
13C8 PFOA	*111*		*49 - 127*	*10/21/21 16:50*	*10/26/21 05:01*	*1*
13C8 PFOS	*109*		*49 - 126*	*10/21/21 16:50*	*10/26/21 05:01*	*1*
d3-NMeFOSAA	*112*		*32 - 151*	*10/21/21 16:50*	*10/26/21 05:01*	*1*
d5-NEtFOSAA	*122*		*37 - 164*	*10/21/21 16:50*	*10/26/21 05:01*	*1*
13C3 PFHxS	*115*		*32 - 145*	*10/21/21 16:50*	*10/26/21 05:01*	*1*
13C5 PFHxA	*107*		*31 - 142*	*10/21/21 16:50*	*10/26/21 05:01*	*1*
13C6 PFDA	*99*		*47 - 128*	*10/21/21 16:50*	*10/26/21 05:01*	*1*
13C7 PFUnA	*107*		*40 - 135*	*10/21/21 16:50*	*10/26/21 05:01*	*1*
13C8 FOSA	*87*		*10 - 143*	*10/21/21 16:50*	*10/26/21 05:01*	*1*
13C2-PFDoDA	*90*		*28 - 136*	*10/21/21 16:50*	*10/26/21 05:01*	*1*
13C9 PFNA	*109*		*47 - 136*	*10/21/21 16:50*	*10/26/21 05:01*	*1*

Method: 537 IDA - EPA 537 Isotope Dilution (Continued)

Lab Sample ID: LCS 410-185716/2-A
Matrix: Water
Analysis Batch: 186774

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 185716

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
NEtFOSAA	25.6	25.2		ng/L		98	54 - 134
NMeFOSAA	25.6	25.4		ng/L		99	58 - 143
Perfluorobutanesulfonic acid	22.7	23.3		ng/L		103	65 - 132
Perfluorobutanoic acid	25.6	25.8		ng/L		101	62 - 156
Perfluorodecanesulfonic acid	24.7	25.7		ng/L		104	61 - 134
Perfluorodecanoic acid	25.6	28.4		ng/L		111	63 - 137
Perfluorododecanoic acid	25.6	29.7		ng/L		116	63 - 140
Perfluoroheptanesulfonic acid	24.4	25.8		ng/L		106	67 - 135
Perfluoroheptanoic acid	25.6	29.3		ng/L		114	66 - 141
Perfluorohexanesulfonic acid	23.3	23.6		ng/L		101	60 - 128
Perfluorohexanoic acid	25.6	27.6		ng/L		108	66 - 137
Perfluorononanesulfonic acid	24.6	24.0		ng/L		98	67 - 137
Perfluorononanoic acid	25.6	29.6		ng/L		116	65 - 140
Perfluorooctanesulfonamide	25.6	26.2		ng/L		102	55 - 130
Perfluorooctanesulfonic acid	23.7	24.2		ng/L		102	51 - 126
Perfluorooctanoic acid	25.6	27.6		ng/L		108	65 - 136
Perfluoropentanesulfonic acid	24.0	23.9		ng/L		100	71 - 136
Perfluoropentanoic acid	25.6	27.8		ng/L		109	72 - 139
Perfluorotetradecanoic acid	25.6	28.9		ng/L		113	64 - 141
Perfluorotridecanoic acid	25.6	30.3		ng/L		118	58 - 146
Perfluoroundecanoic acid	25.6	28.0		ng/L		109	62 - 138
6:2 Fluorotelomer sulfonic acid	24.3	26.3		ng/L		108	57 - 137
8:2 Fluorotelomer sulfonic acid	24.5	25.8		ng/L		105	56 - 140
4:2 Fluorotelomer sulfonic acid	23.9	22.9		ng/L		96	59 - 130

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
M2-4:2 FTS	*103*		*20 - 187*
M2-6:2 FTS	*100*		*29 - 189*
M2-8:2 FTS	*106*		*34 - 182*
13C2 PFTeDA	*95*		*10 - 144*
13C3 PFBS	*109*		*19 - 178*
13C4 PFBA	*105*		*41 - 132*
13C4 PFHpA	*101*		*30 - 144*
13C5 PFPeA	*101*		*33 - 155*
13C8 PFOA	*104*		*49 - 127*
13C8 PFOS	*105*		*49 - 126*
d3-NMeFOSAA	*112*		*32 - 151*
d5-NEtFOSAA	*123*		*37 - 164*
13C3 PFHxS	*114*		*32 - 145*
13C5 PFHxA	*107*		*31 - 142*
13C6 PFDA	*98*		*47 - 128*
13C7 PFUnA	*101*		*40 - 135*
13C8 FOSA	*89*		*10 - 143*
13C2-PFDoDA	*97*		*28 - 136*
13C9 PFNA	*103*		*47 - 136*

Method: 537 IDA - EPA 537 Isotope Dilution (Continued)

Lab Sample ID: LCSD 410-185716/3-A
Matrix: Water
Analysis Batch: 186774

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 185716

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
NEtFOSAA			25.6	26.5		ng/L		103	54 - 134	5	30
NMeFOSAA			25.6	25.7		ng/L		100	58 - 143	1	30
Perfluorobutanesulfonic acid			22.7	22.9		ng/L		101	65 - 132	2	30
Perfluorobutanoic acid			25.6	25.8		ng/L		101	62 - 156	0	30
Perfluorodecanesulfonic acid			24.7	25.1		ng/L		102	61 - 134	2	30
Perfluorodecanoic acid			25.6	28.1		ng/L		110	63 - 137	1	30
Perfluorododecanoic acid			25.6	30.8		ng/L		120	63 - 140	4	30
Perfluoroheptanesulfonic acid			24.4	25.2		ng/L		103	67 - 135	2	30
Perfluoroheptanoic acid			25.6	28.8		ng/L		112	66 - 141	2	30
Perfluorohexanesulfonic acid			23.3	22.8		ng/L		97	60 - 128	4	30
Perfluorohexanoic acid			25.6	29.2		ng/L		114	66 - 137	6	30
Perfluorononanesulfonic acid			24.6	24.8		ng/L		101	67 - 137	3	30
Perfluorononanoic acid			25.6	29.5		ng/L		115	65 - 140	0	30
Perfluorooctanesulfonamide			25.6	25.3		ng/L		99	55 - 130	3	30
Perfluorooctanesulfonic acid			23.7	25.0		ng/L		105	51 - 126	3	30
Perfluorooctanoic acid			25.6	28.0		ng/L		109	65 - 136	1	30
Perfluoropentanesulfonic acid			24.0	25.1		ng/L		105	71 - 136	5	30
Perfluoropentanoic acid			25.6	28.4		ng/L		111	72 - 139	2	30
Perfluorotetradecanoic acid			25.6	29.6		ng/L		116	64 - 141	2	30
Perfluorotridecanoic acid			25.6	30.9		ng/L		121	58 - 146	2	30
Perfluoroundecanoic acid			25.6	29.9		ng/L		117	62 - 138	7	30
6:2 Fluorotelomer sulfonic acid			24.3	24.6		ng/L		101	57 - 137	7	30
8:2 Fluorotelomer sulfonic acid			24.5	25.3		ng/L		103	56 - 140	2	30
4:2 Fluorotelomer sulfonic acid			23.9	23.2		ng/L		97	59 - 130	2	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
M2-4:2 FTS	*115*		*20 - 187*
M2-6:2 FTS	*117*		*29 - 189*
M2-8:2 FTS	*113*		*34 - 182*
13C2 PFTeDA	*103*		*10 - 144*
13C3 PFBS	*117*		*19 - 178*
13C4 PFBA	*113*		*41 - 132*
13C4 PFHpA	*114*		*30 - 144*
13C5 PFPeA	*107*		*33 - 155*
13C8 PFOA	*119*		*49 - 127*
13C8 PFOS	*118*		*49 - 126*
d3-NMeFOSAA	*124*		*32 - 151*
d5-NEtFOSAA	*130*		*37 - 164*
13C3 PFHxS	*131*		*32 - 145*
13C5 PFHxA	*117*		*31 - 142*
13C6 PFDA	*108*		*47 - 128*
13C7 PFUnA	*115*		*40 - 135*
13C8 FOSA	*101*		*10 - 143*
13C2-PFDoDA	*105*		*28 - 136*
13C9 PFNA	*112*		*47 - 136*

Method: 537 IDA - EPA 537 Isotope Dilution (Continued)

Lab Sample ID: MB 410-187892/1-A
Matrix: Water
Analysis Batch: 189391

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 187892

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NEtFOSAA	<3.0		3.0	0.50	ng/L		10/27/21 17:42	11/01/21 19:56	1
NMeFOSAA	<2.0		2.0	0.60	ng/L		10/27/21 17:42	11/01/21 19:56	1
Perfluorobutanesulfonic acid	<2.0		2.0	0.50	ng/L		10/27/21 17:42	11/01/21 19:56	1
Perfluorobutanoic acid	<5.0		5.0	2.0	ng/L		10/27/21 17:42	11/01/21 19:56	1
Perfluorodecanesulfonic acid	<2.0		2.0	0.50	ng/L		10/27/21 17:42	11/01/21 19:56	1
Perfluorodecanoic acid	<2.0		2.0	0.50	ng/L		10/27/21 17:42	11/01/21 19:56	1
Perfluorododecanoic acid	<2.0		2.0	0.50	ng/L		10/27/21 17:42	11/01/21 19:56	1
Perfluoroheptanesulfonic acid	<2.0		2.0	0.50	ng/L		10/27/21 17:42	11/01/21 19:56	1
Perfluoroheptanoic acid	<2.0		2.0	0.50	ng/L		10/27/21 17:42	11/01/21 19:56	1
Perfluorohexanesulfonic acid	<2.0		2.0	0.50	ng/L		10/27/21 17:42	11/01/21 19:56	1
Perfluorohexanoic acid	<2.0		2.0	0.50	ng/L		10/27/21 17:42	11/01/21 19:56	1
Perfluorononanesulfonic acid	<2.0		2.0	0.50	ng/L		10/27/21 17:42	11/01/21 19:56	1
Perfluorononanoic acid	<2.0		2.0	0.50	ng/L		10/27/21 17:42	11/01/21 19:56	1
Perfluorooctanesulfonamide	<2.0		2.0	0.50	ng/L		10/27/21 17:42	11/01/21 19:56	1
Perfluorooctanesulfonic acid	<2.0		2.0	0.50	ng/L		10/27/21 17:42	11/01/21 19:56	1
Perfluorooctanoic acid	<2.0		2.0	0.50	ng/L		10/27/21 17:42	11/01/21 19:56	1
Perfluoropentanesulfonic acid	<2.0		2.0	0.50	ng/L		10/27/21 17:42	11/01/21 19:56	1
Perfluoropentanoic acid	<2.0		2.0	0.50	ng/L		10/27/21 17:42	11/01/21 19:56	1
Perfluorotetradecanoic acid	<2.0		2.0	0.50	ng/L		10/27/21 17:42	11/01/21 19:56	1
Perfluorotridecanoic acid	<2.0		2.0	0.50	ng/L		10/27/21 17:42	11/01/21 19:56	1
Perfluoroundecanoic acid	<2.0		2.0	0.50	ng/L		10/27/21 17:42	11/01/21 19:56	1
6:2 Fluorotelomer sulfonic acid	<5.0		5.0	2.0	ng/L		10/27/21 17:42	11/01/21 19:56	1
8:2 Fluorotelomer sulfonic acid	<3.0		3.0	1.0	ng/L		10/27/21 17:42	11/01/21 19:56	1
4:2 Fluorotelomer sulfonic acid	<2.0		2.0	0.50	ng/L		10/27/21 17:42	11/01/21 19:56	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-4:2 FTS	*123*		*20 - 187*	*10/27/21 17:42*	*11/01/21 19:56*	*1*
M2-6:2 FTS	*106*		*29 - 189*	*10/27/21 17:42*	*11/01/21 19:56*	*1*
M2-8:2 FTS	*127*		*34 - 182*	*10/27/21 17:42*	*11/01/21 19:56*	*1*
13C2 PFTeDA	*125*		*10 - 144*	*10/27/21 17:42*	*11/01/21 19:56*	*1*
13C3 PFBS	*107*		*19 - 178*	*10/27/21 17:42*	*11/01/21 19:56*	*1*
13C4 PFBA	*112*		*41 - 132*	*10/27/21 17:42*	*11/01/21 19:56*	*1*
13C4 PFHpA	*110*		*30 - 144*	*10/27/21 17:42*	*11/01/21 19:56*	*1*
13C5 PFPeA	*109*		*33 - 155*	*10/27/21 17:42*	*11/01/21 19:56*	*1*
13C8 PFOA	*112*		*49 - 127*	*10/27/21 17:42*	*11/01/21 19:56*	*1*
13C8 PFOS	*106*		*49 - 126*	*10/27/21 17:42*	*11/01/21 19:56*	*1*
d3-NMeFOSAA	*125*		*32 - 151*	*10/27/21 17:42*	*11/01/21 19:56*	*1*
d5-NEtFOSAA	*130*		*37 - 164*	*10/27/21 17:42*	*11/01/21 19:56*	*1*
13C3 PFHxS	*105*		*32 - 145*	*10/27/21 17:42*	*11/01/21 19:56*	*1*
13C5 PFHxA	*109*		*31 - 142*	*10/27/21 17:42*	*11/01/21 19:56*	*1*
13C6 PFDA	*126*		*47 - 128*	*10/27/21 17:42*	*11/01/21 19:56*	*1*
13C7 PFUnA	*128*		*40 - 135*	*10/27/21 17:42*	*11/01/21 19:56*	*1*
13C8 FOSA	*108*		*10 - 143*	*10/27/21 17:42*	*11/01/21 19:56*	*1*
13C2-PFDoDA	*123*		*28 - 136*	*10/27/21 17:42*	*11/01/21 19:56*	*1*
13C9 PFNA	*127*		*47 - 136*	*10/27/21 17:42*	*11/01/21 19:56*	*1*

Method: 537 IDA - EPA 537 Isotope Dilution (Continued)

Lab Sample ID: LCS 410-187892/2-A
Matrix: Water
Analysis Batch: 188713

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 187892

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
NEtFOSAA	25.6	22.6		ng/L		88	54 - 134
NMeFOSAA	25.6	22.8		ng/L		89	58 - 143
Perfluorobutanesulfonic acid	22.7	18.7		ng/L		82	65 - 132
Perfluorobutanoic acid	25.6	22.2		ng/L		87	62 - 156
Perfluorodecanesulfonic acid	24.7	22.5		ng/L		91	61 - 134
Perfluorodecanoic acid	25.6	20.8		ng/L		81	63 - 137
Perfluorododecanoic acid	25.6	21.6		ng/L		85	63 - 140
Perfluoroheptanesulfonic acid	24.4	21.2		ng/L		87	67 - 135
Perfluoroheptanoic acid	25.6	20.1		ng/L		79	66 - 141
Perfluorohexanesulfonic acid	23.3	19.3		ng/L		83	60 - 128
Perfluorohexanoic acid	25.6	21.8		ng/L		85	66 - 137
Perfluorononanesulfonic acid	24.6	21.0		ng/L		86	67 - 137
Perfluorononanoic acid	25.6	21.9		ng/L		86	65 - 140
Perfluorooctanesulfonamide	25.6	21.3		ng/L		83	55 - 130
Perfluorooctanesulfonic acid	23.7	21.1		ng/L		89	51 - 126
Perfluorooctanoic acid	25.6	21.7		ng/L		85	65 - 136
Perfluoropentanesulfonic acid	24.0	19.8		ng/L		82	71 - 136
Perfluoropentanoic acid	25.6	19.8		ng/L		78	72 - 139
Perfluorotetradecanoic acid	25.6	20.8		ng/L		81	64 - 141
Perfluorotridecanoic acid	25.6	20.6		ng/L		80	58 - 146
Perfluoroundecanoic acid	25.6	20.6		ng/L		80	62 - 138
6:2 Fluorotelomer sulfonic acid	24.3	22.3		ng/L		92	57 - 137
8:2 Fluorotelomer sulfonic acid	24.5	21.5		ng/L		87	56 - 140
4:2 Fluorotelomer sulfonic acid	23.9	19.0		ng/L		79	59 - 130

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
M2-4:2 FTS	*160*		*20 - 187*
M2-6:2 FTS	*136*		*29 - 189*
M2-8:2 FTS	*132*		*34 - 182*
13C2 PFTeDA	*117*		*10 - 144*
13C3 PFBS	*125*		*19 - 178*
13C4 PFBA	*122*		*41 - 132*
13C4 PFHpA	*149*	**5+*	*30 - 144*
13C5 PFPeA	*129*		*33 - 155*
13C8 PFOA	*134*	**5+*	*49 - 127*
13C8 PFOS	*125*		*49 - 126*
d3-NMeFOSAA	*124*		*32 - 151*
d5-NEtFOSAA	*122*		*37 - 164*
13C3 PFHxS	*135*		*32 - 145*
13C5 PFHxA	*133*		*31 - 142*
13C6 PFDA	*126*		*47 - 128*
13C7 PFUnA	*130*		*40 - 135*
13C8 FOSA	*107*		*10 - 143*
13C2-PFDoDA	*122*		*28 - 136*
13C9 PFNA	*129*		*47 - 136*

Method: 537 IDA - EPA 537 Isotope Dilution (Continued)

Lab Sample ID: MB 410-185154/1-A
Matrix: Water
Analysis Batch: 186357

Client Sample ID: Method Blank
Prep Type: Pre-Treatment
Prep Batch: 185154

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NEtFOSAA	<3.0		3.0	0.50	ng/L		10/20/21 15:53	10/24/21 07:47	1
NMeFOSAA	<2.0		2.0	0.60	ng/L		10/20/21 15:53	10/24/21 07:47	1
Perfluorobutanesulfonic acid	<2.0		2.0	0.50	ng/L		10/20/21 15:53	10/24/21 07:47	1
Perfluorobutanoic acid	<5.0		5.0	2.0	ng/L		10/20/21 15:53	10/24/21 07:47	1
Perfluorodecanesulfonic acid	<2.0		2.0	0.50	ng/L		10/20/21 15:53	10/24/21 07:47	1
Perfluorodecanoic acid	<2.0		2.0	0.50	ng/L		10/20/21 15:53	10/24/21 07:47	1
Perfluorododecanoic acid	<2.0		2.0	0.50	ng/L		10/20/21 15:53	10/24/21 07:47	1
Perfluoroheptanesulfonic acid	<2.0		2.0	0.50	ng/L		10/20/21 15:53	10/24/21 07:47	1
Perfluoroheptanoic acid	<2.0		2.0	0.50	ng/L		10/20/21 15:53	10/24/21 07:47	1
Perfluorohexanesulfonic acid	<2.0		2.0	0.50	ng/L		10/20/21 15:53	10/24/21 07:47	1
Perfluorohexanoic acid	<2.0		2.0	0.50	ng/L		10/20/21 15:53	10/24/21 07:47	1
Perfluorononanesulfonic acid	<2.0		2.0	0.50	ng/L		10/20/21 15:53	10/24/21 07:47	1
Perfluorononanoic acid	<2.0		2.0	0.50	ng/L		10/20/21 15:53	10/24/21 07:47	1
Perfluorooctanesulfonamide	<2.0		2.0	0.50	ng/L		10/20/21 15:53	10/24/21 07:47	1
Perfluorooctanesulfonic acid	<2.0		2.0	0.50	ng/L		10/20/21 15:53	10/24/21 07:47	1
Perfluorooctanoic acid	<2.0		2.0	0.50	ng/L		10/20/21 15:53	10/24/21 07:47	1
Perfluoropentanesulfonic acid	<2.0		2.0	0.50	ng/L		10/20/21 15:53	10/24/21 07:47	1
Perfluoropentanoic acid	<2.0		2.0	0.50	ng/L		10/20/21 15:53	10/24/21 07:47	1
Perfluorotetradecanoic acid	<2.0		2.0	0.50	ng/L		10/20/21 15:53	10/24/21 07:47	1
Perfluorotridecanoic acid	<2.0		2.0	0.50	ng/L		10/20/21 15:53	10/24/21 07:47	1
Perfluoroundecanoic acid	<2.0		2.0	0.50	ng/L		10/20/21 15:53	10/24/21 07:47	1
6:2 Fluorotelomer sulfonic acid	<5.0		5.0	2.0	ng/L		10/20/21 15:53	10/24/21 07:47	1
8:2 Fluorotelomer sulfonic acid	<3.0		3.0	1.0	ng/L		10/20/21 15:53	10/24/21 07:47	1
4:2 Fluorotelomer sulfonic acid	<2.0		2.0	0.50	ng/L		10/20/21 15:53	10/24/21 07:47	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-4:2 FTS	*118*		*20 - 187*	*10/20/21 15:53*	*10/24/21 07:47*	*1*
M2-6:2 FTS	*120*		*29 - 189*	*10/20/21 15:53*	*10/24/21 07:47*	*1*
M2-8:2 FTS	*126*		*34 - 182*	*10/20/21 15:53*	*10/24/21 07:47*	*1*
13C2 PFTeDA	*105*		*10 - 144*	*10/20/21 15:53*	*10/24/21 07:47*	*1*
13C3 PFBS	*112*		*19 - 178*	*10/20/21 15:53*	*10/24/21 07:47*	*1*
13C4 PFBA	*106*		*41 - 132*	*10/20/21 15:53*	*10/24/21 07:47*	*1*
13C4 PFHpA	*110*		*30 - 144*	*10/20/21 15:53*	*10/24/21 07:47*	*1*
13C5 PFPeA	*104*		*33 - 155*	*10/20/21 15:53*	*10/24/21 07:47*	*1*
13C8 PFOA	*115*		*49 - 127*	*10/20/21 15:53*	*10/24/21 07:47*	*1*
13C8 PFOS	*113*		*49 - 126*	*10/20/21 15:53*	*10/24/21 07:47*	*1*
d3-NMeFOSAA	*117*		*32 - 151*	*10/20/21 15:53*	*10/24/21 07:47*	*1*
d9-N-EtFOSE-M	*96*		*10 - 142*	*10/20/21 15:53*	*10/24/21 07:47*	*1*
d5-NEtFOSAA	*125*		*37 - 164*	*10/20/21 15:53*	*10/24/21 07:47*	*1*
13C3 PFHxS	*126*		*32 - 145*	*10/20/21 15:53*	*10/24/21 07:47*	*1*
13C5 PFHxA	*113*		*31 - 142*	*10/20/21 15:53*	*10/24/21 07:47*	*1*
13C6 PFDA	*107*		*47 - 128*	*10/20/21 15:53*	*10/24/21 07:47*	*1*
13C7 PFUnA	*108*		*40 - 135*	*10/20/21 15:53*	*10/24/21 07:47*	*1*
d3-NMePFOSA	*68*		*10 - 107*	*10/20/21 15:53*	*10/24/21 07:47*	*1*
d5-NEtPFOSA	*70*		*10 - 108*	*10/20/21 15:53*	*10/24/21 07:47*	*1*
13C8 FOSA	*102*		*10 - 143*	*10/20/21 15:53*	*10/24/21 07:47*	*1*
13C2-PFDoDA	*101*		*28 - 136*	*10/20/21 15:53*	*10/24/21 07:47*	*1*
13C9 PFNA	*107*		*47 - 136*	*10/20/21 15:53*	*10/24/21 07:47*	*1*

Method: 537 IDA - EPA 537 Isotope Dilution (Continued)

Lab Sample ID: LCS 410-185154/2-A
Matrix: Water
Analysis Batch: 186208

Client Sample ID: Lab Control Sample
Prep Type: Pre-Treatment
Prep Batch: 185154

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
NEtFOSAA	25.6	25.8		ng/L		101	54 - 134
NMeFOSAA	25.6	27.8		ng/L		109	58 - 143
Perfluorobutanesulfonic acid	22.7	24.6		ng/L		109	65 - 132
Perfluorobutanoic acid	25.6	26.4		ng/L		103	62 - 156
Perfluorodecanesulfonic acid	24.7	28.2		ng/L		114	61 - 134
Perfluorodecanoic acid	25.6	29.0		ng/L		113	63 - 137
Perfluorododecanoic acid	25.6	30.6		ng/L		120	63 - 140
Perfluoroheptanesulfonic acid	24.4	26.4		ng/L		108	67 - 135
Perfluoroheptanoic acid	25.6	30.1		ng/L		118	66 - 141
Perfluorohexanesulfonic acid	23.3	23.8		ng/L		102	60 - 128
Perfluorohexanoic acid	25.6	30.2		ng/L		118	66 - 137
Perfluorononanesulfonic acid	24.6	26.3		ng/L		107	67 - 137
Perfluorononanoic acid	25.6	30.3		ng/L		118	65 - 140
Perfluorooctanesulfonamide	25.6	26.6		ng/L		104	55 - 130
Perfluorooctanesulfonic acid	23.7	25.5		ng/L		108	51 - 126
Perfluorooctanoic acid	25.6	28.1		ng/L		110	65 - 136
Perfluoropentanesulfonic acid	24.0	26.2		ng/L		109	71 - 136
Perfluoropentanoic acid	25.6	27.6		ng/L		108	72 - 139
Perfluorotetradecanoic acid	25.6	30.9		ng/L		121	64 - 141
Perfluorotridecanoic acid	25.6	30.3		ng/L		118	58 - 146
Perfluoroundecanoic acid	25.6	29.3		ng/L		114	62 - 138
6:2 Fluorotelomer sulfonic acid	24.3	26.9		ng/L		111	57 - 137
8:2 Fluorotelomer sulfonic acid	24.5	26.0		ng/L		106	56 - 140
4:2 Fluorotelomer sulfonic acid	23.9	24.1		ng/L		101	59 - 130

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
M2-4:2 FTS	*117*		*20 - 187*
13C3 HFPO-DA	*127*		*20 - 153*
M2-6:2 FTS	*108*		*29 - 189*
M2-8:2 FTS	*127*		*34 - 182*
13C2 PFTeDA	*124*		*10 - 144*
13C3 PFBS	*118*		*19 - 178*
13C4 PFBA	*110*		*41 - 132*
13C4 PFHpA	*108*		*30 - 144*
13C5 PFPeA	*111*		*33 - 155*
13C8 PFOA	*110*		*49 - 127*
13C8 PFOS	*118*		*49 - 126*
d3-NMeFOSAA	*120*		*32 - 151*
d9-N-EtFOSE-M	*107*		*10 - 142*
d5-NEtFOSAA	*137*		*37 - 164*
13C3 PFHxS	*123*		*32 - 145*
13C5 PFHxA	*109*		*31 - 142*
13C6 PFDA	*113*		*47 - 128*
13C7 PFUnA	*127*		*40 - 135*
d3-NMePFOSA	*95*		*10 - 107*
d5-NEtPFOSA	*93*		*10 - 108*
13C8 FOSA	*115*		*10 - 143*
13C2-PFDoDA	*120*		*28 - 136*

Method: 537 IDA - EPA 537 Isotope Dilution (Continued)

Lab Sample ID: LCS 410-185154/2-A
Matrix: Water
Analysis Batch: 186208

Client Sample ID: Lab Control Sample
Prep Type: Pre-Treatment
Prep Batch: 185154

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C9 PFNA	*110*		*47 - 136*

Lab Sample ID: LCSD 410-185154/3-A
Matrix: Water
Analysis Batch: 186208

Client Sample ID: Lab Control Sample Dup
Prep Type: Pre-Treatment
Prep Batch: 185154

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
NEtFOSAA			25.6	27.2		ng/L		106	54 - 134	6	30
NMeFOSAA			25.6	27.8		ng/L		109	58 - 143	0	30
Perfluorobutanesulfonic acid			22.7	24.4		ng/L		108	65 - 132	1	30
Perfluorobutanoic acid			25.6	26.1		ng/L		102	62 - 156	1	30
Perfluorodecanesulfonic acid			24.7	27.8		ng/L		113	61 - 134	1	30
Perfluorodecanoic acid			25.6	26.5		ng/L		103	63 - 137	9	30
Perfluorododecanoic acid			25.6	30.8		ng/L		120	63 - 140	1	30
Perfluoroheptanesulfonic acid			24.4	27.4		ng/L		112	67 - 135	4	30
Perfluoroheptanoic acid			25.6	28.4		ng/L		111	66 - 141	6	30
Perfluorohexanesulfonic acid			23.3	23.7		ng/L		101	60 - 128	0	30
Perfluorohexanoic acid			25.6	30.6		ng/L		119	66 - 137	1	30
Perfluorononanesulfonic acid			24.6	25.7		ng/L		104	67 - 137	3	30
Perfluorononanoic acid			25.6	31.8		ng/L		124	65 - 140	5	30
Perfluorooctanesulfonamide			25.6	29.0		ng/L		113	55 - 130	9	30
Perfluorooctanesulfonic acid			23.7	25.5		ng/L		108	51 - 126	0	30
Perfluorooctanoic acid			25.6	27.1		ng/L		106	65 - 136	4	30
Perfluoropentanesulfonic acid			24.0	26.7		ng/L		111	71 - 136	2	30
Perfluoropentanoic acid			25.6	28.9		ng/L		113	72 - 139	5	30
Perfluorotetradecanoic acid			25.6	30.9		ng/L		121	64 - 141	0	30
Perfluorotridecanoic acid			25.6	31.7		ng/L		124	58 - 146	5	30
Perfluoroundecanoic acid			25.6	30.5		ng/L		119	62 - 138	4	30
6:2 Fluorotelomer sulfonic acid			24.3	26.0		ng/L		107	57 - 137	3	30
8:2 Fluorotelomer sulfonic acid			24.5	24.4		ng/L		99	56 - 140	7	30
4:2 Fluorotelomer sulfonic acid			23.9	22.8		ng/L		95	59 - 130	5	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
M2-4:2 FTS	*129*		*20 - 187*
13C3 HFPO-DA	*127*		*20 - 153*
M2-6:2 FTS	*122*		*29 - 189*
M2-8:2 FTS	*124*		*34 - 182*
13C2 PFTeDA	*112*		*10 - 144*
13C3 PFBS	*124*		*19 - 178*
13C4 PFBA	*114*		*41 - 132*
13C4 PFHpA	*116*		*30 - 144*
13C5 PFPeA	*114*		*33 - 155*
13C8 PFOA	*122*		*49 - 127*
13C8 PFOS	*113*		*49 - 126*
d3-NMeFOSAA	*122*		*32 - 151*
d9-N-EtFOSE-M	*110*		*10 - 142*
d5-NEtFOSAA	*126*		*37 - 164*
13C3 PFHxS	*129*		*32 - 145*
13C5 PFHxA	*116*		*31 - 142*

Method: 537 IDA - EPA 537 Isotope Dilution (Continued)

Lab Sample ID: LCSD 410-185154/3-A
Matrix: Water
Analysis Batch: 186208

Client Sample ID: Lab Control Sample Dup
Prep Type: Pre-Treatment
Prep Batch: 185154

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C6 PFDA	*113*		*47 - 128*
13C7 PFUnA	*114*		*40 - 135*
d3-NMePFOSA	*92*		*10 - 107*
d5-NEtPFOSA	*90*		*10 - 108*
13C8 FOSA	*106*		*10 - 143*
13C2-PFDoDA	*112*		*28 - 136*
13C9 PFNA	*104*		*47 - 136*

Method: 537 TOP - Fluorinated Alkyl Substances

Lab Sample ID: MB 410-189201/2-A
Matrix: Water
Analysis Batch: 191308

Client Sample ID: Method Blank
Prep Type: Post-Treatment
Prep Batch: 189201

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
10:2 Fluorotelomer sulfonic acid	<25		25	5.0	ng/L		11/01/21 07:50	11/05/21 11:20	1
11Cl-PF3OUdS	<10		10	2.5	ng/L		11/01/21 07:50	11/05/21 11:20	1
4:2 Fluorotelomer sulfonic acid	<10		10	2.5	ng/L		11/01/21 07:50	11/05/21 11:20	1
6:2 Fluorotelomer sulfonic acid	<25		25	10	ng/L		11/01/21 07:50	11/05/21 11:20	1
8:2 Fluorotelomer sulfonic acid	<15		15	5.0	ng/L		11/01/21 07:50	11/05/21 11:20	1
9Cl-PF3ONS	<10		10	2.5	ng/L		11/01/21 07:50	11/05/21 11:20	1
DONA	<10		10	2.5	ng/L		11/01/21 07:50	11/05/21 11:20	1
HFPODA	<15		15	2.5	ng/L		11/01/21 07:50	11/05/21 11:20	1
NEtFOSAA	<15		15	2.5	ng/L		11/01/21 07:50	11/05/21 11:20	1
NEtFOSA	<25		25	5.0	ng/L		11/01/21 07:50	11/05/21 11:20	1
NEtFOSE	<15		15	5.0	ng/L		11/01/21 07:50	11/05/21 11:20	1
NMeFOSAA	<10		10	3.0	ng/L		11/01/21 07:50	11/05/21 11:20	1
NMeFOSA	<15		15	5.0	ng/L		11/01/21 07:50	11/05/21 11:20	1
NMeFOSE	<15		15	5.0	ng/L		11/01/21 07:50	11/05/21 11:20	1
Perfluorobutanesulfonic acid	<10		10	2.5	ng/L		11/01/21 07:50	11/05/21 11:20	1
Perfluorobutanoic acid	<25		25	10	ng/L		11/01/21 07:50	11/05/21 11:20	1
Perfluorodecanesulfonic acid	<10		10	2.5	ng/L		11/01/21 07:50	11/05/21 11:20	1
Perfluorodecanoic acid	<10		10	2.5	ng/L		11/01/21 07:50	11/05/21 11:20	1
Perfluorododecanesulfonic acid (PFDoS)	<15		15	2.5	ng/L		11/01/21 07:50	11/05/21 11:20	1
Perfluorododecanoic acid	<10		10	2.5	ng/L		11/01/21 07:50	11/05/21 11:20	1
Perfluoroheptanesulfonic acid	<10		10	2.5	ng/L		11/01/21 07:50	11/05/21 11:20	1
Perfluoroheptanoic acid	<10		10	2.5	ng/L		11/01/21 07:50	11/05/21 11:20	1
Perfluorohexadecanoic acid	<15		15	5.0	ng/L		11/01/21 07:50	11/05/21 11:20	1
Perfluorohexanesulfonic acid	<10		10	2.5	ng/L		11/01/21 07:50	11/05/21 11:20	1
Perfluorohexanoic acid	<10		10	2.5	ng/L		11/01/21 07:50	11/05/21 11:20	1
Perfluorononanesulfonic acid	<10		10	2.5	ng/L		11/01/21 07:50	11/05/21 11:20	1
Perfluorononanoic acid	<10		10	2.5	ng/L		11/01/21 07:50	11/05/21 11:20	1
Perfluorooctadecanoic acid	<15		15	5.0	ng/L		11/01/21 07:50	11/05/21 11:20	1
Perfluorooctanesulfonamide	<10		10	2.5	ng/L		11/01/21 07:50	11/05/21 11:20	1
Perfluorooctanesulfonic acid	<10		10	2.5	ng/L		11/01/21 07:50	11/05/21 11:20	1
Perfluorooctanoic acid	<10		10	2.5	ng/L		11/01/21 07:50	11/05/21 11:20	1
Perfluoropentanesulfonic acid	<10		10	2.5	ng/L		11/01/21 07:50	11/05/21 11:20	1
Perfluoropentanoic acid	<10		10	2.5	ng/L		11/01/21 07:50	11/05/21 11:20	1

Method: 537 TOP - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: MB 410-189201/2-A
Matrix: Water
Analysis Batch: 191308

Client Sample ID: Method Blank
Prep Type: Post-Treatment
Prep Batch: 189201

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorotetradecanoic acid	<10		10	2.5	ng/L		11/01/21 07:50	11/05/21 11:20	1
Perfluorotridecanoic acid	<10		10	2.5	ng/L		11/01/21 07:50	11/05/21 11:20	1
Perfluoroundecanoic acid	<10		10	2.5	ng/L		11/01/21 07:50	11/05/21 11:20	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-6:2 FTS	*124*		*55 - 167*	*11/01/21 07:50*	*11/05/21 11:20*	*1*
M2-8:2 FTS	*148*		*61 - 160*	*11/01/21 07:50*	*11/05/21 11:20*	*1*
13C2-PFDoDA	*130*	**5+*	*47 - 118*	*11/01/21 07:50*	*11/05/21 11:20*	*1*
13C2 PFTeDA	*131*	**5+*	*32 - 126*	*11/01/21 07:50*	*11/05/21 11:20*	*1*
13C3 HFPO-DA	*90*		*70 - 130*	*11/01/21 07:50*	*11/05/21 11:20*	*1*
13C3 PFBS	*133*		*18 - 177*	*11/01/21 07:50*	*11/05/21 11:20*	*1*
13C3 PFHxS	*118*	**5+*	*55 - 115*	*11/01/21 07:50*	*11/05/21 11:20*	*1*
13C4 PFBA	*128*	**5+*	*52 - 126*	*11/01/21 07:50*	*11/05/21 11:20*	*1*
13C4 PFHpA	*134*	**5+*	*55 - 113*	*11/01/21 07:50*	*11/05/21 11:20*	*1*
13C5 PFHxA	*121*	**5+*	*54 - 115*	*11/01/21 07:50*	*11/05/21 11:20*	*1*
13C5 PFPeA	*132*		*17 - 184*	*11/01/21 07:50*	*11/05/21 11:20*	*1*
13C6 PFDA	*137*	**5+*	*56 - 114*	*11/01/21 07:50*	*11/05/21 11:20*	*1*
13C7 PFUnA	*137*	**5+*	*50 - 120*	*11/01/21 07:50*	*11/05/21 11:20*	*1*
13C8 PFOA	*122*	**5+*	*56 - 117*	*11/01/21 07:50*	*11/05/21 11:20*	*1*
13C8 PFOS	*130*	**5+*	*56 - 112*	*11/01/21 07:50*	*11/05/21 11:20*	*1*
13C8 FOSA	*115*		*10 - 126*	*11/01/21 07:50*	*11/05/21 11:20*	*1*
13C9 PFNA	*164*	**5+*	*54 - 122*	*11/01/21 07:50*	*11/05/21 11:20*	*1*
d3-NMePFOSA	*61*	**5+*	*10 - 51*	*11/01/21 07:50*	*11/05/21 11:20*	*1*
d5-NEtFOSAA	*123*		*65 - 134*	*11/01/21 07:50*	*11/05/21 11:20*	*1*
d5-NEtPFOSA	*55*	**5+*	*10 - 51*	*11/01/21 07:50*	*11/05/21 11:20*	*1*
d7-N-MeFOSE-M	*107*	**5+*	*10 - 105*	*11/01/21 07:50*	*11/05/21 11:20*	*1*
d9-N-EtFOSE-M	*106*		*10 - 112*	*11/01/21 07:50*	*11/05/21 11:20*	*1*

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*116*		*40 - 173*	*11/01/21 07:50*	*11/05/21 11:20*	*1*
13C2 PFUnA	*72*		*49 - 132*	*11/01/21 07:50*	*11/05/21 11:20*	*1*
13C4 PFOA	*99*		*10 - 163*	*11/01/21 07:50*	*11/05/21 11:20*	*1*

Lab Sample ID: LCS 410-189201/3-A
Matrix: Water
Analysis Batch: 191308

Client Sample ID: Lab Control Sample
Prep Type: Post-Treatment
Prep Batch: 189201

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
10:2 Fluorotelomer sulfonic acid	123	142		ng/L		115	29 - 147
11Cl-PF3OUdS	119	134		ng/L		113	70 - 130
4:2 Fluorotelomer sulfonic acid	120	148	*+	ng/L		123	53 - 109
6:2 Fluorotelomer sulfonic acid	121	143		ng/L		118	58 - 136
8:2 Fluorotelomer sulfonic acid	123	133		ng/L		109	59 - 118
9Cl-PF3ONS	119	148		ng/L		124	70 - 130
DONA	121	153		ng/L		127	70 - 130
HFPODA	128	152		ng/L		119	70 - 130
NEtFOSAA	128	142		ng/L		111	53 - 119
NEtFOSA	128	124		ng/L		97	30 - 144

Method: 537 TOP - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 410-189201/3-A
Matrix: Water
Analysis Batch: 191308

Client Sample ID: Lab Control Sample
Prep Type: Post-Treatment
Prep Batch: 189201

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
NEtFOSE	128	145		ng/L		113	35 - 142
NMeFOSAA	128	136		ng/L		106	43 - 122
NMeFOSA	128	142		ng/L		111	51 - 135
NMeFOSE	128	145		ng/L		113	57 - 120
Perfluorobutanesulfonic acid	113	140		ng/L		123	69 - 138
Perfluorobutanoic acid	128	153		ng/L		119	80 - 151
Perfluorodecanesulfonic acid	123	136		ng/L		110	52 - 149
Perfluorodecanoic acid	128	140		ng/L		109	69 - 142
Perfluorododecanesulfonic acid (PFDoS)	124	114		ng/L		92	53 - 151
Perfluorododecanoic acid	128	166	I	ng/L		130	71 - 145
Perfluoroheptanesulfonic acid	122	136		ng/L		112	64 - 140
Perfluoroheptanoic acid	128	170		ng/L		133	67 - 143
Perfluorohexadecanoic acid	128	146		ng/L		114	42 - 145
Perfluorohexanesulfonic acid	117	133		ng/L		114	67 - 136
Perfluorohexanoic acid	128	163		ng/L		128	65 - 152
Perfluorononanesulfonic acid	123	151		ng/L		123	60 - 144
Perfluorononanoic acid	128	146		ng/L		114	66 - 150
Perfluorooctadecanoic acid	128	141		ng/L		110	21 - 158
Perfluorooctanesulfonamide	128	127		ng/L		100	48 - 126
Perfluorooctanesulfonic acid	118	131		ng/L		110	68 - 142
Perfluorooctanoic acid	128	144		ng/L		113	71 - 144
Perfluoropentanesulfonic acid	120	137		ng/L		114	66 - 145
Perfluoropentanoic acid	128	154		ng/L		120	75 - 140
Perfluorotetradecanoic acid	128	165		ng/L		129	73 - 147
Perfluorotridecanoic acid	128	152		ng/L		119	64 - 160
Perfluoroundecanoic acid	128	158		ng/L		124	69 - 146

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
M2-6:2 FTS	*82*		*55 - 167*
M2-8:2 FTS	*88*		*61 - 160*
13C2-PFDoDA	*75*		*47 - 118*
13C2 PFTeDA	*76*		*32 - 126*
13C3 HFPO-DA	*68*	**5-*	*70 - 130*
13C3 PFBS	*81*		*18 - 177*
13C3 PFHxS	*79*		*55 - 115*
13C4 PFBA	*80*		*52 - 126*
13C4 PFHpA	*80*		*55 - 113*
13C5 PFHxA	*82*		*54 - 115*
13C5 PFPeA	*84*		*17 - 184*
13C6 PFDA	*86*		*56 - 114*
13C7 PFUnA	*84*		*50 - 120*
13C8 PFOA	*79*		*56 - 117*
13C8 PFOS	*78*		*56 - 112*
13C8 FOSA	*73*		*10 - 126*
13C9 PFNA	*88*		*54 - 122*
d3-NMePFOSA	*45*		*10 - 51*
d5-NEtFOSAA	*82*		*65 - 134*
d5-NEtPFOSA	*42*		*10 - 51*

Method: 537 TOP - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 410-189201/3-A
Matrix: Water
Analysis Batch: 191308

Client Sample ID: Lab Control Sample
Prep Type: Post-Treatment
Prep Batch: 189201

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
d7-N-MeFOSE-M	*65*		*10 - 105*
d9-N-EtFOSE-M	*62*		*10 - 112*

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C2 PFHxA	*65*		*40 - 173*
13C2 PFUnA	*73*		*49 - 132*
13C4 PFOA	*69*		*10 - 163*

Lab Sample ID: LCSD 410-189201/4-A
Matrix: Water
Analysis Batch: 191308

Client Sample ID: Lab Control Sample Dup
Prep Type: Post-Treatment
Prep Batch: 189201

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
10:2 Fluorotelomer sulfonic acid	123	156		ng/L		126	29 - 147	10	30
11Cl-PF3OUdS	119	129		ng/L		108	70 - 130	4	30
4:2 Fluorotelomer sulfonic acid	120	136	*+	ng/L		114	53 - 109	8	30
6:2 Fluorotelomer sulfonic acid	121	138		ng/L		114	58 - 136	3	30
8:2 Fluorotelomer sulfonic acid	123	152	*+	ng/L		124	59 - 118	13	30
9Cl-PF3ONS	119	139		ng/L		117	70 - 130	6	30
DONA	121	163	*+	ng/L		135	70 - 130	6	30
HFPODA	128	143		ng/L		111	70 - 130	7	30
NEtFOSAA	128	133		ng/L		104	53 - 119	7	30
NEtFOSA	128	127		ng/L		99	30 - 144	2	30
NEtFOSE	128	138		ng/L		108	35 - 142	4	30
NMeFOSAA	128	134		ng/L		105	43 - 122	1	30
NMeFOSA	128	153		ng/L		120	51 - 135	8	30
NMeFOSE	128	155	*+	ng/L		121	57 - 120	7	30
Perfluorobutanesulfonic acid	113	141		ng/L		125	69 - 138	1	30
Perfluorobutanoic acid	128	153		ng/L		120	80 - 151	0	30
Perfluorodecanesulfonic acid	123	129		ng/L		104	52 - 149	5	30
Perfluorodecanoic acid	128	157		ng/L		123	69 - 142	12	30
Perfluorododecanesulfonic acid (PFDoS)	124	114		ng/L		92	53 - 151	1	30
Perfluorododecanoic acid	128	172	I	ng/L		134	71 - 145	3	30
Perfluoroheptanesulfonic acid	122	139		ng/L		114	64 - 140	2	30
Perfluoroheptanoic acid	128	177		ng/L		138	67 - 143	4	30
Perfluorohexadecanoic acid	128	143		ng/L		111	42 - 145	2	30
Perfluorohexanesulfonic acid	117	128		ng/L		110	67 - 136	4	30
Perfluorohexanoic acid	128	149		ng/L		116	65 - 152	10	30
Perfluorononanesulfonic acid	123	144		ng/L		117	60 - 144	5	30
Perfluorononanoic acid	128	141		ng/L		110	66 - 150	4	30
Perfluorooctadecanoic acid	128	131		ng/L		103	21 - 158	7	30
Perfluorooctanesulfonamide	128	130		ng/L		102	48 - 126	2	30
Perfluorooctanesulfonic acid	118	129		ng/L		109	68 - 142	1	30
Perfluorooctanoic acid	128	142		ng/L		111	71 - 144	1	30
Perfluoropentanesulfonic acid	120	151		ng/L		126	66 - 145	10	30
Perfluoropentanoic acid	128	160		ng/L		125	75 - 140	4	30
Perfluorotetradecanoic acid	128	162		ng/L		127	73 - 147	2	30
Perfluorotridecanoic acid	128	162		ng/L		127	64 - 160	6	30

Method: 537 TOP - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCSD 410-189201/4-A
Matrix: Water
Analysis Batch: 191308

Client Sample ID: Lab Control Sample Dup
Prep Type: Post-Treatment
Prep Batch: 189201

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluoroundecanoic acid			128	161		ng/L		126	69 - 146	2	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
M2-6:2 FTS	*83*		*55 - 167*
M2-8:2 FTS	*80*		*61 - 160*
13C2-PFDoDA	*70*		*47 - 118*
13C2 PFTeDA	*71*		*32 - 126*
13C3 HFPO-DA	*74*		*70 - 130*
13C3 PFBS	*74*		*18 - 177*
13C3 PFHxS	*78*		*55 - 115*
13C4 PFBA	*75*		*52 - 126*
13C4 PFHpA	*74*		*55 - 113*
13C5 PFHxA	*81*		*54 - 115*
13C5 PFPeA	*80*		*17 - 184*
13C6 PFDA	*74*		*56 - 114*
13C7 PFUnA	*76*		*50 - 120*
13C8 PFOA	*79*		*56 - 117*
13C8 PFOS	*75*		*56 - 112*
13C8 FOSA	*75*		*10 - 126*
13C9 PFNA	*83*		*54 - 122*
d3-NMePFOSA	*41*		*10 - 51*
d5-NEtFOSAA	*82*		*65 - 134*
d5-NEtPFOSA	*41*		*10 - 51*
d7-N-MeFOSE-M	*65*		*10 - 105*
d9-N-EtFOSE-M	*63*		*10 - 112*

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C2 PFHxA	*30*	*S1-*	*40 - 173*
13C2 PFUnA	*71*		*49 - 132*
13C4 PFOA	*55*		*10 - 163*

QC Association Summary

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-59688-1

LCMS

Prep Batch: 185154

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-59688-1 - RA	TRAILER 2 -RINSE 1-1	Pre-Treatment	Water	TOP Pre - Prep	
410-59688-1 - DL	TRAILER 2 -RINSE 1-1	Pre-Treatment	Water	TOP Pre - Prep	
410-59688-1	TRAILER 2 -RINSE 1-1	Pre-Treatment	Water	TOP Pre - Prep	
410-59688-2 - RA	TRAILER 2 -RINSE 2-1	Pre-Treatment	Water	TOP Pre - Prep	
410-59688-2 - DL	TRAILER 2 -RINSE 2-1	Pre-Treatment	Water	TOP Pre - Prep	
410-59688-2	TRAILER 2 -RINSE 2-1	Pre-Treatment	Water	TOP Pre - Prep	
410-59688-3	TRAILER 2 -EFF 1-1	Pre-Treatment	Water	TOP Pre - Prep	
410-59688-3 - DL	TRAILER 2 -EFF 1-1	Pre-Treatment	Water	TOP Pre - Prep	
410-59688-4 - DL	TRAILER 2 -RINSE 3-1	Pre-Treatment	Water	TOP Pre - Prep	
410-59688-4	TRAILER 2 -RINSE 3-1	Pre-Treatment	Water	TOP Pre - Prep	
410-59688-5 - DL	TRAILER 2 -RINSE 4-1	Pre-Treatment	Water	TOP Pre - Prep	
410-59688-5	TRAILER 2 -RINSE 4-1	Pre-Treatment	Water	TOP Pre - Prep	
410-59688-9 - DL	TRAILER 1-RINSE-1	Pre-Treatment	Water	TOP Pre - Prep	
410-59688-9	TRAILER 1-RINSE-1	Pre-Treatment	Water	TOP Pre - Prep	
MB 410-185154/1-A	Method Blank	Pre-Treatment	Water	TOP Pre - Prep	
LCS 410-185154/2-A	Lab Control Sample	Pre-Treatment	Water	TOP Pre - Prep	
LCSD 410-185154/3-A	Lab Control Sample Dup	Pre-Treatment	Water	TOP Pre - Prep	

Prep Batch: 185716

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-59688-6 - RE	TRAILER 2 -RINSE 4-2	Total/NA	Water	537 IDA	
410-59688-7 - RE	TOTE 10-11-GAC-2	Total/NA	Water	537 IDA	
MB 410-185716/1-A	Method Blank	Total/NA	Water	537 IDA	
LCS 410-185716/2-A	Lab Control Sample	Total/NA	Water	537 IDA	
LCSD 410-185716/3-A	Lab Control Sample Dup	Total/NA	Water	537 IDA	

Analysis Batch: 186208

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-59688-1 - DL	TRAILER 2 -RINSE 1-1	Pre-Treatment	Water	537 IDA	185154
410-59688-3 - DL	TRAILER 2 -EFF 1-1	Pre-Treatment	Water	537 IDA	185154
LCS 410-185154/2-A	Lab Control Sample	Pre-Treatment	Water	537 IDA	185154
LCSD 410-185154/3-A	Lab Control Sample Dup	Pre-Treatment	Water	537 IDA	185154

Analysis Batch: 186357

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-59688-1	TRAILER 2 -RINSE 1-1	Pre-Treatment	Water	537 IDA	185154
410-59688-2 - DL	TRAILER 2 -RINSE 2-1	Pre-Treatment	Water	537 IDA	185154
410-59688-4 - DL	TRAILER 2 -RINSE 3-1	Pre-Treatment	Water	537 IDA	185154
410-59688-5 - DL	TRAILER 2 -RINSE 4-1	Pre-Treatment	Water	537 IDA	185154
410-59688-9 - DL	TRAILER 1-RINSE-1	Pre-Treatment	Water	537 IDA	185154
MB 410-185154/1-A	Method Blank	Pre-Treatment	Water	537 IDA	185154

Analysis Batch: 186774

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-59688-6 - RE	TRAILER 2 -RINSE 4-2	Total/NA	Water	537 IDA	185716
410-59688-7 - RE	TOTE 10-11-GAC-2	Total/NA	Water	537 IDA	185716
MB 410-185716/1-A	Method Blank	Total/NA	Water	537 IDA	185716
LCS 410-185716/2-A	Lab Control Sample	Total/NA	Water	537 IDA	185716
LCSD 410-185716/3-A	Lab Control Sample Dup	Total/NA	Water	537 IDA	185716

QC Association Summary

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-59688-1

LCMS

Analysis Batch: 187122

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-59688-1 - RA	TRAILER 2 -RINSE 1-1	Pre-Treatment	Water	537 IDA	185154
410-59688-2	TRAILER 2 -RINSE 2-1	Pre-Treatment	Water	537 IDA	185154
410-59688-2 - RA	TRAILER 2 -RINSE 2-1	Pre-Treatment	Water	537 IDA	185154
410-59688-4	TRAILER 2 -RINSE 3-1	Pre-Treatment	Water	537 IDA	185154
410-59688-5	TRAILER 2 -RINSE 4-1	Pre-Treatment	Water	537 IDA	185154
410-59688-9	TRAILER 1-RINSE-1	Pre-Treatment	Water	537 IDA	185154

Prep Batch: 187575

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-59688-3 - RE	TRAILER 2 -EFF 1-1	Pre-Treatment	Water	TOP Pre - Prep	

Prep Batch: 187892

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-59688-6	TRAILER 2 -RINSE 4-2	Total/NA	Water	537 IDA	
410-59688-6 - DL	TRAILER 2 -RINSE 4-2	Total/NA	Water	537 IDA	
410-59688-7	TOTE 10-11-GAC-2	Total/NA	Water	537 IDA	
410-59688-7 - DL	TOTE 10-11-GAC-2	Total/NA	Water	537 IDA	
410-59688-7 - DL2	TOTE 10-11-GAC-2	Total/NA	Water	537 IDA	
MB 410-187892/1-A	Method Blank	Total/NA	Water	537 IDA	
LCS 410-187892/2-A	Lab Control Sample	Total/NA	Water	537 IDA	

Analysis Batch: 188473

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-59688-3	TRAILER 2 -EFF 1-1	Pre-Treatment	Water	537 IDA	185154

Analysis Batch: 188713

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-59688-6	TRAILER 2 -RINSE 4-2	Total/NA	Water	537 IDA	187892
410-59688-7	TOTE 10-11-GAC-2	Total/NA	Water	537 IDA	187892
410-59688-7 - DL	TOTE 10-11-GAC-2	Total/NA	Water	537 IDA	187892
410-59688-7 - DL2	TOTE 10-11-GAC-2	Total/NA	Water	537 IDA	187892
LCS 410-187892/2-A	Lab Control Sample	Total/NA	Water	537 IDA	187892

Prep Batch: 189201

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-59688-1	TRAILER 2 -RINSE 1-1	Post-Treatment	Water	TOP Post Prep	
410-59688-1 - DL	TRAILER 2 -RINSE 1-1	Post-Treatment	Water	TOP Post Prep	
410-59688-2	TRAILER 2 -RINSE 2-1	Post-Treatment	Water	TOP Post Prep	
410-59688-3 - DL	TRAILER 2 -EFF 1-1	Post-Treatment	Water	TOP Post Prep	
410-59688-3	TRAILER 2 -EFF 1-1	Post-Treatment	Water	TOP Post Prep	
410-59688-4	TRAILER 2 -RINSE 3-1	Post-Treatment	Water	TOP Post Prep	
410-59688-5	TRAILER 2 -RINSE 4-1	Post-Treatment	Water	TOP Post Prep	
410-59688-9	TRAILER 1-RINSE-1	Post-Treatment	Water	TOP Post Prep	
MB 410-189201/2-A	Method Blank	Post-Treatment	Water	TOP Post Prep	
LCS 410-189201/3-A	Lab Control Sample	Post-Treatment	Water	TOP Post Prep	
LCSD 410-189201/4-A	Lab Control Sample Dup	Post-Treatment	Water	TOP Post Prep	

Analysis Batch: 189298

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-59688-3 - RE	TRAILER 2 -EFF 1-1	Pre-Treatment	Water	537 IDA	187575

QC Association Summary

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-59688-1

LCMS

Analysis Batch: 189391

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-59688-6 - DL	TRAILER 2 -RINSE 4-2	Total/NA	Water	537 IDA	187892
MB 410-187892/1-A	Method Blank	Total/NA	Water	537 IDA	187892

Prep Batch: 189491

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-59688-4 - RE	TRAILER 2 -RINSE 3-1	Pre-Treatment	Water	TOP Pre - Prep	
MB 410-189491/1-A	Method Blank	Pre-Treatment	Water	TOP Pre - Prep	
LCS 410-189491/2-A	Lab Control Sample	Pre-Treatment	Water	TOP Pre - Prep	
LCSD 410-189491/3-A	Lab Control Sample Dup	Pre-Treatment	Water	TOP Pre - Prep	

Analysis Batch: 189672

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-59688-4 - RE	TRAILER 2 -RINSE 3-1	Pre-Treatment	Water	537 IDA	189491
MB 410-189491/1-A	Method Blank	Pre-Treatment	Water	537 IDA	189491
LCS 410-189491/2-A	Lab Control Sample	Pre-Treatment	Water	537 IDA	189491
LCSD 410-189491/3-A	Lab Control Sample Dup	Pre-Treatment	Water	537 IDA	189491

Analysis Batch: 191308

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-59688-1	TRAILER 2 -RINSE 1-1	Post-Treatment	Water	537 TOP	189201
410-59688-1 - DL	TRAILER 2 -RINSE 1-1	Post-Treatment	Water	537 TOP	189201
410-59688-2	TRAILER 2 -RINSE 2-1	Post-Treatment	Water	537 TOP	189201
410-59688-3	TRAILER 2 -EFF 1-1	Post-Treatment	Water	537 TOP	189201
410-59688-3 - DL	TRAILER 2 -EFF 1-1	Post-Treatment	Water	537 TOP	189201
410-59688-4	TRAILER 2 -RINSE 3-1	Post-Treatment	Water	537 TOP	189201
410-59688-9	TRAILER 1-RINSE-1	Post-Treatment	Water	537 TOP	189201
MB 410-189201/2-A	Method Blank	Post-Treatment	Water	537 TOP	189201
LCS 410-189201/3-A	Lab Control Sample	Post-Treatment	Water	537 TOP	189201
LCSD 410-189201/4-A	Lab Control Sample Dup	Post-Treatment	Water	537 TOP	189201

Analysis Batch: 191818

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-59688-5	TRAILER 2 -RINSE 4-1	Post-Treatment	Water	537 TOP	189201

Analysis Batch: 191986

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-59688-1	TRAILER 2 -RINSE 1-1	Post-Treatment	Water	Total PFCA-Sum	
410-59688-1	TRAILER 2 -RINSE 1-1	Pre-Treatment	Water	Total PFCA-Sum	
410-59688-2	TRAILER 2 -RINSE 2-1	Post-Treatment	Water	Total PFCA-Sum	
410-59688-2	TRAILER 2 -RINSE 2-1	Pre-Treatment	Water	Total PFCA-Sum	
410-59688-3	TRAILER 2 -EFF 1-1	Post-Treatment	Water	Total PFCA-Sum	
410-59688-3	TRAILER 2 -EFF 1-1	Pre-Treatment	Water	Total PFCA-Sum	
410-59688-4	TRAILER 2 -RINSE 3-1	Post-Treatment	Water	Total PFCA-Sum	
410-59688-4	TRAILER 2 -RINSE 3-1	Pre-Treatment	Water	Total PFCA-Sum	
410-59688-9	TRAILER 1-RINSE-1	Post-Treatment	Water	Total PFCA-Sum	
410-59688-9	TRAILER 1-RINSE-1	Pre-Treatment	Water	Total PFCA-Sum	

Analysis Batch: 191988

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-59688-1	TRAILER 2 -RINSE 1-1	Total/NA	Water	Total PFCA-Dif	
410-59688-2	TRAILER 2 -RINSE 2-1	Total/NA	Water	Total PFCA-Dif	

LCMS (Continued)

Analysis Batch: 191988 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-59688-3	TRAILER 2 -EFF 1-1	Total/NA	Water	Total PFCA-Dif	
410-59688-4	TRAILER 2 -RINSE 3-1	Total/NA	Water	Total PFCA-Dif	
410-59688-9	TRAILER 1-RINSE-1	Total/NA	Water	Total PFCA-Dif	

Analysis Batch: 192098

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-59688-5	TRAILER 2 -RINSE 4-1	Post-Treatment	Water	Total PFCA-Sum	
410-59688-5	TRAILER 2 -RINSE 4-1	Pre-Treatment	Water	Total PFCA-Sum	

Analysis Batch: 192104

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-59688-5	TRAILER 2 -RINSE 4-1	Total/NA	Water	Total PFCA-Dif	

Lab Chronicle

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-59688-1

Client Sample ID: TRAILER 2 -RINSE 1-1

Lab Sample ID: 410-59688-1
Date Collected: 10/12/21 08:45
Matrix: Water
Date Received: 10/16/21 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Pre-Treatment	Prep	TOP Pre - Prep	DL		185154	10/20/21 15:53	QLP7	ELLE
Pre-Treatment	Analysis	537 IDA	DL	100	186208	10/23/21 12:34	MT26	ELLE
Pre-Treatment	Prep	TOP Pre - Prep			185154	10/20/21 15:53	QLP7	ELLE
Pre-Treatment	Analysis	537 IDA		10	186357	10/24/21 06:43	MT26	ELLE
Pre-Treatment	Prep	TOP Pre - Prep	RA		185154	10/20/21 15:53	QLP7	ELLE
Pre-Treatment	Analysis	537 IDA	RA	10	187122	10/26/21 17:41	MT26	ELLE
Post-Treatment	Prep	TOP Post Prep			189201	11/01/21 07:50	S7AC	ELLE
Post-Treatment	Analysis	537 TOP		1	191308	11/05/21 12:14	MT26	ELLE
Post-Treatment	Prep	TOP Post Prep	DL		189201	11/01/21 07:50	S7AC	ELLE
Post-Treatment	Analysis	537 TOP	DL	10	191308	11/05/21 12:24	MT26	ELLE
Total/NA	Analysis	Total PFCA-Dif		1	191988	11/08/21 11:26	MT26	ELLE
Post-Treatment	Analysis	Total PFCA-Sum		1	191986	11/08/21 11:22	MT26	ELLE
Pre-Treatment	Analysis	Total PFCA-Sum		1	191986	11/08/21 11:22	MT26	ELLE

Client Sample ID: TRAILER 2 -RINSE 2-1

Lab Sample ID: 410-59688-2
Date Collected: 10/12/21 17:00
Matrix: Water
Date Received: 10/16/21 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Pre-Treatment	Prep	TOP Pre - Prep	DL		185154	10/20/21 15:53	QLP7	ELLE
Pre-Treatment	Analysis	537 IDA	DL	10	186357	10/24/21 06:54	MT26	ELLE
Pre-Treatment	Prep	TOP Pre - Prep			185154	10/20/21 15:53	QLP7	ELLE
Pre-Treatment	Analysis	537 IDA		1	187122	10/26/21 17:51	MT26	ELLE
Pre-Treatment	Prep	TOP Pre - Prep	RA		185154	10/20/21 15:53	QLP7	ELLE
Pre-Treatment	Analysis	537 IDA	RA	1	187122	10/27/21 06:20	MT26	ELLE
Post-Treatment	Prep	TOP Post Prep			189201	11/01/21 07:50	S7AC	ELLE
Post-Treatment	Analysis	537 TOP		1	191308	11/05/21 12:35	MT26	ELLE
Total/NA	Analysis	Total PFCA-Dif		1	191988	11/08/21 11:26	MT26	ELLE
Post-Treatment	Analysis	Total PFCA-Sum		1	191986	11/08/21 11:22	MT26	ELLE
Pre-Treatment	Analysis	Total PFCA-Sum		1	191986	11/08/21 11:22	MT26	ELLE

Client Sample ID: TRAILER 2 -EFF 1-1

Lab Sample ID: 410-59688-3
Date Collected: 10/13/21 11:45
Matrix: Water
Date Received: 10/16/21 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Pre-Treatment	Prep	TOP Pre - Prep	DL		185154	10/20/21 15:53	QLP7	ELLE
Pre-Treatment	Analysis	537 IDA	DL	100	186208	10/23/21 12:55	MT26	ELLE
Pre-Treatment	Prep	TOP Pre - Prep			185154	10/20/21 15:53	QLP7	ELLE
Pre-Treatment	Analysis	537 IDA		1	188473	10/29/21 08:36	MT26	ELLE
Pre-Treatment	Prep	TOP Pre - Prep	RE		187575	10/27/21 07:29	RDL8	ELLE
Pre-Treatment	Analysis	537 IDA	RE	1	189298	11/01/21 17:03	ZG8V	ELLE
Post-Treatment	Prep	TOP Post Prep			189201	11/01/21 07:50	S7AC	ELLE
Post-Treatment	Analysis	537 TOP		1	191308	11/05/21 12:45	MT26	ELLE

Lab Chronicle

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-59688-1

Client Sample ID: TRAILER 2 -EFF 1-1

Lab Sample ID: 410-59688-3
Date Collected: 10/13/21 11:45
Matrix: Water
Date Received: 10/16/21 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Post-Treatment	Prep	TOP Post Prep	DL		189201	11/01/21 07:50	S7AC	ELLE
Post-Treatment	Analysis	537 TOP	DL	100	191308	11/05/21 13:07	MT26	ELLE
Total/NA	Analysis	Total PFCA-Dif		1	191988	11/08/21 11:26	MT26	ELLE
Post-Treatment	Analysis	Total PFCA-Sum		1	191986	11/08/21 11:22	MT26	ELLE
Pre-Treatment	Analysis	Total PFCA-Sum		1	191986	11/08/21 11:22	MT26	ELLE

Client Sample ID: TRAILER 2 -RINSE 3-1

Lab Sample ID: 410-59688-4
Date Collected: 10/13/21 14:00
Matrix: Water
Date Received: 10/16/21 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Pre-Treatment	Prep	TOP Pre - Prep	DL		185154	10/20/21 15:53	QLP7	ELLE
Pre-Treatment	Analysis	537 IDA	DL	10	186357	10/24/21 07:15	MT26	ELLE
Pre-Treatment	Prep	TOP Pre - Prep			185154	10/20/21 15:53	QLP7	ELLE
Pre-Treatment	Analysis	537 IDA		1	187122	10/26/21 18:13	MT26	ELLE
Pre-Treatment	Prep	TOP Pre - Prep	RE		189491	11/01/21 19:15	QLP7	ELLE
Pre-Treatment	Analysis	537 IDA	RE	1	189672	11/03/21 11:34	UCD3	ELLE
Post-Treatment	Prep	TOP Post Prep			189201	11/01/21 07:50	S7AC	ELLE
Post-Treatment	Analysis	537 TOP		1	191308	11/05/21 13:18	MT26	ELLE
Total/NA	Analysis	Total PFCA-Dif		1	191988	11/08/21 11:26	MT26	ELLE
Post-Treatment	Analysis	Total PFCA-Sum		1	191986	11/08/21 11:22	MT26	ELLE
Pre-Treatment	Analysis	Total PFCA-Sum		1	191986	11/08/21 11:22	MT26	ELLE

Client Sample ID: TRAILER 2 -RINSE 4-1

Lab Sample ID: 410-59688-5
Date Collected: 10/13/21 16:00
Matrix: Water
Date Received: 10/16/21 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Pre-Treatment	Prep	TOP Pre - Prep	DL		185154	10/20/21 15:53	QLP7	ELLE
Pre-Treatment	Analysis	537 IDA	DL	10	186357	10/24/21 07:25	MT26	ELLE
Pre-Treatment	Prep	TOP Pre - Prep			185154	10/20/21 15:53	QLP7	ELLE
Pre-Treatment	Analysis	537 IDA		1	187122	10/26/21 18:23	MT26	ELLE
Post-Treatment	Prep	TOP Post Prep			189201	11/01/21 07:50	S7AC	ELLE
Post-Treatment	Analysis	537 TOP		1	191818	11/08/21 10:44	MT26	ELLE
Total/NA	Analysis	Total PFCA-Dif		1	192104	11/08/21 14:22	MT26	ELLE
Post-Treatment	Analysis	Total PFCA-Sum		1	192098	11/08/21 14:11	MT26	ELLE
Pre-Treatment	Analysis	Total PFCA-Sum		1	192098	11/08/21 14:11	MT26	ELLE

Lab Chronicle

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-59688-1

Client Sample ID: TRAILER 2 -RINSE 4-2

Lab Sample ID: 410-59688-6
Date Collected: 10/13/21 16:05
Matrix: Water
Date Received: 10/16/21 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537 IDA	RE		185716	10/21/21 16:50	QLP7	ELLE
Total/NA	Analysis	537 IDA	RE	1	186774	10/26/21 05:32	QD9Y	ELLE
Total/NA	Prep	537 IDA			187892	10/27/21 17:42	ZWK6	ELLE
Total/NA	Analysis	537 IDA		1	188713	10/30/21 09:51	JVK6	ELLE
Total/NA	Prep	537 IDA	DL		187892	10/27/21 17:42	ZWK6	ELLE
Total/NA	Analysis	537 IDA	DL	100	189391	11/01/21 20:07	PY4D	ELLE

Client Sample ID: TOTE 10-11-GAC-2

Lab Sample ID: 410-59688-7
Date Collected: 10/13/21 17:00
Matrix: Water
Date Received: 10/16/21 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537 IDA	RE		185716	10/21/21 16:50	QLP7	ELLE
Total/NA	Analysis	537 IDA	RE	1	186774	10/26/21 05:43	QD9Y	ELLE
Total/NA	Prep	537 IDA			187892	10/27/21 17:42	ZWK6	ELLE
Total/NA	Analysis	537 IDA		1	188713	10/30/21 10:13	JVK6	ELLE
Total/NA	Prep	537 IDA	DL		187892	10/27/21 17:42	ZWK6	ELLE
Total/NA	Analysis	537 IDA	DL	10	188713	10/30/21 10:25	JVK6	ELLE
Total/NA	Prep	537 IDA	DL2		187892	10/27/21 17:42	ZWK6	ELLE
Total/NA	Analysis	537 IDA	DL2	100	188713	10/30/21 10:36	JVK6	ELLE

Client Sample ID: TRAILER 1-RINSE-1

Lab Sample ID: 410-59688-9
Date Collected: 10/14/21 15:00
Matrix: Water
Date Received: 10/16/21 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Pre-Treatment	Prep	TOP Pre - Prep	DL		185154	10/20/21 15:53	QLP7	ELLE
Pre-Treatment	Analysis	537 IDA	DL	10	186357	10/24/21 07:36	MT26	ELLE
Pre-Treatment	Prep	TOP Pre - Prep			185154	10/20/21 15:53	QLP7	ELLE
Pre-Treatment	Analysis	537 IDA		1	187122	10/26/21 18:34	MT26	ELLE
Post-Treatment	Prep	TOP Post Prep			189201	11/01/21 07:50	S7AC	ELLE
Post-Treatment	Analysis	537 TOP		1	191308	11/05/21 14:12	MT26	ELLE
Total/NA	Analysis	Total PFCA-Dif		1	191988	11/08/21 11:26	MT26	ELLE
Post-Treatment	Analysis	Total PFCA-Sum		1	191986	11/08/21 11:22	MT26	ELLE
Pre-Treatment	Analysis	Total PFCA-Sum		1	191986	11/08/21 11:22	MT26	ELLE

Laboratory References:
ELLE = Eurofins Lancaster Laboratories Env, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Accreditation/Certification Summary

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-59688-1

Laboratory: Eurofins Lancaster Laboratories Env, LLC

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

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	1.01	12-13-21
A2LA	ISO/IEC 17025	0001.01	11-30-22
Alaska	State	PA00009	06-30-22
Alaska (UST)	State	17-027	02-28-22
Arizona	State	AZ0780	03-12-22
Arkansas DEQ	State	88-0660	08-10-22
California	State	2792	02-02-22
Colorado	State	PA00009	06-30-22
Connecticut	State	PH-0746	06-30-23
DE Haz. Subst. Cleanup Act (HSCA)	State	019-006 (PA cert)	01-31-22
Delaware (DW)	State	N/A	02-01-22
Florida	NELAP	E87997	11-08-21
Georgia (DW)	State	C048	01-31-22
Hawaii	State	N/A	01-31-22
Illinois	NELAP	200027	01-31-23
Iowa	State	361	03-02-22
Kansas	NELAP	E-10151	10-31-22
Kentucky (DW)	State	KY90088	01-01-22
Kentucky (UST)	State	1.01	11-30-22
Kentucky (WW)	State	KY90088	12-31-21
Louisiana	NELAP	02055	06-30-22
Maine	State	2019012	03-12-22
Maryland	State	100	06-30-22
Massachusetts	State	M-PA009	06-30-22
Michigan	State	9930	01-31-22
Minnesota	NELAP	042-999-487	12-31-22
Missouri	State	450	11-09-21
Montana (DW)	State	0098	01-01-22
Nebraska	State	NE-OS-32-17	01-31-22
New Hampshire	NELAP	2730	01-10-22
New Jersey	NELAP	PA011	11-10-21
New York	NELAP	10670	04-01-22
North Carolina (DW)	State	42705	07-31-22
North Carolina (WW/SW)	State	521	12-31-21
North Dakota	State	R-205	01-31-22
Oklahoma	NELAP	R-205	08-31-22
Oregon	NELAP	PA200001	09-11-22
PALA	Canada	1978	09-16-24
Pennsylvania	NELAP	36-00037	01-31-22
Rhode Island	State	LAO00338	01-31-22
South Carolina	State	89002002	01-31-22
Tennessee	State	02838	01-31-22
Texas	NELAP	T104704194-21-40	08-31-22
Utah	NELAP	PA000092019-16	03-01-22
Vermont	State	VT - 36037	10-28-22
Virginia	NELAP	460182	11-14-21
Washington	State	C457	04-12-22
West Virginia (DW)	State	9906 C	12-31-21
West Virginia DEP	State	055	12-31-21
Wyoming	State	8TMS-L	01-31-22

Laboratory: Eurofins Lancaster Laboratories Env, LLC (Continued)

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

Authority	Program	Identification Number	Expiration Date
Wyoming (UST)	A2LA	1.01	11-30-22

Method Summary

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-59688-1

Method	Method Description	Protocol	Laboratory
537 IDA	EPA 537 Isotope Dilution	EPA	ELLE
537 TOP	Fluorinated Alkyl Substances	EPA	ELLE
Total PFCA-Dif	Total PFCA (Treatment Difference)	TAL SOP	ELLE
Total PFCA-Sum	Total PFCA (Summary)	TAL SOP	ELLE
537 IDA	EPA 537 Isotope Dilution	EPA	ELLE
TOP Post Prep	Solid-Phase Extraction (SPE)	SW846	ELLE
TOP Pre - Prep	Solid-Phase Extraction (SPE)	SW846	ELLE

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Env, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Sample Summary

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-59688-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
410-59688-1	TRAILER 2 -RINSE 1-1	Water	10/12/21 08:45	10/16/21 09:45
410-59688-2	TRAILER 2 -RINSE 2-1	Water	10/12/21 17:00	10/16/21 09:45
410-59688-3	TRAILER 2 -EFF 1-1	Water	10/13/21 11:45	10/16/21 09:45
410-59688-4	TRAILER 2 -RINSE 3-1	Water	10/13/21 14:00	10/16/21 09:45
410-59688-5	TRAILER 2 -RINSE 4-1	Water	10/13/21 16:00	10/16/21 09:45
410-59688-6	TRAILER 2 -RINSE 4-2	Water	10/13/21 16:05	10/16/21 09:45
410-59688-7	TOTE 10-11-GAC-2	Water	10/13/21 17:00	10/16/21 09:45
410-59688-9	TRAILER 1-RINSE-1	Water	10/14/21 15:00	10/16/21 09:45

410-59688 Chain of Custody

v, LLC

Chain of Custody Record

eurofins Environment Testing America

Sampler: RYAN BOTT	Lab PM: Cottman, Hannah L	Carrier Tracking No(s):	COC No: 410-35460-11077.2
Phone: 860-263-5867	E-Mail: Hannah.Cottman@eurofinset.com	State of Origin: CT	Page: Page 1 of 1 (RB)

Mr. Robert Kennedy

Company: AECOM

PWSID:

Job #:

Address: 250 Apollo Drive

Due Date Requested:

City: Chelmsford

TAT Requested (days): STANDARD

State, Zip: MA, 01824

Compliance Project: Δ Yes Δ No

Phone:

PO #: Purchase Order Requested

Email: robert.kennedy@aecom.com

WO #:

Project Name: AFFF Tanks Cleaning

Project #: 41007527

Site: 60662934

SSOW#:

Analysis Requested

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	PFC_IDA - 24 PFAS	PFC_IDA - 24 PFAS - TOP Assay											Total Number of containers	Special Instructions/Note:
TRAILER2-RINSE1-1	10/12/21	845	G	Water			X	X												HIGH AFFF CONC. EXPECTED ~~HOLD~~ (RB)
TRAILER2-RINSE2-1	10/12/21	1700	G	Water			X	X											4	~~HOLD~~ (RB)
TRAILER2-EFF1-1	10/13/21	1145	G	Water			X	X												COLOR FROM CARBON FINES
TRAILER2-RINSE3-1	10/13/21	1400	G	Water			X	X											4	
TRAILER2-RINSE4-1	10/13/21	1600	G	Water			X	X											4	
TRAILER2-RINSE4-2	10/13/21	1605	G	WATER			X	X	(RB)										4	
TOTE 10-11-GAC-2	10/13/21	1700	G	WATER			X												4	
TRAILER2-EFF2-1	10/14/21	745	G	WATER		X	X	X											12	HOLD ALL ANALYSES
TRAILER1-RINSE-1	10/14/21	1500	G	WATER			X	X											4	
TRAILER2-EFF3-1	10/14/21	1700	G	WATER			X	X											4	HOLD ALL ANALYSES

Possible Hazard Identification

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

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

☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by	Date/Time	Company	Received by	Date/Time	Company
[signature]	10/15/21 1400	AECOM			
				10/16/21 9:15	TELLE

Custody Seals Intact: Δ Yes Δ No

Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 1.7

Ver 06/08/2021

ASH

12/27/2021

Login Sample Receipt Checklist

Client: AECOM

Job Number: 410-59688-1

Login Number: 59688
List Number: 1
Creator: Knoedler, Christine M

List Source: Eurofins Lancaster Laboratories Env, LLC

Question	Answer	Comment
The cooler's custody seal is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable (</=6C, not frozen).	True	
Cooler Temperature is recorded.	True	
WV: Container Temperature is acceptable (</=6C, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	True	
Sample custody seals are intact.	N/A	

eurofins | Environment Testing America

ANALYTICAL REPORT

Eurofins Lancaster Laboratories Env, LLC
2425 New Holland Pike
Lancaster, PA 17601
Tel: (717)656-2300

Laboratory Job ID: 410-60469-1
Client Project/Site: AFFF Tanks Cleaning

For:
AECOM
250 Apollo Drive
Chelmsford, Massachusetts 01824

Attn: Mr. Robert Kennedy

Authorized for release by:
11/15/2021 11:47:22 AM

Hannah Cottman, Operations Support Specialist
(717)556-7383
Hannah.Cottman@eurofinset.com

LINKS

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The test results in this report meet all 2003 NELAC, 2009 TNI, and 2016 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

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

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

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

Analytical test results meet all requirements of the associated regulatory program (e.g., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis. Data qualifiers are applied to note exceptions. Noncompliant quality control (QC) is further explained in narrative comments.
· QC results that exceed the upper limits and are associated with non-detect samples are qualified but further narration is not required since the bias is high and does not change a non-detect result. Further narration is also not required with QC blank detection when the associated sample concentration is non-detect or more than ten times the level in the blank.
· Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD is performed, unless otherwise specified in the method.
· Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.
Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Measurement uncertainty values, as applicable, are available upon request.

Test results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" and tested in the laboratory are not performed within 15 minutes of collection.

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Hannah Cottman
Operations Support Specialist
11/15/2021 11:47:22 AM

Table of Contents

Cover Page 1
Table of Contents 3
Definitions/Glossary 4
Case Narrative 5
Detection Summary 6
Client Sample Results 17
Surrogate Summary 44
Isotope Dilution Summary 45
QC Sample Results 50
QC Association Summary 62
Lab Chronicle 67
Certification Summary 72
Method Summary 74
Sample Summary 75
Chain of Custody 76
Receipt Checklists 77

Qualifiers

LCMS

Qualifier	Qualifier Description
*5-	Isotope dilution analyte is outside acceptance limits, low biased.
*5+	Isotope dilution analyte is outside acceptance limits, high biased.
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
E	Result exceeded calibration range.
F1	MS and/or MSD recovery exceeds control limits.
F2	MS/MSD RPD exceeds control limits
I	Value is EMPC (estimated maximum possible concentration).
S1+	Surrogate recovery exceeds control limits, high biased.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
1C	Result is from the primary column on a dual-column method.
2C	Result is from the confirmation column on a dual-column method.
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Job ID: 410-60469-1

Laboratory: Eurofins Lancaster Laboratories Env, LLC

Narrative

Job Narrative
410-60469-1

Receipt
The samples were received on 10/23/2021 9:49 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 4.8°C

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

PFAS
Method 537_IDA_TOPS: The results reported for target analytes: Perfluoropentanoic acid, Perfluoroheptanoic acid, Perfluorohexanoic acid, and Perfluorobutanoic acid are above the calibration range of the instrument and should be considered estimated for the following samples: FT2-RINSE 1-1 (410-60469-1).

Method 537_IDA_TOPS: The results reported for target analytes: Perfluoropentanoic acid, Perfluoroheptanoic acid, and Perfluorohexanoic acid are above the calibration range of the instrument and should be considered estimated for the following samples: FT2-RINSE 2-1 (410-60469-4).

Method PFC_IDA: The recovery for the labeled isotope(s) in the following samples: HOSE-PRE-12 HRS-1 (410-60469-3), HOSE-POST-1 (410-60469-5), FT2-RINSE 3-1 (410-60469-7), FT2-RINSE 4-1 (410-60469-8) and FT2-RINSE 4-2 (410-60469-9) is outside the QC acceptance limits. The control limits listed with this data are not specific to this matrix and should therefore be considered advisory.

Method PFC_IDA: The sample injection standard peak areas in the following samples: HOSE-POST-1 (410-60469-5), FT2-RINSE 3-1 (410-60469-7), FT2-RINSE 4-1 (410-60469-8) and FT2-RINSE 4-2 (410-60469-9) are outside of the QC limits for both the initial injection and the re-injection. The values here are from the initial injection of the sample.

Method PFC_IDA: The labeled isotope recovery is outside of the QC acceptance limits in the following sample: FT2-RINSE 1-1 (410-60469-1). The following action was taken: The sample was re-extracted outside of the method holding time and the labeled isotope recovery was again outside of the QC acceptance limits. The injection standard peak areas are outside of the QC acceptance limits in both the initial extraction and the re-extraction of the following sample: FT2-RINSE 1-1 (410-60469-1). The values here are from the initial extraction of the sample.

Method PFC_IDA: The labeled isotope recovery is outside of the QC acceptance limits in the following sample: FT2-RINSE 2-1 (410-60469-4). The following action was taken: The sample was re-extracted outside of the method holding time and the labeled isotope recovery was again outside of the QC acceptance limits. The injection standard peak areas are outside of the QC acceptance limits in both the initial extraction and the re-extraction of the following sample: FT2-RINSE 2-1 (410-60469-4). The values here are from the initial extraction of the sample.

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

Detection Summary

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-60469-1

Client Sample ID: FT2-RINSE 1-1

Lab Sample ID: 410-60469-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid	28000		5000	2000	ng/L	10		537 IDA	Pre-Treatment
Perfluorodecanoic acid	57000		2000	500	ng/L	10		537 IDA	Pre-Treatment
Perfluoroheptanoic acid	5300		2000	500	ng/L	10		537 IDA	Pre-Treatment
Perfluorohexanoic acid	190000		2000	500	ng/L	10		537 IDA	Pre-Treatment
Perfluorononanoic acid	2600		2000	500	ng/L	10		537 IDA	Pre-Treatment
Perfluorooctanoic acid	130000		2000	500	ng/L	10		537 IDA	Pre-Treatment
Perfluoropentanoic acid	11000		2000	500	ng/L	10		537 IDA	Pre-Treatment
4:2 Fluorotelomer sulfonic acid	16000		2000	500	ng/L	10		537 IDA	Pre-Treatment
6:2 Fluorotelomer sulfonic acid - DL	1000000		50000	20000	ng/L	100		537 IDA	Pre-Treatment
8:2 Fluorotelomer sulfonic acid - DL	570000		30000	10000	ng/L	100		537 IDA	Pre-Treatment
Perfluorobutanoic acid	38000000	E	250000	100000	ng/L	100		537 TOP	Post-Treatment
Perfluorodecanoic acid	9200000		100000	25000	ng/L	100		537 TOP	Post-Treatment
Perfluorododecanoic acid	3800000	I	100000	25000	ng/L	100		537 TOP	Post-Treatment
Perfluoroheptanoic acid	26000000	E	100000	25000	ng/L	100		537 TOP	Post-Treatment
Perfluorohexanoic acid	44000000	E I	100000	25000	ng/L	100		537 TOP	Post-Treatment
Perfluorononanoic acid	15000000		100000	25000	ng/L	100		537 TOP	Post-Treatment
Perfluorooctanoic acid	19000000		100000	25000	ng/L	100		537 TOP	Post-Treatment
Perfluoropentanesulfonic acid	120000		100000	25000	ng/L	100		537 TOP	Post-Treatment
Perfluoropentanoic acid	72000000	E	100000	25000	ng/L	100		537 TOP	Post-Treatment
Perfluorotetradecanoic acid	2100000		100000	25000	ng/L	100		537 TOP	Post-Treatment
Perfluorotridecanoic acid	1400000		100000	25000	ng/L	100		537 TOP	Post-Treatment
Perfluoroundecanoic acid	5100000		100000	25000	ng/L	100		537 TOP	Post-Treatment
Perfluorobutanoic acid	38000000				ng/L	1		Total PFCA-Dif	Total/NA
Perfluoropentanoic acid	72000000				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorohexanoic acid	44000000				ng/L	1		Total PFCA-Dif	Total/NA
Perfluoroheptanoic acid	26000000				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorooctanoic acid	19000000				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorononanoic acid	15000000				ng/L	1		Total PFCA-Dif	Total/NA
Total PFCA	210000000				ng/L	1		Total PFCA-Dif	Total/NA
Total PFCA	370000		500	0.50	ng/L	1		Total PFCA-Sum	Pre-Treatment
Total PFCA	210000000		500	0.50	ng/L	1		Total PFCA-Sum	Post-Treatment

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-60469-1

Client Sample ID: HOSE-PRE-1

Lab Sample ID: 410-60469-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid	4.5		4.4	1.8	ng/L	1		537 IDA	Pre-Treatment
Perfluorodecanoic acid	4.4		1.8	0.44	ng/L	1		537 IDA	Pre-Treatment
Perfluoroheptanoic acid	20		1.8	0.44	ng/L	1		537 IDA	Pre-Treatment
Perfluorohexanesulfonic acid	2.5		1.8	0.44	ng/L	1		537 IDA	Pre-Treatment
Perfluorohexanoic acid	52		1.8	0.44	ng/L	1		537 IDA	Pre-Treatment
Perfluorononanoic acid	66		1.8	0.44	ng/L	1		537 IDA	Pre-Treatment
Perfluorooctanesulfonic acid	11		1.8	0.44	ng/L	1		537 IDA	Pre-Treatment
Perfluorooctanoic acid	13		1.8	0.44	ng/L	1		537 IDA	Pre-Treatment
Perfluoropentanoic acid	6.4		1.8	0.44	ng/L	1		537 IDA	Pre-Treatment
Perfluorotridecanoic acid	3.8		1.8	0.44	ng/L	1		537 IDA	Pre-Treatment
Perfluoroundecanoic acid	30		1.8	0.44	ng/L	1		537 IDA	Pre-Treatment
6:2 Fluorotelomer sulfonic acid - DL	500		44	18	ng/L	10		537 IDA	Pre-Treatment
8:2 Fluorotelomer sulfonic acid - DL	96		26	8.8	ng/L	10		537 IDA	Pre-Treatment
Perfluorodecanoic acid	75		10	2.5	ng/L	1		537 TOP	Post-Treatment
Perfluorododecanoic acid	18	I	10	2.5	ng/L	1		537 TOP	Post-Treatment
Perfluorohexanoic acid	1600		10	2.5	ng/L	1		537 TOP	Post-Treatment
Perfluorononanoic acid	400		10	2.5	ng/L	1		537 TOP	Post-Treatment
Perfluorooctanesulfonic acid	22		10	2.5	ng/L	1		537 TOP	Post-Treatment
Perfluorooctanoic acid	380		10	2.5	ng/L	1		537 TOP	Post-Treatment
Perfluorotridecanoic acid	12		10	2.5	ng/L	1		537 TOP	Post-Treatment
Perfluoroundecanoic acid	88	I	10	2.5	ng/L	1		537 TOP	Post-Treatment
Perfluorobutanoic acid - DL	2100		250	100	ng/L	10		537 TOP	Post-Treatment
Perfluoroheptanoic acid - DL	2000		100	25	ng/L	10		537 TOP	Post-Treatment
Perfluoropentanoic acid - DL	5700		100	25	ng/L	10		537 TOP	Post-Treatment
Perfluorobutanoic acid	2100				ng/L	1		Total PFCA-Dif	Total/NA
Perfluoropentanoic acid	5700				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorohexanoic acid	1500				ng/L	1		Total PFCA-Dif	Total/NA
Perfluoroheptanoic acid	2000				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorooctanoic acid	360				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorononanoic acid	330				ng/L	1		Total PFCA-Dif	Total/NA
Total PFCA	12000				ng/L	1		Total PFCA-Dif	Total/NA
Total PFCA	12000		500	0.50	ng/L	1		Total PFCA-Sum	Post-Treatment

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-60469-1

Client Sample ID: HOSE-PRE-12 HRS-1 — Lab Sample ID: 410-60469-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorodecanoic acid	9.5		1.8	0.46	ng/L	1		537 IDA	Pre-Treatment
Perfluorododecanoic acid	1.9		1.8	0.46	ng/L	1		537 IDA	Pre-Treatment
Perfluoroheptanoic acid	17		1.8	0.46	ng/L	1		537 IDA	Pre-Treatment
Perfluorohexanesulfonic acid	2.8		1.8	0.46	ng/L	1		537 IDA	Pre-Treatment
Perfluorohexanoic acid	44		1.8	0.46	ng/L	1		537 IDA	Pre-Treatment
Perfluorononanoic acid	180		1.8	0.46	ng/L	1		537 IDA	Pre-Treatment
Perfluorooctanesulfonamide	2.4		1.8	0.46	ng/L	1		537 IDA	Pre-Treatment
Perfluorooctanesulfonic acid	12		1.8	0.46	ng/L	1		537 IDA	Pre-Treatment
Perfluorooctanoic acid	19		1.8	0.46	ng/L	1		537 IDA	Pre-Treatment
Perfluoropentanoic acid	4.6		1.8	0.46	ng/L	1		537 IDA	Pre-Treatment
Perfluorotridecanoic acid	2.9		1.8	0.46	ng/L	1		537 IDA	Pre-Treatment
Perfluoroundecanoic acid	43		1.8	0.46	ng/L	1		537 IDA	Pre-Treatment
8:2 Fluorotelomer sulfonic acid - DL	290		27	9.2	ng/L	10		537 IDA	Pre-Treatment
6:2 Fluorotelomer sulfonic acid - DL2	800		460	180	ng/L	100		537 IDA	Pre-Treatment
Perfluorobutanoic acid	1500		25	10	ng/L	1		537 TOP	Post-Treatment
Perfluorodecanoic acid	77		10	2.5	ng/L	1		537 TOP	Post-Treatment
Perfluorododecanoic acid	12	I	10	2.5	ng/L	1		537 TOP	Post-Treatment
Perfluorohexanoic acid	1900		10	2.5	ng/L	1		537 TOP	Post-Treatment
Perfluorononanoic acid	450		10	2.5	ng/L	1		537 TOP	Post-Treatment
Perfluorooctanoic acid	700		10	2.5	ng/L	1		537 TOP	Post-Treatment
Perfluoroundecanoic acid	51		10	2.5	ng/L	1		537 TOP	Post-Treatment
Perfluoroheptanoic acid - DL	3200		100	25	ng/L	10		537 TOP	Post-Treatment
Perfluoropentanoic acid - DL	3600		100	25	ng/L	10		537 TOP	Post-Treatment
Perfluorobutanoic acid	1500				ng/L	1		Total PFCA-Dif	Total/NA
Perfluoropentanoic acid	3600				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorohexanoic acid	1900				ng/L	1		Total PFCA-Dif	Total/NA
Perfluoroheptanoic acid	3200				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorooctanoic acid	680				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorononanoic acid	270				ng/L	1		Total PFCA-Dif	Total/NA
Total PFCA	11000				ng/L	1		Total PFCA-Dif	Total/NA
Total PFCA	11000		500	0.50	ng/L	1		Total PFCA-Sum	Post-Treatment

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-60469-1

Client Sample ID: FT2-RINSE 2-1

Lab Sample ID: 410-60469-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid	40		4.5	1.8	ng/L	1		537 IDA	Pre-Treatment
Perfluorodecanesulfonic acid	63	I	1.8	0.45	ng/L	1		537 IDA	Pre-Treatment
Perfluorododecanoic acid	73		1.8	0.45	ng/L	1		537 IDA	Pre-Treatment
Perfluoroheptanoic acid	13		1.8	0.45	ng/L	1		537 IDA	Pre-Treatment
Perfluorohexanesulfonic acid	2.8		1.8	0.45	ng/L	1		537 IDA	Pre-Treatment
Perfluorononanoic acid	50		1.8	0.45	ng/L	1		537 IDA	Pre-Treatment
Perfluorooctanesulfonic acid	26		1.8	0.45	ng/L	1		537 IDA	Pre-Treatment
Perfluoropentanoic acid	21		1.8	0.45	ng/L	1		537 IDA	Pre-Treatment
Perfluorotetradecanoic acid	23		1.8	0.45	ng/L	1		537 IDA	Pre-Treatment
Perfluorotridecanoic acid	23		1.8	0.45	ng/L	1		537 IDA	Pre-Treatment
Perfluoroundecanoic acid	34		1.8	0.45	ng/L	1		537 IDA	Pre-Treatment
4:2 Fluorotelomer sulfonic acid	22		1.8	0.45	ng/L	1		537 IDA	Pre-Treatment
Perfluorodecanoic acid - DL	390		18	4.5	ng/L	10		537 IDA	Pre-Treatment
Perfluorohexanoic acid - DL	430		18	4.5	ng/L	10		537 IDA	Pre-Treatment
Perfluorooctanoic acid - DL	390		18	4.5	ng/L	10		537 IDA	Pre-Treatment
6:2 Fluorotelomer sulfonic acid - DL2	8700		450	180	ng/L	100		537 IDA	Pre-Treatment
8:2 Fluorotelomer sulfonic acid - DL2	7800		270	90	ng/L	100		537 IDA	Pre-Treatment
Perfluorobutanesulfonic acid	390		100	25	ng/L	10		537 TOP	Post-Treatment
Perfluorododecanoic acid	15000	I	100	25	ng/L	10		537 TOP	Post-Treatment
Perfluoroheptanesulfonic acid	340		100	25	ng/L	10		537 TOP	Post-Treatment
Perfluoropentanesulfonic acid	610		100	25	ng/L	10		537 TOP	Post-Treatment
Perfluorotetradecanoic acid	8300		100	25	ng/L	10		537 TOP	Post-Treatment
Perfluorotridecanoic acid	7000		100	25	ng/L	10		537 TOP	Post-Treatment
Perfluoroundecanoic acid	19000		100	25	ng/L	10		537 TOP	Post-Treatment
Perfluorobutanoic acid - DL	200000		2500	1000	ng/L	100		537 TOP	Post-Treatment
Perfluorodecanoic acid - DL	32000		1000	250	ng/L	100		537 TOP	Post-Treatment
Perfluoroheptanoic acid - DL	220000	E	1000	250	ng/L	100		537 TOP	Post-Treatment
Perfluorohexanoic acid - DL	220000	E	1000	250	ng/L	100		537 TOP	Post-Treatment
Perfluorononanoic acid - DL	71000		1000	250	ng/L	100		537 TOP	Post-Treatment

This Detection Summary does not include radiochemical test results.

Client Sample ID: FT2-RINSE 2-1 (Continued) — Lab Sample ID: 410-60469-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid - DL	88000		1000	250	ng/L	100		537 TOP	Post-Treatment
Perfluoropentanoic acid - DL	500000	E	1000	250	ng/L	100		537 TOP	Post-Treatment
Perfluorobutanoic acid	200000				ng/L	1		Total PFCA-Dif	Total/NA
Perfluoropentanoic acid	500000				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorohexanoic acid	220000				ng/L	1		Total PFCA-Dif	Total/NA
Perfluoroheptanoic acid	220000				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorooctanoic acid	88000				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorononanoic acid	71000				ng/L	1		Total PFCA-Dif	Total/NA
Total PFCA	1300000				ng/L	1		Total PFCA-Dif	Total/NA
Total PFCA	940		500	0.50	ng/L	1		Total PFCA-Sum	Pre-Treatment
Total PFCA	1300000		500	0.50	ng/L	1		Total PFCA-Sum	Post-Treatment

Client Sample ID: HOSE-POST-1 — Lab Sample ID: 410-60469-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid	4.8		4.4	1.8	ng/L	1		537 IDA	Pre-Treatment
Perfluorodecanoic acid	27		1.8	0.44	ng/L	1		537 IDA	Pre-Treatment
Perfluorododecanoic acid	17		1.8	0.44	ng/L	1		537 IDA	Pre-Treatment
Perfluoroheptanoic acid	5.4		1.8	0.44	ng/L	1		537 IDA	Pre-Treatment
Perfluorohexanoic acid	39		1.8	0.44	ng/L	1		537 IDA	Pre-Treatment
Perfluorononanoic acid	24		1.8	0.44	ng/L	1		537 IDA	Pre-Treatment
Perfluorooctanesulfonic acid	5.6	I	1.8	0.44	ng/L	1		537 IDA	Pre-Treatment
Perfluorooctanoic acid	22		1.8	0.44	ng/L	1		537 IDA	Pre-Treatment
Perfluoropentanoic acid	5.3		1.8	0.44	ng/L	1		537 IDA	Pre-Treatment
Perfluorotetradecanoic acid	9.6		1.8	0.44	ng/L	1		537 IDA	Pre-Treatment
Perfluorotridecanoic acid	9.6		1.8	0.44	ng/L	1		537 IDA	Pre-Treatment
Perfluoroundecanoic acid	19		1.8	0.44	ng/L	1		537 IDA	Pre-Treatment
6:2 Fluorotelomer sulfonic acid - DL	2400		440	180	ng/L	100		537 IDA	Pre-Treatment
8:2 Fluorotelomer sulfonic acid - DL	1800		270	88	ng/L	100		537 IDA	Pre-Treatment
Perfluorobutanoic acid	12000		250	100	ng/L	10		537 TOP	Post-Treatment
Perfluorodecanoic acid	1400	I	100	25	ng/L	10		537 TOP	Post-Treatment
Perfluorododecanoic acid	1200	I	100	25	ng/L	10		537 TOP	Post-Treatment
Perfluoroheptanoic acid	9400		100	25	ng/L	10		537 TOP	Post-Treatment
Perfluorohexanoic acid	7500		100	25	ng/L	10		537 TOP	Post-Treatment

This Detection Summary does not include radiochemical test results.

Client Sample ID: HOSE-POST-1 (Continued) — Lab Sample ID: 410-60469-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorononanoic acid	2500		100	25	ng/L	10		537 TOP	Post-Treatment
Perfluorooctanoic acid	2600		100	25	ng/L	10		537 TOP	Post-Treatment
Perfluorotetradecanoic acid	910		100	25	ng/L	10		537 TOP	Post-Treatment
Perfluorotridecanoic acid	850		100	25	ng/L	10		537 TOP	Post-Treatment
Perfluoroundecanoic acid	1800		100	25	ng/L	10		537 TOP	Post-Treatment
Perfluoropentanoic acid - DL	24000		1000	250	ng/L	100		537 TOP	Post-Treatment
Perfluorobutanoic acid	12000				ng/L	1		Total PFCA-Dif	Total/NA
Perfluoropentanoic acid	24000				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorohexanoic acid	7500				ng/L	1		Total PFCA-Dif	Total/NA
Perfluoroheptanoic acid	9400				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorooctanoic acid	2500				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorononanoic acid	2500				ng/L	1		Total PFCA-Dif	Total/NA
Total PFCA	58000				ng/L	1		Total PFCA-Dif	Total/NA
Total PFCA	58000		500	0.50	ng/L	1		Total PFCA-Sum	Post-Treatment

Client Sample ID: FT2-EFF 1-1 — Lab Sample ID: 410-60469-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid	17		4.5	1.8	ng/L	1		537 IDA	Pre-Treatment
Perfluorodecanoic acid	5.5		1.8	0.45	ng/L	1		537 IDA	Pre-Treatment
Perfluorododecanoic acid	15		1.8	0.45	ng/L	1		537 IDA	Pre-Treatment
Perfluoroheptanoic acid	3.4		1.8	0.45	ng/L	1		537 IDA	Pre-Treatment
Perfluorohexanoic acid	74		1.8	0.45	ng/L	1		537 IDA	Pre-Treatment
Perfluorooctanoic acid	3.6		1.8	0.45	ng/L	1		537 IDA	Pre-Treatment
Perfluoropentanoic acid	18		1.8	0.45	ng/L	1		537 IDA	Pre-Treatment
Perfluoroundecanoic acid	9.5	I	1.8	0.45	ng/L	1		537 IDA	Pre-Treatment
6:2 Fluorotelomer sulfonic acid - DL	680		45	18	ng/L	10		537 IDA	Pre-Treatment
8:2 Fluorotelomer sulfonic acid - DL	220		27	9.0	ng/L	10		537 IDA	Pre-Treatment
Perfluorodecanoic acid	210	I	10	2.5	ng/L	1		537 TOP	Post-Treatment
Perfluorododecanoic acid	190	I	10	2.5	ng/L	1		537 TOP	Post-Treatment
Perfluoroheptanoic acid	700		10	2.5	ng/L	1		537 TOP	Post-Treatment
Perfluorononanoic acid	200		10	2.5	ng/L	1		537 TOP	Post-Treatment
Perfluorooctanoic acid	160		10	2.5	ng/L	1		537 TOP	Post-Treatment
Perfluorotetradecanoic acid	86		10	2.5	ng/L	1		537 TOP	Post-Treatment

This Detection Summary does not include radiochemical test results.

Client Sample ID: FT2-EFF 1-1 (Continued) — Lab Sample ID: 410-60469-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorotridecanoic acid	110		10	2.5	ng/L	1		537 TOP	Post-Treatment
Perfluoroundecanoic acid	400		10	2.5	ng/L	1		537 TOP	Post-Treatment
Perfluorobutanoic acid - DL	3000		250	100	ng/L	10		537 TOP	Post-Treatment
Perfluorohexanoic acid - DL	1800		100	25	ng/L	10		537 TOP	Post-Treatment
Perfluoropentanoic acid - DL	6500		100	25	ng/L	10		537 TOP	Post-Treatment
Perfluorobutanoic acid	3000				ng/L	1		Total PFCA-Dif	Total/NA
Perfluoropentanoic acid	6500				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorohexanoic acid	1800				ng/L	1		Total PFCA-Dif	Total/NA
Perfluoroheptanoic acid	690				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorooctanoic acid	160				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorononanoic acid	200				ng/L	1		Total PFCA-Dif	Total/NA
Total PFCA	12000				ng/L	1		Total PFCA-Dif	Total/NA
Total PFCA	12000		500	0.50	ng/L	1		Total PFCA-Sum	Post-Treatment

Client Sample ID: FT2-RINSE 3-1 — Lab Sample ID: 410-60469-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid	6.0		4.4	1.8	ng/L	1		537 IDA	Pre-Treatment
Perfluorodecanesulfonic acid	2.8		1.8	0.44	ng/L	1		537 IDA	Pre-Treatment
Perfluorodecanoic acid	23		1.8	0.44	ng/L	1		537 IDA	Pre-Treatment
Perfluorododecanoic acid	15		1.8	0.44	ng/L	1		537 IDA	Pre-Treatment
Perfluoroheptanoic acid	5.2		1.8	0.44	ng/L	1		537 IDA	Pre-Treatment
Perfluorohexanoic acid	49		1.8	0.44	ng/L	1		537 IDA	Pre-Treatment
Perfluorononanoic acid	7.8		1.8	0.44	ng/L	1		537 IDA	Pre-Treatment
Perfluorooctanesulfonic acid	5.4		1.8	0.44	ng/L	1		537 IDA	Pre-Treatment
Perfluorooctanoic acid	32		1.8	0.44	ng/L	1		537 IDA	Pre-Treatment
Perfluoropentanoic acid	4.0		1.8	0.44	ng/L	1		537 IDA	Pre-Treatment
Perfluorotetradecanoic acid	9.3		1.8	0.44	ng/L	1		537 IDA	Pre-Treatment
Perfluorotridecanoic acid	77		1.8	0.44	ng/L	1		537 IDA	Pre-Treatment
Perfluoroundecanoic acid	66		1.8	0.44	ng/L	1		537 IDA	Pre-Treatment
4:2 Fluorotelomer sulfonic acid	2.8		1.8	0.44	ng/L	1		537 IDA	Pre-Treatment
6:2 Fluorotelomer sulfonic acid - DL	3100		440	180	ng/L	100		537 IDA	Pre-Treatment
8:2 Fluorotelomer sulfonic acid - DL	2600		260	88	ng/L	100		537 IDA	Pre-Treatment
Perfluorobutanoic acid	18000		250	100	ng/L	10		537 TOP	Post-Treatment

This Detection Summary does not include radiochemical test results.

Client Sample ID: FT2-RINSE 3-1 (Continued) — Lab Sample ID: 410-60469-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorodecanoic acid	1000		100	25	ng/L	10		537 TOP	Post-Treatment
Perfluorododecanoic acid	820	I	100	25	ng/L	10		537 TOP	Post-Treatment
Perfluorohexanoic acid	17000		100	25	ng/L	10		537 TOP	Post-Treatment
Perfluorononanoic acid	2200		100	25	ng/L	10		537 TOP	Post-Treatment
Perfluorooctanoic acid	4300		100	25	ng/L	10		537 TOP	Post-Treatment
Perfluorotetradecanoic acid	520		100	25	ng/L	10		537 TOP	Post-Treatment
Perfluorotridecanoic acid	490		100	25	ng/L	10		537 TOP	Post-Treatment
Perfluoroundecanoic acid	1300		100	25	ng/L	10		537 TOP	Post-Treatment
Perfluoroheptanoic acid - DL	21000		1000	250	ng/L	100		537 TOP	Post-Treatment
Perfluoropentanoic acid - DL	53000		1000	250	ng/L	100		537 TOP	Post-Treatment
Perfluorobutanoic acid	18000				ng/L	1		Total PFCA-Dif	Total/NA
Perfluoropentanoic acid	53000				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorohexanoic acid	17000				ng/L	1		Total PFCA-Dif	Total/NA
Perfluoroheptanoic acid	21000				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorooctanoic acid	4300				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorononanoic acid	2200				ng/L	1		Total PFCA-Dif	Total/NA
Total PFCA	120000				ng/L	1		Total PFCA-Dif	Total/NA
Total PFCA	120000		500	0.50	ng/L	1		Total PFCA-Sum	Post-Treatment

Client Sample ID: FT2-RINSE 4-1 — Lab Sample ID: 410-60469-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorodecanoic acid	13		1.8	0.44	ng/L	1		537 IDA	Pre-Treatment
Perfluorododecanoic acid	4.4		1.8	0.44	ng/L	1		537 IDA	Pre-Treatment
Perfluoroheptanoic acid	5.4		1.8	0.44	ng/L	1		537 IDA	Pre-Treatment
Perfluorohexanoic acid	25		1.8	0.44	ng/L	1		537 IDA	Pre-Treatment
Perfluorononanoic acid	7.2		1.8	0.44	ng/L	1		537 IDA	Pre-Treatment
Perfluorooctanesulfonic acid	2.7		1.8	0.44	ng/L	1		537 IDA	Pre-Treatment
Perfluorooctanoic acid	35		1.8	0.44	ng/L	1		537 IDA	Pre-Treatment
Perfluoropentanoic acid	2.5		1.8	0.44	ng/L	1		537 IDA	Pre-Treatment
Perfluorotetradecanoic acid	1.9		1.8	0.44	ng/L	1		537 IDA	Pre-Treatment
Perfluorotridecanoic acid	1.9		1.8	0.44	ng/L	1		537 IDA	Pre-Treatment
6:2 Fluorotelomer sulfonic acid - DL	2900		440	180	ng/L	100		537 IDA	Pre-Treatment
8:2 Fluorotelomer sulfonic acid - DL	860		270	89	ng/L	100		537 IDA	Pre-Treatment

This Detection Summary does not include radiochemical test results.

Client Sample ID: FT2-RINSE 4-1 (Continued) — Lab Sample ID: 410-60469-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid	8500		250	100	ng/L	10		537 TOP	Post-Treatment
Perfluorodecanoic acid	790		100	25	ng/L	10		537 TOP	Post-Treatment
Perfluorododecanoic acid	430	I	100	25	ng/L	10		537 TOP	Post-Treatment
Perfluoroheptanoic acid	9500		100	25	ng/L	10		537 TOP	Post-Treatment
Perfluorohexanoic acid	9600		100	25	ng/L	10		537 TOP	Post-Treatment
Perfluorononanoic acid	1400		100	25	ng/L	10		537 TOP	Post-Treatment
Perfluorooctanoic acid	2700		100	25	ng/L	10		537 TOP	Post-Treatment
Perfluorotetradecanoic acid	280		100	25	ng/L	10		537 TOP	Post-Treatment
Perfluorotridecanoic acid	250		100	25	ng/L	10		537 TOP	Post-Treatment
Perfluoroundecanoic acid	710		100	25	ng/L	10		537 TOP	Post-Treatment
Perfluoropentanoic acid - DL	24000		1000	250	ng/L	100		537 TOP	Post-Treatment
Perfluorobutanoic acid	8500				ng/L	1		Total PFCA-Dif	Total/NA
Perfluoropentanoic acid	24000				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorohexanoic acid	9600				ng/L	1		Total PFCA-Dif	Total/NA
Perfluoroheptanoic acid	9500				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorooctanoic acid	2600				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorononanoic acid	1400				ng/L	1		Total PFCA-Dif	Total/NA
Total PFCA	56000				ng/L	1		Total PFCA-Dif	Total/NA
Total PFCA	56000		500	0.50	ng/L	1		Total PFCA-Sum	Post-Treatment

Client Sample ID: FT2-RINSE 4-2 — Lab Sample ID: 410-60469-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorodecanoic acid	10		1.7	0.43	ng/L	1		537 IDA	Pre-Treatment
Perfluorododecanoic acid	3.9		1.7	0.43	ng/L	1		537 IDA	Pre-Treatment
Perfluoroheptanoic acid	6.3		1.7	0.43	ng/L	1		537 IDA	Pre-Treatment
Perfluorohexanoic acid	28		1.7	0.43	ng/L	1		537 IDA	Pre-Treatment
Perfluorononanoic acid	7.8		1.7	0.43	ng/L	1		537 IDA	Pre-Treatment
Perfluorooctanesulfonic acid	2.5		1.7	0.43	ng/L	1		537 IDA	Pre-Treatment
Perfluorooctanoic acid	22		1.7	0.43	ng/L	1		537 IDA	Pre-Treatment
Perfluoropentanoic acid	2.8		1.7	0.43	ng/L	1		537 IDA	Pre-Treatment
Perfluorotetradecanoic acid	1.8		1.7	0.43	ng/L	1		537 IDA	Pre-Treatment
Perfluorotridecanoic acid	1.9		1.7	0.43	ng/L	1		537 IDA	Pre-Treatment
Perfluoroundecanoic acid	3.9		1.7	0.43	ng/L	1		537 IDA	Pre-Treatment

This Detection Summary does not include radiochemical test results.

Client Sample ID: FT2-RINSE 4-2 (Continued) — Lab Sample ID: 410-60469-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
6:2 Fluorotelomer sulfonic acid - DL	2500		430	170	ng/L	100		537 IDA	Pre-Treatment
8:2 Fluorotelomer sulfonic acid - DL	890		260	86	ng/L	100		537 IDA	Pre-Treatment
Perfluorobutanoic acid	7100		250	100	ng/L	10		537 TOP	Post-Treatment
Perfluorodecanoic acid	560		100	25	ng/L	10		537 TOP	Post-Treatment
Perfluorododecanoic acid	370	I	100	25	ng/L	10		537 TOP	Post-Treatment
Perfluoroheptanoic acid	7900		100	25	ng/L	10		537 TOP	Post-Treatment
Perfluorohexanoic acid	7700		100	25	ng/L	10		537 TOP	Post-Treatment
Perfluorononanoic acid	930		100	25	ng/L	10		537 TOP	Post-Treatment
Perfluorooctanoic acid	2200		100	25	ng/L	10		537 TOP	Post-Treatment
Perfluoropentanoic acid	17000		100	25	ng/L	10		537 TOP	Post-Treatment
Perfluorotetradecanoic acid	270		100	25	ng/L	10		537 TOP	Post-Treatment
Perfluorotridecanoic acid	220		100	25	ng/L	10		537 TOP	Post-Treatment
Perfluoroundecanoic acid	640	I	100	25	ng/L	10		537 TOP	Post-Treatment
Perfluorobutanoic acid	7100				ng/L	1		Total PFCA-Dif	Total/NA
Perfluoropentanoic acid	17000				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorohexanoic acid	7700				ng/L	1		Total PFCA-Dif	Total/NA
Perfluoroheptanoic acid	7900				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorooctanoic acid	2200				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorononanoic acid	920				ng/L	1		Total PFCA-Dif	Total/NA
Total PFCA	43000				ng/L	1		Total PFCA-Dif	Total/NA
Total PFCA	43000		500	0.50	ng/L	1		Total PFCA-Sum	Post-Treatment

Client Sample ID: FT12-EFF 2-1 — Lab Sample ID: 410-60469-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid	34		4.6	1.8	ng/L	1		537 IDA	Pre-Treatment
Perfluorododecanoic acid	3.9		1.8	0.46	ng/L	1		537 IDA	Pre-Treatment
Perfluorohexanoic acid	31	F1	1.8	0.46	ng/L	1		537 IDA	Pre-Treatment
Perfluoropentanoic acid	7.5		1.8	0.46	ng/L	1		537 IDA	Pre-Treatment
Perfluorotetradecanoic acid	1.9		1.8	0.46	ng/L	1		537 IDA	Pre-Treatment
8:2 Fluorotelomer sulfonic acid	27	F1	2.7	0.91	ng/L	1		537 IDA	Pre-Treatment
6:2 Fluorotelomer sulfonic acid - DL	320		46	18	ng/L	10		537 IDA	Pre-Treatment
Perfluorobutanoic acid	1700		25	10	ng/L	1		537 TOP	Post-Treatment
Perfluorodecanoic acid	66		10	2.5	ng/L	1		537 TOP	Post-Treatment

This Detection Summary does not include radiochemical test results.

Client Sample ID: FT12-EFF 2-1 (Continued)

Lab Sample ID: 410-60469-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorododecanoic acid	59	I	10	2.5	ng/L	1		537 TOP	Post-Treatment
Perfluoroheptanoic acid	280		10	2.5	ng/L	1		537 TOP	Post-Treatment
Perfluorohexanoic acid	1200		10	2.5	ng/L	1		537 TOP	Post-Treatment
Perfluorononanoic acid	61		10	2.5	ng/L	1		537 TOP	Post-Treatment
Perfluorooctanoic acid	53		10	2.5	ng/L	1		537 TOP	Post-Treatment
Perfluorotetradecanoic acid	25		10	2.5	ng/L	1		537 TOP	Post-Treatment
Perfluorotridecanoic acid	35		10	2.5	ng/L	1		537 TOP	Post-Treatment
Perfluoroundecanoic acid	110		10	2.5	ng/L	1		537 TOP	Post-Treatment
Perfluoropentanoic acid - DL	3500		100	25	ng/L	10		537 TOP	Post-Treatment
Perfluorobutanoic acid	1600				ng/L	1		Total PFCA-Dif	Total/NA
Perfluoropentanoic acid	3500				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorohexanoic acid	1200				ng/L	1		Total PFCA-Dif	Total/NA
Perfluoroheptanoic acid	280				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorooctanoic acid	53				ng/L	1		Total PFCA-Dif	Total/NA
Perfluorononanoic acid	61				ng/L	1		Total PFCA-Dif	Total/NA
Total PFCA	6800				ng/L	1		Total PFCA-Dif	Total/NA
Total PFCA	6800		500	0.50	ng/L	1		Total PFCA-Sum	Post-Treatment

This Detection Summary does not include radiochemical test results.

Client Sample ID: FT2-RINSE 1-1

Lab Sample ID: 410-60469-1

Date Collected: 10/19/21 09:50

Matrix: Water

Date Received: 10/23/21 09:49

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NEtFOSAA	<3000		3000	500	ng/L		10/29/21 18:31	11/05/21 18:26	10
NMeFOSAA	<2000		2000	600	ng/L		10/29/21 18:31	11/05/21 18:26	10
Perfluorobutanesulfonic acid	<2000		2000	500	ng/L		10/29/21 18:31	11/05/21 18:26	10
Perfluorobutanoic acid	**28000**		5000	2000	ng/L		10/29/21 18:31	11/05/21 18:26	10
Perfluorodecanesulfonic acid	<2000		2000	500	ng/L		10/29/21 18:31	11/05/21 18:26	10
Perfluorodecanoic acid	**57000**		2000	500	ng/L		10/29/21 18:31	11/05/21 18:26	10
Perfluorododecanoic acid	<2000		2000	500	ng/L		10/29/21 18:31	11/05/21 18:26	10
Perfluoroheptanesulfonic acid	<2000		2000	500	ng/L		10/29/21 18:31	11/05/21 18:26	10
Perfluoroheptanoic acid	**5300**		2000	500	ng/L		10/29/21 18:31	11/05/21 18:26	10
Perfluorohexanesulfonic acid	<2000		2000	500	ng/L		10/29/21 18:31	11/05/21 18:26	10
Perfluorohexanoic acid	**190000**		2000	500	ng/L		10/29/21 18:31	11/05/21 18:26	10
Perfluorononanesulfonic acid	<2000		2000	500	ng/L		10/29/21 18:31	11/05/21 18:26	10
Perfluorononanoic acid	**2600**		2000	500	ng/L		10/29/21 18:31	11/05/21 18:26	10
Perfluorooctanesulfonamide	<2000		2000	500	ng/L		10/29/21 18:31	11/05/21 18:26	10
Perfluorooctanesulfonic acid	<2000		2000	500	ng/L		10/29/21 18:31	11/05/21 18:26	10
Perfluorooctanoic acid	**130000**		2000	500	ng/L		10/29/21 18:31	11/05/21 18:26	10
Perfluoropentanesulfonic acid	<2000		2000	500	ng/L		10/29/21 18:31	11/05/21 18:26	10
Perfluoropentanoic acid	**11000**		2000	500	ng/L		10/29/21 18:31	11/05/21 18:26	10
Perfluorotetradecanoic acid	<2000		2000	500	ng/L		10/29/21 18:31	11/05/21 18:26	10
Perfluorotridecanoic acid	<2000		2000	500	ng/L		10/29/21 18:31	11/05/21 18:26	10
Perfluoroundecanoic acid	<2000		2000	500	ng/L		10/29/21 18:31	11/05/21 18:26	10
4:2 Fluorotelomer sulfonic acid	**16000**		2000	500	ng/L		10/29/21 18:31	11/05/21 18:26	10

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-4:2 FTS	*388*	**5+*	*20 - 187*	*10/29/21 18:31*	*11/05/21 18:26*	*10*
M2-6:2 FTS	*1908*	**5+*	*29 - 189*	*10/29/21 18:31*	*11/05/21 18:26*	*10*
M2-8:2 FTS	*193*	**5+*	*34 - 182*	*10/29/21 18:31*	*11/05/21 18:26*	*10*
13C2 PFTeDA	*4*	**5-*	*10 - 144*	*10/29/21 18:31*	*11/05/21 18:26*	*10*
13C3 PFBS	*109*		*19 - 178*	*10/29/21 18:31*	*11/05/21 18:26*	*10*
13C4 PFBA	*32*	**5-*	*41 - 132*	*10/29/21 18:31*	*11/05/21 18:26*	*10*
13C4 PFHpA	*244*	**5+*	*30 - 144*	*10/29/21 18:31*	*11/05/21 18:26*	*10*
13C5 PFPeA	*88*		*33 - 155*	*10/29/21 18:31*	*11/05/21 18:26*	*10*
13C8 PFOA	*62*		*49 - 127*	*10/29/21 18:31*	*11/05/21 18:26*	*10*
13C8 PFOS	*82*		*49 - 126*	*10/29/21 18:31*	*11/05/21 18:26*	*10*
d3-NMeFOSAA	*17*	**5-*	*32 - 151*	*10/29/21 18:31*	*11/05/21 18:26*	*10*
d5-NEtFOSAA	*39*		*37 - 164*	*10/29/21 18:31*	*11/05/21 18:26*	*10*
13C3 PFHxS	*292*	**5+*	*32 - 145*	*10/29/21 18:31*	*11/05/21 18:26*	*10*
13C5 PFHxA	*239*	**5+*	*31 - 142*	*10/29/21 18:31*	*11/05/21 18:26*	*10*
13C6 PFDA	*27*	**5-*	*47 - 128*	*10/29/21 18:31*	*11/05/21 18:26*	*10*
13C7 PFUnA	*31*	**5-*	*40 - 135*	*10/29/21 18:31*	*11/05/21 18:26*	*10*
13C8 FOSA	*33*		*10 - 143*	*10/29/21 18:31*	*11/05/21 18:26*	*10*
13C2-PFDoDA	*10*	**5-*	*28 - 136*	*10/29/21 18:31*	*11/05/21 18:26*	*10*
13C9 PFNA	*203*	**5+*	*47 - 136*	*10/29/21 18:31*	*11/05/21 18:26*	*10*

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
6:2 Fluorotelomer sulfonic acid	**1000000**		50000	20000	ng/L		10/29/21 18:31	11/15/21 07:46	100
8:2 Fluorotelomer sulfonic acid	**570000**		30000	10000	ng/L		10/29/21 18:31	11/15/21 07:46	100

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-6:2 FTS	*1460*	**5+*	*29 - 189*	*10/29/21 18:31*	*11/15/21 07:46*	*100*

Client Sample ID: FT2-RINSE 1-1

Date Collected: 10/19/21 09:50
Date Received: 10/23/21 09:49

Lab Sample ID: 410-60469-1

Matrix: Water

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment - DL (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
M2-8:2 FTS	360	*5+	34 - 182	10/29/21 18:31	11/15/21 07:46	100

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4:2 Fluorotelomer sulfonic acid	<100000		100000	25000	ng/L		11/08/21 15:54	11/09/21 11:00	100
6:2 Fluorotelomer sulfonic acid	<250000		250000	100000	ng/L		11/08/21 15:54	11/09/21 11:00	100
8:2 Fluorotelomer sulfonic acid	<150000		150000	50000	ng/L		11/08/21 15:54	11/09/21 11:00	100
NEtFOSAA	<150000		150000	25000	ng/L		11/08/21 15:54	11/09/21 11:00	100
NMeFOSAA	<100000		100000	30000	ng/L		11/08/21 15:54	11/09/21 11:00	100
Perfluorobutanesulfonic acid	<100000		100000	25000	ng/L		11/08/21 15:54	11/09/21 11:00	100
Perfluorobutanoic acid	**38000000**	**E**	250000	100000	ng/L		11/08/21 15:54	11/09/21 11:00	100
Perfluorodecanesulfonic acid	<100000		100000	25000	ng/L		11/08/21 15:54	11/09/21 11:00	100
Perfluorodecanoic acid	**9200000**		100000	25000	ng/L		11/08/21 15:54	11/09/21 11:00	100
Perfluorododecanoic acid	**3800000**	**I**	100000	25000	ng/L		11/08/21 15:54	11/09/21 11:00	100
Perfluoroheptanesulfonic acid	<100000		100000	25000	ng/L		11/08/21 15:54	11/09/21 11:00	100
Perfluoroheptanoic acid	**26000000**	**E**	100000	25000	ng/L		11/08/21 15:54	11/09/21 11:00	100
Perfluorohexanesulfonic acid	<100000		100000	25000	ng/L		11/08/21 15:54	11/09/21 11:00	100
Perfluorohexanoic acid	**44000000**	**E I**	100000	25000	ng/L		11/08/21 15:54	11/09/21 11:00	100
Perfluorononanesulfonic acid	<100000		100000	25000	ng/L		11/08/21 15:54	11/09/21 11:00	100
Perfluorononanoic acid	**15000000**		100000	25000	ng/L		11/08/21 15:54	11/09/21 11:00	100
Perfluorooctanesulfonamide	<100000		100000	25000	ng/L		11/08/21 15:54	11/09/21 11:00	100
Perfluorooctanesulfonic acid	<100000		100000	25000	ng/L		11/08/21 15:54	11/09/21 11:00	100
Perfluorooctanoic acid	**19000000**		100000	25000	ng/L		11/08/21 15:54	11/09/21 11:00	100
Perfluoropentanesulfonic acid	**120000**		100000	25000	ng/L		11/08/21 15:54	11/09/21 11:00	100
Perfluoropentanoic acid	**72000000**	**E**	100000	25000	ng/L		11/08/21 15:54	11/09/21 11:00	100
Perfluorotetradecanoic acid	**2100000**		100000	25000	ng/L		11/08/21 15:54	11/09/21 11:00	100
Perfluorotridecanoic acid	**1400000**		100000	25000	ng/L		11/08/21 15:54	11/09/21 11:00	100
Perfluoroundecanoic acid	**5100000**		100000	25000	ng/L		11/08/21 15:54	11/09/21 11:00	100

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
M2-6:2 FTS	110		55 - 167	11/08/21 15:54	11/09/21 11:00	100
M2-8:2 FTS	93		61 - 160	11/08/21 15:54	11/09/21 11:00	100
13C2-PFDoDA	152	*5+	47 - 118	11/08/21 15:54	11/09/21 11:00	100
13C2 PFTeDA	134	*5+	32 - 126	11/08/21 15:54	11/09/21 11:00	100
13C3 PFBS	193	*5+	18 - 177	11/08/21 15:54	11/09/21 11:00	100
13C3 PFHxS	80		55 - 115	11/08/21 15:54	11/09/21 11:00	100
13C4 PFBA	154	*5+	52 - 126	11/08/21 15:54	11/09/21 11:00	100
13C4 PFHpA	109		55 - 113	11/08/21 15:54	11/09/21 11:00	100
13C5 PFHxA	79		54 - 115	11/08/21 15:54	11/09/21 11:00	100
13C5 PFPeA	94		17 - 184	11/08/21 15:54	11/09/21 11:00	100
13C6 PFDA	131	*5+	56 - 114	11/08/21 15:54	11/09/21 11:00	100
13C7 PFUnA	136	*5+	50 - 120	11/08/21 15:54	11/09/21 11:00	100
13C8 PFOA	107		56 - 117	11/08/21 15:54	11/09/21 11:00	100
13C8 PFOS	118	*5+	56 - 112	11/08/21 15:54	11/09/21 11:00	100
13C8 FOSA	140	*5+	10 - 126	11/08/21 15:54	11/09/21 11:00	100
13C9 PFNA	116		54 - 122	11/08/21 15:54	11/09/21 11:00	100
d5-NEtFOSAA	190	*5+	65 - 134	11/08/21 15:54	11/09/21 11:00	100

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	263	S1+	40 - 173	11/08/21 15:54	11/09/21 11:00	100
13C2 PFUnA	153	S1+	49 - 132	11/08/21 15:54	11/09/21 11:00	100

Client Sample ID: FT2-RINSE 1-1

Lab Sample ID: 410-60469-1

Date Collected: 10/19/21 09:50
Matrix: Water
Date Received: 10/23/21 09:49

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFOA	*112*		*10 - 163*	*11/08/21 15:54*	*11/09/21 11:00*	*100*

Method: Total PFCA-Dif - Total PFCA (Treatment Difference)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid	**38000000**				ng/L			11/15/21 12:55	1
Perfluoropentanoic acid	**72000000**				ng/L			11/15/21 12:55	1
Perfluorohexanoic acid	**44000000**				ng/L			11/15/21 12:55	1
Perfluoroheptanoic acid	**26000000**				ng/L			11/15/21 12:55	1
Perfluorooctanoic acid	**19000000**				ng/L			11/15/21 12:55	1
Perfluorononanoic acid	**15000000**				ng/L			11/15/21 12:55	1
Total PFCA	**210000000**				ng/L			11/15/21 12:55	1

Method: Total PFCA-Sum - Total PFCA (Summary) - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total PFCA	**370000**		500	0.50	ng/L			11/15/21 12:54	1

Method: Total PFCA-Sum - Total PFCA (Summary) - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total PFCA	**210000000**		500	0.50	ng/L			11/15/21 12:54	1

Client Sample ID: HOSE-PRE-1

Lab Sample ID: 410-60469-2

Date Collected: 10/19/21 13:30
Matrix: Water
Date Received: 10/23/21 09:49

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NEtFOSAA	<2.6		2.6	0.44	ng/L		10/29/21 18:31	11/03/21 03:45	1
NMeFOSAA	<1.8		1.8	0.53	ng/L		10/29/21 18:31	11/03/21 03:45	1
Perfluorobutanesulfonic acid	<1.8		1.8	0.44	ng/L		10/29/21 18:31	11/03/21 03:45	1
Perfluorobutanoic acid	**4.5**		4.4	1.8	ng/L		10/29/21 18:31	11/03/21 03:45	1
Perfluorodecanesulfonic acid	<1.8		1.8	0.44	ng/L		10/29/21 18:31	11/03/21 03:45	1
Perfluorodecanoic acid	**4.4**		1.8	0.44	ng/L		10/29/21 18:31	11/03/21 03:45	1
Perfluorododecanoic acid	<1.8		1.8	0.44	ng/L		10/29/21 18:31	11/03/21 03:45	1
Perfluoroheptanesulfonic acid	<1.8		1.8	0.44	ng/L		10/29/21 18:31	11/03/21 03:45	1
Perfluoroheptanoic acid	**20**		1.8	0.44	ng/L		10/29/21 18:31	11/03/21 03:45	1
Perfluorohexanesulfonic acid	**2.5**		1.8	0.44	ng/L		10/29/21 18:31	11/03/21 03:45	1
Perfluorohexanoic acid	**52**		1.8	0.44	ng/L		10/29/21 18:31	11/03/21 03:45	1
Perfluorononanesulfonic acid	<1.8		1.8	0.44	ng/L		10/29/21 18:31	11/03/21 03:45	1
Perfluorononanoic acid	**66**		1.8	0.44	ng/L		10/29/21 18:31	11/03/21 03:45	1
Perfluorooctanesulfonamide	<1.8		1.8	0.44	ng/L		10/29/21 18:31	11/03/21 03:45	1
Perfluorooctanesulfonic acid	**11**		1.8	0.44	ng/L		10/29/21 18:31	11/03/21 03:45	1
Perfluorooctanoic acid	**13**		1.8	0.44	ng/L		10/29/21 18:31	11/03/21 03:45	1
Perfluoropentanesulfonic acid	<1.8		1.8	0.44	ng/L		10/29/21 18:31	11/03/21 03:45	1
Perfluoropentanoic acid	**6.4**		1.8	0.44	ng/L		10/29/21 18:31	11/03/21 03:45	1
Perfluorotetradecanoic acid	<1.8		1.8	0.44	ng/L		10/29/21 18:31	11/03/21 03:45	1
Perfluorotridecanoic acid	**3.8**		1.8	0.44	ng/L		10/29/21 18:31	11/03/21 03:45	1
Perfluoroundecanoic acid	**30**		1.8	0.44	ng/L		10/29/21 18:31	11/03/21 03:45	1
4:2 Fluorotelomer sulfonic acid	<1.8		1.8	0.44	ng/L		10/29/21 18:31	11/03/21 03:45	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-4:2 FTS	*118*		*20 - 187*	*10/29/21 18:31*	*11/03/21 03:45*	*1*

Client Sample ID: HOSE-PRE-1

Date Collected: 10/19/21 13:30
Date Received: 10/23/21 09:49

Lab Sample ID: 410-60469-2

Matrix: Water

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
M2-6:2 FTS	114		29 - 189	10/29/21 18:31	11/03/21 03:45	1
M2-8:2 FTS	114		34 - 182	10/29/21 18:31	11/03/21 03:45	1
13C2 PFTeDA	49		10 - 144	10/29/21 18:31	11/03/21 03:45	1
13C3 PFBS	152		19 - 178	10/29/21 18:31	11/03/21 03:45	1
13C4 PFBA	99		41 - 132	10/29/21 18:31	11/03/21 03:45	1
13C4 PFHpA	137		30 - 144	10/29/21 18:31	11/03/21 03:45	1
13C5 PFPeA	126		33 - 155	10/29/21 18:31	11/03/21 03:45	1
13C8 PFOA	93		49 - 127	10/29/21 18:31	11/03/21 03:45	1
13C8 PFOS	96		49 - 126	10/29/21 18:31	11/03/21 03:45	1
d3-NMeFOSAA	89		32 - 151	10/29/21 18:31	11/03/21 03:45	1
d5-NEtFOSAA	112		37 - 164	10/29/21 18:31	11/03/21 03:45	1
13C3 PFHxS	105		32 - 145	10/29/21 18:31	11/03/21 03:45	1
13C5 PFHxA	93		31 - 142	10/29/21 18:31	11/03/21 03:45	1
13C6 PFDA	97		47 - 128	10/29/21 18:31	11/03/21 03:45	1
13C7 PFUnA	92		40 - 135	10/29/21 18:31	11/03/21 03:45	1
13C8 FOSA	78		10 - 143	10/29/21 18:31	11/03/21 03:45	1
13C2-PFDoDA	73		28 - 136	10/29/21 18:31	11/03/21 03:45	1
13C9 PFNA	113		47 - 136	10/29/21 18:31	11/03/21 03:45	1

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
6:2 Fluorotelomer sulfonic acid	**500**		44	18	ng/L		10/29/21 18:31	11/05/21 18:47	10
8:2 Fluorotelomer sulfonic acid	**96**		26	8.8	ng/L		10/29/21 18:31	11/05/21 18:47	10

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
M2-6:2 FTS	142		29 - 189	10/29/21 18:31	11/05/21 18:47	10
M2-8:2 FTS	158		34 - 182	10/29/21 18:31	11/05/21 18:47	10

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4:2 Fluorotelomer sulfonic acid	<10		10	2.5	ng/L		11/08/21 15:54	11/09/21 11:10	1
6:2 Fluorotelomer sulfonic acid	<25		25	10	ng/L		11/08/21 15:54	11/09/21 11:10	1
8:2 Fluorotelomer sulfonic acid	<15		15	5.0	ng/L		11/08/21 15:54	11/09/21 11:10	1
NEtFOSAA	<15		15	2.5	ng/L		11/08/21 15:54	11/09/21 11:10	1
NMeFOSAA	<10		10	3.0	ng/L		11/08/21 15:54	11/09/21 11:10	1
Perfluorobutanesulfonic acid	<10		10	2.5	ng/L		11/08/21 15:54	11/09/21 11:10	1
Perfluorodecanesulfonic acid	<10		10	2.5	ng/L		11/08/21 15:54	11/09/21 11:10	1
Perfluorodecanoic acid	**75**		10	2.5	ng/L		11/08/21 15:54	11/09/21 11:10	1
Perfluorododecanoic acid	**18**	I	10	2.5	ng/L		11/08/21 15:54	11/09/21 11:10	1
Perfluoroheptanesulfonic acid	<10		10	2.5	ng/L		11/08/21 15:54	11/09/21 11:10	1
Perfluorohexanesulfonic acid	<10		10	2.5	ng/L		11/08/21 15:54	11/09/21 11:10	1
Perfluorohexanoic acid	**1600**		10	2.5	ng/L		11/08/21 15:54	11/09/21 11:10	1
Perfluorononanesulfonic acid	<10		10	2.5	ng/L		11/08/21 15:54	11/09/21 11:10	1
Perfluorononanoic acid	**400**		10	2.5	ng/L		11/08/21 15:54	11/09/21 11:10	1
Perfluorooctanesulfonamide	<10		10	2.5	ng/L		11/08/21 15:54	11/09/21 11:10	1
Perfluorooctanesulfonic acid	**22**		10	2.5	ng/L		11/08/21 15:54	11/09/21 11:10	1
Perfluorooctanoic acid	**380**		10	2.5	ng/L		11/08/21 15:54	11/09/21 11:10	1
Perfluoropentanesulfonic acid	<10		10	2.5	ng/L		11/08/21 15:54	11/09/21 11:10	1
Perfluorotetradecanoic acid	<10		10	2.5	ng/L		11/08/21 15:54	11/09/21 11:10	1
Perfluorotridecanoic acid	**12**		10	2.5	ng/L		11/08/21 15:54	11/09/21 11:10	1
Perfluoroundecanoic acid	**88**	I	10	2.5	ng/L		11/08/21 15:54	11/09/21 11:10	1

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-60469-1

Client Sample ID: HOSE-PRE-1

Date Collected: 10/19/21 13:30
Date Received: 10/23/21 09:49

Lab Sample ID: 410-60469-2

Matrix: Water

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
M2-6:2 FTS	98		55 - 167	11/08/21 15:54	11/09/21 11:10	1
M2-8:2 FTS	106		61 - 160	11/08/21 15:54	11/09/21 11:10	1
13C2-PFDoDA	88		47 - 118	11/08/21 15:54	11/09/21 11:10	1
13C2 PFTeDA	85		32 - 126	11/08/21 15:54	11/09/21 11:10	1
13C3 PFBS	109		18 - 177	11/08/21 15:54	11/09/21 11:10	1
13C3 PFHxS	79		55 - 115	11/08/21 15:54	11/09/21 11:10	1
13C4 PFBA	98		52 - 126	11/08/21 15:54	11/09/21 11:10	1
13C4 PFHpA	99		55 - 113	11/08/21 15:54	11/09/21 11:10	1
13C5 PFHxA	84		54 - 115	11/08/21 15:54	11/09/21 11:10	1
13C5 PFPeA	77		17 - 184	11/08/21 15:54	11/09/21 11:10	1
13C6 PFDA	99		56 - 114	11/08/21 15:54	11/09/21 11:10	1
13C7 PFUnA	94		50 - 120	11/08/21 15:54	11/09/21 11:10	1
13C8 PFOA	95		56 - 117	11/08/21 15:54	11/09/21 11:10	1
13C8 PFOS	96		56 - 112	11/08/21 15:54	11/09/21 11:10	1
13C8 FOSA	87		10 - 126	11/08/21 15:54	11/09/21 11:10	1
13C9 PFNA	110		54 - 122	11/08/21 15:54	11/09/21 11:10	1
d5-NEtFOSAA	90		65 - 134	11/08/21 15:54	11/09/21 11:10	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	67		40 - 173	11/08/21 15:54	11/09/21 11:10	1
13C2 PFUnA	81		49 - 132	11/08/21 15:54	11/09/21 11:10	1
13C4 PFOA	80		10 - 163	11/08/21 15:54	11/09/21 11:10	1

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid	2100		250	100	ng/L		11/08/21 15:54	11/09/21 11:21	10
Perfluoroheptanoic acid	2000		100	25	ng/L		11/08/21 15:54	11/09/21 11:21	10
Perfluoropentanoic acid	5700		100	25	ng/L		11/08/21 15:54	11/09/21 11:21	10

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	102		52 - 126	11/08/21 15:54	11/09/21 11:21	10
13C4 PFHpA	95		55 - 113	11/08/21 15:54	11/09/21 11:21	10
13C5 PFPeA	87		17 - 184	11/08/21 15:54	11/09/21 11:21	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	64		40 - 173	11/08/21 15:54	11/09/21 11:21	10
13C2 PFUnA	92		49 - 132	11/08/21 15:54	11/09/21 11:21	10
13C4 PFOA	82		10 - 163	11/08/21 15:54	11/09/21 11:21	10

Method: Total PFCA-Dif - Total PFCA (Treatment Difference)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid	2100				ng/L			11/11/21 10:56	1
Perfluoropentanoic acid	5700				ng/L			11/11/21 10:56	1
Perfluorohexanoic acid	1500				ng/L			11/11/21 10:56	1
Perfluoroheptanoic acid	2000				ng/L			11/11/21 10:56	1
Perfluorooctanoic acid	360				ng/L			11/11/21 10:56	1
Perfluorononanoic acid	330				ng/L			11/11/21 10:56	1
Total PFCA	12000				ng/L			11/11/21 10:56	1

Method: Total PFCA-Sum - Total PFCA (Summary) - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total PFCA	<500		500	0.50	ng/L			11/11/21 10:54	1

Client Sample Results

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-60469-1

Client Sample ID: HOSE-PRE-1

Lab Sample ID: 410-60469-2
Date Collected: 10/19/21 13:30
Matrix: Water
Date Received: 10/23/21 09:49

Method: Total PFCA-Sum - Total PFCA (Summary) - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total PFCA	**12000**		500	0.50	ng/L			11/11/21 10:54	1

Client Sample ID: HOSE-PRE-12 HRS-1

Lab Sample ID: 410-60469-3
Date Collected: 10/20/21 07:20
Matrix: Water
Date Received: 10/23/21 09:49

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NEtFOSAA	<2.7		2.7	0.46	ng/L		10/29/21 18:31	11/03/21 03:55	1
NMeFOSAA	<1.8		1.8	0.55	ng/L		10/29/21 18:31	11/03/21 03:55	1
Perfluorobutanesulfonic acid	<1.8		1.8	0.46	ng/L		10/29/21 18:31	11/03/21 03:55	1
Perfluorobutanoic acid	<4.6		4.6	1.8	ng/L		10/29/21 18:31	11/03/21 03:55	1
Perfluorodecanesulfonic acid	<1.8		1.8	0.46	ng/L		10/29/21 18:31	11/03/21 03:55	1
Perfluorodecanoic acid	**9.5**		1.8	0.46	ng/L		10/29/21 18:31	11/03/21 03:55	1
Perfluorododecanoic acid	**1.9**		1.8	0.46	ng/L		10/29/21 18:31	11/03/21 03:55	1
Perfluoroheptanesulfonic acid	<1.8		1.8	0.46	ng/L		10/29/21 18:31	11/03/21 03:55	1
Perfluoroheptanoic acid	**17**		1.8	0.46	ng/L		10/29/21 18:31	11/03/21 03:55	1
Perfluorohexanesulfonic acid	**2.8**		1.8	0.46	ng/L		10/29/21 18:31	11/03/21 03:55	1
Perfluorohexanoic acid	**44**		1.8	0.46	ng/L		10/29/21 18:31	11/03/21 03:55	1
Perfluorononanesulfonic acid	<1.8		1.8	0.46	ng/L		10/29/21 18:31	11/03/21 03:55	1
Perfluorononanoic acid	**180**		1.8	0.46	ng/L		10/29/21 18:31	11/03/21 03:55	1
Perfluorooctanesulfonamide	**2.4**		1.8	0.46	ng/L		10/29/21 18:31	11/03/21 03:55	1
Perfluorooctanesulfonic acid	**12**		1.8	0.46	ng/L		10/29/21 18:31	11/03/21 03:55	1
Perfluorooctanoic acid	**19**		1.8	0.46	ng/L		10/29/21 18:31	11/03/21 03:55	1
Perfluoropentanesulfonic acid	<1.8		1.8	0.46	ng/L		10/29/21 18:31	11/03/21 03:55	1
Perfluoropentanoic acid	**4.6**		1.8	0.46	ng/L		10/29/21 18:31	11/03/21 03:55	1
Perfluorotetradecanoic acid	<1.8		1.8	0.46	ng/L		10/29/21 18:31	11/03/21 03:55	1
Perfluorotridecanoic acid	**2.9**		1.8	0.46	ng/L		10/29/21 18:31	11/03/21 03:55	1
Perfluoroundecanoic acid	**43**		1.8	0.46	ng/L		10/29/21 18:31	11/03/21 03:55	1
4:2 Fluorotelomer sulfonic acid	<1.8		1.8	0.46	ng/L		10/29/21 18:31	11/03/21 03:55	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-4:2 FTS	*129*		*20 - 187*	*10/29/21 18:31*	*11/03/21 03:55*	*1*
M2-6:2 FTS	*101*		*29 - 189*	*10/29/21 18:31*	*11/03/21 03:55*	*1*
M2-8:2 FTS	*103*		*34 - 182*	*10/29/21 18:31*	*11/03/21 03:55*	*1*
13C2 PFTeDA	*87*		*10 - 144*	*10/29/21 18:31*	*11/03/21 03:55*	*1*
13C3 PFBS	*130*		*19 - 178*	*10/29/21 18:31*	*11/03/21 03:55*	*1*
13C4 PFBA	*97*		*41 - 132*	*10/29/21 18:31*	*11/03/21 03:55*	*1*
13C4 PFHpA	*155*	**5+*	*30 - 144*	*10/29/21 18:31*	*11/03/21 03:55*	*1*
13C5 PFPeA	*112*		*33 - 155*	*10/29/21 18:31*	*11/03/21 03:55*	*1*
13C8 PFOA	*87*		*49 - 127*	*10/29/21 18:31*	*11/03/21 03:55*	*1*
13C8 PFOS	*98*		*49 - 126*	*10/29/21 18:31*	*11/03/21 03:55*	*1*
d3-NMeFOSAA	*95*		*32 - 151*	*10/29/21 18:31*	*11/03/21 03:55*	*1*
d5-NEtFOSAA	*119*		*37 - 164*	*10/29/21 18:31*	*11/03/21 03:55*	*1*
13C3 PFHxS	*106*		*32 - 145*	*10/29/21 18:31*	*11/03/21 03:55*	*1*
13C5 PFHxA	*99*		*31 - 142*	*10/29/21 18:31*	*11/03/21 03:55*	*1*
13C6 PFDA	*94*		*47 - 128*	*10/29/21 18:31*	*11/03/21 03:55*	*1*
13C7 PFUnA	*104*		*40 - 135*	*10/29/21 18:31*	*11/03/21 03:55*	*1*
13C8 FOSA	*83*		*10 - 143*	*10/29/21 18:31*	*11/03/21 03:55*	*1*
13C2-PFDoDA	*95*		*28 - 136*	*10/29/21 18:31*	*11/03/21 03:55*	*1*
13C9 PFNA	*128*		*47 - 136*	*10/29/21 18:31*	*11/03/21 03:55*	*1*

Client Sample Results

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-60469-1

Client Sample ID: HOSE-PRE-12 HRS-1

Date Collected: 10/20/21 07:20
Date Received: 10/23/21 09:49

Lab Sample ID: 410-60469-3

Matrix: Water

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
8:2 Fluorotelomer sulfonic acid	**290**		27	9.2	ng/L		10/29/21 18:31	11/05/21 19:08	10

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-8:2 FTS	*146*		*34 - 182*	*10/29/21 18:31*	*11/05/21 19:08*	*10*

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment - DL2

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
6:2 Fluorotelomer sulfonic acid	**800**		460	180	ng/L		10/29/21 18:31	11/10/21 12:33	100

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-6:2 FTS	*146*		*29 - 189*	*10/29/21 18:31*	*11/10/21 12:33*	*100*

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4:2 Fluorotelomer sulfonic acid	<10		10	2.5	ng/L		11/08/21 15:54	11/09/21 11:32	1
6:2 Fluorotelomer sulfonic acid	<25		25	10	ng/L		11/08/21 15:54	11/09/21 11:32	1
8:2 Fluorotelomer sulfonic acid	<15		15	5.0	ng/L		11/08/21 15:54	11/09/21 11:32	1
NEtFOSAA	<15		15	2.5	ng/L		11/08/21 15:54	11/09/21 11:32	1
NMeFOSAA	<10		10	3.0	ng/L		11/08/21 15:54	11/09/21 11:32	1
Perfluorobutanesulfonic acid	<10		10	2.5	ng/L		11/08/21 15:54	11/09/21 11:32	1
Perfluorobutanoic acid	**1500**		25	10	ng/L		11/08/21 15:54	11/09/21 11:32	1
Perfluorodecanesulfonic acid	<10		10	2.5	ng/L		11/08/21 15:54	11/09/21 11:32	1
Perfluorodecanoic acid	**77**		10	2.5	ng/L		11/08/21 15:54	11/09/21 11:32	1
Perfluorododecanoic acid	**12**	**I**	10	2.5	ng/L		11/08/21 15:54	11/09/21 11:32	1
Perfluoroheptanesulfonic acid	<10		10	2.5	ng/L		11/08/21 15:54	11/09/21 11:32	1
Perfluorohexanesulfonic acid	<10		10	2.5	ng/L		11/08/21 15:54	11/09/21 11:32	1
Perfluorohexanoic acid	**1900**		10	2.5	ng/L		11/08/21 15:54	11/09/21 11:32	1
Perfluorononanesulfonic acid	<10		10	2.5	ng/L		11/08/21 15:54	11/09/21 11:32	1
Perfluorononanoic acid	**450**		10	2.5	ng/L		11/08/21 15:54	11/09/21 11:32	1
Perfluorooctanesulfonamide	<10		10	2.5	ng/L		11/08/21 15:54	11/09/21 11:32	1
Perfluorooctanesulfonic acid	<10		10	2.5	ng/L		11/08/21 15:54	11/09/21 11:32	1
Perfluorooctanoic acid	**700**		10	2.5	ng/L		11/08/21 15:54	11/09/21 11:32	1
Perfluoropentanesulfonic acid	<10		10	2.5	ng/L		11/08/21 15:54	11/09/21 11:32	1
Perfluorotetradecanoic acid	<10		10	2.5	ng/L		11/08/21 15:54	11/09/21 11:32	1
Perfluorotridecanoic acid	<10		10	2.5	ng/L		11/08/21 15:54	11/09/21 11:32	1
Perfluoroundecanoic acid	**51**		10	2.5	ng/L		11/08/21 15:54	11/09/21 11:32	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFHpA	*90*		*55 - 113*	*11/08/21 15:54*	*11/09/21 11:32*	*1*
13C5 PFPeA	*82*		*17 - 184*	*11/08/21 15:54*	*11/09/21 11:32*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*63*		*40 - 173*	*11/08/21 15:54*	*11/09/21 11:32*	*1*
13C2 PFUnA	*71*		*49 - 132*	*11/08/21 15:54*	*11/09/21 11:32*	*1*
13C4 PFOA	*69*		*10 - 163*	*11/08/21 15:54*	*11/09/21 11:32*	*1*

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoroheptanoic acid	**3200**		100	25	ng/L		11/08/21 15:54	11/09/21 11:42	10
Perfluoropentanoic acid	**3600**		100	25	ng/L		11/08/21 15:54	11/09/21 11:42	10

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-6:2 FTS	*97*		*55 - 167*	*11/08/21 15:54*	*11/09/21 11:42*	*10*

Client Sample ID: HOSE-PRE-12 HRS-1

Lab Sample ID: 410-60469-3

Date Collected: 10/20/21 07:20

Matrix: Water

Date Received: 10/23/21 09:49

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment - DL (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
M2-8:2 FTS	121		61 - 160	11/08/21 15:54	11/09/21 11:42	10
13C2-PFDoDA	90		47 - 118	11/08/21 15:54	11/09/21 11:42	10
13C2 PFTeDA	89		32 - 126	11/08/21 15:54	11/09/21 11:42	10
13C3 PFBS	88		18 - 177	11/08/21 15:54	11/09/21 11:42	10
13C3 PFHxS	86		55 - 115	11/08/21 15:54	11/09/21 11:42	10
13C4 PFBA	98		52 - 126	11/08/21 15:54	11/09/21 11:42	10
13C4 PFHpA	86		55 - 113	11/08/21 15:54	11/09/21 11:42	10
13C5 PFHxA	89		54 - 115	11/08/21 15:54	11/09/21 11:42	10
13C5 PFPeA	89		17 - 184	11/08/21 15:54	11/09/21 11:42	10
13C6 PFDA	99		56 - 114	11/08/21 15:54	11/09/21 11:42	10
13C7 PFUnA	107		50 - 120	11/08/21 15:54	11/09/21 11:42	10
13C8 PFOA	93		56 - 117	11/08/21 15:54	11/09/21 11:42	10
13C8 PFOS	95		56 - 112	11/08/21 15:54	11/09/21 11:42	10
13C8 FOSA	89		10 - 126	11/08/21 15:54	11/09/21 11:42	10
13C9 PFNA	112		54 - 122	11/08/21 15:54	11/09/21 11:42	10
d5-NEtFOSAA	112		65 - 134	11/08/21 15:54	11/09/21 11:42	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	58		40 - 173	11/08/21 15:54	11/09/21 11:42	10
13C2 PFUnA	70		49 - 132	11/08/21 15:54	11/09/21 11:42	10
13C4 PFOA	71		10 - 163	11/08/21 15:54	11/09/21 11:42	10

Method: Total PFCA-Dif - Total PFCA (Treatment Difference)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid	**1500**				ng/L			11/11/21 15:01	1
Perfluoropentanoic acid	**3600**				ng/L			11/11/21 15:01	1
Perfluorohexanoic acid	**1900**				ng/L			11/11/21 15:01	1
Perfluoroheptanoic acid	**3200**				ng/L			11/11/21 15:01	1
Perfluorooctanoic acid	**680**				ng/L			11/11/21 15:01	1
Perfluorononanoic acid	**270**				ng/L			11/11/21 15:01	1
Total PFCA	**11000**				ng/L			11/11/21 15:01	1

Method: Total PFCA-Sum - Total PFCA (Summary) - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total PFCA	<500		500	0.50	ng/L			11/11/21 14:59	1

Method: Total PFCA-Sum - Total PFCA (Summary) - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total PFCA	**11000**		500	0.50	ng/L			11/11/21 14:59	1

Client Sample ID: FT2-RINSE 2-1

Lab Sample ID: 410-60469-4

Date Collected: 10/20/21 15:15

Matrix: Water

Date Received: 10/23/21 09:49

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NEtFOSAA	<2.7		2.7	0.45	ng/L		10/29/21 18:31	11/03/21 04:06	1
NMeFOSAA	<1.8		1.8	0.54	ng/L		10/29/21 18:31	11/03/21 04:06	1
Perfluorobutanesulfonic acid	<1.8		1.8	0.45	ng/L		10/29/21 18:31	11/03/21 04:06	1
Perfluorobutanoic acid	**40**		4.5	1.8	ng/L		10/29/21 18:31	11/03/21 04:06	1
Perfluorodecanesulfonic acid	**63**	I	1.8	0.45	ng/L		10/29/21 18:31	11/03/21 04:06	1

Client Sample ID: FT2-RINSE 2-1

Date Collected: 10/20/21 15:15
Date Received: 10/23/21 09:49

Lab Sample ID: 410-60469-4

Matrix: Water

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorododecanoic acid	**73**		1.8	0.45	ng/L		10/29/21 18:31	11/03/21 04:06	1
Perfluoroheptanesulfonic acid	<1.8		1.8	0.45	ng/L		10/29/21 18:31	11/03/21 04:06	1
Perfluoroheptanoic acid	**13**		1.8	0.45	ng/L		10/29/21 18:31	11/03/21 04:06	1
Perfluorohexanesulfonic acid	**2.8**		1.8	0.45	ng/L		10/29/21 18:31	11/03/21 04:06	1
Perfluorononanesulfonic acid	<1.8		1.8	0.45	ng/L		10/29/21 18:31	11/03/21 04:06	1
Perfluorononanoic acid	**50**		1.8	0.45	ng/L		10/29/21 18:31	11/03/21 04:06	1
Perfluorooctanesulfonamide	<1.8		1.8	0.45	ng/L		10/29/21 18:31	11/03/21 04:06	1
Perfluorooctanesulfonic acid	**26**		1.8	0.45	ng/L		10/29/21 18:31	11/03/21 04:06	1
Perfluoropentanesulfonic acid	<1.8		1.8	0.45	ng/L		10/29/21 18:31	11/03/21 04:06	1
Perfluoropentanoic acid	**21**		1.8	0.45	ng/L		10/29/21 18:31	11/03/21 04:06	1
Perfluorotetradecanoic acid	**23**		1.8	0.45	ng/L		10/29/21 18:31	11/03/21 04:06	1
Perfluorotridecanoic acid	**23**		1.8	0.45	ng/L		10/29/21 18:31	11/03/21 04:06	1
Perfluoroundecanoic acid	**34**		1.8	0.45	ng/L		10/29/21 18:31	11/03/21 04:06	1
4:2 Fluorotelomer sulfonic acid	**22**		1.8	0.45	ng/L		10/29/21 18:31	11/03/21 04:06	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-4:2 FTS	*601*	**5+*	*20 - 187*	*10/29/21 18:31*	*11/03/21 04:06*	*1*
M2-6:2 FTS	*513*	**5+*	*29 - 189*	*10/29/21 18:31*	*11/03/21 04:06*	*1*
M2-8:2 FTS	*214*	**5+*	*34 - 182*	*10/29/21 18:31*	*11/03/21 04:06*	*1*
13C2 PFTeDA	*62*		*10 - 144*	*10/29/21 18:31*	*11/03/21 04:06*	*1*
13C3 PFBS	*98*		*19 - 178*	*10/29/21 18:31*	*11/03/21 04:06*	*1*
13C4 PFBA	*93*		*41 - 132*	*10/29/21 18:31*	*11/03/21 04:06*	*1*
13C4 PFHpA	*433*	**5+*	*30 - 144*	*10/29/21 18:31*	*11/03/21 04:06*	*1*
13C5 PFPeA	*94*		*33 - 155*	*10/29/21 18:31*	*11/03/21 04:06*	*1*
13C8 PFOA	*58*		*49 - 127*	*10/29/21 18:31*	*11/03/21 04:06*	*1*
13C8 PFOS	*32*	**5-*	*49 - 126*	*10/29/21 18:31*	*11/03/21 04:06*	*1*
d3-NMeFOSAA	*43*		*32 - 151*	*10/29/21 18:31*	*11/03/21 04:06*	*1*
d5-NEtFOSAA	*107*		*37 - 164*	*10/29/21 18:31*	*11/03/21 04:06*	*1*
13C3 PFHxS	*403*	**5+*	*32 - 145*	*10/29/21 18:31*	*11/03/21 04:06*	*1*
13C5 PFHxA	*445*	**5+*	*31 - 142*	*10/29/21 18:31*	*11/03/21 04:06*	*1*
13C6 PFDA	*32*	**5-*	*47 - 128*	*10/29/21 18:31*	*11/03/21 04:06*	*1*
13C7 PFUnA	*107*		*40 - 135*	*10/29/21 18:31*	*11/03/21 04:06*	*1*
13C8 FOSA	*51*		*10 - 143*	*10/29/21 18:31*	*11/03/21 04:06*	*1*
13C2-PFDoDA	*35*		*28 - 136*	*10/29/21 18:31*	*11/03/21 04:06*	*1*
13C9 PFNA	*125*		*47 - 136*	*10/29/21 18:31*	*11/03/21 04:06*	*1*

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorodecanoic acid	**390**		18	4.5	ng/L		10/29/21 18:31	11/05/21 19:19	10
Perfluorohexanoic acid	**430**		18	4.5	ng/L		10/29/21 18:31	11/05/21 19:19	10
Perfluorooctanoic acid	**390**		18	4.5	ng/L		10/29/21 18:31	11/05/21 19:19	10

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 PFOA	*69*		*49 - 127*	*10/29/21 18:31*	*11/05/21 19:19*	*10*
13C5 PFHxA	*542*	**5+*	*31 - 142*	*10/29/21 18:31*	*11/05/21 19:19*	*10*
13C6 PFDA	*38*	**5-*	*47 - 128*	*10/29/21 18:31*	*11/05/21 19:19*	*10*

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment - DL2

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
6:2 Fluorotelomer sulfonic acid	**8700**		450	180	ng/L		10/29/21 18:31	11/15/21 07:57	100
8:2 Fluorotelomer sulfonic acid	**7800**		270	90	ng/L		10/29/21 18:31	11/15/21 07:57	100

Client Sample ID: FT2-RINSE 2-1

Lab Sample ID: 410-60469-4

Date Collected: 10/20/21 15:15

Matrix: Water

Date Received: 10/23/21 09:49

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
M2-6:2 FTS	634	*5+	29 - 189	10/29/21 18:31	11/15/21 07:57	100
M2-8:2 FTS	291	*5+	34 - 182	10/29/21 18:31	11/15/21 07:57	100

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4:2 Fluorotelomer sulfonic acid	<100		100	25	ng/L		11/08/21 15:54	11/09/21 12:03	10
6:2 Fluorotelomer sulfonic acid	<250		250	100	ng/L		11/08/21 15:54	11/09/21 12:03	10
8:2 Fluorotelomer sulfonic acid	<150		150	50	ng/L		11/08/21 15:54	11/09/21 12:03	10
NEtFOSAA	<150		150	25	ng/L		11/08/21 15:54	11/09/21 12:03	10
NMeFOSAA	<100		100	30	ng/L		11/08/21 15:54	11/09/21 12:03	10
Perfluorobutanesulfonic acid	**390**		100	25	ng/L		11/08/21 15:54	11/09/21 12:03	10
Perfluorodecanesulfonic acid	<100		100	25	ng/L		11/08/21 15:54	11/09/21 12:03	10
Perfluorododecanoic acid	**15000**	**I**	100	25	ng/L		11/08/21 15:54	11/09/21 12:03	10
Perfluoroheptanesulfonic acid	**340**		100	25	ng/L		11/08/21 15:54	11/09/21 12:03	10
Perfluorohexanesulfonic acid	<100		100	25	ng/L		11/08/21 15:54	11/09/21 12:03	10
Perfluorononanesulfonic acid	<100		100	25	ng/L		11/08/21 15:54	11/09/21 12:03	10
Perfluorooctanesulfonamide	<100		100	25	ng/L		11/08/21 15:54	11/09/21 12:03	10
Perfluorooctanesulfonic acid	<100		100	25	ng/L		11/08/21 15:54	11/09/21 12:03	10
Perfluoropentanesulfonic acid	**610**		100	25	ng/L		11/08/21 15:54	11/09/21 12:03	10
Perfluorotetradecanoic acid	**8300**		100	25	ng/L		11/08/21 15:54	11/09/21 12:03	10
Perfluorotridecanoic acid	**7000**		100	25	ng/L		11/08/21 15:54	11/09/21 12:03	10
Perfluoroundecanoic acid	**19000**		100	25	ng/L		11/08/21 15:54	11/09/21 12:03	10

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
M2-6:2 FTS	64		55 - 167	11/08/21 15:54	11/09/21 12:03	10
M2-8:2 FTS	70		61 - 160	11/08/21 15:54	11/09/21 12:03	10
13C2-PFDoDA	109		47 - 118	11/08/21 15:54	11/09/21 12:03	10
13C2 PFTeDA	116		32 - 126	11/08/21 15:54	11/09/21 12:03	10
13C3 PFBS	305	*5+	18 - 177	11/08/21 15:54	11/09/21 12:03	10
13C3 PFHxS	45	*5-	55 - 115	11/08/21 15:54	11/09/21 12:03	10
13C4 PFBA	101		52 - 126	11/08/21 15:54	11/09/21 12:03	10
13C4 PFHpA	71		55 - 113	11/08/21 15:54	11/09/21 12:03	10
13C5 PFHxA	50	*5-	54 - 115	11/08/21 15:54	11/09/21 12:03	10
13C5 PFPeA	76		17 - 184	11/08/21 15:54	11/09/21 12:03	10
13C6 PFDA	88		56 - 114	11/08/21 15:54	11/09/21 12:03	10
13C7 PFUnA	104		50 - 120	11/08/21 15:54	11/09/21 12:03	10
13C8 PFOA	73		56 - 117	11/08/21 15:54	11/09/21 12:03	10
13C8 PFOS	114	*5+	56 - 112	11/08/21 15:54	11/09/21 12:03	10
13C8 FOSA	129	*5+	10 - 126	11/08/21 15:54	11/09/21 12:03	10
13C9 PFNA	107		54 - 122	11/08/21 15:54	11/09/21 12:03	10
d5-NEtFOSAA	123		65 - 134	11/08/21 15:54	11/09/21 12:03	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	102		40 - 173	11/08/21 15:54	11/09/21 12:03	10
13C2 PFUnA	97		49 - 132	11/08/21 15:54	11/09/21 12:03	10
13C4 PFOA	67		10 - 163	11/08/21 15:54	11/09/21 12:03	10

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid	**200000**		2500	1000	ng/L		11/08/21 15:54	11/09/21 12:25	100
Perfluorodecanoic acid	**32000**		1000	250	ng/L		11/08/21 15:54	11/09/21 12:25	100
Perfluoroheptanoic acid	**220000**	**E**	1000	250	ng/L		11/08/21 15:54	11/09/21 12:25	100

Client Sample ID: FT2-RINSE 2-1

Lab Sample ID: 410-60469-4

Date Collected: 10/20/21 15:15
Date Received: 10/23/21 09:49

Matrix: Water

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment - DL (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid	220000	E	1000	250	ng/L		11/08/21 15:54	11/09/21 12:25	100
Perfluorononanoic acid	71000		1000	250	ng/L		11/08/21 15:54	11/09/21 12:25	100
Perfluorooctanoic acid	88000		1000	250	ng/L		11/08/21 15:54	11/09/21 12:25	100
Perfluoropentanoic acid	500000	E	1000	250	ng/L		11/08/21 15:54	11/09/21 12:25	100

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-6:2 FTS	*98*		*55 - 167*	*11/08/21 15:54*	*11/09/21 12:25*	*100*
M2-8:2 FTS	*122*		*61 - 160*	*11/08/21 15:54*	*11/09/21 12:25*	*100*
13C2-PFDoDA	*116*		*47 - 118*	*11/08/21 15:54*	*11/09/21 12:25*	*100*
13C2 PFTeDA	*111*		*32 - 126*	*11/08/21 15:54*	*11/09/21 12:25*	*100*
13C3 PFBS	*150*		*18 - 177*	*11/08/21 15:54*	*11/09/21 12:25*	*100*
13C3 PFHxS	*83*		*55 - 115*	*11/08/21 15:54*	*11/09/21 12:25*	*100*
13C4 PFBA	*153*	**5+*	*52 - 126*	*11/08/21 15:54*	*11/09/21 12:25*	*100*
13C4 PFHpA	*100*		*55 - 113*	*11/08/21 15:54*	*11/09/21 12:25*	*100*
13C5 PFHxA	*92*		*54 - 115*	*11/08/21 15:54*	*11/09/21 12:25*	*100*
13C5 PFPeA	*87*		*17 - 184*	*11/08/21 15:54*	*11/09/21 12:25*	*100*
13C6 PFDA	*123*	**5+*	*56 - 114*	*11/08/21 15:54*	*11/09/21 12:25*	*100*
13C7 PFUnA	*118*		*50 - 120*	*11/08/21 15:54*	*11/09/21 12:25*	*100*
13C8 PFOA	*105*		*56 - 117*	*11/08/21 15:54*	*11/09/21 12:25*	*100*
13C8 PFOS	*103*		*56 - 112*	*11/08/21 15:54*	*11/09/21 12:25*	*100*
13C8 FOSA	*114*		*10 - 126*	*11/08/21 15:54*	*11/09/21 12:25*	*100*
13C9 PFNA	*108*		*54 - 122*	*11/08/21 15:54*	*11/09/21 12:25*	*100*
d5-NEtFOSAA	*178*	**5+*	*65 - 134*	*11/08/21 15:54*	*11/09/21 12:25*	*100*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*143*		*40 - 173*	*11/08/21 15:54*	*11/09/21 12:25*	*100*
13C2 PFUnA	*119*		*49 - 132*	*11/08/21 15:54*	*11/09/21 12:25*	*100*
13C4 PFOA	*96*		*10 - 163*	*11/08/21 15:54*	*11/09/21 12:25*	*100*

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment - RA

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*96*		*40 - 173*	*11/08/21 15:54*	*11/09/21 12:14*	*10*
13C2 PFUnA	*88*		*49 - 132*	*11/08/21 15:54*	*11/09/21 12:14*	*10*
13C4 PFOA	*63*		*10 - 163*	*11/08/21 15:54*	*11/09/21 12:14*	*10*

Method: Total PFCA-Dif - Total PFCA (Treatment Difference)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid	200000				ng/L			11/15/21 12:55	1
Perfluoropentanoic acid	500000				ng/L			11/15/21 12:55	1
Perfluorohexanoic acid	220000				ng/L			11/15/21 12:55	1
Perfluoroheptanoic acid	220000				ng/L			11/15/21 12:55	1
Perfluorooctanoic acid	88000				ng/L			11/15/21 12:55	1
Perfluorononanoic acid	71000				ng/L			11/15/21 12:55	1
Total PFCA	1300000				ng/L			11/15/21 12:55	1

Method: Total PFCA-Sum - Total PFCA (Summary) - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total PFCA	940		500	0.50	ng/L			11/15/21 12:54	1

Client Sample ID: FT2-RINSE 2-1

Lab Sample ID: 410-60469-4

Date Collected: 10/20/21 15:15

Matrix: Water

Date Received: 10/23/21 09:49

Method: Total PFCA-Sum - Total PFCA (Summary) - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total PFCA	**1300000**		500	0.50	ng/L			11/15/21 12:54	1

Client Sample ID: HOSE-POST-1

Lab Sample ID: 410-60469-5

Date Collected: 10/20/21 15:30

Matrix: Water

Date Received: 10/23/21 09:49

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NEtFOSAA	<2.7		2.7	0.44	ng/L		10/29/21 18:31	11/03/21 04:27	1
NMeFOSAA	<1.8		1.8	0.53	ng/L		10/29/21 18:31	11/03/21 04:27	1
Perfluorobutanesulfonic acid	<1.8		1.8	0.44	ng/L		10/29/21 18:31	11/03/21 04:27	1
Perfluorobutanoic acid	**4.8**		4.4	1.8	ng/L		10/29/21 18:31	11/03/21 04:27	1
Perfluorodecanesulfonic acid	<1.8		1.8	0.44	ng/L		10/29/21 18:31	11/03/21 04:27	1
Perfluorodecanoic acid	**27**		1.8	0.44	ng/L		10/29/21 18:31	11/03/21 04:27	1
Perfluorododecanoic acid	**17**		1.8	0.44	ng/L		10/29/21 18:31	11/03/21 04:27	1
Perfluoroheptanesulfonic acid	<1.8		1.8	0.44	ng/L		10/29/21 18:31	11/03/21 04:27	1
Perfluoroheptanoic acid	**5.4**		1.8	0.44	ng/L		10/29/21 18:31	11/03/21 04:27	1
Perfluorohexanesulfonic acid	<1.8		1.8	0.44	ng/L		10/29/21 18:31	11/03/21 04:27	1
Perfluorohexanoic acid	**39**		1.8	0.44	ng/L		10/29/21 18:31	11/03/21 04:27	1
Perfluorononanesulfonic acid	<1.8		1.8	0.44	ng/L		10/29/21 18:31	11/03/21 04:27	1
Perfluorononanoic acid	**24**		1.8	0.44	ng/L		10/29/21 18:31	11/03/21 04:27	1
Perfluorooctanesulfonamide	<1.8		1.8	0.44	ng/L		10/29/21 18:31	11/03/21 04:27	1
Perfluorooctanesulfonic acid	**5.6**	**I**	1.8	0.44	ng/L		10/29/21 18:31	11/03/21 04:27	1
Perfluorooctanoic acid	**22**		1.8	0.44	ng/L		10/29/21 18:31	11/03/21 04:27	1
Perfluoropentanesulfonic acid	<1.8		1.8	0.44	ng/L		10/29/21 18:31	11/03/21 04:27	1
Perfluoropentanoic acid	**5.3**		1.8	0.44	ng/L		10/29/21 18:31	11/03/21 04:27	1
Perfluorotetradecanoic acid	**9.6**		1.8	0.44	ng/L		10/29/21 18:31	11/03/21 04:27	1
Perfluorotridecanoic acid	**9.6**		1.8	0.44	ng/L		10/29/21 18:31	11/03/21 04:27	1
Perfluoroundecanoic acid	**19**		1.8	0.44	ng/L		10/29/21 18:31	11/03/21 04:27	1
4:2 Fluorotelomer sulfonic acid	<1.8		1.8	0.44	ng/L		10/29/21 18:31	11/03/21 04:27	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-4:2 FTS	*485*	**5+*	*20 - 187*	*10/29/21 18:31*	*11/03/21 04:27*	*1*
M2-6:2 FTS	*97*		*29 - 189*	*10/29/21 18:31*	*11/03/21 04:27*	*1*
M2-8:2 FTS	*54*		*34 - 182*	*10/29/21 18:31*	*11/03/21 04:27*	*1*
13C2 PFTeDA	*12*		*10 - 144*	*10/29/21 18:31*	*11/03/21 04:27*	*1*
13C3 PFBS	*93*		*19 - 178*	*10/29/21 18:31*	*11/03/21 04:27*	*1*
13C4 PFBA	*89*		*41 - 132*	*10/29/21 18:31*	*11/03/21 04:27*	*1*
13C4 PFHpA	*393*	**5+*	*30 - 144*	*10/29/21 18:31*	*11/03/21 04:27*	*1*
13C5 PFPeA	*93*		*33 - 155*	*10/29/21 18:31*	*11/03/21 04:27*	*1*
13C8 PFOA	*71*		*49 - 127*	*10/29/21 18:31*	*11/03/21 04:27*	*1*
13C8 PFOS	*64*		*49 - 126*	*10/29/21 18:31*	*11/03/21 04:27*	*1*
d3-NMeFOSAA	*69*		*32 - 151*	*10/29/21 18:31*	*11/03/21 04:27*	*1*
d5-NEtFOSAA	*88*		*37 - 164*	*10/29/21 18:31*	*11/03/21 04:27*	*1*
13C3 PFHxS	*285*	**5+*	*32 - 145*	*10/29/21 18:31*	*11/03/21 04:27*	*1*
13C5 PFHxA	*330*	**5+*	*31 - 142*	*10/29/21 18:31*	*11/03/21 04:27*	*1*
13C6 PFDA	*49*		*47 - 128*	*10/29/21 18:31*	*11/03/21 04:27*	*1*
13C7 PFUnA	*90*		*40 - 135*	*10/29/21 18:31*	*11/03/21 04:27*	*1*
13C8 FOSA	*62*		*10 - 143*	*10/29/21 18:31*	*11/03/21 04:27*	*1*
13C2-PFDoDA	*50*		*28 - 136*	*10/29/21 18:31*	*11/03/21 04:27*	*1*
13C9 PFNA	*138*	**5+*	*47 - 136*	*10/29/21 18:31*	*11/03/21 04:27*	*1*

Client Sample Results

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-60469-1

Client Sample ID: HOSE-POST-1

Date Collected: 10/20/21 15:30
Date Received: 10/23/21 09:49

Lab Sample ID: 410-60469-5

Matrix: Water

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
6:2 Fluorotelomer sulfonic acid	**2400**		440	180	ng/L		10/29/21 18:31	11/09/21 18:42	100
8:2 Fluorotelomer sulfonic acid	**1800**		270	88	ng/L		10/29/21 18:31	11/09/21 18:42	100

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-6:2 FTS	*238*	**5+*	*29 - 189*	*10/29/21 18:31*	*11/09/21 18:42*	*100*
M2-8:2 FTS	*173*		*34 - 182*	*10/29/21 18:31*	*11/09/21 18:42*	*100*

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4:2 Fluorotelomer sulfonic acid	<100		100	25	ng/L		11/08/21 15:54	11/09/21 12:35	10
6:2 Fluorotelomer sulfonic acid	<250		250	100	ng/L		11/08/21 15:54	11/09/21 12:35	10
8:2 Fluorotelomer sulfonic acid	<150		150	50	ng/L		11/08/21 15:54	11/09/21 12:35	10
NEtFOSAA	<150		150	25	ng/L		11/08/21 15:54	11/09/21 12:35	10
NMeFOSAA	<100		100	30	ng/L		11/08/21 15:54	11/09/21 12:35	10
Perfluorobutanesulfonic acid	<100		100	25	ng/L		11/08/21 15:54	11/09/21 12:35	10
Perfluorobutanoic acid	**12000**		250	100	ng/L		11/08/21 15:54	11/09/21 12:35	10
Perfluorodecanesulfonic acid	<100		100	25	ng/L		11/08/21 15:54	11/09/21 12:35	10
Perfluorodecanoic acid	**1400**	**I**	100	25	ng/L		11/08/21 15:54	11/09/21 12:35	10
Perfluorododecanoic acid	**1200**	**I**	100	25	ng/L		11/08/21 15:54	11/09/21 12:35	10
Perfluoroheptanesulfonic acid	<100		100	25	ng/L		11/08/21 15:54	11/09/21 12:35	10
Perfluoroheptanoic acid	**9400**		100	25	ng/L		11/08/21 15:54	11/09/21 12:35	10
Perfluorohexanesulfonic acid	<100		100	25	ng/L		11/08/21 15:54	11/09/21 12:35	10
Perfluorohexanoic acid	**7500**		100	25	ng/L		11/08/21 15:54	11/09/21 12:35	10
Perfluorononanesulfonic acid	<100		100	25	ng/L		11/08/21 15:54	11/09/21 12:35	10
Perfluorononanoic acid	**2500**		100	25	ng/L		11/08/21 15:54	11/09/21 12:35	10
Perfluorooctanesulfonamide	<100		100	25	ng/L		11/08/21 15:54	11/09/21 12:35	10
Perfluorooctanesulfonic acid	<100		100	25	ng/L		11/08/21 15:54	11/09/21 12:35	10
Perfluorooctanoic acid	**2600**		100	25	ng/L		11/08/21 15:54	11/09/21 12:35	10
Perfluoropentanesulfonic acid	<100		100	25	ng/L		11/08/21 15:54	11/09/21 12:35	10
Perfluorotetradecanoic acid	**910**		100	25	ng/L		11/08/21 15:54	11/09/21 12:35	10
Perfluorotridecanoic acid	**850**		100	25	ng/L		11/08/21 15:54	11/09/21 12:35	10
Perfluoroundecanoic acid	**1800**		100	25	ng/L		11/08/21 15:54	11/09/21 12:35	10

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-6:2 FTS	*100*		*55 - 167*	*11/08/21 15:54*	*11/09/21 12:35*	*10*
M2-8:2 FTS	*111*		*61 - 160*	*11/08/21 15:54*	*11/09/21 12:35*	*10*
13C2-PFDoDA	*98*		*47 - 118*	*11/08/21 15:54*	*11/09/21 12:35*	*10*
13C2 PFTeDA	*98*		*32 - 126*	*11/08/21 15:54*	*11/09/21 12:35*	*10*
13C3 PFBS	*106*		*18 - 177*	*11/08/21 15:54*	*11/09/21 12:35*	*10*
13C3 PFHxS	*87*		*55 - 115*	*11/08/21 15:54*	*11/09/21 12:35*	*10*
13C4 PFBA	*100*		*52 - 126*	*11/08/21 15:54*	*11/09/21 12:35*	*10*
13C4 PFHpA	*94*		*55 - 113*	*11/08/21 15:54*	*11/09/21 12:35*	*10*
13C5 PFHxA	*89*		*54 - 115*	*11/08/21 15:54*	*11/09/21 12:35*	*10*
13C5 PFPeA	*85*		*17 - 184*	*11/08/21 15:54*	*11/09/21 12:35*	*10*
13C6 PFDA	*99*		*56 - 114*	*11/08/21 15:54*	*11/09/21 12:35*	*10*
13C7 PFUnA	*112*		*50 - 120*	*11/08/21 15:54*	*11/09/21 12:35*	*10*
13C8 PFOA	*97*		*56 - 117*	*11/08/21 15:54*	*11/09/21 12:35*	*10*
13C8 PFOS	*92*		*56 - 112*	*11/08/21 15:54*	*11/09/21 12:35*	*10*
13C8 FOSA	*95*		*10 - 126*	*11/08/21 15:54*	*11/09/21 12:35*	*10*
13C9 PFNA	*107*		*54 - 122*	*11/08/21 15:54*	*11/09/21 12:35*	*10*
d5-NEtFOSAA	*113*		*65 - 134*	*11/08/21 15:54*	*11/09/21 12:35*	*10*

Client Sample ID: HOSE-POST-1

Lab Sample ID: 410-60469-5

Date Collected: 10/20/21 15:30
Matrix: Water
Date Received: 10/23/21 09:49

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*64*		*40 - 173*	*11/08/21 15:54*	*11/09/21 12:35*	*10*
13C2 PFUnA	*96*		*49 - 132*	*11/08/21 15:54*	*11/09/21 12:35*	*10*
13C4 PFOA	*83*		*10 - 163*	*11/08/21 15:54*	*11/09/21 12:35*	*10*

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoropentanoic acid	**24000**		1000	250	ng/L		11/08/21 15:54	11/09/21 12:56	100

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C5 PFPeA	*110*		*17 - 184*	*11/08/21 15:54*	*11/09/21 12:56*	*100*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*73*		*40 - 173*	*11/08/21 15:54*	*11/09/21 12:56*	*100*
13C2 PFUnA	*105*		*49 - 132*	*11/08/21 15:54*	*11/09/21 12:56*	*100*
13C4 PFOA	*112*		*10 - 163*	*11/08/21 15:54*	*11/09/21 12:56*	*100*

Method: Total PFCA-Dif - Total PFCA (Treatment Difference)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid	**12000**				ng/L			11/11/21 15:01	1
Perfluoropentanoic acid	**24000**				ng/L			11/11/21 15:01	1
Perfluorohexanoic acid	**7500**				ng/L			11/11/21 15:01	1
Perfluoroheptanoic acid	**9400**				ng/L			11/11/21 15:01	1
Perfluorooctanoic acid	**2500**				ng/L			11/11/21 15:01	1
Perfluorononanoic acid	**2500**				ng/L			11/11/21 15:01	1
Total PFCA	**58000**				ng/L			11/11/21 15:01	1

Method: Total PFCA-Sum - Total PFCA (Summary) - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total PFCA	<500		500	0.50	ng/L			11/11/21 14:59	1

Method: Total PFCA-Sum - Total PFCA (Summary) - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total PFCA	**58000**		500	0.50	ng/L			11/11/21 14:59	1

Client Sample ID: FT2-EFF 1-1

Lab Sample ID: 410-60469-6

Date Collected: 10/21/21 08:30
Matrix: Water
Date Received: 10/23/21 09:49

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NEtFOSAA	<2.7		2.7	0.45	ng/L		10/29/21 18:31	11/03/21 04:37	1
NMeFOSAA	<1.8		1.8	0.54	ng/L		10/29/21 18:31	11/03/21 04:37	1
Perfluorobutanesulfonic acid	<1.8		1.8	0.45	ng/L		10/29/21 18:31	11/03/21 04:37	1
Perfluorobutanoic acid	**17**		4.5	1.8	ng/L		10/29/21 18:31	11/03/21 04:37	1
Perfluorodecanesulfonic acid	<1.8		1.8	0.45	ng/L		10/29/21 18:31	11/03/21 04:37	1
Perfluorodecanoic acid	**5.5**		1.8	0.45	ng/L		10/29/21 18:31	11/03/21 04:37	1
Perfluorododecanoic acid	**15**		1.8	0.45	ng/L		10/29/21 18:31	11/03/21 04:37	1
Perfluoroheptanesulfonic acid	<1.8		1.8	0.45	ng/L		10/29/21 18:31	11/03/21 04:37	1
Perfluoroheptanoic acid	**3.4**		1.8	0.45	ng/L		10/29/21 18:31	11/03/21 04:37	1
Perfluorohexanesulfonic acid	<1.8		1.8	0.45	ng/L		10/29/21 18:31	11/03/21 04:37	1
Perfluorohexanoic acid	**74**		1.8	0.45	ng/L		10/29/21 18:31	11/03/21 04:37	1
Perfluorononanesulfonic acid	<1.8		1.8	0.45	ng/L		10/29/21 18:31	11/03/21 04:37	1

Client Sample ID: FT2-EFF 1-1

Date Collected: 10/21/21 08:30
Date Received: 10/23/21 09:49

Lab Sample ID: 410-60469-6

Matrix: Water

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorononanoic acid	<1.8		1.8	0.45	ng/L		10/29/21 18:31	11/03/21 04:37	1
Perfluorooctanesulfonamide	<1.8		1.8	0.45	ng/L		10/29/21 18:31	11/03/21 04:37	1
Perfluorooctanesulfonic acid	<1.8		1.8	0.45	ng/L		10/29/21 18:31	11/03/21 04:37	1
Perfluorooctanoic acid	**3.6**		1.8	0.45	ng/L		10/29/21 18:31	11/03/21 04:37	1
Perfluoropentanesulfonic acid	<1.8		1.8	0.45	ng/L		10/29/21 18:31	11/03/21 04:37	1
Perfluoropentanoic acid	**18**		1.8	0.45	ng/L		10/29/21 18:31	11/03/21 04:37	1
Perfluorotetradecanoic acid	<1.8		1.8	0.45	ng/L		10/29/21 18:31	11/03/21 04:37	1
Perfluorotridecanoic acid	<1.8		1.8	0.45	ng/L		10/29/21 18:31	11/03/21 04:37	1
Perfluoroundecanoic acid	**9.5**	**I**	1.8	0.45	ng/L		10/29/21 18:31	11/03/21 04:37	1
4:2 Fluorotelomer sulfonic acid	<1.8		1.8	0.45	ng/L		10/29/21 18:31	11/03/21 04:37	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-4:2 FTS	*157*		*20 - 187*	*10/29/21 18:31*	*11/03/21 04:37*	*1*
M2-6:2 FTS	*89*		*29 - 189*	*10/29/21 18:31*	*11/03/21 04:37*	*1*
M2-8:2 FTS	*55*		*34 - 182*	*10/29/21 18:31*	*11/03/21 04:37*	*1*
13C2 PFTeDA	*0.4*	**5-*	*10 - 144*	*10/29/21 18:31*	*11/03/21 04:37*	*1*
13C3 PFBS	*98*		*19 - 178*	*10/29/21 18:31*	*11/03/21 04:37*	*1*
13C4 PFBA	*99*		*41 - 132*	*10/29/21 18:31*	*11/03/21 04:37*	*1*
13C4 PFHpA	*112*		*30 - 144*	*10/29/21 18:31*	*11/03/21 04:37*	*1*
13C5 PFPeA	*99*		*33 - 155*	*10/29/21 18:31*	*11/03/21 04:37*	*1*
13C8 PFOA	*82*		*49 - 127*	*10/29/21 18:31*	*11/03/21 04:37*	*1*
13C8 PFOS	*52*		*49 - 126*	*10/29/21 18:31*	*11/03/21 04:37*	*1*
d3-NMeFOSAA	*40*		*32 - 151*	*10/29/21 18:31*	*11/03/21 04:37*	*1*
d5-NEtFOSAA	*51*		*37 - 164*	*10/29/21 18:31*	*11/03/21 04:37*	*1*
13C3 PFHxS	*72*		*32 - 145*	*10/29/21 18:31*	*11/03/21 04:37*	*1*
13C5 PFHxA	*108*		*31 - 142*	*10/29/21 18:31*	*11/03/21 04:37*	*1*
13C6 PFDA	*51*		*47 - 128*	*10/29/21 18:31*	*11/03/21 04:37*	*1*
13C7 PFUnA	*49*		*40 - 135*	*10/29/21 18:31*	*11/03/21 04:37*	*1*
13C8 FOSA	*41*		*10 - 143*	*10/29/21 18:31*	*11/03/21 04:37*	*1*
13C2-PFDoDA	*27*	**5-*	*28 - 136*	*10/29/21 18:31*	*11/03/21 04:37*	*1*
13C9 PFNA	*79*		*47 - 136*	*10/29/21 18:31*	*11/03/21 04:37*	*1*

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
6:2 Fluorotelomer sulfonic acid	**680**		45	18	ng/L		10/29/21 18:31	11/05/21 20:01	10
8:2 Fluorotelomer sulfonic acid	**220**		27	9.0	ng/L		10/29/21 18:31	11/05/21 20:01	10

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-6:2 FTS	*114*		*29 - 189*	*10/29/21 18:31*	*11/05/21 20:01*	*10*
M2-8:2 FTS	*57*		*34 - 182*	*10/29/21 18:31*	*11/05/21 20:01*	*10*

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4:2 Fluorotelomer sulfonic acid	<10		10	2.5	ng/L		11/08/21 15:54	11/09/21 13:07	1
6:2 Fluorotelomer sulfonic acid	<25		25	10	ng/L		11/08/21 15:54	11/09/21 13:07	1
8:2 Fluorotelomer sulfonic acid	<15		15	5.0	ng/L		11/08/21 15:54	11/09/21 13:07	1
NEtFOSAA	<15		15	2.5	ng/L		11/08/21 15:54	11/09/21 13:07	1
NMeFOSAA	<10		10	3.0	ng/L		11/08/21 15:54	11/09/21 13:07	1
Perfluorobutanesulfonic acid	<10		10	2.5	ng/L		11/08/21 15:54	11/09/21 13:07	1
Perfluorodecanesulfonic acid	<10		10	2.5	ng/L		11/08/21 15:54	11/09/21 13:07	1
Perfluorodecanoic acid	**210**	**I**	10	2.5	ng/L		11/08/21 15:54	11/09/21 13:07	1

Client Sample ID: FT2-EFF 1-1

Lab Sample ID: 410-60469-6

Date Collected: 10/21/21 08:30

Matrix: Water

Date Received: 10/23/21 09:49

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorododecanoic acid	**190**	**I**	10	2.5	ng/L		11/08/21 15:54	11/09/21 13:07	1
Perfluoroheptanesulfonic acid	<10		10	2.5	ng/L		11/08/21 15:54	11/09/21 13:07	1
Perfluoroheptanoic acid	**700**		10	2.5	ng/L		11/08/21 15:54	11/09/21 13:07	1
Perfluorohexanesulfonic acid	<10		10	2.5	ng/L		11/08/21 15:54	11/09/21 13:07	1
Perfluorononanesulfonic acid	<10		10	2.5	ng/L		11/08/21 15:54	11/09/21 13:07	1
Perfluorononanoic acid	**200**		10	2.5	ng/L		11/08/21 15:54	11/09/21 13:07	1
Perfluorooctanesulfonamide	<10		10	2.5	ng/L		11/08/21 15:54	11/09/21 13:07	1
Perfluorooctanesulfonic acid	<10		10	2.5	ng/L		11/08/21 15:54	11/09/21 13:07	1
Perfluorooctanoic acid	**160**		10	2.5	ng/L		11/08/21 15:54	11/09/21 13:07	1
Perfluoropentanesulfonic acid	<10		10	2.5	ng/L		11/08/21 15:54	11/09/21 13:07	1
Perfluorotetradecanoic acid	**86**		10	2.5	ng/L		11/08/21 15:54	11/09/21 13:07	1
Perfluorotridecanoic acid	**110**		10	2.5	ng/L		11/08/21 15:54	11/09/21 13:07	1
Perfluoroundecanoic acid	**400**		10	2.5	ng/L		11/08/21 15:54	11/09/21 13:07	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-6:2 FTS	*96*		*55 - 167*	*11/08/21 15:54*	*11/09/21 13:07*	*1*
M2-8:2 FTS	*108*		*61 - 160*	*11/08/21 15:54*	*11/09/21 13:07*	*1*
13C2-PFDoDA	*94*		*47 - 118*	*11/08/21 15:54*	*11/09/21 13:07*	*1*
13C2 PFTeDA	*96*		*32 - 126*	*11/08/21 15:54*	*11/09/21 13:07*	*1*
13C3 PFBS	*123*		*18 - 177*	*11/08/21 15:54*	*11/09/21 13:07*	*1*
13C3 PFHxS	*80*		*55 - 115*	*11/08/21 15:54*	*11/09/21 13:07*	*1*
13C4 PFBA	*94*		*52 - 126*	*11/08/21 15:54*	*11/09/21 13:07*	*1*
13C4 PFHpA	*92*		*55 - 113*	*11/08/21 15:54*	*11/09/21 13:07*	*1*
13C5 PFHxA	*75*		*54 - 115*	*11/08/21 15:54*	*11/09/21 13:07*	*1*
13C5 PFPeA	*82*		*17 - 184*	*11/08/21 15:54*	*11/09/21 13:07*	*1*
13C6 PFDA	*95*		*56 - 114*	*11/08/21 15:54*	*11/09/21 13:07*	*1*
13C7 PFUnA	*96*		*50 - 120*	*11/08/21 15:54*	*11/09/21 13:07*	*1*
13C8 PFOA	*89*		*56 - 117*	*11/08/21 15:54*	*11/09/21 13:07*	*1*
13C8 PFOS	*98*		*56 - 112*	*11/08/21 15:54*	*11/09/21 13:07*	*1*
13C8 FOSA	*99*		*10 - 126*	*11/08/21 15:54*	*11/09/21 13:07*	*1*
13C9 PFNA	*106*		*54 - 122*	*11/08/21 15:54*	*11/09/21 13:07*	*1*
d5-NEtFOSAA	*110*		*65 - 134*	*11/08/21 15:54*	*11/09/21 13:07*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*61*		*40 - 173*	*11/08/21 15:54*	*11/09/21 13:07*	*1*
13C2 PFUnA	*72*		*49 - 132*	*11/08/21 15:54*	*11/09/21 13:07*	*1*
13C4 PFOA	*76*		*10 - 163*	*11/08/21 15:54*	*11/09/21 13:07*	*1*

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid	**3000**		250	100	ng/L		11/08/21 15:54	11/09/21 13:17	10
Perfluorohexanoic acid	**1800**		100	25	ng/L		11/08/21 15:54	11/09/21 13:17	10
Perfluoropentanoic acid	**6500**		100	25	ng/L		11/08/21 15:54	11/09/21 13:17	10

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*98*		*52 - 126*	*11/08/21 15:54*	*11/09/21 13:17*	*10*
13C5 PFHxA	*98*		*54 - 115*	*11/08/21 15:54*	*11/09/21 13:17*	*10*
13C5 PFPeA	*96*		*17 - 184*	*11/08/21 15:54*	*11/09/21 13:17*	*10*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*70*		*40 - 173*	*11/08/21 15:54*	*11/09/21 13:17*	*10*
13C2 PFUnA	*91*		*49 - 132*	*11/08/21 15:54*	*11/09/21 13:17*	*10*

Client Sample ID: FT2-EFF 1-1

Lab Sample ID: 410-60469-6

Date Collected: 10/21/21 08:30
Matrix: Water
Date Received: 10/23/21 09:49

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment - DL (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFOA	*88*		*10 - 163*	*11/08/21 15:54*	*11/09/21 13:17*	*10*

Method: Total PFCA-Dif - Total PFCA (Treatment Difference)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid	**3000**				ng/L			11/11/21 10:56	1
Perfluoropentanoic acid	**6500**				ng/L			11/11/21 10:56	1
Perfluorohexanoic acid	**1800**				ng/L			11/11/21 10:56	1
Perfluoroheptanoic acid	**690**				ng/L			11/11/21 10:56	1
Perfluorooctanoic acid	**160**				ng/L			11/11/21 10:56	1
Perfluorononanoic acid	**200**				ng/L			11/11/21 10:56	1
Total PFCA	**12000**				ng/L			11/11/21 10:56	1

Method: Total PFCA-Sum - Total PFCA (Summary) - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total PFCA	<500		500	0.50	ng/L			11/11/21 10:54	1

Method: Total PFCA-Sum - Total PFCA (Summary) - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total PFCA	**12000**		500	0.50	ng/L			11/11/21 10:54	1

Client Sample ID: FT2-RINSE 3-1

Lab Sample ID: 410-60469-7

Date Collected: 10/21/21 13:30
Matrix: Water
Date Received: 10/23/21 09:49

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NEtFOSAA	<2.6		2.6	0.44	ng/L		10/29/21 18:31	11/03/21 04:48	1
NMeFOSAA	<1.8		1.8	0.53	ng/L		10/29/21 18:31	11/03/21 04:48	1
Perfluorobutanesulfonic acid	<1.8		1.8	0.44	ng/L		10/29/21 18:31	11/03/21 04:48	1
Perfluorobutanoic acid	**6.0**		4.4	1.8	ng/L		10/29/21 18:31	11/03/21 04:48	1
Perfluorodecanesulfonic acid	**2.8**		1.8	0.44	ng/L		10/29/21 18:31	11/03/21 04:48	1
Perfluorodecanoic acid	**23**		1.8	0.44	ng/L		10/29/21 18:31	11/03/21 04:48	1
Perfluorododecanoic acid	**15**		1.8	0.44	ng/L		10/29/21 18:31	11/03/21 04:48	1
Perfluoroheptanesulfonic acid	<1.8		1.8	0.44	ng/L		10/29/21 18:31	11/03/21 04:48	1
Perfluoroheptanoic acid	**5.2**		1.8	0.44	ng/L		10/29/21 18:31	11/03/21 04:48	1
Perfluorohexanesulfonic acid	<1.8		1.8	0.44	ng/L		10/29/21 18:31	11/03/21 04:48	1
Perfluorohexanoic acid	**49**		1.8	0.44	ng/L		10/29/21 18:31	11/03/21 04:48	1
Perfluorononanesulfonic acid	<1.8		1.8	0.44	ng/L		10/29/21 18:31	11/03/21 04:48	1
Perfluorononanoic acid	**7.8**		1.8	0.44	ng/L		10/29/21 18:31	11/03/21 04:48	1
Perfluorooctanesulfonamide	<1.8		1.8	0.44	ng/L		10/29/21 18:31	11/03/21 04:48	1
Perfluorooctanesulfonic acid	**5.4**		1.8	0.44	ng/L		10/29/21 18:31	11/03/21 04:48	1
Perfluorooctanoic acid	**32**		1.8	0.44	ng/L		10/29/21 18:31	11/03/21 04:48	1
Perfluoropentanesulfonic acid	<1.8		1.8	0.44	ng/L		10/29/21 18:31	11/03/21 04:48	1
Perfluoropentanoic acid	**4.0**		1.8	0.44	ng/L		10/29/21 18:31	11/03/21 04:48	1
Perfluorotetradecanoic acid	**9.3**		1.8	0.44	ng/L		10/29/21 18:31	11/03/21 04:48	1
Perfluorotridecanoic acid	**77**		1.8	0.44	ng/L		10/29/21 18:31	11/03/21 04:48	1
Perfluoroundecanoic acid	**66**		1.8	0.44	ng/L		10/29/21 18:31	11/03/21 04:48	1
4:2 Fluorotelomer sulfonic acid	**2.8**		1.8	0.44	ng/L		10/29/21 18:31	11/03/21 04:48	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-4:2 FTS	*513*	**5+*	*20 - 187*	*10/29/21 18:31*	*11/03/21 04:48*	*1*

Client Sample ID: FT2-RINSE 3-1

Lab Sample ID: 410-60469-7

Date Collected: 10/21/21 13:30

Matrix: Water

Date Received: 10/23/21 09:49

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
M2-6:2 FTS	96		29 - 189	10/29/21 18:31	11/03/21 04:48	1
M2-8:2 FTS	46		34 - 182	10/29/21 18:31	11/03/21 04:48	1
13C2 PFTeDA	43		10 - 144	10/29/21 18:31	11/03/21 04:48	1
13C3 PFBS	96		19 - 178	10/29/21 18:31	11/03/21 04:48	1
13C4 PFBA	93		41 - 132	10/29/21 18:31	11/03/21 04:48	1
13C4 PFHpA	445	*5+	30 - 144	10/29/21 18:31	11/03/21 04:48	1
13C5 PFPeA	98		33 - 155	10/29/21 18:31	11/03/21 04:48	1
13C8 PFOA	67		49 - 127	10/29/21 18:31	11/03/21 04:48	1
13C8 PFOS	42	*5-	49 - 126	10/29/21 18:31	11/03/21 04:48	1
d3-NMeFOSAA	66		32 - 151	10/29/21 18:31	11/03/21 04:48	1
d5-NEtFOSAA	103		37 - 164	10/29/21 18:31	11/03/21 04:48	1
13C3 PFHxS	267	*5+	32 - 145	10/29/21 18:31	11/03/21 04:48	1
13C5 PFHxA	427	*5+	31 - 142	10/29/21 18:31	11/03/21 04:48	1
13C6 PFDA	42	*5-	47 - 128	10/29/21 18:31	11/03/21 04:48	1
13C7 PFUnA	94		40 - 135	10/29/21 18:31	11/03/21 04:48	1
13C8 FOSA	62		10 - 143	10/29/21 18:31	11/03/21 04:48	1
13C2-PFDoDA	49		28 - 136	10/29/21 18:31	11/03/21 04:48	1
13C9 PFNA	84		47 - 136	10/29/21 18:31	11/03/21 04:48	1

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
6:2 Fluorotelomer sulfonic acid	**3100**		440	180	ng/L		10/29/21 18:31	11/09/21 18:53	100
8:2 Fluorotelomer sulfonic acid	**2600**		260	88	ng/L		10/29/21 18:31	11/09/21 18:53	100

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
M2-6:2 FTS	168		29 - 189	10/29/21 18:31	11/09/21 18:53	100
M2-8:2 FTS	48		34 - 182	10/29/21 18:31	11/09/21 18:53	100

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4:2 Fluorotelomer sulfonic acid	<100		100	25	ng/L		11/08/21 15:54	11/09/21 13:28	10
6:2 Fluorotelomer sulfonic acid	<250		250	100	ng/L		11/08/21 15:54	11/09/21 13:28	10
8:2 Fluorotelomer sulfonic acid	<150		150	50	ng/L		11/08/21 15:54	11/09/21 13:28	10
NEtFOSAA	<150		150	25	ng/L		11/08/21 15:54	11/09/21 13:28	10
NMeFOSAA	<100		100	30	ng/L		11/08/21 15:54	11/09/21 13:28	10
Perfluorobutanesulfonic acid	<100		100	25	ng/L		11/08/21 15:54	11/09/21 13:28	10
Perfluorobutanoic acid	**18000**		250	100	ng/L		11/08/21 15:54	11/09/21 13:28	10
Perfluorodecanesulfonic acid	<100		100	25	ng/L		11/08/21 15:54	11/09/21 13:28	10
Perfluorodecanoic acid	**1000**		100	25	ng/L		11/08/21 15:54	11/09/21 13:28	10
Perfluorododecanoic acid	**820**	I	100	25	ng/L		11/08/21 15:54	11/09/21 13:28	10
Perfluoroheptanesulfonic acid	<100		100	25	ng/L		11/08/21 15:54	11/09/21 13:28	10
Perfluorohexanesulfonic acid	<100		100	25	ng/L		11/08/21 15:54	11/09/21 13:28	10
Perfluorohexanoic acid	**17000**		100	25	ng/L		11/08/21 15:54	11/09/21 13:28	10
Perfluorononanesulfonic acid	<100		100	25	ng/L		11/08/21 15:54	11/09/21 13:28	10
Perfluorononanoic acid	**2200**		100	25	ng/L		11/08/21 15:54	11/09/21 13:28	10
Perfluorooctanesulfonamide	<100		100	25	ng/L		11/08/21 15:54	11/09/21 13:28	10
Perfluorooctanesulfonic acid	<100		100	25	ng/L		11/08/21 15:54	11/09/21 13:28	10
Perfluorooctanoic acid	**4300**		100	25	ng/L		11/08/21 15:54	11/09/21 13:28	10
Perfluoropentanesulfonic acid	<100		100	25	ng/L		11/08/21 15:54	11/09/21 13:28	10
Perfluorotetradecanoic acid	**520**		100	25	ng/L		11/08/21 15:54	11/09/21 13:28	10
Perfluorotridecanoic acid	**490**		100	25	ng/L		11/08/21 15:54	11/09/21 13:28	10

Client Sample ID: FT2-RINSE 3-1

Lab Sample ID: 410-60469-7

Date Collected: 10/21/21 13:30

Matrix: Water

Date Received: 10/23/21 09:49

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoroundecanoic acid	1300		100	25	ng/L		11/08/21 15:54	11/09/21 13:28	10

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-6:2 FTS	*112*		*55 - 167*	*11/08/21 15:54*	*11/09/21 13:28*	*10*
M2-8:2 FTS	*94*		*61 - 160*	*11/08/21 15:54*	*11/09/21 13:28*	*10*
13C2-PFDoDA	*94*		*47 - 118*	*11/08/21 15:54*	*11/09/21 13:28*	*10*
13C2 PFTeDA	*89*		*32 - 126*	*11/08/21 15:54*	*11/09/21 13:28*	*10*
13C3 PFBS	*120*		*18 - 177*	*11/08/21 15:54*	*11/09/21 13:28*	*10*
13C3 PFHxS	*82*		*55 - 115*	*11/08/21 15:54*	*11/09/21 13:28*	*10*
13C4 PFBA	*107*		*52 - 126*	*11/08/21 15:54*	*11/09/21 13:28*	*10*
13C4 PFHpA	*101*		*55 - 113*	*11/08/21 15:54*	*11/09/21 13:28*	*10*
13C5 PFHxA	*89*		*54 - 115*	*11/08/21 15:54*	*11/09/21 13:28*	*10*
13C5 PFPeA	*79*		*17 - 184*	*11/08/21 15:54*	*11/09/21 13:28*	*10*
13C6 PFDA	*99*		*56 - 114*	*11/08/21 15:54*	*11/09/21 13:28*	*10*
13C7 PFUnA	*100*		*50 - 120*	*11/08/21 15:54*	*11/09/21 13:28*	*10*
13C8 PFOA	*103*		*56 - 117*	*11/08/21 15:54*	*11/09/21 13:28*	*10*
13C8 PFOS	*104*		*56 - 112*	*11/08/21 15:54*	*11/09/21 13:28*	*10*
13C8 FOSA	*90*		*10 - 126*	*11/08/21 15:54*	*11/09/21 13:28*	*10*
13C9 PFNA	*106*		*54 - 122*	*11/08/21 15:54*	*11/09/21 13:28*	*10*
d5-NEtFOSAA	*101*		*65 - 134*	*11/08/21 15:54*	*11/09/21 13:28*	*10*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*76*		*40 - 173*	*11/08/21 15:54*	*11/09/21 13:28*	*10*
13C2 PFUnA	*88*		*49 - 132*	*11/08/21 15:54*	*11/09/21 13:28*	*10*
13C4 PFOA	*81*		*10 - 163*	*11/08/21 15:54*	*11/09/21 13:28*	*10*

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoroheptanoic acid	21000		1000	250	ng/L		11/08/21 15:54	11/09/21 14:10	100
Perfluoropentanoic acid	53000		1000	250	ng/L		11/08/21 15:54	11/09/21 14:10	100

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFHpA	*100*		*55 - 113*	*11/08/21 15:54*	*11/09/21 14:10*	*100*
13C5 PFPeA	*102*		*17 - 184*	*11/08/21 15:54*	*11/09/21 14:10*	*100*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*83*		*40 - 173*	*11/08/21 15:54*	*11/09/21 14:10*	*100*
13C2 PFUnA	*101*		*49 - 132*	*11/08/21 15:54*	*11/09/21 14:10*	*100*
13C4 PFOA	*81*		*10 - 163*	*11/08/21 15:54*	*11/09/21 14:10*	*100*

Method: Total PFCA-Dif - Total PFCA (Treatment Difference)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid	18000				ng/L			11/12/21 08:03	1
Perfluoropentanoic acid	53000				ng/L			11/12/21 08:03	1
Perfluorohexanoic acid	17000				ng/L			11/12/21 08:03	1
Perfluoroheptanoic acid	21000				ng/L			11/12/21 08:03	1
Perfluorooctanoic acid	4300				ng/L			11/12/21 08:03	1
Perfluorononanoic acid	2200				ng/L			11/12/21 08:03	1
Total PFCA	120000				ng/L			11/12/21 08:03	1

Client Sample Results

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-60469-1

Client Sample ID: FT2-RINSE 3-1

Lab Sample ID: 410-60469-7

Date Collected: 10/21/21 13:30
Matrix: Water
Date Received: 10/23/21 09:49

Method: Total PFCA-Sum - Total PFCA (Summary) - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total PFCA	<500		500	0.50	ng/L			11/12/21 08:03	1

Method: Total PFCA-Sum - Total PFCA (Summary) - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total PFCA	**120000**		500	0.50	ng/L			11/12/21 08:03	1

Client Sample ID: FT2-RINSE 4-1

Lab Sample ID: 410-60469-8

Date Collected: 10/21/21 15:10
Matrix: Water
Date Received: 10/23/21 09:49

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NEtFOSAA	<2.7		2.7	0.44	ng/L		10/29/21 18:31	11/03/21 04:59	1
NMeFOSAA	<1.8		1.8	0.53	ng/L		10/29/21 18:31	11/03/21 04:59	1
Perfluorobutanesulfonic acid	<1.8		1.8	0.44	ng/L		10/29/21 18:31	11/03/21 04:59	1
Perfluorobutanoic acid	<4.4		4.4	1.8	ng/L		10/29/21 18:31	11/03/21 04:59	1
Perfluorodecanesulfonic acid	<1.8		1.8	0.44	ng/L		10/29/21 18:31	11/03/21 04:59	1
Perfluorodecanoic acid	**13**		1.8	0.44	ng/L		10/29/21 18:31	11/03/21 04:59	1
Perfluorododecanoic acid	**4.4**		1.8	0.44	ng/L		10/29/21 18:31	11/03/21 04:59	1
Perfluoroheptanesulfonic acid	<1.8		1.8	0.44	ng/L		10/29/21 18:31	11/03/21 04:59	1
Perfluoroheptanoic acid	**5.4**		1.8	0.44	ng/L		10/29/21 18:31	11/03/21 04:59	1
Perfluorohexanesulfonic acid	<1.8		1.8	0.44	ng/L		10/29/21 18:31	11/03/21 04:59	1
Perfluorohexanoic acid	**25**		1.8	0.44	ng/L		10/29/21 18:31	11/03/21 04:59	1
Perfluorononanesulfonic acid	<1.8		1.8	0.44	ng/L		10/29/21 18:31	11/03/21 04:59	1
Perfluorononanoic acid	**7.2**		1.8	0.44	ng/L		10/29/21 18:31	11/03/21 04:59	1
Perfluorooctanesulfonamide	<1.8		1.8	0.44	ng/L		10/29/21 18:31	11/03/21 04:59	1
Perfluorooctanesulfonic acid	**2.7**		1.8	0.44	ng/L		10/29/21 18:31	11/03/21 04:59	1
Perfluorooctanoic acid	**35**		1.8	0.44	ng/L		10/29/21 18:31	11/03/21 04:59	1
Perfluoropentanesulfonic acid	<1.8		1.8	0.44	ng/L		10/29/21 18:31	11/03/21 04:59	1
Perfluoropentanoic acid	**2.5**		1.8	0.44	ng/L		10/29/21 18:31	11/03/21 04:59	1
Perfluorotetradecanoic acid	**1.9**		1.8	0.44	ng/L		10/29/21 18:31	11/03/21 04:59	1
Perfluorotridecanoic acid	**1.9**		1.8	0.44	ng/L		10/29/21 18:31	11/03/21 04:59	1
Perfluoroundecanoic acid	<1.8		1.8	0.44	ng/L		10/29/21 18:31	11/03/21 04:59	1
4:2 Fluorotelomer sulfonic acid	<1.8		1.8	0.44	ng/L		10/29/21 18:31	11/03/21 04:59	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-4:2 FTS	*287*	**5+*	*20 - 187*	*10/29/21 18:31*	*11/03/21 04:59*	*1*
M2-6:2 FTS	*90*		*29 - 189*	*10/29/21 18:31*	*11/03/21 04:59*	*1*
M2-8:2 FTS	*61*		*34 - 182*	*10/29/21 18:31*	*11/03/21 04:59*	*1*
13C2 PFTeDA	*72*		*10 - 144*	*10/29/21 18:31*	*11/03/21 04:59*	*1*
13C3 PFBS	*130*		*19 - 178*	*10/29/21 18:31*	*11/03/21 04:59*	*1*
13C4 PFBA	*93*		*41 - 132*	*10/29/21 18:31*	*11/03/21 04:59*	*1*
13C4 PFHpA	*269*	**5+*	*30 - 144*	*10/29/21 18:31*	*11/03/21 04:59*	*1*
13C5 PFPeA	*113*		*33 - 155*	*10/29/21 18:31*	*11/03/21 04:59*	*1*
13C8 PFOA	*51*		*49 - 127*	*10/29/21 18:31*	*11/03/21 04:59*	*1*
13C8 PFOS	*75*		*49 - 126*	*10/29/21 18:31*	*11/03/21 04:59*	*1*
d3-NMeFOSAA	*102*		*32 - 151*	*10/29/21 18:31*	*11/03/21 04:59*	*1*
d5-NEtFOSAA	*111*		*37 - 164*	*10/29/21 18:31*	*11/03/21 04:59*	*1*
13C3 PFHxS	*232*	**5+*	*32 - 145*	*10/29/21 18:31*	*11/03/21 04:59*	*1*
13C5 PFHxA	*234*	**5+*	*31 - 142*	*10/29/21 18:31*	*11/03/21 04:59*	*1*
13C6 PFDA	*68*		*47 - 128*	*10/29/21 18:31*	*11/03/21 04:59*	*1*

Client Sample ID: FT2-RINSE 4-1

Lab Sample ID: 410-60469-8

Date Collected: 10/21/21 15:10
Date Received: 10/23/21 09:49

Matrix: Water

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C7 PFUnA	114		40 - 135	10/29/21 18:31	11/03/21 04:59	1
13C8 FOSA	81		10 - 143	10/29/21 18:31	11/03/21 04:59	1
13C2-PFDoDA	81		28 - 136	10/29/21 18:31	11/03/21 04:59	1
13C9 PFNA	125		47 - 136	10/29/21 18:31	11/03/21 04:59	1

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
6:2 Fluorotelomer sulfonic acid	**2900**		440	180	ng/L		10/29/21 18:31	11/09/21 19:03	100
8:2 Fluorotelomer sulfonic acid	**860**		270	89	ng/L		10/29/21 18:31	11/09/21 19:03	100

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
M2-6:2 FTS	126		29 - 189	10/29/21 18:31	11/09/21 19:03	100
M2-8:2 FTS	111		34 - 182	10/29/21 18:31	11/09/21 19:03	100

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4:2 Fluorotelomer sulfonic acid	<100		100	25	ng/L		11/08/21 15:54	11/09/21 14:21	10
6:2 Fluorotelomer sulfonic acid	<250		250	100	ng/L		11/08/21 15:54	11/09/21 14:21	10
8:2 Fluorotelomer sulfonic acid	<150		150	50	ng/L		11/08/21 15:54	11/09/21 14:21	10
NEtFOSAA	<150		150	25	ng/L		11/08/21 15:54	11/09/21 14:21	10
NMeFOSAA	<100		100	30	ng/L		11/08/21 15:54	11/09/21 14:21	10
Perfluorobutanesulfonic acid	<100		100	25	ng/L		11/08/21 15:54	11/09/21 14:21	10
Perfluorobutanoic acid	**8500**		250	100	ng/L		11/08/21 15:54	11/09/21 14:21	10
Perfluorodecanesulfonic acid	<100		100	25	ng/L		11/08/21 15:54	11/09/21 14:21	10
Perfluorodecanoic acid	**790**		100	25	ng/L		11/08/21 15:54	11/09/21 14:21	10
Perfluorododecanoic acid	**430**	I	100	25	ng/L		11/08/21 15:54	11/09/21 14:21	10
Perfluoroheptanesulfonic acid	<100		100	25	ng/L		11/08/21 15:54	11/09/21 14:21	10
Perfluoroheptanoic acid	**9500**		100	25	ng/L		11/08/21 15:54	11/09/21 14:21	10
Perfluorohexanesulfonic acid	<100		100	25	ng/L		11/08/21 15:54	11/09/21 14:21	10
Perfluorohexanoic acid	**9600**		100	25	ng/L		11/08/21 15:54	11/09/21 14:21	10
Perfluorononanesulfonic acid	<100		100	25	ng/L		11/08/21 15:54	11/09/21 14:21	10
Perfluorononanoic acid	**1400**		100	25	ng/L		11/08/21 15:54	11/09/21 14:21	10
Perfluorooctanesulfonamide	<100		100	25	ng/L		11/08/21 15:54	11/09/21 14:21	10
Perfluorooctanesulfonic acid	<100		100	25	ng/L		11/08/21 15:54	11/09/21 14:21	10
Perfluorooctanoic acid	**2700**		100	25	ng/L		11/08/21 15:54	11/09/21 14:21	10
Perfluoropentanesulfonic acid	<100		100	25	ng/L		11/08/21 15:54	11/09/21 14:21	10
Perfluorotetradecanoic acid	**280**		100	25	ng/L		11/08/21 15:54	11/09/21 14:21	10
Perfluorotridecanoic acid	**250**		100	25	ng/L		11/08/21 15:54	11/09/21 14:21	10
Perfluoroundecanoic acid	**710**		100	25	ng/L		11/08/21 15:54	11/09/21 14:21	10

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
M2-6:2 FTS	103		55 - 167	11/08/21 15:54	11/09/21 14:21	10
M2-8:2 FTS	121		61 - 160	11/08/21 15:54	11/09/21 14:21	10
13C2-PFDoDA	95		47 - 118	11/08/21 15:54	11/09/21 14:21	10
13C2 PFTeDA	87		32 - 126	11/08/21 15:54	11/09/21 14:21	10
13C3 PFBS	106		18 - 177	11/08/21 15:54	11/09/21 14:21	10
13C3 PFHxS	86		55 - 115	11/08/21 15:54	11/09/21 14:21	10
13C4 PFBA	100		52 - 126	11/08/21 15:54	11/09/21 14:21	10
13C4 PFHpA	97		55 - 113	11/08/21 15:54	11/09/21 14:21	10
13C5 PFHxA	90		54 - 115	11/08/21 15:54	11/09/21 14:21	10
13C5 PFPeA	86		17 - 184	11/08/21 15:54	11/09/21 14:21	10

Client Sample ID: FT2-RINSE 4-1

Lab Sample ID: 410-60469-8

Date Collected: 10/21/21 15:10
Matrix: Water
Date Received: 10/23/21 09:49

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C6 PFDA	95		56 - 114	11/08/21 15:54	11/09/21 14:21	10
13C7 PFUnA	104		50 - 120	11/08/21 15:54	11/09/21 14:21	10
13C8 PFOA	99		56 - 117	11/08/21 15:54	11/09/21 14:21	10
13C8 PFOS	105		56 - 112	11/08/21 15:54	11/09/21 14:21	10
13C8 FOSA	90		10 - 126	11/08/21 15:54	11/09/21 14:21	10
13C9 PFNA	119		54 - 122	11/08/21 15:54	11/09/21 14:21	10
d5-NEtFOSAA	86		65 - 134	11/08/21 15:54	11/09/21 14:21	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	70		40 - 173	11/08/21 15:54	11/09/21 14:21	10
13C2 PFUnA	81		49 - 132	11/08/21 15:54	11/09/21 14:21	10
13C4 PFOA	74		10 - 163	11/08/21 15:54	11/09/21 14:21	10

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoropentanoic acid	24000		1000	250	ng/L		11/08/21 15:54	11/09/21 14:42	100

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C5 PFPeA	100		17 - 184	11/08/21 15:54	11/09/21 14:42	100

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	74		40 - 173	11/08/21 15:54	11/09/21 14:42	100
13C2 PFUnA	90		49 - 132	11/08/21 15:54	11/09/21 14:42	100
13C4 PFOA	91		10 - 163	11/08/21 15:54	11/09/21 14:42	100

Method: Total PFCA-Dif - Total PFCA (Treatment Difference)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid	8500				ng/L			11/11/21 15:01	1
Perfluoropentanoic acid	24000				ng/L			11/11/21 15:01	1
Perfluorohexanoic acid	9600				ng/L			11/11/21 15:01	1
Perfluoroheptanoic acid	9500				ng/L			11/11/21 15:01	1
Perfluorooctanoic acid	2600				ng/L			11/11/21 15:01	1
Perfluorononanoic acid	1400				ng/L			11/11/21 15:01	1
Total PFCA	56000				ng/L			11/11/21 15:01	1

Method: Total PFCA-Sum - Total PFCA (Summary) - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total PFCA	<500		500	0.50	ng/L			11/11/21 14:59	1

Method: Total PFCA-Sum - Total PFCA (Summary) - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total PFCA	56000		500	0.50	ng/L			11/11/21 14:59	1

Client Sample ID: FT2-RINSE 4-2

Lab Sample ID: 410-60469-9

Date Collected: 10/21/21 15:15
Matrix: Water
Date Received: 10/23/21 09:49

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NEtFOSAA	<2.6		2.6	0.43	ng/L		10/29/21 18:31	11/03/21 05:09	1
NMeFOSAA	<1.7		1.7	0.52	ng/L		10/29/21 18:31	11/03/21 05:09	1
Perfluorobutanesulfonic acid	<1.7		1.7	0.43	ng/L		10/29/21 18:31	11/03/21 05:09	1

Client Sample ID: FT2-RINSE 4-2

Lab Sample ID: 410-60469-9

Date Collected: 10/21/21 15:15
Matrix: Water
Date Received: 10/23/21 09:49

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid	<4.3		4.3	1.7	ng/L		10/29/21 18:31	11/03/21 05:09	1
Perfluorodecanesulfonic acid	<1.7		1.7	0.43	ng/L		10/29/21 18:31	11/03/21 05:09	1
Perfluorodecanoic acid	**10**		1.7	0.43	ng/L		10/29/21 18:31	11/03/21 05:09	1
Perfluorododecanoic acid	**3.9**		1.7	0.43	ng/L		10/29/21 18:31	11/03/21 05:09	1
Perfluoroheptanesulfonic acid	<1.7		1.7	0.43	ng/L		10/29/21 18:31	11/03/21 05:09	1
Perfluoroheptanoic acid	**6.3**		1.7	0.43	ng/L		10/29/21 18:31	11/03/21 05:09	1
Perfluorohexanesulfonic acid	<1.7		1.7	0.43	ng/L		10/29/21 18:31	11/03/21 05:09	1
Perfluorohexanoic acid	**28**		1.7	0.43	ng/L		10/29/21 18:31	11/03/21 05:09	1
Perfluorononanesulfonic acid	<1.7		1.7	0.43	ng/L		10/29/21 18:31	11/03/21 05:09	1
Perfluorononanoic acid	**7.8**		1.7	0.43	ng/L		10/29/21 18:31	11/03/21 05:09	1
Perfluorooctanesulfonamide	<1.7		1.7	0.43	ng/L		10/29/21 18:31	11/03/21 05:09	1
Perfluorooctanesulfonic acid	**2.5**		1.7	0.43	ng/L		10/29/21 18:31	11/03/21 05:09	1
Perfluorooctanoic acid	**22**		1.7	0.43	ng/L		10/29/21 18:31	11/03/21 05:09	1
Perfluoropentanesulfonic acid	<1.7		1.7	0.43	ng/L		10/29/21 18:31	11/03/21 05:09	1
Perfluoropentanoic acid	**2.8**		1.7	0.43	ng/L		10/29/21 18:31	11/03/21 05:09	1
Perfluorotetradecanoic acid	**1.8**		1.7	0.43	ng/L		10/29/21 18:31	11/03/21 05:09	1
Perfluorotridecanoic acid	**1.9**		1.7	0.43	ng/L		10/29/21 18:31	11/03/21 05:09	1
Perfluoroundecanoic acid	**3.9**		1.7	0.43	ng/L		10/29/21 18:31	11/03/21 05:09	1
4:2 Fluorotelomer sulfonic acid	<1.7		1.7	0.43	ng/L		10/29/21 18:31	11/03/21 05:09	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-4:2 FTS	*295*	**5+*	*20 - 187*	*10/29/21 18:31*	*11/03/21 05:09*	*1*
M2-6:2 FTS	*93*		*29 - 189*	*10/29/21 18:31*	*11/03/21 05:09*	*1*
M2-8:2 FTS	*64*		*34 - 182*	*10/29/21 18:31*	*11/03/21 05:09*	*1*
13C2 PFTeDA	*90*		*10 - 144*	*10/29/21 18:31*	*11/03/21 05:09*	*1*
13C3 PFBS	*128*		*19 - 178*	*10/29/21 18:31*	*11/03/21 05:09*	*1*
13C4 PFBA	*92*		*41 - 132*	*10/29/21 18:31*	*11/03/21 05:09*	*1*
13C4 PFHpA	*279*	**5+*	*30 - 144*	*10/29/21 18:31*	*11/03/21 05:09*	*1*
13C5 PFPeA	*112*		*33 - 155*	*10/29/21 18:31*	*11/03/21 05:09*	*1*
13C8 PFOA	*83*		*49 - 127*	*10/29/21 18:31*	*11/03/21 05:09*	*1*
13C8 PFOS	*79*		*49 - 126*	*10/29/21 18:31*	*11/03/21 05:09*	*1*
d3-NMeFOSAA	*104*		*32 - 151*	*10/29/21 18:31*	*11/03/21 05:09*	*1*
d5-NEtFOSAA	*122*		*37 - 164*	*10/29/21 18:31*	*11/03/21 05:09*	*1*
13C3 PFHxS	*236*	**5+*	*32 - 145*	*10/29/21 18:31*	*11/03/21 05:09*	*1*
13C5 PFHxA	*242*	**5+*	*31 - 142*	*10/29/21 18:31*	*11/03/21 05:09*	*1*
13C6 PFDA	*72*		*47 - 128*	*10/29/21 18:31*	*11/03/21 05:09*	*1*
13C7 PFUnA	*113*		*40 - 135*	*10/29/21 18:31*	*11/03/21 05:09*	*1*
13C8 FOSA	*88*		*10 - 143*	*10/29/21 18:31*	*11/03/21 05:09*	*1*
13C2-PFDoDA	*88*		*28 - 136*	*10/29/21 18:31*	*11/03/21 05:09*	*1*
13C9 PFNA	*119*		*47 - 136*	*10/29/21 18:31*	*11/03/21 05:09*	*1*

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
6:2 Fluorotelomer sulfonic acid	**2500**		430	170	ng/L		10/29/21 18:31	11/09/21 19:14	100
8:2 Fluorotelomer sulfonic acid	**890**		260	86	ng/L		10/29/21 18:31	11/09/21 19:14	100

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-6:2 FTS	*133*		*29 - 189*	*10/29/21 18:31*	*11/09/21 19:14*	*100*
M2-8:2 FTS	*102*		*34 - 182*	*10/29/21 18:31*	*11/09/21 19:14*	*100*

Client Sample Results

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-60469-1

Client Sample ID: FT2-RINSE 4-2

Date Collected: 10/21/21 15:15
Date Received: 10/23/21 09:49

Lab Sample ID: 410-60469-9

Matrix: Water

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4:2 Fluorotelomer sulfonic acid	<100		100	25	ng/L		11/08/21 15:54	11/09/21 14:53	10
6:2 Fluorotelomer sulfonic acid	<250		250	100	ng/L		11/08/21 15:54	11/09/21 14:53	10
8:2 Fluorotelomer sulfonic acid	<150		150	50	ng/L		11/08/21 15:54	11/09/21 14:53	10
NEtFOSAA	<150		150	25	ng/L		11/08/21 15:54	11/09/21 14:53	10
NMeFOSAA	<100		100	30	ng/L		11/08/21 15:54	11/09/21 14:53	10
Perfluorobutanesulfonic acid	<100		100	25	ng/L		11/08/21 15:54	11/09/21 14:53	10
Perfluorobutanoic acid	**7100**		250	100	ng/L		11/08/21 15:54	11/09/21 14:53	10
Perfluorodecanesulfonic acid	<100		100	25	ng/L		11/08/21 15:54	11/09/21 14:53	10
Perfluorodecanoic acid	**560**		100	25	ng/L		11/08/21 15:54	11/09/21 14:53	10
Perfluorododecanoic acid	**370**	I	100	25	ng/L		11/08/21 15:54	11/09/21 14:53	10
Perfluoroheptanesulfonic acid	<100		100	25	ng/L		11/08/21 15:54	11/09/21 14:53	10
Perfluoroheptanoic acid	**7900**		100	25	ng/L		11/08/21 15:54	11/09/21 14:53	10
Perfluorohexanesulfonic acid	<100		100	25	ng/L		11/08/21 15:54	11/09/21 14:53	10
Perfluorohexanoic acid	**7700**		100	25	ng/L		11/08/21 15:54	11/09/21 14:53	10
Perfluorononanesulfonic acid	<100		100	25	ng/L		11/08/21 15:54	11/09/21 14:53	10
Perfluorononanoic acid	**930**		100	25	ng/L		11/08/21 15:54	11/09/21 14:53	10
Perfluorooctanesulfonamide	<100		100	25	ng/L		11/08/21 15:54	11/09/21 14:53	10
Perfluorooctanesulfonic acid	<100		100	25	ng/L		11/08/21 15:54	11/09/21 14:53	10
Perfluorooctanoic acid	**2200**		100	25	ng/L		11/08/21 15:54	11/09/21 14:53	10
Perfluoropentanesulfonic acid	<100		100	25	ng/L		11/08/21 15:54	11/09/21 14:53	10
Perfluoropentanoic acid	**17000**		100	25	ng/L		11/08/21 15:54	11/09/21 14:53	10
Perfluorotetradecanoic acid	**270**		100	25	ng/L		11/08/21 15:54	11/09/21 14:53	10
Perfluorotridecanoic acid	**220**		100	25	ng/L		11/08/21 15:54	11/09/21 14:53	10
Perfluoroundecanoic acid	**640**	I	100	25	ng/L		11/08/21 15:54	11/09/21 14:53	10

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-6:2 FTS	*95*		*55 - 167*	*11/08/21 15:54*	*11/09/21 14:53*	*10*
M2-8:2 FTS	*118*		*61 - 160*	*11/08/21 15:54*	*11/09/21 14:53*	*10*
13C2-PFDoDA	*95*		*47 - 118*	*11/08/21 15:54*	*11/09/21 14:53*	*10*
13C2 PFTeDA	*85*		*32 - 126*	*11/08/21 15:54*	*11/09/21 14:53*	*10*
13C3 PFBS	*95*		*18 - 177*	*11/08/21 15:54*	*11/09/21 14:53*	*10*
13C3 PFHxS	*82*		*55 - 115*	*11/08/21 15:54*	*11/09/21 14:53*	*10*
13C4 PFBA	*97*		*52 - 126*	*11/08/21 15:54*	*11/09/21 14:53*	*10*
13C4 PFHpA	*92*		*55 - 113*	*11/08/21 15:54*	*11/09/21 14:53*	*10*
13C5 PFHxA	*87*		*54 - 115*	*11/08/21 15:54*	*11/09/21 14:53*	*10*
13C5 PFPeA	*84*		*17 - 184*	*11/08/21 15:54*	*11/09/21 14:53*	*10*
13C6 PFDA	*98*		*56 - 114*	*11/08/21 15:54*	*11/09/21 14:53*	*10*
13C7 PFUnA	*100*		*50 - 120*	*11/08/21 15:54*	*11/09/21 14:53*	*10*
13C8 PFOA	*90*		*56 - 117*	*11/08/21 15:54*	*11/09/21 14:53*	*10*
13C8 PFOS	*95*		*56 - 112*	*11/08/21 15:54*	*11/09/21 14:53*	*10*
13C8 FOSA	*89*		*10 - 126*	*11/08/21 15:54*	*11/09/21 14:53*	*10*
13C9 PFNA	*119*		*54 - 122*	*11/08/21 15:54*	*11/09/21 14:53*	*10*
d5-NEtFOSAA	*109*		*65 - 134*	*11/08/21 15:54*	*11/09/21 14:53*	*10*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*64*		*40 - 173*	*11/08/21 15:54*	*11/09/21 14:53*	*10*
13C2 PFUnA	*73*		*49 - 132*	*11/08/21 15:54*	*11/09/21 14:53*	*10*
13C4 PFOA	*70*		*10 - 163*	*11/08/21 15:54*	*11/09/21 14:53*	*10*

Client Sample ID: FT2-RINSE 4-2

Lab Sample ID: 410-60469-9

Date Collected: 10/21/21 15:15

Matrix: Water

Date Received: 10/23/21 09:49

Method: Total PFCA-Dif - Total PFCA (Treatment Difference)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid	**7100**				ng/L			11/11/21 15:01	1
Perfluoropentanoic acid	**17000**				ng/L			11/11/21 15:01	1
Perfluorohexanoic acid	**7700**				ng/L			11/11/21 15:01	1
Perfluoroheptanoic acid	**7900**				ng/L			11/11/21 15:01	1
Perfluorooctanoic acid	**2200**				ng/L			11/11/21 15:01	1
Perfluorononanoic acid	**920**				ng/L			11/11/21 15:01	1
Total PFCA	**43000**				ng/L			11/11/21 15:01	1

Method: Total PFCA-Sum - Total PFCA (Summary) - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total PFCA	<500		500	0.50	ng/L			11/11/21 14:59	1

Method: Total PFCA-Sum - Total PFCA (Summary) - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total PFCA	**43000**		500	0.50	ng/L			11/11/21 14:59	1

Client Sample ID: FT12-EFF 2-1

Lab Sample ID: 410-60469-10

Date Collected: 10/21/21 07:45

Matrix: Water

Date Received: 10/23/21 09:49

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NEtFOSAA	<2.7		2.7	0.46	ng/L		10/29/21 18:31	11/03/21 05:20	1
NMeFOSAA	<1.8		1.8	0.55	ng/L		10/29/21 18:31	11/03/21 05:20	1
Perfluorobutanesulfonic acid	<1.8		1.8	0.46	ng/L		10/29/21 18:31	11/03/21 05:20	1
Perfluorobutanoic acid	**34**		4.6	1.8	ng/L		10/29/21 18:31	11/03/21 05:20	1
Perfluorodecanesulfonic acid	<1.8		1.8	0.46	ng/L		10/29/21 18:31	11/03/21 05:20	1
Perfluorodecanoic acid	<1.8		1.8	0.46	ng/L		10/29/21 18:31	11/03/21 05:20	1
Perfluorododecanoic acid	**3.9**		1.8	0.46	ng/L		10/29/21 18:31	11/03/21 05:20	1
Perfluoroheptanesulfonic acid	<1.8		1.8	0.46	ng/L		10/29/21 18:31	11/03/21 05:20	1
Perfluoroheptanoic acid	<1.8		1.8	0.46	ng/L		10/29/21 18:31	11/03/21 05:20	1
Perfluorohexanesulfonic acid	<1.8	F2 F1	1.8	0.46	ng/L		10/29/21 18:31	11/03/21 05:20	1
Perfluorohexanoic acid	**31**	**F1**	1.8	0.46	ng/L		10/29/21 18:31	11/03/21 05:20	1
Perfluorononanesulfonic acid	<1.8		1.8	0.46	ng/L		10/29/21 18:31	11/03/21 05:20	1
Perfluorononanoic acid	<1.8		1.8	0.46	ng/L		10/29/21 18:31	11/03/21 05:20	1
Perfluorooctanesulfonamide	<1.8		1.8	0.46	ng/L		10/29/21 18:31	11/03/21 05:20	1
Perfluorooctanesulfonic acid	<1.8	F2 F1	1.8	0.46	ng/L		10/29/21 18:31	11/03/21 05:20	1
Perfluorooctanoic acid	<1.8		1.8	0.46	ng/L		10/29/21 18:31	11/03/21 05:20	1
Perfluoropentanesulfonic acid	<1.8		1.8	0.46	ng/L		10/29/21 18:31	11/03/21 05:20	1
Perfluoropentanoic acid	**7.5**		1.8	0.46	ng/L		10/29/21 18:31	11/03/21 05:20	1
Perfluorotetradecanoic acid	**1.9**		1.8	0.46	ng/L		10/29/21 18:31	11/03/21 05:20	1
Perfluorotridecanoic acid	<1.8		1.8	0.46	ng/L		10/29/21 18:31	11/03/21 05:20	1
Perfluoroundecanoic acid	<1.8		1.8	0.46	ng/L		10/29/21 18:31	11/03/21 05:20	1
8:2 Fluorotelomer sulfonic acid	**27**	**F1**	2.7	0.91	ng/L		10/29/21 18:31	11/03/21 05:20	1
4:2 Fluorotelomer sulfonic acid	<1.8		1.8	0.46	ng/L		10/29/21 18:31	11/03/21 05:20	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-4:2 FTS	*129*		*20 - 187*	*10/29/21 18:31*	*11/03/21 05:20*	*1*
M2-6:2 FTS	*92*		*29 - 189*	*10/29/21 18:31*	*11/03/21 05:20*	*1*
M2-8:2 FTS	*56*		*34 - 182*	*10/29/21 18:31*	*11/03/21 05:20*	*1*
13C2 PFTeDA	*27*		*10 - 144*	*10/29/21 18:31*	*11/03/21 05:20*	*1*

Client Sample ID: FT12-EFF 2-1

Date Collected: 10/21/21 07:45
Date Received: 10/23/21 09:49

Lab Sample ID: 410-60469-10

Matrix: Water

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 PFBS	102		19 - 178	10/29/21 18:31	11/03/21 05:20	1
13C4 PFBA	97		41 - 132	10/29/21 18:31	11/03/21 05:20	1
13C4 PFHpA	104		30 - 144	10/29/21 18:31	11/03/21 05:20	1
13C5 PFPeA	101		33 - 155	10/29/21 18:31	11/03/21 05:20	1
13C8 PFOA	83		49 - 127	10/29/21 18:31	11/03/21 05:20	1
13C8 PFOS	52		49 - 126	10/29/21 18:31	11/03/21 05:20	1
d3-NMeFOSAA	43		32 - 151	10/29/21 18:31	11/03/21 05:20	1
d5-NEtFOSAA	44		37 - 164	10/29/21 18:31	11/03/21 05:20	1
13C3 PFHxS	74		32 - 145	10/29/21 18:31	11/03/21 05:20	1
13C5 PFHxA	101		31 - 142	10/29/21 18:31	11/03/21 05:20	1
13C6 PFDA	50		47 - 128	10/29/21 18:31	11/03/21 05:20	1
13C7 PFUnA	43		40 - 135	10/29/21 18:31	11/03/21 05:20	1
13C8 FOSA	29		10 - 143	10/29/21 18:31	11/03/21 05:20	1
13C2-PFDoDA	38		28 - 136	10/29/21 18:31	11/03/21 05:20	1
13C9 PFNA	74		47 - 136	10/29/21 18:31	11/03/21 05:20	1

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
6:2 Fluorotelomer sulfonic acid	**320**		46	18	ng/L		10/29/21 18:31	11/05/21 21:26	10

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
M2-6:2 FTS	105		29 - 189	10/29/21 18:31	11/05/21 21:26	10

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4:2 Fluorotelomer sulfonic acid	<10		10	2.5	ng/L		11/08/21 15:54	11/09/21 15:24	1
6:2 Fluorotelomer sulfonic acid	<25		25	10	ng/L		11/08/21 15:54	11/09/21 15:24	1
8:2 Fluorotelomer sulfonic acid	<15		15	5.0	ng/L		11/08/21 15:54	11/09/21 15:24	1
NEtFOSAA	<15		15	2.5	ng/L		11/08/21 15:54	11/09/21 15:24	1
NMeFOSAA	<10		10	3.0	ng/L		11/08/21 15:54	11/09/21 15:24	1
Perfluorobutanesulfonic acid	<10		10	2.5	ng/L		11/08/21 15:54	11/09/21 15:24	1
Perfluorobutanoic acid	**1700**		25	10	ng/L		11/08/21 15:54	11/09/21 15:24	1
Perfluorodecanesulfonic acid	<10		10	2.5	ng/L		11/08/21 15:54	11/09/21 15:24	1
Perfluorodecanoic acid	**66**		10	2.5	ng/L		11/08/21 15:54	11/09/21 15:24	1
Perfluorododecanoic acid	**59**	**I**	10	2.5	ng/L		11/08/21 15:54	11/09/21 15:24	1
Perfluoroheptanesulfonic acid	<10		10	2.5	ng/L		11/08/21 15:54	11/09/21 15:24	1
Perfluoroheptanoic acid	**280**		10	2.5	ng/L		11/08/21 15:54	11/09/21 15:24	1
Perfluorohexanesulfonic acid	<10		10	2.5	ng/L		11/08/21 15:54	11/09/21 15:24	1
Perfluorohexanoic acid	**1200**		10	2.5	ng/L		11/08/21 15:54	11/09/21 15:24	1
Perfluorononanesulfonic acid	<10		10	2.5	ng/L		11/08/21 15:54	11/09/21 15:24	1
Perfluorononanoic acid	**61**		10	2.5	ng/L		11/08/21 15:54	11/09/21 15:24	1
Perfluorooctanesulfonamide	<10		10	2.5	ng/L		11/08/21 15:54	11/09/21 15:24	1
Perfluorooctanesulfonic acid	<10		10	2.5	ng/L		11/08/21 15:54	11/09/21 15:24	1
Perfluorooctanoic acid	**53**		10	2.5	ng/L		11/08/21 15:54	11/09/21 15:24	1
Perfluoropentanesulfonic acid	<10		10	2.5	ng/L		11/08/21 15:54	11/09/21 15:24	1
Perfluorotetradecanoic acid	**25**		10	2.5	ng/L		11/08/21 15:54	11/09/21 15:24	1
Perfluorotridecanoic acid	**35**		10	2.5	ng/L		11/08/21 15:54	11/09/21 15:24	1
Perfluoroundecanoic acid	**110**		10	2.5	ng/L		11/08/21 15:54	11/09/21 15:24	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C5 PFPeA	90		17 - 184	11/08/21 15:54	11/09/21 15:24	1

Client Sample ID: FT12-EFF 2-1

Lab Sample ID: 410-60469-10

Date Collected: 10/21/21 07:45

Matrix: Water

Date Received: 10/23/21 09:49

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	71		40 - 173	11/08/21 15:54	11/09/21 15:24	1
13C2 PFUnA	85		49 - 132	11/08/21 15:54	11/09/21 15:24	1
13C4 PFOA	80		10 - 163	11/08/21 15:54	11/09/21 15:24	1

Method: 537 TOP - Fluorinated Alkyl Substances - Post-Treatment - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoropentanoic acid	3500		100	25	ng/L		11/08/21 15:54	11/09/21 15:35	10

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
M2-6:2 FTS	105		55 - 167	11/08/21 15:54	11/09/21 15:35	10
M2-8:2 FTS	103		61 - 160	11/08/21 15:54	11/09/21 15:35	10
13C2-PFDoDA	94		47 - 118	11/08/21 15:54	11/09/21 15:35	10
13C2 PFTeDA	98		32 - 126	11/08/21 15:54	11/09/21 15:35	10
13C3 PFBS	89		18 - 177	11/08/21 15:54	11/09/21 15:35	10
13C3 PFHxS	105		55 - 115	11/08/21 15:54	11/09/21 15:35	10
13C4 PFBA	105		52 - 126	11/08/21 15:54	11/09/21 15:35	10
13C4 PFHpA	102		55 - 113	11/08/21 15:54	11/09/21 15:35	10
13C5 PFHxA	98		54 - 115	11/08/21 15:54	11/09/21 15:35	10
13C5 PFPeA	99		17 - 184	11/08/21 15:54	11/09/21 15:35	10
13C6 PFDA	106		56 - 114	11/08/21 15:54	11/09/21 15:35	10
13C7 PFUnA	114		50 - 120	11/08/21 15:54	11/09/21 15:35	10
13C8 PFOA	106		56 - 117	11/08/21 15:54	11/09/21 15:35	10
13C8 PFOS	103		56 - 112	11/08/21 15:54	11/09/21 15:35	10
13C8 FOSA	96		10 - 126	11/08/21 15:54	11/09/21 15:35	10
13C9 PFNA	121		54 - 122	11/08/21 15:54	11/09/21 15:35	10
d5-NEtFOSAA	128		65 - 134	11/08/21 15:54	11/09/21 15:35	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	69		40 - 173	11/08/21 15:54	11/09/21 15:35	10
13C2 PFUnA	84		49 - 132	11/08/21 15:54	11/09/21 15:35	10
13C4 PFOA	89		10 - 163	11/08/21 15:54	11/09/21 15:35	10

Method: Total PFCA-Dif - Total PFCA (Treatment Difference)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid	1600				ng/L			11/11/21 10:56	1
Perfluoropentanoic acid	3500				ng/L			11/11/21 10:56	1
Perfluorohexanoic acid	1200				ng/L			11/11/21 10:56	1
Perfluoroheptanoic acid	280				ng/L			11/11/21 10:56	1
Perfluorooctanoic acid	53				ng/L			11/11/21 10:56	1
Perfluorononanoic acid	61				ng/L			11/11/21 10:56	1
Total PFCA	6800				ng/L			11/11/21 10:56	1

Method: Total PFCA-Sum - Total PFCA (Summary) - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total PFCA	<500		500	0.50	ng/L			11/11/21 10:54	1

Method: Total PFCA-Sum - Total PFCA (Summary) - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total PFCA	6800		500	0.50	ng/L			11/11/21 10:54	1

Surrogate Summary

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-60469-1

Method: 537 TOP - Fluorinated Alkyl Substances

Matrix: Water **Prep Type: Post-Treatment**

		Percent Surrogate Recovery (Acceptance Limits)		
		PFHxA	PFUnA	PFOA
Lab Sample ID	Client Sample ID	(40-173)	(49-132)	(10-163)
410-60469-1	FT2-RINSE 1-1	263 S1+	153 S1+	112
410-60469-2 - DL	HOSE-PRE-1	64	92	82
410-60469-2	HOSE-PRE-1	67	81	80
410-60469-3	HOSE-PRE-12 HRS-1	63	71	69
410-60469-3 - DL	HOSE-PRE-12 HRS-1	58	70	71
410-60469-4	FT2-RINSE 2-1	102	97	67
410-60469-4 - RA	FT2-RINSE 2-1	96	88	63
410-60469-4 - DL	FT2-RINSE 2-1	143	119	96
410-60469-5	HOSE-POST-1	64	96	83
410-60469-5 - DL	HOSE-POST-1	73	105	112
410-60469-6	FT2-EFF 1-1	61	72	76
410-60469-6 - DL	FT2-EFF 1-1	70	91	88
410-60469-7	FT2-RINSE 3-1	76	88	81
410-60469-7 - DL	FT2-RINSE 3-1	83	101	81
410-60469-8	FT2-RINSE 4-1	70	81	74
410-60469-8 - DL	FT2-RINSE 4-1	74	90	91
410-60469-9	FT2-RINSE 4-2	64	73	70
410-60469-10	FT12-EFF 2-1	71	85	80
410-60469-10 - DL	FT12-EFF 2-1	69	84	89
LCS 410-192176/3-A	Lab Control Sample	67	81	77
LCSD 410-192176/4-A	Lab Control Sample Dup	62	74	79
MB 410-192176/2-A	Method Blank	63	82	72

Surrogate Legend

PFHxA = 13C2 PFHxA
PFUnA = 13C2 PFUnA
PFOA = 13C4 PFOA

Isotope Dilution Summary

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-60469-1

Method: 537 IDA - EPA 537 Isotope Dilution

Matrix: Water **Prep Type: Pre-Treatment**

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		M242FTS	M262FTS	M282FTS	PFTDA	HFPODA	C3PFBS	PFBA	C4PFHA
Lab Sample ID	Client Sample ID	(20-187)	(29-189)	(34-182)	(10-144)	(20-153)	(19-178)	(41-132)	(30-144)
410-60469-1	FT2-RINSE 1-1	388 *5+	1908 *5+	193 *5+	4 *5-		109	32 *5-	244 *5+
410-60469-1 - DL	FT2-RINSE 1-1		1460 *5+	360 *5+					
410-60469-2	HOSE-PRE-1	118	114	114	49		152	99	137
410-60469-2 - DL	HOSE-PRE-1		142	158					
410-60469-3	HOSE-PRE-12 HRS-1	129	101	103	87		130	97	155 *5+
410-60469-3 - DL	HOSE-PRE-12 HRS-1			146					
410-60469-3 - DL2	HOSE-PRE-12 HRS-1		146						
410-60469-4	FT2-RINSE 2-1	601 *5+	513 *5+	214 *5+	62		98	93	433 *5+
410-60469-4 - DL	FT2-RINSE 2-1								
410-60469-4 - DL2	FT2-RINSE 2-1		634 *5+	291 *5+					
410-60469-5	HOSE-POST-1	485 *5+	97	54	12		93	89	393 *5+
410-60469-5 - DL	HOSE-POST-1		238 *5+	173					
410-60469-6	FT2-EFF 1-1	157	89	55	0.4 *5-		98	99	112
410-60469-6 - DL	FT2-EFF 1-1		114	57					
410-60469-7	FT2-RINSE 3-1	513 *5+	96	46	43		96	93	445 *5+
410-60469-7 - DL	FT2-RINSE 3-1		168	48					
410-60469-8	FT2-RINSE 4-1	287 *5+	90	61	72		130	93	269 *5+
410-60469-8 - DL	FT2-RINSE 4-1		126	111					
410-60469-9	FT2-RINSE 4-2	295 *5+	93	64	90		128	92	279 *5+
410-60469-9 - DL	FT2-RINSE 4-2		133	102					
410-60469-10	FT12-EFF 2-1	129	92	56	27		102	97	104
410-60469-10 - DL	FT12-EFF 2-1		105						
410-60469-10 MS	FT12-EFF 2-1	120	89	67	42	94	100	93	99
410-60469-10 MSD	FT12-EFF 2-1	125	93	64	37	87	102	101	104
LCS 410-188902/2-A	Lab Control Sample	110	106	111	95	105	105	105	112
LCS 410-193444/3-A	Lab Control Sample	108	92	102	87	88	95	97	98
LCSD 410-193444/4-A	Lab Control Sample Dup	118	99	106	97	87	99	97	107
MB 410-188902/1-A	Method Blank	132	121	118	101	113	120	115	113
MB 410-193444/1-A	Method Blank	111	91	108	89	94	90	92	93

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		PFPeA	C8PFOA	C8PFOS	d3NMFOS	d5NEFOS	NEFM	C3PFHS	13C5PHA
Lab Sample ID	Client Sample ID	(33-155)	(49-127)	(49-126)	(32-151)	(37-164)	(10-142)	(32-145)	(31-142)
410-60469-1	FT2-RINSE 1-1	88	62	82	17 *5-	39		292 *5+	239 *5+
410-60469-1 - DL	FT2-RINSE 1-1								
410-60469-2	HOSE-PRE-1	126	93	96	89	112		105	93
410-60469-2 - DL	HOSE-PRE-1								
410-60469-3	HOSE-PRE-12 HRS-1	112	87	98	95	119		106	99
410-60469-3 - DL	HOSE-PRE-12 HRS-1								
410-60469-3 - DL2	HOSE-PRE-12 HRS-1								
410-60469-4	FT2-RINSE 2-1	94	58	32 *5-	43	107		403 *5+	445 *5+
410-60469-4 - DL	FT2-RINSE 2-1		69						542 *5+
410-60469-4 - DL2	FT2-RINSE 2-1								
410-60469-5	HOSE-POST-1	93	71	64	69	88		285 *5+	330 *5+
410-60469-5 - DL	HOSE-POST-1								
410-60469-6	FT2-EFF 1-1	99	82	52	40	51		72	108
410-60469-6 - DL	FT2-EFF 1-1								
410-60469-7	FT2-RINSE 3-1	98	67	42 *5-	66	103		267 *5+	427 *5+
410-60469-7 - DL	FT2-RINSE 3-1								
410-60469-8	FT2-RINSE 4-1	113	51	75	102	111		232 *5+	234 *5+

Isotope Dilution Summary

Client: AECOM
Job ID: 410-60469-1
Project/Site: AFFF Tanks Cleaning

Method: 537 IDA - EPA 537 Isotope Dilution (Continued)

Matrix: Water **Prep Type: Pre-Treatment**

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		PFPeA	C8PFOA	C8PFOS	d3NMFOS	d5NEFOS	NEFM	C3PFHS	13C5PHA
Lab Sample ID	Client Sample ID	(33-155)	(49-127)	(49-126)	(32-151)	(37-164)	(10-142)	(32-145)	(31-142)
410-60469-8 - DL	FT2-RINSE 4-1								
410-60469-9	FT2-RINSE 4-2	112	83	79	104	122		236 *5+	242 *5+
410-60469-9 - DL	FT2-RINSE 4-2								
410-60469-10	FT12-EFF 2-1	101	83	52	43	44		74	101
410-60469-10 - DL	FT12-EFF 2-1								
410-60469-10 MS	FT12-EFF 2-1	97	80	65	59	63	26	75	96
410-60469-10 MSD	FT12-EFF 2-1	106	93	62	60	61	42	82	105
LCS 410-188902/2-A	Lab Control Sample	105	108	103	97	98	87	101	108
LCS 410-193444/3-A	Lab Control Sample	90	97	94	84	91	85	92	93
LCSD 410-193444/4-A	Lab Control Sample Dup	89	105	98	91	101	92	97	102
MB 410-188902/1-A	Method Blank	116	116	109	104	107	88	114	116
MB 410-193444/1-A	Method Blank	92	94	96	85	85	83	85	91

		Percent Isotope Dilution Recovery (Acceptance Limits)						
		C6PFDA	13C7PUA	d3NMFSA	d5NPFSA	PFOSA	PFDoDA	C9PFNA
Lab Sample ID	Client Sample ID	(47-128)	(40-135)	(10-107)	(10-108)	(10-143)	(28-136)	(47-136)
410-60469-1	FT2-RINSE 1-1	27 *5-	31 *5-			33	10 *5-	203 *5+
410-60469-1 - DL	FT2-RINSE 1-1							
410-60469-2	HOSE-PRE-1	97	92			78	73	113
410-60469-2 - DL	HOSE-PRE-1							
410-60469-3	HOSE-PRE-12 HRS-1	94	104			83	95	128
410-60469-3 - DL	HOSE-PRE-12 HRS-1							
410-60469-3 - DL2	HOSE-PRE-12 HRS-1							
410-60469-4	FT2-RINSE 2-1	32 *5-	107			51	35	125
410-60469-4 - DL	FT2-RINSE 2-1	38 *5-						
410-60469-4 - DL2	FT2-RINSE 2-1							
410-60469-5	HOSE-POST-1	49	90			62	50	138 *5+
410-60469-5 - DL	HOSE-POST-1							
410-60469-6	FT2-EFF 1-1	51	49			41	27 *5-	79
410-60469-6 - DL	FT2-EFF 1-1							
410-60469-7	FT2-RINSE 3-1	42 *5-	94			62	49	84
410-60469-7 - DL	FT2-RINSE 3-1							
410-60469-8	FT2-RINSE 4-1	68	114			81	81	125
410-60469-8 - DL	FT2-RINSE 4-1							
410-60469-9	FT2-RINSE 4-2	72	113			88	88	119
410-60469-9 - DL	FT2-RINSE 4-2							
410-60469-10	FT12-EFF 2-1	50	43			29	38	74
410-60469-10 - DL	FT12-EFF 2-1							
410-60469-10 MS	FT12-EFF 2-1	68	66	0.3 *5-	0 *5-	42	56	80
410-60469-10 MSD	FT12-EFF 2-1	65	59	15	11	56	48	88
LCS 410-188902/2-A	Lab Control Sample	111	111	75	78	95	98	102
LCS 410-193444/3-A	Lab Control Sample	99	85	74	72	84	82	99
LCSD 410-193444/4-A	Lab Control Sample Dup	109	101	84	84	91	99	98
MB 410-188902/1-A	Method Blank	117	118	80	75	100	105	119
MB 410-193444/1-A	Method Blank	98	95	74	71	85	82	102

Surrogate Legend

M242FTS = M2-4:2 FTS
M262FTS = M2-6:2 FTS
M282FTS = M2-8:2 FTS
PFTDA = 13C2 PFTeDA

Isotope Dilution Summary

Client: AECOM

Job ID: 410-60469-1

Project/Site: AFFF Tanks Cleaning

HFPODA = 13C3 HFPO-DA
C3PFBS = 13C3 PFBS
PFBA = 13C4 PFBA
C4PFHA = 13C4 PFHpA
PFPeA = 13C5 PFPeA
C8PFOA = 13C8 PFOA
C8PFOS = 13C8 PFOS
d3NMFOS = d3-NMeFOSAA
d5NEFOS = d5-NEtFOSAA
NEFM = d9-N-EtFOSE-M
C3PFHS = 13C3 PFHxS
13C5PHA = 13C5 PFHxA
C6PFDA = 13C6 PFDA
13C7PUA = 13C7 PFUnA
d3NMFSA = d3-NMePFOSA
d5NPFSA = d5-NEtPFOSA
PFOSA = 13C8 FOSA
PFDoDA = 13C2-PFDoDA
C9PFNA = 13C9 PFNA

Method: 537 TOP - Fluorinated Alkyl Substances

Matrix: Water **Prep Type: Post-Treatment**

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		M262FTS	M282FTS	PFDoDA	PFTDA	HFPODA	C3PFBS	C3PFHS	PFBA
Lab Sample ID	Client Sample ID	(55-167)	(61-160)	(47-118)	(32-126)	(70-130)	(18-177)	(55-115)	(52-126)
410-60469-1	FT2-RINSE 1-1	110	93	152 *5+	134 *5+		193 *5+	80	154 *5+
410-60469-2 - DL	HOSE-PRE-1								102
410-60469-2	HOSE-PRE-1	98	106	88	85		109	79	98
410-60469-3	HOSE-PRE-12 HRS-1								
410-60469-3 - DL	HOSE-PRE-12 HRS-1	97	121	90	89		88	86	98
410-60469-4	FT2-RINSE 2-1	64	70	109	116		305 *5+	45 *5-	101
410-60469-4 - DL	FT2-RINSE 2-1	98	122	116	111		150	83	153 *5+
410-60469-5	HOSE-POST-1	100	111	98	98		106	87	100
410-60469-5 - DL	HOSE-POST-1								
410-60469-6	FT2-EFF 1-1	96	108	94	96		123	80	94
410-60469-6 - DL	FT2-EFF 1-1								98
410-60469-7	FT2-RINSE 3-1	112	94	94	89		120	82	107
410-60469-7 - DL	FT2-RINSE 3-1								
410-60469-8	FT2-RINSE 4-1	103	121	95	87		106	86	100
410-60469-8 - DL	FT2-RINSE 4-1								
410-60469-9	FT2-RINSE 4-2	95	118	95	85		95	82	97
410-60469-10	FT12-EFF 2-1								
410-60469-10 - DL	FT12-EFF 2-1	105	103	94	98		89	105	105
LCS 410-192176/3-A	Lab Control Sample	100	111	96	91	94	90	92	87
LCSD 410-192176/4-A	Lab Control Sample Dup	92	96	87	86	94	87	87	85
MB 410-192176/2-A	Method Blank	103	119	91	92	96	91	96	92

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		C4PFHA	13C5PHA	PFPeA	C6PFDA	13C7PUA	C8PFOA	C8PFOS	PFOSA
Lab Sample ID	Client Sample ID	(55-113)	(54-115)	(17-184)	(56-114)	(50-120)	(56-117)	(56-112)	(10-126)
410-60469-1	FT2-RINSE 1-1	109	79	94	131 *5+	136 *5+	107	118 *5+	140 *5+
410-60469-2 - DL	HOSE-PRE-1	95		87					
410-60469-2	HOSE-PRE-1	99	84	77	99	94	95	96	87
410-60469-3	HOSE-PRE-12 HRS-1	90		82					
410-60469-3 - DL	HOSE-PRE-12 HRS-1	86	89	89	99	107	93	95	89
410-60469-4	FT2-RINSE 2-1	71	50 *5-	76	88	104	73	114 *5+	129 *5+

Isotope Dilution Summary

Client: AECOM
Job ID: 410-60469-1
Project/Site: AFFF Tanks Cleaning

Method: 537 TOP - Fluorinated Alkyl Substances (Continued)

Matrix: Water
Prep Type: Post-Treatment

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		C4PFHA	13C5PHA	PFPeA	C6PFDA	13C7PUA	C8PFOA	C8PFOS	PFOSA
Lab Sample ID	Client Sample ID	(55-113)	(54-115)	(17-184)	(56-114)	(50-120)	(56-117)	(56-112)	(10-126)
410-60469-4 - DL	FT2-RINSE 2-1	100	92	87	123 *5+	118	105	103	114
410-60469-5	HOSE-POST-1	94	89	85	99	112	97	92	95
410-60469-5 - DL	HOSE-POST-1			110					
410-60469-6	FT2-EFF 1-1	92	75	82	95	96	89	98	99
410-60469-6 - DL	FT2-EFF 1-1		98	96					
410-60469-7	FT2-RINSE 3-1	101	89	79	99	100	103	104	90
410-60469-7 - DL	FT2-RINSE 3-1	100		102					
410-60469-8	FT2-RINSE 4-1	97	90	86	95	104	99	105	90
410-60469-8 - DL	FT2-RINSE 4-1			100					
410-60469-9	FT2-RINSE 4-2	92	87	84	98	100	90	95	89
410-60469-10	FT12-EFF 2-1			90					
410-60469-10 - DL	FT12-EFF 2-1	102	98	99	106	114	106	103	96
LCS 410-192176/3-A	Lab Control Sample	95	93	90	100	97	97	94	94
LCSD 410-192176/4-A	Lab Control Sample Dup	89	94	88	89	87	90	91	86
MB 410-192176/2-A	Method Blank	100	95	97	102	99	92	96	93

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		C9PFNA	d3NMFSA	d5NEFOS	d5NPFSA	NMFM	NEFM		
Lab Sample ID	Client Sample ID	(54-122)	(10-51)	(65-134)	(10-51)	(10-105)	(10-112)		
410-60469-1	FT2-RINSE 1-1	116		190 *5+					
410-60469-2 - DL	HOSE-PRE-1								
410-60469-2	HOSE-PRE-1	110		90					
410-60469-3	HOSE-PRE-12 HRS-1								
410-60469-3 - DL	HOSE-PRE-12 HRS-1	112		112					
410-60469-4	FT2-RINSE 2-1	107		123					
410-60469-4 - DL	FT2-RINSE 2-1	108		178 *5+					
410-60469-5	HOSE-POST-1	107		113					
410-60469-5 - DL	HOSE-POST-1								
410-60469-6	FT2-EFF 1-1	106		110					
410-60469-6 - DL	FT2-EFF 1-1								
410-60469-7	FT2-RINSE 3-1	106		101					
410-60469-7 - DL	FT2-RINSE 3-1								
410-60469-8	FT2-RINSE 4-1	119		86					
410-60469-8 - DL	FT2-RINSE 4-1								
410-60469-9	FT2-RINSE 4-2	119		109					
410-60469-10	FT12-EFF 2-1								
410-60469-10 - DL	FT12-EFF 2-1	121		128					
LCS 410-192176/3-A	Lab Control Sample	105	83 *5+	101	78 *5+	91	90		
LCSD 410-192176/4-A	Lab Control Sample Dup	98	79 *5+	90	77 *5+	82	87		
MB 410-192176/2-A	Method Blank	111	50	102	41	86	84		

Surrogate Legend

M262FTS = M2-6:2 FTS
M282FTS = M2-8:2 FTS
PFDoDA = 13C2-PFDoDA
PFTDA = 13C2 PFTeDA
HFPODA = 13C3 HFPO-DA
C3PFBS = 13C3 PFBS
C3PFHS = 13C3 PFHxS
PFBA = 13C4 PFBA
C4PFHA = 13C4 PFHpA

Isotope Dilution Summary

Client: AECOM

Job ID: 410-60469-1

Project/Site: AFFF Tanks Cleaning

13C5PHA = 13C5 PFHxA
PFPeA = 13C5 PFPeA
C6PFDA = 13C6 PFDA
13C7PUA = 13C7 PFUnA
C8PFOA = 13C8 PFOA
C8PFOS = 13C8 PFOS
PFOSA = 13C8 FOSA
C9PFNA = 13C9 PFNA
d3NMFSA = d3-NMePFOSA
d5NEFOS = d5-NEtFOSAA
d5NPFSA = d5-NEtPFOSA
NMFM = d7-N-MeFOSE-M
NEFM = d9-N-EtFOSE-M

Method: 537 IDA - EPA 537 Isotope Dilution

Lab Sample ID: MB 410-188902/1-A
Matrix: Water
Analysis Batch: 189849

Client Sample ID: Method Blank
Prep Type: Pre-Treatment
Prep Batch: 188902

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NEtFOSAA	<3.0		3.0	0.50	ng/L		10/29/21 18:31	11/03/21 02:30	1
NMeFOSAA	<2.0		2.0	0.60	ng/L		10/29/21 18:31	11/03/21 02:30	1
Perfluorobutanesulfonic acid	<2.0		2.0	0.50	ng/L		10/29/21 18:31	11/03/21 02:30	1
Perfluorobutanoic acid	<5.0		5.0	2.0	ng/L		10/29/21 18:31	11/03/21 02:30	1
Perfluorodecanesulfonic acid	<2.0		2.0	0.50	ng/L		10/29/21 18:31	11/03/21 02:30	1
Perfluorodecanoic acid	<2.0		2.0	0.50	ng/L		10/29/21 18:31	11/03/21 02:30	1
Perfluorododecanoic acid	<2.0		2.0	0.50	ng/L		10/29/21 18:31	11/03/21 02:30	1
Perfluoroheptanesulfonic acid	<2.0		2.0	0.50	ng/L		10/29/21 18:31	11/03/21 02:30	1
Perfluoroheptanoic acid	<2.0		2.0	0.50	ng/L		10/29/21 18:31	11/03/21 02:30	1
Perfluorohexanesulfonic acid	<2.0		2.0	0.50	ng/L		10/29/21 18:31	11/03/21 02:30	1
Perfluorohexanoic acid	<2.0		2.0	0.50	ng/L		10/29/21 18:31	11/03/21 02:30	1
Perfluorononanesulfonic acid	<2.0		2.0	0.50	ng/L		10/29/21 18:31	11/03/21 02:30	1
Perfluorononanoic acid	<2.0		2.0	0.50	ng/L		10/29/21 18:31	11/03/21 02:30	1
Perfluorooctanesulfonamide	<2.0		2.0	0.50	ng/L		10/29/21 18:31	11/03/21 02:30	1
Perfluorooctanesulfonic acid	<2.0		2.0	0.50	ng/L		10/29/21 18:31	11/03/21 02:30	1
Perfluorooctanoic acid	<2.0		2.0	0.50	ng/L		10/29/21 18:31	11/03/21 02:30	1
Perfluoropentanesulfonic acid	<2.0		2.0	0.50	ng/L		10/29/21 18:31	11/03/21 02:30	1
Perfluoropentanoic acid	<2.0		2.0	0.50	ng/L		10/29/21 18:31	11/03/21 02:30	1
Perfluorotetradecanoic acid	<2.0		2.0	0.50	ng/L		10/29/21 18:31	11/03/21 02:30	1
Perfluorotridecanoic acid	<2.0		2.0	0.50	ng/L		10/29/21 18:31	11/03/21 02:30	1
Perfluoroundecanoic acid	<2.0		2.0	0.50	ng/L		10/29/21 18:31	11/03/21 02:30	1
6:2 Fluorotelomer sulfonic acid	<5.0		5.0	2.0	ng/L		10/29/21 18:31	11/03/21 02:30	1
8:2 Fluorotelomer sulfonic acid	<3.0		3.0	1.0	ng/L		10/29/21 18:31	11/03/21 02:30	1
4:2 Fluorotelomer sulfonic acid	<2.0		2.0	0.50	ng/L		10/29/21 18:31	11/03/21 02:30	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-4:2 FTS	*132*		*20 - 187*	*10/29/21 18:31*	*11/03/21 02:30*	*1*
M2-6:2 FTS	*121*		*29 - 189*	*10/29/21 18:31*	*11/03/21 02:30*	*1*
M2-8:2 FTS	*118*		*34 - 182*	*10/29/21 18:31*	*11/03/21 02:30*	*1*
13C2 PFTeDA	*101*		*10 - 144*	*10/29/21 18:31*	*11/03/21 02:30*	*1*
13C3 PFBS	*120*		*19 - 178*	*10/29/21 18:31*	*11/03/21 02:30*	*1*
13C4 PFBA	*115*		*41 - 132*	*10/29/21 18:31*	*11/03/21 02:30*	*1*
13C4 PFHpA	*113*		*30 - 144*	*10/29/21 18:31*	*11/03/21 02:30*	*1*
13C5 PFPeA	*116*		*33 - 155*	*10/29/21 18:31*	*11/03/21 02:30*	*1*
13C8 PFOA	*116*		*49 - 127*	*10/29/21 18:31*	*11/03/21 02:30*	*1*
13C8 PFOS	*109*		*49 - 126*	*10/29/21 18:31*	*11/03/21 02:30*	*1*
d3-NMeFOSAA	*104*		*32 - 151*	*10/29/21 18:31*	*11/03/21 02:30*	*1*
d5-NEtFOSAA	*107*		*37 - 164*	*10/29/21 18:31*	*11/03/21 02:30*	*1*
13C3 PFHxS	*114*		*32 - 145*	*10/29/21 18:31*	*11/03/21 02:30*	*1*
13C5 PFHxA	*116*		*31 - 142*	*10/29/21 18:31*	*11/03/21 02:30*	*1*
13C6 PFDA	*117*		*47 - 128*	*10/29/21 18:31*	*11/03/21 02:30*	*1*
13C7 PFUnA	*118*		*40 - 135*	*10/29/21 18:31*	*11/03/21 02:30*	*1*
13C8 FOSA	*100*		*10 - 143*	*10/29/21 18:31*	*11/03/21 02:30*	*1*
13C2-PFDoDA	*105*		*28 - 136*	*10/29/21 18:31*	*11/03/21 02:30*	*1*
13C9 PFNA	*119*		*47 - 136*	*10/29/21 18:31*	*11/03/21 02:30*	*1*

Method: 537 IDA - EPA 537 Isotope Dilution (Continued)

Lab Sample ID: LCS 410-188902/2-A
Matrix: Water
Analysis Batch: 189849

Client Sample ID: Lab Control Sample
Prep Type: Pre-Treatment
Prep Batch: 188902

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
NEtFOSAA	25.6	22.8		ng/L		89	54 - 134
NMeFOSAA	25.6	23.2		ng/L		91	58 - 143
Perfluorobutanesulfonic acid	22.7	20.2		ng/L		89	65 - 132
Perfluorobutanoic acid	25.6	23.3		ng/L		91	62 - 156
Perfluorodecanesulfonic acid	24.7	21.4		ng/L		87	61 - 134
Perfluorodecanoic acid	25.6	21.3		ng/L		83	63 - 137
Perfluorododecanoic acid	25.6	24.8		ng/L		97	63 - 140
Perfluoroheptanesulfonic acid	24.4	24.1		ng/L		99	67 - 135
Perfluoroheptanoic acid	25.6	22.6		ng/L		88	66 - 141
Perfluorohexanesulfonic acid	23.3	21.9		ng/L		94	60 - 128
Perfluorohexanoic acid	25.6	21.4		ng/L		84	66 - 137
Perfluorononanesulfonic acid	24.6	23.2		ng/L		95	67 - 137
Perfluorononanoic acid	25.6	24.0		ng/L		94	65 - 140
Perfluorooctanesulfonamide	25.6	21.6		ng/L		84	55 - 130
Perfluorooctanesulfonic acid	23.7	21.5		ng/L		91	51 - 126
Perfluorooctanoic acid	25.6	21.0		ng/L		82	65 - 136
Perfluoropentanesulfonic acid	24.0	23.5		ng/L		98	71 - 136
Perfluoropentanoic acid	25.6	21.7		ng/L		85	72 - 139
Perfluorotetradecanoic acid	25.6	24.1		ng/L		94	64 - 141
Perfluorotridecanoic acid	25.6	22.9		ng/L		90	58 - 146
Perfluoroundecanoic acid	25.6	25.3		ng/L		99	62 - 138
6:2 Fluorotelomer sulfonic acid	24.3	23.9		ng/L		99	57 - 137
8:2 Fluorotelomer sulfonic acid	24.5	20.5		ng/L		83	56 - 140
4:2 Fluorotelomer sulfonic acid	23.9	21.0		ng/L		88	59 - 130

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
M2-4:2 FTS	*110*		*20 - 187*
M2-6:2 FTS	*106*		*29 - 189*
M2-8:2 FTS	*111*		*34 - 182*
13C2 PFTeDA	*95*		*10 - 144*
13C3 HFPO-DA	*105*		*20 - 153*
13C3 PFBS	*105*		*19 - 178*
13C4 PFBA	*105*		*41 - 132*
13C4 PFHpA	*112*		*30 - 144*
13C5 PFPeA	*105*		*33 - 155*
13C8 PFOA	*108*		*49 - 127*
13C8 PFOS	*103*		*49 - 126*
d3-NMeFOSAA	*97*		*32 - 151*
d5-NEtFOSAA	*98*		*37 - 164*
d9-N-EtFOSE-M	*87*		*10 - 142*
13C3 PFHxS	*101*		*32 - 145*
13C5 PFHxA	*108*		*31 - 142*
13C6 PFDA	*111*		*47 - 128*
13C7 PFUnA	*111*		*40 - 135*
d3-NMePFOSA	*75*		*10 - 107*
d5-NEtPFOSA	*78*		*10 - 108*
13C8 FOSA	*95*		*10 - 143*
13C2-PFDoDA	*98*		*28 - 136*

Method: 537 IDA - EPA 537 Isotope Dilution (Continued)

Lab Sample ID: LCS 410-188902/2-A
Matrix: Water
Analysis Batch: 189849

Client Sample ID: Lab Control Sample
Prep Type: Pre-Treatment
Prep Batch: 188902

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C9 PFNA	*102*		*47 - 136*

Lab Sample ID: 410-60469-10 MS
Matrix: Water
Analysis Batch: 189849

Client Sample ID: FT12-EFF 2-1
Prep Type: Pre-Treatment
Prep Batch: 188902

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
NEtFOSAA	<2.7		23.1	21.6		ng/L		93	54 - 134
NMeFOSAA	<1.8		23.1	22.8		ng/L		99	58 - 143
Perfluorobutanesulfonic acid	<1.8		20.5	19.5		ng/L		96	65 - 132
Perfluorobutanoic acid	34		23.1	56.8		ng/L		99	62 - 156
Perfluorodecanesulfonic acid	<1.8		22.3	24.8		ng/L		111	61 - 134
Perfluorodecanoic acid	<1.8		23.1	22.9		ng/L		99	63 - 137
Perfluorododecanoic acid	3.9		23.1	24.3		ng/L		88	63 - 140
Perfluoroheptanesulfonic acid	<1.8		22.0	19.7		ng/L		89	67 - 135
Perfluoroheptanoic acid	<1.8		23.1	23.0		ng/L		93	66 - 141
Perfluorohexanesulfonic acid	<1.8	F2 F1	21.1	29.2	F1	ng/L		138	60 - 128
Perfluorohexanoic acid	31	F1	23.1	64.9	F1	ng/L		149	66 - 137
Perfluorononanesulfonic acid	<1.8		22.2	22.3		ng/L		101	67 - 137
Perfluorononanoic acid	<1.8		23.1	23.9		ng/L		103	65 - 140
Perfluorooctanesulfonamide	<1.8		23.1	20.9		ng/L		90	55 - 130
Perfluorooctanesulfonic acid	<1.8	F2 F1	21.4	28.8	F1	ng/L		135	51 - 126
Perfluorooctanoic acid	<1.8		23.1	23.4		ng/L		96	65 - 136
Perfluoropentanesulfonic acid	<1.8		21.7	20.7		ng/L		95	71 - 136
Perfluoropentanoic acid	7.5		23.1	30.7		ng/L		101	72 - 139
Perfluorotetradecanoic acid	1.9		23.1	24.3		ng/L		97	64 - 141
Perfluorotridecanoic acid	<1.8		23.1	21.5		ng/L		86	58 - 146
Perfluoroundecanoic acid	<1.8		23.1	23.6		ng/L		102	62 - 138
6:2 Fluorotelomer sulfonic acid	300	E	21.9	392	E 4	ng/L		413	57 - 137
8:2 Fluorotelomer sulfonic acid	27	F1	22.2	40.4		ng/L		60	56 - 140
4:2 Fluorotelomer sulfonic acid	<1.8		21.6	20.0		ng/L		92	59 - 130

Isotope Dilution	*MS %Recovery*	*MS Qualifier*	*Limits*
M2-4:2 FTS	*120*		*20 - 187*
M2-6:2 FTS	*89*		*29 - 189*
M2-8:2 FTS	*67*		*34 - 182*
13C2 PFTeDA	*42*		*10 - 144*
13C3 HFPO-DA	*94*		*20 - 153*
13C3 PFBS	*100*		*19 - 178*
13C4 PFBA	*93*		*41 - 132*
13C4 PFHpA	*99*		*30 - 144*
13C5 PFPeA	*97*		*33 - 155*
13C8 PFOA	*80*		*49 - 127*
13C8 PFOS	*65*		*49 - 126*
d3-NMeFOSAA	*59*		*32 - 151*
d5-NEtFOSAA	*63*		*37 - 164*
d9-N-EtFOSE-M	*26*		*10 - 142*
13C3 PFHxS	*75*		*32 - 145*
13C5 PFHxA	*96*		*31 - 142*

Method: 537 IDA - EPA 537 Isotope Dilution (Continued)

Lab Sample ID: 410-60469-10 MS
Matrix: Water
Analysis Batch: 189849

Client Sample ID: FT12-EFF 2-1
Prep Type: Pre-Treatment
Prep Batch: 188902

Isotope Dilution	MS %Recovery	MS Qualifier	Limits
13C6 PFDA	68		47 - 128
13C7 PFUnA	66		40 - 135
d3-NMePFOSA	0.3	*5-	10 - 107
d5-NEtPFOSA	0	*5-	10 - 108
13C8 FOSA	42		10 - 143
13C2-PFDoDA	56		28 - 136
13C9 PFNA	80		47 - 136

Lab Sample ID: 410-60469-10 MSD
Matrix: Water
Analysis Batch: 189849

Client Sample ID: FT12-EFF 2-1
Prep Type: Pre-Treatment
Prep Batch: 188902

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
NEtFOSAA	<2.7		23.5	21.0		ng/L		89	54 - 134	3	30
NMeFOSAA	<1.8		23.5	19.3		ng/L		82	58 - 143	17	30
Perfluorobutanesulfonic acid	<1.8		20.8	18.8		ng/L		90	65 - 132	4	30
Perfluorobutanoic acid	34		23.5	56.3		ng/L		96	62 - 156	1	30
Perfluorodecanesulfonic acid	<1.8		22.6	20.0		ng/L		88	61 - 134	22	30
Perfluorodecanoic acid	<1.8		23.5	23.0		ng/L		98	63 - 137	0	30
Perfluorododecanoic acid	3.9		23.5	23.3		ng/L		83	63 - 140	4	30
Perfluoroheptanesulfonic acid	<1.8		22.3	18.3		ng/L		82	67 - 135	7	30
Perfluoroheptanoic acid	<1.8		23.5	23.2		ng/L		93	66 - 141	1	30
Perfluorohexanesulfonic acid	<1.8	F2 F1	21.4	20.7	F2	ng/L		97	60 - 128	34	30
Perfluorohexanoic acid	31	F1	23.5	52.3		ng/L		93	66 - 137	22	30
Perfluorononanesulfonic acid	<1.8		22.5	20.5		ng/L		91	67 - 137	9	30
Perfluorononanoic acid	<1.8		23.5	21.0		ng/L		89	65 - 140	13	30
Perfluorooctanesulfonamide	<1.8		23.5	20.5		ng/L		88	55 - 130	2	30
Perfluorooctanesulfonic acid	<1.8	F2 F1	21.7	19.9	F2	ng/L		92	51 - 126	37	30
Perfluorooctanoic acid	<1.8		23.5	21.7		ng/L		87	65 - 136	8	30
Perfluoropentanesulfonic acid	<1.8		22.0	19.9		ng/L		90	71 - 136	4	30
Perfluoropentanoic acid	7.5		23.5	27.6		ng/L		86	72 - 139	11	30
Perfluorotetradecanoic acid	1.9		23.5	22.2		ng/L		86	64 - 141	9	30
Perfluorotridecanoic acid	<1.8		23.5	21.4		ng/L		84	58 - 146	1	30
Perfluoroundecanoic acid	<1.8		23.5	25.1		ng/L		107	62 - 138	6	30
6:2 Fluorotelomer sulfonic acid	300	E	22.2	296	E 4	ng/L		-22	57 - 137	28	30
8:2 Fluorotelomer sulfonic acid	27	F1	22.5	33.2	F1	ng/L		27	56 - 140	19	30
4:2 Fluorotelomer sulfonic acid	<1.8		21.9	18.7		ng/L		85	59 - 130	7	30

Isotope Dilution	MSD %Recovery	MSD Qualifier	Limits
M2-4:2 FTS	125		20 - 187
M2-6:2 FTS	93		29 - 189
M2-8:2 FTS	64		34 - 182
13C2 PFTeDA	37		10 - 144
13C3 HFPO-DA	87		20 - 153
13C3 PFBS	102		19 - 178
13C4 PFBA	101		41 - 132
13C4 PFHpA	104		30 - 144
13C5 PFPeA	106		33 - 155
13C8 PFOA	93		49 - 127

Method: 537 IDA - EPA 537 Isotope Dilution (Continued)

Lab Sample ID: 410-60469-10 MSD
Matrix: Water
Analysis Batch: 189849

Client Sample ID: FT12-EFF 2-1
Prep Type: Pre-Treatment
Prep Batch: 188902

Isotope Dilution	*MSD %Recovery*	*MSD Qualifier*	*Limits*
13C8 PFOS	*62*		*49 - 126*
d3-NMeFOSAA	*60*		*32 - 151*
d5-NEtFOSAA	*61*		*37 - 164*
d9-N-EtFOSE-M	*42*		*10 - 142*
13C3 PFHxS	*82*		*32 - 145*
13C5 PFHxA	*105*		*31 - 142*
13C6 PFDA	*65*		*47 - 128*
13C7 PFUnA	*59*		*40 - 135*
d3-NMePFOSA	*15*		*10 - 107*
d5-NEtPFOSA	*11*		*10 - 108*
13C8 FOSA	*56*		*10 - 143*
13C2-PFDoDA	*48*		*28 - 136*
13C9 PFNA	*88*		*47 - 136*

Lab Sample ID: MB 410-193444/1-A
Matrix: Water
Analysis Batch: 194347

Client Sample ID: Method Blank
Prep Type: Pre-Treatment
Prep Batch: 193444

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NEtFOSAA	<3.0		3.0	0.50	ng/L		11/11/21 07:21	11/12/21 17:41	1
NMeFOSAA	<2.0		2.0	0.60	ng/L		11/11/21 07:21	11/12/21 17:41	1
Perfluorobutanesulfonic acid	<2.0		2.0	0.50	ng/L		11/11/21 07:21	11/12/21 17:41	1
Perfluorobutanoic acid	<5.0		5.0	2.0	ng/L		11/11/21 07:21	11/12/21 17:41	1
Perfluorodecanesulfonic acid	<2.0		2.0	0.50	ng/L		11/11/21 07:21	11/12/21 17:41	1
Perfluorodecanoic acid	<2.0		2.0	0.50	ng/L		11/11/21 07:21	11/12/21 17:41	1
Perfluorododecanoic acid	<2.0		2.0	0.50	ng/L		11/11/21 07:21	11/12/21 17:41	1
Perfluoroheptanesulfonic acid	<2.0		2.0	0.50	ng/L		11/11/21 07:21	11/12/21 17:41	1
Perfluoroheptanoic acid	<2.0		2.0	0.50	ng/L		11/11/21 07:21	11/12/21 17:41	1
Perfluorohexanesulfonic acid	<2.0		2.0	0.50	ng/L		11/11/21 07:21	11/12/21 17:41	1
Perfluorohexanoic acid	<2.0		2.0	0.50	ng/L		11/11/21 07:21	11/12/21 17:41	1
Perfluorononanesulfonic acid	<2.0		2.0	0.50	ng/L		11/11/21 07:21	11/12/21 17:41	1
Perfluorononanoic acid	<2.0		2.0	0.50	ng/L		11/11/21 07:21	11/12/21 17:41	1
Perfluorooctanesulfonamide	<2.0		2.0	0.50	ng/L		11/11/21 07:21	11/12/21 17:41	1
Perfluorooctanesulfonic acid	<2.0		2.0	0.50	ng/L		11/11/21 07:21	11/12/21 17:41	1
Perfluorooctanoic acid	<2.0		2.0	0.50	ng/L		11/11/21 07:21	11/12/21 17:41	1
Perfluoropentanesulfonic acid	<2.0		2.0	0.50	ng/L		11/11/21 07:21	11/12/21 17:41	1
Perfluoropentanoic acid	<2.0		2.0	0.50	ng/L		11/11/21 07:21	11/12/21 17:41	1
Perfluorotetradecanoic acid	<2.0		2.0	0.50	ng/L		11/11/21 07:21	11/12/21 17:41	1
Perfluorotridecanoic acid	<2.0		2.0	0.50	ng/L		11/11/21 07:21	11/12/21 17:41	1
Perfluoroundecanoic acid	<2.0		2.0	0.50	ng/L		11/11/21 07:21	11/12/21 17:41	1
6:2 Fluorotelomer sulfonic acid	<5.0		5.0	2.0	ng/L		11/11/21 07:21	11/12/21 17:41	1
8:2 Fluorotelomer sulfonic acid	<3.0		3.0	1.0	ng/L		11/11/21 07:21	11/12/21 17:41	1
4:2 Fluorotelomer sulfonic acid	<2.0		2.0	0.50	ng/L		11/11/21 07:21	11/12/21 17:41	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-4:2 FTS	*111*		*20 - 187*	*11/11/21 07:21*	*11/12/21 17:41*	*1*
M2-6:2 FTS	*91*		*29 - 189*	*11/11/21 07:21*	*11/12/21 17:41*	*1*
M2-8:2 FTS	*108*		*34 - 182*	*11/11/21 07:21*	*11/12/21 17:41*	*1*
13C2 PFTeDA	*89*		*10 - 144*	*11/11/21 07:21*	*11/12/21 17:41*	*1*

Method: 537 IDA - EPA 537 Isotope Dilution (Continued)

Lab Sample ID: MB 410-193444/1-A
Matrix: Water
Analysis Batch: 194347

Client Sample ID: Method Blank
Prep Type: Pre-Treatment
Prep Batch: 193444

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 PFBS	90		19 - 178	11/11/21 07:21	11/12/21 17:41	1
13C4 PFBA	92		41 - 132	11/11/21 07:21	11/12/21 17:41	1
13C4 PFHpA	93		30 - 144	11/11/21 07:21	11/12/21 17:41	1
13C5 PFPeA	92		33 - 155	11/11/21 07:21	11/12/21 17:41	1
13C8 PFOA	94		49 - 127	11/11/21 07:21	11/12/21 17:41	1
13C8 PFOS	96		49 - 126	11/11/21 07:21	11/12/21 17:41	1
d3-NMeFOSAA	85		32 - 151	11/11/21 07:21	11/12/21 17:41	1
d5-NEtFOSAA	85		37 - 164	11/11/21 07:21	11/12/21 17:41	1
13C3 PFHxS	85		32 - 145	11/11/21 07:21	11/12/21 17:41	1
13C5 PFHxA	91		31 - 142	11/11/21 07:21	11/12/21 17:41	1
13C6 PFDA	98		47 - 128	11/11/21 07:21	11/12/21 17:41	1
13C7 PFUnA	95		40 - 135	11/11/21 07:21	11/12/21 17:41	1
13C8 FOSA	85		10 - 143	11/11/21 07:21	11/12/21 17:41	1
13C2-PFDoDA	82		28 - 136	11/11/21 07:21	11/12/21 17:41	1
13C9 PFNA	102		47 - 136	11/11/21 07:21	11/12/21 17:41	1

Lab Sample ID: LCS 410-193444/3-A
Matrix: Water
Analysis Batch: 194347

Client Sample ID: Lab Control Sample
Prep Type: Pre-Treatment
Prep Batch: 193444

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
NEtFOSAA	25.6	25.3		ng/L		99	54 - 134
NMeFOSAA	25.6	29.2		ng/L		114	58 - 143
Perfluorobutanesulfonic acid	22.7	21.5		ng/L		95	65 - 132
Perfluorobutanoic acid	25.6	23.0		ng/L		90	62 - 156
Perfluorodecanesulfonic acid	24.7	23.3		ng/L		94	61 - 134
Perfluorodecanoic acid	25.6	22.4		ng/L		87	63 - 137
Perfluorododecanoic acid	25.6	25.5		ng/L		99	63 - 140
Perfluoroheptanesulfonic acid	24.4	22.1		ng/L		91	67 - 135
Perfluoroheptanoic acid	25.6	23.6		ng/L		92	66 - 141
Perfluorohexanesulfonic acid	23.3	22.9		ng/L		98	60 - 128
Perfluorohexanoic acid	25.6	23.3		ng/L		91	66 - 137
Perfluorononanesulfonic acid	24.6	23.0		ng/L		94	67 - 137
Perfluorononanoic acid	25.6	26.4		ng/L		103	65 - 140
Perfluorooctanesulfonamide	25.6	26.4		ng/L		103	55 - 130
Perfluorooctanesulfonic acid	23.7	24.4		ng/L		103	51 - 126
Perfluorooctanoic acid	25.6	23.5		ng/L		92	65 - 136
Perfluoropentanesulfonic acid	24.0	22.8		ng/L		95	71 - 136
Perfluoropentanoic acid	25.6	25.4		ng/L		99	72 - 139
Perfluorotetradecanoic acid	25.6	24.9		ng/L		97	64 - 141
Perfluorotridecanoic acid	25.6	29.0		ng/L		113	58 - 146
Perfluoroundecanoic acid	25.6	26.7		ng/L		104	62 - 138
6:2 Fluorotelomer sulfonic acid	24.3	24.7		ng/L		102	57 - 137
8:2 Fluorotelomer sulfonic acid	24.5	23.0		ng/L		94	56 - 140
4:2 Fluorotelomer sulfonic acid	23.9	23.0		ng/L		96	59 - 130

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
M2-4:2 FTS	108		20 - 187
M2-6:2 FTS	92		29 - 189

Method: 537 IDA - EPA 537 Isotope Dilution (Continued)

Lab Sample ID: LCS 410-193444/3-A
Matrix: Water
Analysis Batch: 194347

Client Sample ID: Lab Control Sample
Prep Type: Pre-Treatment
Prep Batch: 193444

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
M2-8:2 FTS	*102*		*34 - 182*
13C2 PFTeDA	*87*		*10 - 144*
13C3 HFPO-DA	*88*		*20 - 153*
13C3 PFBS	*95*		*19 - 178*
13C4 PFBA	*97*		*41 - 132*
13C4 PFHpA	*98*		*30 - 144*
13C5 PFPeA	*90*		*33 - 155*
13C8 PFOA	*97*		*49 - 127*
13C8 PFOS	*94*		*49 - 126*
d3-NMeFOSAA	*84*		*32 - 151*
d5-NEtFOSAA	*91*		*37 - 164*
d9-N-EtFOSE-M	*85*		*10 - 142*
13C3 PFHxS	*92*		*32 - 145*
13C5 PFHxA	*93*		*31 - 142*
13C6 PFDA	*99*		*47 - 128*
13C7 PFUnA	*85*		*40 - 135*
d3-NMePFOSA	*74*		*10 - 107*
d5-NEtPFOSA	*72*		*10 - 108*
13C8 FOSA	*84*		*10 - 143*
13C2-PFDoDA	*82*		*28 - 136*
13C9 PFNA	*99*		*47 - 136*

Lab Sample ID: LCSD 410-193444/4-A
Matrix: Water
Analysis Batch: 194347

Client Sample ID: Lab Control Sample Dup
Prep Type: Pre-Treatment
Prep Batch: 193444

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
NEtFOSAA	25.6	28.2		ng/L		110	54 - 134	11	30
NMeFOSAA	25.6	29.0		ng/L		113	58 - 143	1	30
Perfluorobutanesulfonic acid	22.7	22.9		ng/L		101	65 - 132	6	30
Perfluorobutanoic acid	25.6	23.7		ng/L		93	62 - 156	3	30
Perfluorodecanesulfonic acid	24.7	23.6		ng/L		96	61 - 134	2	30
Perfluorodecanoic acid	25.6	23.2		ng/L		91	63 - 137	3	30
Perfluorododecanoic acid	25.6	26.0		ng/L		102	63 - 140	2	30
Perfluoroheptanesulfonic acid	24.4	23.8		ng/L		97	67 - 135	7	30
Perfluoroheptanoic acid	25.6	24.7		ng/L		96	66 - 141	5	30
Perfluorohexanesulfonic acid	23.3	23.0		ng/L		98	60 - 128	0	30
Perfluorohexanoic acid	25.6	24.7		ng/L		97	66 - 137	6	30
Perfluorononanesulfonic acid	24.6	24.4		ng/L		99	67 - 137	6	30
Perfluorononanoic acid	25.6	25.7		ng/L		100	65 - 140	3	30
Perfluorooctanesulfonamide	25.6	28.1		ng/L		110	55 - 130	6	30
Perfluorooctanesulfonic acid	23.7	23.3		ng/L		98	51 - 126	5	30
Perfluorooctanoic acid	25.6	22.8		ng/L		89	65 - 136	3	30
Perfluoropentanesulfonic acid	24.0	24.3		ng/L		101	71 - 136	7	30
Perfluoropentanoic acid	25.6	29.1		ng/L		114	72 - 139	14	30
Perfluorotetradecanoic acid	25.6	27.0		ng/L		106	64 - 141	8	30
Perfluorotridecanoic acid	25.6	27.8		ng/L		109	58 - 146	4	30
Perfluoroundecanoic acid	25.6	25.4		ng/L		99	62 - 138	5	30
6:2 Fluorotelomer sulfonic acid	24.3	25.1		ng/L		103	57 - 137	1	30

Method: 537 IDA - EPA 537 Isotope Dilution (Continued)

Lab Sample ID: LCSD 410-193444/4-A
Matrix: Water
Analysis Batch: 194347

Client Sample ID: Lab Control Sample Dup
Prep Type: Pre-Treatment
Prep Batch: 193444

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
8:2 Fluorotelomer sulfonic acid			24.5	26.4		ng/L		108	56 - 140	14	30
4:2 Fluorotelomer sulfonic acid			23.9	20.4		ng/L		85	59 - 130	12	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
M2-4:2 FTS	*118*		*20 - 187*
M2-6:2 FTS	*99*		*29 - 189*
M2-8:2 FTS	*106*		*34 - 182*
13C2 PFTeDA	*97*		*10 - 144*
13C3 HFPO-DA	*87*		*20 - 153*
13C3 PFBS	*99*		*19 - 178*
13C4 PFBA	*97*		*41 - 132*
13C4 PFHpA	*107*		*30 - 144*
13C5 PFPeA	*89*		*33 - 155*
13C8 PFOA	*105*		*49 - 127*
13C8 PFOS	*98*		*49 - 126*
d3-NMeFOSAA	*91*		*32 - 151*
d5-NEtFOSAA	*101*		*37 - 164*
d9-N-EtFOSE-M	*92*		*10 - 142*
13C3 PFHxS	*97*		*32 - 145*
13C5 PFHxA	*102*		*31 - 142*
13C6 PFDA	*109*		*47 - 128*
13C7 PFUnA	*101*		*40 - 135*
d3-NMePFOSA	*84*		*10 - 107*
d5-NEtPFOSA	*84*		*10 - 108*
13C8 FOSA	*91*		*10 - 143*
13C2-PFDoDA	*99*		*28 - 136*
13C9 PFNA	*98*		*47 - 136*

Method: 537 TOP - Fluorinated Alkyl Substances

Lab Sample ID: MB 410-192176/2-A
Matrix: Water
Analysis Batch: 192310

Client Sample ID: Method Blank
Prep Type: Post-Treatment
Prep Batch: 192176

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4:2 Fluorotelomer sulfonic acid	<10		10	2.5	ng/L		11/08/21 15:54	11/09/21 10:07	1
6:2 Fluorotelomer sulfonic acid	<25		25	10	ng/L		11/08/21 15:54	11/09/21 10:07	1
8:2 Fluorotelomer sulfonic acid	<15		15	5.0	ng/L		11/08/21 15:54	11/09/21 10:07	1
NEtFOSAA	<15		15	2.5	ng/L		11/08/21 15:54	11/09/21 10:07	1
NMeFOSAA	<10		10	3.0	ng/L		11/08/21 15:54	11/09/21 10:07	1
Perfluorobutanesulfonic acid	<10		10	2.5	ng/L		11/08/21 15:54	11/09/21 10:07	1
Perfluorobutanoic acid	<25		25	10	ng/L		11/08/21 15:54	11/09/21 10:07	1
Perfluorodecanesulfonic acid	<10		10	2.5	ng/L		11/08/21 15:54	11/09/21 10:07	1
Perfluorodecanoic acid	<10		10	2.5	ng/L		11/08/21 15:54	11/09/21 10:07	1
Perfluorododecanoic acid	<10		10	2.5	ng/L		11/08/21 15:54	11/09/21 10:07	1
Perfluoroheptanesulfonic acid	<10		10	2.5	ng/L		11/08/21 15:54	11/09/21 10:07	1
Perfluoroheptanoic acid	<10		10	2.5	ng/L		11/08/21 15:54	11/09/21 10:07	1
Perfluorohexanesulfonic acid	<10		10	2.5	ng/L		11/08/21 15:54	11/09/21 10:07	1
Perfluorohexanoic acid	<10		10	2.5	ng/L		11/08/21 15:54	11/09/21 10:07	1

Method: 537 TOP - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: MB 410-192176/2-A
Matrix: Water
Analysis Batch: 192310

Client Sample ID: Method Blank
Prep Type: Post-Treatment
Prep Batch: 192176

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorononanesulfonic acid	<10		10	2.5	ng/L		11/08/21 15:54	11/09/21 10:07	1
Perfluorononanoic acid	<10		10	2.5	ng/L		11/08/21 15:54	11/09/21 10:07	1
Perfluorooctanesulfonamide	<10		10	2.5	ng/L		11/08/21 15:54	11/09/21 10:07	1
Perfluorooctanesulfonic acid	<10		10	2.5	ng/L		11/08/21 15:54	11/09/21 10:07	1
Perfluorooctanoic acid	<10		10	2.5	ng/L		11/08/21 15:54	11/09/21 10:07	1
Perfluoropentanesulfonic acid	<10		10	2.5	ng/L		11/08/21 15:54	11/09/21 10:07	1
Perfluoropentanoic acid	<10		10	2.5	ng/L		11/08/21 15:54	11/09/21 10:07	1
Perfluorotetradecanoic acid	<10		10	2.5	ng/L		11/08/21 15:54	11/09/21 10:07	1
Perfluorotridecanoic acid	<10		10	2.5	ng/L		11/08/21 15:54	11/09/21 10:07	1
Perfluoroundecanoic acid	<10		10	2.5	ng/L		11/08/21 15:54	11/09/21 10:07	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-6:2 FTS	*103*		*55 - 167*	*11/08/21 15:54*	*11/09/21 10:07*	*1*
M2-8:2 FTS	*119*		*61 - 160*	*11/08/21 15:54*	*11/09/21 10:07*	*1*
13C2-PFDoDA	*91*		*47 - 118*	*11/08/21 15:54*	*11/09/21 10:07*	*1*
13C2 PFTeDA	*92*		*32 - 126*	*11/08/21 15:54*	*11/09/21 10:07*	*1*
13C3 PFBS	*91*		*18 - 177*	*11/08/21 15:54*	*11/09/21 10:07*	*1*
13C3 PFHxS	*96*		*55 - 115*	*11/08/21 15:54*	*11/09/21 10:07*	*1*
13C4 PFBA	*92*		*52 - 126*	*11/08/21 15:54*	*11/09/21 10:07*	*1*
13C4 PFHpA	*100*		*55 - 113*	*11/08/21 15:54*	*11/09/21 10:07*	*1*
13C5 PFHxA	*95*		*54 - 115*	*11/08/21 15:54*	*11/09/21 10:07*	*1*
13C5 PFPeA	*97*		*17 - 184*	*11/08/21 15:54*	*11/09/21 10:07*	*1*
13C6 PFDA	*102*		*56 - 114*	*11/08/21 15:54*	*11/09/21 10:07*	*1*
13C7 PFUnA	*99*		*50 - 120*	*11/08/21 15:54*	*11/09/21 10:07*	*1*
13C8 PFOA	*92*		*56 - 117*	*11/08/21 15:54*	*11/09/21 10:07*	*1*
13C8 PFOS	*96*		*56 - 112*	*11/08/21 15:54*	*11/09/21 10:07*	*1*
13C8 FOSA	*93*		*10 - 126*	*11/08/21 15:54*	*11/09/21 10:07*	*1*
13C9 PFNA	*111*		*54 - 122*	*11/08/21 15:54*	*11/09/21 10:07*	*1*
d5-NEtFOSAA	*102*		*65 - 134*	*11/08/21 15:54*	*11/09/21 10:07*	*1*

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*63*		*40 - 173*	*11/08/21 15:54*	*11/09/21 10:07*	*1*
13C2 PFUnA	*82*		*49 - 132*	*11/08/21 15:54*	*11/09/21 10:07*	*1*
13C4 PFOA	*72*		*10 - 163*	*11/08/21 15:54*	*11/09/21 10:07*	*1*

Lab Sample ID: LCS 410-192176/3-A
Matrix: Water
Analysis Batch: 192310

Client Sample ID: Lab Control Sample
Prep Type: Post-Treatment
Prep Batch: 192176

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
10:2 Fluorotelomer sulfonic acid	123	102		ng/L		83	29 - 147
11Cl-PF3OUdS	119	106		ng/L		89	70 - 130
4:2 Fluorotelomer sulfonic acid	120	108		ng/L		90	53 - 109
6:2 Fluorotelomer sulfonic acid	121	105		ng/L		86	58 - 136
8:2 Fluorotelomer sulfonic acid	123	117		ng/L		95	59 - 118
9Cl-PF3ONS	119	113		ng/L		95	70 - 130
DONA	121	119		ng/L		98	70 - 130
HFPODA	128	110		ng/L		86	70 - 130

Method: 537 TOP - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 410-192176/3-A
Matrix: Water
Analysis Batch: 192310

Client Sample ID: Lab Control Sample
Prep Type: Post-Treatment
Prep Batch: 192176

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
NEtFOSAA	128	108		ng/L		84	53 - 119
NEtFOSA	128	91.7		ng/L		72	30 - 144
NEtFOSE	128	101		ng/L		79	35 - 142
NMeFOSAA	128	114		ng/L		89	43 - 122
NMeFOSA	128	104		ng/L		81	51 - 135
NMeFOSE	128	106		ng/L		82	57 - 120
Perfluorobutanesulfonic acid	113	108		ng/L		95	69 - 138
Perfluorobutanoic acid	128	115		ng/L		90	80 - 151
Perfluorodecanesulfonic acid	123	105		ng/L		85	52 - 149
Perfluorodecanoic acid	128	118	I	ng/L		92	69 - 142
Perfluorododecanesulfonic acid (PFDoS)	124	104		ng/L		84	53 - 151
Perfluorododecanoic acid	128	127	I	ng/L		100	71 - 145
Perfluoroheptanesulfonic acid	122	103		ng/L		85	64 - 140
Perfluoroheptanoic acid	128	129		ng/L		100	67 - 143
Perfluorohexadecanoic acid	128	110		ng/L		86	42 - 145
Perfluorohexanesulfonic acid	117	103		ng/L		88	67 - 136
Perfluorohexanoic acid	128	129		ng/L		101	65 - 152
Perfluorononanesulfonic acid	123	109		ng/L		89	60 - 144
Perfluorononanoic acid	128	122		ng/L		95	66 - 150
Perfluorooctadecanoic acid	128	116		ng/L		91	21 - 158
Perfluorooctanesulfonamide	128	115		ng/L		90	48 - 126
Perfluorooctanesulfonic acid	118	104		ng/L		88	68 - 142
Perfluorooctanoic acid	128	108		ng/L		85	71 - 144
Perfluoropentanesulfonic acid	120	122		ng/L		102	66 - 145
Perfluoropentanoic acid	128	135		ng/L		105	75 - 140
Perfluorotetradecanoic acid	128	125		ng/L		97	73 - 147
Perfluorotridecanoic acid	128	121		ng/L		95	64 - 160
Perfluoroundecanoic acid	128	134		ng/L		105	69 - 146

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
M2-6:2 FTS	*100*		*55 - 167*
M2-8:2 FTS	*111*		*61 - 160*
13C2-PFDoDA	*96*		*47 - 118*
13C2 PFTeDA	*91*		*32 - 126*
13C3 HFPO-DA	*94*		*70 - 130*
13C3 PFBS	*90*		*18 - 177*
13C3 PFHxS	*92*		*55 - 115*
13C4 PFBA	*87*		*52 - 126*
13C4 PFHpA	*95*		*55 - 113*
13C5 PFHxA	*93*		*54 - 115*
13C5 PFPeA	*90*		*17 - 184*
13C6 PFDA	*100*		*56 - 114*
13C7 PFUnA	*97*		*50 - 120*
13C8 PFOA	*97*		*56 - 117*
13C8 PFOS	*94*		*56 - 112*
13C8 FOSA	*94*		*10 - 126*
13C9 PFNA	*105*		*54 - 122*
d3-NMePFOSA	*83*	**5+*	*10 - 51*

Method: 537 TOP - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 410-192176/3-A
Matrix: Water
Analysis Batch: 192310

Client Sample ID: Lab Control Sample
Prep Type: Post-Treatment
Prep Batch: 192176

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
d5-NEtFOSAA	*101*		*65 - 134*
d5-NEtPFOSA	*78*	**5+*	*10 - 51*
d7-N-MeFOSE-M	*91*		*10 - 105*
d9-N-EtFOSE-M	*90*		*10 - 112*

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C2 PFHxA	*67*		*40 - 173*
13C2 PFUnA	*81*		*49 - 132*
13C4 PFOA	*77*		*10 - 163*

Lab Sample ID: LCSD 410-192176/4-A
Matrix: Water
Analysis Batch: 192310

Client Sample ID: Lab Control Sample Dup
Prep Type: Post-Treatment
Prep Batch: 192176

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
10:2 Fluorotelomer sulfonic acid	123	110		ng/L		89	29 - 147	7	30
11Cl-PF3OUdS	119	106		ng/L		89	70 - 130	0	30
4:2 Fluorotelomer sulfonic acid	120	121		ng/L		101	53 - 109	12	30
6:2 Fluorotelomer sulfonic acid	121	123		ng/L		101	58 - 136	16	30
8:2 Fluorotelomer sulfonic acid	123	126		ng/L		102	59 - 118	7	30
9Cl-PF3ONS	119	105		ng/L		89	70 - 130	7	30
DONA	121	119		ng/L		98	70 - 130	0	30
HFPODA	128	103		ng/L		81	70 - 130	6	30
NEtFOSAA	128	110		ng/L		86	53 - 119	2	30
NEtFOSA	128	105		ng/L		82	30 - 144	13	30
NEtFOSE	128	95.7		ng/L		75	35 - 142	6	30
NMeFOSAA	128	118		ng/L		92	43 - 122	4	30
NMeFOSA	128	108		ng/L		85	51 - 135	4	30
NMeFOSE	128	116		ng/L		90	57 - 120	9	30
Perfluorobutanesulfonic acid	113	114		ng/L		101	69 - 138	6	30
Perfluorobutanoic acid	128	118		ng/L		92	80 - 151	2	30
Perfluorodecanesulfonic acid	123	103		ng/L		83	52 - 149	2	30
Perfluorodecanoic acid	128	127	I	ng/L		100	69 - 142	8	30
Perfluorododecanesulfonic acid (PFDoS)	124	102		ng/L		82	53 - 151	2	30
Perfluorododecanoic acid	128	134	I	ng/L		105	71 - 145	5	30
Perfluoroheptanesulfonic acid	122	102		ng/L		84	64 - 140	1	30
Perfluoroheptanoic acid	128	129		ng/L		101	67 - 143	0	30
Perfluorohexadecanoic acid	128	106		ng/L		82	42 - 145	4	30
Perfluorohexanesulfonic acid	117	104		ng/L		89	67 - 136	1	30
Perfluorohexanoic acid	128	112		ng/L		87	65 - 152	14	30
Perfluorononanesulfonic acid	123	108		ng/L		88	60 - 144	1	30
Perfluorononanoic acid	128	127		ng/L		99	66 - 150	4	30
Perfluorooctadecanoic acid	128	105		ng/L		82	21 - 158	10	30
Perfluorooctanesulfonamide	128	103		ng/L		80	48 - 126	11	30
Perfluorooctanesulfonic acid	118	102		ng/L		86	68 - 142	2	30
Perfluorooctanoic acid	128	116		ng/L		91	71 - 144	7	30
Perfluoropentanesulfonic acid	120	121		ng/L		101	66 - 145	1	30
Perfluoropentanoic acid	128	145		ng/L		113	75 - 140	7	30

Method: 537 TOP - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCSD 410-192176/4-A
Matrix: Water
Analysis Batch: 192310

Client Sample ID: Lab Control Sample Dup
Prep Type: Post-Treatment
Prep Batch: 192176

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorotetradecanoic acid			128	128		ng/L		100	73 - 147	2	30
Perfluorotridecanoic acid			128	126		ng/L		99	64 - 160	4	30
Perfluoroundecanoic acid			128	142		ng/L		111	69 - 146	6	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
M2-6:2 FTS	*92*		*55 - 167*
M2-8:2 FTS	*96*		*61 - 160*
13C2-PFDoDA	*87*		*47 - 118*
13C2 PFTeDA	*86*		*32 - 126*
13C3 HFPO-DA	*94*		*70 - 130*
13C3 PFBS	*87*		*18 - 177*
13C3 PFHxS	*87*		*55 - 115*
13C4 PFBA	*85*		*52 - 126*
13C4 PFHpA	*89*		*55 - 113*
13C5 PFHxA	*94*		*54 - 115*
13C5 PFPeA	*88*		*17 - 184*
13C6 PFDA	*89*		*56 - 114*
13C7 PFUnA	*87*		*50 - 120*
13C8 PFOA	*90*		*56 - 117*
13C8 PFOS	*91*		*56 - 112*
13C8 FOSA	*86*		*10 - 126*
13C9 PFNA	*98*		*54 - 122*
d3-NMePFOSA	*79*	**5+*	*10 - 51*
d5-NEtFOSAA	*90*		*65 - 134*
d5-NEtPFOSA	*77*	**5+*	*10 - 51*
d7-N-MeFOSE-M	*82*		*10 - 105*
d9-N-EtFOSE-M	*87*		*10 - 112*

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C2 PFHxA	*62*		*40 - 173*
13C2 PFUnA	*74*		*49 - 132*
13C4 PFOA	*79*		*10 - 163*

QC Association Summary

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-60469-1

LCMS

Prep Batch: 188902

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-60469-1	FT2-RINSE 1-1	Pre-Treatment	Water	TOP Pre - Prep	
410-60469-1 - DL	FT2-RINSE 1-1	Pre-Treatment	Water	TOP Pre - Prep	
410-60469-2	HOSE-PRE-1	Pre-Treatment	Water	TOP Pre - Prep	
410-60469-2 - DL	HOSE-PRE-1	Pre-Treatment	Water	TOP Pre - Prep	
410-60469-3 - DL2	HOSE-PRE-12 HRS-1	Pre-Treatment	Water	TOP Pre - Prep	
410-60469-3	HOSE-PRE-12 HRS-1	Pre-Treatment	Water	TOP Pre - Prep	
410-60469-3 - DL	HOSE-PRE-12 HRS-1	Pre-Treatment	Water	TOP Pre - Prep	
410-60469-4	FT2-RINSE 2-1	Pre-Treatment	Water	TOP Pre - Prep	
410-60469-4 - DL	FT2-RINSE 2-1	Pre-Treatment	Water	TOP Pre - Prep	
410-60469-4 - DL2	FT2-RINSE 2-1	Pre-Treatment	Water	TOP Pre - Prep	
410-60469-5	HOSE-POST-1	Pre-Treatment	Water	TOP Pre - Prep	
410-60469-5 - RA	HOSE-POST-1	Pre-Treatment	Water	TOP Pre - Prep	
410-60469-5 - DL	HOSE-POST-1	Pre-Treatment	Water	TOP Pre - Prep	
410-60469-6	FT2-EFF 1-1	Pre-Treatment	Water	TOP Pre - Prep	
410-60469-6 - DL	FT2-EFF 1-1	Pre-Treatment	Water	TOP Pre - Prep	
410-60469-7	FT2-RINSE 3-1	Pre-Treatment	Water	TOP Pre - Prep	
410-60469-7 - DL	FT2-RINSE 3-1	Pre-Treatment	Water	TOP Pre - Prep	
410-60469-7 - RA	FT2-RINSE 3-1	Pre-Treatment	Water	TOP Pre - Prep	
410-60469-8 - RA	FT2-RINSE 4-1	Pre-Treatment	Water	TOP Pre - Prep	
410-60469-8 - DL	FT2-RINSE 4-1	Pre-Treatment	Water	TOP Pre - Prep	
410-60469-8	FT2-RINSE 4-1	Pre-Treatment	Water	TOP Pre - Prep	
410-60469-9	FT2-RINSE 4-2	Pre-Treatment	Water	TOP Pre - Prep	
410-60469-9 - DL	FT2-RINSE 4-2	Pre-Treatment	Water	TOP Pre - Prep	
410-60469-9 - RA	FT2-RINSE 4-2	Pre-Treatment	Water	TOP Pre - Prep	
410-60469-10 - DL	FT12-EFF 2-1	Pre-Treatment	Water	TOP Pre - Prep	
410-60469-10	FT12-EFF 2-1	Pre-Treatment	Water	TOP Pre - Prep	
MB 410-188902/1-A	Method Blank	Pre-Treatment	Water	TOP Pre - Prep	
LCS 410-188902/2-A	Lab Control Sample	Pre-Treatment	Water	TOP Pre - Prep	
410-60469-10 MS	FT12-EFF 2-1	Pre-Treatment	Water	TOP Pre - Prep	
410-60469-10 MSD	FT12-EFF 2-1	Pre-Treatment	Water	TOP Pre - Prep	

Analysis Batch: 189849

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-60469-2	HOSE-PRE-1	Pre-Treatment	Water	537 IDA	188902
410-60469-3	HOSE-PRE-12 HRS-1	Pre-Treatment	Water	537 IDA	188902
410-60469-4	FT2-RINSE 2-1	Pre-Treatment	Water	537 IDA	188902
410-60469-5	HOSE-POST-1	Pre-Treatment	Water	537 IDA	188902
410-60469-6	FT2-EFF 1-1	Pre-Treatment	Water	537 IDA	188902
410-60469-7	FT2-RINSE 3-1	Pre-Treatment	Water	537 IDA	188902
410-60469-8	FT2-RINSE 4-1	Pre-Treatment	Water	537 IDA	188902
410-60469-9	FT2-RINSE 4-2	Pre-Treatment	Water	537 IDA	188902
410-60469-10	FT12-EFF 2-1	Pre-Treatment	Water	537 IDA	188902
MB 410-188902/1-A	Method Blank	Pre-Treatment	Water	537 IDA	188902
LCS 410-188902/2-A	Lab Control Sample	Pre-Treatment	Water	537 IDA	188902
410-60469-10 MS	FT12-EFF 2-1	Pre-Treatment	Water	537 IDA	188902
410-60469-10 MSD	FT12-EFF 2-1	Pre-Treatment	Water	537 IDA	188902

Prep Batch: 190635

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-60469-6 - RE	FT2-EFF 1-1	Pre-Treatment	Water	TOP Pre - Prep	
MB 410-190635/1-A	Method Blank	Pre-Treatment	Water	TOP Pre - Prep	

LCMS (Continued)

Prep Batch: 190635 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 410-190635/2-A	Lab Control Sample	Pre-Treatment	Water	TOP Pre - Prep	
LCSD 410-190635/3-A	Lab Control Sample Dup	Pre-Treatment	Water	TOP Pre - Prep	

Analysis Batch: 191381

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-60469-1	FT2-RINSE 1-1	Pre-Treatment	Water	537 IDA	188902
410-60469-2 - DL	HOSE-PRE-1	Pre-Treatment	Water	537 IDA	188902
410-60469-3 - DL	HOSE-PRE-12 HRS-1	Pre-Treatment	Water	537 IDA	188902
410-60469-4 - DL	FT2-RINSE 2-1	Pre-Treatment	Water	537 IDA	188902
410-60469-5 - RA	HOSE-POST-1	Pre-Treatment	Water	537 IDA	188902
410-60469-6 - DL	FT2-EFF 1-1	Pre-Treatment	Water	537 IDA	188902
410-60469-7 - RA	FT2-RINSE 3-1	Pre-Treatment	Water	537 IDA	188902
410-60469-8 - RA	FT2-RINSE 4-1	Pre-Treatment	Water	537 IDA	188902
410-60469-9 - RA	FT2-RINSE 4-2	Pre-Treatment	Water	537 IDA	188902
410-60469-10 - DL	FT12-EFF 2-1	Pre-Treatment	Water	537 IDA	188902

Analysis Batch: 191602

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-60469-6 - RE	FT2-EFF 1-1	Pre-Treatment	Water	537 IDA	190635
MB 410-190635/1-A	Method Blank	Pre-Treatment	Water	537 IDA	190635
LCS 410-190635/2-A	Lab Control Sample	Pre-Treatment	Water	537 IDA	190635
LCSD 410-190635/3-A	Lab Control Sample Dup	Pre-Treatment	Water	537 IDA	190635

Prep Batch: 192176

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-60469-1	FT2-RINSE 1-1	Post-Treatment	Water	TOP Post Prep	
410-60469-2	HOSE-PRE-1	Post-Treatment	Water	TOP Post Prep	
410-60469-2 - DL	HOSE-PRE-1	Post-Treatment	Water	TOP Post Prep	
410-60469-3	HOSE-PRE-12 HRS-1	Post-Treatment	Water	TOP Post Prep	
410-60469-3 - DL	HOSE-PRE-12 HRS-1	Post-Treatment	Water	TOP Post Prep	
410-60469-4 - DL	FT2-RINSE 2-1	Post-Treatment	Water	TOP Post Prep	
410-60469-4 - RA	FT2-RINSE 2-1	Post-Treatment	Water	TOP Post Prep	
410-60469-4	FT2-RINSE 2-1	Post-Treatment	Water	TOP Post Prep	
410-60469-5	HOSE-POST-1	Post-Treatment	Water	TOP Post Prep	
410-60469-5 - DL	HOSE-POST-1	Post-Treatment	Water	TOP Post Prep	
410-60469-6	FT2-EFF 1-1	Post-Treatment	Water	TOP Post Prep	
410-60469-6 - DL	FT2-EFF 1-1	Post-Treatment	Water	TOP Post Prep	
410-60469-7 - DL	FT2-RINSE 3-1	Post-Treatment	Water	TOP Post Prep	
410-60469-7	FT2-RINSE 3-1	Post-Treatment	Water	TOP Post Prep	
410-60469-8 - DL	FT2-RINSE 4-1	Post-Treatment	Water	TOP Post Prep	
410-60469-8	FT2-RINSE 4-1	Post-Treatment	Water	TOP Post Prep	
410-60469-9	FT2-RINSE 4-2	Post-Treatment	Water	TOP Post Prep	
410-60469-10 - DL	FT12-EFF 2-1	Post-Treatment	Water	TOP Post Prep	
410-60469-10	FT12-EFF 2-1	Post-Treatment	Water	TOP Post Prep	
MB 410-192176/2-A	Method Blank	Post-Treatment	Water	TOP Post Prep	
LCS 410-192176/3-A	Lab Control Sample	Post-Treatment	Water	TOP Post Prep	
LCSD 410-192176/4-A	Lab Control Sample Dup	Post-Treatment	Water	TOP Post Prep	

Analysis Batch: 192310

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-60469-1	FT2-RINSE 1-1	Post-Treatment	Water	537 TOP	192176

LCMS (Continued)

Analysis Batch: 192310 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-60469-2	HOSE-PRE-1	Post-Treatment	Water	537 TOP	192176
410-60469-2 - DL	HOSE-PRE-1	Post-Treatment	Water	537 TOP	192176
410-60469-3	HOSE-PRE-12 HRS-1	Post-Treatment	Water	537 TOP	192176
410-60469-3 - DL	HOSE-PRE-12 HRS-1	Post-Treatment	Water	537 TOP	192176
410-60469-4	FT2-RINSE 2-1	Post-Treatment	Water	537 TOP	192176
410-60469-4 - RA	FT2-RINSE 2-1	Post-Treatment	Water	537 TOP	192176
410-60469-4 - DL	FT2-RINSE 2-1	Post-Treatment	Water	537 TOP	192176
410-60469-5	HOSE-POST-1	Post-Treatment	Water	537 TOP	192176
410-60469-5 - DL	HOSE-POST-1	Post-Treatment	Water	537 TOP	192176
410-60469-6	FT2-EFF 1-1	Post-Treatment	Water	537 TOP	192176
410-60469-6 - DL	FT2-EFF 1-1	Post-Treatment	Water	537 TOP	192176
410-60469-7	FT2-RINSE 3-1	Post-Treatment	Water	537 TOP	192176
410-60469-7 - DL	FT2-RINSE 3-1	Post-Treatment	Water	537 TOP	192176
410-60469-8	FT2-RINSE 4-1	Post-Treatment	Water	537 TOP	192176
410-60469-8 - DL	FT2-RINSE 4-1	Post-Treatment	Water	537 TOP	192176
410-60469-9	FT2-RINSE 4-2	Post-Treatment	Water	537 TOP	192176
410-60469-10	FT12-EFF 2-1	Post-Treatment	Water	537 TOP	192176
410-60469-10 - DL	FT12-EFF 2-1	Post-Treatment	Water	537 TOP	192176
MB 410-192176/2-A	Method Blank	Post-Treatment	Water	537 TOP	192176
LCS 410-192176/3-A	Lab Control Sample	Post-Treatment	Water	537 TOP	192176
LCSD 410-192176/4-A	Lab Control Sample Dup	Post-Treatment	Water	537 TOP	192176

Analysis Batch: 192720

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-60469-5 - DL	HOSE-POST-1	Pre-Treatment	Water	537 IDA	188902
410-60469-7 - DL	FT2-RINSE 3-1	Pre-Treatment	Water	537 IDA	188902
410-60469-8 - DL	FT2-RINSE 4-1	Pre-Treatment	Water	537 IDA	188902
410-60469-9 - DL	FT2-RINSE 4-2	Pre-Treatment	Water	537 IDA	188902

Analysis Batch: 193066

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-60469-3 - DL2	HOSE-PRE-12 HRS-1	Pre-Treatment	Water	537 IDA	188902

Prep Batch: 193444

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-60469-1 - RE	FT2-RINSE 1-1	Pre-Treatment	Water	TOP Pre - Prep	
410-60469-4 - RE	FT2-RINSE 2-1	Pre-Treatment	Water	TOP Pre - Prep	
MB 410-193444/1-A	Method Blank	Pre-Treatment	Water	TOP Pre - Prep	
LCS 410-193444/3-A	Lab Control Sample	Pre-Treatment	Water	TOP Pre - Prep	
LCSD 410-193444/4-A	Lab Control Sample Dup	Pre-Treatment	Water	TOP Pre - Prep	

Analysis Batch: 193633

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-60469-2	HOSE-PRE-1	Post-Treatment	Water	Total PFCA-Sum	
410-60469-2	HOSE-PRE-1	Pre-Treatment	Water	Total PFCA-Sum	
410-60469-6	FT2-EFF 1-1	Post-Treatment	Water	Total PFCA-Sum	
410-60469-6	FT2-EFF 1-1	Pre-Treatment	Water	Total PFCA-Sum	
410-60469-10	FT12-EFF 2-1	Post-Treatment	Water	Total PFCA-Sum	
410-60469-10	FT12-EFF 2-1	Pre-Treatment	Water	Total PFCA-Sum	

QC Association Summary

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-60469-1

LCMS

Analysis Batch: 193635

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-60469-2	HOSE-PRE-1	Total/NA	Water	Total PFCA-Dif	
410-60469-6	FT2-EFF 1-1	Total/NA	Water	Total PFCA-Dif	
410-60469-10	FT12-EFF 2-1	Total/NA	Water	Total PFCA-Dif	

Analysis Batch: 193736

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-60469-3	HOSE-PRE-12 HRS-1	Post-Treatment	Water	Total PFCA-Sum	
410-60469-3	HOSE-PRE-12 HRS-1	Pre-Treatment	Water	Total PFCA-Sum	
410-60469-5	HOSE-POST-1	Post-Treatment	Water	Total PFCA-Sum	
410-60469-5	HOSE-POST-1	Pre-Treatment	Water	Total PFCA-Sum	
410-60469-7	FT2-RINSE 3-1	Post-Treatment	Water	Total PFCA-Sum	
410-60469-7	FT2-RINSE 3-1	Pre-Treatment	Water	Total PFCA-Sum	
410-60469-8	FT2-RINSE 4-1	Post-Treatment	Water	Total PFCA-Sum	
410-60469-8	FT2-RINSE 4-1	Pre-Treatment	Water	Total PFCA-Sum	
410-60469-9	FT2-RINSE 4-2	Post-Treatment	Water	Total PFCA-Sum	
410-60469-9	FT2-RINSE 4-2	Pre-Treatment	Water	Total PFCA-Sum	

Analysis Batch: 193739

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-60469-3	HOSE-PRE-12 HRS-1	Total/NA	Water	Total PFCA-Dif	
410-60469-5	HOSE-POST-1	Total/NA	Water	Total PFCA-Dif	
410-60469-7	FT2-RINSE 3-1	Total/NA	Water	Total PFCA-Dif	
410-60469-8	FT2-RINSE 4-1	Total/NA	Water	Total PFCA-Dif	
410-60469-9	FT2-RINSE 4-2	Total/NA	Water	Total PFCA-Dif	

Analysis Batch: 194347

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-60469-4 - RE	FT2-RINSE 2-1	Pre-Treatment	Water	537 IDA	193444
MB 410-193444/1-A	Method Blank	Pre-Treatment	Water	537 IDA	193444
LCS 410-193444/3-A	Lab Control Sample	Pre-Treatment	Water	537 IDA	193444
LCSD 410-193444/4-A	Lab Control Sample Dup	Pre-Treatment	Water	537 IDA	193444

Analysis Batch: 194510

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-60469-1 - RE	FT2-RINSE 1-1	Pre-Treatment	Water	537 IDA	193444

Analysis Batch: 194549

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-60469-1 - DL	FT2-RINSE 1-1	Pre-Treatment	Water	537 IDA	188902
410-60469-4 - DL2	FT2-RINSE 2-1	Pre-Treatment	Water	537 IDA	188902

Analysis Batch: 194878

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-60469-1	FT2-RINSE 1-1	Post-Treatment	Water	Total PFCA-Sum	
410-60469-1	FT2-RINSE 1-1	Pre-Treatment	Water	Total PFCA-Sum	
410-60469-4	FT2-RINSE 2-1	Post-Treatment	Water	Total PFCA-Sum	
410-60469-4	FT2-RINSE 2-1	Pre-Treatment	Water	Total PFCA-Sum	

Analysis Batch: 194879

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-60469-1	FT2-RINSE 1-1	Total/NA	Water	Total PFCA-Dif	

LCMS (Continued)

Analysis Batch: 194879 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-60469-4	FT2-RINSE 2-1	Total/NA	Water	Total PFCA-Dif	

Lab Chronicle

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-60469-1

Client Sample ID: FT2-RINSE 1-1

Lab Sample ID: 410-60469-1

Date Collected: 10/19/21 09:50
Matrix: Water
Date Received: 10/23/21 09:49

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Pre-Treatment	Prep	TOP Pre - Prep			188902	10/29/21 18:31	GU2F	ELLE
Pre-Treatment	Analysis	537 IDA		10	191381	11/05/21 18:26	MT26	ELLE
Pre-Treatment	Prep	TOP Pre - Prep	DL		188902	10/29/21 18:31	GU2F	ELLE
Pre-Treatment	Analysis	537 IDA	DL	100	194549	11/15/21 07:46	PY4D	ELLE
Pre-Treatment	Prep	TOP Pre - Prep	RE		193444	11/11/21 07:21	RC3V	ELLE
Pre-Treatment	Analysis	537 IDA	RE	10	194510	11/14/21 07:42	PY4D	ELLE
Post-Treatment	Prep	TOP Post Prep			192176	11/08/21 15:54	S7AC	ELLE
Post-Treatment	Analysis	537 TOP		100	192310	11/09/21 11:00	MT26	ELLE
Total/NA	Analysis	Total PFCA-Dif		1	194879	11/15/21 12:55	MT26	ELLE
Post-Treatment	Analysis	Total PFCA-Sum		1	194878	11/15/21 12:54	MT26	ELLE
Pre-Treatment	Analysis	Total PFCA-Sum		1	194878	11/15/21 12:54	MT26	ELLE

Client Sample ID: HOSE-PRE-1

Lab Sample ID: 410-60469-2

Date Collected: 10/19/21 13:30
Matrix: Water
Date Received: 10/23/21 09:49

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Pre-Treatment	Prep	TOP Pre - Prep			188902	10/29/21 18:31	GU2F	ELLE
Pre-Treatment	Analysis	537 IDA		1	189849	11/03/21 03:45	DCS9	ELLE
Pre-Treatment	Prep	TOP Pre - Prep	DL		188902	10/29/21 18:31	GU2F	ELLE
Pre-Treatment	Analysis	537 IDA	DL	10	191381	11/05/21 18:47	MT26	ELLE
Post-Treatment	Prep	TOP Post Prep			192176	11/08/21 15:54	S7AC	ELLE
Post-Treatment	Analysis	537 TOP		1	192310	11/09/21 11:10	MT26	ELLE
Post-Treatment	Prep	TOP Post Prep	DL		192176	11/08/21 15:54	S7AC	ELLE
Post-Treatment	Analysis	537 TOP	DL	10	192310	11/09/21 11:21	MT26	ELLE
Total/NA	Analysis	Total PFCA-Dif		1	193635	11/11/21 10:56	MT26	ELLE
Post-Treatment	Analysis	Total PFCA-Sum		1	193633	11/11/21 10:54	MT26	ELLE
Pre-Treatment	Analysis	Total PFCA-Sum		1	193633	11/11/21 10:54	MT26	ELLE

Client Sample ID: HOSE-PRE-12 HRS-1

Lab Sample ID: 410-60469-3

Date Collected: 10/20/21 07:20
Matrix: Water
Date Received: 10/23/21 09:49

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Pre-Treatment	Prep	TOP Pre - Prep			188902	10/29/21 18:31	GU2F	ELLE
Pre-Treatment	Analysis	537 IDA		1	189849	11/03/21 03:55	DCS9	ELLE
Pre-Treatment	Prep	TOP Pre - Prep	DL		188902	10/29/21 18:31	GU2F	ELLE
Pre-Treatment	Analysis	537 IDA	DL	10	191381	11/05/21 19:08	MT26	ELLE
Pre-Treatment	Prep	TOP Pre - Prep	DL2		188902	10/29/21 18:31	GU2F	ELLE
Pre-Treatment	Analysis	537 IDA	DL2	100	193066	11/10/21 12:33	MT26	ELLE
Post-Treatment	Prep	TOP Post Prep			192176	11/08/21 15:54	S7AC	ELLE
Post-Treatment	Analysis	537 TOP		1	192310	11/09/21 11:32	MT26	ELLE
Post-Treatment	Prep	TOP Post Prep	DL		192176	11/08/21 15:54	S7AC	ELLE
Post-Treatment	Analysis	537 TOP	DL	10	192310	11/09/21 11:42	MT26	ELLE

Lab Chronicle

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-60469-1

Client Sample ID: HOSE-PRE-12 HRS-1

Lab Sample ID: 410-60469-3
Date Collected: 10/20/21 07:20
Matrix: Water
Date Received: 10/23/21 09:49

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Total PFCA-Dif		1	193739	11/11/21 15:01	MT26	ELLE
Post-Treatment	Analysis	Total PFCA-Sum		1	193736	11/11/21 14:59	MT26	ELLE
Pre-Treatment	Analysis	Total PFCA-Sum		1	193736	11/11/21 14:59	MT26	ELLE

Client Sample ID: FT2-RINSE 2-1

Lab Sample ID: 410-60469-4
Date Collected: 10/20/21 15:15
Matrix: Water
Date Received: 10/23/21 09:49

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Pre-Treatment	Prep	TOP Pre - Prep			188902	10/29/21 18:31	GU2F	ELLE
Pre-Treatment	Analysis	537 IDA		1	189849	11/03/21 04:06	DCS9	ELLE
Pre-Treatment	Prep	TOP Pre - Prep	DL		188902	10/29/21 18:31	GU2F	ELLE
Pre-Treatment	Analysis	537 IDA	DL	10	191381	11/05/21 19:19	MT26	ELLE
Pre-Treatment	Prep	TOP Pre - Prep	DL2		188902	10/29/21 18:31	GU2F	ELLE
Pre-Treatment	Analysis	537 IDA	DL2	100	194549	11/15/21 07:57	PY4D	ELLE
Pre-Treatment	Prep	TOP Pre - Prep	RE		193444	11/11/21 07:21	RC3V	ELLE
Pre-Treatment	Analysis	537 IDA	RE	1	194347	11/12/21 18:26	QD9Y	ELLE
Post-Treatment	Prep	TOP Post Prep			192176	11/08/21 15:54	S7AC	ELLE
Post-Treatment	Analysis	537 TOP		10	192310	11/09/21 12:03	MT26	ELLE
Post-Treatment	Prep	TOP Post Prep	RA		192176	11/08/21 15:54	S7AC	ELLE
Post-Treatment	Analysis	537 TOP	RA	10	192310	11/09/21 12:14	MT26	ELLE
Post-Treatment	Prep	TOP Post Prep	DL		192176	11/08/21 15:54	S7AC	ELLE
Post-Treatment	Analysis	537 TOP	DL	100	192310	11/09/21 12:25	MT26	ELLE
Total/NA	Analysis	Total PFCA-Dif		1	194879	11/15/21 12:55	MT26	ELLE
Post-Treatment	Analysis	Total PFCA-Sum		1	194878	11/15/21 12:54	MT26	ELLE
Pre-Treatment	Analysis	Total PFCA-Sum		1	194878	11/15/21 12:54	MT26	ELLE

Client Sample ID: HOSE-POST-1

Lab Sample ID: 410-60469-5
Date Collected: 10/20/21 15:30
Matrix: Water
Date Received: 10/23/21 09:49

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Pre-Treatment	Prep	TOP Pre - Prep			188902	10/29/21 18:31	GU2F	ELLE
Pre-Treatment	Analysis	537 IDA		1	189849	11/03/21 04:27	DCS9	ELLE
Pre-Treatment	Prep	TOP Pre - Prep	RA		188902	10/29/21 18:31	GU2F	ELLE
Pre-Treatment	Analysis	537 IDA	RA	1	191381	11/05/21 19:40	MT26	ELLE
Pre-Treatment	Prep	TOP Pre - Prep	DL		188902	10/29/21 18:31	GU2F	ELLE
Pre-Treatment	Analysis	537 IDA	DL	100	192720	11/09/21 18:42	OLN7	ELLE
Post-Treatment	Prep	TOP Post Prep			192176	11/08/21 15:54	S7AC	ELLE
Post-Treatment	Analysis	537 TOP		10	192310	11/09/21 12:35	MT26	ELLE
Post-Treatment	Prep	TOP Post Prep	DL		192176	11/08/21 15:54	S7AC	ELLE
Post-Treatment	Analysis	537 TOP	DL	100	192310	11/09/21 12:56	MT26	ELLE
Total/NA	Analysis	Total PFCA-Dif		1	193739	11/11/21 15:01	MT26	ELLE
Post-Treatment	Analysis	Total PFCA-Sum		1	193736	11/11/21 14:59	MT26	ELLE

Lab Chronicle

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-60469-1

Client Sample ID: HOSE-POST-1

Lab Sample ID: 410-60469-5
Date Collected: 10/20/21 15:30
Matrix: Water
Date Received: 10/23/21 09:49

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Pre-Treatment	Analysis	Total PFCA-Sum		1	193736	11/11/21 14:59	MT26	ELLE

Client Sample ID: FT2-EFF 1-1

Lab Sample ID: 410-60469-6
Date Collected: 10/21/21 08:30
Matrix: Water
Date Received: 10/23/21 09:49

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Pre-Treatment	Prep	TOP Pre - Prep			188902	10/29/21 18:31	GU2F	ELLE
Pre-Treatment	Analysis	537 IDA		1	189849	11/03/21 04:37	DCS9	ELLE
Pre-Treatment	Prep	TOP Pre - Prep	DL		188902	10/29/21 18:31	GU2F	ELLE
Pre-Treatment	Analysis	537 IDA	DL	10	191381	11/05/21 20:01	MT26	ELLE
Pre-Treatment	Prep	TOP Pre - Prep	RE		190635	11/04/21 07:13	RDL8	ELLE
Pre-Treatment	Analysis	537 IDA	RE	1	191602	11/06/21 23:33	UCD3	ELLE
Post-Treatment	Prep	TOP Post Prep			192176	11/08/21 15:54	S7AC	ELLE
Post-Treatment	Analysis	537 TOP		1	192310	11/09/21 13:07	MT26	ELLE
Post-Treatment	Prep	TOP Post Prep	DL		192176	11/08/21 15:54	S7AC	ELLE
Post-Treatment	Analysis	537 TOP	DL	10	192310	11/09/21 13:17	MT26	ELLE
Total/NA	Analysis	Total PFCA-Dif		1	193635	11/11/21 10:56	MT26	ELLE
Post-Treatment	Analysis	Total PFCA-Sum		1	193633	11/11/21 10:54	MT26	ELLE
Pre-Treatment	Analysis	Total PFCA-Sum		1	193633	11/11/21 10:54	MT26	ELLE

Client Sample ID: FT2-RINSE 3-1

Lab Sample ID: 410-60469-7
Date Collected: 10/21/21 13:30
Matrix: Water
Date Received: 10/23/21 09:49

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Pre-Treatment	Prep	TOP Pre - Prep			188902	10/29/21 18:31	GU2F	ELLE
Pre-Treatment	Analysis	537 IDA		1	189849	11/03/21 04:48	DCS9	ELLE
Pre-Treatment	Prep	TOP Pre - Prep	RA		188902	10/29/21 18:31	GU2F	ELLE
Pre-Treatment	Analysis	537 IDA	RA	1	191381	11/05/21 20:23	MT26	ELLE
Pre-Treatment	Prep	TOP Pre - Prep	DL		188902	10/29/21 18:31	GU2F	ELLE
Pre-Treatment	Analysis	537 IDA	DL	100	192720	11/09/21 18:53	OLN7	ELLE
Post-Treatment	Prep	TOP Post Prep			192176	11/08/21 15:54	S7AC	ELLE
Post-Treatment	Analysis	537 TOP		10	192310	11/09/21 13:28	MT26	ELLE
Post-Treatment	Prep	TOP Post Prep	DL		192176	11/08/21 15:54	S7AC	ELLE
Post-Treatment	Analysis	537 TOP	DL	100	192310	11/09/21 14:10	MT26	ELLE
Total/NA	Analysis	Total PFCA-Dif		1	193739	11/12/21 08:03	MT26	ELLE
Post-Treatment	Analysis	Total PFCA-Sum		1	193736	11/12/21 08:03	MT26	ELLE
Pre-Treatment	Analysis	Total PFCA-Sum		1	193736	11/12/21 08:03	MT26	ELLE

Lab Chronicle

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-60469-1

Client Sample ID: FT2-RINSE 4-1

Lab Sample ID: 410-60469-8

Date Collected: 10/21/21 15:10
Matrix: Water
Date Received: 10/23/21 09:49

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Pre-Treatment	Prep	TOP Pre - Prep			188902	10/29/21 18:31	GU2F	ELLE
Pre-Treatment	Analysis	537 IDA		1	189849	11/03/21 04:59	DCS9	ELLE
Pre-Treatment	Prep	TOP Pre - Prep	RA		188902	10/29/21 18:31	GU2F	ELLE
Pre-Treatment	Analysis	537 IDA	RA	1	191381	11/05/21 20:44	MT26	ELLE
Pre-Treatment	Prep	TOP Pre - Prep	DL		188902	10/29/21 18:31	GU2F	ELLE
Pre-Treatment	Analysis	537 IDA	DL	100	192720	11/09/21 19:03	OLN7	ELLE
Post-Treatment	Prep	TOP Post Prep			192176	11/08/21 15:54	S7AC	ELLE
Post-Treatment	Analysis	537 TOP		10	192310	11/09/21 14:21	MT26	ELLE
Post-Treatment	Prep	TOP Post Prep	DL		192176	11/08/21 15:54	S7AC	ELLE
Post-Treatment	Analysis	537 TOP	DL	100	192310	11/09/21 14:42	MT26	ELLE
Total/NA	Analysis	Total PFCA-Dif		1	193739	11/11/21 15:01	MT26	ELLE
Post-Treatment	Analysis	Total PFCA-Sum		1	193736	11/11/21 14:59	MT26	ELLE
Pre-Treatment	Analysis	Total PFCA-Sum		1	193736	11/11/21 14:59	MT26	ELLE

Client Sample ID: FT2-RINSE 4-2

Lab Sample ID: 410-60469-9

Date Collected: 10/21/21 15:15
Matrix: Water
Date Received: 10/23/21 09:49

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Pre-Treatment	Prep	TOP Pre - Prep			188902	10/29/21 18:31	GU2F	ELLE
Pre-Treatment	Analysis	537 IDA		1	189849	11/03/21 05:09	DCS9	ELLE
Pre-Treatment	Prep	TOP Pre - Prep	RA		188902	10/29/21 18:31	GU2F	ELLE
Pre-Treatment	Analysis	537 IDA	RA	1	191381	11/05/21 21:05	MT26	ELLE
Pre-Treatment	Prep	TOP Pre - Prep	DL		188902	10/29/21 18:31	GU2F	ELLE
Pre-Treatment	Analysis	537 IDA	DL	100	192720	11/09/21 19:14	OLN7	ELLE
Post-Treatment	Prep	TOP Post Prep			192176	11/08/21 15:54	S7AC	ELLE
Post-Treatment	Analysis	537 TOP		10	192310	11/09/21 14:53	MT26	ELLE
Total/NA	Analysis	Total PFCA-Dif		1	193739	11/11/21 15:01	MT26	ELLE
Post-Treatment	Analysis	Total PFCA-Sum		1	193736	11/11/21 14:59	MT26	ELLE
Pre-Treatment	Analysis	Total PFCA-Sum		1	193736	11/11/21 14:59	MT26	ELLE

Client Sample ID: FT12-EFF 2-1

Lab Sample ID: 410-60469-10

Date Collected: 10/21/21 07:45
Matrix: Water
Date Received: 10/23/21 09:49

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Pre-Treatment	Prep	TOP Pre - Prep			188902	10/29/21 18:31	GU2F	ELLE
Pre-Treatment	Analysis	537 IDA		1	189849	11/03/21 05:20	DCS9	ELLE
Pre-Treatment	Prep	TOP Pre - Prep	DL		188902	10/29/21 18:31	GU2F	ELLE
Pre-Treatment	Analysis	537 IDA	DL	10	191381	11/05/21 21:26	MT26	ELLE
Post-Treatment	Prep	TOP Post Prep			192176	11/08/21 15:54	S7AC	ELLE
Post-Treatment	Analysis	537 TOP		1	192310	11/09/21 15:24	MT26	ELLE
Post-Treatment	Prep	TOP Post Prep	DL		192176	11/08/21 15:54	S7AC	ELLE
Post-Treatment	Analysis	537 TOP	DL	10	192310	11/09/21 15:35	MT26	ELLE

Lab Chronicle

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-60469-1

Client Sample ID: FT12-EFF 2-1

Lab Sample ID: 410-60469-10

Date Collected: 10/21/21 07:45

Matrix: Water

Date Received: 10/23/21 09:49

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Total PFCA-Dif		1	193635	11/11/21 10:56	MT26	ELLE
Post-Treatment	Analysis	Total PFCA-Sum		1	193633	11/11/21 10:54	MT26	ELLE
Pre-Treatment	Analysis	Total PFCA-Sum		1	193633	11/11/21 10:54	MT26	ELLE

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Env, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Accreditation/Certification Summary

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-60469-1

Laboratory: Eurofins Lancaster Laboratories Env, LLC

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

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	1.01	11-30-22
A2LA	ISO/IEC 17025	0001.01	11-30-22
Alaska	State	PA00009	06-30-22
Alaska (UST)	State	17-027	02-28-22
Arizona	State	AZ0780	03-12-22
Arkansas DEQ	State	88-0660	08-10-22
California	State	2792	02-02-22
Colorado	State	PA00009	06-30-22
Connecticut	State	PH-0746	06-30-23
DE Haz. Subst. Cleanup Act (HSCA)	State	019-006 (PA cert)	01-31-22
Delaware (DW)	State	N/A	02-01-22
Florida	NELAP	E87997	06-30-22
Georgia (DW)	State	C048	01-31-22
Hawaii	State	N/A	01-31-22
Illinois	NELAP	004559	01-31-22
Iowa	State	361	03-02-22
Kansas	NELAP	E-10151	10-31-22
Kentucky (DW)	State	KY90088	01-01-22
Kentucky (UST)	State	1.01	11-30-22
Kentucky (WW)	State	KY90088	12-31-21
Louisiana	NELAP	02055	06-30-22
Maine	State	2019012	03-12-22
Maryland	State	100	06-30-22
Massachusetts	State	M-PA009	06-30-22
Michigan	State	9930	01-31-22
Minnesota	NELAP	042-999-487	12-31-22
Missouri	State	450	01-31-22
Montana (DW)	State	0098	01-01-22
Montana (UST)	State	0098	01-01-22
Nebraska	State	NE-OS-32-17	01-31-22
New Hampshire	NELAP	273019	01-10-22
New Jersey	NELAP	PA011	06-30-22
New York	NELAP	10670	04-01-22
North Carolina (DW)	State	42705	07-31-22
North Carolina (WW/SW)	State	521	12-31-21
North Dakota	State	R-205	01-31-22
Oklahoma	NELAP	R-205	08-31-22
Oregon	NELAP	PA200001	09-11-22
PALA	Canada	1978	09-16-24
Pennsylvania	NELAP	36-00037	01-31-22
Rhode Island	State	LAO00338	01-31-22
South Carolina	State	89002002	01-31-22
Tennessee	State	02838	01-31-22
Texas	NELAP	T104704194-21-40	08-31-22
Utah	NELAP	PA000092019-16	03-01-22
Vermont	State	VT - 36037	10-28-22
Virginia	NELAP	460182	06-14-22
Washington	State	C457	04-12-22
West Virginia (DW)	State	9906 C	12-31-21
West Virginia DEP	State	055	12-31-21

Laboratory: Eurofins Lancaster Laboratories Env, LLC (Continued)

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

Authority	Program	Identification Number	Expiration Date
Wyoming	State	8TMS-L	01-31-22
Wyoming (UST)	A2LA	1.01	11-30-22

Method Summary

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-60469-1

Method	Method Description	Protocol	Laboratory
537 IDA	EPA 537 Isotope Dilution	EPA	ELLE
537 TOP	Fluorinated Alkyl Substances	EPA	ELLE
Total PFCA-Dif	Total PFCA (Treatment Difference)	TAL SOP	ELLE
Total PFCA-Sum	Total PFCA (Summary)	TAL SOP	ELLE
TOP Post Prep	Solid-Phase Extraction (SPE)	SW846	ELLE
TOP Pre - Prep	Solid-Phase Extraction (SPE)	SW846	ELLE

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Env, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Sample Summary

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-60469-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
410-60469-1	FT2-RINSE 1-1	Water	10/19/21 09:50	10/23/21 09:49
410-60469-2	HOSE-PRE-1	Water	10/19/21 13:30	10/23/21 09:49
410-60469-3	HOSE-PRE-12 HRS-1	Water	10/20/21 07:20	10/23/21 09:49
410-60469-4	FT2-RINSE 2-1	Water	10/20/21 15:15	10/23/21 09:49
410-60469-5	HOSE-POST-1	Water	10/20/21 15:30	10/23/21 09:49
410-60469-6	FT2-EFF 1-1	Water	10/21/21 08:30	10/23/21 09:49
410-60469-7	FT2-RINSE 3-1	Water	10/21/21 13:30	10/23/21 09:49
410-60469-8	FT2-RINSE 4-1	Water	10/21/21 15:10	10/23/21 09:49
410-60469-9	FT2-RINSE 4-2	Water	10/21/21 15:15	10/23/21 09:49
410-60469-10	FT12-EFF 2-1	Water	10/21/21 07:45	10/23/21 09:49

Eurofins Lancaster Laboratories Env, LLC
2425 New Holland Pike
Lancaster, PA 17601
Phone: 717-656-2300 Fax: 717-656-2681

Chain of Cus

410-60469 Chain of Custody

eurofins Environment Testing America

Client Information	Sampler: RYAN BOTT	er Tracking No(s):	COC No: 410-35460-11077.1
Client Contact: Mr. Robert Kennedy	Phone: 860-263-5867	of Origin: CT	Page: Page 1 of ~~2~~ 1 (RB)
Company: AECOM	PWSID:		Job #: 60662934
Address: 250 Apollo Drive	Due Date Requested:		
City: Chelmsford	TAT Requested (days): STANDARD		
State, Zip: MA, 01824	Compliance Project: Δ Yes Δ No		
Phone:	PO #: Purchase Order Requested		
Email: robert.kennedy@aecom.com	WO #:		
Project Name: AFFF Tanks Cleaning	Project #: 41007527		
Site: 60662934	SSOW#:		

Analysis Requested

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	PFC_IDA - 24 PFAS	PFC_IDA - 24 PFAS - TOP Assay	Total Number of containers	Special Instructions/Note:
			Preservation			N	N		
FT2-RINSE1-1	10/19/21	950	G	Water		X	X		
HOSE-PRE-1	10/19/21	1330	G	Water		X	X		
HOSE-PRE-12HRS-1	10/20/21	720	G	Water		X	X		
FT2-RINSE2-1	10/20/21	1515	G	Water		X	X		
HOSE-POST-1	10/20/21	1530	G	Water		X	X		
FT2-EFF1-1	10/21/21	830	G	Water		X	X		
FT2-RINSE3-1	10/21/21	1330	G	Water		X	X		
FT2-RINSE4-1	10/21/21	1510	G	Water		X	X		
FT2-RINSE4-2	10/21/21	1515	G	Water		X	X		
FT2-EFF2-1	10/22/21	745	G	Water	X	X	X		MS/MSD
				Water					

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by	Date/Time	Company	Received by	Date/Time	Company
[signature]	10/22/21 1300	AECOM	[signature]		
Relinquished by	Date/Time	Company	Received by	Date/Time	Company
Relinquished by	Date/Time	Company	Received by	Date/Time	Company
			[signature]	10/23/21 449	ELLE

Custody Seals Intact: Δ Yes Δ No
Custody Seal No.:
Cooler Temperature(s) °C and Other Remarks: 4.8

Ver: 06/08/2021

TAB

11/15/2021

Login Sample Receipt Checklist

Client: AECOM

Job Number: 410-60469-1

Login Number: 60469
List Number: 1
Creator: Bryan, Debra A

List Source: Eurofins Lancaster Laboratories Env, LLC

Question	Answer	Comment
The cooler's custody seal is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable (</=6C, not frozen).	True	
Cooler Temperature is recorded.	True	
WV: Container Temperature is acceptable (</=6C, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	True	
Sample custody seals are intact.	N/A	

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ANALYTICAL REPORT

Eurofins Lancaster Laboratories Env, LLC
2425 New Holland Pike
Lancaster, PA 17601
Tel: (717)656-2300

Laboratory Job ID: 410-61328-1
Client Project/Site: AFFF Tanks Cleaning

For:
AECOM
250 Apollo Drive
Chelmsford, Massachusetts 01824

Attn: Mr. Robert Kennedy

Authorized for release by:
12/27/2021 5:14:40 PM

Hannah Cottman, Operations Support Specialist
(717)556-7383
Hannah.Cottman@eurofinset.com

LINKS

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The test results in this report meet all 2003 NELAC, 2009 TNI, and 2016 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

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

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

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

Analytical test results meet all requirements of the associated regulatory program (e.g., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis. Data qualifiers are applied to note exceptions. Noncompliant quality control (QC) is further explained in narrative comments.
· QC results that exceed the upper limits and are associated with non-detect samples are qualified but further narration is not required since the bias is high and does not change a non-detect result. Further narration is also not required with QC blank detection when the associated sample concentration is non-detect or more than ten times the level in the blank.
· Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD is performed, unless otherwise specified in the method.
· Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.
Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Measurement uncertainty values, as applicable, are available upon request.

Test results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" and tested in the laboratory are not performed within 15 minutes of collection.

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Hannah L. Cottman

Hannah Cottman
Operations Support Specialist
12/27/2021 5:14:40 PM

Table of Contents

Cover Page 1
Table of Contents 3
Definitions/Glossary 4
Case Narrative 5
Detection Summary 6
Client Sample Results 10
Isotope Dilution Summary 16
QC Sample Results 17
QC Association Summary 20
Lab Chronicle 22
Certification Summary 24
Method Summary 26
Sample Summary 27
Chain of Custody 28
Receipt Checklists 29

Definitions/Glossary

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-61328-1

Qualifiers

LCMS

Qualifier	Qualifier Description
cn	Refer to Case Narrative for further detail

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
1C	Result is from the primary column on a dual-column method.
2C	Result is from the confirmation column on a dual-column method.
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Job ID: 410-61328-1

Laboratory: Eurofins Lancaster Laboratories Env, LLC

Narrative

Job Narrative
410-61328-1

Receipt
The samples were received on 10/30/2021 9:52 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 2.2°C

PFAS
Method PFC_IDA: The recovery for the labeled isotope(s) in the following sample: FT3-EFF2-1 (410-61328-8) is outside the QC acceptance limits. Since the recovery is high and the native analyte is not detected in the sample, the data is reported.The recovery for labeled isotope: 13C3-HFPODA is outside the QC acceptance limits in the opening continuing calibration verification standard. Since the recovery for the labeled isotope is within QC limits in the following sample: FT3-EFF2-1 (410-61328-8), the data is reported.

Method PFC_IDA: The sample injection standard peak areas in the following samples: FT3-TANKWATER-1 (410-61328-1) and FT3-RINSE1-1 (410-61328-2) are outside of the QC limits for both the initial injection and the re-injection. The values here are from the initial injection of the sample.The recovery for the labeled isotope(s) in the following samples: FT3-TANKWATER-1 (410-61328-1) and FT3-RINSE1-1 (410-61328-2) is outside the QC acceptance limits due to the matrix of the sample.

Method PFC_IDA: Reporting limits were raised for the following sample: FT3-RINSE1-1 (410-61328-2) due to interference from the sample matrix.

Method PFC_IDA: The recovery for the labeled isotope(s) in the following sample: FT3-EFF1-1 (410-61328-4) is outside the QC acceptance limits. Since the recovery is high and the native analyte is not detected in the sample, the data is reported.

Method PFC_IDA: The recovery for the labeled isotope(s) in the following samples: FT3-RINSE4-1 (410-61328-6) and FT3-RINSE4-2 (410-61328-7) is outside the QC acceptance limits due to the matrix of the sample.

Method PFC_IDA: The recovery for the labeled isotope(s) in the following sample: FT3-RINSE3-1 (410-61328-5) is outside the QC acceptance limits. The following action was taken: This sample was re-extracted within the required holding time and the recovery for the labeled isotope(s) is again outside the QC acceptance limits.

Method PFC_IDA: The recovery for labeled isotope: 13C3 HFPO-DA is outside the QC acceptance limits in the opening continuing calibration verification standard. Since the recovery for the labeled isotope is within QC limits in the following sample: FT3-RINSE3-1 (410-61328-5), the data is reported.

Method PFC_IDA: The recovery for the labeled isotope(s) in the following sample: FT3-RINSE2-1 (410-61328-3) is outside the QC acceptance limits. The following action was taken: This sample was re-extracted outside of the required holding time and the recovery for labeled isotope(s) was within QC acceptance limits.

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

Detection Summary

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-61328-1

Client Sample ID: FT3-TANKWATER-1 — Lab Sample ID: 410-61328-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid	2300	cn	480	190	ng/L	1		537 IDA	Pre-Treatment
Perfluorodecanoic acid	900	cn	190	48	ng/L	1		537 IDA	Pre-Treatment
Perfluorododecanoic acid	330	cn	190	48	ng/L	1		537 IDA	Pre-Treatment
Perfluoroheptanoic acid	4500	cn	190	48	ng/L	1		537 IDA	Pre-Treatment
Perfluorohexanesulfonic acid	770	cn	190	48	ng/L	1		537 IDA	Pre-Treatment
Perfluorohexanoic acid	25000	cn	190	48	ng/L	1		537 IDA	Pre-Treatment
Perfluorononanoic acid	270	cn	190	48	ng/L	1		537 IDA	Pre-Treatment
Perfluorooctanesulfonic acid	6500	cn	190	48	ng/L	1		537 IDA	Pre-Treatment
Perfluorooctanoic acid	3500	cn	190	48	ng/L	1		537 IDA	Pre-Treatment
Perfluoropentanesulfonic acid	200	cn	190	48	ng/L	1		537 IDA	Pre-Treatment
Perfluoropentanoic acid	2400	cn	190	48	ng/L	1		537 IDA	Pre-Treatment
8:2 Fluorotelomer sulfonic acid	8300	cn	290	96	ng/L	1		537 IDA	Pre-Treatment
4:2 Fluorotelomer sulfonic acid	390	cn	190	48	ng/L	1		537 IDA	Pre-Treatment
6:2 Fluorotelomer sulfonic acid - DL	490000	cn	48000	19000	ng/L	100		537 IDA	Pre-Treatment

Client Sample ID: FT3-RINSE1-1 — Lab Sample ID: 410-61328-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid	98	cn	43	17	ng/L	10		537 IDA	Pre-Treatment
Perfluorodecanoic acid	58	cn	17	4.3	ng/L	10		537 IDA	Pre-Treatment
Perfluorododecanoic acid	23	cn	17	4.3	ng/L	10		537 IDA	Pre-Treatment
Perfluoroheptanoic acid	200	cn	17	4.3	ng/L	10		537 IDA	Pre-Treatment
Perfluorohexanesulfonic acid	43	cn	17	4.3	ng/L	10		537 IDA	Pre-Treatment
Perfluorohexanoic acid	1100	cn	17	4.3	ng/L	10		537 IDA	Pre-Treatment
Perfluorononanoic acid	21	cn	17	4.3	ng/L	10		537 IDA	Pre-Treatment
Perfluorooctanesulfonic acid	530	cn	17	4.3	ng/L	10		537 IDA	Pre-Treatment
Perfluorooctanoic acid	210	cn	17	4.3	ng/L	10		537 IDA	Pre-Treatment
Perfluoropentanoic acid	120	cn	17	4.3	ng/L	10		537 IDA	Pre-Treatment
8:2 Fluorotelomer sulfonic acid	680	cn	26	8.6	ng/L	10		537 IDA	Pre-Treatment
4:2 Fluorotelomer sulfonic acid	27	cn	17	4.3	ng/L	10		537 IDA	Pre-Treatment
6:2 Fluorotelomer sulfonic acid - DL	8200	cn	430	170	ng/L	100		537 IDA	Pre-Treatment

This Detection Summary does not include radiochemical test results.

Eurofins Lancaster Laboratories Env, LLC

Detection Summary

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-61328-1

Client Sample ID: FT3-RINSE2-1 — Lab Sample ID: 410-61328-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid	62	cn	4.6	1.9	ng/L	1		537 IDA	Pre-Treatment
Perfluorodecanoic acid	5.5	cn	1.9	0.46	ng/L	1		537 IDA	Pre-Treatment
Perfluorododecanoic acid	3.4	cn	1.9	0.46	ng/L	1		537 IDA	Pre-Treatment
Perfluoroheptanoic acid	3.3	cn	1.9	0.46	ng/L	1		537 IDA	Pre-Treatment
Perfluorohexanoic acid	9.1	cn	1.9	0.46	ng/L	1		537 IDA	Pre-Treatment
Perfluorononanoic acid	5.3	cn	1.9	0.46	ng/L	1		537 IDA	Pre-Treatment
Perfluorooctanesulfonic acid	12	cn	1.9	0.46	ng/L	1		537 IDA	Pre-Treatment
Perfluorooctanoic acid	6.5	cn	1.9	0.46	ng/L	1		537 IDA	Pre-Treatment
Perfluorotetradecanoic acid	1.9	cn	1.9	0.46	ng/L	1		537 IDA	Pre-Treatment
Perfluoroundecanoic acid	2.4	cn	1.9	0.46	ng/L	1		537 IDA	Pre-Treatment
8:2 Fluorotelomer sulfonic acid	140	cn	2.8	0.93	ng/L	1		537 IDA	Pre-Treatment
6:2 Fluorotelomer sulfonic acid - DL	510	cn	46	19	ng/L	10		537 IDA	Pre-Treatment

Client Sample ID: FT3-EFF1-1 — Lab Sample ID: 410-61328-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid	61	cn	4.4	1.8	ng/L	1		537 IDA	Pre-Treatment
Perfluorodecanoic acid	18	cn	1.8	0.44	ng/L	1		537 IDA	Pre-Treatment
Perfluorododecanoic acid	19	cn	1.8	0.44	ng/L	1		537 IDA	Pre-Treatment
Perfluorononanoic acid	2.1	cn	1.8	0.44	ng/L	1		537 IDA	Pre-Treatment
Perfluorooctanoic acid	2.8	cn	1.8	0.44	ng/L	1		537 IDA	Pre-Treatment
Perfluorotetradecanoic acid	12	cn	1.8	0.44	ng/L	1		537 IDA	Pre-Treatment
Perfluorotridecanoic acid	1.9	cn	1.8	0.44	ng/L	1		537 IDA	Pre-Treatment
Perfluoroundecanoic acid	5.6	cn	1.8	0.44	ng/L	1		537 IDA	Pre-Treatment
6:2 Fluorotelomer sulfonic acid	100	cn	4.4	1.8	ng/L	1		537 IDA	Pre-Treatment
8:2 Fluorotelomer sulfonic acid - DL	770	cn	27	8.9	ng/L	10		537 IDA	Pre-Treatment

Client Sample ID: FT3-RINSE3-1 — Lab Sample ID: 410-61328-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorodecanoic acid	7.1	cn	1.7	0.42	ng/L	1		537 IDA	Pre-Treatment
Perfluorododecanoic acid	3.6	cn	1.7	0.42	ng/L	1		537 IDA	Pre-Treatment
Perfluoroheptanoic acid	2.0	cn	1.7	0.42	ng/L	1		537 IDA	Pre-Treatment

This Detection Summary does not include radiochemical test results.

Eurofins Lancaster Laboratories Env, LLC

Client Sample ID: FT3-RINSE3-1 (Continued) — Lab Sample ID: 410-61328-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanesulfonic acid	6.1	cn	1.7	0.42	ng/L	1		537 IDA	Pre-Treatment
Perfluorohexanoic acid	8.1	cn	1.7	0.42	ng/L	1		537 IDA	Pre-Treatment
Perfluorononanoic acid	4.1	cn	1.7	0.42	ng/L	1		537 IDA	Pre-Treatment
Perfluorooctanesulfonic acid	21	cn	1.7	0.42	ng/L	1		537 IDA	Pre-Treatment
Perfluorooctanoic acid	6.4	cn	1.7	0.42	ng/L	1		537 IDA	Pre-Treatment
Perfluoropentanoic acid	2.3	cn	1.7	0.42	ng/L	1		537 IDA	Pre-Treatment
Perfluorotetradecanoic acid	1.9	cn	1.7	0.42	ng/L	1		537 IDA	Pre-Treatment
Perfluorotridecanoic acid	1.8	cn	1.7	0.42	ng/L	1		537 IDA	Pre-Treatment
Perfluoroundecanoic acid	4.6	cn	1.7	0.42	ng/L	1		537 IDA	Pre-Treatment
8:2 Fluorotelomer sulfonic acid	210	cn	2.5	0.84	ng/L	1		537 IDA	Pre-Treatment
6:2 Fluorotelomer sulfonic acid - DL	900	cn	42	17	ng/L	10		537 IDA	Pre-Treatment

Client Sample ID: FT3-RINSE4-1 — Lab Sample ID: 410-61328-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorodecanoic acid	4.2	cn	1.8	0.46	ng/L	1		537 IDA	Pre-Treatment
Perfluorododecanoic acid	2.4	cn	1.8	0.46	ng/L	1		537 IDA	Pre-Treatment
Perfluorohexanoic acid	3.6	cn	1.8	0.46	ng/L	1		537 IDA	Pre-Treatment
Perfluorononanoic acid	1.9	cn	1.8	0.46	ng/L	1		537 IDA	Pre-Treatment
Perfluorooctanesulfonic acid	12	cn	1.8	0.46	ng/L	1		537 IDA	Pre-Treatment
Perfluorooctanoic acid	3.8	cn	1.8	0.46	ng/L	1		537 IDA	Pre-Treatment
Perfluoroundecanoic acid	2.6	cn	1.8	0.46	ng/L	1		537 IDA	Pre-Treatment
8:2 Fluorotelomer sulfonic acid	120	cn	2.7	0.91	ng/L	1		537 IDA	Pre-Treatment
6:2 Fluorotelomer sulfonic acid - DL	430	cn	46	18	ng/L	10		537 IDA	Pre-Treatment

Client Sample ID: FT3-RINSE4-2 — Lab Sample ID: 410-61328-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorodecanoic acid	3.9	cn	1.8	0.45	ng/L	1		537 IDA	Pre-Treatment
Perfluorododecanoic acid	2.2	cn	1.8	0.45	ng/L	1		537 IDA	Pre-Treatment
Perfluorohexanoic acid	3.7	cn	1.8	0.45	ng/L	1		537 IDA	Pre-Treatment
Perfluorononanoic acid	1.8	cn	1.8	0.45	ng/L	1		537 IDA	Pre-Treatment
Perfluorooctanesulfonic acid	12	cn	1.8	0.45	ng/L	1		537 IDA	Pre-Treatment

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-61328-1

Client Sample ID: FT3-RINSE4-2 (Continued) — Lab Sample ID: 410-61328-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid	3.7	cn	1.8	0.45	ng/L	1		537 IDA	Pre-Treatment
Perfluoroundecanoic acid	2.4	cn	1.8	0.45	ng/L	1		537 IDA	Pre-Treatment
8:2 Fluorotelomer sulfonic acid	110	cn	2.7	0.90	ng/L	1		537 IDA	Pre-Treatment
6:2 Fluorotelomer sulfonic acid - DL	450	cn	45	18	ng/L	10		537 IDA	Pre-Treatment

Client Sample ID: FT3-EFF2-1 — Lab Sample ID: 410-61328-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid	32	cn	4.4	1.8	ng/L	1		537 IDA	Pre-Treatment
Perfluorodecanoic acid	2.5	cn	1.8	0.44	ng/L	1		537 IDA	Pre-Treatment
Perfluorododecanoic acid	5.8	cn	1.8	0.44	ng/L	1		537 IDA	Pre-Treatment
Perfluorotetradecanoic acid	4.6	cn	1.8	0.44	ng/L	1		537 IDA	Pre-Treatment
Perfluorotridecanoic acid	2.0	cn	1.8	0.44	ng/L	1		537 IDA	Pre-Treatment
6:2 Fluorotelomer sulfonic acid	9.3	cn	4.4	1.8	ng/L	1		537 IDA	Pre-Treatment
8:2 Fluorotelomer sulfonic acid	67	cn	2.6	0.88	ng/L	1		537 IDA	Pre-Treatment

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-61328-1

Client Sample ID: FT3-TANKWATER-1

Lab Sample ID: 410-61328-1
Date Collected: 10/25/21 09:30
Matrix: Water
Date Received: 10/30/21 09:52

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NEtFOSAA	<290	cn	290	48	ng/L		11/04/21 15:28	11/08/21 21:45	1
NMeFOSAA	<190	cn	190	58	ng/L		11/04/21 15:28	11/08/21 21:45	1
Perfluorobutanesulfonic acid	<190	cn	190	48	ng/L		11/04/21 15:28	11/08/21 21:45	1
Perfluorobutanoic acid	**2300**	**cn**	480	190	ng/L		11/04/21 15:28	11/08/21 21:45	1
Perfluorodecanesulfonic acid	<190	cn	190	48	ng/L		11/04/21 15:28	11/08/21 21:45	1
Perfluorodecanoic acid	**900**	**cn**	190	48	ng/L		11/04/21 15:28	11/08/21 21:45	1
Perfluorododecanoic acid	**330**	**cn**	190	48	ng/L		11/04/21 15:28	11/08/21 21:45	1
Perfluoroheptanesulfonic acid	<190	cn	190	48	ng/L		11/04/21 15:28	11/08/21 21:45	1
Perfluoroheptanoic acid	**4500**	**cn**	190	48	ng/L		11/04/21 15:28	11/08/21 21:45	1
Perfluorohexanesulfonic acid	**770**	**cn**	190	48	ng/L		11/04/21 15:28	11/08/21 21:45	1
Perfluorohexanoic acid	**25000**	**cn**	190	48	ng/L		11/04/21 15:28	11/08/21 21:45	1
Perfluorononanesulfonic acid	<190	cn	190	48	ng/L		11/04/21 15:28	11/08/21 21:45	1
Perfluorononanoic acid	**270**	**cn**	190	48	ng/L		11/04/21 15:28	11/08/21 21:45	1
Perfluorooctanesulfonamide	<190	cn	190	48	ng/L		11/04/21 15:28	11/08/21 21:45	1
Perfluorooctanesulfonic acid	**6500**	**cn**	190	48	ng/L		11/04/21 15:28	11/08/21 21:45	1
Perfluorooctanoic acid	**3500**	**cn**	190	48	ng/L		11/04/21 15:28	11/08/21 21:45	1
Perfluoropentanesulfonic acid	**200**	**cn**	190	48	ng/L		11/04/21 15:28	11/08/21 21:45	1
Perfluoropentanoic acid	**2400**	**cn**	190	48	ng/L		11/04/21 15:28	11/08/21 21:45	1
Perfluorotetradecanoic acid	<190	cn	190	48	ng/L		11/04/21 15:28	11/08/21 21:45	1
Perfluorotridecanoic acid	<190	cn	190	48	ng/L		11/04/21 15:28	11/08/21 21:45	1
Perfluoroundecanoic acid	<190	cn	190	48	ng/L		11/04/21 15:28	11/08/21 21:45	1
8:2 Fluorotelomer sulfonic acid	**8300**	**cn**	290	96	ng/L		11/04/21 15:28	11/08/21 21:45	1
4:2 Fluorotelomer sulfonic acid	**390**	**cn**	190	48	ng/L		11/04/21 15:28	11/08/21 21:45	1

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
6:2 Fluorotelomer sulfonic acid	**490000**	**cn**	48000	19000	ng/L		11/04/21 15:28	11/08/21 22:08	100

Client Sample ID: FT3-RINSE1-1

Lab Sample ID: 410-61328-2
Date Collected: 10/25/21 10:40
Matrix: Water
Date Received: 10/30/21 09:52

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NEtFOSAA	<26	cn	26	4.3	ng/L		11/04/21 15:28	11/08/21 22:19	10
NMeFOSAA	<17	cn	17	5.2	ng/L		11/04/21 15:28	11/08/21 22:19	10
Perfluorobutanesulfonic acid	<17	cn	17	4.3	ng/L		11/04/21 15:28	11/08/21 22:19	10
Perfluorobutanoic acid	**98**	**cn**	43	17	ng/L		11/04/21 15:28	11/08/21 22:19	10
Perfluorodecanesulfonic acid	<17	cn	17	4.3	ng/L		11/04/21 15:28	11/08/21 22:19	10
Perfluorodecanoic acid	**58**	**cn**	17	4.3	ng/L		11/04/21 15:28	11/08/21 22:19	10
Perfluorododecanoic acid	**23**	**cn**	17	4.3	ng/L		11/04/21 15:28	11/08/21 22:19	10
Perfluoroheptanesulfonic acid	<17	cn	17	4.3	ng/L		11/04/21 15:28	11/08/21 22:19	10
Perfluoroheptanoic acid	**200**	**cn**	17	4.3	ng/L		11/04/21 15:28	11/08/21 22:19	10
Perfluorohexanesulfonic acid	**43**	**cn**	17	4.3	ng/L		11/04/21 15:28	11/08/21 22:19	10
Perfluorohexanoic acid	**1100**	**cn**	17	4.3	ng/L		11/04/21 15:28	11/08/21 22:19	10
Perfluorononanesulfonic acid	<17	cn	17	4.3	ng/L		11/04/21 15:28	11/08/21 22:19	10
Perfluorononanoic acid	**21**	**cn**	17	4.3	ng/L		11/04/21 15:28	11/08/21 22:19	10
Perfluorooctanesulfonamide	<17	cn	17	4.3	ng/L		11/04/21 15:28	11/08/21 22:19	10
Perfluorooctanesulfonic acid	**530**	**cn**	17	4.3	ng/L		11/04/21 15:28	11/08/21 22:19	10
Perfluorooctanoic acid	**210**	**cn**	17	4.3	ng/L		11/04/21 15:28	11/08/21 22:19	10

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-61328-1

Client Sample ID: FT3-RINSE1-1

Lab Sample ID: 410-61328-2
Date Collected: 10/25/21 10:40
Matrix: Water
Date Received: 10/30/21 09:52

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoropentanesulfonic acid	<17	cn	17	4.3	ng/L		11/04/21 15:28	11/08/21 22:19	10
Perfluoropentanoic acid	**120**	**cn**	17	4.3	ng/L		11/04/21 15:28	11/08/21 22:19	10
Perfluorotetradecanoic acid	<17	cn	17	4.3	ng/L		11/04/21 15:28	11/08/21 22:19	10
Perfluorotridecanoic acid	<17	cn	17	4.3	ng/L		11/04/21 15:28	11/08/21 22:19	10
Perfluoroundecanoic acid	<17	cn	17	4.3	ng/L		11/04/21 15:28	11/08/21 22:19	10
8:2 Fluorotelomer sulfonic acid	**680**	**cn**	26	8.6	ng/L		11/04/21 15:28	11/08/21 22:19	10
4:2 Fluorotelomer sulfonic acid	**27**	**cn**	17	4.3	ng/L		11/04/21 15:28	11/08/21 22:19	10

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
6:2 Fluorotelomer sulfonic acid	**8200**	**cn**	430	170	ng/L		11/04/21 15:28	11/08/21 22:30	100

Client Sample ID: FT3-RINSE2-1

Lab Sample ID: 410-61328-3
Date Collected: 10/27/21 16:20
Matrix: Water
Date Received: 10/30/21 09:52

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NEtFOSAA	<2.8	cn	2.8	0.46	ng/L		11/04/21 15:28	11/08/21 22:41	1
NMeFOSAA	<1.9	cn	1.9	0.56	ng/L		11/04/21 15:28	11/08/21 22:41	1
Perfluorobutanesulfonic acid	<1.9	cn	1.9	0.46	ng/L		11/04/21 15:28	11/08/21 22:41	1
Perfluorobutanoic acid	**62**	**cn**	4.6	1.9	ng/L		11/04/21 15:28	11/08/21 22:41	1
Perfluorodecanesulfonic acid	<1.9	cn	1.9	0.46	ng/L		11/04/21 15:28	11/08/21 22:41	1
Perfluorodecanoic acid	**5.5**	**cn**	1.9	0.46	ng/L		11/04/21 15:28	11/08/21 22:41	1
Perfluorododecanoic acid	**3.4**	**cn**	1.9	0.46	ng/L		11/04/21 15:28	11/08/21 22:41	1
Perfluoroheptanesulfonic acid	<1.9	cn	1.9	0.46	ng/L		11/04/21 15:28	11/08/21 22:41	1
Perfluoroheptanoic acid	**3.3**	**cn**	1.9	0.46	ng/L		11/04/21 15:28	11/08/21 22:41	1
Perfluorohexanesulfonic acid	<1.9	cn	1.9	0.46	ng/L		11/04/21 15:28	11/08/21 22:41	1
Perfluorohexanoic acid	**9.1**	**cn**	1.9	0.46	ng/L		11/04/21 15:28	11/08/21 22:41	1
Perfluorononanesulfonic acid	<1.9	cn	1.9	0.46	ng/L		11/04/21 15:28	11/08/21 22:41	1
Perfluorononanoic acid	**5.3**	**cn**	1.9	0.46	ng/L		11/04/21 15:28	11/08/21 22:41	1
Perfluorooctanesulfonamide	<1.9	cn	1.9	0.46	ng/L		11/04/21 15:28	11/08/21 22:41	1
Perfluorooctanesulfonic acid	**12**	**cn**	1.9	0.46	ng/L		11/04/21 15:28	11/08/21 22:41	1
Perfluorooctanoic acid	**6.5**	**cn**	1.9	0.46	ng/L		11/04/21 15:28	11/08/21 22:41	1
Perfluoropentanesulfonic acid	<1.9	cn	1.9	0.46	ng/L		11/04/21 15:28	11/08/21 22:41	1
Perfluoropentanoic acid	<1.9	cn	1.9	0.46	ng/L		11/04/21 15:28	11/08/21 22:41	1
Perfluorotetradecanoic acid	**1.9**	**cn**	1.9	0.46	ng/L		11/04/21 15:28	11/08/21 22:41	1
Perfluorotridecanoic acid	<1.9	cn	1.9	0.46	ng/L		11/04/21 15:28	11/08/21 22:41	1
Perfluoroundecanoic acid	**2.4**	**cn**	1.9	0.46	ng/L		11/04/21 15:28	11/08/21 22:41	1
8:2 Fluorotelomer sulfonic acid	**140**	**cn**	2.8	0.93	ng/L		11/04/21 15:28	11/08/21 22:41	1
4:2 Fluorotelomer sulfonic acid	<1.9	cn	1.9	0.46	ng/L		11/04/21 15:28	11/08/21 22:41	1

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
6:2 Fluorotelomer sulfonic acid	**510**	**cn**	46	19	ng/L		11/04/21 15:28	11/08/21 22:52	10

Client Sample Results

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-61328-1

Client Sample ID: FT3-EFF1-1

Lab Sample ID: 410-61328-4
Date Collected: 10/28/21 08:30
Matrix: Water
Date Received: 10/30/21 09:52

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NEtFOSAA	<2.7	cn	2.7	0.44	ng/L		11/04/21 15:28	11/08/21 23:03	1
NMeFOSAA	<1.8	cn	1.8	0.53	ng/L		11/04/21 15:28	11/08/21 23:03	1
Perfluorobutanesulfonic acid	<1.8	cn	1.8	0.44	ng/L		11/04/21 15:28	11/08/21 23:03	1
Perfluorobutanoic acid	**61**	**cn**	4.4	1.8	ng/L		11/04/21 15:28	11/08/21 23:03	1
Perfluorodecanesulfonic acid	<1.8	cn	1.8	0.44	ng/L		11/04/21 15:28	11/08/21 23:03	1
Perfluorodecanoic acid	**18**	**cn**	1.8	0.44	ng/L		11/04/21 15:28	11/08/21 23:03	1
Perfluorododecanoic acid	**19**	**cn**	1.8	0.44	ng/L		11/04/21 15:28	11/08/21 23:03	1
Perfluoroheptanesulfonic acid	<1.8	cn	1.8	0.44	ng/L		11/04/21 15:28	11/08/21 23:03	1
Perfluoroheptanoic acid	<1.8	cn	1.8	0.44	ng/L		11/04/21 15:28	11/08/21 23:03	1
Perfluorohexanesulfonic acid	<1.8	cn	1.8	0.44	ng/L		11/04/21 15:28	11/08/21 23:03	1
Perfluorohexanoic acid	<1.8	cn	1.8	0.44	ng/L		11/04/21 15:28	11/08/21 23:03	1
Perfluorononanesulfonic acid	<1.8	cn	1.8	0.44	ng/L		11/04/21 15:28	11/08/21 23:03	1
Perfluorononanoic acid	**2.1**	**cn**	1.8	0.44	ng/L		11/04/21 15:28	11/08/21 23:03	1
Perfluorooctanesulfonamide	<1.8	cn	1.8	0.44	ng/L		11/04/21 15:28	11/08/21 23:03	1
Perfluorooctanesulfonic acid	<1.8	cn	1.8	0.44	ng/L		11/04/21 15:28	11/08/21 23:03	1
Perfluorooctanoic acid	**2.8**	**cn**	1.8	0.44	ng/L		11/04/21 15:28	11/08/21 23:03	1
Perfluoropentanesulfonic acid	<1.8	cn	1.8	0.44	ng/L		11/04/21 15:28	11/08/21 23:03	1
Perfluoropentanoic acid	<1.8	cn	1.8	0.44	ng/L		11/04/21 15:28	11/08/21 23:03	1
Perfluorotetradecanoic acid	**12**	**cn**	1.8	0.44	ng/L		11/04/21 15:28	11/08/21 23:03	1
Perfluorotridecanoic acid	**1.9**	**cn**	1.8	0.44	ng/L		11/04/21 15:28	11/08/21 23:03	1
Perfluoroundecanoic acid	**5.6**	**cn**	1.8	0.44	ng/L		11/04/21 15:28	11/08/21 23:03	1
6:2 Fluorotelomer sulfonic acid	**100**	**cn**	4.4	1.8	ng/L		11/04/21 15:28	11/08/21 23:03	1
4:2 Fluorotelomer sulfonic acid	<1.8	cn	1.8	0.44	ng/L		11/04/21 15:28	11/08/21 23:03	1

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
8:2 Fluorotelomer sulfonic acid	**770**	**cn**	27	8.9	ng/L		11/04/21 15:28	11/08/21 23:14	10

Client Sample ID: FT3-RINSE3-1

Lab Sample ID: 410-61328-5
Date Collected: 10/28/21 14:10
Matrix: Water
Date Received: 10/30/21 09:52

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NEtFOSAA	<2.5	cn	2.5	0.42	ng/L		11/04/21 15:28	11/06/21 19:47	1
NMeFOSAA	<1.7	cn	1.7	0.51	ng/L		11/04/21 15:28	11/06/21 19:47	1
Perfluorobutanesulfonic acid	<1.7	cn	1.7	0.42	ng/L		11/04/21 15:28	11/06/21 19:47	1
Perfluorobutanoic acid	<4.2	cn	4.2	1.7	ng/L		11/04/21 15:28	11/06/21 19:47	1
Perfluorodecanesulfonic acid	<1.7	cn	1.7	0.42	ng/L		11/04/21 15:28	11/06/21 19:47	1
Perfluorodecanoic acid	**7.1**	**cn**	1.7	0.42	ng/L		11/04/21 15:28	11/06/21 19:47	1
Perfluorododecanoic acid	**3.6**	**cn**	1.7	0.42	ng/L		11/04/21 15:28	11/06/21 19:47	1
Perfluoroheptanesulfonic acid	<1.7	cn	1.7	0.42	ng/L		11/04/21 15:28	11/06/21 19:47	1
Perfluoroheptanoic acid	**2.0**	**cn**	1.7	0.42	ng/L		11/04/21 15:28	11/06/21 19:47	1
Perfluorohexanesulfonic acid	**6.1**	**cn**	1.7	0.42	ng/L		11/04/21 15:28	11/06/21 19:47	1
Perfluorohexanoic acid	**8.1**	**cn**	1.7	0.42	ng/L		11/04/21 15:28	11/06/21 19:47	1
Perfluorononanesulfonic acid	<1.7	cn	1.7	0.42	ng/L		11/04/21 15:28	11/06/21 19:47	1
Perfluorononanoic acid	**4.1**	**cn**	1.7	0.42	ng/L		11/04/21 15:28	11/06/21 19:47	1
Perfluorooctanesulfonamide	<1.7	cn	1.7	0.42	ng/L		11/04/21 15:28	11/06/21 19:47	1
Perfluorooctanesulfonic acid	**21**	**cn**	1.7	0.42	ng/L		11/04/21 15:28	11/06/21 19:47	1
Perfluorooctanoic acid	**6.4**	**cn**	1.7	0.42	ng/L		11/04/21 15:28	11/06/21 19:47	1

Client Sample ID: FT3-RINSE3-1

Lab Sample ID: 410-61328-5
Matrix: Water

Date Collected: 10/28/21 14:10
Date Received: 10/30/21 09:52

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoropentanesulfonic acid	<1.7	cn	1.7	0.42	ng/L		11/04/21 15:28	11/06/21 19:47	1
Perfluoropentanoic acid	**2.3**	**cn**	1.7	0.42	ng/L		11/04/21 15:28	11/06/21 19:47	1
Perfluorotetradecanoic acid	**1.9**	**cn**	1.7	0.42	ng/L		11/04/21 15:28	11/06/21 19:47	1
Perfluorotridecanoic acid	**1.8**	**cn**	1.7	0.42	ng/L		11/04/21 15:28	11/06/21 19:47	1
Perfluoroundecanoic acid	**4.6**	**cn**	1.7	0.42	ng/L		11/04/21 15:28	11/06/21 19:47	1
8:2 Fluorotelomer sulfonic acid	**210**	**cn**	2.5	0.84	ng/L		11/04/21 15:28	11/06/21 19:47	1
4:2 Fluorotelomer sulfonic acid	<1.7	cn	1.7	0.42	ng/L		11/04/21 15:28	11/06/21 19:47	1

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
6:2 Fluorotelomer sulfonic acid	**900**	**cn**	42	17	ng/L		11/04/21 15:28	11/08/21 23:25	10

Client Sample ID: FT3-RINSE4-1

Lab Sample ID: 410-61328-6
Matrix: Water

Date Collected: 10/28/21 15:15
Date Received: 10/30/21 09:52

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NEtFOSAA	<2.7	cn	2.7	0.46	ng/L		11/04/21 15:28	11/08/21 23:48	1
NMeFOSAA	<1.8	cn	1.8	0.55	ng/L		11/04/21 15:28	11/08/21 23:48	1
Perfluorobutanesulfonic acid	<1.8	cn	1.8	0.46	ng/L		11/04/21 15:28	11/08/21 23:48	1
Perfluorobutanoic acid	<4.6	cn	4.6	1.8	ng/L		11/04/21 15:28	11/08/21 23:48	1
Perfluorodecanesulfonic acid	<1.8	cn	1.8	0.46	ng/L		11/04/21 15:28	11/08/21 23:48	1
Perfluorodecanoic acid	**4.2**	**cn**	1.8	0.46	ng/L		11/04/21 15:28	11/08/21 23:48	1
Perfluorododecanoic acid	**2.4**	**cn**	1.8	0.46	ng/L		11/04/21 15:28	11/08/21 23:48	1
Perfluoroheptanesulfonic acid	<1.8	cn	1.8	0.46	ng/L		11/04/21 15:28	11/08/21 23:48	1
Perfluoroheptanoic acid	<1.8	cn	1.8	0.46	ng/L		11/04/21 15:28	11/08/21 23:48	1
Perfluorohexanesulfonic acid	<1.8	cn	1.8	0.46	ng/L		11/04/21 15:28	11/08/21 23:48	1
Perfluorohexanoic acid	**3.6**	**cn**	1.8	0.46	ng/L		11/04/21 15:28	11/08/21 23:48	1
Perfluorononanesulfonic acid	<1.8	cn	1.8	0.46	ng/L		11/04/21 15:28	11/08/21 23:48	1
Perfluorononanoic acid	**1.9**	**cn**	1.8	0.46	ng/L		11/04/21 15:28	11/08/21 23:48	1
Perfluorooctanesulfonamide	<1.8	cn	1.8	0.46	ng/L		11/04/21 15:28	11/08/21 23:48	1
Perfluorooctanesulfonic acid	**12**	**cn**	1.8	0.46	ng/L		11/04/21 15:28	11/08/21 23:48	1
Perfluorooctanoic acid	**3.8**	**cn**	1.8	0.46	ng/L		11/04/21 15:28	11/08/21 23:48	1
Perfluoropentanesulfonic acid	<1.8	cn	1.8	0.46	ng/L		11/04/21 15:28	11/08/21 23:48	1
Perfluoropentanoic acid	<1.8	cn	1.8	0.46	ng/L		11/04/21 15:28	11/08/21 23:48	1
Perfluorotetradecanoic acid	<1.8	cn	1.8	0.46	ng/L		11/04/21 15:28	11/08/21 23:48	1
Perfluorotridecanoic acid	<1.8	cn	1.8	0.46	ng/L		11/04/21 15:28	11/08/21 23:48	1
Perfluoroundecanoic acid	**2.6**	**cn**	1.8	0.46	ng/L		11/04/21 15:28	11/08/21 23:48	1
8:2 Fluorotelomer sulfonic acid	**120**	**cn**	2.7	0.91	ng/L		11/04/21 15:28	11/08/21 23:48	1
4:2 Fluorotelomer sulfonic acid	<1.8	cn	1.8	0.46	ng/L		11/04/21 15:28	11/08/21 23:48	1

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
6:2 Fluorotelomer sulfonic acid	**430**	**cn**	46	18	ng/L		11/04/21 15:28	11/08/21 23:59	10

Client Sample Results

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-61328-1

Client Sample ID: FT3-RINSE4-2

Lab Sample ID: 410-61328-7
Date Collected: 10/28/21 15:16
Matrix: Water
Date Received: 10/30/21 09:52

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NEtFOSAA	<2.7	cn	2.7	0.45	ng/L		11/04/21 15:28	11/09/21 00:10	1
NMeFOSAA	<1.8	cn	1.8	0.54	ng/L		11/04/21 15:28	11/09/21 00:10	1
Perfluorobutanesulfonic acid	<1.8	cn	1.8	0.45	ng/L		11/04/21 15:28	11/09/21 00:10	1
Perfluorobutanoic acid	<4.5	cn	4.5	1.8	ng/L		11/04/21 15:28	11/09/21 00:10	1
Perfluorodecanesulfonic acid	<1.8	cn	1.8	0.45	ng/L		11/04/21 15:28	11/09/21 00:10	1
Perfluorodecanoic acid	**3.9**	**cn**	1.8	0.45	ng/L		11/04/21 15:28	11/09/21 00:10	1
Perfluorododecanoic acid	**2.2**	**cn**	1.8	0.45	ng/L		11/04/21 15:28	11/09/21 00:10	1
Perfluoroheptanesulfonic acid	<1.8	cn	1.8	0.45	ng/L		11/04/21 15:28	11/09/21 00:10	1
Perfluoroheptanoic acid	<1.8	cn	1.8	0.45	ng/L		11/04/21 15:28	11/09/21 00:10	1
Perfluorohexanesulfonic acid	<1.8	cn	1.8	0.45	ng/L		11/04/21 15:28	11/09/21 00:10	1
Perfluorohexanoic acid	**3.7**	**cn**	1.8	0.45	ng/L		11/04/21 15:28	11/09/21 00:10	1
Perfluorononanesulfonic acid	<1.8	cn	1.8	0.45	ng/L		11/04/21 15:28	11/09/21 00:10	1
Perfluorononanoic acid	**1.8**	**cn**	1.8	0.45	ng/L		11/04/21 15:28	11/09/21 00:10	1
Perfluorooctanesulfonamide	<1.8	cn	1.8	0.45	ng/L		11/04/21 15:28	11/09/21 00:10	1
Perfluorooctanesulfonic acid	**12**	**cn**	1.8	0.45	ng/L		11/04/21 15:28	11/09/21 00:10	1
Perfluorooctanoic acid	**3.7**	**cn**	1.8	0.45	ng/L		11/04/21 15:28	11/09/21 00:10	1
Perfluoropentanesulfonic acid	<1.8	cn	1.8	0.45	ng/L		11/04/21 15:28	11/09/21 00:10	1
Perfluoropentanoic acid	<1.8	cn	1.8	0.45	ng/L		11/04/21 15:28	11/09/21 00:10	1
Perfluorotetradecanoic acid	<1.8	cn	1.8	0.45	ng/L		11/04/21 15:28	11/09/21 00:10	1
Perfluorotridecanoic acid	<1.8	cn	1.8	0.45	ng/L		11/04/21 15:28	11/09/21 00:10	1
Perfluoroundecanoic acid	**2.4**	**cn**	1.8	0.45	ng/L		11/04/21 15:28	11/09/21 00:10	1
8:2 Fluorotelomer sulfonic acid	**110**	**cn**	2.7	0.90	ng/L		11/04/21 15:28	11/09/21 00:10	1
4:2 Fluorotelomer sulfonic acid	<1.8	cn	1.8	0.45	ng/L		11/04/21 15:28	11/09/21 00:10	1

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
6:2 Fluorotelomer sulfonic acid	**450**	**cn**	45	18	ng/L		11/04/21 15:28	11/09/21 00:21	10

Client Sample ID: FT3-EFF2-1

Lab Sample ID: 410-61328-8
Date Collected: 10/29/21 08:00
Matrix: Water
Date Received: 10/30/21 09:52

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NEtFOSAA	<2.6	cn	2.6	0.44	ng/L		11/04/21 15:28	11/06/21 20:20	1
NMeFOSAA	<1.8	cn	1.8	0.53	ng/L		11/04/21 15:28	11/06/21 20:20	1
Perfluorobutanesulfonic acid	<1.8	cn	1.8	0.44	ng/L		11/04/21 15:28	11/06/21 20:20	1
Perfluorobutanoic acid	**32**	**cn**	4.4	1.8	ng/L		11/04/21 15:28	11/06/21 20:20	1
Perfluorodecanesulfonic acid	<1.8	cn	1.8	0.44	ng/L		11/04/21 15:28	11/06/21 20:20	1
Perfluorodecanoic acid	**2.5**	**cn**	1.8	0.44	ng/L		11/04/21 15:28	11/06/21 20:20	1
Perfluorododecanoic acid	**5.8**	**cn**	1.8	0.44	ng/L		11/04/21 15:28	11/06/21 20:20	1
Perfluoroheptanesulfonic acid	<1.8	cn	1.8	0.44	ng/L		11/04/21 15:28	11/06/21 20:20	1
Perfluoroheptanoic acid	<1.8	cn	1.8	0.44	ng/L		11/04/21 15:28	11/06/21 20:20	1
Perfluorohexanesulfonic acid	<1.8	cn	1.8	0.44	ng/L		11/04/21 15:28	11/06/21 20:20	1
Perfluorohexanoic acid	<1.8	cn	1.8	0.44	ng/L		11/04/21 15:28	11/06/21 20:20	1
Perfluorononanesulfonic acid	<1.8	cn	1.8	0.44	ng/L		11/04/21 15:28	11/06/21 20:20	1
Perfluorononanoic acid	<1.8	cn	1.8	0.44	ng/L		11/04/21 15:28	11/06/21 20:20	1
Perfluorooctanesulfonamide	<1.8	cn	1.8	0.44	ng/L		11/04/21 15:28	11/06/21 20:20	1
Perfluorooctanesulfonic acid	<1.8	cn	1.8	0.44	ng/L		11/04/21 15:28	11/06/21 20:20	1
Perfluorooctanoic acid	<1.8	cn	1.8	0.44	ng/L		11/04/21 15:28	11/06/21 20:20	1

Client Sample Results

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-61328-1

Client Sample ID: FT3-EFF2-1

Date Collected: 10/29/21 08:00
Date Received: 10/30/21 09:52

Lab Sample ID: 410-61328-8

Matrix: Water

Method: 537 IDA - EPA 537 Isotope Dilution - Pre-Treatment (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoropentanesulfonic acid	<1.8	cn	1.8	0.44	ng/L		11/04/21 15:28	11/06/21 20:20	1
Perfluoropentanoic acid	<1.8	cn	1.8	0.44	ng/L		11/04/21 15:28	11/06/21 20:20	1
Perfluorotetradecanoic acid	**4.6**	**cn**	1.8	0.44	ng/L		11/04/21 15:28	11/06/21 20:20	1
Perfluorotridecanoic acid	**2.0**	**cn**	1.8	0.44	ng/L		11/04/21 15:28	11/06/21 20:20	1
Perfluoroundecanoic acid	<1.8	cn	1.8	0.44	ng/L		11/04/21 15:28	11/06/21 20:20	1
6:2 Fluorotelomer sulfonic acid	**9.3**	**cn**	4.4	1.8	ng/L		11/04/21 15:28	11/06/21 20:20	1
8:2 Fluorotelomer sulfonic acid	**67**	**cn**	2.6	0.88	ng/L		11/04/21 15:28	11/06/21 20:20	1
4:2 Fluorotelomer sulfonic acid	<1.8	cn	1.8	0.44	ng/L		11/04/21 15:28	11/06/21 20:20	1

Isotope Dilution Summary

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-61328-1

Method: 537 IDA - EPA 537 Isotope Dilution

Matrix: Water **Prep Type: Pre-Treatment**

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		M242FTS	M262FTS	M282FTS	PFTDA	HFPODA	C3PFBS	PFBA	C4PFHA
Lab Sample ID	Client Sample ID	(20-187)	(29-189)	(34-182)	(10-144)	(20-153)	(19-178)	(41-132)	(30-144)
LCS 410-190947/2-A	Lab Control Sample	123	104	123	120	124	119	109	107
LCSD 410-190947/3-A	Lab Control Sample Dup	128	106	116	112	136	117	111	107
MB 410-190947/1-A	Method Blank	149	127	129	117	144	132	123	129

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		PFPeA	C8PFOA	C8PFOS	d3NMFOS	d5NEFOS	NEFM	C3PFHS	13C5PHA
Lab Sample ID	Client Sample ID	(33-155)	(49-127)	(49-126)	(32-151)	(37-164)	(10-142)	(32-145)	(31-142)
LCS 410-190947/2-A	Lab Control Sample	116	101	107	107	137	104	113	108
LCSD 410-190947/3-A	Lab Control Sample Dup	119	106	105	124	143	107	113	106
MB 410-190947/1-A	Method Blank	134	123	111	123	152	112	132	125

		Percent Isotope Dilution Recovery (Acceptance Limits)						
		C6PFDA	13C7PUA	d3NMFSA	d5NPFSA	PFOSA	PFDoDA	C9PFNA
Lab Sample ID	Client Sample ID	(47-128)	(40-135)	(10-107)	(10-108)	(10-143)	(28-136)	(47-136)
LCS 410-190947/2-A	Lab Control Sample	112	112	80	85	106	111	104
LCSD 410-190947/3-A	Lab Control Sample Dup	115	114	78	82	107	113	108
MB 410-190947/1-A	Method Blank	121	120	82	85	108	119	112

Surrogate Legend

M242FTS = M2-4:2 FTS
M262FTS = M2-6:2 FTS
M282FTS = M2-8:2 FTS
PFTDA = 13C2 PFTeDA
HFPODA = 13C3 HFPO-DA
C3PFBS = 13C3 PFBS
PFBA = 13C4 PFBA
C4PFHA = 13C4 PFHpA
PFPeA = 13C5 PFPeA
C8PFOA = 13C8 PFOA
C8PFOS = 13C8 PFOS
d3NMFOS = d3-NMeFOSAA
d5NEFOS = d5-NEtFOSAA
NEFM = d9-N-EtFOSE-M
C3PFHS = 13C3 PFHxS
13C5PHA = 13C5 PFHxA
C6PFDA = 13C6 PFDA
13C7PUA = 13C7 PFUnA
d3NMFSA = d3-NMePFOSA
d5NPFSA = d5-NEtPFOSA
PFOSA = 13C8 FOSA
PFDoDA = 13C2-PFDoDA
C9PFNA = 13C9 PFNA

Method: 537 IDA - EPA 537 Isotope Dilution

Lab Sample ID: MB 410-190947/1-A
Matrix: Water
Analysis Batch: 191576

Client Sample ID: Method Blank
Prep Type: Pre-Treatment
Prep Batch: 190947

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NEtFOSAA	<3.0		3.0	0.50	ng/L		11/04/21 15:28	11/06/21 18:30	1
NMeFOSAA	<2.0		2.0	0.60	ng/L		11/04/21 15:28	11/06/21 18:30	1
Perfluorobutanesulfonic acid	<2.0		2.0	0.50	ng/L		11/04/21 15:28	11/06/21 18:30	1
Perfluorobutanoic acid	<5.0		5.0	2.0	ng/L		11/04/21 15:28	11/06/21 18:30	1
Perfluorodecanesulfonic acid	<2.0		2.0	0.50	ng/L		11/04/21 15:28	11/06/21 18:30	1
Perfluorodecanoic acid	<2.0		2.0	0.50	ng/L		11/04/21 15:28	11/06/21 18:30	1
Perfluorododecanoic acid	<2.0		2.0	0.50	ng/L		11/04/21 15:28	11/06/21 18:30	1
Perfluoroheptanesulfonic acid	<2.0		2.0	0.50	ng/L		11/04/21 15:28	11/06/21 18:30	1
Perfluoroheptanoic acid	<2.0		2.0	0.50	ng/L		11/04/21 15:28	11/06/21 18:30	1
Perfluorohexanesulfonic acid	<2.0		2.0	0.50	ng/L		11/04/21 15:28	11/06/21 18:30	1
Perfluorohexanoic acid	<2.0		2.0	0.50	ng/L		11/04/21 15:28	11/06/21 18:30	1
Perfluorononanesulfonic acid	<2.0		2.0	0.50	ng/L		11/04/21 15:28	11/06/21 18:30	1
Perfluorononanoic acid	<2.0		2.0	0.50	ng/L		11/04/21 15:28	11/06/21 18:30	1
Perfluorooctanesulfonamide	<2.0		2.0	0.50	ng/L		11/04/21 15:28	11/06/21 18:30	1
Perfluorooctanesulfonic acid	<2.0		2.0	0.50	ng/L		11/04/21 15:28	11/06/21 18:30	1
Perfluorooctanoic acid	<2.0		2.0	0.50	ng/L		11/04/21 15:28	11/06/21 18:30	1
Perfluoropentanesulfonic acid	<2.0		2.0	0.50	ng/L		11/04/21 15:28	11/06/21 18:30	1
Perfluoropentanoic acid	<2.0		2.0	0.50	ng/L		11/04/21 15:28	11/06/21 18:30	1
Perfluorotetradecanoic acid	<2.0		2.0	0.50	ng/L		11/04/21 15:28	11/06/21 18:30	1
Perfluorotridecanoic acid	<2.0		2.0	0.50	ng/L		11/04/21 15:28	11/06/21 18:30	1
Perfluoroundecanoic acid	<2.0		2.0	0.50	ng/L		11/04/21 15:28	11/06/21 18:30	1
6:2 Fluorotelomer sulfonic acid	<5.0		5.0	2.0	ng/L		11/04/21 15:28	11/06/21 18:30	1
8:2 Fluorotelomer sulfonic acid	<3.0		3.0	1.0	ng/L		11/04/21 15:28	11/06/21 18:30	1
4:2 Fluorotelomer sulfonic acid	<2.0		2.0	0.50	ng/L		11/04/21 15:28	11/06/21 18:30	1

Lab Sample ID: LCS 410-190947/2-A
Matrix: Water
Analysis Batch: 191576

Client Sample ID: Lab Control Sample
Prep Type: Pre-Treatment
Prep Batch: 190947

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
NEtFOSAA	25.6	21.9		ng/L		86	54 - 134
NMeFOSAA	25.6	26.5		ng/L		103	58 - 143
Perfluorobutanesulfonic acid	22.7	22.1		ng/L		98	65 - 132
Perfluorobutanoic acid	25.6	23.8		ng/L		93	62 - 156
Perfluorodecanesulfonic acid	24.7	24.4		ng/L		99	61 - 134
Perfluorodecanoic acid	25.6	25.6		ng/L		100	63 - 137
Perfluorododecanoic acid	25.6	26.1		ng/L		102	63 - 140
Perfluoroheptanesulfonic acid	24.4	21.9		ng/L		90	67 - 135
Perfluoroheptanoic acid	25.6	25.6		ng/L		100	66 - 141
Perfluorohexanesulfonic acid	23.3	21.7		ng/L		93	60 - 128
Perfluorohexanoic acid	25.6	22.4		ng/L		87	66 - 137
Perfluorononanesulfonic acid	24.6	24.9		ng/L		101	67 - 137
Perfluorononanoic acid	25.6	27.3		ng/L		107	65 - 140
Perfluorooctanesulfonamide	25.6	25.2		ng/L		98	55 - 130
Perfluorooctanesulfonic acid	23.7	24.2		ng/L		102	51 - 126
Perfluorooctanoic acid	25.6	27.6		ng/L		108	65 - 136
Perfluoropentanesulfonic acid	24.0	24.1		ng/L		100	71 - 136
Perfluoropentanoic acid	25.6	24.4		ng/L		95	72 - 139
Perfluorotetradecanoic acid	25.6	25.7		ng/L		100	64 - 141

Method: 537 IDA - EPA 537 Isotope Dilution (Continued)

Lab Sample ID: LCS 410-190947/2-A
Matrix: Water
Analysis Batch: 191576

Client Sample ID: Lab Control Sample
Prep Type: Pre-Treatment
Prep Batch: 190947

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorotridecanoic acid	25.6	26.9		ng/L		105	58 - 146
Perfluoroundecanoic acid	25.6	27.0		ng/L		105	62 - 138
6:2 Fluorotelomer sulfonic acid	24.3	22.8		ng/L		94	57 - 137
8:2 Fluorotelomer sulfonic acid	24.5	22.1		ng/L		90	56 - 140
4:2 Fluorotelomer sulfonic acid	23.9	21.8		ng/L		91	59 - 130

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
M2-4:2 FTS	*123*		*20 - 187*
M2-6:2 FTS	*104*		*29 - 189*
M2-8:2 FTS	*123*		*34 - 182*
13C2 PFTeDA	*120*		*10 - 144*
13C3 HFPO-DA	*124*		*20 - 153*
13C3 PFBS	*119*		*19 - 178*
13C4 PFBA	*109*		*41 - 132*
13C4 PFHpA	*107*		*30 - 144*
13C5 PFPeA	*116*		*33 - 155*
13C8 PFOA	*101*		*49 - 127*
13C8 PFOS	*107*		*49 - 126*
d3-NMeFOSAA	*107*		*32 - 151*
d5-NEtFOSAA	*137*		*37 - 164*
d9-N-EtFOSE-M	*104*		*10 - 142*
13C3 PFHxS	*113*		*32 - 145*
13C5 PFHxA	*108*		*31 - 142*
13C6 PFDA	*112*		*47 - 128*
13C7 PFUnA	*112*		*40 - 135*
d3-NMePFOSA	*80*		*10 - 107*
d5-NEtPFOSA	*85*		*10 - 108*
13C8 FOSA	*106*		*10 - 143*
13C2-PFDoDA	*111*		*28 - 136*
13C9 PFNA	*104*		*47 - 136*

Lab Sample ID: LCSD 410-190947/3-A
Matrix: Water
Analysis Batch: 191576

Client Sample ID: Lab Control Sample Dup
Prep Type: Pre-Treatment
Prep Batch: 190947

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
NEtFOSAA	25.6	23.4		ng/L		91	54 - 134	6	30
NMeFOSAA	25.6	26.3		ng/L		103	58 - 143	1	30
Perfluorobutanesulfonic acid	22.7	22.8		ng/L		100	65 - 132	3	30
Perfluorobutanoic acid	25.6	23.4		ng/L		91	62 - 156	2	30
Perfluorodecanesulfonic acid	24.7	26.3		ng/L		107	61 - 134	8	30
Perfluorodecanoic acid	25.6	25.8		ng/L		101	63 - 137	1	30
Perfluorododecanoic acid	25.6	27.1		ng/L		106	63 - 140	3	30
Perfluoroheptanesulfonic acid	24.4	21.8		ng/L		90	67 - 135	0	30
Perfluoroheptanoic acid	25.6	26.9		ng/L		105	66 - 141	5	30
Perfluorohexanesulfonic acid	23.3	21.9		ng/L		94	60 - 128	1	30
Perfluorohexanoic acid	25.6	23.7		ng/L		93	66 - 137	6	30
Perfluorononanesulfonic acid	24.6	26.9		ng/L		109	67 - 137	8	30
Perfluorononanoic acid	25.6	26.6		ng/L		104	65 - 140	3	30

Method: 537 IDA - EPA 537 Isotope Dilution (Continued)

Lab Sample ID: LCSD 410-190947/3-A
Matrix: Water
Analysis Batch: 191576

Client Sample ID: Lab Control Sample Dup
Prep Type: Pre-Treatment
Prep Batch: 190947

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorooctanesulfonamide			25.6	26.0		ng/L		102	55 - 130	3	30
Perfluorooctanesulfonic acid			23.7	24.3		ng/L		103	51 - 126	0	30
Perfluorooctanoic acid			25.6	26.7		ng/L		104	65 - 136	3	30
Perfluoropentanesulfonic acid			24.0	25.1		ng/L		104	71 - 136	4	30
Perfluoropentanoic acid			25.6	25.4		ng/L		99	72 - 139	4	30
Perfluorotetradecanoic acid			25.6	25.7		ng/L		100	64 - 141	0	30
Perfluorotridecanoic acid			25.6	28.2		ng/L		110	58 - 146	4	30
Perfluoroundecanoic acid			25.6	27.9		ng/L		109	62 - 138	3	30
6:2 Fluorotelomer sulfonic acid			24.3	22.8		ng/L		94	57 - 137	0	30
8:2 Fluorotelomer sulfonic acid			24.5	25.4		ng/L		104	56 - 140	14	30
4:2 Fluorotelomer sulfonic acid			23.9	21.7		ng/L		91	59 - 130	1	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
M2-4:2 FTS	*128*		*20 - 187*
M2-6:2 FTS	*106*		*29 - 189*
M2-8:2 FTS	*116*		*34 - 182*
13C2 PFTeDA	*112*		*10 - 144*
13C3 HFPO-DA	*136*		*20 - 153*
13C3 PFBS	*117*		*19 - 178*
13C4 PFBA	*111*		*41 - 132*
13C4 PFHpA	*107*		*30 - 144*
13C5 PFPeA	*119*		*33 - 155*
13C8 PFOA	*106*		*49 - 127*
13C8 PFOS	*105*		*49 - 126*
d3-NMeFOSAA	*124*		*32 - 151*
d5-NEtFOSAA	*143*		*37 - 164*
d9-N-EtFOSE-M	*107*		*10 - 142*
13C3 PFHxS	*113*		*32 - 145*
13C5 PFHxA	*106*		*31 - 142*
13C6 PFDA	*115*		*47 - 128*
13C7 PFUnA	*114*		*40 - 135*
d3-NMePFOSA	*78*		*10 - 107*
d5-NEtPFOSA	*82*		*10 - 108*
13C8 FOSA	*107*		*10 - 143*
13C2-PFDoDA	*113*		*28 - 136*
13C9 PFNA	*108*		*47 - 136*

QC Association Summary

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-61328-1

LCMS

Prep Batch: 190947

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-61328-1 - RA	FT3-TANKWATER-1	Pre-Treatment	Water	TOP Pre - Prep	
410-61328-1	FT3-TANKWATER-1	Pre-Treatment	Water	TOP Pre - Prep	
410-61328-1 - DL	FT3-TANKWATER-1	Pre-Treatment	Water	TOP Pre - Prep	
410-61328-2 - DL	FT3-RINSE1-1	Pre-Treatment	Water	TOP Pre - Prep	
410-61328-2 - RA	FT3-RINSE1-1	Pre-Treatment	Water	TOP Pre - Prep	
410-61328-2	FT3-RINSE1-1	Pre-Treatment	Water	TOP Pre - Prep	
410-61328-3 - DL	FT3-RINSE2-1	Pre-Treatment	Water	TOP Pre - Prep	
410-61328-3	FT3-RINSE2-1	Pre-Treatment	Water	TOP Pre - Prep	
410-61328-4 - DL	FT3-EFF1-1	Pre-Treatment	Water	TOP Pre - Prep	
410-61328-4	FT3-EFF1-1	Pre-Treatment	Water	TOP Pre - Prep	
410-61328-5	FT3-RINSE3-1	Pre-Treatment	Water	TOP Pre - Prep	
410-61328-5 - DL	FT3-RINSE3-1	Pre-Treatment	Water	TOP Pre - Prep	
410-61328-6 - DL	FT3-RINSE4-1	Pre-Treatment	Water	TOP Pre - Prep	
410-61328-6	FT3-RINSE4-1	Pre-Treatment	Water	TOP Pre - Prep	
410-61328-7	FT3-RINSE4-2	Pre-Treatment	Water	TOP Pre - Prep	
410-61328-7 - DL	FT3-RINSE4-2	Pre-Treatment	Water	TOP Pre - Prep	
410-61328-8	FT3-EFF2-1	Pre-Treatment	Water	TOP Pre - Prep	
MB 410-190947/1-A	Method Blank	Pre-Treatment	Water	TOP Pre - Prep	
LCS 410-190947/2-A	Lab Control Sample	Pre-Treatment	Water	TOP Pre - Prep	
LCSD 410-190947/3-A	Lab Control Sample Dup	Pre-Treatment	Water	TOP Pre - Prep	

Analysis Batch: 191576

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-61328-5	FT3-RINSE3-1	Pre-Treatment	Water	537 IDA	190947
410-61328-8	FT3-EFF2-1	Pre-Treatment	Water	537 IDA	190947
MB 410-190947/1-A	Method Blank	Pre-Treatment	Water	537 IDA	190947
LCS 410-190947/2-A	Lab Control Sample	Pre-Treatment	Water	537 IDA	190947
LCSD 410-190947/3-A	Lab Control Sample Dup	Pre-Treatment	Water	537 IDA	190947

Analysis Batch: 192242

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-61328-1	FT3-TANKWATER-1	Pre-Treatment	Water	537 IDA	190947
410-61328-1 - RA	FT3-TANKWATER-1	Pre-Treatment	Water	537 IDA	190947
410-61328-1 - DL	FT3-TANKWATER-1	Pre-Treatment	Water	537 IDA	190947
410-61328-2	FT3-RINSE1-1	Pre-Treatment	Water	537 IDA	190947
410-61328-2 - DL	FT3-RINSE1-1	Pre-Treatment	Water	537 IDA	190947
410-61328-3	FT3-RINSE2-1	Pre-Treatment	Water	537 IDA	190947
410-61328-3 - DL	FT3-RINSE2-1	Pre-Treatment	Water	537 IDA	190947
410-61328-4	FT3-EFF1-1	Pre-Treatment	Water	537 IDA	190947
410-61328-4 - DL	FT3-EFF1-1	Pre-Treatment	Water	537 IDA	190947
410-61328-5 - DL	FT3-RINSE3-1	Pre-Treatment	Water	537 IDA	190947
410-61328-6	FT3-RINSE4-1	Pre-Treatment	Water	537 IDA	190947
410-61328-6 - DL	FT3-RINSE4-1	Pre-Treatment	Water	537 IDA	190947
410-61328-7	FT3-RINSE4-2	Pre-Treatment	Water	537 IDA	190947
410-61328-7 - DL	FT3-RINSE4-2	Pre-Treatment	Water	537 IDA	190947

Analysis Batch: 192356

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-61328-2 - RA	FT3-RINSE1-1	Pre-Treatment	Water	537 IDA	190947

QC Association Summary

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-61328-1

LCMS

Prep Batch: 192502

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-61328-5 - RE	FT3-RINSE3-1	Pre-Treatment	Water	TOP Pre - Prep	
MB 410-192502/1-A	Method Blank	Pre-Treatment	Water	TOP Pre - Prep	
LCS 410-192502/2-A	Lab Control Sample	Pre-Treatment	Water	TOP Pre - Prep	
LCSD 410-192502/3-A	Lab Control Sample Dup	Pre-Treatment	Water	TOP Pre - Prep	

Analysis Batch: 192889

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-61328-5 - RE	FT3-RINSE3-1	Pre-Treatment	Water	537 IDA	192502
MB 410-192502/1-A	Method Blank	Pre-Treatment	Water	537 IDA	192502
LCS 410-192502/2-A	Lab Control Sample	Pre-Treatment	Water	537 IDA	192502
LCSD 410-192502/3-A	Lab Control Sample Dup	Pre-Treatment	Water	537 IDA	192502

Prep Batch: 193444

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-61328-3 - RE	FT3-RINSE2-1	Pre-Treatment	Water	TOP Pre - Prep	
MB 410-193444/1-A	Method Blank	Pre-Treatment	Water	TOP Pre - Prep	
LCS 410-193444/3-A	Lab Control Sample	Pre-Treatment	Water	TOP Pre - Prep	
LCSD 410-193444/4-A	Lab Control Sample Dup	Pre-Treatment	Water	TOP Pre - Prep	

Analysis Batch: 193897

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-61328-3 - RE	FT3-RINSE2-1	Pre-Treatment	Water	537 IDA	193444

Analysis Batch: 194347

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 410-193444/1-A	Method Blank	Pre-Treatment	Water	537 IDA	193444
LCS 410-193444/3-A	Lab Control Sample	Pre-Treatment	Water	537 IDA	193444
LCSD 410-193444/4-A	Lab Control Sample Dup	Pre-Treatment	Water	537 IDA	193444

Lab Chronicle

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-61328-1

Client Sample ID: FT3-TANKWATER-1

Lab Sample ID: 410-61328-1
Date Collected: 10/25/21 09:30
Matrix: Water
Date Received: 10/30/21 09:52

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Pre-Treatment	Prep	TOP Pre - Prep			190947	11/04/21 15:28	QLP7	ELLE
Pre-Treatment	Analysis	537 IDA		1	192242	11/08/21 21:45	ZG8V	ELLE
Pre-Treatment	Prep	TOP Pre - Prep	RA		190947	11/04/21 15:28	QLP7	ELLE
Pre-Treatment	Analysis	537 IDA	RA	1	192242	11/08/21 21:57	ZG8V	ELLE
Pre-Treatment	Prep	TOP Pre - Prep	DL		190947	11/04/21 15:28	QLP7	ELLE
Pre-Treatment	Analysis	537 IDA	DL	100	192242	11/08/21 22:08	ZG8V	ELLE

Client Sample ID: FT3-RINSE1-1

Lab Sample ID: 410-61328-2
Date Collected: 10/25/21 10:40
Matrix: Water
Date Received: 10/30/21 09:52

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Pre-Treatment	Prep	TOP Pre - Prep			190947	11/04/21 15:28	QLP7	ELLE
Pre-Treatment	Analysis	537 IDA		10	192242	11/08/21 22:19	ZG8V	ELLE
Pre-Treatment	Prep	TOP Pre - Prep	DL		190947	11/04/21 15:28	QLP7	ELLE
Pre-Treatment	Analysis	537 IDA	DL	100	192242	11/08/21 22:30	ZG8V	ELLE
Pre-Treatment	Prep	TOP Pre - Prep	RA		190947	11/04/21 15:28	QLP7	ELLE
Pre-Treatment	Analysis	537 IDA	RA	10	192356	11/09/21 16:43	ZG8V	ELLE

Client Sample ID: FT3-RINSE2-1

Lab Sample ID: 410-61328-3
Date Collected: 10/27/21 16:20
Matrix: Water
Date Received: 10/30/21 09:52

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Pre-Treatment	Prep	TOP Pre - Prep			190947	11/04/21 15:28	QLP7	ELLE
Pre-Treatment	Analysis	537 IDA		1	192242	11/08/21 22:41	ZG8V	ELLE
Pre-Treatment	Prep	TOP Pre - Prep	DL		190947	11/04/21 15:28	QLP7	ELLE
Pre-Treatment	Analysis	537 IDA	DL	10	192242	11/08/21 22:52	ZG8V	ELLE
Pre-Treatment	Prep	TOP Pre - Prep	RE		193444	11/11/21 07:21	RC3V	ELLE
Pre-Treatment	Analysis	537 IDA	RE	1	193897	11/12/21 09:29	JVK6	ELLE

Client Sample ID: FT3-EFF1-1

Lab Sample ID: 410-61328-4
Date Collected: 10/28/21 08:30
Matrix: Water
Date Received: 10/30/21 09:52

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Pre-Treatment	Prep	TOP Pre - Prep			190947	11/04/21 15:28	QLP7	ELLE
Pre-Treatment	Analysis	537 IDA		1	192242	11/08/21 23:03	ZG8V	ELLE
Pre-Treatment	Prep	TOP Pre - Prep	DL		190947	11/04/21 15:28	QLP7	ELLE
Pre-Treatment	Analysis	537 IDA	DL	10	192242	11/08/21 23:14	ZG8V	ELLE

Lab Chronicle

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-61328-1

Client Sample ID: FT3-RINSE3-1 — Lab Sample ID: 410-61328-5

Date Collected: 10/28/21 14:10 — **Matrix: Water**
Date Received: 10/30/21 09:52

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Pre-Treatment	Prep	TOP Pre - Prep			190947	11/04/21 15:28	QLP7	ELLE
Pre-Treatment	Analysis	537 IDA		1	191576	11/06/21 19:47	ZG8V	ELLE
Pre-Treatment	Prep	TOP Pre - Prep	DL		190947	11/04/21 15:28	QLP7	ELLE
Pre-Treatment	Analysis	537 IDA	DL	10	192242	11/08/21 23:25	ZG8V	ELLE
Pre-Treatment	Prep	TOP Pre - Prep	RE		192502	11/09/21 10:14	S7AC	ELLE
Pre-Treatment	Analysis	537 IDA	RE	1	192889	11/10/21 21:23	ZG8V	ELLE

Client Sample ID: FT3-RINSE4-1 — Lab Sample ID: 410-61328-6

Date Collected: 10/28/21 15:15 — **Matrix: Water**
Date Received: 10/30/21 09:52

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Pre-Treatment	Prep	TOP Pre - Prep			190947	11/04/21 15:28	QLP7	ELLE
Pre-Treatment	Analysis	537 IDA		1	192242	11/08/21 23:48	ZG8V	ELLE
Pre-Treatment	Prep	TOP Pre - Prep	DL		190947	11/04/21 15:28	QLP7	ELLE
Pre-Treatment	Analysis	537 IDA	DL	10	192242	11/08/21 23:59	ZG8V	ELLE

Client Sample ID: FT3-RINSE4-2 — Lab Sample ID: 410-61328-7

Date Collected: 10/28/21 15:16 — **Matrix: Water**
Date Received: 10/30/21 09:52

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Pre-Treatment	Prep	TOP Pre - Prep			190947	11/04/21 15:28	QLP7	ELLE
Pre-Treatment	Analysis	537 IDA		1	192242	11/09/21 00:10	ZG8V	ELLE
Pre-Treatment	Prep	TOP Pre - Prep	DL		190947	11/04/21 15:28	QLP7	ELLE
Pre-Treatment	Analysis	537 IDA	DL	10	192242	11/09/21 00:21	ZG8V	ELLE

Client Sample ID: FT3-EFF2-1 — Lab Sample ID: 410-61328-8

Date Collected: 10/29/21 08:00 — **Matrix: Water**
Date Received: 10/30/21 09:52

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Pre-Treatment	Prep	TOP Pre - Prep			190947	11/04/21 15:28	QLP7	ELLE
Pre-Treatment	Analysis	537 IDA		1	191576	11/06/21 20:20	ZG8V	ELLE

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Env, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Accreditation/Certification Summary

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-61328-1

Laboratory: Eurofins Lancaster Laboratories Env, LLC

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

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	1.01	12-13-21
A2LA	ISO/IEC 17025	0001.01	11-30-22
Alaska	State	PA00009	06-30-22
Alaska (UST)	State	17-027	02-28-22
Arizona	State	AZ0780	03-12-22
Arkansas DEQ	State	88-0660	08-10-22
California	State	2792	02-02-22
Colorado	State	PA00009	06-30-22
Connecticut	State	PH-0746	06-30-23
DE Haz. Subst. Cleanup Act (HSCA)	State	019-006 (PA cert)	01-31-22
Delaware (DW)	State	N/A	02-01-22
Florida	NELAP	E87997	06-30-22
Georgia (DW)	State	C048	01-31-22
Hawaii	State	N/A	01-31-22
Illinois	NELAP	200027	01-31-23
Iowa	State	361	03-02-22
Kansas	NELAP	E-10151	10-31-22
Kentucky (DW)	State	KY90088	01-01-22
Kentucky (UST)	State	1.01	11-30-22
Kentucky (WW)	State	KY90088	12-31-21
Louisiana	NELAP	02055	06-30-22
Maine	State	2019012	03-12-22
Maryland	State	100	06-30-22
Massachusetts	State	M-PA009	06-30-22
Michigan	State	9930	01-31-22
Minnesota	NELAP	042-999-487	12-31-22
Missouri	State	450	01-31-25
Montana (DW)	State	0098	01-01-22
Nebraska	State	NE-OS-32-17	01-31-22
New Hampshire	NELAP	2730	01-10-22
New Jersey	NELAP	PA011	06-30-22
New York	NELAP	10670	04-01-22
North Carolina (DW)	State	42705	07-31-22
North Carolina (WW/SW)	State	521	12-31-21
North Dakota	State	R-205	01-31-22
Oklahoma	NELAP	R-205	08-31-22
Oregon	NELAP	PA200001	09-11-22
PALA	Canada	1978	09-16-24
Pennsylvania	NELAP	36-00037	01-31-22
Rhode Island	State	LAO00338	01-31-22
South Carolina	State	89002002	01-31-22
Tennessee	State	02838	01-31-22
Texas	NELAP	T104704194-21-40	08-31-22
Utah	NELAP	PA000092019-16	03-01-22
Vermont	State	VT - 36037	10-28-22
Virginia	NELAP	460182	11-14-21
Washington	State	C457	04-12-22
West Virginia (DW)	State	9906 C	12-31-21
West Virginia DEP	State	055	12-31-21
Wyoming	State	8TMS-L	01-31-22

Accreditation/Certification Summary

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-61328-1

Laboratory: Eurofins Lancaster Laboratories Env, LLC (Continued)

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

Authority	Program	Identification Number	Expiration Date
Wyoming (UST)	A2LA	1.01	11-30-22

Method Summary

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-61328-1

Method	Method Description	Protocol	Laboratory
537 IDA	EPA 537 Isotope Dilution	EPA	ELLE
TOP Pre - Prep	Solid-Phase Extraction (SPE)	SW846	ELLE

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Env, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Sample Summary

Client: AECOM
Project/Site: AFFF Tanks Cleaning

Job ID: 410-61328-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
410-61328-1	FT3-TANKWATER-1	Water	10/25/21 09:30	10/30/21 09:52
410-61328-2	FT3-RINSE1-1	Water	10/25/21 10:40	10/30/21 09:52
410-61328-3	FT3-RINSE2-1	Water	10/27/21 16:20	10/30/21 09:52
410-61328-4	FT3-EFF1-1	Water	10/28/21 08:30	10/30/21 09:52
410-61328-5	FT3-RINSE3-1	Water	10/28/21 14:10	10/30/21 09:52
410-61328-6	FT3-RINSE4-1	Water	10/28/21 15:15	10/30/21 09:52
410-61328-7	FT3-RINSE4-2	Water	10/28/21 15:16	10/30/21 09:52
410-61328-8	FT3-EFF2-1	Water	10/29/21 08:00	10/30/21 09:52

Eurofins Lancaster Laboratories Env, LLC
2425 New Holland Pike
Lancaster, PA 17601
Phone: 717-656-2300 Fax: 717-656-2681

Chain of Custody Record

410-61328 Chain of Custody

eurofins | Environment Testing America

Client Information	Sampler: RYAN BOTT	Lab PM: Cottman, Hanne	COC No: 410-35827-11077.1
Client Contact: Mr. Robert Kennedy	Phone: 860-263-5867	E-Mail: Hannah.Cottman@eurofinset.com	State of Origin: CT	Page: Page 1 of ~~1~~ 1 (RB)
Company: AECOM	PWSID:		Job #:
Address: 250 Apollo Drive	Due Date Requested:		
City: Chelmsford	TAT Requested (days): STANDARD		
State, Zip: MA, 01824	Compliance Project: Δ Yes Δ No		
Phone:	PO #: Purchase Order Requested		
Email: robert.kennedy@aecom.com	WO #:		
Project Name: AFFF Tanks Cleaning	Project #: 41007527		
Site: 60662934	SSOW#:		

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA
M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	PFC_IDA - 24 PFAS	PFC_IDA - 24 PFAS - TOP Assay	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	N		
FT3-TANKWATER-1	10/25/21	930	G	Water			X	X	4	HIGH CONC. EXPECTED
FT3-RINSE1-1	10/25/21	1040	G	Water			X	X	4	
FT3-RINSE2-1	10/27/21	~~1010~~ 1020	G (RB)	Water			X	X	4	
FT3-EFF1-1	10/28/21	830	G	Water			X	X	4	
FT3-RINSE3-1	10/28/21	1410	G	Water			X	X	4	
FT3-RINSE4-1	10/28/21	1515	G	Water			X	X	4	
FT3-RINSE4-2	10/28/21	1516	G	Water			X	X	4	
(RB) ~~FT3-RINS~~ FT3-EFF2-1	10/29/21	800	G	Water		X	X	X	12	MSMSD
				Water						
				Water						
				Water						

Possible Hazard Identification
☐ *Non-Hazard* ☐ *Flammable* ☐ *Skin Irritant* ☐ *Poison B* ☐ *Unknown* ☐ *Radiological*

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:		
Relinquished by:	Date/Time: 10/29/21 1455	Company: AECOM	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time: 10/30/21 0952	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks:

Ver: 06/08/2021

Login Sample Receipt Checklist

Client: AECOM

Job Number: 410-61328-1

Login Number: 61328
List Number: 1
Creator: Leakway, Christian

List Source: Eurofins Lancaster Laboratories Env, LLC

Question	Answer	Comment
The cooler's custody seal is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable (</=6C, not frozen).	True	
Cooler Temperature is recorded.	True	
WV: Container Temperature is acceptable (</=6C, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	True	
Sample custody seals are intact.	N/A	

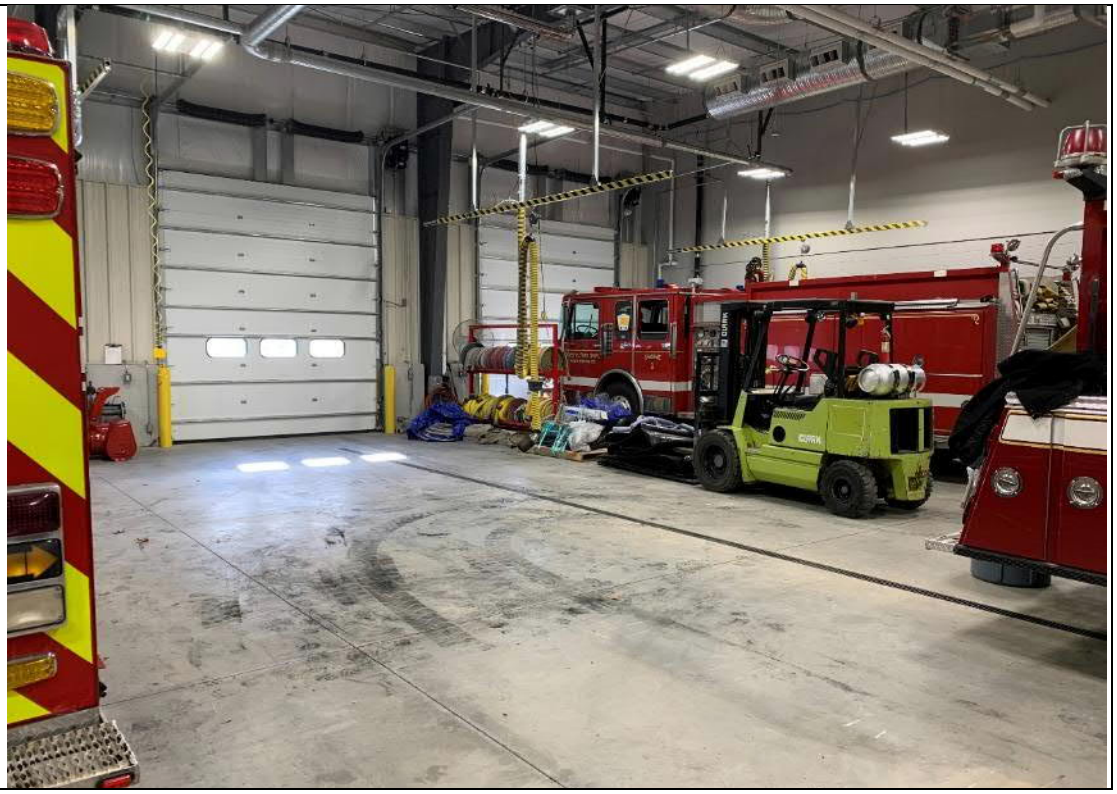
AECOM

PHOTOGRAPH LOG

AFFF Decontamination Demonstration	**Site Location:** 1 Fire School Road, Willimantic, CT	**Project No.** 60662934

Photo No. 15	**Date:** 10/15/2021
Direction Photo Taken: Northeast	
Description: View of a firetruck prepared for decontamination within the secondary containment berm.	

Photo No. 16	**Date:** 1/18/2022
Direction Photo Taken: Southwest	
Description: View of the work area following final waste disposal and demobilization from the Site.	



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