

FINAL Site Inspection Report Army Aviation Support Facility Windsor Locks, Connecticut

Perfluorooctanesulfonic Acid (PFOS) and
Perfluorooctanoic Acid (PFOA) Impacted Sites
ARNG Installations, Nationwide

January 2022

Prepared for:



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Acronyms and Abbreviations

6:2 FTS	6:2 Fluorotelomer sulfonic acid
8:2 FTS	8:2 Fluorotelomer sulfonic acid
µg/kg	micrograms per kilogram
°C	degrees Celsius
°F	degrees Fahrenheit
%	percent
AASF	Army Aviation Support Facility
AECOM	AECOM Technical Services, Inc.
AFFF	aqueous film forming foam
AOI	Area of Interest
ARNG	Army National Guard
AST	above-ground storage tank
bgs	below ground surface
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CoC	chain of custody
CSM	conceptual site model
CTANG	Connecticut Air National Guard
CTARNG	Connecticut Army National Guard
CTDEEP	Connecticut Department of Energy and Environmental Protection
DA	Department of the Army
DO	dissolved oxygen
DoD	Department of Defense
DPT	direct push technology
DQI	data quality indicator
DQO	data quality objective
DUA	data usability assessment
EDR™	Environmental Data Resources, Inc.™
EIS	extraction internal standards
ELAP	Environmental Laboratory Accreditation Program
FedEx	Federal Express
ERB	equipment rinsate blank
FRB	field reagent blank
FTA	Fire Training Area
HA	Health Advisory
HDPE	high-density polyethylene
IDW	investigation-derived waste
IIS	Injection internal standards
ITRC	Interstate Technology Regulatory Council
LC/MS/MS	liquid chromatography with tandem mass spectrometry
LCS	laboratory control spike
LCSD	laboratory control spike duplicate
LOD	limit of detection
LOQ	limit of quantitation

MDL	method detection limit
MS	matrix spike
MSD	matrix spike duplicate
NELAP	National Environmental Laboratory Accreditation Program
NEtFOSAA	N-ethyl perfluorooctanesulfonamidoacetic acid
ng/L	nanograms per liter
NOAA	National Oceanic and Atmospheric Administration
NMeFOSAA	N-methyl perfluorooctanesulfonamidoacetic acid
ORP	oxidation-reduction potential
OSD	Office of the Secretary of Defense
OWS	oil-water separator
PA	Preliminary Assessment
PFAS	per- and polyfluoroalkyl substances
PFBA	perfluorobutyrate
PFBS	perfluorobutanesulfonic acid
PFCs	perfluorinated compounds
PFDA	perfluorodecanoic acid
PFDaA	perfluorododecanoic acid
PFHpA	perfluoroheptanoic acid
PFHxA	perfluorohexanoic acid
PFHxS	perfluorohexanesulfonic acid
PFNA	perfluorononanoic acid
PFOA	perfluorooctanoic acid
PFOS	perfluorooctanesulfonic acid
PFPeA	perfluoropentanoic acid
PFTeDA	perfluorotetradecanoic acid
PFTTrDA	perfluorotridecanoic acid
PFUdA	perfluoroundecanoic acid
PID	photoionization detector
PQAPP	Programmatic UFP-QAPP
PVC	polyvinyl chloride
QA	quality assurance
QAPP	Quality Assurance Project Plan
QC	quality control
QSM	Quality Systems Manual
RI	Remedial Investigation
RPD	relative percent differences
SI	Site Inspection
SL	screening level
SOP	standard operating procedure
TCRA	Time Critical Removal Action
TOC	total organic carbon
TPP	Technical Project Planning
UCMR 3	Third Unregulated Contaminant Monitoring Rule
UFP	Uniform Federal Policy

US	United States
USACE	United States Army Corps of Engineers
USCS	Unified Soil Classification System
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
WLRC	Windsor Locks Readiness Center

Executive Summary

The Army National Guard (ARNG) G9 is performing Preliminary Assessments (PAs) and Site Inspections (SIs) at per- and polyfluoroalkyl substances (PFAS)-impacted sites at ARNG facilities nationwide. The objective of the SI at each facility is to identify whether there has been a release to the environment from the Areas of Interest (AOIs) identified in the PA and determine the presence or absence of perfluorooctanoic acid (PFOA), perfluorooctanesulfonic acid (PFOS), and perfluorobutanesulfonic acid (PFBS) at or above screening levels (SLs). An SI was completed at Windsor Locks Army Aviation Support Facility (AASF; also referred to as the “facility”) in Windsor Locks, Connecticut.

The Windsor Locks AASF occupies 37.9 acres along Route 75, adjacent to Bradley International Airport, in Windsor Locks, Connecticut. The facility primarily operates as a helicopter operations center and fuel station where minor helicopter repairs and servicing are performed (Legette, Brashears & Graham, Inc., 2015). The facility includes two maintenance hangars with attached office space, the Windsor Locks Readiness Center (WLRC) building, two storage buildings, a maintenance shop, and a fenced-in motor pool that includes bermed parking areas for trucks used to refuel helicopters.

During the PA for PFAS, two potential PFAS release areas were identified: the Wash Rack and Building 152 (south hangar) (AECOM, 2020). PFAS-containing aqueous film-forming foam (AFFF) may have been released during fire training activities at the Wash Rack or from the discharge of mobile fire extinguishers to floor drains in Building 152. The potential PFAS release areas were grouped into one AOI, AOI 1, which was investigated during the SI. Building 152 and the adjacent Building 200 (north hangar) are both equipped with fire suppression systems that utilize AFFF. One additional area, the Hazardous Waste Storage Area, was observed during the PA because two 5-gallon buckets of AFFF were stored there. No known PFAS releases have occurred at Building 200 or the Hazardous Waste Storage Area; therefore, they were not identified as part of the AOI during the PA or the SI. However, the SI sampling program covered the majority of the facility’s footprint and borings were located downgradient of these storage and use areas as a conservative measure. The SI field activities were conducted from 26 to 29 April 2021 and included the collection of soil and groundwater samples.

To fulfill the project Data Quality Objectives (DQOs) set forth in the approved SI Quality Assurance Project Plan (QAPP) Addendum (AECOM, 2021a), samples were collected and analyzed for a subset of 18 PFAS by liquid chromatography with tandem mass spectrometry compliant with Quality Systems Manual 5.3 Table B-15. The 18 PFAS analyzed as part of the ARNG SI program are specified in **Section 5.9** of this Report.

The Department of Defense (DoD) has adopted a policy to retain facilities in the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) process based on risk-based SLs for soil and groundwater, as described in a memorandum from the Office of the Secretary of Defense (OSD) dated 15 September 2021 (Assistant Secretary of Defense, 2021). The ARNG program under which this SI was performed follows this DoD policy. Should the maximum site concentration for sampled media exceed the SLs established in the OSD memorandum, and there is a potential release that is likely attributable to ARNG activities, the AOI will proceed to a Remedial Investigation (RI), the next phase under CERCLA. The SLs established in the OSD memorandum apply to three compounds: PFOA, PFOS, and PFBS, for both soil and groundwater. The SLs were calculated using the United States Environmental Protection Agency (USEPA) Office of Superfund Sites On-Line Calculator, which was updated on 8 April 2021 based on the release of the final Human Health Toxicity Values for PFBS (USEPA, 2021).

Additionally, the USEPA issued drinking water lifetime Health Advisories (HAs) for PFOA and PFOS in May 2016 (USEPA 2016a; USEPA, 2016b). The USEPA HAs may also be used as SLs

for groundwater samples collected at the facility boundary where off-facility drinking water wells are present downgradient; the SLs are presented on **Table ES-1** below. All other results presented in this report are considered informational in nature and serve as an indication as to whether soil and groundwater contain or do not contain the 18 PFAS analyzed within the boundaries of the facility.

Sample chemical analytical concentrations were compared against the project SLs, as described in **Table ES-1**. A summary of the results of the SI data relative to the SLs is as follows:

- PFOA and PFOS in groundwater at AOI 1 exceeded the individual SLs of 40 nanograms per liter (ng/L) at both potential PFAS release areas, Wash Rack (AOI01-02) and Building 152 (AOI01-04), and in groundwater at upgradient and downgradient locations at the facility. The maximum concentrations of PFOA and PFOS were 298 ng/L (at location AOI01-03) and 581 ng/L (at location AOI01-08), respectively. Based on the results of the SI, further evaluation of AOI 1 is warranted in the RI.
- PFOA, PFOS, and PFBS were detected in soil at AOI 1, indicating a release of PFAS-containing materials occurred; however, the detected concentrations were several orders of magnitude lower than the soil SLs.

Table ES-2 summarizes the SI results for soil and groundwater. Based on the conceptual site models (CSMs) developed and revised in light of the SI findings, there is potential for exposure to drinking water receptors at the facility; however, it is unclear if DoD activities at the facility have contributed to PFOA, PFOS, and PFBS concentrations in groundwater.

Table ES-3 summarizes the rationale used to determine if an AOI should be considered for further investigation under CERCLA and undergo an RI. Based on the results of this SI, further evaluation is warranted in the RI for AOI 1.







Table ES-1: Screening Levels (Soil and Groundwater)

Analyte	Residential (Soil) (µg/kg) ^{a,b} 0-2 feet bgs	Industrial/ Commercial Composite Worker (Soil) (µg/kg) ^{a,b} 2-15 feet bgs	Tap Water (Groundwater) (ng/L) ^{a,b}	USEPA HA (Groundwater representative of Drinking Water) (ng/L) ^{c,d}
PFOA	130	1,600	40	70
PFOS	130	1,600	40	70
PFBS	1,900	25,000	600	-

Notes:

- Assistant Secretary of Defense, 2019. Risk Based Screening Levels Calculated for PFOS, PFOA, PFBS in Groundwater and Soil using United States Environmental Protection Agency's (USEPA's) Regional Screening Level Calculator. Hazard Quotient (HQ) = 0.1. 15 October 2019.
- USEPA, 2021. Risk Based Screening Levels Calculated for PFBS in Groundwater and Soil using USEPA's Regional Screening Level Calculator. HQ = 0.1. 8 April 2021.
- USEPA. 2016a. Drinking Water Health Advisory (HA) for Perfluorooctanoic Acid (PFOA). Office of Water (4304T). Health and Ecological Criteria Division, Washington, DC 20460. USEPA Document Number: 822-R-16-005. May 2016. / USEPA. 2016b. Drinking Water HA for Perfluorooctane Sulfonic Acid (PFOS). Office of Water (4304T). Health and Ecological Criteria Division, Washington, DC 20460. USEPA Document Number: 822-R-16-004. May 2016.
- USEPA HAs apply to the PFOA and PFOS concentrations individually or combined.

Table ES-2: Summary of Site Inspection Findings

AOI	Potential PFAS Release Area	Soil – Source Area	Groundwater – Source Area	Groundwater – Facility Boundary
1	Wash Rack			
1	Building 152			

Legend:

N/A = Not applicable



= detected; exceedance of the screening levels



= detected; no exceedance of the screening levels



= not detected

Table ES-3: Site Inspection Recommendations

AOI	Description	Rationale	Future Action
1	Wash Rack, Building 152	Exceedances of SLs in groundwater at source areas. No exceedances of SLs in soil.	Proceed to RI

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1. Introduction

1.1 Project Authorization

The Army National Guard (ARNG) G9 is the lead agency in performing Preliminary Assessments (PAs) and Site Inspections (SIs) for Perfluorooctanesulfonic acid (PFOS) and Perfluorooctanoic acid (PFOA) at Impacted Sites, ARNG Installations, Nationwide. This work is supported by the United States (US) Army Corps of Engineers (USACE) Baltimore District and their contractor, AECOM Technical Services, Inc. (AECOM), under Contract Number W912DR-12-D-0014, Task Order W912DR17F0192, issued 11 August 2017. The ARNG performed this SI at the Windsor Locks Army Aviation Support Facility (AASF) in Windsor Locks, Connecticut. The Windsor Locks AASF is also referred to as the “facility” throughout this document.

The SI project elements were performed in compliance with Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA; US Environmental Protection Agency [USEPA], 1980), as amended, the National Oil and Hazardous Substances Pollution Contingency Plan (40 Code of Federal Regulations Part 300; USEPA, 1994), and in compliance with US Department of the Army (DA) requirements and guidance for field investigations including specific requirements for sampling for PFOA, PFOS, and perfluorobutanesulfonic acid (PFBS), and the group of related compounds known in the industry as per- and polyfluoroalkyl substances (PFAS). The term PFAS is used throughout this report to encompass all PFAS chemicals being evaluated, including PFOA, PFOS, and PFBS, which are the key components of the suspected releases being evaluated, and the other 15 related compounds listed in the task order.

1.2 SI Purpose

A PA was performed at Windsor Locks AASF (AECOM, 2020) that identified two potential PFAS release areas at the facility, which were grouped into one Area of Interest (AOI). The objective of the SI is to identify whether there has been a release to the environment from the AOIs and determine the presence or absence of PFOA, PFOS, and PFBS at or above screening levels (SLs).

As stated in the *Federal Facilities Remedial Site Inspection Summary Guide* (USEPA, 2005), an SI has five goals:

1. Develop information to potentially eliminate a release from further consideration because it is determined that it poses no significant threat to human health or the environment;
2. Determine the potential need for a removal action;
3. Collect or develop data to evaluate potential release;
4. Collect data to better characterize the release for more effective and rapid initiation of a Remedial Investigation (RI), if determined necessary; and
5. Collect data to determine whether the release is more than likely the result of activities associated with the Department of Defense (DoD).

In addition to the USEPA-identified goals of an SI, the ARNG SI also identifies whether there are potential off-facility PFAS sources.

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2. Facility Background

2.1 Facility Location and Description

The Windsor Locks AASF occupies 37.9 acres that consist primarily of two maintenance hangars with attached office space, the Windsor Locks Readiness Center (WLRC) building, two storage buildings, a maintenance shop, and a fenced-in motor pool that includes bermed parking areas for trucks used to refuel helicopters. The facility also contains a hazardous waste storage area, above-ground storage tanks (ASTs), a pump house, water tower, emergency diesel generators, and a civilian parking lot. The facility is located on Route 75, adjacent to Bradley International Airport, in Windsor Locks, Connecticut (**Figure 2-1**). The facility primarily operates as a helicopter operations center and fuel station where minor helicopter repairs and servicing are performed (Legette, Brashears & Graham, Inc., 2015).

Bradley International Airport was acquired by the Federal government in the 1940s as a military reservation and deeded to the State of Connecticut in 1948 as surplus property. Between 1949 and 1955, various legal agreements were executed to provide for use of the field by reserve components of the Armed Forces, primarily the US Air Force and Connecticut Air National Guard (CTANG). In September 1986, the parcel was transferred from the CTANG to the Connecticut ARNG (CTARNG). The transfer of the property from CTANG to CTARNG included numerous buildings as well as the wash rack, airport apron, taxiway, and boundary fence. The title to land and buildings operated by the CTARNG was listed in the name of the State of Connecticut, Department of Aeronautics, and was leased to the US Government until 2002 (Engineering Technologies Associates, Inc., 1994). The Secretary of the Army granted the State of Connecticut a license to use and occupy for training and support of the CTARNG, effective 1 September 2010 (under License # DACA33-3-11-032). The lease remains on a year to year basis up to 31 October 2055.

2.2 Facility Environmental Setting

Windsor Locks AASF is located within the Connecticut Valley Lowlands physiographic region of the state (Engineering Technologies Associates, Inc., 1994). The topography of the facility is generally level, sloping slightly to the northwest (**Figure 2-2**). A drainage swale originates along the northwestern edge of the facility and continues northwest, off-facility, to an intermittent stream called Spencer Brook.

2.2.1 Geology

Windsor Locks AASF lies within the Connecticut Valley Lowlands and is underlain by gently sloping sand, silt, and gravel. Fine sand and silt are located beneath the ground surface. Surficial material at the facility is mapped as stratified drift and deltaic deposits overlying till with clay (Colton, 1960). Historical excavation reports noted a clay layer at depths ranging from 3 to 10 feet below ground surface (bgs). Bedrock beneath the facility is mapped as the Portland Arkose (**Figure 2-3**), which is described as a reddish-brown siltstone and sandstone (Schnabel and Eric, 1964). Depth to bedrock is estimated to be 100 to 150 feet bgs (Handman, 1973). Approximately 70 percent (%) of the soil underlying the facility is classified as made land, i.e., fill material. The underlying soil consists of Ninegrat Fine Sandy Loam, Poquonock Loamy Sand, Windsor Loamy Fine Sand, Agawan Fine Sand, Scantic Silt Loam, and Whatley Loam. These soils range from sand to silty clay loams with moderate to rapid permeability (SCS, 1962).

Soil borings completed during the SI found poorly graded and well-graded sand as the dominant lithology of the unconsolidated sediments below the Windsor Locks AASF; the borings were completed at depths between 10 and 15 feet bgs. Isolated layers of clay to silty sand were also

observed in the boring logs, at thicknesses ranging from a few inches to 3.5 feet. Many of the logs also reported varying percentages of gravel included in the sand packages. These observations are consistent with the understood fill material and glaciofluvial depositional environment.

2.2.2 Hydrogeology

The groundwater beneath the site is classified by the Connecticut Department of Energy and Environmental Protection (CTDEEP) as “GA”. Groundwater classified as GA is defined as groundwater with the area existing of private water-supply wells or an area with the potential to provide water to public or private water supply wells. The CTDEEP presumes that groundwater in such an area is, at a minimum, suitable for drinking or other domestic uses without treatment. The designated uses for Class GA groundwater are as existing private and potential public or private supplies of water suitable for drinking without treatment and as base flow for hydraulically connected surface water bodies (CTDEEP, 2002). Groundwater features at the facility are shown on **Figure 2-3**. There are currently no potable water wells on the facility.

A 2018 Environmental Data Resources, Inc.TM (EDRTM) Report indicated that no drinking water supply wells are present within a 1-mile radius of the facility (AECOM, 2019). Using additional online resources, wells were researched to a 4-mile radius of the facility. The state of Connecticut does not have an online well database. According to the US Geological Survey (USGS) National Water Information System Mapper, no active wells exist within a 4-mile radius of the facility; however, 93 inactive USGS monitoring wells were identified within a 4-mile radius of the facility (USGS, 2019). Although no other active wells were listed within 4 miles of the facility, agricultural areas exist to the north/northwest, and it is possible that unlisted groundwater wells may exist in this area.

Windsor Locks AASF receives its potable water from the Connecticut Water Company. The Connecticut Water Company serves East Granby and Windsor Locks in addition to numerous other Connecticut towns and cities (Amec Foster Wheeler Environment & Infrastructure, Inc., 2018). According to the 2017 Water Quality Report for the Connecticut Water Northern Western Water System (serving Windsor Locks), the water supply source for Windsor Locks is the Metropolitan District (MDC), a non-profit municipal corporation that provides potable water and sewerage services (MDC, 2019). The MDC water supply source consists of a system of reservoirs that includes the Barkhamsted Reservoir and the Nepaug Reservoir (MDC, 2019). The two reservoirs are approximately 14 miles and 16 miles west of the Windsor Locks AASF, respectively. Available Third Unregulated Contaminant Monitoring Rule (UCMR 3) data for Connecticut does not indicate that PFAS have been detected in either of the aforementioned MDC surface water reservoirs (USEPA, 2017a).

Depths to water measured in April 2021 during the SI ranged from 3.37 to 8.11 feet bgs. Groundwater elevation contours from the SI are presented on **Figure 2-5** and indicate groundwater flow direction is towards the drainage swale on both the western and eastern portions of the facility. West of the drainage swale, groundwater flow is generally to the northeast across the facility towards the drainage swale, while east of the drainage swale, groundwater flow is to the west-southwest back toward the drainage swale. Hydraulic conductivity values measured during a 2008 Phase III Investigation ranged from 0.5 to 33 feet per day (Fuss & O’Neil, 2008).

2.2.3 Hydrology

The nearest surface water body to the facility is Spencer Brook, which is located approximately 300 feet northwest of the facility at its closest point (**Figure 2-4**). Spencer Brook is not classified by the State of Connecticut, and it is therefore assumed to be a Class A surface water body. Class A surface water bodies support the following designated uses: potential drinking water supply, fish and wildlife habitat, recreational use, agricultural, industrial supply and other legitimate uses, including navigation (CTDEEP, 2002).

Windsor Locks AASF is drained by Spencer Brook, an intermittent stream that discharges to Stoney Brook, a perennial stream 6,300 feet downstream of the facility. Stoney Brook discharges into the Connecticut River 5.3 miles further downstream. The average flow of the Connecticut River measured at State Route 190 is 16,640 cubic feet per second. The average flow rate of Stoney Brook is 20.4 cubic feet per second, based on the period 1981 to 1992 at the South Grand Street stream gage.

The western portion of the facility is drained by a stormwater detention system and a surface swale to the west of the parking apron. This system drains the tank farm area and the parking apron, as well as areas off-facility. The eastern portion of the facility is drained by a separate stormwater detention system and a drainage swale to the east of Building 200. The stormwater detention system east of Building 152 originates on State of Connecticut property. The western and eastern drainage features converge in the northern portion of the facility, from where the drainage is routed into a concrete swale to the north of the facility and subsequently to Spencer Brook.

The Windsor Locks AASF facilities discharge stormwater runoff associated with industrial activities into surface waters under state permits. The facility is also permitted to discharge water associated with the wash rack's grit separator and the AASF oil-water separator (OWS) and floor drain system into sanitary sewers.

2.2.4 Climate

Data from Hartford Bradley International Airport, Connecticut indicate that the annual average temperature between 1981 and 2010 was 50.6 degrees Fahrenheit (°F) (National Oceanic and Atmospheric Administration [NOAA], 2018). The warmest months are July and August, with normal daily average temperatures of 73.6 °F and 71.9 °F, respectively. January is the coldest month, with an average temperature of 26.1 °F. Average annual precipitation measured from 1981 to 2010 at the airport was 45.85 inches. Rainfall is heaviest during the months of May through July, averaging approximately 4.3 inches per month; January and February are the driest months. Average monthly precipitation ranges from 2.89 inches in February to 4.37 inches in October (NOAA, 2018).

2.2.5 Current and Future Land Use

Windsor Locks AASF is an operations center used by the CTARNG for the routine maintenance and minor repair on military helicopters and fixed-wing aircraft. A bulk fuel facility has been operating at the Windsor Locks AASF since the early 1970s. The facility includes two maintenance hangars with attached office space, the WLRC building, two storage buildings, a maintenance shop, a fenced-in motor pool that includes bermed parking areas fuel trucks, a hazardous waste storage area, ASTs, a pump house, water tower, emergency diesel generators, and a civilian parking lot. Future use of the Windsor Locks AASF is anticipated to remain the same.

2.2.6 Sensitive Habitat and Threatened/ Endangered Species

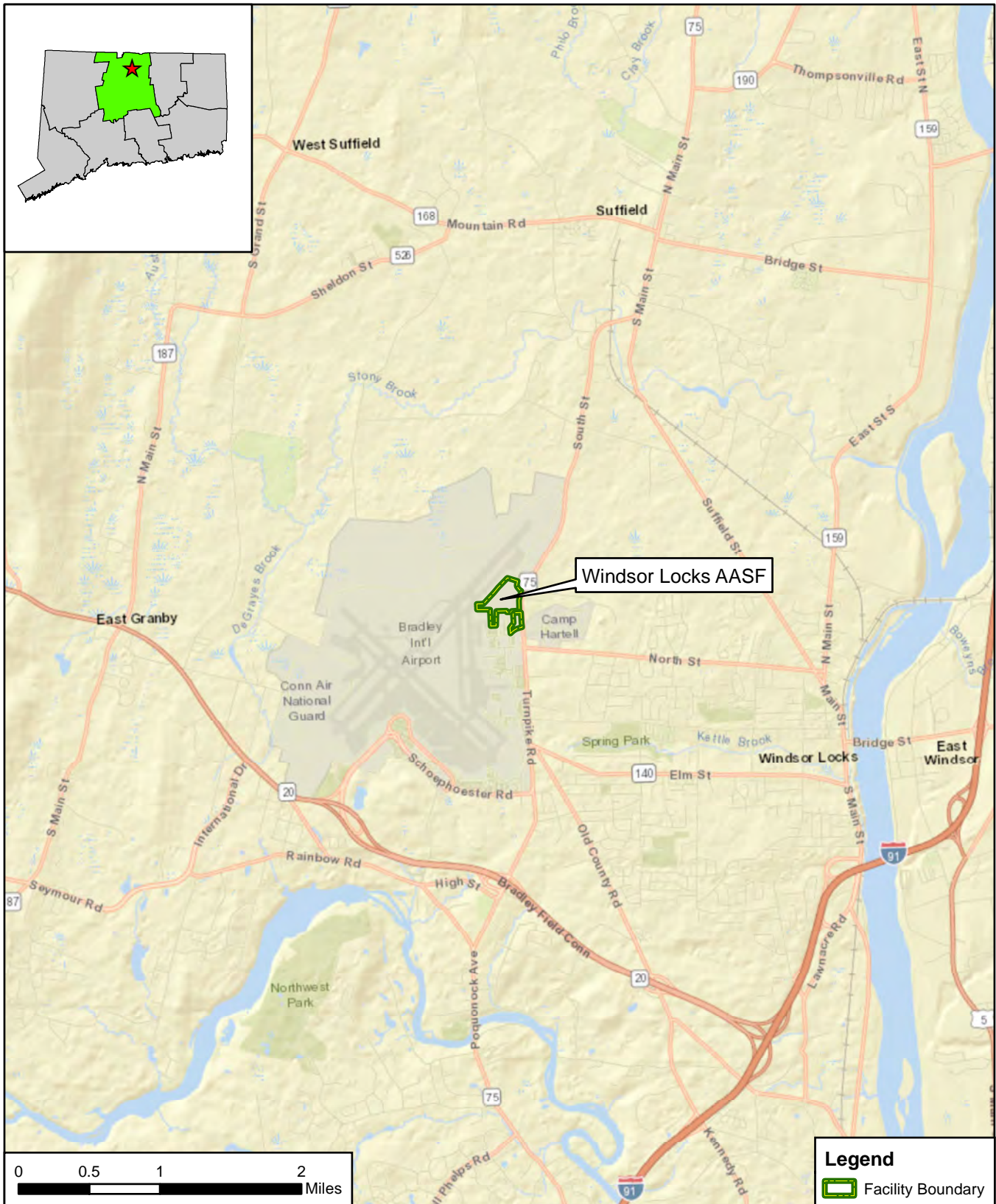
The following birds, plants, mammals, and reptiles are federally endangered, threatened, proposed, and/ or are listed as candidate species in Hartford County, Connecticut (US Fish and Wildlife Service [USFWS], 2021).



- **Insects:** Monarch butterfly, *Danaus plexippus* (candidate); Cobblestone tiger beetle, *Cicindela marginipennis* (resolved taxon)
- **Mammals:** Northern long-eared bat, *Myotis septentrionalis* (threatened)
- **Clams:** Dwarf wedgemussel, *Alasmidonta heterodon* (endangered)

- **Flowering plants:** Small whorled pogonia, *Isotria medeoloides* (threatened)

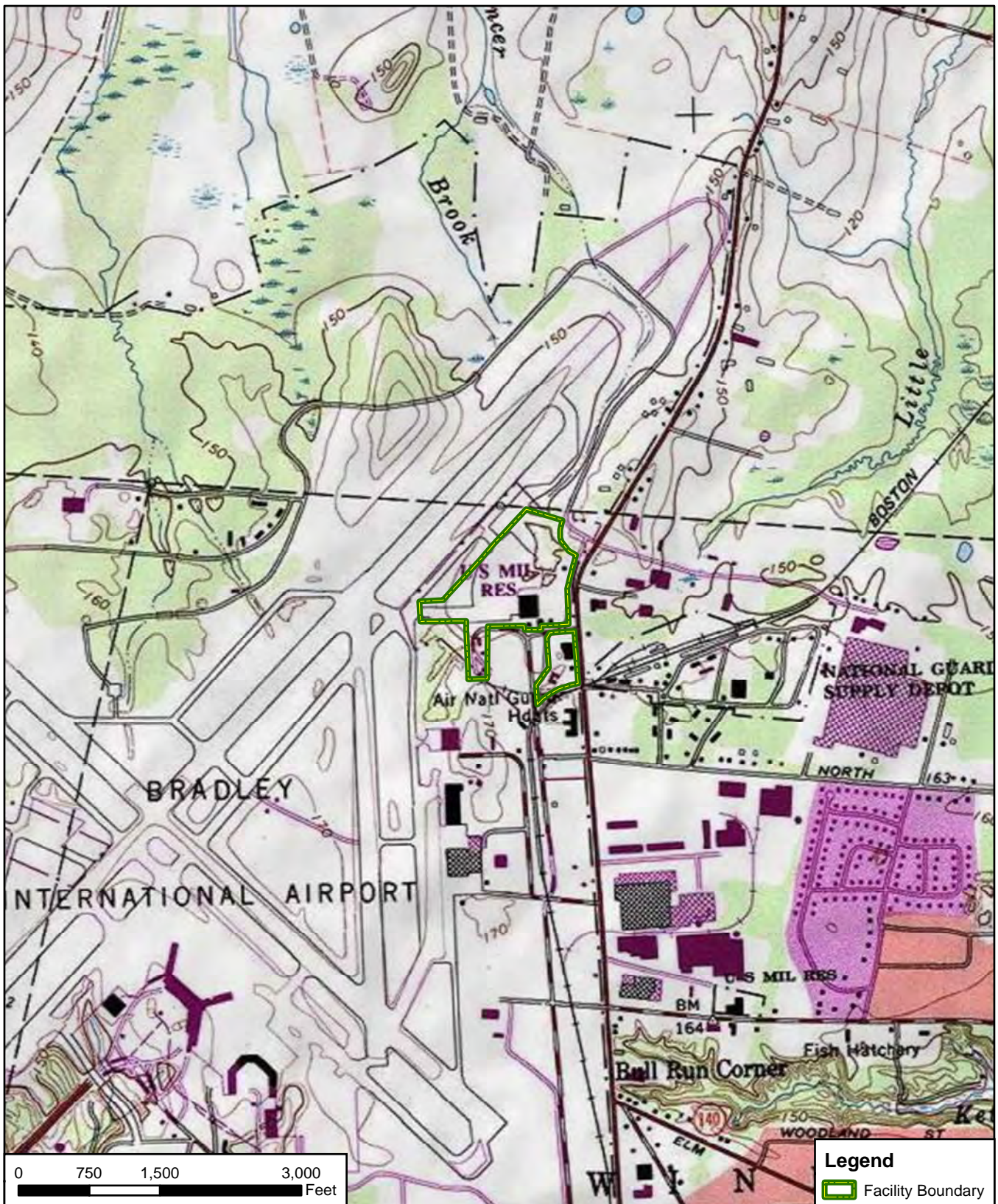
2.3 History of PFAS Use

Two potential PFAS release areas were identified during the PA at the Windsor Locks AASF, where aqueous film forming foam (AFFF) may have been used or released historically (AECOM, 2020). Windsor Locks AASF includes two maintenance hangars: Building 200 (north hangar) and Building 152 (south hangar). Both hangars are equipped with fire suppression systems that utilize AFFF. Although there are no documented releases from the fire suppression systems, AFFF may have been released at the facility during fire training activities. Notably, between 2003 and 2015, AFFF was used to extinguish controlled burns at the Wash Rack during fire training, and mobile fire extinguishers containing AFFF were discharged to the floor drains in Building 152. These two potential PFAS release areas were grouped into one AOI based on proximity to one another and presumed groundwater flow. One additional area, the Hazardous Waste Storage Area, was observed during the PA because two 5-gallon buckets of AFFF were stored there. No known PFAS releases have occurred at Building 200 or the Hazardous Waste Storage Area; therefore, they were not identified as part of the AOI during the PA or the SI. However, the SI sampling program covered the majority of the facility's footprint and borings were located downgradient of these storage and use areas as a conservative measure. A description of AOI 1 is presented in **Section 3**.



CLIENT						Facility Location	
NOTES						 12420 Milestone Center Drive Germantown, MD 20876	
Site Inspection for PFAS at Windsor Locks AASF, CT							
REVISED	5/14/2021	GIS BY	MS	5/14/2021			
SCALE	1:63,360	CHK BY	AM	5/14/2021			
Base Map: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI,		PM	CM	5/14/2021	Figure 2-1		

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CLIENT	ARNG			
NOTES	Site Inspection for PFAS at Windsor Locks AASF, CT			
REVISED	6/18/2021	GIS BY	MS	6/18/2021
SCALE	1:18,000	CHK BY	AM	6/18/2021
Base Map: Copyright © 2013 National Geographic Society, i-cubed		PM	CM	6/18/2021

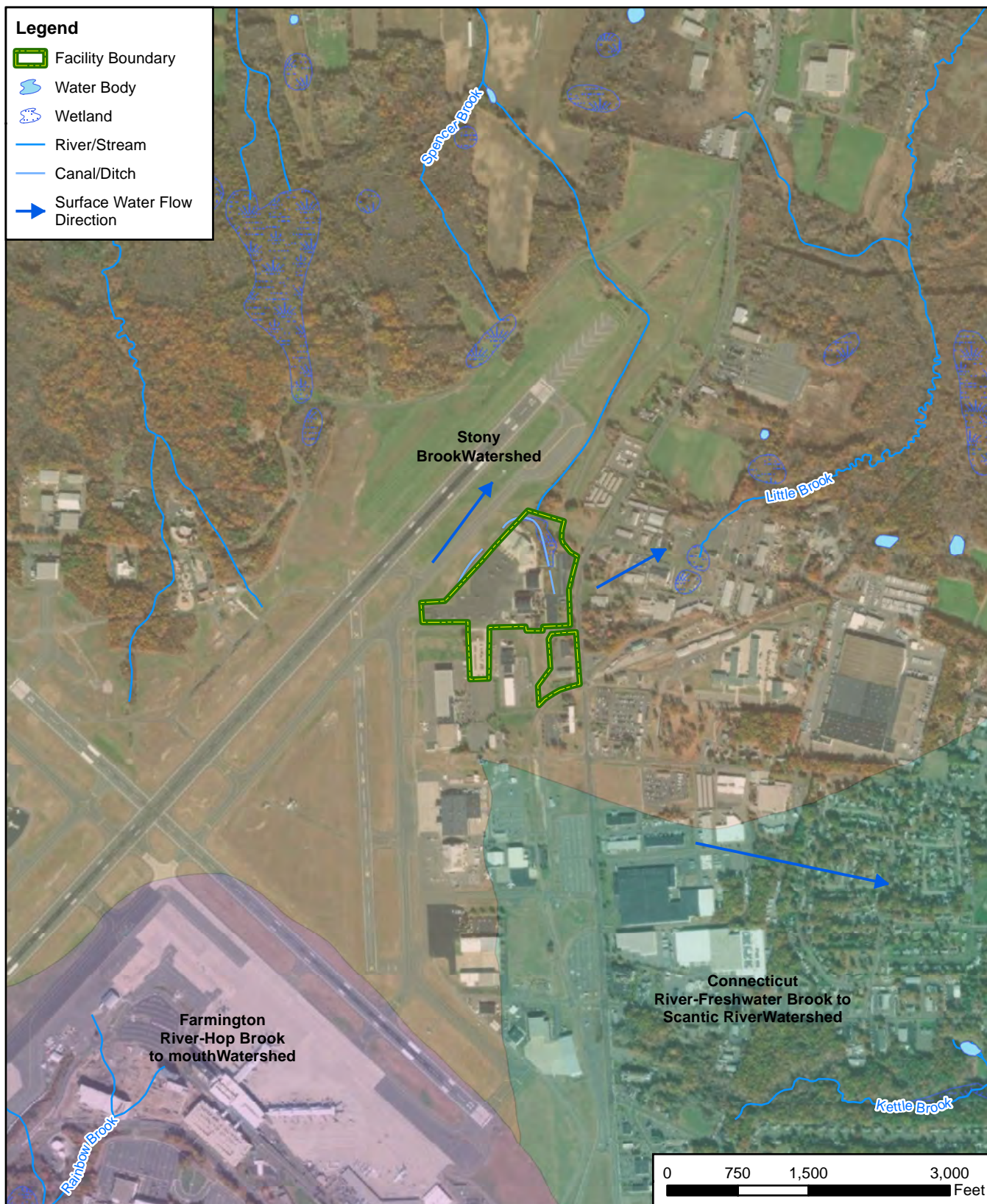




Facility Topography	
AECOM 12420 Milestone Center Drive Germantown, MD 20876	Figure 2-2

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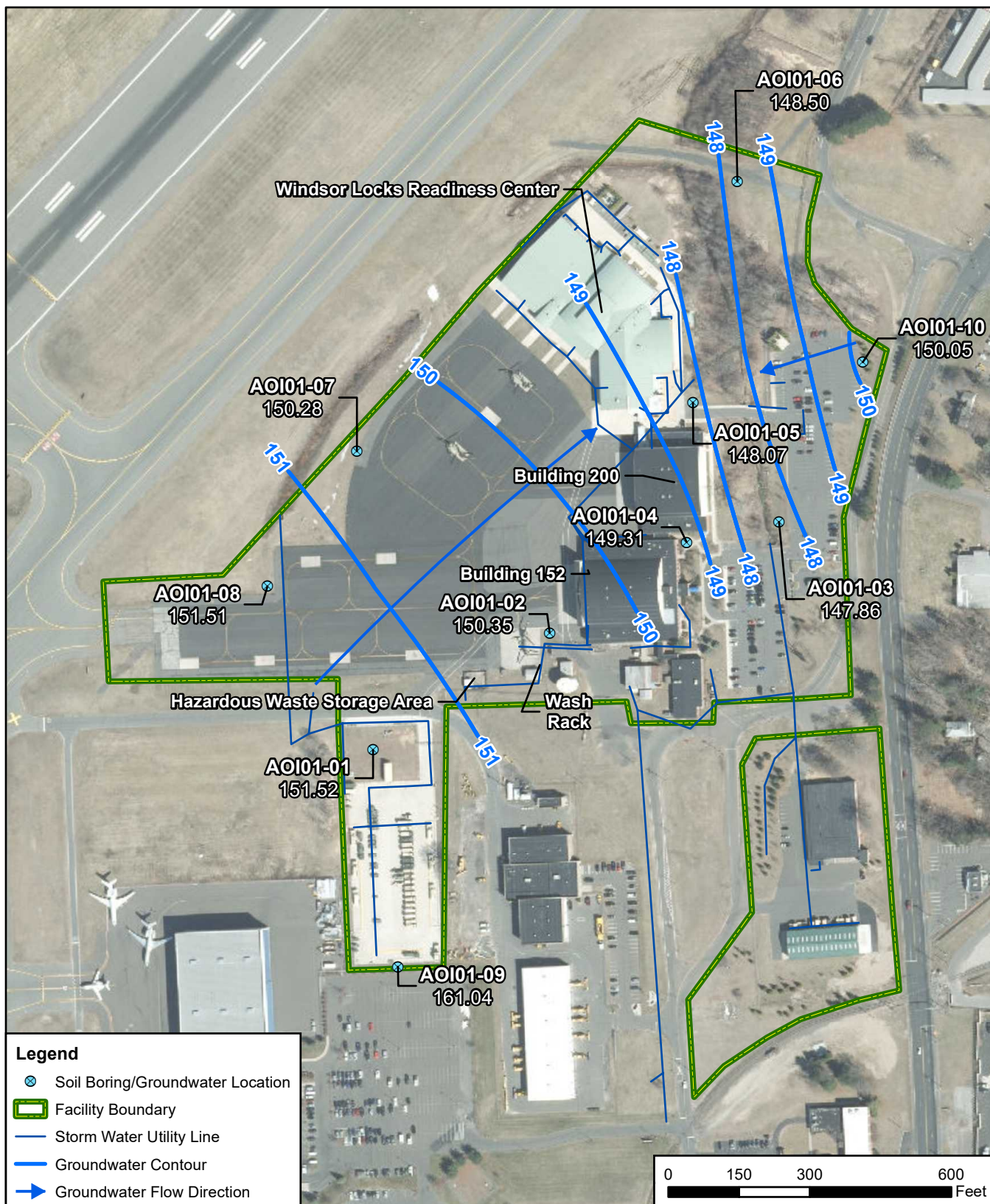




CLIENT ARNG						TITLE	
PROJECT Site Inspection for PFAS at Windsor Locks AASF, CT						Groundwater Features	
REVISED	12/13/2021	GIS BY	MS	12/13/2021		 12420 Milestone Center Drive Germantown, MD 20876	Figure 2-3
SCALE	1:31,680	CHK BY	AM	12/13/2021			
Base Map: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community		PM	CM	12/13/2021			



CLIENT		ARNG				Surface Water Features	
NOTES		Site Inspection for PFAS at Windsor Locks AASF, CT				 12420 Milestone Center Drive Germantown, MD 20876	Figure 2-4
REVISED	5/14/2021	GIS BY	MS	5/14/2021			
SCALE	1:18,000	CHK BY	AM	5/14/2021			
Base Map: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS,		PM	CM	5/14/2021			

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CLIENT		ARNG				Groundwater Elevations, April 2021		
NOTES		Site Inspection for PFAS at Windsor Locks AASF, CT				 12420 Milestone Center Drive Germantown, MD 20876	Figure 2-5	
REVISED	9/28/2021	GIS BY	MS	9/28/2021				
SCALE	1:3,600	CHK BY	AM	9/28/2021				
Base Map: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS,		PM	CM	9/28/2021				

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3. Summary of Areas of Interest

Based on the PA findings, two potential PFAS release areas, the Wash Rack and Building 152, were identified at Windsor Locks AASF and grouped into one AOI (AECOM, 2020). The potential PFAS release areas are shown on **Figure 3-1**, and a summary of the AOI is presented below.

3.1 AOI 1

AOI 1 consists of two potential PFAS release areas, as described below.

3.1.1 Wash Rack

The Wash Rack at Windsor Locks AASF is located west of Building 152 (south hangar), near the southern boundary of the CTARNG Windsor Locks AASF property. The geographic coordinates of the Wash Rack are approximately 41°56'38.5"N and 72°40'26.7"W. During fire training events at the Wash Rack, a pan containing flammable liquid was ignited in the center of the Wash Rack, and mobile fire extinguishers containing AFFF were discharged to put out the flames. Between six and ten mobile extinguishers containing 30 gallons of an AFFF/water dilution would be used per training exercise. Formal training records were not kept. The AFFF product used during training events is unknown; however, Tri-Max™ -40 °F AFFF solution and 3M AFFF Type 3 (3%) have been stored at the facility in 5-gallon buckets and are believed to have been used during exercises. Training exercises at the Wash Rack that resulted in the discharge of AFFF are expected to have occurred once per year between 2003 and 2015, according to personnel interviews. Additionally, the facility Avionics Small Shops Chief stated that a fire training demonstration performed by the Connecticut Fire Academy (or their vendor/supplier) occurred at the Wash Rack within the last 5 years. No other information regarding this event was available during the PA. The Windsor Locks AASF Fire Marshall confirmed via correspondence after the site visit that fire training exercises since August 2015 have been conducted solely at the nearby off-facility Connecticut Fire Academy (AECOM, 2020).

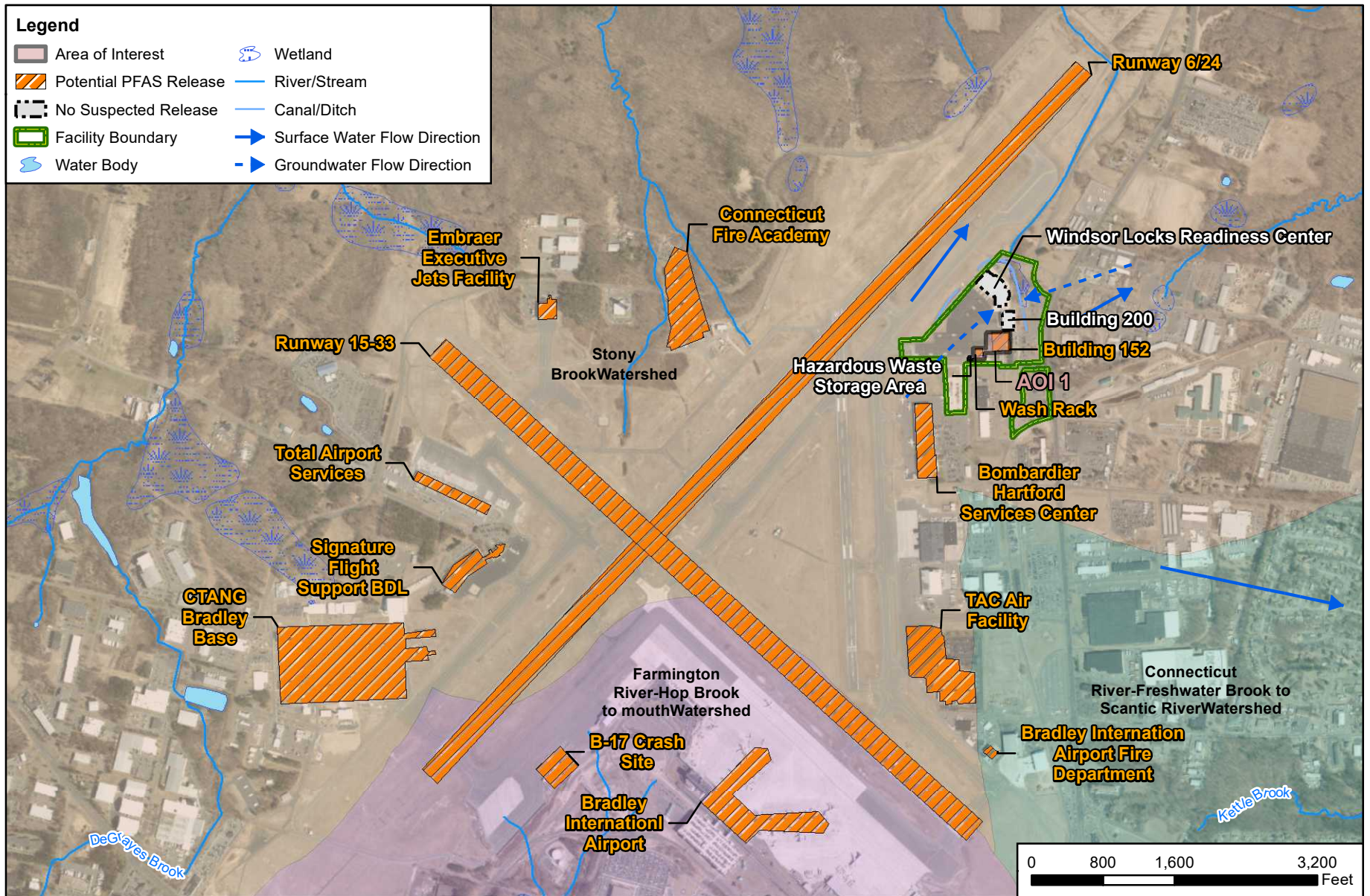
The Wash Rack is a slightly depressed concrete platform approximately 80 feet long by 80 feet wide with a catch basin at the center of the depression. Discharge from the catch basin currently flows to a below-grade stormwater detention system when the Wash Rack is not in use. If the Wash Rack is being used to wash aircrafts, then discharge is diverted via a valve to an underground 2,500-gallon OWS and then to municipal sanitary sewers. AFFF released during known fire training events at the Wash Rack would have been discharged to the sanitary sewer system via the Wash Rack; however, the recent installation of a valve to divert stormwater runoff through the Wash Rack to the stormwater detention system may result in residual PFAS reaching stormwater outfalls. The stormwater detention system discharges to wetlands in the northeastern portion of the facility, and water eventually flows to Spencer Brook.

3.1.2 Building 152

Building 152, the south hangar at Windsor Locks AASF, is located on the south side of and adjacent to Building 200, the north hangar. The approximate geographic coordinates of Building 152 are 41°56'39.6"N and 72°40'23.6"W. Building 152 is equipped with a fire suppression system that uses National Foam Aer-o-lite 3% AFFF. The AFFF that supplies the fire suppression system is stored in a 900-gallon tank in the AFFF Tank Storage Room located between the north and south hangars. The fire suppression system was installed in 1997 and is serviced quarterly by the contractor Fire Protection Team. The fire suppression system is also sampled annually to assure the appropriate AFFF product concentration is adequate. Annual suppression system testing uses only water, and CTARNG staff indicated that an AFFF release has never occurred as a result of suppression system testing. No incidents resulting in an AFFF release have occurred in the AFFF Tank Storage Room, and no known releases of PFAS have occurred from the fire suppression

system. Handheld dry chemical fire extinguishers are also stored in the room for use in the event of an emergency.

Mobile fire extinguishers that contained AFFF were discharged to the floor drains in Building 152 between 2003 and 2015, though less frequently than fire training events at the Wash Rack. Information sources conflicted on whether AFFF discharges occurred to floor drains in Building 152; however, discharge events have been conservatively presumed to have occurred, based on the statements of some personnel. Discharges of AFFF to the Building 152 floor drains were not documented. Based on information gathered during the PA, between six and ten mobile extinguishers containing 30 gallons of an AFFF/water dilution would be used per training exercise. The AFFF product used during training events is unknown; however, Tri-Max™ -40°F AFFF solution and 3M AFFF Type 3 (3%) have been stored at the facility in 5-gallon buckets and are believed to have been used during exercises. Floor drains in Building 152 connect underground to a 2,500-gallon OWS south of the hangar, which discharges to municipal sanitary sewers (AECOM, 2020).



CLIENT		ARNG			
PROJECT		Site Inspection for PFAS at Windsor Locks AASF, CT			
REVISED	12/13/2021	GIS BY	MS	12/13/2021	
SCALE	1:19,200	CHK BY	AM	12/13/2021	
Base Map: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community					
		PM	CM	12/13/2021	

Areas of Interest	
<div style="font-size: 0.8em; margin-top: 5px;"> 12420 Milestone Center Drive Germantown, MD 20876 </div>	Figure 3-1

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4. Project Data Quality Objectives

Project Data Quality Objectives (DQOs) are qualitative and quantitative statements that specify the quality of data and define the level of certainty required to support project decision-making process. The specific DQOs established for this facility are described below. These DQOs were developed in accordance with the USEPA's seven-step iterative process (USEPA, 2006).

4.1 Problem Statement

The following problem statement was developed during project planning:

The presence of PFAS, which may pose a risk to human health or the environment, in environmental media at the facility is currently unknown. PFAS are classified as emerging environmental contaminants that are garnering increasing regulatory interest due to their potential risks to human health and the environment. The regulatory framework for managing PFAS at both the federal and state level continues to evolve.

The DoD has adopted a policy to retain facilities in the CERCLA process based on risk-based SLs for soil and groundwater, as described in a memorandum from the Office of the Secretary of Defense (OSD) dated 15 October 2019 (Assistant Secretary of Defense, 2019). The ARNG program under which this SI was performed follows this DoD policy. Should the maximum site concentration for sampled media exceed the SLs established in the OSD memorandum, the AOI will proceed to the next phase under CERCLA. The SLs established in the OSD memorandum apply to three compounds: PFOS, PFOA, and PFBS. The SLs were calculated using the USEPA Office of Superfund Sites On-Line Calculator, which was updated on 8 April 2021 based on the release of the final Human Health Toxicity Values for PFBS (USEPA, 2021).

Additionally, the USEPA issued drinking water lifetime Health Advisories (HAs) for PFOA and PFOS in May 2016 (USEPA 2016a; USEPA, 2016b). The USEPA HAs may also be used as SLs for groundwater samples collected at the facility boundary where off-facility drinking water wells are present downgradient. The SLs are presented in **Section 6.1** of this Report.

The following quotes from the DA policy documents form the basis for this project (DA, 2016; DA, 2018):

- “The Army will research and identify locations where PFOS- and/or PFOA-containing products, such as AFFF, are known or suspected to have been used. Installations shall coordinate with installation/facility fire response or training offices to identify AFFF use or storage locations. The Army will consider FTAs, AFFF storage locations, hangars/buildings with AFFF suppression systems, fire equipment maintenance areas, and areas where emergency response operations required AFFF use as possible source areas. In addition, metal plating operations, which used certain PFOS-containing mist suppressants, shall be considered possible source areas.”
- “Based on a review of site records...determine whether a CERCLA PA is appropriate for identifying PFOS/PFOA release sites. If the PA determines a PFOS/PFOA release may have occurred, a CERCLA SI shall be conducted to determine presence/absence of contamination.”
- “Identify sites where perfluorinated compounds are known or suspected to have been released, with the priority being those sites within 20 miles of the public systems that tested above USEPA HA levels.” (USEPA, 2016a; USEPA, 2016b).

4.2 Goals of the Study

The following goals were established for this SI:

1. Determine the presence or absence of PFOA, PFOS, and PFBS at or above SLs.
2. Develop information to potentially eliminate a release from further consideration because it is determined that it poses no significant threat to human health or the environment.
3. Determine the potential need for a Time Critical Removal Action (TCRA) (applies to drinking water only). The primary actions that will be considered include provision of alternative water supplies or wellhead treatment.
4. Collect data to better characterize the release areas for more effective and rapid initiation of a RI (if determined necessary).
5. If PFOA, PFOS, and PFBS are determined to be present, aim to evaluate whether the concentrations can be attributed to on-facility or off-facility sources that were identified within 4 miles of the installation as part of the PA (e.g., fire stations, major manufacturers, other DoD facilities).
6. Determine whether a potentially complete pathway exists between the source and potential receptors and whether ARNG is the likely source of the contamination.

4.3 Information Inputs

Primary information inputs included:

- The PA for Windsor Locks AASF (AECOM, 2020);
- Analytical data from soil and groundwater samples collected as part of this SI in accordance with the site-specific Uniform Federal Policy (UFP)-Quality Assurance Project Plan (QAPP) Addendum (AECOM, 2021a); and
- Field data collected during the SI, including groundwater elevation and water quality parameters measured at the time of sampling.

4.4 Study Boundaries

The scope of the SI was bounded by the property limits of the facility (**Figure 2-2**). Off-facility sampling was not included in the scope of this SI. If future off-facility sampling is required, the proper stakeholders will be notified, and necessary rights of entry will be obtained by ARNG with property owner(s).

4.5 Analytical Approach

Samples were analyzed by Pace Analytical Gulf Coast, accredited under the DoD Environmental Laboratory Accreditation Program (ELAP; Accreditation Number 74960) and the National Environmental Laboratory Accreditation Program (NELAP; Certificate Number 01955). Data were compared to applicable SLs and decision rules as defined in the SI QAPP Addendum (AECOM, 2021a). These rules governed response actions based on the results of the SI sampling effort.

The decision rules described in the **Worksheet #11** of the SI QAPP Addendum identify actions based on the following:

Groundwater:

- Is there a human receptor within 4 miles of the facility?
- What is the concentration of PFOA, PFOS, and PFBS at the potential release areas?
- What is the concentration of PFOA, PFOS, and PFBS at the facility boundary upgradient and downgradient of the potential release areas?
- What does the conceptual site model (CSM) suggest in terms of source, pathway and receptor?

Soil:

- What is the concentration of PFOA, PFOS, and PFBS in shallow surface soil (0 to 2 feet bgs)?
- What is the concentration of PFOA, PFOS, and PFBS in deep soil (i.e., capillary fringe)?
- What does the CSM suggest in terms of source, pathway, and receptor?

Soil and groundwater samples were collected from each of the potential release areas. Groundwater was encountered at approximately 3.37 to 8.11 feet bgs.

4.6 Data Usability Assessment

The Data Usability Assessment (DUA) is an evaluation at the conclusion of data collection activities that uses the results of both data verification and validation in the context of the overall project decisions or objectives. Using both quantitative and qualitative methods, the assessment determines whether project execution and the resulting data have met the facility-specific DQOs. Both sampling and analytical activities are considered to assess whether the collected data are of the right type, quality, and quantity to support the decision-making (DoD, 2019a; DoD, 2019b; USEPA, 2017b).

Data Quality Indicators (DQIs) (Precision, Accuracy, Representativeness, Comparability, Completeness, and Sensitivity) are important components in assessing data usability. These DQIs were evaluated in the subsequent sections and demonstrate that the data presented in this SI report are of high quality. Although the SI data are considered reliable, some degree of uncertainty can be associated with the data collected. Specific factors that may contribute to the uncertainty of the data evaluation are described below. The Data Validation Report (**Appendix A**) presents explanations for all qualified data in greater detail.

4.6.1 Precision

Precision is the degree of agreement among repeated measurements of the same characteristic on the same sample or on separate samples collected as close as possible in time and place. Field sampling precision is measured with the field duplicate relative percent differences (RPD); laboratory precision is measured with calibration verification, internal standard recoveries, and laboratory control spike (LCS) and matrix spike (MS) duplicate RPD.

Extraction internal standards (EIS) were added by the laboratory during sample extraction to measure relative responses of target analytes and used to correct for bias associated with matrix interferences and sample preparation efficiencies, injection volume variances, mass spectrometry ionization efficiencies, and other associated preparation and analytical anomalies. Several EIS area counts were outside of quality control (QC) limits. The associated field sample results were qualified due to low recoveries and were qualified as estimated with a high bias while non-detects

were qualified "UJ". The field sample results are considered usable as qualified as estimated values.

Injection internal standards (IIS) were added by the laboratory after sample extraction and prior to analysis as a requirement of DoD QSM 5.3 to measure relative responses of target analytes. Even though not required, the IIS are still added to the sample after extraction as an additional QC measure. The IIS percent recoveries were within the established precision limits presented in the SI QAPP Addendum (AECOM, 2021a).

LCS/LCSD duplicate (LCSD) pairs were prepared by addition of known concentrations of each analyte in a matrix-free media known to be free of target analytes. LCS/LCSD pairs were analyzed for every analytical batch to demonstrate the ability of the laboratory to detect similar concentrations of a known quantity in matrix-free media. The LCS/LCSD samples were within the project established precision limits presented in the QAPP Addendum (AECOM, 2021a).

MS/MS duplicate (MSD) samples were prepared, analyzed, and reported for all preparation batches. MS/MSD samples demonstrated that the analytical system was in control for the matrix being tested, with one exception. MS/MSD samples were submitted to the laboratory for analysis at a rate of 5%. The MS/MSD samples were within the project established precision limits presented in the SI QAPP Addendum (AECOM, 2021a).

Field duplicate samples were collected at a rate of 10% to assess the overall sampling and measurement precision for this sampling effort. The field duplicate samples were analyzed for PFAS and general chemistry parameters. The field duplicate samples were within the project established precision limits presented in the SI QAPP Addendum (AECOM, 2021a), with limited exceptions. One field duplicate pair displayed a positive result for perfluoroheptanoic acid (PFHpA) and a non-detect result for perfluorononanoic acid (PFNA) in the parent sample, while the associated field duplicate displayed a non-detect result for PFHpA and a positive result for PFNA. The field duplicate pair results were qualified as estimated and are considered usable as qualified.

4.6.2 Accuracy

Accuracy is a measure of confidence in a measurement. The smaller the difference between the measurement of a parameter and its "true" or expected value, the more accurate the measurement. The more precise or reproducible the result, the more reliable or accurate the result. Accuracy is measured through percent recoveries in the LCS/LCSD, MS/MSD, and surrogates.

LCS/LCSD samples were prepared by addition of known concentrations of each analyte in a matrix-free media known to be free of target analytes. LCS/LCSD samples were analyzed for every analytical batch and demonstrated that the analytical system was in control during sample preparation and analysis. The LCS/LCSD samples were within the project established accuracy limits presented in the QAPP Addendum (AECOM, 2021a).

MS/MSD samples were prepared, analyzed, and reported at a rate of 5%. MS/MSD samples demonstrated that the analytical system was in control for the matrix being tested, with several exceptions. Parent samples AOI01-10-SB-03-05 and AOI01-08-00-02 displayed MS/MSD percent recoveries outside the QC limits for several analytes. The field sample results associated with the high recoveries were qualified as estimated with a potential high bias and are considered usable as qualified.

Calibration verifications were performed routinely to ensure that instrument responses for all calibrated analytes were within established QC criteria. The calibration verifications performed during the laboratory analyses were within the project established precision limits presented in the QAPP Addendum (AECOM, 2021a).

4.6.3 Representativeness

Representativeness qualitatively expresses the degree to which data accurately reflect site conditions. Factors that affect the representativeness of analytical data include appropriate sample population definitions, proper sample collection and preservation techniques, analytical holding times, use of standard analytical methods, and determination of matrix or analyte interferences.

Relating to the use of standard analytical methods, the laboratory followed the method as established in PFAS by liquid chromatography with tandem mass spectrometry (LC/MS/MS) compliant with Quality Systems Manual (QSM) 5.3 Table B-15, including the specific preparation requirements (i.e., ENVI-Carb or equivalent used), mass calibration, and spectra. Additionally, the ion transitions identified in Table B-15 were monitored, standards that contained both branch and linear isomers were used, when available, and isotopically labeled standards were used for quantitation.

Field QC samples were collected to assess the representativeness of the data collected. Field duplicates were collected at a rate of 10% for all field samples, while MS/MSD samples were collected at a rate of 5%. All preservation techniques were followed by the field staff, and all technical and analytical holding times were met by the laboratory. The laboratory used approved standard methods in accordance with the QAPP Addendum (AECOM, 2021a) for all analyses.

Instrument blanks and method blanks were prepared by the laboratory in each batch as a negative control. Several laboratory and method blanks displayed concentrations for target analytes greater than the detection limits including PFBA, PFBS, PFOS, and perfluorohexanesulfonic acid (PFHxS). The associated investigative field samples that displayed positive results at levels approximate to the blank detections were qualified as likely false positives and are considered usable as qualified.

One field reagent blank (FRB) was collected during the SI. Additionally, multiple equipment rinsate blanks (ERBs) were collected for soil samples. Several ERBs displayed detections for PFOS greater than the detection limit. The associated investigative field samples were either non-detect or were positive and displayed concentrations significantly greater than the blank detections. After review of the field documentation, it was determined that an ERB was not collected for the surface soil samples collected via hand auger. A conservative approach was taken to treat detections in the surface soil samples collected via hand auger as true positives because the field investigation had concluded and collecting an ERB retroactively would not have measured the decontamination efficiency as experienced at the project site. Additionally, this approach was taken because the potential of false positives at low concentrations was relatively low (no soil sample was qualified due to any aqueous blank during this investigation). This deviation from the SI QAPP Addendum is noted in **Section 5.8** of this report and is also documented in a Nonconformance and Corrective Action Report (**Appendix B3**).

A sample of the water used for decontamination of the drill rig was collected in advance of the field effort. The drill rig decontamination sample displayed detections for PFBA, perfluorohexanoic acid (PFHxA), PFOS, and PFOA. The associated investigative field samples were either non-detect or were positive and displayed concentrations significantly greater than the blank detections.

Field samples were extracted and analyzed within the appropriate holding time in order to qualitatively express the degree to which data accurately reflect site conditions with no exceptions. Overall, the data are usable for evaluating the presence or absence of PFAS at the facility. Sufficient usable data were obtained to meet the objectives of the SI.

4.6.4 Comparability

Comparability is the extent to which data from one study can be compared directly to either past data from the current project or data from another study. Using standardized sampling and analytical methods, units of reporting, and site selection procedures help ensure comparability. Standard field sampling and typical laboratory protocols were used during the SI and are considered comparable to ongoing investigations.

4.6.5 Completeness

Completeness is a measure of the amount of valid data obtained from a measurement system compared to the amount of data expected under normal conditions. The laboratory provided data meeting system QC acceptance criteria for all samples tested. Project completeness was determined by evaluating the planned versus actual quantities of data. Percent completeness per parameter is as follows and reflects the exclusion of “X” flagged data, if applicable:

- PFAS in groundwater by LC/MS/MS compliant with QSM 5.3 Table B-15 at 100%
- PFAS in soil by LC/MS/MS compliant with QSM 5.3 Table B-15 at 100%
- pH in soil by USEPA Method 9045D at 100%
- Total organic carbon (TOC) by USEPA Method 9060 at 100%

At some boring locations, only two soil samples could be collected due to the shallow depth to groundwater. This is described further in **Section 5.2**.

4.6.6 Sensitivity

Sensitivity is the capability of a test method or instrument to discriminate between measurement responses representing different levels (e.g., concentrations) of a variable of interest. Examples of QC measures for determining sensitivity include laboratory fortified blanks, a method detection limit (MDL) study, and calibration standards at the limit of quantitation (LOQ). In order to meet the needs of the data users, project data must meet the measurement performance criteria for sensitivity and project LOQs specified in the QAPP Addendum (AECOM, 2021a). Although two instrument sensitivity checks displayed high percent recoveries for perfluorotridecanoic acid (PFTTrDA) and perfluorooctanesulfonamidoacetic acid (NEtFOSAA), no field sample results were associated with the PFTTrDA exceedance, and the field sample results associated with the NEtFOSAA exceedance were all non-detect; therefore, these anomalies had no impact on the data. The laboratory provided the requested MDL studies and provided applicable calibration standards at the LOQ. In order to achieve the DQOs for sensitivity outlined in the QAPP Addendum (AECOM, 2021a), the laboratory reported all field sample results at the lowest possible dilution. Additionally, any analytes detected below the LOQ and above the MDL were reported and qualified “J” as estimated values by the laboratory.

5. Site Inspection Activities

This section describes the environmental investigation and sampling activities that occurred as part of the SI. The SI sampling approach was based on the findings of the PA and implemented in accordance with the following approved documents:

- *Final Preliminary Assessment Report, Windsor Locks Army Aviation Support Facility, Connecticut* dated February 2020 (AECOM, 2020);
- *Final Site Inspection Programmatic Uniform Federal Policy-Quality Assurance Project Plan* dated March 2018 (AECOM, 2018a);
- *Final Site Inspection Uniform Federal Policy-Quality Assurance Project Plan Addendum, Army Aviation Support Facility, Windsor Locks, Connecticut* dated March 2021 (AECOM, 2021a);
- *Final Programmatic Accident Prevention Plan* dated July 2018 (AECOM, 2018b); and
- *Final Site Safety and Health Plan, Army Aviation Support Facility, Windsor Locks, Connecticut* dated April 2021 (AECOM, 2021b).

The SI field activities were conducted from 26 to 29 April 2021 and consisted of utility clearance, direct push boring, soil sample collection, temporary monitoring well installation, grab groundwater sample collection, and land surveying. Field activities were conducted in accordance with the SI QAPP Addendum (AECOM, 2021a), except as noted in **Section 5.8**.

The following samples were collected during the SI and analyzed for a subset of 18 PFAS by LC/MS/MS compliant with QSM 5.3 Table B-15 to fulfill the project DQOs:

- 26 soil samples from 10 boring locations;
- 10 grab groundwater samples from 10 temporary well locations; and
- 18 quality assurance (QA) samples.

Figure 5-1 provides the sample locations for all media across the facility. **Table 5-1** presents the list of samples collected for each media. Field documentation is provided in **Appendix B**. A Log of Daily Notice of Field Activity was completed throughout the SI field activities, which is provided in **Appendix B1**. Sampling forms are provided in **Appendix B2**, a Nonconformance and Corrective Action Report is provided in **Appendix B3**, land survey data are provided in **Appendix B4**, and investigation-derived waste (IDW) polygons are provided in **Appendix B5**. Additionally, a photographic log of field activities is provided in **Appendix C**.

5.1 Pre-Investigation Activities

In preparation for the SI field activities, project team members participated in Technical Project Planning (TPP) meetings, performed utility clearance, and sampled decontamination source water. Details for each of these activities are presented below.

5.1.1 Technical Project Planning

The USACE TPP Process, Engineer Manual (EM) 200-1-2 (USACE, 2016) defines four phases to project planning: 1.) defining the project phase; 2.) determining data needs; 3.) developing data collection strategies; and 4.) finalizing the data collection plan. The process encourages stakeholder involvement in the SI, beginning with defining overall project objectives, including quantitative and qualitative DQOs, and formulating a sampling approach to address the AOs identified in the PA.

A combined TPP Meeting 1 and 2 was held on 21 December 2020, prior to SI field activities. The combined TPP Meeting 1 and 2 was conducted in general accordance with EM 200-1-2. The stakeholders for this SI include the ARNG, CTARNG, USACE, CTDEEP, and representatives familiar with the facility, the regulations, and the community. Stakeholders were provided the opportunity to make comments on the technical sampling approach and methods at the combined TPP Meeting 1 and 2. The outcome of the combined TPP Meeting 1 and 2 was memorialized in the SI QAPP Addendum (AECOM, 2021a), and meeting minutes are included in **Appendix D**.

A TPP Meeting 3 will be held after the field event to discuss the results of the SI. Future TPP meetings will provide an opportunity to discuss the results and findings, and future actions, where warranted.

5.1.2 Utility Clearance

AECOM's drilling subcontractor, Cascade Technical Services, LLC. placed a ticket with the "Call Before You Dig" Connecticut utility clearance provider to notify them of intrusive work on 16 April 2021. However, because the AASF is a private facility, the participating "Call Before You Dig" locators did not clear utilities at the entire facility. Therefore, AECOM contracted Underground Surveying, LLC., a private utility location service, to perform utility clearance. Underground Surveying, LLC. performed utility clearance of the proposed boring locations on 26 April 2021 with input from the AECOM field team and Windsor Locks AASF facility staff. General locating services and ground-penetrating radar were used to complete the clearance. Additionally, the first 5 feet of each boring were pre-cleared using a hand auger to verify utility clearance in shallow subsurface where utilities would typically be encountered.

5.1.3 Source Water and PFAS Sampling Equipment Acceptability

The potable water source used for decontamination of drilling equipment was confirmed to be acceptable for use in a PFAS investigation prior to the start of field activities. A sample from a potable water source at Windsor Locks AASF was collected on 26 March 2021, prior to mobilization, and analyzed for PFAS by LC/MS/MS compliant with QSM 5.3 Table B-15. The results of the decontamination water sample are provided in **Appendix F**. A discussion of the results is presented in **Section 4.6.3**.

Materials that were used within the sampling zone were confirmed as acceptable for use in the PFAS sampling environment. The checklist of acceptable materials for use in the PFAS sampling environment was provided in the Standard Operating Procedures (SOPs) appendix to the SI QAPP Addendum (AECOM, 2021a). Prior to the start of field work each day, a PFAS Sampling Checklist was completed as an additional layer of control. The checklist served as a daily reminder to each field team member regarding the allowable materials within the sampling environment.

5.2 Soil Borings and Soil Sampling

Soil samples were collected via direct push technology (DPT), in accordance with the SI QAPP Addendum (AECOM, 2021a). A GeoProbe® 7822DT dual-tube sampling system was used to collect continuous soil cores to the target depth. A hand auger was used to collect soil from the top 5 feet of the boring, in accordance with AECOM utility clearance procedures. The soil boring locations are shown on **Figure 5-1**, and depths are provided **Table 5-1**.

In general, three discrete soil samples were collected from the vadose zone for chemical analysis from each soil boring: one surface soil sample (0 to 2 feet bgs), one subsurface soil sample approximately 2 feet above the groundwater table, and one subsurface soil sample at the mid-point between the surface and the groundwater table. In borings where groundwater was encountered at 6 feet bgs or shallower, only two soil samples were collected per boring, in

accordance with the QAPP Addendum (AECOM, 2021a). Specifically, only two soil samples were collected at locations AOI01-01, AOI01-02, AOI01-04, and AOI01-06 for this reason.

The soil cores were continuously logged for lithological descriptions by a field geologist using the Unified Soil Classification System (USCS). A photoionization detector (PID) was used to screen the breathing zone during boring activities as part of personal safety requirements. Observations and measurements were recorded on sampling forms (**Appendix B2**) and in a non-treated field logbook (i.e., composition notebook). Depth interval, recovery thickness, PID concentrations, moisture, relative density, color (using a Munsell soil color chart), and texture (using the USCS) were recorded. The boring logs are provided in **Appendix E**.

Soil borings completed during the SI found poorly graded and well-graded sand as the dominant lithology of the unconsolidated sediments below the Windsor Locks AASF. The borings were completed at depths between 10 and 15 feet bgs. Isolated layers of clay to silty sand were also observed in the boring logs, at thicknesses ranging from a few inches to 3.5 feet. Many of the logs also reported varying percentages of gravel included in the sand packages. These observations are consistent with the understood fill material and glaciofluvial depositional environment.

Each soil sample was collected into laboratory-supplied PFAS-free high-density polyethylene (HDPE) bottles and labeled using a PFAS-free marker or pen. Samples were packaged on ice and transported via Federal Express (FedEx) under standard chain of custody (CoC) procedures to the laboratory and analyzed for PFAS (LC/MS/MS compliant with QSM 5.3 Table B-15), TOC (USEPA Method 9060A), and pH (USEPA Method 9045D), in accordance with the SI QAPP Addendum (AECOM, 2021a).

Field duplicate samples were collected at a rate of 10% and analyzed for the same parameters as the accompanying samples. MS/MSDs were collected at a rate of 5% and analyzed for the same parameters as the accompanying samples. In instances when non-dedicated sampling equipment was used, such as a hand auger for the shallow soil samples, ERBs were collected at a rate of 5% and analyzed for the same parameters as the soil samples. As stated previously, after review of the field documentation, it was determined that an ERB was not collected for the surface soil samples collected via hand auger. This deviation from the SI QAPP Addendum is noted in **Section 5.8** of this report and is also documented in a Nonconformance and Corrective Action Report (**Appendix B3**). ERBs were collected from the DPT shoe in accordance with the QAPP. A temperature blank was placed in each cooler to ensure that samples were preserved at or below 6 degrees Celsius (°C) during shipment.

DPT borings were converted to temporary wells, which were subsequently abandoned in accordance with the SI QAPP Addendum (AECOM, 2021a) using bentonite chips at completion of sampling activities. Borings were installed in grass areas to avoid disturbing concrete or asphalt surfaces.

5.3 Temporary Well Installation and Groundwater Grab Sampling

Temporary wells were installed using a GeoProbe® 7822DT dual-tube sampling system. Once the borehole was advanced to the desired depth, wherever conditions allowed, a temporary well was constructed of a 5-foot section of 1-inch Schedule 40 poly-vinyl chloride (PVC) screen with sufficient casing to reach ground surface. New PVC pipe and screen were used to avoid cross contamination between locations. The screen intervals for the temporary wells are provided in **Table 5-2**.

The temporary wells were allowed to recharge after installation before collection of groundwater samples. After the recharge period, groundwater samples were collected using a peristaltic pump with PFAS-free HDPE tubing. Each sample was collected into laboratory-supplied PFAS-free HDPE bottles and labeled using a PFAS-free marker or pen. The temporary wells were purged at a rate determined in the field to reduce turbidity and draw down prior to sampling. Water quality

parameters (e.g., temperature, specific conductance, pH, dissolved oxygen [DO], and oxidation-reduction potential [ORP]) were measured using a water quality meter and recorded on the field sampling form (**Appendix B2**) after each grab sample was collected. Additionally, a subsample of each groundwater sample was collected in a separate container, and a shaker test was completed to identify if there was any foaming. No foaming was noted in any of the groundwater samples.

Each sample was collected into laboratory-supplied PFAS-free HDPE bottles and labeled using a PFAS-free marker or pen. Samples were packaged on ice and transported via FedEx under standard CoC procedures to the laboratory and analyzed for PFAS by LC/MS/MS compliant with QSM 5.3 Table B-15 in accordance with the SI QAPP Addendum (AECOM, 2021a).

Field duplicate samples were collected at a rate of 10% and analyzed for the same parameters as the accompanying samples. MS/MSDs were collected at a rate of 5% and analyzed for the same parameters as the accompanying samples. One FRB was collected in accordance with the PQAPP (AECOM, 2018a). A temperature blank was placed in each cooler to ensure that samples were preserved at or below 6°C during shipment.

Temporary wells were abandoned in accordance with the SI QAPP Addendum (AECOM, 2021a) by removing the PVC and backfilling the hole with bentonite chips. Temporary wells were installed in grass areas to avoid disturbing concrete or asphalt.

5.4 Synoptic Water Level Measurements

Groundwater gauging was performed prior to temporary well sampling. Groundwater elevation measurements were collected from the 10 new temporary monitoring wells. Water level measurements were taken from the northern side of the well casing. A groundwater flow contour map is provided in **Figure 2-5**. Groundwater elevation data are provided in **Table 5-2**.

5.5 Surveying

The northern side of each well casing was surveyed by Connecticut-licensed land surveyors following guidelines provided in the SOPs provided in the SI QAPP Addendum (AECOM, 2021a). Survey data from the newly installed wells on the facility were collected on 29 April 2021, in the applicable Universal Transverse Mercator zone projection, with World Geodetic System 84 datum (horizontal) and North American Vertical Datum 1988 (vertical). The surveyed well data are provided in **Appendix B4**.

5.6 Investigation-Derived Waste

As of the date of this report, the disposal of PFAS IDW is not regulated federally. PFAS IDW generated during the SI is considered non-hazardous waste and was managed in accordance with the SI QAPP Addendum (AECOM, 2021a) and with the DA Guidance for Addressing Releases of PFAS, Q18 (DA, 2018).

Soil IDW (i.e., soil cuttings) generated during the SI activities were left in place at the point of the source. The soil cuttings were distributed on the ground surface on the downgradient side of the boring, with the exception of the IDW from AOI01-05, which was placed on the downgradient side of AOI01-10 at the request of the facility. Additionally, IDW from AOI01-04 was placed approximately 80 feet east of the boring at the request of the facility. The soil IDW was not sampled and assumes the PFAS characteristics of the associated soil samples collected from that source location.

Liquid IDW generated during SI activities (i.e. purge water, development water, and decontamination fluids) were discharged directly to the ground surface slightly downgradient of

the source. The liquid IDW was not sampled and assumes the PFAS characteristics of the associated groundwater samples collected from that source location.

Geographic coordinates were collected using a global positioning system around each location where IDW was placed (i.e., an IDW polygon). The IDW polygons are displayed on the figure in **Appendix B5**. Other solids such as spent personal protective equipment, plastic sheeting, tubing, rope, unused monitoring well construction materials, and other environmental media generated during the field activities were disposed of at a licensed solid waste landfill.

5.7 Laboratory Analytical Methods

Samples were analyzed for a subset of 18 PFAS by LC/MS/MS compliant with QSM 5.3 Table B-15 at Pace Analytical Gulf Coast in Baton Rouge, Louisiana, a DoD ELAP and NELAP certified laboratory. The 18 PFAS analyzed as part of the ARNG SI program include the following:

- 6:2 fluorotelomer sulfonic acid (6:2 FTS)
- 8:2 fluorotelomer sulfonic acid (8:2 FTS)
- N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)
- N-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)
- Perfluorobutyrate (PFBA)
- Perfluorobutanesulfonic acid (PFBS)
- Perfluorodecanoic acid (PFDA)
- Perfluorododecanoic acid (PFDoA)
- Perfluoroheptanoic acid (PFHpA)
- Perfluorohexanoic acid (PFHxA)
- Perfluorohexanesulfonic acid (PFHxS)
- Perfluorononanoic acid (PFNA)
- Perfluorooctanoic acid (PFOA)
- Perfluorooctanesulfonic acid (PFOS)
- Perfluoropentanoic acid (PFPeA)
- Perfluorotetradecanoic acid (PFTeDA)
- Perfluorotridecanoic acid (PFTrDA)
- Perfluoroundecanoic acid (PFUdA)

Soil samples were also analyzed for TOC using USEPA Method 9060A and pH by USEPA Method 9045D.

5.8 Deviations from SI QAPP Addendum

One deviation from the SI QAPP Addendum was identified during review of the field documentation. The deviation is noted below and is documented in a Nonconformance and Corrective Action Report (**Appendix B3**):

- Upon review of field documentation, it was discovered that an ERB was not collected from the hand auger used to collect the surface soil samples (0 to 2 feet below ground surface) during the field effort. As a result, the data validation took conservative approach when considering the hand auger samples by assuming all results are true positives. Additional details are provided in the DUA presented in **Section 4.6** of this SI Report.

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Table 5-1
Site Inspection Samples by Medium
Site Inspection Report, Windsor Locks AASF, Connecticut

Sample Identification	Sample Collection Date/Time	Sample Depth (feet bgs)	PFAS by LC/MS/MS compliant with QSM 5.3 Table B-15	TOC (USEPA Method 9060A)	pH (USEPA Method 9045D)	Grain Size (ASTM D-422)	Comments
Soil Samples							
AOI01-01-SB-00-02	4/27/2021 12:45	0 - 2	x				
AOI01-01-SB-05-07	4/27/2021 12:50	5 - 7	x				
AOI01-02-SB-00-02	4/27/2021 10:35	0 - 2	x				
AOI01-02-SB-04-06	4/27/2021 11:00	4 - 6	x				
AOI01-03-SB-00-02	4/29/2021 8:00	0 - 2	x				
AOI01-03-SB-03-05	4/29/2021 8:05	3 - 5	x				
AOI01-03-SB-05-07	4/29/2021 8:10	5 - 7	x				
AOI01-04-SB-00-02	4/29/2021 8:55	0 - 2	x				
AOI01-04-SB-03-05	4/29/2021 9:00	3 - 5	x				
AOI01-05-SB-00-02	4/28/2021 12:20	0 - 2	x	x	x		
AOI01-05-SB-00-02-D	4/28/2021 12:20	0 - 2		x	x		FD
AOI01-05-SB-02-04	4/28/2021 12:23	2 - 4	x				
AOI01-05-SB-04-06	4/28/2021 12:25	4 - 6	x				
AOI01-06-SB-00-02	4/28/2021 9:40	0 - 2	x				
AOI01-06-SB-03-05	4/28/2021 10:00	3 - 5	x				
AOI01-07-SB-00-02	4/28/2021 8:45	0 - 2	x				
AOI01-07-SB-00-02-D	4/28/2021 8:45	0 - 2	x				FD
AOI01-07-SB-02-04	4/28/2021 8:50	2 - 4	x				
AOI01-07-SB-04-06	4/28/2021 8:55	4 - 6	x				
AOI01-08-SB-00-02	4/28/2021 7:50	0 - 2	x				
AOI01-08-SB-00-02-MS	4/28/2021 7:50	0 - 2	x				MS
AOI01-08-SB-00-02-MSD	4/28/2021 7:50	0 - 2	x				MSD
AOI01-08-SB-02-04	4/28/2021 7:55	2 - 4	x				
AOI01-08-SB-04-06	4/28/2021 8:00	4 - 6	x				
AOI01-09-SB-00-02	4/27/2021 14:00	0 - 2	x				
AOI01-09-SB-00-02-D	4/27/2021 14:00	0 - 2	x				FD
AOI01-09-SB-05-07	4/27/2021 14:10	5 - 7	x				
AOI01-09-SB-08-10	4/27/2021 14:11	8 - 10	x				
AOI01-10-SB-00-02	4/28/2021 14:05	0 - 2	x	x	x		
AOI01-10-SB-00-02-D	4/28/2021 14:05	0 - 2	x				FD
AOI01-10-SB-00-02-MS	4/28/2021 14:05	0 - 2		x	x		MS
AOI01-10-SB-00-02-MSD	4/28/2021 14:05	0 - 2		x	x		MSD
AOI01-10-SB-03-05	4/28/2021 14:10	3 - 5	x				
AOI01-10-SB-03-05-MS	4/28/2021 14:10	3 - 5	x				MS
AOI01-10-SB-03-05-MSD	4/28/2021 14:10	3 - 5	x				MSD
Groundwater Samples							
AOI01-01-GW	4/27/2021 15:25	NA	x				
AOI01-02-GW	4/28/2021 8:50	NA	x				
AOI01-03-GW	4/29/2021 10:05	NA	x				
AOI01-03-GW-D	4/29/2021 10:05	NA	x				FD
AOI01-04-GW	4/29/2021 11:30	NA	x				
AOI01-05-GW	4/28/2021 14:35	NA	x				
AOI01-06-GW	4/28/2021 12:45	NA	x				
AOI01-07-GW	4/28/2021 11:40	NA	x				
AOI01-08-GW	4/28/2021 10:10	NA	x				
AOI01-09-GW	4/27/2021 16:20	NA	x				
AOI01-10-GW	4/29/2021 8:20	NA	x				
AOI01-10-GW-MS	4/29/2021 8:20	NA	x				MS
AOI01-10-GW-MSD	4/29/2021 8:20	NA	x				MSD

Table 5-1
Site Inspection Samples by Medium
Site Inspection Report, Windsor Locks AASF, Connecticut

Sample Identification	Sample Collection Date/Time	Sample Depth (feet bgs)	PFAS by LC/MS/MS compliant with QSM 5.3 Table B-15	TOC (USEPA Method 9060A)	pH (USEPA Method 9045D)	Grain Size (ASTM D-422)	Comments
Quality Control Samples							
WL-FRB-01	4/29/2021 7:50	NA	x				
WL-ERB-01	4/28/2021 13:25	NA	x				from DPT shoe
WL-ERB-02	4/28/2021 14:30	NA	x				from DPT shoe
WL-ERB-03	4/29/2021 9:00	NA	x				from DPT shoe
WL-ERB-04	4/29/2021 10:00	NA	x				from DPT shoe

Notes:

ASTM = American Society for Testing and Materials
bgs = below ground surface
ERB = equipment rinsate blank
FD = field duplicate
FRB = field reagent blank
LC/MS/MS = Liquid Chromatography Mass Spectrometry
MS/MSD = matrix spike/ matrix spike duplicate
PFAS = per- and polyfluoroalkyl substances
QSM = Quality Systems Manual
TOC = total organic carbon
USEPA = United States Environmental Protection Agency

Table 5-2
Soil Boring Depths, Temporary Well Screen Intervals, and Groundwater Elevations
Site Inspection Report, Windsor Locks AASF, Connecticut

Area of Interest	Boring Location	Soil Boring Depth (feet bgs)	Temporary Well Screen Interval (feet bgs)	Top of Casing Elevation (feet NAVD88)	Ground Surface Elevation (feet NAVD88)	Depth to Water (feet btoc)	Depth to Water (feet bgs)	Groundwater Elevation (feet NAVD88)
1	AOI01-01	12	7 - 12	161.21	158.06	9.69	6.54	151.52
	AOI01-02	15	6.5 - 11.5 ¹	157.95	153.72	7.60	3.37	150.35
	AOI01-03	15	7 - 12 ¹	153.58	152.95	5.72	5.09	147.86
	AOI01-04	10	5 - 10	153.60	153.11	4.29	3.80	149.31
	AOI01-05	15	6 - 11 ¹	152.80	152.20	4.73	4.13	148.07
	AOI01-06	10	5 - 10	152.55	152.05	4.05	3.55	148.50
	AOI01-07	12	6 - 11 ¹	160.71	156.20	10.43	5.92	150.28
	AOI01-08	15	6 - 11 ¹	161.85	157.32	10.34	5.81	151.51
	AOI01-09	15	10 - 15	171.38	169.15	10.34	8.11	161.04
	AOI01-10	10	5 - 10	155.55	155.05	5.50	5.00	150.05

Notes:

¹ Temporary well screen set above total depth to capture groundwater interface

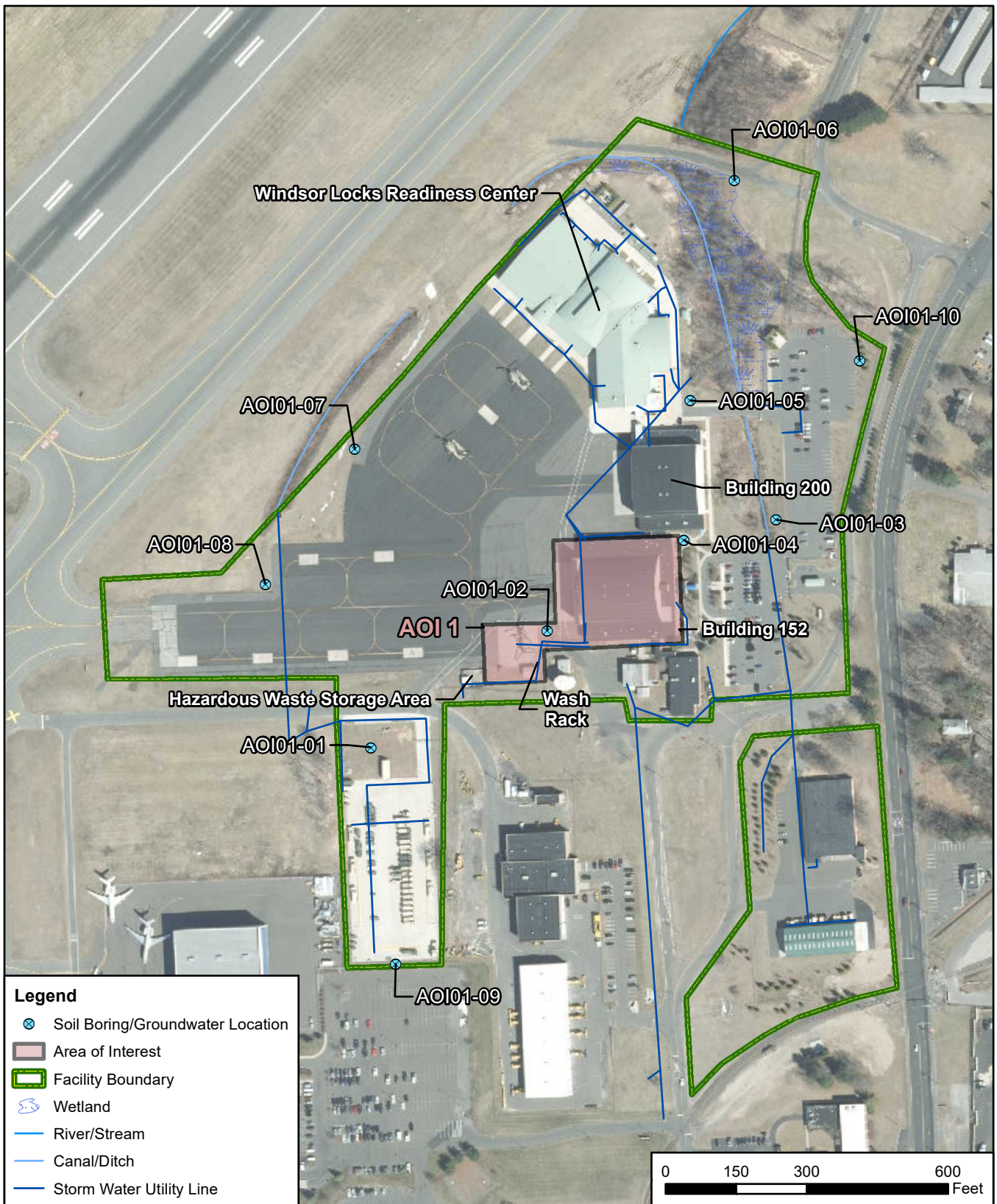
bgs = below ground surface

btoc = below top of casing


NA = not applicable

NAVD88 = North American Vertical Datum 1988

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CLIENT		ARNG			
NOTES		Site Inspection for PFAS at Windsor Locks AASF, CT			
REVISED	7/28/2021	GIS BY	MS	7/28/2021	
SCALE	1:3,600	CHK BY	AM	7/28/2021	
Base Map: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS,		PM	CM	7/28/2021	



N

Site Inspection Sample Locations

AECOM

12420 Milestone Center Drive
Germantown, MD 20876

Figure 5-1

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6. Site Inspection Results

This section presents the analytical results of the SI. The SLs used in this evaluation are presented in **Section 6.1**. A discussion of the results for AOI 1 is provided in **Section 6.3**. **Table 6-2** through **Table 6-5** present PFAS results for samples with detections in soil and groundwater; only constituents detected in one or more samples are included. Tables that contain all results are provided in **Appendix F**, and the laboratory reports are provided in **Appendix G**.

6.1 Screening Levels

The DoD has adopted a policy to retain facilities in the CERCLA process based on risk-based SLs for soil and groundwater, as described in a memorandum from the OSD dated 15 October 2019 (Assistant Secretary of Defense, 2019). The ARNG program under which this SI was performed follows this DoD policy. Should the maximum site concentration for sampled media exceed the SLs established in the OSD memorandum, the AOI will proceed to the next phase under CERCLA. The SLs established in the OSD memorandum apply to three compounds: PFOS, PFOA, and PFBS. The SLs were calculated using the USEPA Office of Superfund Sites On-Line Calculator, which was updated on 8 April 2021 based on the release of the final Human Health Toxicity Values for PFBS (USEPA, 2021).

Additionally, the USEPA issued drinking water lifetime HAs for PFOA and PFOS in May 2016 (USEPA 2016a; USEPA, 2016b). The USEPA HAs may also be used as SLs for groundwater samples collected at the facility boundary where off-facility drinking water wells are present downgradient. The SLs are presented on **Table 6-1** below. All other results presented in this report are considered informational in nature and serve as an indication as to whether soil and groundwater contain or do not contain PFAS within the boundaries of the facility.

Table 6-1: Screening Levels (Soil and Groundwater)

Analyte	Residential (Soil) (µg/kg) ^{a,b} 0-2 feet bgs	Industrial/ Commercial Composite Worker (Soil) (µg/kg) ^{a,b} 2-15 feet bgs	Tap Water (Groundwater) (ng/L) ^{a,b}	USEPA HA (Groundwater representative of Drinking Water) (ng/L) ^{c,d}
PFOA	130	1,600	40	70
PFOS	130	1,600	40	70
PFBS	1,900	25,000	600	-

Notes:

- Assistant Secretary of Defense, 2019. Risk Based Screening Levels Calculated for PFOS, PFOA, PFBS in Groundwater and Soil using United States Environmental Protection Agency's (USEPA's) Regional Screening Level Calculator. Hazard Quotient (HQ) = 0.1. 15 October 2019.
- USEPA, 2021. Risk Based Screening Levels Calculated for PFBS in Groundwater and Soil using USEPA's Regional Screening Level Calculator. HQ = 0.1. 8 April 2021.
- USEPA. 2016a. Drinking Water HA for Perfluorooctanoic Acid (PFOA). Office of Water (4304T). Health and Ecological Criteria Division, Washington, DC 20460. USEPA Document Number: 822-R-16-005. May 2016. / USEPA. 2016b. Drinking Water HA for Perfluorooctane Sulfonic Acid (PFOS). Office of Water (4304T). Health and Ecological Criteria Division, Washington, DC 20460. USEPA Document Number: 822-R-16-004. May 2016.
- USEPA HAs apply to the PFOA and PFOS concentrations individually or combined.

The data in the subsequent sections are compared against the SLs presented in **Table 6-1**. The SLs for groundwater are based on direct ingestion. The SLs for soil are based on incidental ingestion and are applied to the depth intervals reasonably anticipated to be encountered by the receptors identified at the facility: the residential scenario is applied to surface soil results (0 to 2 feet bgs), and the industrial/commercial worker scenario is applied to shallow subsurface soil

results (2 to 15 feet bgs). The SLs are not applied to deep subsurface soil results (>15 feet bgs) because 15 feet is the anticipated limit of construction activities.

6.2 Soil Physicochemical Analyses

To provide basic soil parameter information, soil samples were analyzed for TOC and pH, which are important for evaluating transport through the soil medium. **Appendix F** contains the results of the TOC and pH sampling.

The data collected in this investigation will be used in subsequent investigations, where appropriate, to assess fate and transport of PFAS contaminants. According to the Interstate Technology Regulatory Council (ITRC), several important PFAS partitioning mechanisms include hydrophobic and lipophobic effects, electrostatic interactions, and interfacial behaviors. At relevant environmental pH values, certain PFAS are present as organic anions and are therefore relatively mobile in groundwater (Xiao et al., 2015), but tend to associate with the organic carbon fraction that may be present in soil or sediment (Higgins and Luthy, 2006; Guelfo and Higgins, 2013). When sufficient organic carbon is present, organic carbon normalized distribution coefficients (K_{oc} values) can help in evaluating transport potential, though other geochemical factors (for example, pH and presence of polyvalent cations) may also affect PFAS sorption to solid phases (ITRC, 2018).

6.3 AOI 1

This section presents the analytical results for soil and groundwater in comparison to SLs for AOI 1, which includes two potential PFAS release areas: the Wash Rack and Building 152. The detected compounds in soil and groundwater are summarized on **Table 6-2** through **Table 6-4**. The detections of PFOA, PFOS, and PFBS in soil and groundwater are presented on **Figure 6-1** through **Figure 6-4**.

6.3.1 AOI 1 Soil Analytical Results

PFOA, PFOS, and PFBS did not exceed the SLs in soil at any sample locations at the facility. **Figure 6-1** through **Figure 6-3** present detections in soil for PFOA, PFOS, and PFBS. **Table 6-2** through **Table 6-4** summarize the detected compounds in soil.

During the SI, soil samples were collected from the surface soil (0 to 2 feet bgs) and shallow subsurface soil (2 to 10 feet bgs) at depths above the groundwater table. PFOA was detected in surface soil at three of the ten (10) locations, at concentrations ranging from 0.155 J micrograms per kilogram ($\mu\text{g}/\text{kg}$) to 0.200 J $\mu\text{g}/\text{kg}$. The maximum detection of PFOA in surface soil occurred at AOI01-09, which is located along the southern facility boundary and is considered upgradient of the two potential PFAS release areas (Wash Rack and Building 152). PFOA was detected in shallow subsurface soil at four of the ten (10) locations, at concentrations ranging from 0.106 J+ $\mu\text{g}/\text{kg}$ to 0.491 J $\mu\text{g}/\text{kg}$. The maximum detection of PFOA in shallow subsurface soil occurred at AOI01-03 (5 to 7 feet bgs), which is located to the east of the drainage swale along the edge of the facility parking lot.

PFOS was detected in surface soil at all 10 locations, at concentrations ranging from 0.445 J $\mu\text{g}/\text{kg}$ to 4.28 J+ $\mu\text{g}/\text{kg}$. PFOS was also detected in shallow subsurface soil at nine of the ten (10) locations (in at least one sample), at concentrations ranging from 0.169 J $\mu\text{g}/\text{kg}$ to 41.5 $\mu\text{g}/\text{kg}$. The maximum detections of PFOS in both surface soil and shallow subsurface soil (2 to 4 feet bgs) occurred at AOI01-08, which corresponds to the location of the maximum detection of PFOS in groundwater (see **Section 6.3.2**). AOI01-08 is located on the western side of the facility's tarmac. No potential PFAS release areas were identified during the PA in the immediate vicinity of this sample location. It was noted during the TPP 1&2 (21 December 2020) that there were six to ten (10) mobile units periodically parked in various spots on the flight deck beside flight

machines (helicopters/planes); however, there were no documented discharges from mobile units onto the flight deck.

PFBS was detected in surface soil at three of the ten (10) locations, at concentrations ranging from 0.139 J µg/kg to 0.177 J µg/kg. PFBS was detected in shallow subsurface soil at two of the ten (10) locations, at concentrations ranging from 0.117 J µg/kg to 0.162 J µg/kg. The maximum detections of PFBS in both surface soil and shallow subsurface soil occurred at AOI01-01, which is located in the southern portion of the facility upgradient of the identified potential PFAS release areas.

At location AOI01-02, which was located immediately downgradient of the Wash Rack potential PFAS release area, PFOS was detected in surface and shallow subsurface soil (3.82 µg/kg and 1.89 µg/kg, respectively), and PFBS was detected in surface soil (0.163 J µg/kg). At location AOI01-04, which was located immediately downgradient of the Building 152 potential PFAS release area, PFOS was detected in surface and shallow subsurface soil (2.60 µg/kg and 0.310 J+ µg/kg). The detections of PFOS and PFBS at these locations indicate there was likely a release of PFAS-containing materials at both the Wash Rack and Building 152 potential release areas; however, the detections were several orders of magnitude below the SLs.

6.3.2 AOI 1 Groundwater Analytical Results

PFOA and PFOS in groundwater exceeded the individual SLs of 40 nanograms per liter (ng/L) at both potential PFAS release areas, Wash Rack (AOI01-02) and Building 152 (AOI01-04). Additionally, PFOA and PFOS in groundwater exceeded the SLs at upgradient location AOI01-01, located in the southern portion of the facility, and at location AOI01-03, located to the east of the drainage swale along the edge of the facility parking lot. PFOA in groundwater also exceeded the SL at AOI01-05, located on the northern side of Building 200, near the stormwater outfall that connects to drains from both Building 152 and 200. PFOS in groundwater exceeded the SL at upgradient locations AOI01-07, AOI01-08, and AOI01-09 along the western and southern facility boundaries. PFBS did not exceed the SL at AOI 1. **Figure 6-4** presents the ranges of detections of PFOA, PFOS, and PFBS in groundwater. **Table 6-4** summarizes the detected compounds in groundwater.

PFOA was detected in groundwater at all 10 locations across AOI 1, at concentrations ranging from 5.45 ng/L to 298 ng/L. The detected concentrations of PFOA exceeded the OSD SL of 40 ng/L at five locations (AOI01-01 through AOI01-05) and the USEPA HA of 70 ng/L at three locations (AOI01-03 through AOI01-05). The maximum detection of PFOA occurred at AOI01-03-GW, which is located to the east of the drainage swale along the edge of the facility parking lot. No potential PFAS release areas were identified during the PA in the immediate vicinity of this sample location. Although a common fire training activity is to discharge mobile fire extinguisher units along the edges of parking lots, there were no documented discharges from mobile units in the facility parking lot during the PA or SI planning phase. Additionally, the stormwater outfall where the stormwater detention system flows into the eastern drainage swale is located approximately 50 feet southwest of AOI01-03.

Alternatively, based on the groundwater elevations collected during the SI (**Figure 2-5**), groundwater flow east of the drainage swale is towards the drainage swale (to the west-southwest); therefore, there is also the potential that the detected concentrations of PFOA, PFOS, and PFBS at AOI01-03 may be flowing onto the facility from an unidentified upgradient, offsite source to the east of the facility. Potential offsite, adjacent sources identified in the PA Report (AECOM, 2020) and SI QAPP Addendum (AECOM, 2021a) are shown on **Figure 3-1**. No potential offsite, adjacent sources have been identified to the east of the facility at the time of this report.

PFOS was detected in groundwater at nine of the ten (10) locations, at concentrations ranging from 8.93 ng/L to 581 ng/L. The detected concentrations of PFOS exceeded the OSD SL of 40 ng/L at seven locations (all locations except AOI01-05, AOI01-06, and AOI01-10) and the USEPA HA of 70 ng/L at six locations (all locations except AOI01-05, AOI01-06, AOI01-07, and AOI01-10). The maximum detection of PFOS in groundwater occurred at AOI01-08-GW, which is located on the western side of the facility's tarmac. As described above in **Section 6.3.1**, no potential PFAS release areas were identified during the PA in the immediate vicinity of this sample location; however, it was noted during the TPP 1&2 (21 December 2020) that there were six to ten (10) mobile units periodically parked in various spots on the flight deck beside flight machines (helicopters/planes). There were no documented discharges from mobile units onto the flight deck. Based on the groundwater elevations collected during the SI (**Figure 2-5**), groundwater flow west of the drainage swale is generally to the northeast towards the drainage swale; therefore, there is also the potential that PFOA, PFOS, and PFBS may be flowing onto the facility from an upgradient, offsite source to the west of the facility (**Figure 3-1**).

PFBS was detected in groundwater at nine of the ten (10) locations, at concentrations below the OSD SL of 600 ng/L. The detected concentrations of PFBS ranged from 1.33 J ng/L to 51.3 ng/L. Similar to the results of PFOA in groundwater, the maximum detection of PFBS occurred at AOI01-03-GW, which is located to the east of the drainage swale, as described above.

At location AOI01-02, which was located immediately downgradient of the Wash Rack potential PFAS release area, PFOA and PFOS were detected at concentrations exceeding the SLs (40.5 ng/L and 94.2 ng/L, respectively). PFBS was detected at a concentration below SLs (4.15 ng/L). At location AOI01-04, which was located immediately downgradient of the Building 152 potential PFAS release area, PFOA and PFOS were detected at concentrations exceeding the SLs (71.8 ng/L and 408 ng/L, respectively). PFBS was detected at a concentration below SLs (19.4 ng/L). Based on the results of the SI for groundwater at these locations, in combination with the detections in soil, it is likely that releases occurred at the Wash Rack and Building 152 release areas. However, based on the exceedances of PFOA and PFOS in groundwater at locations along the facility boundary (AOI01-07, AOI01-08, and AOI01-09), there is also the potential that releases from off-facility, adjacent sources could be migrating onto the facility.

6.3.3 AOI 1 Conclusions

Based on the results of the SI, PFOA, PFOS, and PFBS were detected in soil at AOI 1, indicating there was likely a release of PFAS-containing materials; however, the detected concentrations were several orders of magnitude lower than the soil SLs. PFOA and PFOS in groundwater exceeded the individual SLs of 40 ng/L at both potential PFAS release areas, Wash Rack (AOI01-02) and Building 152 (AOI01-04); at AOI01-01, located in the southern portion of the facility; and at AOI01-03, located east of the drainage swale along the edge of the facility parking lot. PFOA in groundwater also exceeded the SL at AOI01-05, on the north side of Building 200. PFOS in groundwater also exceeded the SL at upgradient locations AOI01-07, AOI01-08, and AOI01-09 along the western and southern facility boundaries. PFBS was detected in groundwater at concentrations below the SL. Based on the results of the SI, it is likely that releases occurred on the facility property. However, based on the exceedances along the upgradient facility boundary, it is also likely that releases from off-facility, adjacent sources are migrating onto the facility. Due to the exceedances of the SLs for PFOA and PFOS in groundwater, further evaluation of AOI 1 is warranted.

Table 6-2
PFAS Detections in Surface Soil
Site Inspection Report, Windsor Locks AASF, Connecticut

Area of Interest Sample ID Sample Date Depth		AOI01																			
		AOI01-01-SB-00-02	AOI01-02-SB-00-02	AOI01-03-SB-00-02	AOI01-04-SB-00-02	AOI01-05-SB-00-02	AOI01-06-SB-00-02	AOI01-07-SB-00-02	AOI01-07-SB-00-02-D	AOI01-08-SB-00-02	AOI01-09-SB-00-02										
		04/27/2021	04/27/2021	04/29/2021	04/29/2021	04/28/2021	04/28/2021	04/28/2021	04/28/2021	04/28/2021	04/27/2021										
		0 - 2 ft	0 - 2 ft	0 - 2 ft	0 - 2 ft	0 - 2 ft	0 - 2 ft	0 - 2 ft	0 - 2 ft	0 - 2 ft	0 - 2 ft										
Analyte	OSD Screening Level ^{a,b}	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Soil, PFAS by LCMSMS compliant with QSM 5.3 Table B-15 (µg/kg)																					
6:2 FTS	-	ND		0.149	J	ND		ND		ND		ND		ND		ND		ND		ND	
8:2 FTS	-	ND		0.197	J	ND		ND		ND		ND		ND		ND		ND		ND	
NEFOSAA	-	ND		ND		0.039	J+	ND		ND		ND		ND		ND		ND		ND	
PFBA	-	0.054	J	0.089	J	0.093	J	0.048	J	ND		0.235	J	0.096	J	0.069	J	0.109	J	0.258	J
PFBS	1900	0.177	J	0.163	J	ND		ND		ND		ND		ND		ND		ND		0.139	J
PFDA	-	ND		0.432	J	0.366	J	0.076	J	ND		0.116	J	0.183	J	0.116	J	0.082	J	0.098	J
PFDaA	-	ND		0.561	J	0.134	J	0.029	J	0.092	J	0.023	J	0.023	J	0.022	J	0.046	J	0.038	J
PFHpA	-	ND		0.045	J	0.031	J	ND		ND		0.100	J	0.026	J	0.026	J	0.049	J	0.086	J
PFHxA	-	0.026	J	0.096	J	0.127	J	ND		ND		0.121	J	ND		ND		0.087	J	0.183	J
PFHxS	-	0.127	J	0.576	J	0.856	J	0.412	J	0.110	J	ND		0.068	J	0.059	J	0.217	J	0.318	J
PFNA	-	ND		0.145	J	0.135	J	0.043	J	ND		0.120	J	0.114	J	0.070	J	0.039	J	0.161	J
PFOA	130	ND		ND		ND		ND		ND		0.173	J	ND		ND		0.155	J	0.200	J
PFOS	130	1.01	J	3.82		2.86		2.60		0.515	J	0.445	J	0.970	J	1.18		4.28	J+	2.17	
PFPeA	-	ND		0.124	J	0.087	J	0.047	J	ND		0.189	J	0.031	J	0.031	J	0.098	J	0.180	J
PFTeDA	-	ND		0.211	J	0.054	J	ND		0.063	J	ND		ND		ND		ND		ND	
PFTTrDA	-	ND		3.16		1.56		ND		0.313	J	0.082	J	0.035	J	0.035	J	0.067	J	0.147	J
PFUnDA	-	0.032	J	5.05		1.51		0.053	J	0.451	J	0.051	J	0.076	J	0.055	J	0.282	J	0.170	J

Grey Fill Detected concentration exceeded OSD Screening Levels

References

a. Assistant Secretary of Defense, 2019. Risk Based Screening Levels Calculated for PFOS and PFOA in Groundwater or Soil using USEPA's Regional Screening Level Calculator. HQ=0.1. 15 October 2019. Soil screening levels based on residential scenario for direct ingestion of contaminated soil.

b. USEPA, 2021. Risk Based Screening Levels Calculated for PFBS in Groundwater and Soil using USEPA's Regional Screening Level Calculator. HQ=0.1. 8 April 2021.

Interpreted Qualifiers

J = Estimated concentration

J+ = Estimated concentration, biased high

UU = The analyte was not detected at a level greater than or equal to the adjusted detection limit (DL). However, the reported adjusted DL is approximate and may be inaccurate or imprecise.

Chemical Abbreviations

6:2 FTS	6:2 fluorotelomer sulfonate
8:2 FTS	8:2 fluorotelomer sulfonate
NEFOSAA	N-ethyl perfluorooctane- sulfonamidoacetic acid
PFBA	perfluorobutanoic acid
PFBS	perfluorobutanesulfonic acid
PFDA	perfluorodecanoic acid
PFDaA	perfluorododecanoic acid
PFHpA	perfluoroheptanoic acid
PFHxA	perfluorohexanoic acid
PFHxS	perfluorohexanesulfonic acid
PFNA	perfluorononanoic acid
PFOA	perfluorooctanoic acid
PFOS	perfluorooctanesulfonic acid
PFPeA	perfluoropentanoic acid
PFTeDA	perfluorotetradecanoic acid
PFTTrDA	perfluorotridecanoic acid
PFUnDA	perfluoro-n-undecanoic acid

Acronyms and Abbreviations

AASF	Army Aviation Support Facility
AOI	Area of Interest
D	duplicate
ft	feet
HQ	hazard quotient
LCMSMS	liquid chromatography with tandem mass spectrometry
LOD	limit of detection
ND	analyte not detected above the LOD
OSD	Office of the Secretary of Defense
QSM	Quality Systems Manual
Qual	interpreted qualifier
SB	soil boring
USEPA	United States Environmental Protection Agency
µg/kg	micrograms per kilogram
-	not applicable

Table 6-2
PFAS Detections in Surface Soil
Site Inspection Report, Windsor Locks AASF, Connecticut

Area of Interest Sample ID Sample Date Depth		AOI01					
		AOI01-09-SB-00-02-D	AOI01-10-SB-00-02		AOI01-10-SB-00-02-D		
		04/27/2021	04/28/2021		04/28/2021		
		0 - 2 ft	0 - 2 ft		0 - 2 ft		
Analyte	OSD Screening Level ^{a,b}	Result	Qual	Result	Qual	Result	Qual
Soil, PFAS by LCMSMS compliant with QSM 5.3 Table B-15 (µg/kg)							
6:2 FTS	-	ND		ND		ND	
8:2 FTS	-	ND		ND		ND	
NEtFOSAA	-	ND		ND		ND	
PFBA	-	0.149	J	0.065	J	0.058	J
PFBS	1900	0.137	J	ND		ND	
PFDA	-	0.070	J	0.324	J	0.290	J
PFDaA	-	0.027	J	0.099	J	0.102	J
PFHpA	-	0.056	J	0.023	J	ND	UJ
PFHxA	-	0.108	J	0.080	J	0.068	J
PFHxS	-	0.261	J	0.377	J	0.311	J
PFNA	-	0.111	J	ND	UJ	0.053	J
PFOA	130	0.139	J	ND		ND	
PFOS	130	1.77		2.00		1.79	
PFPeA	-	0.107	J	0.044	J	0.035	J
PFTeDA	-	ND		0.039	J	0.032	J
PFTTrDA	-	0.124	J	0.475	J	0.509	J
PFUnDA	-	0.120	J	1.27		1.30	

Grey Fill Detected concentration exceeded OSD Screening Levels

References

a. Assistant Secretary of Defense, 2019. Risk Based Screening Levels Calculated for PFOS and PFOA in Groundwater or Soil using USEPA's Regional Screening Level Calculator. HQ=0.1. 15 October 2019. Soil screening levels based on residential scenario for direct ingestion of contaminated soil.

b. USEPA, 2021. Risk Based Screening Levels Calculated for PFBS in Groundwater and Soil using USEPA's Regional Screening Level Calculator. HQ=0.1. 8 April 2021.

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J+ = Estimated concentration, biased high

UJ = The analyte was not detected at a level greater than or equal to the adjusted detection limit (DL). However, the reported adjusted DL is approximate and may be inaccurate or imprecise.

Chemical Abbreviations

6:2 FTS	6:2 fluorotelomer sulfonate
8:2 FTS	8:2 fluorotelomer sulfonate
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PFBA	perfluorobutanoic acid
PFBS	perfluorobutanesulfonic acid
PFDA	perfluorodecanoic acid
PFDaA	perfluorododecanoic acid
PFHpA	perfluoroheptanoic acid
PFHxA	perfluorohexanoic acid
PFHxS	perfluorohexanesulfonic acid
PFNA	perfluorononanoic acid
PFOA	perfluorooctanoic acid
PFOS	perfluorooctanesulfonic acid
PFPeA	perfluoropentanoic acid
PFTeDA	perfluorotetradecanoic acid
PFTTrDA	perfluorotridecanoic acid
PFUnDA	perfluoro-n-undecanoic acid

Acronyms and Abbreviations

AASF	Army Aviation Support Facility
AOI	Area of Interest
D	duplicate
ft	feet
HQ	hazard quotient
LCMSMS	liquid chromatography with tandem mass spectrometry
LOD	limit of detection
ND	analyte not detected above the LOD
OSD	Office of the Secretary of Defense
QSM	Quality Systems Manual
Qual	interpreted qualifier
SB	soil boring
USEPA	United States Environmental Protection Agency
µg/kg	micrograms per kilogram
-	not applicable

Table 6-3
PFAS Detections in Shallow Subsurface Soil
Site Inspection Report, Windsor Locks AASF, Connecticut

Area of Interest Sample ID Sample Date Depth		AOI01																			
		AOI01-01-SB-05-07		AOI01-02-SB-04-06		AOI01-03-SB-03-05		AOI01-03-SB-05-07		AOI01-04-SB-03-05		AOI01-05-SB-02-04		AOI01-05-SB-04-06		AOI01-06-SB-03-05		AOI01-07-SB-02-04		AOI01-07-SB-04-06	
		04/27/2021		04/27/2021		04/29/2021		04/29/2021		04/29/2021		04/28/2021		04/28/2021		04/28/2021		04/28/2021		04/28/2021	
		5 - 7 ft		4 - 6 ft		3 - 5 ft		5 - 7 ft		3 - 5 ft		2 - 4 ft		4 - 6 ft		3 - 5 ft		2 - 4 ft		4 - 6 ft	
Analyte	OSD Screening Level ^{a,b}	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Soil, PFAS by LCMSMS compliant with QSM 5.3 Table B-15 (µg/kg)																					
6:2 FTS	-	ND				ND			ND			ND			ND			ND			ND
8:2 FTS	-	ND		0.070	J	ND			ND			ND			ND			ND			ND
PFBA	-	0.045	J	0.061	J	0.055	J	0.141	J	ND		ND		ND		ND		ND			ND
PFBS	25000	0.162	J	ND		ND		ND		ND		ND		ND		ND		ND			ND
PFDA	-	ND		0.675	J	0.346	J	0.230	J	ND		ND		ND		ND		ND			ND
PFDaA	-	ND		ND		0.115	J	0.047	J	ND		0.032	J	ND		ND		ND			ND
PFHpA	-	ND		0.064	J	0.181	J	0.093	J	ND		ND		ND		ND		ND			ND
PFHxA	-	ND		0.077	J	0.316	J	0.530	J	ND		ND		ND		0.039	J	ND			ND
PFHxS	-	ND		0.148	J	4.86		7.56		0.129	J	0.058	J	ND		ND		ND			ND
PFNA	-	ND		0.150	J	0.169	J	0.170	J	ND		0.023	J	ND		ND		ND			ND
PFOA	1600	ND		ND		0.278	J	0.491	J	ND		ND		ND		ND		ND			ND
PFOS	1600	0.582	J	1.89		5.07		6.19		0.310	J+	0.196	J	0.300	J	ND		0.169	J	0.299	J
PFPeA	-	ND		0.066	J	0.055	J	0.096	J	ND		0.023	J	ND		ND		ND			ND
PFTeDA	-	ND		ND	UJ	0.034	J	ND		ND		0.022	J	ND		ND		ND			ND
PFTrDA	-	ND		ND	UJ	1.42		0.539	J	ND		0.098	J	ND		ND		ND			ND
PFUnDA	-	ND		1.35		8.02		3.31		ND		0.162	J	ND		ND		ND			ND

Grey Fill Detected concentration exceeded OSD Screening Levels

References

a. Assistant Secretary of Defense, 2019. Risk Based Screening Levels Calculated for PFOS and PFOA in Groundwater or Soil using USEPA's Regional Screening Level Calculator. HQ=0.1. 15 October 2019. Soil screening levels based on industrial/commercial composite worker scenario for incidental ingestion of contaminated soil.

b. USEPA, 2021. Risk Based Screening Levels Calculated for PFBS in Groundwater and Soil using USEPA's Regional Screening Level Calculator. HQ=0.1. 8 April 2021.

Interpreted Qualifiers

J = Estimated concentration

J+ = Estimated concentration, biased high

UJ = The analyte was not detected at a level greater than or equal to the adjusted detection limit (DL). However, the reported adjusted DL is approximate and may be inaccurate or imprecise.

Chemical Abbreviations

6:2 FTS	6:2 fluorotelomer sulfonate
8:2 FTS	8:2 fluorotelomer sulfonate
PFBA	perfluorobutanoic acid
PFBS	perfluorobutanesulfonic acid
PFDA	perfluorodecanoic acid
PFDaA	perfluorododecanoic acid
PFHpA	perfluoroheptanoic acid
PFHxA	perfluorohexanoic acid
PFHxS	perfluorohexanesulfonic acid
PFNA	perfluorononanoic acid
PFOA	perfluorooctanoic acid
PFOS	perfluorooctanesulfonic acid
PFPeA	perfluoropentanoic acid
PFTeDA	perfluorotetradecanoic acid
PFTTrDA	perfluorotridecanoic acid
PFUnDA	perfluoro-n-undecanoic acid

Acronyms and Abbreviations

AASF	Army Aviation Support Facility
AOI	Area of Interest
ft	feet
HQ	hazard quotient
LCMSMS	liquid chromatography with tandem mass spectrometry
LOD	limit of detection
ND	analyte not detected above the LOD
OSD	Office of the Secretary of Defense
QSM	Quality Systems Manual
Qual	interpreted qualifier
SB	soil boring
USEPA	United States Environmental Protection Agency
µg/kg	micrograms per kilogram
-	not applicable

Table 6-3
PFAS Detections in Shallow Subsurface Soil
Site Inspection Report, Windsor Locks AASF, Connecticut

Area of Interest Sample ID Sample Date Depth		AOI01									
		AOI01-08-SB-02-04	AOI01-08-SB-04-06	AOI01-09-SB-05-07	AOI01-09-SB-08-10	AOI01-10-SB-03-05					
		04/28/2021	04/28/2021	04/27/2021	04/27/2021	04/28/2021					
		2 - 4 ft	4 - 6 ft	5 - 7 ft	8 - 10 ft	3 - 5 ft					
Analyte	OSD Screening Level ^{a,b}	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Soil, PFAS by LCMSMS compliant with QSM 5.3 Table B-15 (µg/kg)											
6:2 FTS	-	ND		0.214	J	ND		ND		ND	
8:2 FTS	-	ND		ND		ND		ND		ND	
PFBA	-	ND		ND		ND		ND		0.066	J
PFBS	25000	ND		ND		0.117	J	0.145	J	ND	
PFDA	-	0.057	J	ND		ND		ND		ND	
PFDoA	-	ND		ND		ND		ND		ND	
PFHpA	-	0.030	J	ND		ND		ND		0.033	J
PFHxA	-	ND		0.119	J	0.035	J	ND		0.089	J
PFHxS	-	0.061	J	ND		0.039	J	0.081	J	0.297	J+
PFNA	-	0.164	J	ND		0.026	J	ND		0.141	J
PFOA	1600	0.285	J	ND		ND		ND		0.106	J+
PFOS	1600	41.5		ND		0.441	J	ND		0.795	J
PFPeA	-	0.027	J	ND		ND		ND		0.043	J
PFTeDA	-	ND		ND		ND		ND		ND	
PFTrDA	-	ND		ND		ND		ND		ND	
PFUnDA	-	ND		ND		ND		ND		ND	

Grey Fill Detected concentration exceeded OSD Screening Levels

References

a. Assistant Secretary of Defense, 2019. Risk Based Screening Levels Calculated for PFOS and PFOA in Groundwater or Soil using USEPA's Regional Screening Level Calculator. HQ=0.1. 15 October 2019. Soil screening levels based on industrial/commercial composite worker scenario for incidental ingestion of contaminated soil.

b. USEPA, 2021. Risk Based Screening Levels Calculated for PFBS in Groundwater and Soil using USEPA's Regional Screening Level Calculator. HQ=0.1. 8 April 2021.

Interpreted Qualifiers

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Chemical Abbreviations

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8:2 FTS	8:2 fluorotelomer sulfonate
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PFBS	perfluorobutanesulfonic acid
PFDA	perfluorodecanoic acid
PFDoA	perfluorododecanoic acid
PFHpA	perfluoroheptanoic acid
PFHxA	perfluorohexanoic acid
PFHxS	perfluorohexanesulfonic acid
PFNA	perfluorononanoic acid
PFOA	perfluorooctanoic acid
PFOS	perfluorooctanesulfonic acid
PFPeA	perfluoropentanoic acid
PFTeDA	perfluorotetradecanoic acid
PFTrDA	perfluorotridecanoic acid
PFUnDA	perfluoro-n-undecanoic acid

Acronyms and Abbreviations

AASF	Army Aviation Support Facility
AOI	Area of Interest
ft	feet
HQ	hazard quotient
LCMSMS	liquid chromatography with tandem mass spectrometry
LOD	limit of detection
ND	analyte not detected above the LOD
OSD	Office of the Secretary of Defense
QSM	Quality Systems Manual
Qual	interpreted qualifier
SB	soil boring
USEPA	United States Environmental Protection Agency
µg/kg	micrograms per kilogram
-	not applicable

Table 6-4
PFAS Detections in Groundwater
Site Inspection Report, Windsor Locks AASF, Connecticut

Area of Interest			AOI01																	
			Sample ID		AOI01-01-GW		AOI01-02-GW		AOI01-03-GW		AOI01-03-GW-D		AOI01-04-GW		AOI01-05-GW		AOI01-06-GW		AOI01-07-GW	
Sample Date			04/27/2021		04/28/2021		04/29/2021		04/29/2021		04/29/2021		04/28/2021		04/28/2021		04/28/2021		04/28/2021	
Analyte	OSD Screening Level ^{a,b}	USEPA HA ^c	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Water, PFAS by LCMSMS compliant with QSM 5.3 Table B-15 (ng/L)																				
6:2 FTS	-	-	9.38		534		6.77		6.06		64.4		4.46		ND		ND		ND	
8:2 FTS	-	-	10.4		16.9		12.6		10.7		48.2		ND		ND		ND		ND	
NMeFOSAA	-	-	ND		ND		2.69	J	2.17	J	1.000	J	ND		ND		ND		ND	
PFBA	-	-	29.6		58.1		21.9		22.0		24.6		ND		ND		ND		ND	
PFBS	600	-	8.75		4.15		51.3		46.5		19.4		15.4		1.65	J	ND		1.33	J
PFDA	-	-	7.66		1.78	J	3.81	J	3.26	J	3.42	J	1.12	J	ND		ND		ND	
PFHpA	-	-	55.4		57.0		16.3		15.0		35.9		9.78		4.74		2.65	J	5.64	
PFHxA	-	-	92.3		169		345		320		95.2		70.9		7.58		3.09		12.9	
PFHxS	-	-	252		127		1830		1350		306		169		13.1		7.07		66.8	
PFNA	-	-	290		32.3		49.7		45.1		97.5		14.7		2.03	J	3.61	J	4.42	
PFOA	40	70	57.3		40.5		298		275		71.8		87.2		7.85		5.45		10.8	
PFOS	40	70	138		94.2		125		115		408		ND		8.93		52.6		581	
PFPeA	-	-	88.5		263		45.0		41.8		82.6		23.0		4.72		2.52	J	9.87	
PFUnDA	-	-	223		ND		52.3		44.7		9.74		ND		ND		ND		ND	
Total PFOA+PFOS	-	70	195.3		134.7		423		390		479.8		87.2		16.78		58.05		591.8	

Grey Fill	Detected concentration exceeded OSD Screening Levels
Bold Font	Detected concentration exceeded USEPA HA Screening Levels

References

- a. Assistant Secretary of Defense, 2019. Risk Based Screening Levels Calculated for PFOS and PFOA in Groundwater or Soil using USEPA's Regional Screening Level Calculator. HQ=0.1. 15 October 2019. Groundwater screening levels based on residential scenario for direct ingestion of groundwater.
- b. USEPA, 2021. Risk Based Screening Levels Calculated for PFBS in Groundwater and Soil using USEPA's Regional Screening Level Calculator. HQ=0.1. 8 April 2021.
- c. USEPA, 2016. Drinking Water Health Advisory for PFOA. Office of Water (4304T). Health and Ecological Criteria Division, Washington, DC 20460. EPA Document Number: 822-R-16-005. May 2016. / EPA, 2016. Drinking Water Health Advisory for PFOS. Office of Water (4304T). Health and Ecological Criteria Division, Washington, DC 20460. EPA Document Number: 822-R-16-004. May 2016.

Interpreted Qualifiers

J = Estimated concentration

Chemical Abbreviations

6:2 FTS	6:2 fluorotelomer sulfonate
8:2 FTS	8:2 fluorotelomer sulfonate
NMeFOSAA	N-methyl perfluorooctanesulfonamidoacetic acid
PFBA	perfluorobutanoic acid
PFBS	perfluorobutanesulfonic acid
PFDA	perfluorodecanoic acid
PFHpA	perfluoroheptanoic acid
PFHxA	perfluorohexanoic acid
PFHxS	perfluorohexanesulfonic acid
PFNA	perfluorononanoic acid
PFOA	perfluorooctanoic acid
PFOS	perfluorooctanesulfonic acid
PFPeA	perfluoropentanoic acid
PFUnDA	perfluoro-n-undecanoic acid

Acronyms and Abbreviations

AASF	Army Aviation Support Facility
AOI	Area of Interest
D	duplicate
GW	groundwater
HA	health advisory
HQ	hazard quotient
LCMSMS	liquid chromatography with tandem mass spectrometry
LOD	limit of detection
ND	analyte not detected above the LOD
OSD	Office of the Secretary of Defense
QSM	Quality Systems Manual
Qual	interpreted qualifier
USEPA	United States Environmental Protection Agency
ng/L	nanogram per liter
-	not applicable

Table 6-4
PFAS Detections in Groundwater
Site Inspection Report, Windsor Locks AASF, Connecticut

Area of Interest			AOI01			
Sample ID			AOI01-09-GW		AOI01-10-GW	
Sample Date			04/27/2021		04/29/2021	
Analyte	OSD Screening Level ^{a,b}	USEPA HA ^c	Result	Qual	Result	Qual
Water, PFAS by LCMSMS compliant with QSM 5.3 Table B-15 (ng/L)						
6:2 FTS	-	-	ND		ND	
8:2 FTS	-	-	ND		ND	
NMeFOSAA	-	-	ND		ND	
PFBA	-	-	15.9		ND	
PFBS	600	-	5.16		3.21	J
PFDA	-	-	ND		ND	
PFHpA	-	-	10.5		3.42	J
PFHxA	-	-	39.5		8.28	
PFHxS	-	-	161		60.6	
PFNA	-	-	4.25		ND	
PFOA	40	70	24.6		11.5	
PFOS	40	70	399		9.88	
PFPeA	-	-	11.2		3.37	J
PFUnDA	-	-	ND		ND	
Total PFOA+PFOS	-	70	423.6		21.38	

Grey Fill	Detected concentration exceeded OSD Screening Levels
Bold Font	Detected concentration exceeded USEPA HA Screening Levels

References

- a. Assistant Secretary of Defense, 2019. Risk Based Screening Levels Calculated for PFOS and PFOA in Groundwater or Soil using USEPA's Regional Screening Level Calculator. HQ=0.1. 15 October 2019. Groundwater screening levels based on residential scenario for direct ingestion of groundwater.
- b. USEPA, 2021. Risk Based Screening Levels Calculated for PFBS in Groundwater and Soil using USEPA's Regional Screening Level Calculator. HQ=0.1. 8 April 2021.
- c. USEPA, 2016. Drinking Water Health Advisory for PFOA. Office of Water (4304T). Health and Ecological Criteria Division, Washington, DC 20460. EPA Document Number: 822-R-16-005. May 2016. / EPA. 2016. Drinking Water Health Advisory for PFOS. Office of Water (4304T). Health and Ecological Criteria Division, Washington, DC 20460. EPA Document Number: 822-R-16-004. May 2016.

Interpreted Qualifiers

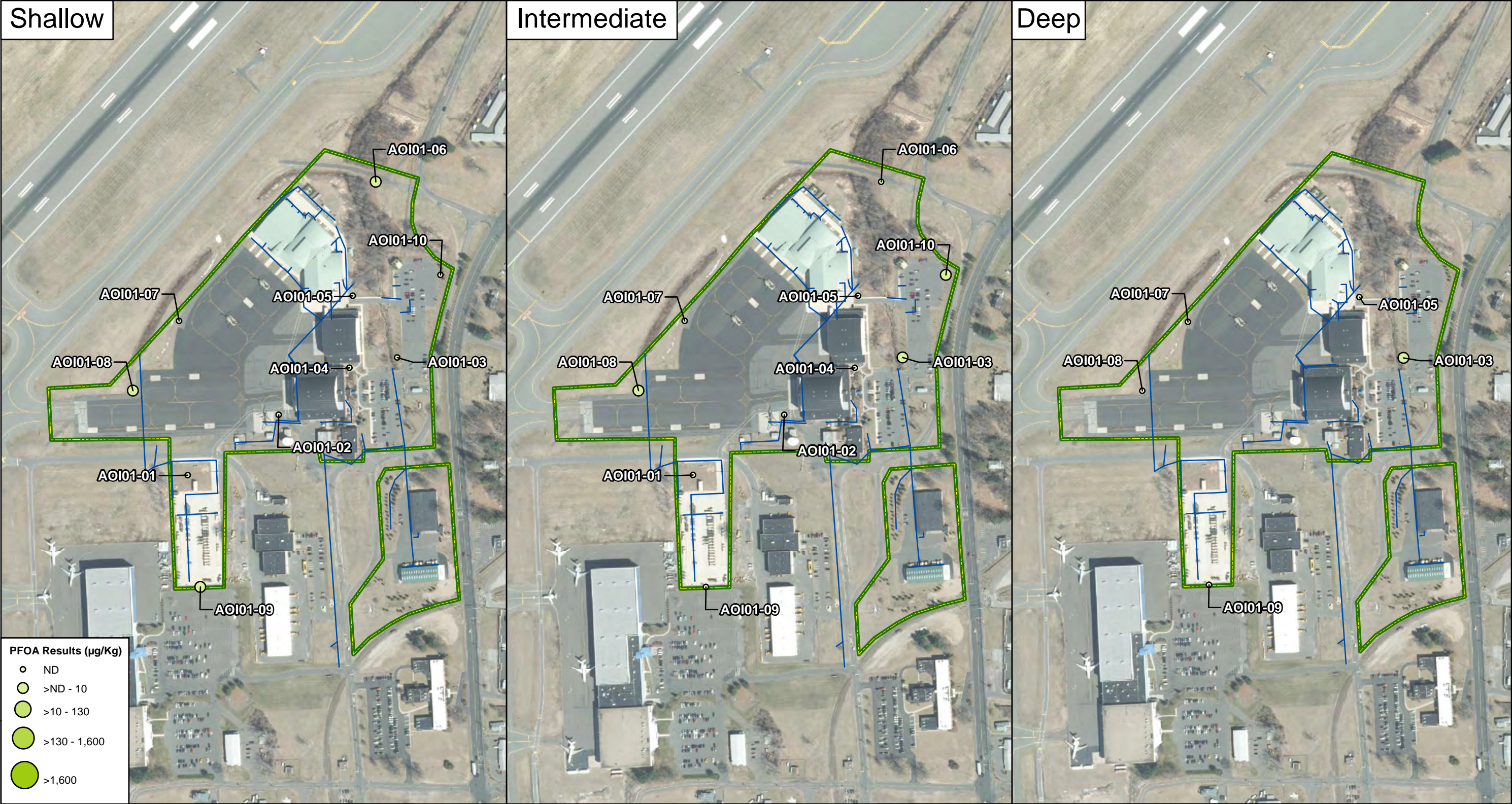
J = Estimated concentration

Chemical Abbreviations

6:2 FTS	6:2 fluorotelomer sulfonate
8:2 FTS	8:2 fluorotelomer sulfonate
NMeFOSAA	N-methyl perfluorooctanesulfonamidoacetic acid
PFBA	perfluorobutanoic acid
PFBS	perfluorobutanesulfonic acid
PFDA	perfluorodecanoic acid
PFHpA	perfluoroheptanoic acid
PFHxA	perfluorohexanoic acid
PFHxS	perfluorohexanesulfonic acid
PFNA	perfluorononanoic acid
PFOA	perfluorooctanoic acid
PFOS	perfluorooctanesulfonic acid
PFPeA	perfluoropentanoic acid
PFUnDA	perfluoro-n-undecanoic acid

Acronyms and Abbreviations

AASF	Army Aviation Support Facility
AOI	Area of Interest
D	duplicate
GW	groundwater
HA	health advisory
HQ	hazard quotient
LCMSMS	liquid chromatography with tandem mass spectrometry
LOD	limit of detection
ND	analyte not detected above the LOD
OSD	Office of the Secretary of Defense
QSM	Quality Systems Manual
Qual	interpreted qualifier
USEPA	United States Environmental Protection Agency
ng/L	nanogram per liter
-	not applicable




CLIENT					ARNG				
PROJECT					Site Inspection for PFAS at Windsor Locks AASF, CT				
REVISED		6/24/2021		GIS BY		MS		6/24/2021	
SCALE		1:4,859		CHK BY		AM		6/24/2021	
Base Map: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community				PM		CM		6/24/2021	

Legend

Facility Boundary

Storm Water Utility Line

0 200 400 800 Feet

Site Inspection PFOA Soil Results	
 <div>12420 Milestone Center Drive Germantown, MD 20876</div>	Figure 6-1

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Shallow

Intermediate

Deep

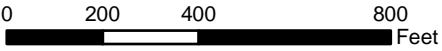
PFOS Results (µg/Kg)

- ND
- >ND - 10
- >10 - 130
- >130 - 1,600
- >1,600

CLIENT		ARNG			
PROJECT		Site Inspection for PFAS at Windsor Locks AASF, CT			
REVISED	6/24/2021	GIS BY	MS	6/24/2021	
SCALE	1:4,859	CHK BY	AM	6/24/2021	
Base Map: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community		PM	CM	6/24/2021	

Legend

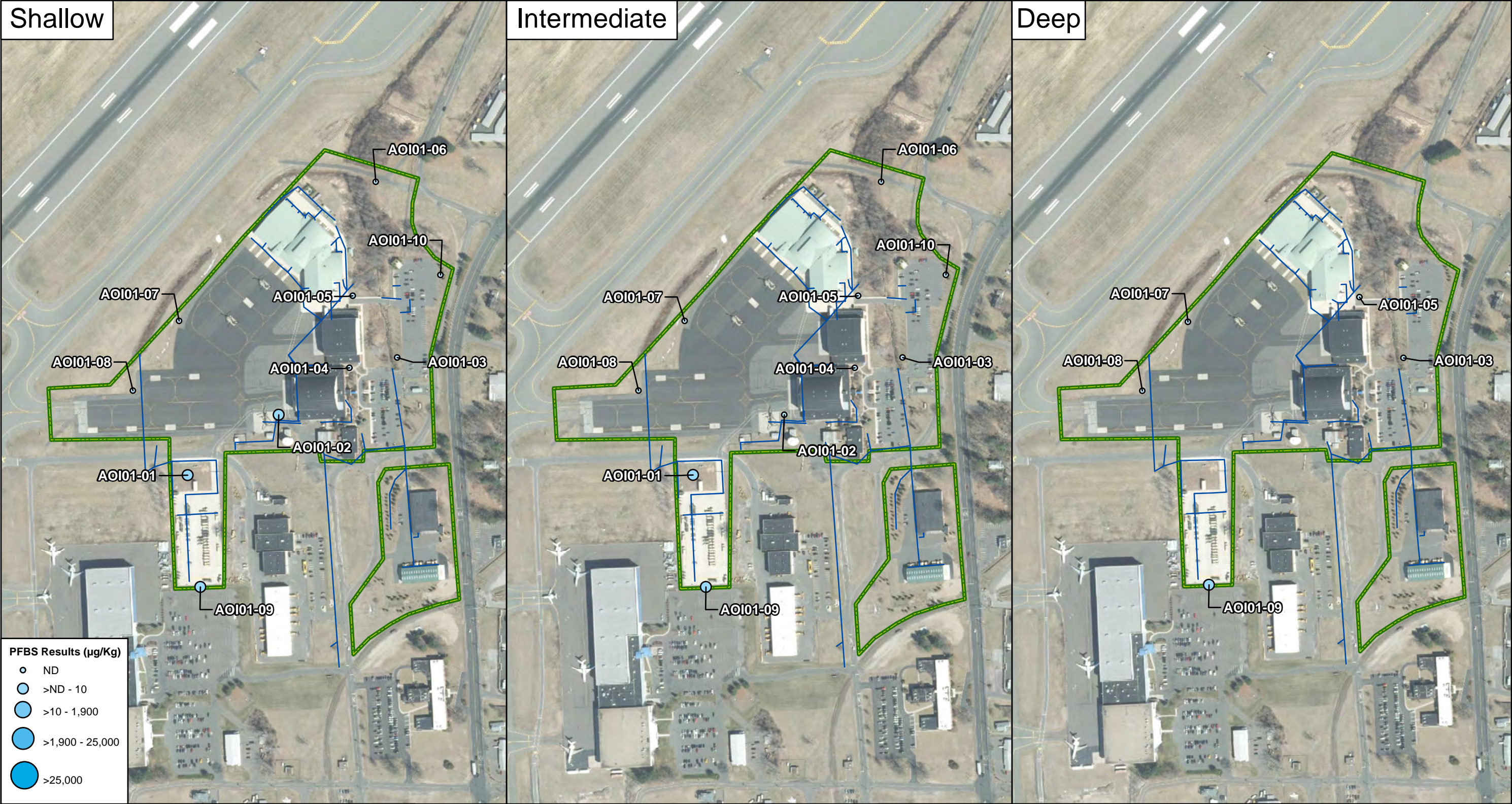
- Facility Boundary
- Storm Water Utility Line



Site Inspection PFOS Soil Results

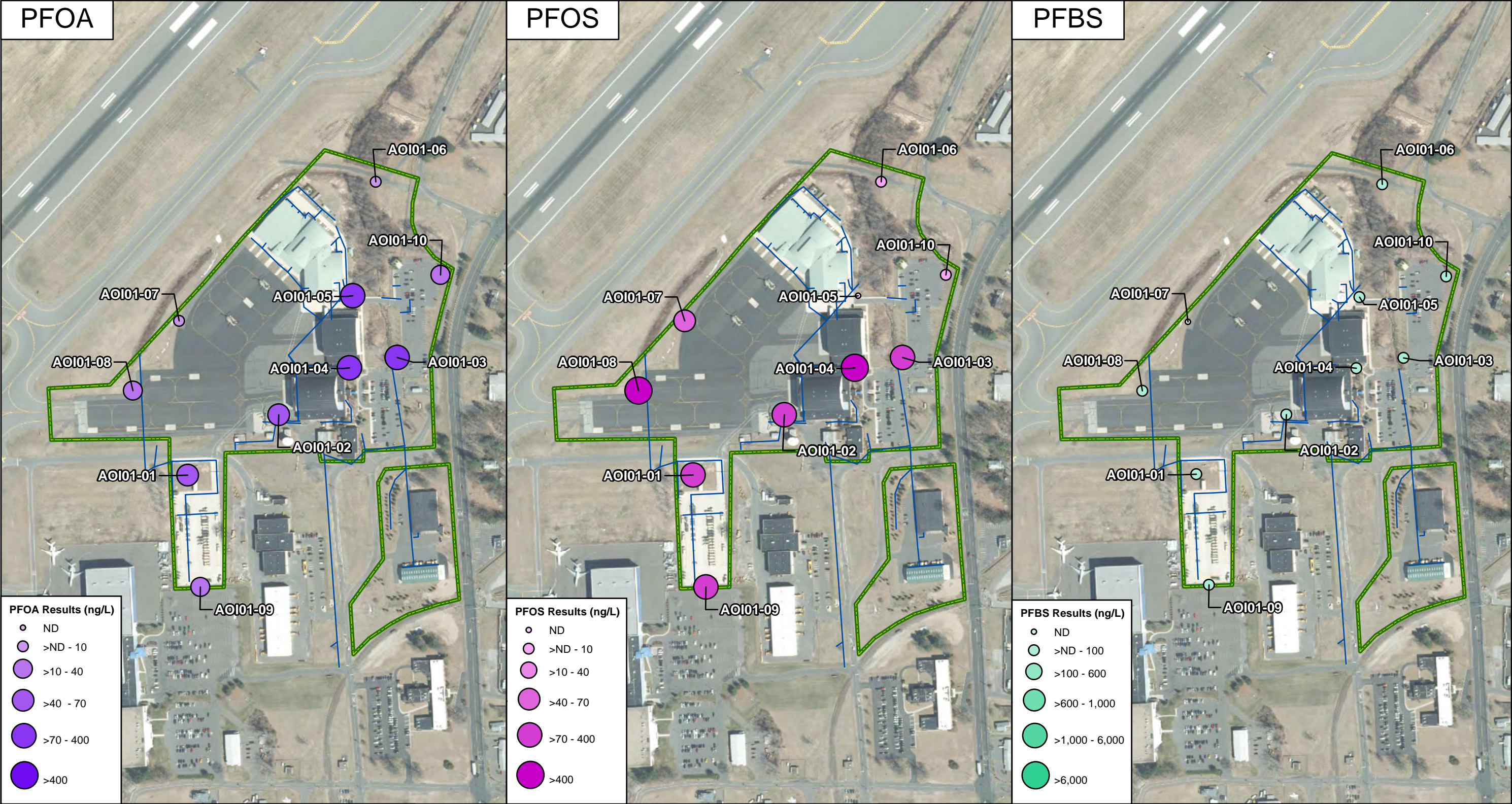
12420 Milestone Center Drive
Germantown, MD 20876

Figure 6-2



CLIENT		ARNG			
PROJECT		Site Inspection for PFAS at Windsor Locks AASF, CT			
REVISED	6/24/2021	GIS BY	MS	6/24/2021	
SCALE	1:4,859	CHK BY	AM	6/24/2021	
Base Map: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community		PM	CM	6/24/2021	

Depth intervals shown represent respective sampling position within a given soil boring location.



CLIENT					ARNG					
PROJECT					Site Inspection for PFAS at Windsor Locks AASF, CT					
REVISED		6/24/2021		GIS BY		MS		6/24/2021		
SCALE		1:4,859		CHK BY		AM		6/24/2021		
Base Map: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community					PM		CM		6/24/2021	

Legend

Facility Boundary

Storm Water Utility Line

0 200 400 800

Feet

N

Site Inspection Groundwater Results	
	12420 Milestone Center Drive Germantown, MD 20876
Figure 6-4	

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7. Exposure Pathways

The CSM for AOI 1, revised based on the SI findings, is presented on **Figure 7-1**. The CSM presents the current understanding of the site conditions with respect to known and suspected sources, potential transport mechanisms and migration pathways, and potentially exposed human receptors. A human exposure pathway is considered potentially complete when the following conditions are present:

1. Contaminant source;
2. Environmental fate and transport;
3. Exposure point;
4. Exposure route; and
5. Potentially exposed populations.

If any of these elements are missing, the pathway is incomplete. The CSM figure uses an empty circle symbol to represent an incomplete exposure pathway. Areas with an incomplete pathway generally warrant no further action. However, the pathway is considered potentially complete if PFOA, PFOS, or PFBS are detected, in which case the CSM figure uses a half-filled circle symbol to represent a potentially complete exposure pathway. Additionally, a completely filled circle symbol is used to indicate when a potentially complete exposure pathway has detections of PFOA, PFOS, or PFBS above the SLs. Areas with an identified potentially complete pathway may warrant further investigation.

In general, the potential routes of exposure to PFAS are ingestion and inhalation. Human exposure via the dermal contact pathway may occur, and current risk practice suggests it is an insignificant pathway compared to ingestion; however, exposure data for dermal pathways are sparse and continue to be the subject of PFAS toxicological study. The receptors evaluated are consistent with those listed in USEPA guidance for risk screening (USEPA, 2001). Receptors at the facility include site workers (e.g., facility staff and visiting soldiers), construction workers, trespassers, residents outside the facility boundary, and recreational users outside of the facility boundary.

7.1 Soil Exposure Pathway

The SI results for PFOA, PFOS, and PFBS in soil were used to determine whether a potentially complete pathway exists between the source and potential receptors at AOI 1 based on the aforementioned criteria.

7.1.1 AOI 1

Between 2003 and 2015, AFFF may have been released at AOI 1 during fire training activities. AFFF was used to extinguish controlled burns at the Wash Rack during fire training. Additionally, mobile fire extinguishers containing AFFF were discharged to the floor drains in Building 152. PFOA, PFOS, and PFBS were detected in soil at AOI 1 and confirm the release of PFAS to soil.

Based on the results of the SI, ground-disturbing activities could potentially result in site worker, construction worker, or trespasser exposure to PFOA, PFOS, and PFBS via inhalation of dust. Additionally, off-facility residents and recreational users may potentially be exposed to PFOA, PFOS, and PFBS via inhalation of dust caused by on-facility ground disturbing activities. Ground-disturbing activities could also potentially result in site worker, construction worker, or trespasser exposure via ingestion of surface soil. Lastly, ground-disturbing activities could also potentially result in construction worker exposure to PFOA, PFOS, and PFBS in subsurface soil via ingestion.

Construction activities were observed to be occurring near the facility's access control point at the time of the SI field work. The CSM is presented on **Figure 7-1**.

7.2 Groundwater Exposure Pathway

The SI results for PFOA, PFOS, and PFBS in groundwater were used to determine whether a potentially complete pathway exists between the source and potential receptors at AOI 1 based on the aforementioned criteria.

7.2.1 AOI 1

PFOA and PFOS in groundwater exceeded the individual SLs of 40 ng/L at both potential PFAS release areas, Wash Rack (AOI01-02) and Building 152 (AOI01-04); at AOI01-01, located in the southern portion of the facility upgradient of the identified potential release areas; and at AOI01-03, located east of the drainage swale along the edge of the facility parking lot. Additionally, PFOA in groundwater exceeded the SL at AOI01-05, on the north side of Building 200, and PFOS in groundwater exceeded the SL at upgradient locations AOI01-07, AOI01-08, and AOI01-09 along the western and southern facility boundaries.

It is unknown whether offsite potable wells are located downgradient of AOI 1; therefore, the ingestion exposure pathway for off-facility residents and off-facility recreational users is considered potentially complete. Windsor Locks AASF receives its potable water from the Connecticut Water Company. Therefore, the ingestion exposure pathway for site workers and trespassers is considered incomplete. Depths to water measured in April 2021 during the SI ranged from 3.37 to 8.11 feet bgs. Therefore, groundwater may be encountered during construction activities and the ingestion exposure pathway for construction workers is considered potentially complete. Construction activities were observed to be occurring near the facility's access control point at the time of the SI field work. The CSM is presented on **Figure 7-1**.

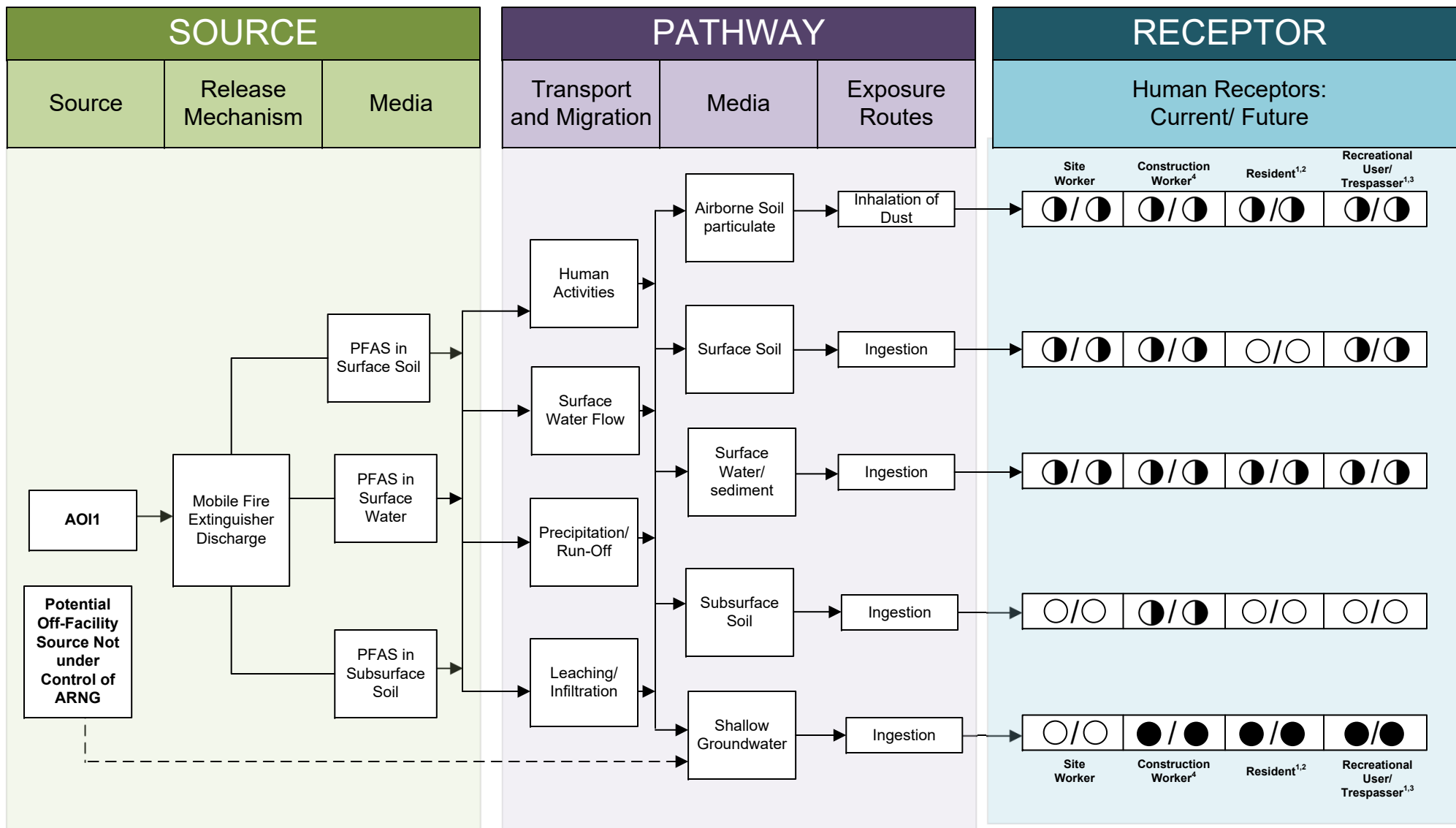
7.3 Surface Water and Sediment Exposure Pathway

Surface water and sediment samples were not collected as part of the SI at AOI 1; therefore, the SI results for PFOA, PFOS, and PFBS in soil and groundwater, in combination with knowledge of the fate and transport properties of PFAS, were used to determine whether a potentially complete pathway exists between the source and potential receptors.

7.3.1 AOI 1

PFAS are water soluble and can migrate readily from soil to surface water via leaching and run-off. Because PFOA, PFOS, and PFBS were detected in soil and groundwater at AOI 1, it is possible that those compounds may have migrated from soil and groundwater to the wetlands in the northeast of the facility via groundwater discharge, surface water runoff, or the stormwater detention system that outfalls to the drainage swales on the eastern and western portions of the property. Therefore, the surface water and sediment ingestion exposure pathway for site workers, construction workers, or trespassers is considered potentially complete.

Windsor Locks AASF is drained to drainage swales on the eastern and western portions of the property that are routed via a culvert to Spencer Brook, an intermittent stream that discharges to Stoney Brook. Stoney Brook subsequently discharges into the Connecticut River further downstream. Due to potential recreational use of Spencer Brook, the surface water and sediment ingestion exposure pathway for off-facility residents and recreational users is also considered potentially complete.



LEGEND

- □ Flow-Chart Stops
- → Flow-Chart Continues
- - - → Partial / Possible Flow
- Incomplete Pathway
- ◐ Potentially Complete Pathway
- Potentially Complete Pathway with Exceedance of SL

NOTES

1. The resident and recreational users refer to off-site receptors.
2. Inhalation of dust for off-site receptors is likely insignificant.
3. Human consumption of fish potentially affected by PFAS is possible.
4. Active construction within AOI 1 was occurring as of the date of SI field work..

Figure 7-1
Conceptual Site Model, AOI 1
Windsor Locks AASF

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8. Summary and Outcome

This section summarizes SI activities and findings. The most significant findings are summarized in this section and are reproduced directly or abstracted from information contained in this report. The outcome provides general and comparative interpretations of the findings relative to the SLs.

8.1 SI Activities

The SI field activities were conducted from 26 to 29 April 2021 and consisted of utility clearance, direct push boring, soil sample collection, temporary monitoring well installation, grab groundwater sample collection, and land surveying. Field activities were conducted in accordance with the SI QAPP Addendum (AECOM, 2021a), except as previously noted in **Section 5.8**.

To fulfill the project DQOs set forth in the approved SI QAPP Addendum (AECOM, 2021a), samples were collected and analyzed for a subset of PFAS by LC/MS/MS compliant with QSM 5.3 Table B-15 as follows. The 18 PFAS analyzed as part of the ARNG SI program are specified in **Section 5.7** of this Report.

- 26 soil samples from 10 boring locations;
- 10 grab groundwater samples from 10 temporary well locations; and
- 18 QA samples.

The information gathered during this investigation was used to determine if PFOA, PFOS, and/or PFBS were present at or above SLs. Additionally, the CSMs were refined to assess whether a potentially complete pathway exists between the source and potential receptors for potential exposure to PFOA, PFOS, and PFBS at the AOIs, which are described in **Section 7**.

8.2 SI Goals Evaluation

As described in **Section 4.2**, the SI activities were designed to achieve six main goals or DQOs. This section describes the SI goals and the conclusions that can be made for each based on the data collected during this investigation.

1. Determine the presence or absence of PFOA, PFOS, and PFBS at or above SLs.

PFOA, PFOS, and PFBS were detected at the facility in soil and groundwater. PFOA, PFOS, and PFBS were detected both at the source areas, as well as at the upgradient facility boundary and the downgradient facility boundary, between the potential PFAS release areas and potential drinking water receptors. PFOA and PFOS in groundwater exceeded the individual SLs of 40 ng/L at both potential PFAS release areas, Wash Rack (AOI01-02) and Building 152 (AOI01-04); at AOI01-01, located in the southern portion of the facility upgradient of the identified potential release areas; and at AOI01-03, located east of the drainage swale along the edge of the facility parking lot. Additionally, PFOA in groundwater exceeded the SL at AOI01-05, on the north side of Building 200, and PFOS in groundwater exceeded the SL at upgradient locations AOI01-07, AOI01-08, and AOI01-09 along the western and southern facility boundaries. PFOA, PFOS, and PFBS were detected in soil at AOI 1, indicating there was likely a release of PFAS-containing materials; however, the detected concentrations were several orders of magnitude lower than the soil SLs.

2. Develop information to potentially eliminate a release from further consideration because it is determined that it poses no significant threat to human health or the environment.

No potential PFAS release areas were removed from further consideration based on the groundwater and soil data collected during the SI. PFOA and PFOS were detected in groundwater above the SLs at both of the potential PFAS release areas (Wash Rack and Building 152); therefore, they may pose a threat to human health or the environment.

3. *Determine the potential need for a TCRA (applies to drinking water only). The primary actions that will be considered include provision of alternative water supplies or wellhead treatment.*

Based on the data collected during this SI, there is a potentially complete pathway between the detections of PFOA and PFOS above SLs at Windsor Locks AASF and potential downgradient offsite drinking water receptors. Windsor Locks AASF receives its potable water from the Connecticut Water Company, but it is unknown whether private potable wells exist downgradient of the facility. Using online resources, wells were researched to a 4-mile radius of the facility; however, the state of Connecticut does not have an online well database. Agricultural areas exist to the north-northwest of the facility and it is possible that unlisted groundwater wells may exist in this area. Therefore, the drinking water pathway is considered potentially complete.

4. *Collect data to better characterize the release areas for more effective and rapid initiation of a RI (if determined necessary).*

The geological data collected as part of the SI indicate a highly permeable and conductive environment, with soils dominated by sand (ranging from well to poorly graded) with thin interbedded lenses of gravel, silt, and clay. These observations are consistent with the glaciofluvial deposits of the surrounding area. Given the shallow depth of the borings, it is difficult to determine how the surficial geology impacts the nature and extent of PFAS. However, the borings confirmed an unconfined shallow aquifer exists approximately 3.37 to 8.11 feet bgs. Groundwater flow direction at the facility is generally towards the drainage swale on the eastern portion of the facility. West of the eastern drainage swale, groundwater flow is generally to the northeast across the facility towards the drainage swale, while east of the drainage swale, groundwater flow is to the west-southwest back toward the drainage swale. Groundwater is potentially in communication with the drainage swale, which ultimately discharges to Spencer Brook. The limited amount of fine-grained material (silt and clay) observed in the shallow borings indicates the shallow aquifer is likely transmissive. These geologic and hydrogeologic observations will inform the development of the technical approach for the RI.

5. *If PFOA, PFOS, and PFBS are determined to be present, aim to evaluate whether the concentrations can be attributed to on-facility or off-facility sources that were identified within 4 miles of the installation as part of the PA (e.g., fire stations, major manufacturers, other DoD facilities)*

Based upon the evaluation of groundwater and soil results in comparison to SLs, in combination with the groundwater flow direction analysis, the results of the SI indicate that the sources of detected concentrations of PFOA, PFOS, and PFBS at AOI 1 (the Wash Rack and Building 152) are possibly attributable to ARNG activities. However, based on the exceedances of PFOA and PFOS in groundwater along the upgradient facility boundary (both east and west), it is possible that potential releases from off-facility, adjacent sources are migrating onto the facility. Known potential offsite, adjacent sources at the Bradley International Airport were identified in the PA Report (AECOM, 2020) and SI QAPP Addendum (AECOM, 2021a) and are shown on **Figure 3-1**.

6. *Determine whether a potentially complete pathway exists between the source and potential receptors and whether ARNG is the likely source of the contamination.*

Detections of PFOA, PFOS, and PFBS in soil at the Wash Rack and Building 152 release areas and at the upgradient and downgradient facility boundaries indicate there is a potentially complete exposure pathway between the source and site workers, construction workers, trespassers, and off-facility recreational users and residents. The SL exceedances of PFOA and PFOS in surficial groundwater indicate there is a potentially complete exposure pathway between the source and construction workers, trespassers, and off-facility recreational users and residents. It is not known at this time whether releases on ARNG property are likely the primary source of the contamination in groundwater.

8.3 Outcome







Based on the CSMs developed and revised in light of the SI findings, there is potential for exposure to drinking water receptors from AOI 1 from sources on the facility resulting from historical DoD activities. Sample analytical concentrations collected during the SI were compared against the project SLs for PFOA, PFOS, and PFBS in soil and groundwater, as described in **Table 6-1**. The following bullets summarize the SI results:

- PFOA and PFOS in groundwater at AOI 1 exceeded the individual SLs of 40 ng/L at both potential PFAS release areas, Wash Rack (AOI01-02) and Building 152 (AOI01-04), and in groundwater at upgradient and downgradient locations at the facility. The maximum concentrations of PFOA and PFOS were 298 ng/L (at location AOI01-03) and 581 ng/L (at location AOI01-08), respectively. Based on the results of the SI, further evaluation of AOI 1 is warranted in the RI.
- PFOA, PFOS, and PFBS were detected in soil at AOI 1, indicating a release of PFAS-containing materials occurred; however, the detected concentrations were several orders of magnitude lower than the soil SLs.

Table 8-1 summarizes the SI results for soil and groundwater. Based on the CSMs developed and revised in light of the SI findings, there is potential for exposure to drinking water receptors caused by DoD activities at the facility.

Table 8-2 summarizes the rationale used to determine if an AOI should be considered for further investigation under CERCLA and undergo an RI. Based on the results of this SI, further evaluation is warranted in the RI for AOI 1.


Table 8-1: Summary of Site Inspection Findings

AOI	Potential PFAS Release Area	Soil – Source Area	Groundwater – Source Area	Groundwater – Facility Boundary
1	Wash Rack			
1	Building 152			

Legend:

N/A = Not applicable

 = detected; exceedance of the screening levels

 = detected; no exceedance of the screening levels


 = not detected

Table 8-2: Site Inspection Recommendations

AOI	Description	Rationale	Future Action
1	Wash Rack, Building 152	Exceedances of SLs in groundwater at source areas. No exceedances of SLs in soil.	Proceed to RI

9. References

- AECOM. 2018a. *Final Site Inspection Programmatic Uniform Federal Policy-Quality Assurance Project Plan, Perfluorooctane Sulfonic Acid (PFOS) and Perfluorooctanoic Acid (PFOA) Impacted Sites ARNG Installations, Nationwide Contract No. W912DR-12-D-0014/W912DR17F0192*. 9 March.
- AECOM. 2018b. *Final Programmatic Accident Prevention Plan, Perfluorooctane Sulfonic Acid (PFOS) and Perfluorooctanoic Acid (PFOA) Impacted Sites ARNG Installations, Nationwide Contract No. W912DR-12-D-0014/W912DR17F0192*. July.
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Appendix A

Data Validation Reports

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DATA VALIDATION REPORT - Level III Review

SDG No.:	221032903 + 50411	Analysis:	Per- and Polyfluorinated Alkyl Substances
Laboratory:	Pace Gulf Coast	Project:	Windsor Locks
Reviewer:	Tyler Bryant	Date:	June 15 th , 2021

This report presents the findings of a review of the referenced data. The report consists of this summary, a listing of the samples included in the review, copies of data reports with data qualifying flags applied, data review worksheets, supporting documentation, and an explanation of the data qualifying flags employed. The review performed is based on the specifics of the analytical method referenced and provisions of the approved project-specific work plan; and, qualified according to the *Contract Laboratory Program National Functional Guidelines (NFG) for Superfund Organic Methods Data Review*, EPA-540-R-20-005, November 2020, and Department of Defense (DoD) Data Validation Guidelines Module 3 QSM Table B-15, May 2020. Modifications reflect the level of review requested, the specifications of the project specific QAPP, and the specifics of the analytical methods employed.

Major

Anomalies: None.

Minor

Anomalies: During the PFAS analysis, the following field and laboratory blanks displayed concentrations for target analytes greater than the detection limit:

Blank	Date	Time	Batch	Analyte	Concentration	Units
WL-DECON-01RE	4/5/2021	1805	707851	PFBA	2.80	ng/L
				PFHxA	1.61	
				PFOS	0.875	
				PFOA	1.13	
WL-ERB-02	5/26/2021	0759	712118	PFOS	13.6	
WL-ERB-01	5/26/2021	0858	712118	PFOS	20.7	
22100401A_11	4/1/2021	1436	707996	PFBA	1.56	
2210510A_12	5/10/2021	1536	711161	PFBA	1.03	
2210510A_12	5/10/2021	1536	711477	PFBA	1.03	
2210508A_02	5/8/2021	1745	710724	PFBA	1.25	
2210503A_9	5/3/2021	1723	710901	PFBA	1.24	
2210507B_03	5/7/2021	1729	710901	PFBA	1.23	
2210510A_12	5/10/2021	1536	711273	PFBA	1.03	
2210510A_12	5/10/2021	1536	711722	PFBA	1.03	
2210503A_9	5/3/2021	1723	710369	PFBA	1.24	
2210505A_03	5/5/2021	1050	710369	PFBA	1.25	
MB2162464RE	4/5/2021	1659	707851	PFBA	1.97	
MB2183139	5/8/2021	1858	710724	PFOS	0.830	
MB2184338	5/15/2021	1428	711275	PFBS	0.041	µg/Kg
MB2184340	5/16/2021	0545	711275	PFBS	0.035	
				PFHxA	0.023	
MB2183946	5/17/2021	2024	711477	PFBS	0.023	
				PFOS	0.071	

The positive field sample results that were greater than 5X the concentration detected in the blanks required no data qualifying action, while positive results less than 5X the blank concentration were qualified U,bl. When appropriate, the concentration detected was elevated to the limit of detection (LOD) or the quantitation limits were elevated to the concentrations detected when concentrations were greater than the LOD. The

following instrument sensitivity checks displayed percent recoveries greater than the upper quality control (QC) limit of 130%:

Blank	Date	Time	Batch	Analyte	Recovery (%)
2210405A_14	4/5/2021	1323	707851	PFTTrDA	137
2210515A_68	5/16/2021	0454	711275	NEtFOSAA	143

PFTTrDA was not a target analyte in the associated batch; no data qualifying action was required. The field sample results associated with the ISC exceedance in batch 711275 were all non-detect; no data qualifying action was required. The following EIS displayed area counts outside the QC limits of 50%-150%:

Field Sample	EIS	Associated Target Compound(s)	Area Count (%)
AOI01-02-SB-04-06	M ₂ PFTA	PFTeDA, PFTTrDA	44
AOI01-03-SB-00-02	D ₅ -NEtFOSAA	NEtFOSAA	48
AOI01-04-SB-03-05	M ₈ PFOS	PFOS	22
AOI01-08-SB-00-02	M ₃ 8:2 FTS	8:2 FTS	152
MB2184338	M ₃ PFHxS	PFHxS	45

Several QC samples displayed EIS percent recoveries outside QC limits; no data qualifying actions are required based on QC sample EIS anomalies. The non-detect field sample results associated with the high bias required no data qualifying action. The positive field sample results associated with the low recoveries were qualified J+,i, while non-detect results were qualified UJ,i. The following MS/MSDs displayed percent recoveries greater than the upper QC limits:

Parent Sample	QC Batch	Analyte	Upper QC Limit (%)	MS Recovery (%)	MSD Recovery (%)
AOI01-10-SB-03-05	711275	PFHxS	130	484	600
		PFOA	133	651	778
AOI01-08-SB-00-02	711722	PFOS	136	158	219
	712509	PFOS	136	106	148

The field sample results associated with the high biases were positive and were qualified J+,m. The field duplicate pair associated with parent sample AOI01-10-SB-00-02 displayed imprecise duplicate results. The parent sample displayed a positive result for PFHpA and a non-detect results for PFNA. The associated field duplicate displayed a non-detect result for PFHpA and a positive result for PFNA. The non-detect results were qualified UJ,fd, while the positive results were qualified J,fd. Field samples AOI01-10-SB-03-05 and AOI01-08-SB-00-02 were re-extracted and re-analyzed outside of holding time due to high matrix spike (MS/MSD) recoveries and extraction internal standards (EIS) failures, respectively. The positive re-extracted results were qualified J,h, while non-detect results were qualified UJ,h. Both sets of data have been reported; the data reviewer recommends the initial results be maintained in the data set.

The technical holding time for the pH analysis is 'immediate'. The field sample results associated with the expired holding times were qualified J,h.

Correctable Anomalies:

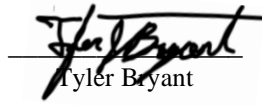
None.

Comments:

The laboratory did not receive the grain size sample AOI01-05-SB-06-08. On the basis of this evaluation, the laboratory appears to have followed the specified method, with the exception of anomalies discussed previously. If a given fraction was not discussed, all

quality control criteria reviewed were within acceptable limits. All data are usable, as qualified, for their intended purposed based on the quality control data reviewed.

Signed:



Tyler Bryant

Windsor Locks

Laboratory:

Pace Gulf Coast

Job: 60552172

SDG#:

221032903 + 50411

Sample ID	Client ID	Sample Type	Sample Date	Matrix	PFAS - QSM B-15	TOC + pH
22103290301	WL-DECON-01	Decon Water	3/26/2021	Water	X	
22105041101	AOI-01-SB-00-02	Field Sample	4/27/2021	Soil	X	
22105041102	AOI01-01-SB-05-07	Field Sample	4/27/2021	Soil	X	
22105041103	AOI01-02-SB-00-02	Field Sample	4/27/2021	Soil	X	
22105041104	AOI01-02-SB-04-06	Field Sample	4/27/2021	Soil	X	
22105041105	AOI01-03-SB-00-02	Field Sample	4/29/2021	Soil	X	
22105041106	AOI01-03-SB-03-05	Field Sample	4/29/2021	Soil	X	
22105041107	AOI01-03-SB-05-07	Field Sample	4/29/2021	Soil	X	
22105041108	AOI01-04-SB-00-02	Field Sample	4/29/2021	Soil	X	
22105041109	AOI01-04-SB-03-05	Field Sample	4/29/2021	Soil	X	
22105041110	WL-FRB-01	Field Rinse Blank	4/29/2021	Aqueous	X	
22105041111	AOI01-05-SB-00-02	Field Sample	4/28/2021	Soil	X	X
22105041112	AOI01-05-SB-00-02-D	Field Duplicate	4/28/2021	Soil		X
22105041113	AOI01-05-SB-02-04	Field Sample	4/28/2021	Soil	X	
22105041114	AOI01-05-SB-04-06	Field Sample	4/28/2021	Soil	X	
22105041116	AOI01-06-SB-00-02	Field Sample	4/28/2021	Soil	X	
22105041117	AOI01-06-SB-03-05	Field Sample	4/28/2021	Soil	X	
22105041118	AOI01-07-SB-00-02	Field Sample	4/28/2021	Soil	X	
22105041119	AOI01-07-SB-00-02-D	Field Duplicate	4/28/2021	Soil	X	
22105041120	AOI01-07-SB-02-04	Field Sample	4/28/2021	Soil	X	
22105041121	AOI01-07-SB-04-06	Field Sample	4/28/2021	Soil	X	
22105041122	AOI01-08-SB-00-02	Field Sample	4/28/2021	Soil	X	
22105041158		Field Sample	4/28/2021	Soil	X	
22105041125	AOI01-08-SB-02-04	Field Sample	4/28/2021	Soil	X	
22105041126	AOI01-08-SB-04-06	Field Sample	4/28/2021	Soil	X	
22105041127	AOI01-09-SB-00-02	Field Sample	4/27/2021	Soil	X	
22105041128	AOI01-09-SB-00-02-D	Field Duplicate	4/27/2021	Soil	X	
22105041129	AOI10-09-SB-05-07	Field Sample	4/27/2021	Soil	X	
22105041130	AOI01-09-SB-08-10	Field Sample	4/27/2021	Soil	X	
22105041131	AOI01-10-SB-00-02	Field Sample	4/28/2021	Soil	X	X
22105041132	AOI01-10-SB-00-02-D	Field Duplicate	4/28/2021	Soil	X	
22105041135	AOI01-10-SB-03-05	Field Sample	4/28/2021	Soil	X	
22105041155		Field Sample	4/28/2021	Soil	X	
22105041138	AOI01-01-GW	Field Sample	4/27/2021	Water	X	
22105041139	AOI01-02-GW	Field Sample	4/28/2021	Water	X	
22105041140	AOI01-03-GW	Field Sample	4/29/2021	Water	X	
22105041141	AOI01-04-GW	Field Sample	4/29/2021	Water	X	
22105041142	AOI01-03-GW-D	Field Duplicate	4/29/2021	Water	X	
22105041143	AOI01-05-GW	Field Sample	4/28/2021	Water	X	
22105041144	AOI01-06-GW	Field Sample	4/28/2021	Water	X	
22105041145	AOI01-07-GW	Field Sample	4/28/2021	Water	X	
22105041146	AOI01-08-GW	Field Sample	4/27/2021	Water	X	
22105041147	AOI01-09-GW	Field Sample	4/29/2021	Water	X	
22105041148	AOI01-10-GW	Field Sample	4/29/2021	Water	X	
22105041151	WL-ERB-02	Equipment Blank	4/28/2021	Aqueous	X	
22105041152	WL-ERB-03	Equipment Blank	4/29/2021	Aqueous	X	
22105041153	WL-ERB-04	Equipment Blank	4/29/2021	Aqueous	X	
22105041154	WL-ERB-01	Equipment Blank	4/28/2021	Aqueous	X	

Windsor Locks Field Duplicates

Client Sample ID: AOI01-05-SB- AOI01-05-SB-
00-02 00-02-D
Date Sampled: 4/28/21 4/28/21

	Units	LOQ	5x LOQ	Sample Conc	Duplicate Conc	RPD (%)	Delta	4x LOQ	Pass/ Fail	Match
General Chemistry										
pH	SU	1.00	5.0	7.68	7.94	3.3%	0.26	4.00	Pass	Pass
TOC	mg/Kg	250	1250	11700	10300	12.7%	1400	1000	Pass	Pass
Control limit		[sample]>5xLOQ use 50%								
		[sample]<5xLOQ use Delta<4xLOQ								

Windsor Locks Field Duplicates

Client Sample ID: AOI01-07-SB- AOI01-07-SB-
 00-02 00-02-D
 Date Sampled: 4/28/21 4/28/21

	Units	LOQ	5x LOQ	Sample Conc		Duplicate Conc		RPD (%)	Delta	4x LOQ	Pass/ Fail	Match
Perfluorinated Alkyl Substances												
6:2 FTS	µg/Kg	1.09	5.45	0.219	U	0.218	U	0.5%	0.0010	4.36	Pass	Pass
8:2 FTS	µg/Kg	1.09	5.45	0.109	U	0.109	U	0.0%	0.0	4.36	Pass	Pass
NEtFOSAA	µg/Kg	1.09	5.45	0.109	U	0.109	U	0.0%	0.0	4.36	Pass	Pass
NMeFOSAA	µg/Kg	1.09	5.45	0.055	U	0.054	U	1.8%	0.0010	4.36	Pass	Pass
PFBA	µg/Kg	1.09	5.45	0.096	J	0.069	J	32.7%	0.027	4.36	Pass	Pass
PFBS	µg/Kg	1.09	5.45	0.109	U	0.054	U	67.5%	0.055	4.36	Pass	Pass
PFDA	µg/Kg	1.09	5.45	0.183	J	0.116	J	44.8%	0.067	4.36	Pass	Pass
PFDOA	µg/Kg	1.09	5.45	0.023	J	0.022	J	4.4%	0.0010	4.36	Pass	Pass
PFHpA	µg/Kg	1.09	5.45	0.026	J	0.026	J	0.0%	0.0	4.36	Pass	Pass
PFHxA	µg/Kg	1.09	5.45	0.046	J	0.040	J	14.0%	0.0060	4.36	Pass	Pass
PFHxS	µg/Kg	1.09	5.45	0.068	J	0.059	J	14.2%	0.0090	4.36	Pass	Pass
PFNA	µg/Kg	1.09	5.45	0.114	J	0.070	J	47.8%	0.044	4.36	Pass	Pass
PFOA	µg/Kg	1.09	5.45	0.219	U	0.218	U	0.5%	0.0010	4.36	Pass	Pass
PFOS	µg/Kg	1.09	5.45	0.970	J	1.18		19.5%	0.21	4.36	Pass	Pass
PFPeA	µg/Kg	1.09	5.45	0.031	J	0.031	J	0.0%	0.0	4.36	Pass	Pass
PFTeDA	µg/Kg	1.09	5.45	0.055	U	0.054	U	1.8%	0.0010	4.36	Pass	Pass
PFTTrDA	µg/Kg	1.09	5.45	0.035	J	0.035	J	0.0%	0.0	4.36	Pass	Pass
PFUnDA	µg/Kg	1.09	5.45	0.076	J	0.055	J	32.1%	0.021	4.36	Pass	Pass

Control limit [sample]>5xLOQ use 50%
 [sample]<5xLOQ use Delta<4xLOQ

Windsor Locks Field Duplicates

Client Sample ID: AOI01-09-SB- AOI01-09-SB-
00-02 00-02-D
Date Sampled: 4/27/21 4/27/21

Units	LOQ	5x LOQ	Sample Conc	Duplicate Conc	RPD (%)	Delta	4x LOQ	Pass/ Fail	Match
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Perfluorinated Alkyl Substances

6:2 FTS	ng/L	1.14	5.70	0.229	U	0.226	U	1.3%	0.0030	4.56	Pass	Pass
8:2 FTS	ng/L	1.14	5.70	0.114	U	0.113	U	0.9%	0.0010	4.56	Pass	Pass
NEtFOSAA	ng/L	1.14	5.70	0.114	U	0.113	U	0.9%	0.0010	4.56	Pass	Pass
NMeFOSAA	ng/L	1.14	5.70	0.057	U	0.113	U	65.9%	0.056	4.56	Pass	Pass
PFBA	ng/L	1.14	5.70	0.258	J	0.149	J	53.6%	0.11	4.56	Pass	Pass
PFBS	ng/L	1.14	5.70	0.139	J	0.137	J	1.4%	0.0020	4.56	Pass	Pass
PFDA	ng/L	1.14	5.70	0.098	J	0.070	J	33.3%	0.028	4.56	Pass	Pass
PFDOA	ng/L	1.14	5.70	0.038	J	0.027	J	33.8%	0.011	4.56	Pass	Pass
PFHpA	ng/L	1.14	5.70	0.086	J	0.056	J	42.3%	0.030	4.56	Pass	Pass
PFHxA	ng/L	1.14	5.70	0.183	J	0.108	J	51.5%	0.075	4.56	Pass	Pass
PFHxS	ng/L	1.14	5.70	0.318	J	0.261	J	19.7%	0.057	4.56	Pass	Pass
PFNA	ng/L	1.14	5.70	0.161	J	0.111	J	36.8%	0.050	4.56	Pass	Pass
PFOA	ng/L	1.14	5.70	0.200	J	0.139	J	36.0%	0.061	4.56	Pass	Pass
PFOS	ng/L	1.14	5.70	2.17		1.77		20.3%	0.40	4.56	Pass	Pass
PFPeA	ng/L	1.14	5.70	0.180	J	0.107	J	50.9%	0.073	4.56	Pass	Pass
PFTeDA	ng/L	1.14	5.70	0.057	U	0.057	U	0.0%	0.0	4.56	Pass	Pass
PFTTrDA	ng/L	1.14	5.70	0.147	J	0.124	J	17.0%	0.023	4.56	Pass	Pass
PFUnDA	ng/L	1.14	5.70	0.170	J	0.120	J	34.5%	0.050	4.56	Pass	Pass

Control limit [sample]>5xLOQ use 50%
[sample]<5xLOQ use Delta<4xLOQ

Windsor Locks Field Duplicates

Client Sample ID: AOI01-10-SB- AOI01-10-SB-
00-02 00-02-D
Date Sampled: 4/28/21 4/28/21

	Units	LOQ	5x LOQ	Sample Conc		Duplicate Conc		% RPD	Delta	4x LOQ	Pass/ Fail	Match
Perfluorinated Alkyl Substances												
6:2 FTS	µg/Kg	1.08	5.40	0.217	U	0.218	U	0.5%	0.0010	4.32	Pass	Pass
8:2 FTS	µg/Kg	1.08	5.40	0.108	U	0.109	U	0.9%	0.0010	4.32	Pass	Pass
NEtFOSAA	µg/Kg	1.08	5.40	0.108	U	0.109	U	0.9%	0.0010	4.3	Pass	Pass
NMeFOSAA	µg/Kg	1.08	5.40	0.054	U	0.054	U	0.0%	0.0	4.3	Pass	Pass
PFBA	µg/Kg	1.08	5.40	0.065	J	0.058	J	11.4%	0.0070	4.32	Pass	Pass
PFBS	µg/Kg	1.08	5.40	0.054	U	0.054	U	0.0%	0.0	4.32	Pass	Pass
PFDA	µg/Kg	1.08	5.40	0.324	J	0.290	J	11.1%	0.034	4.32	Pass	Pass
PFDOA	µg/Kg	1.08	5.40	0.099	J	0.102	J	3.0%	0.0030	4.32	Pass	Pass
PFHpA	µg/Kg	1.08	5.40	0.023	J	0.054	U	80.5%	0.031	4.32	Pass	Fail
PFHxA	µg/Kg	1.08	5.40	0.080	J	0.068	J	16.2%	0.012	4.32	Pass	Pass
PFHxS	µg/Kg	1.08	5.40	0.377	J	0.311	J	19.2%	0.066	4.32	Pass	Pass
PFNA	µg/Kg	1.08	5.40	0.054	U	0.053	J	1.9%	0.0010	4.32	Pass	Fail
PFOA	µg/Kg	1.08	5.40	0.217	U	0.218	U	0.5%	0.0010	4.32	Pass	Pass
PFOS	µg/Kg	1.08	5.40	2.00		1.79		11.1%	0.21	4.32	Pass	Pass
PFPeA	µg/Kg	1.08	5.40	0.044	J	0.035	J	22.8%	0.0090	4.32	Pass	Pass
PFTeDA	µg/Kg	1.08	5.40	0.039	J	0.032	J	19.7%	0.0070	4.32	Pass	Pass
PFTTrDA	µg/Kg	1.08	5.40	0.475	J	0.509	J	6.9%	0.034	4.32	Pass	Pass
PFUnDA	µg/Kg	1.08	5.40	1.27		1.30		2.3%	0.030	4.32	Pass	Pass

Control limit [sample]>5xLOQ use 50%
[sample]<5xLOQ use Delta<4xLOQ

Windsor Locks Field Duplicates

Client Sample ID: AOI01-03-GW AOI01-03-GW-D
Date Sampled: 4/29/21 4/29/21

	Units	LOQ	5x LOQ	Sample Conc	Duplicate Conc	% RPD	Delta	2x LOQ	Pass/Fail	Match
Perfluorinated Alkyl Substances										
6:2 FTS	µg/Kg	4.00	20.0	6.77	3.06	75.5%	3.71	8.00	Pass	Pass
8:2 FTS	µg/Kg	4.00	20.0	12.6	10.7	16.3%	1.90	8.00	Pass	Pass
NEtFOSAA	µg/Kg	8.00	40.0	4.00 U	4.00 U	0.0%	0.0	16.0	Pass	Pass
NMeFOSAA	µg/Kg	8.00	40.0	2.69 J	2.17 J	21.4%	0.52	16.0	Pass	Pass
PFBA	µg/Kg	4.00	20.0	21.9	22.0	0.5%	0.10	8.00	Pass	Pass
PFBS	µg/Kg	4.00	20.0	51.3	46.5	9.8%	4.80	8.00	Pass	Pass
PFDA	µg/Kg	4.00	20.0	3.81 J	3.26 J	15.6%	0.55	8.00	Pass	Pass
PFDOA	µg/Kg	4.00	20.0	2.00 U	2.00 U	0.0%	0.0	8.00	Pass	Pass
PFHpA	µg/Kg	4.00	20.0	16.3	15	8.3%	1.30	8.00	Pass	Pass
PFHxA	µg/Kg	4.00	20.0	345	320	7.5%	25.0	8.00	Pass	Pass
PFHxS	µg/Kg	4.00	20.0	1830	1350	30.2%	480	8.00	Pass	Pass
PFNA	µg/Kg	4.00	20.0	49.7	45.1	9.7%	4.60	8.00	Pass	Pass
PFOA	µg/Kg	4.00	20.0	298	275	8.0%	23.0	8.00	Pass	Pass
PFOS	µg/Kg	4.00	20.0	125	115	8.3%	10.0	8.00	Pass	Pass
PFPeA	µg/Kg	4.00	20.0	45.0	41.8	7.4%	3.20	8.00	Pass	Pass
PFTeDA	µg/Kg	4.00	20.0	2.00 U	2.00 U	0.0%	0.0	8.00	Pass	Pass
PFTTrDA	µg/Kg	4.00	20.0	2.00 U	2.00 U	0.0%	0.0	8.00	Pass	Pass
PFUnDA	µg/Kg	4.00	20.0	52.3	44.7	15.7%	7.60	8.00	Pass	Pass

Control limit [sample]>5xLOQ use 35%
 [sample]<5xLOQ use Delta<2xLOQ

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No: <u>221032903</u>	Client Sample ID: <u>WL-DECON-01RE</u>
Collect Date: <u>03/26/21</u> Time: <u>0835</u>	GCAL Sample ID: <u>22103290301RE</u>
Matrix: <u>Water</u> % Moisture: <u>NA</u>	Instrument ID: <u>QQQ2</u>
Sample Amt: <u>125</u> mL	Lab File ID: <u>2210405A_32.d</u>
Injection Vol.: <u>1.0</u> (µL)	GC Column: <u>ACC-C18-30M</u> ID <u>2.1</u> (mm)
Prep Final Vol.: <u>1000</u> (µL)	Dilution Factor: <u>1</u> Analyst: <u>MRA</u>
Prep Date: _____	Analysis Date: <u>04/05/21</u> Time: <u>1805</u>
Prep Batch: <u>707127</u>	Analytical Batch: <u>707851</u>
Prep Method: <u>PFAS ID QSM B15 Prep</u>	Analytical Method: <u>PFAS Isotope Dilution QSM B15</u>

CONCENTRATION UNITS: ng/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomersulfonic acid	2.00	U	0.940	2.00	4.00
39108-34-4	8:2 Fluorotelomersulfonic acid	2.00	U	0.900	2.00	4.00
375-73-5	Perfluorobutanesulfonic acid	2.00	U	0.810	2.00	4.00
375-22-4	Perfluorobutanoic acid	2.80	J	0.900	2.00	4.00
335-76-2	Perfluorodecanoic acid	2.00	U	0.860	2.00	4.00
307-55-1	Perfluorododecanoic acid	2.00	U	0.880	2.00	4.00
355-46-4	Perfluorohexanesulfonic acid	2.00	U	0.950	2.00	4.00
307-24-4	Perfluorohexanoic acid	1.61	J	0.990	2.00	4.00
375-95-1	Perfluorononanoic acid	2.00	U	0.780	2.00	4.00
1763-23-1	Perfluorooctanesulfonic acid	0.875	J	0.810	2.00	4.00
335-67-1	Perfluorooctanoic acid	1.13	J	0.950	2.00	4.00
2706-90-3	Perfluoropentanoic acid	2.00	U	0.850	2.00	4.00
376-06-7	Perfluorotetradecanoic acid	2.00	U	0.980	2.00	4.00
2058-94-8	Perfluoroundecanoic acid	2.00	U	0.950	2.00	4.00

FORM I SV-1

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No: <u>221032903</u>	Client Sample ID: <u>WL-DECON-01</u>
Collect Date: <u>03/26/21</u> Time: <u>0835</u>	GCAL Sample ID: <u>22103290301</u>
Matrix: <u>Water</u> % Moisture: <u>NA</u>	Instrument ID: <u>QQQ1</u>
Sample Amt: <u>125</u> mL	Lab File ID: <u>22100401A_63.d</u>
Injection Vol.: <u>1.0</u> (µL)	GC Column: <u>ACC-C18-30M</u> ID <u>2.1</u> (mm)
Prep Final Vol.: <u>1000</u> (µL)	Dilution Factor: <u>1</u> Analyst: <u>MRA</u>
Prep Date: _____	Analysis Date: <u>04/02/21</u> Time: <u>0323</u>
Prep Batch: <u>707127</u>	Analytical Batch: <u>707996</u>
Prep Method: <u>PFAS ID QSM B15 Prep</u>	Analytical Method: <u>PFAS Isotope Dilution QSM B15</u>

CONCENTRATION UNITS: ng/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
2991-50-6	NEtFOSAA	4.00	U ✓	0.970	4.00	8.00
2355-31-9	NMeFOSAA	4.00	U	0.910	4.00	8.00
375-85-9	Perfluoroheptanoic acid	2.00	U	0.480	2.00	4.00
72629-94-8	Perfluorotridecanoic acid	2.00	U	0.990	2.00	4.00

FORM I SV-1

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No: <u>221050411</u>	Client Sample ID: <u>AOI01-01-SB-00-02</u>
Collect Date: <u>04/27/21</u> Time: <u>1245</u>	GCAL Sample ID: <u>22105041101</u>
Matrix: <u>Solid</u> % Moisture: <u>6.3</u>	Instrument ID: <u>QQQ3</u>
Sample Amt: <u>5.02</u> g	Lab File ID: <u>2210517A_45a.d</u>
Injection Vol.: <u>1.0</u> (µL)	GC Column: <u>ACC-C18-30M</u> ID <u>2.1</u> (mm)
Prep Final Vol.: <u>1000</u> (µL)	Dilution Factor: <u>1</u> Analyst: <u>RXJ</u>
Prep Date: <u>05/10/21</u>	Analysis Date: <u>05/18/21</u> Time: <u>0329</u>
Prep Batch: <u>710742</u>	Analytical Batch: <u>711477</u>
Prep Method: <u>PFAS ID QSM B15 Prep</u>	Analytical Method: <u>PFAS Isotope Dilution QSM B15</u>

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomersulfonic acid	0.213	U	0.064	0.213	1.06
39108-34-4	8:2 Fluorotelomersulfonic acid	0.106	U	0.032	0.106	1.06
2991-50-6	NEtFOSAA	0.106	U	0.032	0.106	1.06
2355-31-9	NMeFOSAA	0.053	U	0.021	0.053	1.06
375-73-5	Perfluorobutanesulfonic acid	0.177	J	0.021	0.053	1.06
375-22-4	Perfluorobutanoic acid	0.054	J	0.043	0.106	1.06
335-76-2	Perfluorodecanoic acid	0.106	U	0.043	0.106	1.06
307-55-1	Perfluorododecanoic acid	0.053	U	0.021	0.053	1.06
375-85-9	Perfluoroheptanoic acid	0.053	U	0.021	0.053	1.06
355-46-4	Perfluorohexanesulfonic acid	0.127	J	0.032	0.106	1.06
307-24-4	Perfluorohexanoic acid	0.026	J	0.021	0.053	1.06
375-95-1	Perfluorononanoic acid	0.053	U	0.021	0.053	1.06
1763-23-1	Perfluorooctanesulfonic acid	1.01	J	0.053	0.213	1.06
335-67-1	Perfluorooctanoic acid	0.213	U	0.085	0.213	1.06
2706-90-3	Perfluoropentanoic acid	0.053	U	0.021	0.053	1.06
376-06-7	Perfluorotetradecanoic acid	0.053	U	0.021	0.053	1.06
72629-94-8	Perfluorotridecanoic acid	0.106	U	0.032	0.106	1.06
2058-94-8	Perfluoroundecanoic acid	0.032	J	0.021	0.053	1.06

FORM I SV-1

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No: <u>221050411</u>	Client Sample ID: <u>AOI01-01-SB-05-07</u>
Collect Date: <u>04/27/21</u> Time: <u>1250</u>	GCAL Sample ID: <u>22105041102</u>
Matrix: <u>Solid</u> % Moisture: <u>5.5</u>	Instrument ID: <u>QQQ3</u>
Sample Amt: <u>5</u> g	Lab File ID: <u>2210517A_46.d</u>
Injection Vol.: <u>1.0</u> (µL)	GC Column: <u>ACC-C18-30M</u> ID <u>2.1</u> (mm)
Prep Final Vol.: <u>1000</u> (µL)	Dilution Factor: <u>1</u> Analyst: <u>RXJ</u>
Prep Date: <u>05/10/21</u>	Analysis Date: <u>05/18/21</u> Time: <u>0344</u>
Prep Batch: <u>710742</u>	Analytical Batch: <u>711477</u>
Prep Method: <u>PFAS ID QSM B15 Prep</u>	Analytical Method: <u>PFAS Isotope Dilution QSM B15</u>

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomersulfonic acid	0.212	U	0.063	0.212	1.06
39108-34-4	8:2 Fluorotelomersulfonic acid	0.106	U	0.032	0.106	1.06
2991-50-6	NEtFOSAA	0.106	U	0.032	0.106	1.06
2355-31-9	NMeFOSAA	0.053	U	0.021	0.053	1.06
375-73-5	Perfluorobutanesulfonic acid	0.162	J	0.021	0.053	1.06
375-22-4	Perfluorobutanoic acid	0.045	J	0.042	0.106	1.06
335-76-2	Perfluorodecanoic acid	0.106	U	0.042	0.106	1.06
307-55-1	Perfluorododecanoic acid	0.053	U	0.021	0.053	1.06
375-85-9	Perfluoroheptanoic acid	0.053	U	0.021	0.053	1.06
355-46-4	Perfluorohexanesulfonic acid	0.106	U	0.032	0.106	1.06
307-24-4	Perfluorohexanoic acid	0.053	U	0.021	0.053	1.06
375-95-1	Perfluorononanoic acid	0.053	U	0.021	0.053	1.06
1763-23-1	Perfluorooctanesulfonic acid	0.582	J	0.053	0.212	1.06
335-67-1	Perfluorooctanoic acid	0.212	U	0.085	0.212	1.06
2706-90-3	Perfluoropentanoic acid	0.053	U	0.021	0.053	1.06
376-06-7	Perfluorotetradecanoic acid	0.053	U	0.021	0.053	1.06
72629-94-8	Perfluorotridecanoic acid	0.106	U	0.032	0.106	1.06
2058-94-8	Perfluoroundecanoic acid	0.053	U	0.021	0.053	1.06

FORM I SV-1

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No: <u>221050411</u>	Client Sample ID: <u>AOI01-02-SB-00-02</u>
Collect Date: <u>04/27/21</u> Time: <u>1035</u>	GCAL Sample ID: <u>22105041103</u>
Matrix: <u>Solid</u> % Moisture: <u>21.5</u>	Instrument ID: <u>QQQ3</u>
Sample Amt: <u>5.01</u> g	Lab File ID: <u>2210517A_47.d</u>
Injection Vol.: <u>1.0</u> (µL)	GC Column: <u>ACC-C18-30M</u> ID <u>2.1</u> (mm)
Prep Final Vol.: <u>1000</u> (µL)	Dilution Factor: <u>1</u> Analyst: <u>RXJ</u>
Prep Date: <u>05/10/21</u>	Analysis Date: <u>05/18/21</u> Time: <u>0359</u>
Prep Batch: <u>710742</u>	Analytical Batch: <u>711477</u>
Prep Method: <u>PFAS ID QSM B15 Prep</u>	Analytical Method: <u>PFAS Isotope Dilution QSM B15</u>

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomersulfonic acid	0.149	J	0.076	0.254	1.27
39108-34-4	8:2 Fluorotelomersulfonic acid	0.197	J	0.038	0.127	1.27
2991-50-6	NEtFOSAA	0.127	U	0.038	0.127	1.27
2355-31-9	NMeFOSAA	0.064	U	0.025	0.064	1.27
375-73-5	Perfluorobutanesulfonic acid	0.163	J	0.025	0.064	1.27
375-22-4	Perfluorobutanoic acid	0.089	J	0.051	0.127	1.27
335-76-2	Perfluorodecanoic acid	0.432	J	0.051	0.127	1.27
307-55-1	Perfluorododecanoic acid	0.561	J	0.025	0.064	1.27
375-85-9	Perfluoroheptanoic acid	0.045	J	0.025	0.064	1.27
355-46-4	Perfluorohexanesulfonic acid	0.576	J	0.038	0.127	1.27
307-24-4	Perfluorohexanoic acid	0.096	J	0.025	0.064	1.27
375-95-1	Perfluorononanoic acid	0.145	J	0.025	0.064	1.27
1763-23-1	Perfluorooctanesulfonic acid	3.82		0.064	0.254	1.27
335-67-1	Perfluorooctanoic acid	0.254	U	0.102	0.254	1.27
2706-90-3	Perfluoropentanoic acid	0.124	J	0.025	0.064	1.27
376-06-7	Perfluorotetradecanoic acid	0.211	J	0.025	0.064	1.27
72629-94-8	Perfluorotridecanoic acid	3.16		0.038	0.127	1.27
2058-94-8	Perfluoroundecanoic acid	5.05		0.025	0.064	1.27

FORM I SV-1

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No: <u>221050411</u>	Client Sample ID: <u>AOI01-02-SB-04-06</u>
Collect Date: <u>04/27/21</u> Time: <u>1100</u>	GCAL Sample ID: <u>22105041104</u>
Matrix: <u>Solid</u> % Moisture: <u>22.9</u>	Instrument ID: <u>QQQ3</u>
Sample Amt: <u>5.03</u> g	Lab File ID: <u>2210517A_48.d</u>
Injection Vol.: <u>1.0</u> (µL)	GC Column: <u>ACC-C18-30M</u> ID <u>2.1</u> (mm)
Prep Final Vol.: <u>1000</u> (µL)	Dilution Factor: <u>1</u> Analyst: <u>RXJ</u>
Prep Date: <u>05/10/21</u>	Analysis Date: <u>05/18/21</u> Time: <u>0413</u>
Prep Batch: <u>710742</u>	Analytical Batch: <u>711477</u>
Prep Method: <u>PFAS ID QSM B15 Prep</u>	Analytical Method: <u>PFAS Isotope Dilution QSM B15</u>

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomersulfonic acid	0.258	U	0.077	0.258	1.29
39108-34-4	8:2 Fluorotelomersulfonic acid	0.070	J	0.039	0.129	1.29
2991-50-6	NEtFOSAA	0.129	U	0.039	0.129	1.29
2355-31-9	NMeFOSAA	0.064	U	0.026	0.064	1.29
375-73-5	Perfluorobutanesulfonic acid	0.091	J	0.026	0.064	1.29
375-22-4	Perfluorobutanoic acid	0.061	J	0.052	0.129	1.29
335-76-2	Perfluorodecanoic acid	0.675	J	0.052	0.129	1.29
307-55-1	Perfluorododecanoic acid	0.064	U	0.026	0.064	1.29
375-85-9	Perfluoroheptanoic acid	0.064	J	0.026	0.064	1.29
355-46-4	Perfluorohexanesulfonic acid	0.148	J	0.039	0.129	1.29
307-24-4	Perfluorohexanoic acid	0.077	J	0.026	0.064	1.29
375-95-1	Perfluorononanoic acid	0.150	J	0.026	0.064	1.29
1763-23-1	Perfluorooctanesulfonic acid	1.89		0.064	0.258	1.29
335-67-1	Perfluorooctanoic acid	0.258	U	0.103	0.258	1.29
2706-90-3	Perfluoropentanoic acid	0.066	J	0.026	0.064	1.29
376-06-7	Perfluorotetradecanoic acid	0.064	U	0.026	0.064	1.29
72629-94-8	Perfluorotridecanoic acid	0.129	U	0.039	0.129	1.29
2058-94-8	Perfluoroundecanoic acid	1.35		0.026	0.064	1.29

FORM I SV-1

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No: <u>221050411</u>	Client Sample ID: <u>AOI01-03-SB-00-02</u>
Collect Date: <u>04/29/21</u> Time: <u>0800</u>	GCAL Sample ID: <u>22105041105</u>
Matrix: <u>Solid</u> % Moisture: <u>10.1</u>	Instrument ID: <u>QQQ1</u>
Sample Amt: <u>5.03</u> g	Lab File ID: <u>2210515A_22.d</u>
Injection Vol.: <u>1.0</u> (µL)	GC Column: <u>ACC-C18-30M</u> ID <u>2.1</u> (mm)
Prep Final Vol.: <u>1000</u> (µL)	Dilution Factor: <u>1</u> Analyst: <u>MRA</u>
Prep Date: <u>05/11/21</u>	Analysis Date: <u>05/15/21</u> Time: <u>1537</u>
Prep Batch: <u>710837</u>	Analytical Batch: <u>711275</u>
Prep Method: <u>PFAS ID QSM B15 Prep</u>	Analytical Method: <u>PFAS Isotope Dilution QSM B15</u>

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomersulfonic acid	0.221	U	0.066	0.221	1.11
39108-34-4	8:2 Fluorotelomersulfonic acid	0.111	U	0.033	0.111	1.11
2355-31-9	NMeFOSAA	0.055	U	0.022	0.055	1.11
375-73-5	Perfluorobutanesulfonic acid	0.024	J	0.022	0.055	1.11
375-22-4	Perfluorobutanoic acid	0.093	J	0.044	0.111	1.11
335-76-2	Perfluorodecanoic acid	0.366	J	0.044	0.111	1.11
307-55-1	Perfluorododecanoic acid	0.134	J	0.022	0.055	1.11
375-85-9	Perfluoroheptanoic acid	0.031	J	0.022	0.055	1.11
307-24-4	Perfluorohexanoic acid	0.127	J	0.022	0.055	1.11
375-95-1	Perfluorononanoic acid	0.135	J	0.022	0.055	1.11
1763-23-1	Perfluorooctanesulfonic acid	2.86		0.055	0.221	1.11
335-67-1	Perfluorooctanoic acid	0.221	U	0.088	0.221	1.11
2706-90-3	Perfluoropentanoic acid	0.087	J	0.022	0.055	1.11
376-06-7	Perfluorotetradecanoic acid	0.054	J	0.022	0.055	1.11
72629-94-8	Perfluorotridecanoic acid	1.56		0.033	0.111	1.11
2058-94-8	Perfluoroundecanoic acid	1.51		0.022	0.055	1.11

FORM I SV-1

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No: <u>221050411</u>	Client Sample ID: <u>AOI01-03-SB-00-02RE</u>
Collect Date: <u>04/29/21</u> Time: <u>0800</u>	GCAL Sample ID: <u>22105041105RE</u>
Matrix: <u>Solid</u> % Moisture: <u>10.1</u>	Instrument ID: <u>QQQ3</u>
Sample Amt: <u>5.03</u> g	Lab File ID: <u>2210520A_46.d</u>
Injection Vol.: <u>1.0</u> (µL)	GC Column: <u>ACC-C18-30M</u> ID <u>2.1</u> (mm)
Prep Final Vol.: <u>1000</u> (µL)	Dilution Factor: <u>1</u> Analyst: <u>RXJ</u>
Prep Date: <u>05/11/21</u>	Analysis Date: <u>05/21/21</u> Time: <u>0451</u>
Prep Batch: <u>710837</u>	Analytical Batch: <u>711722</u>
Prep Method: <u>PFAS ID QSM B15 Prep</u>	Analytical Method: <u>PFAS Isotope Dilution QSM B15</u>

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
2991-50-6	NEtFOSAA	0.039	J	0.033	0.111	1.11
355-46-4	Perfluorohexanesulfonic acid	0.856	J	0.033	0.111	1.11

FORM I SV-1

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No: <u>221050411</u>	Client Sample ID: <u>AOI01-03-SB-03-05</u>
Collect Date: <u>04/29/21</u> Time: <u>0805</u>	GCAL Sample ID: <u>22105041106</u>
Matrix: <u>Solid</u> % Moisture: <u>10.5</u>	Instrument ID: <u>QQQ1</u>
Sample Amt: <u>5</u> g	Lab File ID: <u>2210515A_23.d</u>
Injection Vol.: <u>1.0</u> (µL)	GC Column: <u>ACC-C18-30M</u> ID <u>2.1</u> (mm)
Prep Final Vol.: <u>1000</u> (µL)	Dilution Factor: <u>1</u> Analyst: <u>MRA</u>
Prep Date: <u>05/11/21</u>	Analysis Date: <u>05/15/21</u> Time: <u>1554</u>
Prep Batch: <u>710837</u>	Analytical Batch: <u>711275</u>
Prep Method: <u>PFAS ID QSM B15 Prep</u>	Analytical Method: <u>PFAS Isotope Dilution QSM B15</u>

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomersulfonic acid	0.223	U	0.067	0.223	1.12
39108-34-4	8:2 Fluorotelomersulfonic acid	0.112	U	0.034	0.112	1.12
2991-50-6	NEtFOSAA	0.112	U	0.034	0.112	1.12
2355-31-9	NMeFOSAA	0.056	U	0.022	0.056	1.12
375-73-5	Perfluorobutanesulfonic acid	0.059	J	0.022	0.056	1.12
375-22-4	Perfluorobutanoic acid	0.055	J	0.045	0.112	1.12
335-76-2	Perfluorodecanoic acid	0.346	J	0.045	0.112	1.12
307-55-1	Perfluorododecanoic acid	0.115	J	0.022	0.056	1.12
375-85-9	Perfluoroheptanoic acid	0.181	J	0.022	0.056	1.12
307-24-4	Perfluorohexanoic acid	0.316	J	0.022	0.056	1.12
375-95-1	Perfluorononanoic acid	0.169	J	0.022	0.056	1.12
1763-23-1	Perfluorooctanesulfonic acid	5.07		0.056	0.223	1.12
335-67-1	Perfluorooctanoic acid	0.278	J	0.089	0.223	1.12
2706-90-3	Perfluoropentanoic acid	0.055	J	0.022	0.056	1.12
376-06-7	Perfluorotetradecanoic acid	0.034	J	0.022	0.056	1.12
72629-94-8	Perfluorotridecanoic acid	1.42		0.034	0.112	1.12
2058-94-8	Perfluoroundecanoic acid	8.02		0.022	0.056	1.12

FORM I SV-1

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No: <u>221050411</u>	Client Sample ID: <u>AOI01-03-SB-03-05RE</u>
Collect Date: <u>04/29/21</u> Time: <u>0805</u>	GCAL Sample ID: <u>22105041106RE</u>
Matrix: <u>Solid</u> % Moisture: <u>10.5</u>	Instrument ID: <u>QQQ3</u>
Sample Amt: <u>5</u> g	Lab File ID: <u>2210520A_47.d</u>
Injection Vol.: <u>1.0</u> (µL)	GC Column: <u>ACC-C18-30M</u> ID <u>2.1</u> (mm)
Prep Final Vol.: <u>1000</u> (µL)	Dilution Factor: <u>1</u> Analyst: <u>RXJ</u>
Prep Date: <u>05/11/21</u>	Analysis Date: <u>05/21/21</u> Time: <u>0505</u>
Prep Batch: <u>710837</u>	Analytical Batch: <u>711722</u>
Prep Method: <u>PFAS ID QSM B15 Prep</u>	Analytical Method: <u>PFAS Isotope Dilution QSM B15</u>

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
355-46-4	Perfluorohexanesulfonic acid	4.86		0.034	0.112	1.12

FORM I SV-1

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No: <u>221050411</u>	Client Sample ID: <u>AOI01-03-SB-05-07</u>
Collect Date: <u>04/29/21</u> Time: <u>0810</u>	GCAL Sample ID: <u>22105041107</u>
Matrix: <u>Solid</u> % Moisture: <u>24.0</u>	Instrument ID: <u>QQQ1</u>
Sample Amt: <u>5.05</u> g	Lab File ID: <u>2210515A_24.d</u>
Injection Vol.: <u>1.0</u> (µL)	GC Column: <u>ACC-C18-30M</u> ID <u>2.1</u> (mm)
Prep Final Vol.: <u>1000</u> (µL)	Dilution Factor: <u>1</u> Analyst: <u>MRA</u>
Prep Date: <u>05/11/21</u>	Analysis Date: <u>05/15/21</u> Time: <u>1611</u>
Prep Batch: <u>710837</u>	Analytical Batch: <u>711275</u>
Prep Method: <u>PFAS ID QSM B15 Prep</u>	Analytical Method: <u>PFAS Isotope Dilution QSM B15</u>

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomersulfonic acid	0.261	U	0.078	0.261	1.30
39108-34-4	8:2 Fluorotelomersulfonic acid	0.130	U	0.039	0.130	1.30
2991-50-6	NEtFOSAA	0.130	U	0.039	0.130	1.30
2355-31-9	NMeFOSAA	0.065	U	0.026	0.065	1.30
375-73-5	Perfluorobutanesulfonic acid	0.182	J	0.026	0.065	1.30
375-22-4	Perfluorobutanoic acid	0.141	J	0.052	0.130	1.30
335-76-2	Perfluorodecanoic acid	0.230	J	0.052	0.130	1.30
307-55-1	Perfluorododecanoic acid	0.047	J	0.026	0.065	1.30
375-85-9	Perfluoroheptanoic acid	0.093	J	0.026	0.065	1.30
307-24-4	Perfluorohexanoic acid	0.530	J	0.026	0.065	1.30
375-95-1	Perfluorononanoic acid	0.170	J	0.026	0.065	1.30
1763-23-1	Perfluorooctanesulfonic acid	6.19		0.065	0.261	1.30
335-67-1	Perfluorooctanoic acid	0.491	J	0.104	0.261	1.30
2706-90-3	Perfluoropentanoic acid	0.096	J	0.026	0.065	1.30
376-06-7	Perfluorotetradecanoic acid	0.065	U	0.026	0.065	1.30
72629-94-8	Perfluorotridecanoic acid	0.539	J	0.039	0.130	1.30
2058-94-8	Perfluoroundecanoic acid	3.31		0.026	0.065	1.30

FORM I SV-1

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No: <u>221050411</u>	Client Sample ID: <u>AOI01-03-SB-05-07RE</u>
Collect Date: <u>04/29/21</u> Time: <u>0810</u>	GCAL Sample ID: <u>22105041107RE</u>
Matrix: <u>Solid</u> % Moisture: <u>24.0</u>	Instrument ID: <u>QQQ3</u>
Sample Amt: <u>5.05</u> g	Lab File ID: <u>2210520A_48.d</u>
Injection Vol.: <u>1.0</u> (µL)	GC Column: <u>ACC-C18-30M</u> ID <u>2.1</u> (mm)
Prep Final Vol.: <u>1000</u> (µL)	Dilution Factor: <u>1</u> Analyst: <u>RXJ</u>
Prep Date: <u>05/11/21</u>	Analysis Date: <u>05/21/21</u> Time: <u>0520</u>
Prep Batch: <u>710837</u>	Analytical Batch: <u>711722</u>
Prep Method: <u>PFAS ID QSM B15 Prep</u>	Analytical Method: <u>PFAS Isotope Dilution QSM B15</u>

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
355-46-4	Perfluorohexanesulfonic acid	7.56		0.039	0.130	1.30

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No: <u>221050411</u>	Client Sample ID: <u>AOI01-04-SB-00-02</u>
Collect Date: <u>04/29/21</u> Time: <u>0855</u>	GCAL Sample ID: <u>22105041108</u>
Matrix: <u>Solid</u> % Moisture: <u>6.2</u>	Instrument ID: <u>QQQ1</u>
Sample Amt: <u>5.05</u> g	Lab File ID: <u>2210515A_25.d</u>
Injection Vol.: <u>1.0</u> (µL)	GC Column: <u>ACC-C18-30M</u> ID <u>2.1</u> (mm)
Prep Final Vol.: <u>1000</u> (µL)	Dilution Factor: <u>1</u> Analyst: <u>MRA</u>
Prep Date: <u>05/11/21</u>	Analysis Date: <u>05/15/21</u> Time: <u>1629</u>
Prep Batch: <u>710837</u>	Analytical Batch: <u>711275</u>
Prep Method: <u>PFAS ID QSM B15 Prep</u>	Analytical Method: <u>PFAS Isotope Dilution QSM B15</u>

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomersulfonic acid	0.211	U	0.063	0.211	1.06
39108-34-4	8:2 Fluorotelomersulfonic acid	0.106	U	0.032	0.106	1.06
2991-50-6	NEtFOSAA	0.106	U	0.032	0.106	1.06
2355-31-9	NMeFOSAA	0.053	U	0.021	0.053	1.06
375-73-5	Perfluorobutanesulfonic acid	0.053	U	0.021	0.053	1.06
375-22-4	Perfluorobutanoic acid	0.048	J	0.042	0.106	1.06
335-76-2	Perfluorodecanoic acid	0.076	J	0.042	0.106	1.06
307-55-1	Perfluorododecanoic acid	0.029	J	0.021	0.053	1.06
375-85-9	Perfluoroheptanoic acid	0.053	U	0.021	0.053	1.06
307-24-4	Perfluorohexanoic acid	0.083	J	0.021	0.053	1.06
375-95-1	Perfluorononanoic acid	0.043	J	0.021	0.053	1.06
1763-23-1	Perfluorooctanesulfonic acid	2.60		0.053	0.211	1.06
335-67-1	Perfluorooctanoic acid	0.211	U	0.084	0.211	1.06
2706-90-3	Perfluoropentanoic acid	0.047	J	0.021	0.053	1.06
376-06-7	Perfluorotetradecanoic acid	0.053	U	0.021	0.053	1.06
72629-94-8	Perfluorotridecanoic acid	0.106	U	0.032	0.106	1.06
2058-94-8	Perfluoroundecanoic acid	0.053	J	0.021	0.053	1.06

FORM I SV-1

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No: <u>221050411</u>	Client Sample ID: <u>AOI01-04-SB-00-02RE</u>
Collect Date: <u>04/29/21</u> Time: <u>0855</u>	GCAL Sample ID: <u>22105041108RE</u>
Matrix: <u>Solid</u> % Moisture: <u>6.2</u>	Instrument ID: <u>QQQ3</u>
Sample Amt: <u>5.05</u> g	Lab File ID: <u>2210520A_49.d</u>
Injection Vol.: <u>1.0</u> (µL)	GC Column: <u>ACC-C18-30M</u> ID <u>2.1</u> (mm)
Prep Final Vol.: <u>1000</u> (µL)	Dilution Factor: <u>1</u> Analyst: <u>RXJ</u>
Prep Date: <u>05/11/21</u>	Analysis Date: <u>05/21/21</u> Time: <u>0534</u>
Prep Batch: <u>710837</u>	Analytical Batch: <u>711722</u>
Prep Method: <u>PFAS ID QSM B15 Prep</u>	Analytical Method: <u>PFAS Isotope Dilution QSM B15</u>

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
355-46-4	Perfluorohexanesulfonic acid	0.412	J	0.032	0.106	1.06

FORM I SV-1

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No: <u>221050411</u>	Client Sample ID: <u>AOI01-04-SB-03-05</u>
Collect Date: <u>04/29/21</u> Time: <u>0900</u>	GCAL Sample ID: <u>22105041109</u>
Matrix: <u>Solid</u> % Moisture: <u>12.5</u>	Instrument ID: <u>QQQ1</u>
Sample Amt: <u>5</u> g	Lab File ID: <u>2210515A_26.d</u>
Injection Vol.: <u>1.0</u> (µL)	GC Column: <u>ACC-C18-30M</u> ID <u>2.1</u> (mm)
Prep Final Vol.: <u>1000</u> (µL)	Dilution Factor: <u>1</u> Analyst: <u>MRA</u>
Prep Date: <u>05/11/21</u>	Analysis Date: <u>05/15/21</u> Time: <u>1646</u>
Prep Batch: <u>710837</u>	Analytical Batch: <u>711275</u>
Prep Method: <u>PFAS ID QSM B15 Prep</u>	Analytical Method: <u>PFAS Isotope Dilution QSM B15</u>

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomersulfonic acid	0.229	U	0.069	0.229	1.14
39108-34-4	8:2 Fluorotelomersulfonic acid	0.114	U	0.034	0.114	1.14
2991-50-6	NEtFOSAA	0.114	U	0.034	0.114	1.14
2355-31-9	NMeFOSAA	0.057	U	0.023	0.057	1.14
375-73-5	Perfluorobutanesulfonic acid	0.057	U	0.023	0.057	1.14
375-22-4	Perfluorobutanoic acid	0.114	U	0.046	0.114	1.14
335-76-2	Perfluorodecanoic acid	0.114	U	0.046	0.114	1.14
307-55-1	Perfluorododecanoic acid	0.057	U	0.023	0.057	1.14
375-85-9	Perfluoroheptanoic acid	0.057	U	0.023	0.057	1.14
307-24-4	Perfluorohexanoic acid	0.057	U	0.023	0.057	1.14
375-95-1	Perfluorononanoic acid	0.057	U	0.023	0.057	1.14
335-67-1	Perfluorooctanoic acid	0.229	U	0.091	0.229	1.14
2706-90-3	Perfluoropentanoic acid	0.057	U	0.023	0.057	1.14
376-06-7	Perfluorotetradecanoic acid	0.057	U	0.023	0.057	1.14
72629-94-8	Perfluorotridecanoic acid	0.114	U	0.034	0.114	1.14
2058-94-8	Perfluoroundecanoic acid	0.057	U	0.023	0.057	1.14

FORM I SV-1

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No: <u>221050411</u>	Client Sample ID: <u>AOI01-04-SB-03-05RE</u>
Collect Date: <u>04/29/21</u> Time: <u>0900</u>	GCAL Sample ID: <u>22105041109RE</u>
Matrix: <u>Solid</u> % Moisture: <u>12.5</u>	Instrument ID: <u>QQQ3</u>
Sample Amt: <u>5</u> g	Lab File ID: <u>2210520A_50.d</u>
Injection Vol.: <u>1.0</u> (µL)	GC Column: <u>ACC-C18-30M</u> ID <u>2.1</u> (mm)
Prep Final Vol.: <u>1000</u> (µL)	Dilution Factor: <u>1</u> Analyst: <u>RXJ</u>
Prep Date: <u>05/11/21</u>	Analysis Date: <u>05/21/21</u> Time: <u>0549</u>
Prep Batch: <u>710837</u>	Analytical Batch: <u>711722</u>
Prep Method: <u>PFAS ID QSM B15 Prep</u>	Analytical Method: <u>PFAS Isotope Dilution QSM B15</u>

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
355-46-4	Perfluorohexanesulfonic acid	0.129	J	0.034	0.114	1.14
1763-23-1	Perfluorooctanesulfonic acid	0.310	J	0.057	0.229	1.14

FORM I SV-1

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No: <u>221050411</u>	Client Sample ID: <u>WL-FRB-01</u>
Collect Date: <u>04/29/21</u> Time: <u>0750</u>	GCAL Sample ID: <u>22105041110</u>
Matrix: <u>Water</u> % Moisture: <u>NA</u>	Instrument ID: <u>QQQ3</u>
Sample Amt: <u>125</u> mL	Lab File ID: <u>2210525A_59.d</u>
Injection Vol.: <u>1.0</u> (µL)	GC Column: <u>ACC-C18-30M</u> ID <u>2.1</u> (mm)
Prep Final Vol.: <u>1000</u> (µL)	Dilution Factor: <u>1</u> Analyst: <u>RXJ</u>
Prep Date: <u>05/07/21</u>	Analysis Date: <u>05/26/21</u> Time: <u>0632</u>
Prep Batch: <u>710580</u>	Analytical Batch: <u>712118</u>
Prep Method: <u>PFAS ID QSM B15 Prep</u>	Analytical Method: <u>PFAS Isotope Dilution QSM B15</u>

CONCENTRATION UNITS: ng/L

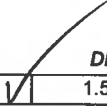
CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
39108-34-4	8:2 Fluorotelomersulfonic acid	3.00	U	1.06	3.00	4.00
2991-50-6	NEtFOSAA	4.00	U	1.58	4.00	8.00
2355-31-9	NMeFOSAA	4.00	U	0.900	4.00	8.00
375-73-5	Perfluorobutanesulfonic acid	2.00	U	0.620	2.00	4.00
375-22-4	Perfluorobutanoic acid	3.50	U	1.52	3.50	4.00
335-76-2	Perfluorodecanoic acid	3.00	U	1.44	3.00	4.00
307-55-1	Perfluorododecanoic acid	3.00	U	1.30	3.00	4.00
375-85-9	Perfluoroheptanoic acid	3.00	U	1.16	3.00	4.00
355-46-4	Perfluorohexanesulfonic acid	3.00	U	1.24	3.00	4.00
307-24-4	Perfluorohexanoic acid	2.00	U	0.940	2.00	4.00
375-95-1	Perfluorononanoic acid	2.00	U	0.980	2.00	4.00
1763-23-1	Perfluorooctanesulfonic acid	2.00	U	0.760	2.00	4.00
335-67-1	Perfluorooctanoic acid	2.00	U	0.840	2.00	4.00
2706-90-3	Perfluoropentanoic acid	2.00	U	0.880	2.00	4.00
376-06-7	Perfluorotetradecanoic acid	3.00	U	1.14	3.00	4.00
72629-94-8	Perfluorotridecanoic acid	3.00	U	1.23	3.00	4.00
2058-94-8	Perfluoroundecanoic acid	3.00	U	1.24	3.00	4.00

FORM I SV-1

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No: <u>221050411</u>	Client Sample ID: <u>WL-FRB-01RE</u>
Collect Date: <u>04/29/21</u> Time: <u>0750</u>	GCAL Sample ID: <u>22105041110RE</u>
Matrix: <u>Water</u> % Moisture: <u>NA</u>	Instrument ID: <u>QQQ3</u>
Sample Amt: <u>125</u> mL	Lab File ID: <u>2210602C_40.d</u>
Injection Vol.: <u>1.0</u> (µL)	GC Column: <u>ACC-C18-30M</u> ID <u>2.1</u> (mm)
Prep Final Vol.: <u>1000</u> (µL)	Dilution Factor: <u>1</u> Analyst: <u>RXJ</u>
Prep Date: <u>05/07/21</u>	Analysis Date: <u>06/03/21</u> Time: <u>0357</u>
Prep Batch: <u>710580</u>	Analytical Batch: <u>712820</u>
Prep Method: <u>PFAS ID QSM B15 Prep</u>	Analytical Method: <u>PFAS Isotope Dilution QSM B15</u>

CONCENTRATION UNITS: ng/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomersulfonic acid	3.00	U 	1.50	3.00	4.00

FORM I SV-1

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No: <u>221050411</u>	Client Sample ID: <u>AOI01-05-SB-00-02</u>	
Collect Date: <u>04/28/21</u> Time: <u>1220</u>	GCAL Sample ID: <u>22105041111</u>	
Matrix: <u>Solid</u> % Moisture: <u>14.6</u>	Instrument ID: <u>QQQ1</u>	
Sample Amt: <u>5</u> g	Lab File ID: <u>2210515A_27.d</u>	
Injection Vol.: <u>1.0</u> (µL)	GC Column: <u>ACC-C18-30M</u> ID <u>2.1</u> (mm)	
Prep Final Vol.: <u>1000</u> (µL)	Dilution Factor: <u>1</u> Analyst: <u>MRA</u>	
Prep Date: <u>05/11/21</u>	Analysis Date: <u>05/15/21</u> Time: <u>1703</u>	
Prep Batch: <u>710837</u>	Analytical Batch: <u>711275</u>	
Prep Method: <u>PFAS ID QSM B15 Prep</u>	Analytical Method: <u>PFAS Isotope Dilution QSM B15</u>	

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomersulfonic acid	0.234	U	0.070	0.234	1.17
39108-34-4	8:2 Fluorotelomersulfonic acid	0.117	U	0.035	0.117	1.17
2991-50-6	NEtFOSAA	0.117	U	0.035	0.117	1.17
2355-31-9	NMeFOSAA	0.059	U	0.023	0.059	1.17
375-73-5	Perfluorobutanesulfonic acid	0.059	U	0.023	0.059	1.17
375-22-4	Perfluorobutanoic acid	0.117	U	0.047	0.117	1.17
335-76-2	Perfluorodecanoic acid	0.117	U	0.047	0.117	1.17
307-55-1	Perfluorododecanoic acid	0.092	J	0.023	0.059	1.17
375-85-9	Perfluoroheptanoic acid	0.059	U	0.023	0.059	1.17
307-24-4	Perfluorohexanoic acid	0.042	J	0.023	0.059	1.17
375-95-1	Perfluorononanoic acid	0.059	U	0.023	0.059	1.17
1763-23-1	Perfluorooctanesulfonic acid	0.515	J	0.059	0.234	1.17
335-67-1	Perfluorooctanoic acid	0.234	U	0.094	0.234	1.17
2706-90-3	Perfluoropentanoic acid	0.059	U	0.023	0.059	1.17
376-06-7	Perfluorotetradecanoic acid	0.063	J	0.023	0.059	1.17
72629-94-8	Perfluorotridecanoic acid	0.313	J	0.035	0.117	1.17
2058-94-8	Perfluoroundecanoic acid	0.451	J	0.023	0.059	1.17

FORM I SV-1

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No: <u>221050411</u>	Client Sample ID: <u>AOI01-05-SB-00-02RE</u>
Collect Date: <u>04/28/21</u> Time: <u>1220</u>	GCAL Sample ID: <u>22105041111RE</u>
Matrix: <u>Solid</u> % Moisture: <u>14.6</u>	Instrument ID: <u>QQQ3</u>
Sample Amt: <u>5</u> g	Lab File ID: <u>2210520A_52.d</u>
Injection Vol.: <u>1.0</u> (µL)	GC Column: <u>ACC-C18-30M</u> ID <u>2.1</u> (mm)
Prep Final Vol.: <u>1000</u> (µL)	Dilution Factor: <u>1</u> Analyst: <u>RXJ</u>
Prep Date: <u>05/11/21</u>	Analysis Date: <u>05/21/21</u> Time: <u>0619</u>
Prep Batch: <u>710837</u>	Analytical Batch: <u>711722</u>
Prep Method: <u>PFAS ID QSM B15 Prep</u>	Analytical Method: <u>PFAS Isotope Dilution QSM B15</u>

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
355-46-4	Perfluorohexanesulfonic acid	0.110	J	0.035	0.117	1.17

FORM I SV-1

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No: <u>221050411</u>	Client Sample ID: <u>AOI01-05-SB-02-04</u>
Collect Date: <u>04/28/21</u> Time: <u>1223</u>	GCAL Sample ID: <u>22105041113</u>
Matrix: <u>Solid</u> % Moisture: <u>7.2</u>	Instrument ID: <u>QQQ1</u>
Sample Amt: <u>5</u> g	Lab File ID: <u>2210515A_28.d</u>
Injection Vol.: <u>1.0</u> (µL)	GC Column: <u>ACC-C18-30M</u> ID <u>2.1</u> (mm)
Prep Final Vol.: <u>1000</u> (µL)	Dilution Factor: <u>1</u> Analyst: <u>MRA</u>
Prep Date: <u>05/11/21</u>	Analysis Date: <u>05/15/21</u> Time: <u>1721</u>
Prep Batch: <u>710837</u>	Analytical Batch: <u>711275</u>
Prep Method: <u>PFAS ID QSM B15 Prep</u>	Analytical Method: <u>PFAS Isotope Dilution QSM B15</u>

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomersulfonic acid	0.216	U	0.065	0.216	1.08
39108-34-4	8:2 Fluorotelomersulfonic acid	0.108	U	0.032	0.108	1.08
2991-50-6	NEtFOSAA	0.108	U	0.032	0.108	1.08
2355-31-9	NMeFOSAA	0.054	U	0.022	0.054	1.08
375-73-5	Perfluorobutanesulfonic acid	0.054	U	0.022	0.054	1.08
375-22-4	Perfluorobutanoic acid	0.108	U	0.043	0.108	1.08
335-76-2	Perfluorodecanoic acid	0.108	U	0.043	0.108	1.08
307-55-1	Perfluorododecanoic acid	0.032	J	0.022	0.054	1.08
375-85-9	Perfluoroheptanoic acid	0.054	U	0.022	0.054	1.08
307-24-4	Perfluorohexanoic acid	0.048	J	0.022	0.054	1.08
375-95-1	Perfluorononanoic acid	0.023	J	0.022	0.054	1.08
1763-23-1	Perfluorooctanesulfonic acid	0.196	J	0.054	0.216	1.08
335-67-1	Perfluorooctanoic acid	0.216	U	0.086	0.216	1.08
2706-90-3	Perfluoropentanoic acid	0.023	J	0.022	0.054	1.08
376-06-7	Perfluorotetradecanoic acid	0.022	J	0.022	0.054	1.08
72629-94-8	Perfluorotridecanoic acid	0.098	J	0.032	0.108	1.08
2058-94-8	Perfluoroundecanoic acid	0.162	J	0.022	0.054	1.08

FORM I SV-1

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No: <u>221050411</u>	Client Sample ID: <u>AOI01-05-SB-02-04RE</u>
Collect Date: <u>04/28/21</u> Time: <u>1223</u>	GCAL Sample ID: <u>22105041113RE</u>
Matrix: <u>Solid</u> % Moisture: <u>7.2</u>	Instrument ID: <u>QQQ3</u>
Sample Amt: <u>5</u> g	Lab File ID: <u>2210520A_53.d</u>
Injection Vol.: <u>1.0</u> (µL)	GC Column: <u>ACC-C18-30M</u> ID <u>2.1</u> (mm)
Prep Final Vol.: <u>1000</u> (µL)	Dilution Factor: <u>1</u> Analyst: <u>RXJ</u>
Prep Date: <u>05/11/21</u>	Analysis Date: <u>05/21/21</u> Time: <u>0633</u>
Prep Batch: <u>710837</u>	Analytical Batch: <u>711722</u>
Prep Method: <u>PFAS ID QSM B15 Prep</u>	Analytical Method: <u>PFAS Isotope Dilution QSM B15</u>

CONCENTRATION UNITS: *ug/kg*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
355-46-4	Perfluorohexanesulfonic acid	0.058	J	0.032	0.108	1.08

FORM I SV-1

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No: <u>221050411</u>	Client Sample ID: <u>AOI01-05-SB-04-06</u>
Collect Date: <u>04/28/21</u> Time: <u>1225</u>	GCAL Sample ID: <u>22105041114</u>
Matrix: <u>Solid</u> % Moisture: <u>15.8</u>	Instrument ID: <u>QQQ1</u>
Sample Amt: <u>5.03</u> g	Lab File ID: <u>2210515A_29.d</u>
Injection Vol.: <u>1.0</u> (µL)	GC Column: <u>ACC-C18-30M</u> ID <u>2.1</u> (mm)
Prep Final Vol.: <u>1000</u> (µL)	Dilution Factor: <u>1</u> Analyst: <u>MRA</u>
Prep Date: <u>05/11/21</u>	Analysis Date: <u>05/15/21</u> Time: <u>1738</u>
Prep Batch: <u>710837</u>	Analytical Batch: <u>711275</u>
Prep Method: <u>PFAS ID QSM B15 Prep</u>	Analytical Method: <u>PFAS Isotope Dilution QSM B15</u>

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomersulfonic acid	0.236	U	0.071	0.236	1.18
39108-34-4	8:2 Fluorotelomersulfonic acid	0.118	U	0.035	0.118	1.18
2991-50-6	NEtFOSAA	0.118	U	0.035	0.118	1.18
2355-31-9	NMeFOSAA	0.059	U	0.024	0.059	1.18
375-73-5	Perfluorobutanesulfonic acid	0.059	U	0.024	0.059	1.18
375-22-4	Perfluorobutanoic acid	0.118	U	0.047	0.118	1.18
335-76-2	Perfluorodecanoic acid	0.118	U	0.047	0.118	1.18
307-55-1	Perfluorododecanoic acid	0.059	U	0.024	0.059	1.18
375-85-9	Perfluoroheptanoic acid	0.059	U	0.024	0.059	1.18
307-24-4	Perfluorohexanoic acid	0.059	U	0.024	0.059	1.18
375-95-1	Perfluorononanoic acid	0.059	U	0.024	0.059	1.18
1763-23-1	Perfluorooctanesulfonic acid	0.300	J	0.059	0.236	1.18
335-67-1	Perfluorooctanoic acid	0.236	U	0.094	0.236	1.18
2706-90-3	Perfluoropentanoic acid	0.059	U	0.024	0.059	1.18
376-06-7	Perfluorotetradecanoic acid	0.059	U	0.024	0.059	1.18
72629-94-8	Perfluorotridecanoic acid	0.118	U	0.035	0.118	1.18
2058-94-8	Perfluoroundecanoic acid	0.059	U	0.024	0.059	1.18

FORM I SV-1

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No: <u>221050411</u>	Client Sample ID: <u>AOI01-05-SB-04-06RE</u>
Collect Date: <u>04/28/21</u> Time: <u>1225</u>	GCAL Sample ID: <u>22105041114RE</u>
Matrix: <u>Solid</u> % Moisture: <u>15.8</u>	Instrument ID: <u>QQQ3</u>
Sample Amt: <u>5.03</u> g	Lab File ID: <u>2210520A_54.d</u>
Injection Vol.: <u>1.0</u> (µL)	GC Column: <u>ACC-C18-30M</u> ID <u>2.1</u> (mm)
Prep Final Vol.: <u>1000</u> (µL)	Dilution Factor: <u>1</u> Analyst: <u>RXJ</u>
Prep Date: <u>05/11/21</u>	Analysis Date: <u>05/21/21</u> Time: <u>0648</u>
Prep Batch: <u>710837</u>	Analytical Batch: <u>711722</u>
Prep Method: <u>PFAS ID QSM B15 Prep</u>	Analytical Method: <u>PFAS Isotope Dilution QSM B15</u>

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
355-46-4	Perfluorohexanesulfonic acid	0.118	U	0.035	0.118	1.18

FORM I SV-1

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No: <u>221050411</u>	Client Sample ID: <u>AOI01-06-SB-00-02</u>
Collect Date: <u>04/28/21</u> Time: <u>0940</u>	GCAL Sample ID: <u>22105041116</u>
Matrix: <u>Solid</u> % Moisture: <u>10.7</u>	Instrument ID: <u>QQQ1</u>
Sample Amt: <u>5.03</u> g	Lab File ID: <u>2210515A_31.d</u>
Injection Vol.: <u>1.0</u> (µL)	GC Column: <u>ACC-C18-30M</u> ID <u>2.1</u> (mm)
Prep Final Vol.: <u>1000</u> (µL)	Dilution Factor: <u>1</u> Analyst: <u>MRA</u>
Prep Date: <u>05/11/21</u>	Analysis Date: <u>05/15/21</u> Time: <u>1813</u>
Prep Batch: <u>710837</u>	Analytical Batch: <u>711275</u>
Prep Method: <u>PFAS ID QSM B15 Prep</u>	Analytical Method: <u>PFAS Isotope Dilution QSM B15</u>

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomersulfonic acid	0.223	U	0.067	0.223	1.11
39108-34-4	8:2 Fluorotelomersulfonic acid	0.111	U	0.033	0.111	1.11
2991-50-6	NEtFOSAA	0.111	U	0.033	0.111	1.11
2355-31-9	NMeFOSAA	0.056	U	0.022	0.056	1.11
375-73-5	Perfluorobutanesulfonic acid	0.056	U	0.022	0.056	1.11
375-22-4	Perfluorobutanoic acid	0.235	J	0.045	0.111	1.11
335-76-2	Perfluorodecanoic acid	0.116	J	0.045	0.111	1.11
307-55-1	Perfluorododecanoic acid	0.023	J	0.022	0.056	1.11
375-85-9	Perfluoroheptanoic acid	0.100	J	0.022	0.056	1.11
307-24-4	Perfluorohexanoic acid	0.121	J	0.022	0.056	1.11
375-95-1	Perfluorononanoic acid	0.120	J	0.022	0.056	1.11
1763-23-1	Perfluorooctanesulfonic acid	0.445	J	0.056	0.223	1.11
335-67-1	Perfluorooctanoic acid	0.173	J	0.089	0.223	1.11
2706-90-3	Perfluoropentanoic acid	0.189	J	0.022	0.056	1.11
376-06-7	Perfluorotetradecanoic acid	0.056	U	0.022	0.056	1.11
72629-94-8	Perfluorotridecanoic acid	0.082	J	0.033	0.111	1.11
2058-94-8	Perfluoroundecanoic acid	0.051	J	0.022	0.056	1.11

FORM I SV-1

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No: <u>221050411</u>	Client Sample ID: <u>AOI01-06-SB-00-02RE</u>
Collect Date: <u>04/28/21</u> Time: <u>0940</u>	GCAL Sample ID: <u>22105041116RE</u>
Matrix: <u>Solid</u> % Moisture: <u>10.7</u>	Instrument ID: <u>QQQ3</u>
Sample Amt: <u>5.03</u> g	Lab File ID: <u>2210520A_55.d</u>
Injection Vol.: <u>1.0</u> (µL)	GC Column: <u>ACC-C18-30M</u> ID <u>2.1</u> (mm)
Prep Final Vol.: <u>1000</u> (µL)	Dilution Factor: <u>1</u> Analyst: <u>RXJ</u>
Prep Date: <u>05/11/21</u>	Analysis Date: <u>05/21/21</u> Time: <u>0703</u>
Prep Batch: <u>710837</u>	Analytical Batch: <u>711722</u>
Prep Method: <u>PFAS ID QSM B15 Prep</u>	Analytical Method: <u>PFAS Isotope Dilution QSM B15</u>

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
355-46-4	Perfluorohexanesulfonic acid	0.111	U	0.033	0.111	1.11

FORM I SV-1

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No: <u>221050411</u>	Client Sample ID: <u>AOI01-06-SB-03-05</u>
Collect Date: <u>04/28/21</u> Time: <u>1000</u>	GCAL Sample ID: <u>22105041117</u>
Matrix: <u>Solid</u> % Moisture: <u>28.5</u>	Instrument ID: <u>QQQ3</u>
Sample Amt: <u>5</u> g	Lab File ID: <u>2210520A_56.d</u>
Injection Vol.: <u>1.0</u> (µL)	GC Column: <u>ACC-C18-30M</u> ID <u>2.1</u> (mm)
Prep Final Vol.: <u>1000</u> (µL)	Dilution Factor: <u>1</u> Analyst: <u>RXJ</u>
Prep Date: <u>05/11/21</u>	Analysis Date: <u>05/21/21</u> Time: <u>0717</u>
Prep Batch: <u>710837</u>	Analytical Batch: <u>711722</u>
Prep Method: <u>PFAS ID QSM B15 Prep</u>	Analytical Method: <u>PFAS Isotope Dilution QSM B15</u>

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomersulfonic acid	0.280	U	0.084	0.280	1.40
39108-34-4	8:2 Fluorotelomersulfonic acid	0.140	U	0.042	0.140	1.40
2991-50-6	NEtFOSAA	0.140	U	0.042	0.140	1.40
2355-31-9	NMeFOSAA	0.070	U	0.028	0.070	1.40
375-73-5	Perfluorobutanesulfonic acid	0.070	U	0.028	0.070	1.40
375-22-4	Perfluorobutanoic acid	0.140	U	0.056	0.140	1.40
335-76-2	Perfluorodecanoic acid	0.140	U	0.056	0.140	1.40
307-55-1	Perfluorododecanoic acid	0.070	U	0.028	0.070	1.40
375-85-9	Perfluoroheptanoic acid	0.070	U	0.028	0.070	1.40
355-46-4	Perfluorohexanesulfonic acid	0.140	U	0.042	0.140	1.40
307-24-4	Perfluorohexanoic acid	0.039	J	0.028	0.070	1.40
375-95-1	Perfluorononanoic acid	0.070	U	0.028	0.070	1.40
1763-23-1	Perfluorooctanesulfonic acid	0.280	U	0.070	0.280	1.40
335-67-1	Perfluorooctanoic acid	0.280	U	0.112	0.280	1.40
2706-90-3	Perfluoropentanoic acid	0.070	U	0.028	0.070	1.40
376-06-7	Perfluorotetradecanoic acid	0.070	U	0.028	0.070	1.40
72629-94-8	Perfluorotridecanoic acid	0.140	U	0.042	0.140	1.40
2058-94-8	Perfluoroundecanoic acid	0.070	U	0.028	0.070	1.40

FORM I SV-1

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No: <u>221050411</u>	Client Sample ID: <u>AOI01-07-SB-00-02</u>
Collect Date: <u>04/28/21</u> Time: <u>0845</u>	GCAL Sample ID: <u>22105041118</u>
Matrix: <u>Solid</u> % Moisture: <u>8.6</u>	Instrument ID: <u>QQQ1</u>
Sample Amt: <u>5</u> g	Lab File ID: <u>2210515A_33.d</u>
Injection Vol.: <u>1.0</u> (µL)	GC Column: <u>ACC-C18-30M</u> ID <u>2.1</u> (mm)
Prep Final Vol.: <u>1000</u> (µL)	Dilution Factor: <u>1</u> Analyst: <u>MRA</u>
Prep Date: <u>05/11/21</u>	Analysis Date: <u>05/15/21</u> Time: <u>1847</u>
Prep Batch: <u>710837</u>	Analytical Batch: <u>711275</u>
Prep Method: <u>PFAS ID QSM B15 Prep</u>	Analytical Method: <u>PFAS Isotope Dilution QSM B15</u>

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomersulfonic acid	0.219	U	0.066	0.219	1.09
39108-34-4	8:2 Fluorotelomersulfonic acid	0.109	U	0.033	0.109	1.09
2991-50-6	NEtFOSAA	0.109	U	0.033	0.109	1.09
2355-31-9	NMeFOSAA	0.055	U	0.022	0.055	1.09
375-73-5	Perfluorobutanesulfonic acid	0.055	U	0.022	0.055	1.09
375-22-4	Perfluorobutanoic acid	0.096	J	0.044	0.109	1.09
335-76-2	Perfluorodecanoic acid	0.183	J	0.044	0.109	1.09
307-55-1	Perfluorododecanoic acid	0.023	J	0.022	0.055	1.09
375-85-9	Perfluoroheptanoic acid	0.026	J	0.022	0.055	1.09
307-24-4	Perfluorohexanoic acid	0.046	J	0.022	0.055	1.09
375-95-1	Perfluorononanoic acid	0.114	J	0.022	0.055	1.09
1763-23-1	Perfluorooctanesulfonic acid	0.970	J	0.055	0.219	1.09
335-67-1	Perfluorooctanoic acid	0.219	U	0.088	0.219	1.09
2706-90-3	Perfluoropentanoic acid	0.031	J	0.022	0.055	1.09
376-06-7	Perfluorotetradecanoic acid	0.055	U	0.022	0.055	1.09
72629-94-8	Perfluorotridecanoic acid	0.035	J	0.033	0.109	1.09
2058-94-8	Perfluoroundecanoic acid	0.076	J	0.022	0.055	1.09

FORM I SV-1

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No: <u>221050411</u>	Client Sample ID: <u>AOI01-07-SB-00-02RE</u>
Collect Date: <u>04/28/21</u> Time: <u>0845</u>	GCAL Sample ID: <u>22105041118RE</u>
Matrix: <u>Solid</u> % Moisture: <u>8.6</u>	Instrument ID: <u>QQQ3</u>
Sample Amt: <u>5</u> g	Lab File ID: <u>2210520A_57.d</u>
Injection Vol.: <u>1.0</u> (µL)	GC Column: <u>ACC-C18-30M</u> ID <u>2.1</u> (mm)
Prep Final Vol.: <u>1000</u> (µL)	Dilution Factor: <u>1</u> Analyst: <u>RXJ</u>
Prep Date: <u>05/11/21</u>	Analysis Date: <u>05/21/21</u> Time: <u>0732</u>
Prep Batch: <u>710837</u>	Analytical Batch: <u>711722</u>
Prep Method: <u>PFAS ID QSM B15 Prep</u>	Analytical Method: <u>PFAS Isotope Dilution QSM B15</u>

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
355-46-4	Perfluorohexanesulfonic acid	0.068	J	0.033	0.109	1.09

FORM I SV-1

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No: <u>221050411</u>	Client Sample ID: <u>AOI01-07-SB-00-02-D</u>
Collect Date: <u>04/28/21</u> Time: <u>0845</u>	GCAL Sample ID: <u>22105041119</u>
Matrix: <u>Solid</u> % Moisture: <u>8.4</u>	Instrument ID: <u>QQQ1</u>
Sample Amt: <u>5.01</u> g	Lab File ID: <u>2210515A_34.d</u>
Injection Vol.: <u>1.0</u> (µL)	GC Column: <u>ACC-C18-30M</u> ID <u>2.1</u> (mm)
Prep Final Vol.: <u>1000</u> (µL)	Dilution Factor: <u>1</u> Analyst: <u>MRA</u>
Prep Date: <u>05/11/21</u>	Analysis Date: <u>05/15/21</u> Time: <u>1905</u>
Prep Batch: <u>710837</u>	Analytical Batch: <u>711275</u>
Prep Method: <u>PFAS ID QSM B15 Prep</u>	Analytical Method: <u>PFAS Isotope Dilution QSM B15</u>

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomersulfonic acid	0.218	U	0.065	0.218	1.09
39108-34-4	8:2 Fluorotelomersulfonic acid	0.109	U	0.033	0.109	1.09
2991-50-6	NEtFOSAA	0.109	U	0.033	0.109	1.09
2355-31-9	NMeFOSAA	0.054	U	0.022	0.054	1.09
375-73-5	Perfluorobutanesulfonic acid	0.054	U	0.022	0.054	1.09
375-22-4	Perfluorobutanoic acid	0.069	J	0.044	0.109	1.09
335-76-2	Perfluorodecanoic acid	0.116	J	0.044	0.109	1.09
307-55-1	Perfluorododecanoic acid	0.022	J	0.022	0.054	1.09
375-85-9	Perfluoroheptanoic acid	0.026	J	0.022	0.054	1.09
307-24-4	Perfluorohexanoic acid	0.040	J	0.022	0.054	1.09
375-95-1	Perfluorononanoic acid	0.070	J	0.022	0.054	1.09
1763-23-1	Perfluorooctanesulfonic acid	1.18		0.054	0.218	1.09
335-67-1	Perfluorooctanoic acid	0.218	U	0.087	0.218	1.09
2706-90-3	Perfluoropentanoic acid	0.031	J	0.022	0.054	1.09
376-06-7	Perfluorotetradecanoic acid	0.054	U	0.022	0.054	1.09
72629-94-8	Perfluorotridecanoic acid	0.035	J	0.033	0.109	1.09
2058-94-8	Perfluoroundecanoic acid	0.055	J	0.022	0.054	1.09

FORM I SV-1

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No: <u>221050411</u>	Client Sample ID: <u>AOI01-07-SB-00-02-DRE</u>
Collect Date: <u>04/28/21</u> Time: <u>0845</u>	GCAL Sample ID: <u>22105041119RE</u>
Matrix: <u>Solid</u> % Moisture: <u>8.4</u>	Instrument ID: <u>QQQ3</u>
Sample Amt: <u>5.01</u> g	Lab File ID: <u>2210520A_58.d</u>
Injection Vol.: <u>1.0</u> (µL)	GC Column: <u>ACC-C18-30M</u> ID <u>2.1</u> (mm)
Prep Final Vol.: <u>1000</u> (µL)	Dilution Factor: <u>1</u> Analyst: <u>RXJ</u>
Prep Date: <u>05/11/21</u>	Analysis Date: <u>05/21/21</u> Time: <u>0747</u>
Prep Batch: <u>710837</u>	Analytical Batch: <u>711722</u>
Prep Method: <u>PFAS ID QSM B15 Prep</u>	Analytical Method: <u>PFAS Isotope Dilution QSM B15</u>

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
355-46-4	Perfluorohexanesulfonic acid	0.059	J	0.033	0.109	1.09

FORM I SV-1

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No: <u>221050411</u>	Client Sample ID: <u>AOI01-07-SB-02-04</u>
Collect Date: <u>04/28/21</u> Time: <u>0850</u>	GCAL Sample ID: <u>22105041120</u>
Matrix: <u>Solid</u> % Moisture: <u>7.1</u>	Instrument ID: <u>QQQ1</u>
Sample Amt: <u>5.01</u> g	Lab File ID: <u>2210515A_35.d</u>
Injection Vol.: <u>1.0</u> (µL)	GC Column: <u>ACC-C18-30M</u> ID <u>2.1</u> (mm)
Prep Final Vol.: <u>1000</u> (µL)	Dilution Factor: <u>1</u> Analyst: <u>MRA</u>
Prep Date: <u>05/11/21</u>	Analysis Date: <u>05/15/21</u> Time: <u>1922</u>
Prep Batch: <u>710837</u>	Analytical Batch: <u>711275</u>
Prep Method: <u>PFAS ID QSM B15 Prep</u>	Analytical Method: <u>PFAS Isotope Dilution QSM B15</u>

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomersulfonic acid	0.215	U	0.064	0.215	1.07
39108-34-4	8:2 Fluorotelomersulfonic acid	0.107	U	0.032	0.107	1.07
2991-50-6	NEtFOSAA	0.107	U	0.032	0.107	1.07
2355-31-9	NMeFOSAA	0.054	U	0.021	0.054	1.07
375-73-5	Perfluorobutanesulfonic acid	0.054	U	0.021	0.054	1.07
375-22-4	Perfluorobutanoic acid	0.107	U	0.043	0.107	1.07
335-76-2	Perfluorodecanoic acid	0.107	U	0.043	0.107	1.07
307-55-1	Perfluorododecanoic acid	0.054	U	0.021	0.054	1.07
375-85-9	Perfluoroheptanoic acid	0.054	U	0.021	0.054	1.07
307-24-4	Perfluorohexanoic acid	0.029	J	0.021	0.054	1.07
375-95-1	Perfluorononanoic acid	0.054	U	0.021	0.054	1.07
1763-23-1	Perfluorooctanesulfonic acid	0.169	J	0.054	0.215	1.07
335-67-1	Perfluorooctanoic acid	0.215	U	0.086	0.215	1.07
2706-90-3	Perfluoropentanoic acid	0.054	U	0.021	0.054	1.07
376-06-7	Perfluorotetradecanoic acid	0.054	U	0.021	0.054	1.07
72629-94-8	Perfluorotridecanoic acid	0.107	U	0.032	0.107	1.07
2058-94-8	Perfluoroundecanoic acid	0.054	U	0.021	0.054	1.07

FORM I SV-1

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No: <u>221050411</u>	Client Sample ID: <u>AOI01-07-SB-02-04RE</u>
Collect Date: <u>04/28/21</u> Time: <u>0850</u>	GCAL Sample ID: <u>22105041120RE</u>
Matrix: <u>Solid</u> % Moisture: <u>7.1</u>	Instrument ID: <u>QQQ3</u>
Sample Amt: <u>5.01</u> g	Lab File ID: <u>2210520A_59.d</u>
Injection Vol.: <u>1.0</u> (µL)	GC Column: <u>ACC-C18-30M</u> ID <u>2.1</u> (mm)
Prep Final Vol.: <u>1000</u> (µL)	Dilution Factor: <u>1</u> Analyst: <u>RXJ</u>
Prep Date: <u>05/11/21</u>	Analysis Date: <u>05/21/21</u> Time: <u>0801</u>
Prep Batch: <u>710837</u>	Analytical Batch: <u>711722</u>
Prep Method: <u>PFAS ID QSM B15 Prep</u>	Analytical Method: <u>PFAS Isotope Dilution QSM B15</u>

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
355-46-4	Perfluorohexanesulfonic acid	0.107	U	0.032	0.107	1.07

FORM I SV-1

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No: <u>221050411</u>	Client Sample ID: <u>AOI01-07-SB-04-06</u>
Collect Date: <u>04/28/21</u> Time: <u>0855</u>	GCAL Sample ID: <u>22105041121</u>
Matrix: <u>Solid</u> % Moisture: <u>14.1</u>	Instrument ID: <u>QQQ1</u>
Sample Amt: <u>5.01</u> g	Lab File ID: <u>2210515A_36.d</u>
Injection Vol.: <u>1.0</u> (µL)	GC Column: <u>ACC-C18-30M</u> ID <u>2.1</u> (mm)
Prep Final Vol.: <u>1000</u> (µL)	Dilution Factor: <u>1</u> Analyst: <u>MRA</u>
Prep Date: <u>05/11/21</u>	Analysis Date: <u>05/15/21</u> Time: <u>1939</u>
Prep Batch: <u>710837</u>	Analytical Batch: <u>711275</u>
Prep Method: <u>PFAS ID QSM B15 Prep</u>	Analytical Method: <u>PFAS Isotope Dilution QSM B15</u>

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomersulfonic acid	0.232	U	0.070	0.232	1.16
39108-34-4	8:2 Fluorotelomersulfonic acid	0.116	U	0.035	0.116	1.16
2991-50-6	NEtFOSAA	0.116	U	0.035	0.116	1.16
2355-31-9	NMeFOSAA	0.058	U	0.023	0.058	1.16
375-73-5	Perfluorobutanesulfonic acid	0.058	U	0.023	0.058	1.16
375-22-4	Perfluorobutanoic acid	0.116	U	0.046	0.116	1.16
335-76-2	Perfluorodecanoic acid	0.116	U	0.046	0.116	1.16
307-55-1	Perfluorododecanoic acid	0.058	U	0.023	0.058	1.16
375-85-9	Perfluoroheptanoic acid	0.058	U	0.023	0.058	1.16
307-24-4	Perfluorohexanoic acid	0.028	J	0.023	0.058	1.16
375-95-1	Perfluorononanoic acid	0.058	U	0.023	0.058	1.16
1763-23-1	Perfluorooctanesulfonic acid	0.299	J	0.058	0.232	1.16
335-67-1	Perfluorooctanoic acid	0.232	U	0.093	0.232	1.16
2706-90-3	Perfluoropentanoic acid	0.058	U	0.023	0.058	1.16
376-06-7	Perfluorotetradecanoic acid	0.058	U	0.023	0.058	1.16
72629-94-8	Perfluorotridecanoic acid	0.116	U	0.035	0.116	1.16
2058-94-8	Perfluoroundecanoic acid	0.058	U	0.023	0.058	1.16

FORM I SV-1

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No: <u>221050411</u>	Client Sample ID: <u>AOI01-07-SB-04-06RE</u>
Collect Date: <u>04/28/21</u> Time: <u>0855</u>	GCAL Sample ID: <u>22105041121RE</u>
Matrix: <u>Solid</u> % Moisture: <u>14.1</u>	Instrument ID: <u>QQQ3</u>
Sample Amt: <u>5.01</u> g	Lab File ID: <u>2210520A_60.d</u>
Injection Vol.: <u>1.0</u> (µL)	GC Column: <u>ACC-C18-30M</u> ID <u>2.1</u> (mm)
Prep Final Vol.: <u>1000</u> (µL)	Dilution Factor: <u>1</u> Analyst: <u>RXJ</u>
Prep Date: <u>05/11/21</u>	Analysis Date: <u>05/21/21</u> Time: <u>0816</u>
Prep Batch: <u>710837</u>	Analytical Batch: <u>711722</u>
Prep Method: <u>PFAS ID QSM B15 Prep</u>	Analytical Method: <u>PFAS Isotope Dilution QSM B15</u>

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
355-46-4	Perfluorohexanesulfonic acid	0.116	U	0.035	0.116	1.16

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1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No: <u>221050411</u>	Client Sample ID: <u>AOI01-08-SB-00-02</u>
Collect Date: <u>04/28/21</u> Time: <u>0750</u>	GCAL Sample ID: <u>22105041122</u>
Matrix: <u>Solid</u> % Moisture: <u>6.6</u>	Instrument ID: <u>QQQ3</u>
Sample Amt: <u>5</u> g	Lab File ID: <u>2210520A_61.d</u>
Injection Vol.: <u>1.0</u> (µL)	GC Column: <u>ACC-C18-30M</u> ID <u>2.1</u> (mm)
Prep Final Vol.: <u>1000</u> (µL)	Dilution Factor: <u>1</u> Analyst: <u>RXJ</u>
Prep Date: <u>05/11/21</u>	Analysis Date: <u>05/21/21</u> Time: <u>0831</u>
Prep Batch: <u>710837</u>	Analytical Batch: <u>711722</u>
Prep Method: <u>PFAS ID QSM B15 Prep</u>	Analytical Method: <u>PFAS Isotope Dilution QSM B15</u>

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomersulfonic acid	0.214	U	0.064	0.214	1.07
39108-34-4	8:2 Fluorotelomersulfonic acid	0.107	U	0.032	0.107	1.07
2991-50-6	NEtFOSAA	0.107	U	0.032	0.107	1.07
2355-31-9	NMeFOSAA	0.054	U	0.021	0.054	1.07
375-73-5	Perfluorobutanesulfonic acid	0.054	U	0.021	0.054	1.07
375-22-4	Perfluorobutanoic acid	0.109	J	0.043	0.107	1.07
335-76-2	Perfluorodecanoic acid	0.082	J	0.043	0.107	1.07
307-55-1	Perfluorododecanoic acid	0.046	J	0.021	0.054	1.07
375-85-9	Perfluoroheptanoic acid	0.049	J	0.021	0.054	1.07
355-46-4	Perfluorohexanesulfonic acid	0.217	J	0.032	0.107	1.07
307-24-4	Perfluorohexanoic acid	0.087	J	0.021	0.054	1.07
375-95-1	Perfluorononanoic acid	0.039	J	0.021	0.054	1.07
1763-23-1	Perfluorooctanesulfonic acid	4.28	J	0.054	0.214	1.07
335-67-1	Perfluorooctanoic acid	0.155	J	0.086	0.214	1.07
2706-90-3	Perfluoropentanoic acid	0.098	J	0.021	0.054	1.07
376-06-7	Perfluorotetradecanoic acid	0.054	U	0.021	0.054	1.07
72629-94-8	Perfluorotridecanoic acid	0.067	J	0.032	0.107	1.07
2058-94-8	Perfluoroundecanoic acid	0.282	J	0.021	0.054	1.07

FORM I SV-1

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No: <u>221050411</u>	Client Sample ID: <u>AOI01-08-SB-02-04</u>
Collect Date: <u>04/28/21</u> Time: <u>0755</u>	GCAL Sample ID: <u>22105041125</u>
Matrix: <u>Solid</u> % Moisture: <u>15.1</u>	Instrument ID: <u>QQQ1</u>
Sample Amt: <u>5</u> g	Lab File ID: <u>2210515A_40.d</u>
Injection Vol.: <u>1.0</u> (µL)	GC Column: <u>ACC-C18-30M</u> ID <u>2.1</u> (mm)
Prep Final Vol.: <u>1000</u> (µL)	Dilution Factor: <u>1</u> Analyst: <u>MRA</u>
Prep Date: <u>05/11/21</u>	Analysis Date: <u>05/15/21</u> Time: <u>2049</u>
Prep Batch: <u>710837</u>	Analytical Batch: <u>711275</u>
Prep Method: <u>PFAS ID QSM B15 Prep</u>	Analytical Method: <u>PFAS Isotope Dilution QSM B15</u>

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomersulfonic acid	0.236	U	0.071	0.236	1.18
39108-34-4	8:2 Fluorotelomersulfonic acid	0.118	U	0.035	0.118	1.18
2991-50-6	NEtFOSAA	0.118	U	0.035	0.118	1.18
2355-31-9	NMeFOSAA	0.059	U	0.024	0.059	1.18
375-73-5	Perfluorobutanesulfonic acid	0.059	U	0.024	0.059	1.18
375-22-4	Perfluorobutanoic acid	0.118	U	0.047	0.118	1.18
335-76-2	Perfluorodecanoic acid	0.057	J	0.047	0.118	1.18
307-55-1	Perfluorododecanoic acid	0.059	U	0.024	0.059	1.18
375-85-9	Perfluoroheptanoic acid	0.030	J	0.024	0.059	1.18
307-24-4	Perfluorohexanoic acid	0.048	J	0.024	0.059	1.18
375-95-1	Perfluorononanoic acid	0.164	J	0.024	0.059	1.18
335-67-1	Perfluorooctanoic acid	0.285	J	0.094	0.236	1.18
2706-90-3	Perfluoropentanoic acid	0.027	J	0.024	0.059	1.18
376-06-7	Perfluorotetradecanoic acid	0.059	U	0.024	0.059	1.18
72629-94-8	Perfluorotridecanoic acid	0.118	U	0.035	0.118	1.18
2058-94-8	Perfluoroundecanoic acid	0.059	U	0.024	0.059	1.18

FORM I SV-1

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No: <u>221050411</u>	Client Sample ID: <u>AOI01-08-SB-02-04RE</u>
Collect Date: <u>04/28/21</u> Time: <u>0755</u>	GCAL Sample ID: <u>22105041125RE</u>
Matrix: <u>Solid</u> % Moisture: <u>15.1</u>	Instrument ID: <u>QQQ3</u>
Sample Amt: <u>5</u> g	Lab File ID: <u>2210520A_66.d</u>
Injection Vol.: <u>1.0</u> (µL)	GC Column: <u>ACC-C18-30M</u> ID <u>2.1</u> (mm)
Prep Final Vol.: <u>1000</u> (µL)	Dilution Factor: <u>1</u> Analyst: <u>RXJ</u>
Prep Date: <u>05/11/21</u>	Analysis Date: <u>05/21/21</u> Time: <u>0944</u>
Prep Batch: <u>710837</u>	Analytical Batch: <u>711722</u>
Prep Method: <u>PFAS ID QSM B15 Prep</u>	Analytical Method: <u>PFAS Isotope Dilution QSM B15</u>

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
355-46-4	Perfluorohexanesulfonic acid	0.061	J	0.035	0.118	1.18

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No: <u>221050411</u>	Client Sample ID: <u>AOI01-08-SB-02-04DL</u>
Collect Date: <u>04/28/21</u> Time: <u>0755</u>	GCAL Sample ID: <u>22105041125DL</u>
Matrix: <u>Solid</u> % Moisture: <u>15.1</u>	Instrument ID: <u>QQQ3</u>
Sample Amt: <u>5</u> g	Lab File ID: <u>2210520A_80.d</u>
Injection Vol.: <u>1.0</u> (µL)	GC Column: <u>ACC-C18-30M</u> ID <u>2.1</u> (mm)
Prep Final Vol.: <u>1000</u> (µL)	Dilution Factor: <u>10</u> Analyst: <u>RXJ</u>
Prep Date: <u>05/11/21</u>	Analysis Date: <u>05/21/21</u> Time: <u>1308</u>
Prep Batch: <u>710837</u>	Analytical Batch: <u>711722</u>
Prep Method: <u>PFAS ID QSM B15 Prep</u>	Analytical Method: <u>PFAS Isotope Dilution QSM B15</u>

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
1763-23-1	Perfluorooctanesulfonic acid	41.5		0.589	2.36	11.8

FORM I SV-1

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No: <u>221050411</u>	Client Sample ID: <u>AOI01-08-SB-04-06</u>
Collect Date: <u>04/28/21</u> Time: <u>0800</u>	GCAL Sample ID: <u>22105041126</u>
Matrix: <u>Solid</u> % Moisture: <u>23.2</u>	Instrument ID: <u>QQQ1</u>
Sample Amt: <u>5.01</u> g	Lab File ID: <u>2210515A_42.d</u>
Injection Vol.: <u>1.0</u> (µL)	GC Column: <u>ACC-C18-30M</u> ID <u>2.1</u> (mm)
Prep Final Vol.: <u>1000</u> (µL)	Dilution Factor: <u>1</u> Analyst: <u>MRA</u>
Prep Date: <u>05/11/21</u>	Analysis Date: <u>05/15/21</u> Time: <u>2123</u>
Prep Batch: <u>710837</u>	Analytical Batch: <u>711275</u>
Prep Method: <u>PFAS ID QSM B15 Prep</u>	Analytical Method: <u>PFAS Isotope Dilution QSM B15</u>

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomersulfonic acid	0.214	J	0.078	0.260	1.30
39108-34-4	8:2 Fluorotelomersulfonic acid	0.130	U	0.039	0.130	1.30
2991-50-6	NEtFOSAA	0.130	U	0.039	0.130	1.30
2355-31-9	NMeFOSAA	0.065	U	0.026	0.065	1.30
375-73-5	Perfluorobutanesulfonic acid	0.065	U	0.026	0.065	1.30
375-22-4	Perfluorobutanoic acid	0.130	U	0.052	0.130	1.30
335-76-2	Perfluorodecanoic acid	0.130	U	0.052	0.130	1.30
307-55-1	Perfluorododecanoic acid	0.065	U	0.026	0.065	1.30
375-85-9	Perfluoroheptanoic acid	0.065	U	0.026	0.065	1.30
307-24-4	Perfluorohexanoic acid	0.119	J	0.026	0.065	1.30
375-95-1	Perfluorononanoic acid	0.065	U	0.026	0.065	1.30
1763-23-1	Perfluorooctanesulfonic acid	0.260	U	0.065	0.260	1.30
335-67-1	Perfluorooctanoic acid	0.260	U	0.104	0.260	1.30
2706-90-3	Perfluoropentanoic acid	0.065	U	0.026	0.065	1.30
376-06-7	Perfluorotetradecanoic acid	0.065	U	0.026	0.065	1.30
72629-94-8	Perfluorotridecanoic acid	0.130	U	0.039	0.130	1.30
2058-94-8	Perfluoroundecanoic acid	0.065	U	0.026	0.065	1.30

FORM I SV-1

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No: <u>221050411</u>	Client Sample ID: <u>AOI01-08-SB-04-06RE</u>
Collect Date: <u>04/28/21</u> Time: <u>0800</u>	GCAL Sample ID: <u>22105041126RE</u>
Matrix: <u>Solid</u> % Moisture: <u>23.2</u>	Instrument ID: <u>QQQ3</u>
Sample Amt: <u>5.01</u> g	Lab File ID: <u>2210520A_67.d</u>
Injection Vol.: <u>1.0</u> (µL)	GC Column: <u>ACC-C18-30M</u> ID <u>2.1</u> (mm)
Prep Final Vol.: <u>1000</u> (µL)	Dilution Factor: <u>1</u> Analyst: <u>RXJ</u>
Prep Date: <u>05/11/21</u>	Analysis Date: <u>05/21/21</u> Time: <u>0958</u>
Prep Batch: <u>710837</u>	Analytical Batch: <u>711722</u>
Prep Method: <u>PFAS ID QSM B15 Prep</u>	Analytical Method: <u>PFAS Isotope Dilution QSM B15</u>

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
355-46-4	Perfluorohexanesulfonic acid	0.130	U	0.039	0.130	1.30

FORM I SV-1

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No: <u>221050411</u>	Client Sample ID: <u>AOI01-09-SB-00-02</u>
Collect Date: <u>04/27/21</u> Time: <u>1400</u>	GCAL Sample ID: <u>22105041127</u>
Matrix: <u>Solid</u> % Moisture: <u>12.9</u>	Instrument ID: <u>QQQ3</u>
Sample Amt: <u>5.02</u> g	Lab File ID: <u>2210517A_49.d</u>
Injection Vol.: <u>1.0</u> (µL)	GC Column: <u>ACC-C18-30M</u> ID <u>2.1</u> (mm)
Prep Final Vol.: <u>1000</u> (µL)	Dilution Factor: <u>1</u> Analyst: <u>RXJ</u>
Prep Date: <u>05/10/21</u>	Analysis Date: <u>05/18/21</u> Time: <u>0428</u>
Prep Batch: <u>710742</u>	Analytical Batch: <u>711477</u>
Prep Method: <u>PFAS ID QSM B15 Prep</u>	Analytical Method: <u>PFAS Isotope Dilution QSM B15</u>

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomersulfonic acid	0.229	U	0.069	0.229	1.14
39108-34-4	8:2 Fluorotelomersulfonic acid	0.114	U	0.034	0.114	1.14
2991-50-6	NEtFOSAA	0.114	U	0.034	0.114	1.14
2355-31-9	NMeFOSAA	0.057	U	0.023	0.057	1.14
375-73-5	Perfluorobutanesulfonic acid	0.139	J	0.023	0.057	1.14
375-22-4	Perfluorobutanoic acid	0.258	J	0.046	0.114	1.14
335-76-2	Perfluorodecanoic acid	0.098	J	0.046	0.114	1.14
307-55-1	Perfluorododecanoic acid	0.038	J	0.023	0.057	1.14
375-85-9	Perfluoroheptanoic acid	0.086	J	0.023	0.057	1.14
355-46-4	Perfluorohexanesulfonic acid	0.318	J	0.034	0.114	1.14
307-24-4	Perfluorohexanoic acid	0.183	J	0.023	0.057	1.14
375-95-1	Perfluorononanoic acid	0.161	J	0.023	0.057	1.14
1763-23-1	Perfluorooctanesulfonic acid	2.17		0.057	0.229	1.14
335-67-1	Perfluorooctanoic acid	0.200	J	0.092	0.229	1.14
2706-90-3	Perfluoropentanoic acid	0.180	J	0.023	0.057	1.14
376-06-7	Perfluorotetradecanoic acid	0.057	U	0.023	0.057	1.14
72629-94-8	Perfluorotridecanoic acid	0.147	J	0.034	0.114	1.14
2058-94-8	Perfluoroundecanoic acid	0.170	J	0.023	0.057	1.14

FORM I SV-1

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No: <u>221050411</u>	Client Sample ID: <u>AOI01-09-SB-00-02-D</u>
Collect Date: <u>04/27/21</u> Time: <u>1400</u>	GCAL Sample ID: <u>22105041128</u>
Matrix: <u>Solid</u> % Moisture: <u>11.6</u>	Instrument ID: <u>QQQ3</u>
Sample Amt: <u>5</u> g	Lab File ID: <u>2210517A_50.d</u>
Injection Vol.: <u>1.0</u> (µL)	GC Column: <u>ACC-C18-30M</u> ID <u>2.1</u> (mm)
Prep Final Vol.: <u>1000</u> (µL)	Dilution Factor: <u>1</u> Analyst: <u>RXJ</u>
Prep Date: <u>05/10/21</u>	Analysis Date: <u>05/18/21</u> Time: <u>0443</u>
Prep Batch: <u>710742</u>	Analytical Batch: <u>711477</u>
Prep Method: <u>PFAS ID QSM B15 Prep</u>	Analytical Method: <u>PFAS Isotope Dilution QSM B15</u>

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomersulfonic acid	0.226	U	0.068	0.226	1.13
39108-34-4	8:2 Fluorotelomersulfonic acid	0.113	U	0.034	0.113	1.13
2991-50-6	NEtFOSAA	0.113	U	0.034	0.113	1.13
2355-31-9	NMeFOSAA	0.057	U	0.023	0.057	1.13
375-73-5	Perfluorobutanesulfonic acid	0.137	J	0.023	0.057	1.13
375-22-4	Perfluorobutanoic acid	0.149	J	0.045	0.113	1.13
335-76-2	Perfluorodecanoic acid	0.070	J	0.045	0.113	1.13
307-55-1	Perfluorododecanoic acid	0.027	J	0.023	0.057	1.13
375-85-9	Perfluoroheptanoic acid	0.056	J	0.023	0.057	1.13
355-46-4	Perfluorohexanesulfonic acid	0.261	J	0.034	0.113	1.13
307-24-4	Perfluorohexanoic acid	0.108	J	0.023	0.057	1.13
375-95-1	Perfluorononanoic acid	0.111	J	0.023	0.057	1.13
1763-23-1	Perfluorooctanesulfonic acid	1.77		0.057	0.226	1.13
335-67-1	Perfluorooctanoic acid	0.139	J	0.090	0.226	1.13
2706-90-3	Perfluoropentanoic acid	0.107	J	0.023	0.057	1.13
376-06-7	Perfluorotetradecanoic acid	0.057	U	0.023	0.057	1.13
72629-94-8	Perfluorotridecanoic acid	0.124	J	0.034	0.113	1.13
2058-94-8	Perfluoroundecanoic acid	0.120	J	0.023	0.057	1.13

FORM I SV-1

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No: <u>221050411</u>	Client Sample ID: <u>AOI01-09-SB-05-07</u>
Collect Date: <u>04/27/21</u> Time: <u>1410</u>	GCAL Sample ID: <u>22105041129</u>
Matrix: <u>Solid</u> % Moisture: <u>14.0</u>	Instrument ID: <u>QQQ3</u>
Sample Amt: <u>5.01</u> g	Lab File ID: <u>2210517A_51.d</u>
Injection Vol.: <u>1.0</u> (µL)	GC Column: <u>ACC-C18-30M</u> ID <u>2.1</u> (mm)
Prep Final Vol.: <u>1000</u> (µL)	Dilution Factor: <u>1</u> Analyst: <u>RXJ</u>
Prep Date: <u>05/10/21</u>	Analysis Date: <u>05/18/21</u> Time: <u>0457</u>
Prep Batch: <u>710742</u>	Analytical Batch: <u>711477</u>
Prep Method: <u>PFAS ID QSM B15 Prep</u>	Analytical Method: <u>PFAS Isotope Dilution QSM B15</u>

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomersulfonic acid	0.232	U	0.070	0.232	1.16
39108-34-4	8:2 Fluorotelomersulfonic acid	0.116	U	0.035	0.116	1.16
2991-50-6	NEtFOSAA	0.116	U	0.035	0.116	1.16
2355-31-9	NMeFOSAA	0.058	U	0.023	0.058	1.16
375-73-5	Perfluorobutanesulfonic acid	0.117	J	0.023	0.058	1.16
375-22-4	Perfluorobutanoic acid	0.116	U	0.046	0.116	1.16
335-76-2	Perfluorodecanoic acid	0.116	U	0.046	0.116	1.16
307-55-1	Perfluorododecanoic acid	0.058	U	0.023	0.058	1.16
375-85-9	Perfluoroheptanoic acid	0.058	U	0.023	0.058	1.16
355-46-4	Perfluorohexanesulfonic acid	0.039	J	0.035	0.116	1.16
307-24-4	Perfluorohexanoic acid	0.035	J	0.023	0.058	1.16
375-95-1	Perfluorononanoic acid	0.026	J	0.023	0.058	1.16
1763-23-1	Perfluorooctanesulfonic acid	0.441	J	0.058	0.232	1.16
335-67-1	Perfluorooctanoic acid	0.232	U	0.093	0.232	1.16
2706-90-3	Perfluoropentanoic acid	0.058	U	0.023	0.058	1.16
376-06-7	Perfluorotetradecanoic acid	0.058	U	0.023	0.058	1.16
72629-94-8	Perfluorotridecanoic acid	0.116	U	0.035	0.116	1.16
2058-94-8	Perfluoroundecanoic acid	0.058	U	0.023	0.058	1.16

FORM I SV-1

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No: <u>221050411</u>	Client Sample ID: <u>AOI01-09-SB-08-10</u>
Collect Date: <u>04/27/21</u> Time: <u>1411</u>	GCAL Sample ID: <u>22105041130</u>
Matrix: <u>Solid</u> % Moisture: <u>13.3</u>	Instrument ID: <u>QQQ3</u>
Sample Amt: <u>5.01</u> g	Lab File ID: <u>2210517A_52.d</u>
Injection Vol.: <u>1.0</u> (µL)	GC Column: <u>ACC-C18-30M</u> ID <u>2.1</u> (mm)
Prep Final Vol.: <u>1000</u> (µL)	Dilution Factor: <u>1</u> Analyst: <u>RXJ</u>
Prep Date: <u>05/10/21</u>	Analysis Date: <u>05/18/21</u> Time: <u>0512</u>
Prep Batch: <u>710742</u>	Analytical Batch: <u>711477</u>
Prep Method: <u>PFAS ID QSM B15 Prep</u>	Analytical Method: <u>PFAS Isotope Dilution QSM B15</u>

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomersulfonic acid	0.230	U	0.069	0.230	1.15
39108-34-4	8:2 Fluorotelomersulfonic acid	0.115	U	0.035	0.115	1.15
2991-50-6	NEtFOSAA	0.115	U	0.035	0.115	1.15
2355-31-9	NMeFOSAA	0.058	U	0.023	0.058	1.15
375-73-5	Perfluorobutanesulfonic acid	0.145	J	0.023	0.058	1.15
375-22-4	Perfluorobutanoic acid	0.115	U	0.046	0.115	1.15
335-76-2	Perfluorodecanoic acid	0.115	U	0.046	0.115	1.15
307-55-1	Perfluorododecanoic acid	0.058	U	0.023	0.058	1.15
375-85-9	Perfluoroheptanoic acid	0.058	U	0.023	0.058	1.15
355-46-4	Perfluorohexanesulfonic acid	0.081	J	0.035	0.115	1.15
307-24-4	Perfluorohexanoic acid	0.058	U	0.023	0.058	1.15
375-95-1	Perfluorononanoic acid	0.058	U	0.023	0.058	1.15
1763-23-1	Perfluorooctanesulfonic acid	0.222	J	0.058	0.230	1.15
335-67-1	Perfluorooctanoic acid	0.230	U	0.092	0.230	1.15
2706-90-3	Perfluoropentanoic acid	0.058	U	0.023	0.058	1.15
376-06-7	Perfluorotetradecanoic acid	0.058	U	0.023	0.058	1.15
72629-94-8	Perfluorotridecanoic acid	0.115	U	0.035	0.115	1.15
2058-94-8	Perfluoroundecanoic acid	0.058	U	0.023	0.058	1.15

FORM I SV-1

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No: <u>221050411</u>	Client Sample ID: <u>AOI01-10-SB-00-02</u>
Collect Date: <u>04/28/21</u> Time: <u>1405</u>	GCAL Sample ID: <u>22105041131</u>
Matrix: <u>Solid</u> % Moisture: <u>8.2</u>	Instrument ID: <u>QQQ1</u>
Sample Amt: <u>5.03</u> g	Lab File ID: <u>2210515A_43.d</u>
Injection Vol.: <u>1.0</u> (µL)	GC Column: <u>ACC-C18-30M</u> ID <u>2.1</u> (mm)
Prep Final Vol.: <u>1000</u> (µL)	Dilution Factor: <u>1</u> Analyst: <u>MRA</u>
Prep Date: <u>05/11/21</u>	Analysis Date: <u>05/15/21</u> Time: <u>2140</u>
Prep Batch: <u>710837</u>	Analytical Batch: <u>711275</u>
Prep Method: <u>PFAS ID QSM B15 Prep</u>	Analytical Method: <u>PFAS Isotope Dilution QSM B15</u>

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomersulfonic acid	0.217	U	0.065	0.217	1.08
39108-34-4	8:2 Fluorotelomersulfonic acid	0.108	U	0.032	0.108	1.08
2991-50-6	NEtFOSAA	0.108	U	0.032	0.108	1.08
2355-31-9	NMeFOSAA	0.054	U	0.022	0.054	1.08
375-73-5	Perfluorobutanesulfonic acid	0.054	U	0.022	0.054	1.08
375-22-4	Perfluorobutanoic acid	0.065	J	0.043	0.108	1.08
335-76-2	Perfluorodecanoic acid	0.324	J	0.043	0.108	1.08
307-55-1	Perfluorododecanoic acid	0.099	J	0.022	0.054	1.08
375-85-9	Perfluoroheptanoic acid	0.023	J	0.022	0.054	1.08
355-46-4	Perfluorohexanesulfonic acid	0.377	J	0.032	0.108	1.08
307-24-4	Perfluorohexanoic acid	0.080	J	0.022	0.054	1.08
375-95-1	Perfluorononanoic acid	0.054	U	0.022	0.054	1.08
1763-23-1	Perfluorooctanesulfonic acid	2.00		0.054	0.217	1.08
335-67-1	Perfluorooctanoic acid	0.217	U	0.087	0.217	1.08
2706-90-3	Perfluoropentanoic acid	0.044	J	0.022	0.054	1.08
376-06-7	Perfluorotetradecanoic acid	0.039	J	0.022	0.054	1.08
72629-94-8	Perfluorotridecanoic acid	0.475	J	0.032	0.108	1.08
2058-94-8	Perfluoroundecanoic acid	1.27		0.022	0.054	1.08

FORM I SV-1

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No: <u>221050411</u>	Client Sample ID: <u>AOI01-10-SB-00-02-D</u>
Collect Date: <u>04/28/21</u> Time: <u>1405</u>	GCAL Sample ID: <u>22105041132</u>
Matrix: <u>Solid</u> % Moisture: <u>8.1</u>	Instrument ID: <u>QQQ1</u>
Sample Amt: <u>5</u> g	Lab File ID: <u>2210515A_44.d</u>
Injection Vol.: <u>1.0</u> (µL)	GC Column: <u>ACC-C18-30M</u> ID <u>2.1</u> (mm)
Prep Final Vol.: <u>1000</u> (µL)	Dilution Factor: <u>1</u> Analyst: <u>MRA</u>
Prep Date: <u>05/11/21</u>	Analysis Date: <u>05/15/21</u> Time: <u>2158</u>
Prep Batch: <u>710837</u>	Analytical Batch: <u>711275</u>
Prep Method: <u>PFAS ID QSM B15 Prep</u>	Analytical Method: <u>PFAS Isotope Dilution QSM B15</u>

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomersulfonic acid	0.218	U	0.065	0.218	1.09
39108-34-4	8:2 Fluorotelomersulfonic acid	0.109	U	0.033	0.109	1.09
2991-50-6	NEtFOSAA	0.109	U	0.033	0.109	1.09
2355-31-9	NMeFOSAA	0.054	U	0.022	0.054	1.09
375-73-5	Perfluorobutanesulfonic acid	0.054	U	0.022	0.054	1.09
375-22-4	Perfluorobutanoic acid	0.058	J	0.044	0.109	1.09
335-76-2	Perfluorodecanoic acid	0.290	J	0.044	0.109	1.09
307-55-1	Perfluorododecanoic acid	0.102	J	0.022	0.054	1.09
375-85-9	Perfluoroheptanoic acid	0.054	U	0.022	0.054	1.09
307-24-4	Perfluorohexanoic acid	0.068	J	0.022	0.054	1.09
375-95-1	Perfluorononanoic acid	0.053	J	0.022	0.054	1.09
1763-23-1	Perfluorooctanesulfonic acid	1.79		0.054	0.218	1.09
335-67-1	Perfluorooctanoic acid	0.218	U	0.087	0.218	1.09
2706-90-3	Perfluoropentanoic acid	0.035	J	0.022	0.054	1.09
376-06-7	Perfluorotetradecanoic acid	0.032	J	0.022	0.054	1.09
72629-94-8	Perfluorotridecanoic acid	0.509	J	0.033	0.109	1.09
2058-94-8	Perfluoroundecanoic acid	1.30		0.022	0.054	1.09

FORM I SV-1

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No: <u>221050411</u>	Client Sample ID: <u>AOI01-10-SB-00-02-DRE</u>
Collect Date: <u>04/28/21</u> Time: <u>1405</u>	GCAL Sample ID: <u>22105041132RE</u>
Matrix: <u>Solid</u> % Moisture: <u>8.1</u>	Instrument ID: <u>QQQ3</u>
Sample Amt: <u>5</u> g	Lab File ID: <u>2210520A_69.d</u>
Injection Vol.: <u>1.0</u> (µL)	GC Column: <u>ACC-C18-30M</u> ID <u>2.1</u> (mm)
Prep Final Vol.: <u>1000</u> (µL)	Dilution Factor: <u>1</u> Analyst: <u>RXJ</u>
Prep Date: <u>05/11/21</u>	Analysis Date: <u>05/21/21</u> Time: <u>1028</u>
Prep Batch: <u>710837</u>	Analytical Batch: <u>711722</u>
Prep Method: <u>PFAS ID QSM B15 Prep</u>	Analytical Method: <u>PFAS Isotope Dilution QSM B15</u>

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
355-46-4	Perfluorohexanesulfonic acid	0.311	J	0.033	0.109	1.09

FORM I SV-1

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No: <u>221050411</u>	Client Sample ID: <u>AOI01-10-SB-03-05</u>
Collect Date: <u>04/28/21</u> Time: <u>1410</u>	GCAL Sample ID: <u>22105041135</u>
Matrix: <u>Solid</u> % Moisture: <u>19.1</u>	Instrument ID: <u>QQQ1</u>
Sample Amt: <u>5</u> g	Lab File ID: <u>2210515A_73.d</u>
Injection Vol.: <u>1.0</u> (µL)	GC Column: <u>ACC-C18-30M</u> ID <u>2.1</u> (mm)
Prep Final Vol.: <u>1000</u> (µL)	Dilution Factor: <u>1</u> Analyst: <u>MRA</u>
Prep Date: <u>05/12/21</u>	Analysis Date: <u>05/16/21</u> Time: <u>0620</u>
Prep Batch: <u>710838</u>	Analytical Batch: <u>711275</u>
Prep Method: <u>PFAS ID QSM B15 Prep</u>	Analytical Method: <u>PFAS Isotope Dilution QSM B15</u>

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomersulfonic acid	0.247	U	0.074	0.247	1.24
39108-34-4	8:2 Fluorotelomersulfonic acid	0.124	U	0.037	0.124	1.24
2991-50-6	NEtFOSAA	0.124	U	0.037	0.124	1.24
2355-31-9	NMeFOSAA	0.062	U	0.025	0.062	1.24
375-73-5	Perfluorobutanesulfonic acid	0.062	U	0.025	0.062	1.24
375-22-4	Perfluorobutanoic acid	0.066	J	0.049	0.124	1.24
335-76-2	Perfluorodecanoic acid	0.124	U	0.049	0.124	1.24
307-55-1	Perfluorododecanoic acid	0.062	U	0.025	0.062	1.24
375-85-9	Perfluoroheptanoic acid	0.033	J	0.025	0.062	1.24
355-46-4	Perfluorohexanesulfonic acid	0.297	JJ	0.037	0.124	1.24
307-24-4	Perfluorohexanoic acid	0.089	J	0.025	0.062	1.24
375-95-1	Perfluorononanoic acid	0.141	J	0.025	0.062	1.24
1763-23-1	Perfluorooctanesulfonic acid	0.795	J	0.062	0.247	1.24
335-67-1	Perfluorooctanoic acid	0.106	JJ	0.099	0.247	1.24
2706-90-3	Perfluoropentanoic acid	0.043	J	0.025	0.062	1.24
376-06-7	Perfluorotetradecanoic acid	0.062	U	0.025	0.062	1.24
72629-94-8	Perfluorotridecanoic acid	0.124	U	0.037	0.124	1.24
2058-94-8	Perfluoroundecanoic acid	0.062	U	0.025	0.062	1.24

FORM I SV-1

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No: <u>221050411</u>	Client Sample ID: <u>AOI01-01-GW</u>
Collect Date: <u>04/27/21</u> Time: <u>1525</u>	GCAL Sample ID: <u>22105041138</u>
Matrix: <u>Water</u> % Moisture: <u>NA</u>	Instrument ID: <u>QQQ3</u>
Sample Amt: <u>125</u> mL	Lab File ID: <u>2210507B_44.d</u>
Injection Vol.: <u>1.0</u> (µL)	GC Column: <u>ACC-C18-30M</u> ID <u>2.1</u> (mm)
Prep Final Vol.: <u>1000</u> (µL)	Dilution Factor: <u>1</u> Analyst: <u>RXJ</u>
Prep Date: <u>05/04/21</u>	Analysis Date: <u>05/08/21</u> Time: <u>0337</u>
Prep Batch: <u>709960</u>	Analytical Batch: <u>710901</u>
Prep Method: <u>PFAS ID QSM B15 Prep</u>	Analytical Method: <u>PFAS Isotope Dilution QSM B15</u>

CONCENTRATION UNITS: ng/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomersulfonic acid	9.38		0.940	2.00	4.00
39108-34-4	8:2 Fluorotelomersulfonic acid	10.4		0.900	2.00	4.00
2991-50-6	NEtFOSAA	4.00	U	0.970	4.00	8.00
2355-31-9	NMeFOSAA	4.00	U	0.910	4.00	8.00
375-73-5	Perfluorobutanesulfonic acid	8.75		0.810	2.00	4.00
375-22-4	Perfluorobutanoic acid	29.6		0.900	2.00	4.00
335-76-2	Perfluorodecanoic acid	7.66		0.860	2.00	4.00
307-55-1	Perfluorododecanoic acid	2.00	U	0.880	2.00	4.00
375-85-9	Perfluoroheptanoic acid	55.4		0.480	2.00	4.00
355-46-4	Perfluorohexanesulfonic acid	252		0.950	2.00	4.00
307-24-4	Perfluorohexanoic acid	92.3		0.990	2.00	4.00
375-95-1	Perfluorononanoic acid	290		0.780	2.00	4.00
1763-23-1	Perfluorooctanesulfonic acid	138		0.810	2.00	4.00
335-67-1	Perfluorooctanoic acid	57.3		0.950	2.00	4.00
2706-90-3	Perfluoropentanoic acid	88.5		0.850	2.00	4.00
376-06-7	Perfluorotetradecanoic acid	2.00	U	0.980	2.00	4.00
72629-94-8	Perfluorotridecanoic acid	2.00	U	0.990	2.00	4.00
2058-94-8	Perfluoroundecanoic acid	223		0.950	2.00	4.00

FORM I SV-1

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No: <u>221050411</u>	Client Sample ID: <u>AOI01-02-GW</u>
Collect Date: <u>04/28/21</u> Time: <u>0850</u>	GCAL Sample ID: <u>22105041139</u>
Matrix: <u>Water</u> % Moisture: <u>NA</u>	Instrument ID: <u>QQQ3</u>
Sample Amt: <u>125</u> mL	Lab File ID: <u>2210507B_45.d</u>
Injection Vol.: <u>1.0</u> (µL)	GC Column: <u>ACC-C18-30M</u> ID <u>2.1</u> (mm)
Prep Final Vol.: <u>1000</u> (µL)	Dilution Factor: <u>1</u> Analyst: <u>RXJ</u>
Prep Date: <u>05/04/21</u>	Analysis Date: <u>05/08/21</u> Time: <u>0352</u>
Prep Batch: <u>709960</u>	Analytical Batch: <u>710901</u>
Prep Method: <u>PFAS ID QSM B15 Prep</u>	Analytical Method: <u>PFAS Isotope Dilution QSM B15</u>

CONCENTRATION UNITS: ng/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
39108-34-4	8:2 Fluorotelomersulfonic acid	16.9		0.900	2.00	4.00
2991-50-6	NEtFOSAA	4.00	U	0.970	4.00	8.00
2355-31-9	NMeFOSAA	4.00	U	0.910	4.00	8.00
375-73-5	Perfluorobutanesulfonic acid	4.15		0.810	2.00	4.00
375-22-4	Perfluorobutanoic acid	58.1		0.900	2.00	4.00
335-76-2	Perfluorodecanoic acid	1.78	J	0.860	2.00	4.00
307-55-1	Perfluorododecanoic acid	2.00	U	0.880	2.00	4.00
375-85-9	Perfluoroheptanoic acid	57.0		0.480	2.00	4.00
355-46-4	Perfluorohexanesulfonic acid	127		0.950	2.00	4.00
307-24-4	Perfluorohexanoic acid	169		0.990	2.00	4.00
375-95-1	Perfluorononanoic acid	32.3		0.780	2.00	4.00
1763-23-1	Perfluorooctanesulfonic acid	94.2		0.810	2.00	4.00
335-67-1	Perfluorooctanoic acid	40.5		0.950	2.00	4.00
2706-90-3	Perfluoropentanoic acid	263		0.850	2.00	4.00
376-06-7	Perfluorotetradecanoic acid	2.00	U	0.980	2.00	4.00
72629-94-8	Perfluorotridecanoic acid	2.00	U	0.990	2.00	4.00
2058-94-8	Perfluoroundecanoic acid	2.00	U	0.950	2.00	4.00

FORM I SV-1

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No: <u>221050411</u>	Client Sample ID: <u>AOI01-02-GWDL</u>
Collect Date: <u>04/28/21</u> Time: <u>0850</u>	GCAL Sample ID: <u>22105041139DL</u>
Matrix: <u>Water</u> % Moisture: <u>NA</u>	Instrument ID: <u>QQQ3</u>
Sample Amt: <u>125</u> mL	Lab File ID: <u>2210515A_15.d</u>
Injection Vol.: <u>1.0</u> (µL)	GC Column: <u>ACC-C18-30M</u> ID <u>2.1</u> (mm)
Prep Final Vol.: <u>1000</u> (µL)	Dilution Factor: <u>5</u> Analyst: <u>MRA</u>
Prep Date: <u>05/04/21</u>	Analysis Date: <u>05/15/21</u> Time: <u>1420</u>
Prep Batch: <u>709960</u>	Analytical Batch: <u>711273</u>
Prep Method: <u>PFAS ID QSM B15 Prep</u>	Analytical Method: <u>PFAS Isotope Dilution QSM B15</u>

CONCENTRATION UNITS: ng/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomersulfonic acid	534		7.50	15.0	20.0

FORM I SV-1

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No: <u>221050411</u>	Client Sample ID: <u>AOI01-03-GW</u>	
Collect Date: <u>04/29/21</u> Time: <u>1005</u>	GCAL Sample ID: <u>22105041140</u>	
Matrix: <u>Water</u> % Moisture: <u>NA</u>	Instrument ID: <u>QQQ3</u>	
Sample Amt: <u>125</u> mL	Lab File ID: <u>2210507B_46.d</u>	
Injection Vol.: <u>1.0</u> (µL)	GC Column: <u>ACC-C18-30M</u> ID <u>2.1</u> (mm)	
Prep Final Vol.: <u>1000</u> (µL)	Dilution Factor: <u>1</u> Analyst: <u>RXJ</u>	
Prep Date: <u>05/04/21</u>	Analysis Date: <u>05/08/21</u> Time: <u>0406</u>	
Prep Batch: <u>709960</u>	Analytical Batch: <u>710901</u>	
Prep Method: <u>PFAS ID QSM B15 Prep</u>	Analytical Method: <u>PFAS Isotope Dilution QSM B15</u>	

CONCENTRATION UNITS: ng/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomersulfonic acid	6.77		0.940	2.00	4.00
39108-34-4	8:2 Fluorotelomersulfonic acid	12.6		0.900	2.00	4.00
2991-50-6	NEtFOSAA	4.00	U	0.970	4.00	8.00
2355-31-9	NMeFOSAA	2.69	J	0.910	4.00	8.00
375-73-5	Perfluorobutanesulfonic acid	51.3		0.810	2.00	4.00
375-22-4	Perfluorobutanoic acid	21.9		0.900	2.00	4.00
335-76-2	Perfluorodecanoic acid	3.81	J	0.860	2.00	4.00
307-55-1	Perfluorododecanoic acid	2.00	U	0.880	2.00	4.00
375-85-9	Perfluoroheptanoic acid	16.3		0.480	2.00	4.00
307-24-4	Perfluorohexanoic acid	345		0.990	2.00	4.00
375-95-1	Perfluorononanoic acid	49.7		0.780	2.00	4.00
1763-23-1	Perfluorooctanesulfonic acid	125		0.810	2.00	4.00
335-67-1	Perfluorooctanoic acid	298		0.950	2.00	4.00
2706-90-3	Perfluoropentanoic acid	45.0		0.850	2.00	4.00
376-06-7	Perfluorotetradecanoic acid	2.00	U	0.980	2.00	4.00
72629-94-8	Perfluorotridecanoic acid	2.00	U	0.990	2.00	4.00
2058-94-8	Perfluoroundecanoic acid	52.3		0.950	2.00	4.00

FORM I SV-1

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No: <u>221050411</u>	Client Sample ID: <u>AOI01-03-GWDL</u>
Collect Date: <u>04/29/21</u> Time: <u>1005</u>	GCAL Sample ID: <u>22105041140DL</u>
Matrix: <u>Water</u> % Moisture: <u>NA</u>	Instrument ID: <u>QQQ3</u>
Sample Amt: <u>125</u> mL	Lab File ID: <u>2210527A_31.d</u>
Injection Vol.: <u>1.0</u> (μ L)	GC Column: <u>ACC-C18-30M</u> ID <u>2.1</u> (mm)
Prep Final Vol.: <u>1000</u> (μ L)	Dilution Factor: <u>5</u> Analyst: <u>RXJ</u>
Prep Date: <u>05/04/21</u>	Analysis Date: <u>05/28/21</u> Time: <u>0033</u>
Prep Batch: <u>709960</u>	Analytical Batch: <u>712388</u>
Prep Method: <u>PFAS ID QSM B15 Prep</u>	Analytical Method: <u>PFAS Isotope Dilution QSM B15</u>

CONCENTRATION UNITS: *ng/L*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
355-46-4	Perfluorohexanesulfonic acid	1830		6.20	15.0	20.0

FORM I SV-1

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No: <u>221050411</u>	Client Sample ID: <u>AOI01-04-GW</u>
Collect Date: <u>04/29/21</u> Time: <u>1130</u>	GCAL Sample ID: <u>22105041141</u>
Matrix: <u>Water</u> % Moisture: <u>NA</u>	Instrument ID: <u>QQQ3</u>
Sample Amt: <u>125</u> mL	Lab File ID: <u>2210507B_47.d</u>
Injection Vol.: <u>1.0</u> (µL)	GC Column: <u>ACC-C18-30M</u> ID <u>2.1</u> (mm)
Prep Final Vol.: <u>1000</u> (µL)	Dilution Factor: <u>1</u> Analyst: <u>RXJ</u>
Prep Date: <u>05/04/21</u>	Analysis Date: <u>05/08/21</u> Time: <u>0421</u>
Prep Batch: <u>709960</u>	Analytical Batch: <u>710901</u>
Prep Method: <u>PFAS ID QSM B15 Prep</u>	Analytical Method: <u>PFAS Isotope Dilution QSM B15</u>

CONCENTRATION UNITS: ng/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomersulfonic acid	64.4		0.940	2.00	4.00
39108-34-4	8:2 Fluorotelomersulfonic acid	48.2		0.900	2.00	4.00
2991-50-6	NEtFOSAA	4.00	U	0.970	4.00	8.00
2355-31-9	NMeFOSAA	1.000	J	0.910	4.00	8.00
375-73-5	Perfluorobutanesulfonic acid	19.4		0.810	2.00	4.00
375-22-4	Perfluorobutanoic acid	24.6		0.900	2.00	4.00
335-76-2	Perfluorodecanoic acid	3.42	J	0.860	2.00	4.00
307-55-1	Perfluorododecanoic acid	2.00	U	0.880	2.00	4.00
375-85-9	Perfluoroheptanoic acid	35.9		0.480	2.00	4.00
355-46-4	Perfluorohexanesulfonic acid	306		0.950	2.00	4.00
307-24-4	Perfluorohexanoic acid	95.2		0.990	2.00	4.00
375-95-1	Perfluorononanoic acid	97.5		0.780	2.00	4.00
335-67-1	Perfluorooctanoic acid	71.8		0.950	2.00	4.00
2706-90-3	Perfluoropentanoic acid	82.6		0.850	2.00	4.00
376-06-7	Perfluorotetradecanoic acid	2.00	U	0.980	2.00	4.00
72629-94-8	Perfluorotridecanoic acid	2.00	U	0.990	2.00	4.00
2058-94-8	Perfluoroundecanoic acid	9.74		0.950	2.00	4.00

FORM I SV-1

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No: <u>221050411</u>	Client Sample ID: <u>AOI01-04-GWDL</u>
Collect Date: <u>04/29/21</u> Time: <u>1130</u>	GCAL Sample ID: <u>22105041141DL</u>
Matrix: <u>Water</u> % Moisture: <u>NA</u>	Instrument ID: <u>QQQ3</u>
Sample Amt: <u>125</u> mL	Lab File ID: <u>2210517A_13.d</u>
Injection Vol.: <u>1.0</u> (µL)	GC Column: <u>ACC-C18-30M</u> ID <u>2.1</u> (mm)
Prep Final Vol.: <u>1000</u> (µL)	Dilution Factor: <u>5</u> Analyst: <u>RXJ</u>
Prep Date: <u>05/04/21</u>	Analysis Date: <u>05/17/21</u> Time: <u>1934</u>
Prep Batch: <u>709960</u>	Analytical Batch: <u>711477</u>
Prep Method: <u>PFAS ID QSM B15 Prep</u>	Analytical Method: <u>PFAS Isotope Dilution QSM B15</u>

CONCENTRATION UNITS: *ng/L*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
1763-23-1	Perfluorooctanesulfonic acid	408		3.80	10.0	20.0

FORM I SV-1

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No: <u>221050411</u>	Client Sample ID: <u>AOI01-03-GW-D</u>
Collect Date: <u>04/29/21</u> Time: <u>1005</u>	GCAL Sample ID: <u>22105041142</u>
Matrix: <u>Water</u> % Moisture: <u>NA</u>	Instrument ID: <u>QQQ3</u>
Sample Amt: <u>125</u> mL	Lab File ID: <u>2210507B_48.d</u>
Injection Vol.: <u>1.0</u> (µL)	GC Column: <u>ACC-C18-30M</u> ID <u>2.1</u> (mm)
Prep Final Vol.: <u>1000</u> (µL)	Dilution Factor: <u>1</u> Analyst: <u>RXJ</u>
Prep Date: <u>05/04/21</u>	Analysis Date: <u>05/08/21</u> Time: <u>0436</u>
Prep Batch: <u>709960</u>	Analytical Batch: <u>710901</u>
Prep Method: <u>PFAS ID QSM B15 Prep</u>	Analytical Method: <u>PFAS Isotope Dilution QSM B15</u>

CONCENTRATION UNITS: ng/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomersulfonic acid	6.06		0.940	2.00	4.00
39108-34-4	8:2 Fluorotelomersulfonic acid	10.7		0.900	2.00	4.00
2991-50-6	NEtFOSAA	4.00	U	0.970	4.00	8.00
2355-31-9	NMeFOSAA	2.17	J	0.910	4.00	8.00
375-73-5	Perfluorobutanesulfonic acid	46.5		0.810	2.00	4.00
375-22-4	Perfluorobutanoic acid	22.0		0.900	2.00	4.00
335-76-2	Perfluorodecanoic acid	3.26	J	0.860	2.00	4.00
307-55-1	Perfluorododecanoic acid	2.00	U	0.880	2.00	4.00
375-85-9	Perfluoroheptanoic acid	15.0		0.480	2.00	4.00
307-24-4	Perfluorohexanoic acid	320		0.990	2.00	4.00
375-95-1	Perfluorononanoic acid	45.1		0.780	2.00	4.00
1763-23-1	Perfluorooctanesulfonic acid	115		0.810	2.00	4.00
335-67-1	Perfluorooctanoic acid	275		0.950	2.00	4.00
2706-90-3	Perfluoropentanoic acid	41.8		0.850	2.00	4.00
376-06-7	Perfluorotetradecanoic acid	2.00	U	0.980	2.00	4.00
72629-94-8	Perfluorotridecanoic acid	2.00	U	0.990	2.00	4.00
2058-94-8	Perfluoroundecanoic acid	44.7		0.950	2.00	4.00

FORM I SV-1

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No: <u>221050411</u>	Client Sample ID: <u>AOI01-03-GW-DDL</u>
Collect Date: <u>04/29/21</u> Time: <u>1005</u>	GCAL Sample ID: <u>22105041142DL</u>
Matrix: <u>Water</u> % Moisture: <u>NA</u>	Instrument ID: <u>QQQ3</u>
Sample Amt: <u>125</u> mL	Lab File ID: <u>2210517A_14.d</u>
Injection Vol.: <u>1.0</u> (µL)	GC Column: <u>ACC-C18-30M</u> ID <u>2.1</u> (mm)
Prep Final Vol.: <u>1000</u> (µL)	Dilution Factor: <u>10</u> Analyst: <u>RXJ</u>
Prep Date: <u>05/04/21</u>	Analysis Date: <u>05/17/21</u> Time: <u>1949</u>
Prep Batch: <u>709960</u>	Analytical Batch: <u>711477</u>
Prep Method: <u>PFAS ID QSM B15 Prep</u>	Analytical Method: <u>PFAS Isotope Dilution QSM B15</u>

CONCENTRATION UNITS: *ng/L*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
355-46-4	Perfluorohexanesulfonic acid	1350		12.4	30.0	40.0

FORM I SV-1

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No: <u>221050411</u>	Client Sample ID: <u>AOI01-05-GW</u>	
Collect Date: <u>04/28/21</u> Time: <u>1435</u>	GCAL Sample ID: <u>22105041143</u>	
Matrix: <u>Water</u> % Moisture: <u>NA</u>	Instrument ID: <u>QQQ3</u>	
Sample Amt: <u>125</u> mL	Lab File ID: <u>2210507B_49.d</u>	
Injection Vol.: <u>1.0</u> (µL)	GC Column: <u>ACC-C18-30M</u> ID <u>2.1</u> (mm)	
Prep Final Vol.: <u>1000</u> (µL)	Dilution Factor: <u>1</u> Analyst: <u>RXJ</u>	
Prep Date: <u>05/04/21</u>	Analysis Date: <u>05/08/21</u> Time: <u>0450</u>	
Prep Batch: <u>709960</u>	Analytical Batch: <u>710901</u>	
Prep Method: <u>PFAS ID QSM B15 Prep</u>	Analytical Method: <u>PFAS Isotope Dilution QSM B15</u>	

CONCENTRATION UNITS: ng/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomersulfonic acid	4.46		0.940	2.00	4.00
39108-34-4	8:2 Fluorotelomersulfonic acid	2.00	U	0.900	2.00	4.00
2991-50-6	NEtFOSAA	4.00	U	0.970	4.00	8.00
2355-31-9	NMeFOSAA	4.00	U	0.910	4.00	8.00
375-73-5	Perfluorobutanesulfonic acid	15.4		0.810	2.00	4.00
375-22-4	Perfluorobutanoic acid	10.6		0.900	2.00	4.00
335-76-2	Perfluorodecanoic acid	1.12	J	0.860	2.00	4.00
307-55-1	Perfluorododecanoic acid	2.00	U	0.880	2.00	4.00
375-85-9	Perfluoroheptanoic acid	9.78		0.480	2.00	4.00
355-46-4	Perfluorohexanesulfonic acid	169		0.950	2.00	4.00
307-24-4	Perfluorohexanoic acid	70.9		0.990	2.00	4.00
375-95-1	Perfluorononanoic acid	14.7		0.780	2.00	4.00
1763-23-1	Perfluorooctanesulfonic acid	100		0.810	2.00	4.00
335-67-1	Perfluorooctanoic acid	87.2		0.950	2.00	4.00
2706-90-3	Perfluoropentanoic acid	23.0		0.850	2.00	4.00
376-06-7	Perfluorotetradecanoic acid	2.00	U	0.980	2.00	4.00
72629-94-8	Perfluorotridecanoic acid	2.00	U	0.990	2.00	4.00
2058-94-8	Perfluoroundecanoic acid	2.00	U	0.950	2.00	4.00

FORM I SV-1

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No: <u>221050411</u>	Client Sample ID: <u>AOI01-06-GW</u>
Collect Date: <u>04/28/21</u> Time: <u>1245</u>	GCAL Sample ID: <u>22105041144</u>
Matrix: <u>Water</u> % Moisture: <u>NA</u>	Instrument ID: <u>QQQ3</u>
Sample Amt: <u>125</u> mL	Lab File ID: <u>2210507B_50.d</u>
Injection Vol.: <u>1.0</u> (µL)	GC Column: <u>ACC-C18-30M</u> ID <u>2.1</u> (mm)
Prep Final Vol.: <u>1000</u> (µL)	Dilution Factor: <u>1</u> Analyst: <u>RXJ</u>
Prep Date: <u>05/04/21</u>	Analysis Date: <u>05/08/21</u> Time: <u>0505</u>
Prep Batch: <u>709960</u>	Analytical Batch: <u>710901</u>
Prep Method: <u>PFAS ID QSM B15 Prep</u>	Analytical Method: <u>PFAS Isotope Dilution QSM B15</u>

CONCENTRATION UNITS: ng/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomersulfonic acid	2.00	U	0.940	2.00	4.00
39108-34-4	8:2 Fluorotelomersulfonic acid	2.00	U	0.900	2.00	4.00
2991-50-6	NEtFOSAA	4.00	U	0.970	4.00	8.00
2355-31-9	NMeFOSAA	4.00	U	0.910	4.00	8.00
375-73-5	Perfluorobutanesulfonic acid	1.65	J	0.810	2.00	4.00
375-22-4	Perfluorobutanoic acid	1.97	J	0.900	2.00	4.00
335-76-2	Perfluorodecanoic acid	2.00	U	0.860	2.00	4.00
307-55-1	Perfluorododecanoic acid	2.00	U	0.880	2.00	4.00
375-85-9	Perfluoroheptanoic acid	4.74		0.480	2.00	4.00
355-46-4	Perfluorohexanesulfonic acid	13.1		0.950	2.00	4.00
307-24-4	Perfluorohexanoic acid	7.58		0.990	2.00	4.00
375-95-1	Perfluorononanoic acid	2.03	J	0.780	2.00	4.00
1763-23-1	Perfluorooctanesulfonic acid	8.93		0.810	2.00	4.00
335-67-1	Perfluorooctanoic acid	7.85		0.950	2.00	4.00
2706-90-3	Perfluoropentanoic acid	4.72		0.850	2.00	4.00
376-06-7	Perfluorotetradecanoic acid	2.00	U	0.980	2.00	4.00
72629-94-8	Perfluorotridecanoic acid	2.00	U	0.990	2.00	4.00
2058-94-8	Perfluoroundecanoic acid	2.00	U	0.950	2.00	4.00

FORM I SV-1

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No: <u>221050411</u>	Client Sample ID: <u>AOI01-07-GW</u>
Collect Date: <u>04/28/21</u> Time: <u>1140</u>	GCAL Sample ID: <u>22105041145</u>
Matrix: <u>Water</u> % Moisture: <u>NA</u>	Instrument ID: <u>QQQ3</u>
Sample Amt: <u>125</u> mL	Lab File ID: <u>2210525A_60.d</u>
Injection Vol.: <u>1.0</u> (µL)	GC Column: <u>ACC-C18-30M</u> ID <u>2.1</u> (mm)
Prep Final Vol.: <u>1000</u> (µL)	Dilution Factor: <u>1</u> Analyst: <u>RXJ</u>
Prep Date: <u>05/07/21</u>	Analysis Date: <u>05/26/21</u> Time: <u>0646</u>
Prep Batch: <u>710580</u>	Analytical Batch: <u>712118</u>
Prep Method: <u>PFAS ID QSM B15 Prep</u>	Analytical Method: <u>PFAS Isotope Dilution QSM B15</u>

CONCENTRATION UNITS: ng/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomersulfonic acid	3.00	U	1.50	3.00	4.00
39108-34-4	8:2 Fluorotelomersulfonic acid	3.00	U	1.06	3.00	4.00
2991-50-6	NEtFOSAA	4.00	U	1.58	4.00	8.00
2355-31-9	NMeFOSAA	4.00	U	0.900	4.00	8.00
375-73-5	Perfluorobutanesulfonic acid	2.00	U	0.620	2.00	4.00
375-22-4	Perfluorobutanoic acid	1.58	J	1.52	3.50	4.00
335-76-2	Perfluorodecanoic acid	3.00	U	1.44	3.00	4.00
307-55-1	Perfluorododecanoic acid	3.00	U	1.30	3.00	4.00
375-85-9	Perfluoroheptanoic acid	2.65	J	1.16	3.00	4.00
355-46-4	Perfluorohexanesulfonic acid	7.07		1.24	3.00	4.00
307-24-4	Perfluorohexanoic acid	3.09	J	0.940	2.00	4.00
375-95-1	Perfluorononanoic acid	3.61	J	0.980	2.00	4.00
1763-23-1	Perfluorooctanesulfonic acid	52.6		0.760	2.00	4.00
335-67-1	Perfluorooctanoic acid	5.45		0.840	2.00	4.00
2706-90-3	Perfluoropentanoic acid	2.52	J	0.880	2.00	4.00
376-06-7	Perfluorotetradecanoic acid	3.00	U	1.14	3.00	4.00
72629-94-8	Perfluorotridecanoic acid	3.00	U	1.23	3.00	4.00
2058-94-8	Perfluoroundecanoic acid	3.00	U	1.24	3.00	4.00

FORM I SV-1

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No: <u>221050411</u>	Client Sample ID: <u>AOI01-08-GW</u>
Collect Date: <u>04/28/21</u> Time: <u>1010</u>	GCAL Sample ID: <u>22105041146</u>
Matrix: <u>Water</u> % Moisture: <u>NA</u>	Instrument ID: <u>QQQ3</u>
Sample Amt: <u>125</u> mL	Lab File ID: <u>2210525A_61.d</u>
Injection Vol.: <u>1.0</u> (µL)	GC Column: <u>ACC-C18-30M</u> ID <u>2.1</u> (mm)
Prep Final Vol.: <u>1000</u> (µL)	Dilution Factor: <u>1</u> Analyst: <u>RXJ</u>
Prep Date: <u>05/07/21</u>	Analysis Date: <u>05/26/21</u> Time: <u>0701</u>
Prep Batch: <u>710580</u>	Analytical Batch: <u>712118</u>
Prep Method: <u>PFAS ID QSM B15 Prep</u>	Analytical Method: <u>PFAS Isotope Dilution QSM B15</u>

CONCENTRATION UNITS: ng/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomersulfonic acid	3.00	U	1.50	3.00	4.00
39108-34-4	8:2 Fluorotelomersulfonic acid	3.00	U	1.06	3.00	4.00
2991-50-6	NEtFOSAA	4.00	U	1.58	4.00	8.00
2355-31-9	NMeFOSAA	4.00	U	0.900	4.00	8.00
375-73-5	Perfluorobutanesulfonic acid	1.33	J	0.620	2.00	4.00
375-22-4	Perfluorobutanoic acid	5.02		1.52	3.50	4.00
335-76-2	Perfluorodecanoic acid	3.00	U	1.44	3.00	4.00
307-55-1	Perfluorododecanoic acid	3.00	U	1.30	3.00	4.00
375-85-9	Perfluoroheptanoic acid	5.64		1.16	3.00	4.00
355-46-4	Perfluorohexanesulfonic acid	66.8		1.24	3.00	4.00
307-24-4	Perfluorohexanoic acid	12.9		0.940	2.00	4.00
375-95-1	Perfluorononanoic acid	4.42		0.980	2.00	4.00
1763-23-1	Perfluorooctanesulfonic acid	581		0.760	2.00	4.00
335-67-1	Perfluorooctanoic acid	10.8		0.840	2.00	4.00
2706-90-3	Perfluoropentanoic acid	9.87		0.880	2.00	4.00
376-06-7	Perfluorotetradecanoic acid	3.00	U	1.14	3.00	4.00
72629-94-8	Perfluorotridecanoic acid	3.00	U	1.23	3.00	4.00
2058-94-8	Perfluoroundecanoic acid	3.00	U	1.24	3.00	4.00

FORM I SV-1

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	221050411	Client Sample ID:	AOI01-09-GW
Collect Date:	04/27/21	Time:	1620
GCAL Sample ID:	22105041147		
Matrix:	Water	% Moisture:	NA
Instrument ID:	QQQ3		
Sample Amt:	125	mL	
Lab File ID:	2210505A_24.d		
Injection Vol.:	1.0	(µL)	
GC Column:	ACC-C18-30M	ID	2.1 (mm)
Prep Final Vol.:	1000	(µL)	
Dilution Factor:	1	Analyst:	MRA
Prep Date:	05/03/21	Analysis Date:	05/05/21
		Time:	1702
Prep Batch:	710037	Analytical Batch:	710369
Prep Method:	PFAS ID QSM B15 Prep	Analytical Method:	PFAS Isotope Dilution QSM B15

CONCENTRATION UNITS: ng/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomersulfonic acid	2.00	U	0.940	2.00	4.00
39108-34-4	8:2 Fluorotelomersulfonic acid	2.00	U	0.900	2.00	4.00
2991-50-6	NEtFOSAA	4.00	U	0.970	4.00	8.00
2355-31-9	NMeFOSAA	4.00	U	0.910	4.00	8.00
375-73-5	Perfluorobutanesulfonic acid	5.16		0.810	2.00	4.00
375-22-4	Perfluorobutanoic acid	15.9		0.900	2.00	4.00
335-76-2	Perfluorodecanoic acid	2.00	U	0.860	2.00	4.00
307-55-1	Perfluorododecanoic acid	2.00	U	0.880	2.00	4.00
375-85-9	Perfluoroheptanoic acid	10.5		0.480	2.00	4.00
355-46-4	Perfluorohexanesulfonic acid	161		0.950	2.00	4.00
307-24-4	Perfluorohexanoic acid	39.5		0.990	2.00	4.00
375-95-1	Perfluorononanoic acid	4.25		0.780	2.00	4.00
335-67-1	Perfluorooctanoic acid	24.6		0.950	2.00	4.00
2706-90-3	Perfluoropentanoic acid	11.2		0.850	2.00	4.00
376-06-7	Perfluorotetradecanoic acid	2.00	U	0.980	2.00	4.00
72629-94-8	Perfluorotridecanoic acid	2.00	U	0.990	2.00	4.00
2058-94-8	Perfluoroundecanoic acid	2.00	U	0.950	2.00	4.00

FORM I SV-1

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No: <u>221050411</u>	Client Sample ID: <u>AOI01-09-GWRE</u>
Collect Date: <u>04/27/21</u> Time: <u>1620</u>	GCAL Sample ID: <u>22105041147RE</u>
Matrix: <u>Water</u> % Moisture: <u>NA</u>	Instrument ID: <u>QQQ3</u>
Sample Amt: <u>125</u> mL	Lab File ID: <u>2210527A_30.d</u>
Injection Vol.: <u>1.0</u> (µL)	GC Column: <u>ACC-C18-30M</u> ID <u>2.1</u> (mm)
Prep Final Vol.: <u>1000</u> (µL)	Dilution Factor: <u>1</u> Analyst: <u>RXJ</u>
Prep Date: <u>05/03/21</u>	Analysis Date: <u>05/28/21</u> Time: <u>0018</u>
Prep Batch: <u>710037</u>	Analytical Batch: <u>712388</u>
Prep Method: <u>PFAS ID QSM B15 Prep</u>	Analytical Method: <u>PFAS Isotope Dilution QSM B15</u>

CONCENTRATION UNITS: ng/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
1763-23-1	Perfluorooctanesulfonic acid	399		0.760	2.00	4.00

FORM I SV-1

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No: <u>221050411</u>	Client Sample ID: <u>AOI01-10-GW</u>
Collect Date: <u>04/29/21</u> Time: <u>0820</u>	GCAL Sample ID: <u>22105041148</u>
Matrix: <u>Water</u> % Moisture: <u>NA</u>	Instrument ID: <u>QQQ3</u>
Sample Amt: <u>125</u> mL	Lab File ID: <u>2210525A_62.d</u>
Injection Vol.: <u>1.0</u> (µL)	GC Column: <u>ACC-C18-30M</u> ID <u>2.1</u> (mm)
Prep Final Vol.: <u>1000</u> (µL)	Dilution Factor: <u>1</u> Analyst: <u>RXJ</u>
Prep Date: <u>05/07/21</u>	Analysis Date: <u>05/26/21</u> Time: <u>0715</u>
Prep Batch: <u>710580</u>	Analytical Batch: <u>712118</u>
Prep Method: <u>PFAS ID QSM B15 Prep</u>	Analytical Method: <u>PFAS Isotope Dilution QSM B15</u>

CONCENTRATION UNITS: ng/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomersulfonic acid	3.00	U	1.50	3.00	4.00
39108-34-4	8:2 Fluorotelomersulfonic acid	3.00	U	1.06	3.00	4.00
2991-50-6	NEtFOSAA	4.00	U	1.58	4.00	8.00
2355-31-9	NMeFOSAA	4.00	U	0.900	4.00	8.00
375-73-5	Perfluorobutanesulfonic acid	3.21	J	0.620	2.00	4.00
375-22-4	Perfluorobutanoic acid	2.56	J	1.52	3.50	4.00
335-76-2	Perfluorodecanoic acid	3.00	U	1.44	3.00	4.00
307-55-1	Perfluorododecanoic acid	3.00	U	1.30	3.00	4.00
375-85-9	Perfluoroheptanoic acid	3.42	J	1.16	3.00	4.00
355-46-4	Perfluorohexanesulfonic acid	60.6		1.24	3.00	4.00
307-24-4	Perfluorohexanoic acid	8.28		0.940	2.00	4.00
375-95-1	Perfluorononanoic acid	2.00	U	0.980	2.00	4.00
1763-23-1	Perfluorooctanesulfonic acid	9.88		0.760	2.00	4.00
335-67-1	Perfluorooctanoic acid	11.5		0.840	2.00	4.00
2706-90-3	Perfluoropentanoic acid	3.37	J	0.880	2.00	4.00
376-06-7	Perfluorotetradecanoic acid	3.00	U	1.14	3.00	4.00
72629-94-8	Perfluorotridecanoic acid	3.00	U	1.23	3.00	4.00
2058-94-8	Perfluoroundecanoic acid	3.00	U	1.24	3.00	4.00

FORM I SV-1

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No: <u>221050411</u>	Client Sample ID: <u>WL-ERB-02</u>
Collect Date: <u>04/28/21</u> Time: <u>1430</u>	GCAL Sample ID: <u>22105041151</u>
Matrix: <u>Water</u> % Moisture: <u>NA</u>	Instrument ID: <u>QQQ3</u>
Sample Amt: <u>125</u> mL	Lab File ID: <u>2210525A_65.d</u>
Injection Vol.: <u>1.0</u> (µL)	GC Column: <u>ACC-C18-30M</u> ID <u>2.1</u> (mm)
Prep Final Vol.: <u>1000</u> (µL)	Dilution Factor: <u>1</u> Analyst: <u>RXJ</u>
Prep Date: <u>05/07/21</u>	Analysis Date: <u>05/26/21</u> Time: <u>0759</u>
Prep Batch: <u>710580</u>	Analytical Batch: <u>712118</u>
Prep Method: <u>PFAS ID QSM B15 Prep</u>	Analytical Method: <u>PFAS Isotope Dilution QSM B15</u>

CONCENTRATION UNITS: ng/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomersulfonic acid	3.00	U	1.50	3.00	4.00
39108-34-4	8:2 Fluorotelomersulfonic acid	3.00	U	1.06	3.00	4.00
2991-50-6	NEtFOSAA	4.00	U	1.58	4.00	8.00
2355-31-9	NMeFOSAA	4.00	U	0.900	4.00	8.00
375-73-5	Perfluorobutanesulfonic acid	2.00	U	0.620	2.00	4.00
375-22-4	Perfluorobutanoic acid	3.50	U	1.52	3.50	4.00
335-76-2	Perfluorodecanoic acid	3.00	U	1.44	3.00	4.00
307-55-1	Perfluorododecanoic acid	3.00	U	1.30	3.00	4.00
375-85-9	Perfluoroheptanoic acid	3.00	U	1.16	3.00	4.00
355-46-4	Perfluorohexanesulfonic acid	3.00	U	1.24	3.00	4.00
307-24-4	Perfluorohexanoic acid	2.00	U	0.940	2.00	4.00
375-95-1	Perfluorononanoic acid	2.00	U	0.980	2.00	4.00
1763-23-1	Perfluorooctanesulfonic acid	13.6		0.760	2.00	4.00
335-67-1	Perfluorooctanoic acid	2.00	U	0.840	2.00	4.00
2706-90-3	Perfluoropentanoic acid	2.00	U	0.880	2.00	4.00
376-06-7	Perfluorotetradecanoic acid	3.00	U	1.14	3.00	4.00
72629-94-8	Perfluorotridecanoic acid	3.00	U	1.23	3.00	4.00
2058-94-8	Perfluoroundecanoic acid	3.00	U	1.24	3.00	4.00

FORM I SV-1

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No: <u>221050411</u>	Client Sample ID: <u>WL-ERB-03</u>
Collect Date: <u>04/29/21</u> Time: <u>0900</u>	GCAL Sample ID: <u>22105041152</u>
Matrix: <u>Water</u> % Moisture: <u>NA</u>	Instrument ID: <u>QQQ3</u>
Sample Amt: <u>125</u> mL	Lab File ID: <u>2210525A_66.d</u>
Injection Vol.: <u>1.0</u> (µL)	GC Column: <u>ACC-C18-30M</u> ID <u>2.1</u> (mm)
Prep Final Vol.: <u>1000</u> (µL)	Dilution Factor: <u>1</u> Analyst: <u>RXJ</u>
Prep Date: <u>05/07/21</u>	Analysis Date: <u>05/26/21</u> Time: <u>0814</u>
Prep Batch: <u>710580</u>	Analytical Batch: <u>712118</u>
Prep Method: <u>PFAS ID QSM B15 Prep</u>	Analytical Method: <u>PFAS Isotope Dilution QSM B15</u>

CONCENTRATION UNITS: ng/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomersulfonic acid	3.00	U	1.50	3.00	4.00
39108-34-4	8:2 Fluorotelomersulfonic acid	3.00	U	1.06	3.00	4.00
2991-50-6	NEtFOSAA	4.00	U	1.58	4.00	8.00
2355-31-9	NMeFOSAA	4.00	U	0.900	4.00	8.00
375-73-5	Perfluorobutanesulfonic acid	2.00	U	0.620	2.00	4.00
375-22-4	Perfluorobutanoic acid	3.50	U	1.52	3.50	4.00
335-76-2	Perfluorodecanoic acid	3.00	U	1.44	3.00	4.00
307-55-1	Perfluorododecanoic acid	3.00	U	1.30	3.00	4.00
375-85-9	Perfluoroheptanoic acid	3.00	U	1.16	3.00	4.00
355-46-4	Perfluorohexanesulfonic acid	3.00	U	1.24	3.00	4.00
307-24-4	Perfluorohexanoic acid	2.00	U	0.940	2.00	4.00
375-95-1	Perfluorononanoic acid	2.00	U	0.980	2.00	4.00
1763-23-1	Perfluorooctanesulfonic acid	2.00	U	0.760	2.00	4.00
335-67-1	Perfluorooctanoic acid	2.00	U	0.840	2.00	4.00
2706-90-3	Perfluoropentanoic acid	2.00	U	0.880	2.00	4.00
376-06-7	Perfluorotetradecanoic acid	3.00	U	1.14	3.00	4.00
72629-94-8	Perfluorotridecanoic acid	3.00	U	1.23	3.00	4.00
2058-94-8	Perfluoroundecanoic acid	3.00	U	1.24	3.00	4.00

FORM I SV-1

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No: <u>221050411</u>	Client Sample ID: <u>WL-ERB-04</u>
Collect Date: <u>04/29/21</u> Time: <u>1000</u>	GCAL Sample ID: <u>22105041153</u>
Matrix: <u>Water</u> % Moisture: <u>NA</u>	Instrument ID: <u>QQQ3</u>
Sample Amt: <u>125</u> mL	Lab File ID: <u>2210525A_67.d</u>
Injection Vol.: <u>1.0</u> (µL)	GC Column: <u>ACC-C18-30M</u> ID <u>2.1</u> (mm)
Prep Final Vol.: <u>1000</u> (µL)	Dilution Factor: <u>1</u> Analyst: <u>RXJ</u>
Prep Date: <u>05/07/21</u>	Analysis Date: <u>05/26/21</u> Time: <u>0829</u>
Prep Batch: <u>710580</u>	Analytical Batch: <u>712118</u>
Prep Method: <u>PFAS ID QSM B15 Prep</u>	Analytical Method: <u>PFAS Isotope Dilution QSM B15</u>

CONCENTRATION UNITS: ng/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomersulfonic acid	3.00	U	1.50	3.00	4.00
39108-34-4	8:2 Fluorotelomersulfonic acid	3.00	U	1.06	3.00	4.00
2991-50-6	NEtFOSAA	4.00	U	1.58	4.00	8.00
2355-31-9	NMeFOSAA	4.00	U	0.900	4.00	8.00
375-73-5	Perfluorobutanesulfonic acid	2.00	U	0.620	2.00	4.00
375-22-4	Perfluorobutanoic acid	3.50	U	1.52	3.50	4.00
335-76-2	Perfluorodecanoic acid	3.00	U	1.44	3.00	4.00
307-55-1	Perfluorododecanoic acid	3.00	U	1.30	3.00	4.00
375-85-9	Perfluoroheptanoic acid	3.00	U	1.16	3.00	4.00
355-46-4	Perfluorohexanesulfonic acid	3.00	U	1.24	3.00	4.00
307-24-4	Perfluorohexanoic acid	2.00	U	0.940	2.00	4.00
375-95-1	Perfluorononanoic acid	2.00	U	0.980	2.00	4.00
1763-23-1	Perfluorooctanesulfonic acid	2.00	U	0.760	2.00	4.00
335-67-1	Perfluorooctanoic acid	2.00	U	0.840	2.00	4.00
2706-90-3	Perfluoropentanoic acid	2.00	U	0.880	2.00	4.00
376-06-7	Perfluorotetradecanoic acid	3.00	U	1.14	3.00	4.00
72629-94-8	Perfluorotridecanoic acid	3.00	U	1.23	3.00	4.00
2058-94-8	Perfluoroundecanoic acid	3.00	U	1.24	3.00	4.00

FORM I SV-1

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No: <u>221050411</u>	Client Sample ID: <u>WL-ERB-01</u>
Collect Date: <u>04/28/21</u> Time: <u>1325</u>	GCAL Sample ID: <u>22105041154</u>
Matrix: <u>Water</u> % Moisture: <u>NA</u>	Instrument ID: <u>QQQ3</u>
Sample Amt: <u>125</u> mL	Lab File ID: <u>2210525A_69.d</u>
Injection Vol.: <u>1.0</u> (µL)	GC Column: <u>ACC-C18-30M</u> ID <u>2.1</u> (mm)
Prep Final Vol.: <u>1000</u> (µL)	Dilution Factor: <u>1</u> Analyst: <u>RXJ</u>
Prep Date: <u>05/07/21</u>	Analysis Date: <u>05/26/21</u> Time: <u>0858</u>
Prep Batch: <u>710580</u>	Analytical Batch: <u>712118</u>
Prep Method: <u>PFAS ID QSM B15 Prep</u>	Analytical Method: <u>PFAS Isotope Dilution QSM B15</u>

CONCENTRATION UNITS: ng/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomersulfonic acid	3.00	U	1.50	3.00	4.00
39108-34-4	8:2 Fluorotelomersulfonic acid	3.00	U	1.06	3.00	4.00
2991-50-6	NEtFOSAA	4.00	U	1.58	4.00	8.00
2355-31-9	NMeFOSAA	4.00	U	0.900	4.00	8.00
375-73-5	Perfluorobutanesulfonic acid	2.00	U	0.620	2.00	4.00
375-22-4	Perfluorobutanoic acid	3.50	U	1.52	3.50	4.00
335-76-2	Perfluorodecanoic acid	3.00	U	1.44	3.00	4.00
307-55-1	Perfluorododecanoic acid	3.00	U	1.30	3.00	4.00
375-85-9	Perfluoroheptanoic acid	3.00	U	1.16	3.00	4.00
355-46-4	Perfluorohexanesulfonic acid	3.00	U	1.24	3.00	4.00
307-24-4	Perfluorohexanoic acid	2.00	U	0.940	2.00	4.00
375-95-1	Perfluorononanoic acid	2.00	U	0.980	2.00	4.00
1763-23-1	Perfluorooctanesulfonic acid	20.7		0.760	2.00	4.00
335-67-1	Perfluorooctanoic acid	2.00	U	0.840	2.00	4.00
2706-90-3	Perfluoropentanoic acid	2.00	U	0.880	2.00	4.00
376-06-7	Perfluorotetradecanoic acid	3.00	U	1.14	3.00	4.00
72629-94-8	Perfluorotridecanoic acid	3.00	U	1.23	3.00	4.00
2058-94-8	Perfluoroundecanoic acid	3.00	U	1.24	3.00	4.00

FORM I SV-1

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No: <u>221050411</u>	Client Sample ID: <u>AOI01-10-SB-03-05 (RE)</u>
Collect Date: <u>04/28/21</u> Time: <u>1410</u>	GCAL Sample ID: <u>22105041155</u>
Matrix: <u>Solid</u> % Moisture: <u>19.1</u>	Instrument ID: <u>QQQ1</u>
Sample Amt: <u>5</u> g	Lab File ID: <u>2210521A_26.d</u>
Injection Vol.: <u>1.0</u> (µL)	GC Column: <u>ACC-C18-30M</u> ID <u>2.1</u> (mm)
Prep Final Vol.: <u>1000</u> (µL)	Dilution Factor: <u>1</u> Analyst: <u>RXJ</u>
Prep Date: <u>05/19/21</u>	Analysis Date: <u>05/21/21</u> Time: <u>1928</u>
Prep Batch: <u>711505</u>	Analytical Batch: <u>711941</u>
Prep Method: <u>PFAS ID QSM B15 Prep</u>	Analytical Method: <u>PFAS Isotope Dilution QSM B15</u>

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
355-46-4	Perfluorohexanesulfonic acid	0.261	J	0.037	0.124	1.24
335-67-1	Perfluorooctanoic acid	0.247	U	0.099	0.247	1.24

FORM I SV-1

I
GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	221050411	Client Sample ID:	AOI01-05-SB-00-02
Collect Date:	04/28/21 1220	LAB Sample ID:	22105041111
Matrix:	Solid	Instrument ID:	PH01
% Solids:	NA	Analyst:	SLL2
Sample Amt:	NA	Lab File ID:	NA
Prep Vol.:	NA	Dilution Factor:	1
Prep Date:	NA	Analysis Date:	05/06/21 1350
Prep Batch:	NA	Analytical Batch:	710425
Prep Method:	NA	Analytical Method:	EPA 9045D

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
pH	7.88	pH UNITS		1.00	1.00	1.00

I
GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	221050411	Client Sample ID:	AOI01-05-SB-00-02-D
Collect Date:	04/28/21 1220	LAB Sample ID:	22105041112
Matrix:	Solid	Instrument ID:	PH01
% Solids:	NA	Analyst:	SLL2
Sample Amt:	NA	Lab File ID:	NA
Prep Vol.:	NA	Dilution Factor:	1
Prep Date:	NA	Analysis Date:	05/06/21 1352
Prep Batch:	NA	Analytical Batch:	710425
Prep Method:	NA	Analytical Method:	EPA 9045D

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
pH	7.94	pH UNITS		1.00	1.00	1.00

I
GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	221050411	Client Sample ID:	AOI01-10-SB-00-02
Collect Date:	04/28/21 1405	LAB Sample ID:	22105041131
Matrix:	Solid	Instrument ID:	PH01
% Solids:	NA	Analyst:	SLL2
Sample Amt:	NA	Lab File ID:	NA
Prep Vol.:	NA	Dilution Factor:	1
Prep Date:	NA	Analysis Date:	05/06/21 1354
Prep Batch:	NA	Analytical Batch:	710425
Prep Method:	NA	Analytical Method:	EPA 9045D

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
pH	7.30	pH UNITS		1.00	1.00	1.00

I
GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	221050411	Client Sample ID:	AOI01-05-SB-00-02
Collect Date:	04/28/21 1220	LAB Sample ID:	22105041111
Matrix:	Solid	Instrument ID:	TOC6
% Solids:	NA	Analyst:	JGD
Sample Amt:	NA	Lab File ID:	NA
Prep Vol.:	NA	Dilution Factor:	1
Prep Date:	NA	Analysis Date:	05/12/21 1401
Prep Batch:	NA	Analytical Batch:	710972
Prep Method:	NA	Analytical Method:	EPA 9060A

<i>ANALYTE</i>	<i>RESULT</i>	<i>UNITS</i>	<i>Q</i>	<i>DL</i>	<i>LOD</i>	<i>LOQ</i>
Total Organic Carbon	11700	mg/kg		153	200	250

I
GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	221050411	Client Sample ID:	AOI01-05-SB-00-02-D
Collect Date:	04/28/21 1220	LAB Sample ID:	22105041112
Matrix:	Solid	Instrument ID:	TOC6
% Solids:	NA	Analyst:	JGD
Sample Amt:	NA	Lab File ID:	NA
Prep Vol.:	NA	Dilution Factor:	1
Prep Date:	NA	Analysis Date:	05/12/21 1529
Prep Batch:	NA	Analytical Batch:	710972
Prep Method:	NA	Analytical Method:	EPA 9060A

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
Total Organic Carbon	10300	mg/kg		153	200	250

I
GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	221050411	Client Sample ID:	AOI01-10-SB-00-02
Collect Date:	04/28/21 1405	LAB Sample ID:	22105041131
Matrix:	Solid	Instrument ID:	TOC6
% Solids:	NA	Analyst:	JGD
Sample Amt:	NA	Lab File ID:	NA
Prep Vol.:	NA	Dilution Factor:	1
Prep Date:	NA	Analysis Date:	05/12/21 1545
Prep Batch:	NA	Analytical Batch:	710972
Prep Method:	NA	Analytical Method:	EPA 9060A

<i>ANALYTE</i>	<i>RESULT</i>	<i>UNITS</i>	<i>Q</i>	<i>DL</i>	<i>LOD</i>	<i>LOQ</i>
Total Organic Carbon	9660	mg/kg		153	200	250

DATA VALIDATION WORKSHEET**Reviewer:** Tyler Bryant**Date:** 6/15/2021**DV Level:** II III IV**Review Document:**X National Functional Guidelines for Organic Data ReviewX DOD QSM 5.1, Table B-15 Method 537 Rev. 1.1**Per- and Polyfluorinated Compounds by LC/MS/MS****Project Name:** Windsor Locks**Project Number:** 60552172**Laboratory:** Pace Gulf Coast**SDG No.:** 211032903 + 50411**Test Name:** PFAS**1.0 Laboratory Deliverables**

		Yes	No	NA
1.1	Do Chain-of-Custody forms list all samples that were analyzed?	X		
1.2	Are all Chain-of-Custody forms signed, indicating sample chain-of-custody was maintained?	X		
1.3	Do sample preservation, collection and storage condition meet method requirement? 4±2°C If samples were received with the cooler temperature exceeding 6°C, then flag J(+)/UJ(-). If >20°C, J(+)/X(-)	X		
1.4	Do the traffic Reports, chain-of-custody, and lab narrative indicate any problems with sample receipt, condition of samples, analytical problems or special circumstances affecting the quality of the data?		X	

Notes:

2.0 Holding Times

		Yes	No	NA
2.1	Have any technical holding times, determined from date of sampling to date of analysis, been exceeded? If yes, J(+)/UJ(-). Extraction: 14 days; Analysis: 40 days.	X		
2.2	Have any technical holding time grossly (twice the holding time) been exceeded? If yes, J(+)/X(-) .		X	

Notes: Field samples AOI01-10-SB-03-05 and AOI01-08-SB-00-02 were re-extracted and reanalyzed outside holding time.

3.0 Blanks (Laboratory and Field)

		Yes	No	NA
3.1	Were method blanks (MB) prepared at the appropriate frequency (one per 20 samples, per batch per matrix?)	X		
3.2	Do any instrument/method blanks have positive results?	X		
3.3	Do any field equipment blanks/trip blanks have positive results?	X		

Notes: Several field and laboratory blanks displayed analyte concentrations greater than the detection limit. False positives were qualified "UJ".

4.0 Initial and Continuing Calibration		Yes	No	NA
4.1	For each calibration standard, was each analyte calculated within 70%-130% of the true value, RSD ≤20%, or r ² ≥0.99?	X		
4.2	Was the retention time window for each analyte and surrogate set using the midpoint standard of the curve?	X		
4.3	Was the relative retention time of each analyte within laboratory control limits?	X		
4.4	Was a second source calibration verification (ICV) analyzed for each calibration curve? If no, flag "X".	X		
4.5	Were continuing calibration standards analyzed every ten samples and at the end of the sequence? If no, flag "X".	X		
4.6	For each calibration standard used for quantitation, was the S/N Ratio ≥10:1 and for all analytes with promulgated standards was the confirmation ion at a S/N at 3:1? (Table B-15, non-DW matrices)	X		
For initial calibration: 70%-130%, RSD ≤20%, or r ² ≥0.99. J(+)/UJ(-)				
For ICV/CCV: %D>30%, Positive: J(+), Negative:J(+)/UJ(-).				
Notes:				

5.0 Laboratory Control Sample (LCS)		Yes	No	NA
5.1	Were LCS/LCSD analyzed at required frequency (one per 20 samples per batch) for each matrix?	X		
5.2	Are there any %R for LCS/LCSD recoveries outside the laboratory QC limits(lab default is 70%-130%)?		X	
	Action: If Yes, for %R >130, J+(+) only; for %R 30%-70%, J-(-)/UJ(-), and %R <30%, J-(-)/X(-).			
5.3	Are there any RPD for LCS/LCSD recoveries outside the QC limits? If Yes, J(+) only.		X	

6.0 Surrogate Recovery/Internal Standard Area Count/Extracted Internal Standards (For Table B-15 Matrices)				Yes	No	NA	
6.1	Are recoveries within acceptance criteria for all samples and method blanks?				X		
6.2	If No in Section 6.1, are these sample(s) or method blank(s) reanalyzed?				X		
6.3	If No in Section 6.2, is any sample dilution factor greater than 10? (recoveries may be diluted out.)					X	
	<div> <div><10%</div> <div>low</div> <div>high</div> </div>						
	Positives	J-	J-				J+
	Non-detects	X	UJ				None
6.4	Has the Extracted/Injected Standard area count been met for all quality control and field samples? (50%-150%) If				X		
	<div> <div><20%</div> <div>low</div> <div>high</div> </div>						
	Positives	J+	J+				J-
	Non-detects	X	UJ				None

Notes: Several field and QC samples displayed area counts outside of QC limits.

7.0 Matrix Spike/Matrix Spike Duplicate (MS/MSD)

		Yes	No	NA
7.1	Were matrix spikes analyzed at required frequency (one per 20 samples per batch) for each matrix?	X		
7.2	Are there any %R for matrix spike and matrix spike duplicate recoveries outside the laboratory QC limits?	X		
	%Recovery: <30% 30%-70% >130%			
	Action: J-(+)/X(-) J-(+)/UJ(-) J+(+) only			
7.3	Are there any RPD for matrix spike and matrix spike duplicate recoveries outside the QC limits? ($\pm 30\%$)		X	
	Action: No action is required based on MS/MSd failure alone. Note in the report and use professional judgement.			

Notes: Multiple field samples displayed high percent recoveries in the MS and MSD.

8.0 Field/Laboratory Duplicates

		Yes	No	NA
8.1	Acceptable field duplicate results? If no, J(+) parent sample/field duplicate only.		X	

Notes: Imprecise field sample results associated with parent sample AOI01-10-SB-00-02 were qualified J or UJ, fd.

9.0 Instrument Sensitivity Check (ISC)

		Yes	No	NA
9.1	Was an instrument sensitivity check analyzed prior to analysis and every 12 hours? If not X(+/-)	X		
9.2	Were analyte concentrations at the LOQ for the ISC and within $\pm 30\%$ of their true values? If not (J+)/UJ(-)		X	

Notes: ISCs in batches 707851 and 711275 displayed high percent recoveries for PFTrDA and NEtFOSAA

10.0 Compound Identification/Tune and Detection Limit Verification

		Yes	No	NA
10.1	Do detection limits meet those required by the project QAPP and were they properly adjusted for dilution factors and moisture (including adjustment of wet weight aliquot)?	X		
10.2	Was a mass calibration performed daily prior to analysis?	X		

Notes:

11.0 Data Completeness

		Yes	No	NA
11.1	Is % completeness within the control limits? (Control limit 95% _{aq} and 90% _{so})	X		
11.1.1	Number of samples: <u>47</u>			
11.1.2	Number of target compounds in each analysis: <u>18</u>			
11.1.3	Number of results "X" or "R" flagged results: <u>0</u>			

QQQ1 Run Log

Analyst: MRA
Instrument: QQQ1
Batch: 2210401A
Current ICAL Bath: 2210401ACAL
20mM Amm Acetate 4/3/2021
Methanol 2130147 6/30/2025
Calibration Std 016-45-2 9/30/2021
ICV Std 016-21-3 8/2/2021
EIS Mix 016-43-4 9/25/2021
IIS Mix 016-47-1 9/30/2021

Expiration:

Name	Data File	Type	Acq. Date-Time	Comment	Dil.
MeOH Shot	22100401A_01.d	Method Blank	4/1/2021 10:32	MRA, MeOH SHOT/INSTRUMENT IDLE	1
1205 RT Check	22100401A_02.d	QC	4/1/2021 10:46	MRA, QQQ1	1
MeOH Shot	22100401A_03.d	Method Blank	4/1/2021 11:00	MRA, MeOH SHOT/INSTRUMENT IDLE	1
1201	22100401A_04.d	Cal	4/1/2021 11:14	MRA, QQQ1	1
1202	22100401A_05.d	Cal	4/1/2021 11:28	MRA, QQQ1	1
1203	22100401A_06.d	Cal	4/1/2021 11:43	MRA, QQQ1	1
1204	22100401A_07.d	Cal	4/1/2021 11:57	MRA, QQQ1	1
1205	22100401A_08.d	Cal	4/1/2021 12:11	MRA, QQQ1	1
1206	22100401A_09.d	Cal	4/1/2021 12:26	MRA, QQQ1	1
MeOH Shot	22100401A_10.d	Method Blank	4/1/2021 14:22	MRA, MeOH SHOT/INSTRUMENT IDLE	1
1500	22100401A_11.d	Sample	4/1/2021 14:36	MRA, QQQ1	1
1600	22100401A_12.d	Sample	4/1/2021 14:50	MRA, QQQ1	1
1450	22100401A_13.d	QC	4/1/2021 15:05	MRA, QQQ1	1
1450	22100401A_14.d	QC	4/1/2021 15:19	MRA, QQQ1	1
MeOH Shot	22100401A_15.d	Method Blank	4/1/2021 15:42	MRA, MeOH SHOT/INSTRUMENT IDLE	1
1600	22100401A_16.d	Sample	4/1/2021 15:56	MRA, QQQ1; RR for PFHps	1
1450	22100401A_17.d	QC	4/1/2021 16:11	MRA, QQQ1; RR for PFNS	1
MeOH Shot	22100401A_18.d	Method Blank	4/1/2021 16:38	MRA, MeOH SHOT/INSTRUMENT IDLE	1
22103272801	22100401A_19.d	Sample	4/1/2021 16:52	MRA, QQQ1; 707245; M2PFDA spiked @ 1/4 ICAL	1
22103272802	22100401A_20.d	Sample	4/1/2021 17:07	MRA, QQQ1; 707245; M2PFDA spiked @ 1/4 ICAL	1

1400	22100401A_21.d	QC	4/1/2021 17:21	MRA,QQQ1;CCV	1
22103243503	22100401A_22.d	Sample	4/1/2021 17:35	MRA,QQQ1;707245	1
22103243504	22100401A_23.d	Sample	4/1/2021 17:50	MRA,QQQ1;707245	1
22103243505	22100401A_24.d	Sample	4/1/2021 18:04	MRA,QQQ1;707245;M2PFDA spiked @1/4 ICAL	1
22103243506	22100401A_25.d	Sample	4/1/2021 18:18	MRA,QQQ1;707245;M2PFDA spiked @1/4 ICAL	1
22103264201	22100401A_26.d	Sample	4/1/2021 18:33	MRA,QQQ1;707245;M2PFDA spiked @1/4 ICAL	1
22103264801	22100401A_27.d	Sample	4/1/2021 18:47	MRA,QQQ1;707245;M2PFDA spiked @1/4 ICAL	1
22103264802	22100401A_28.d	Sample	4/1/2021 19:01	MRA,QQQ1;707245;M2PFDA spiked @1/4 ICAL	1
22103264804	22100401A_29.d	Sample	4/1/2021 19:16	MRA,QQQ1;707245;M2PFDA spiked @1/4 ICAL	1
22103264903	22100401A_30.d	Sample	4/1/2021 19:30	MRA,QQQ1;707245;M2PFDA spiked @1/4 ICAL	1
1400	22100401A_31.d	QC	4/1/2021 19:44	MRA,QQQ1;CCV	1
2160915	22100401A_32.d	Sample	4/1/2021 19:59	MRA,QQQ1;706836	1
2160916	22100401A_33.d	QC	4/1/2021 20:13	MRA,QQQ1;706836	1
2160917	22100401A_34.d	QC	4/1/2021 20:27	MRA,QQQ1;706836	1
22103221301 .5ml 20x	22100401A_35.d	Sample	4/1/2021 20:42	MRA,QQQ1;706836; M2PFDA spiked at 1/4 ICAL	20
22103221301 .5ml 10x	22100401A_36.d	Sample	4/1/2021 20:56	MRA,QQQ1;706836; M2PFDA spiked at 1/4 ICAL	10
2159794	22100401A_37.d	Sample	4/1/2021 21:10	MRA,QQQ1;706630	1
2159795	22100401A_38.d	QC	4/1/2021 21:25	MRA,QQQ1;706630	1
2159796	22100401A_39.d	QC	4/1/2021 21:39	MRA,QQQ1;706630	1
22103221301 .5ml 20x	22100401A_40.d	Sample	4/1/2021 21:53	MRA,QQQ1;706630; M2PFDA spiked at 1/4 ICAL	20
22103221301 .5ml 10x	22100401A_41.d	Sample	4/1/2021 22:08	MRA,QQQ1;706630; M2PFDA spiked at 1/4 ICAL	10
2162464	22100401A_42.d	Sample	4/1/2021 22:22	MRA,QQQ1;707127;M2PFDA spiked at 1/4 ICAL	5
2162465	22100401A_43.d	QC	4/1/2021 22:36	MRA,QQQ1;707127;M2PFDA spiked at 1/4 ICAL	1
22103244909	22100401A_44.d	Sample	4/1/2021 22:51	MRA,QQQ1;707127;M2PFDA spiked at 1/4 ICAL	1
22103245301	22100401A_45.d	Sample	4/1/2021 23:05	MRA,QQQ1;707127;M2PFDA spiked at 1/4 ICAL	1
22103254501	22100401A_46.d	Sample	4/1/2021 23:19	MRA,QQQ1;707127;M2PFDA spiked at 1/4 ICAL	1
22103254502	22100401A_47.d	Sample	4/1/2021 23:34	MRA,QQQ1;707127;M2PFDA spiked at 1/4 ICAL	1
22103255201	22100401A_48.d	Sample	4/1/2021 23:48	MRA,QQQ1;707127;M2PFDA spiked at 1/4 ICAL	1
22103255202	22100401A_49.d	Sample	4/2/2021 0:02	MRA,QQQ1;707127;M2PFDA spiked at 1/4 ICAL	1
1400	22100401A_50.d	QC	4/2/2021 0:17	MRA,QQQ1;CCV	1
22103255203 5X	22100401A_51.d	Sample	4/2/2021 0:31	MRA,QQQ1;707127;M2PFDA spiked at 1/4 ICAL	5
22103255203	22100401A_52.d	Sample	4/2/2021 0:46	MRA,QQQ1;707127;M2PFDA spiked at 1/4 ICAL	1
22103255204	22100401A_53.d	Sample	4/2/2021 1:00	MRA,QQQ1;707127;M2PFDA spiked at 1/4 ICAL	1
22103255205	22100401A_54.d	Sample	4/2/2021 1:14	MRA,QQQ1;707127;M2PFDA spiked at 1/4 ICAL	1

22103255206	22100401A_55.d	Sample	4/2/2021 1:28	MRA,QQQ1;707127;M2PFDA spiked at 1/4 ICAL	1
22103255207	22100401A_56.d	QC	4/2/2021 1:43	MRA,QQQ1;707127;M2PFDA spiked at 1/4 ICAL	1
22103255208	22100401A_57.d	QC	4/2/2021 1:57	MRA,QQQ1;707127;M2PFDA spiked at 1/4 ICAL	1
22103255209	22100401A_58.d	Sample	4/2/2021 2:11	MRA,QQQ1;707127;M2PFDA spiked at 1/4 ICAL	1
22103255210	22100401A_59.d	Sample	4/2/2021 2:26	MRA,QQQ1;707127;M2PFDA spiked at 1/4 ICAL	1
22103255211	22100401A_60.d	Sample	4/2/2021 2:40	MRA,QQQ1;707127;M2PFDA spiked at 1/4 ICAL	1
1400	22100401A_61.d	QC	4/2/2021 2:55	MRA,QQQ1;CCV	1
22103255212	22100401A_62.d	Sample	4/2/2021 3:09	MRA,QQQ1;707127;M2PFDA spiked at 1/4 ICAL	1
22103290301	22100401A_63.d	Sample	4/2/2021 3:23	MRA,QQQ1;707127;M2PFDA spiked at 1/4 ICAL	1
1450	22100401A_64.d	QC	4/2/2021 3:38	MRA,QQQ1;CCV	1
1450	22100401A_65.d	QC	4/2/2021 3:52	MRA,QQQ1;CCV	1
MeOH Shot	22100401A_66.d	Sample	4/2/2021 4:06	MRA,QQQ1;Instrument Blank	1

ORGANICS INSTRUMENT SENSITIVITY CHECK

Report No:	221032903	Instrument ID:	QQQ1
Analysis Date:	04/01/2021 15:19	Lab File ID:	22100401A_14.d
Analytical Method:	EPA 537 Mod Isotope Dilution	Analytical Batch:	707996

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomersulfonic acid	ng/L	3.81	3.42	90 ✓	70	130	
8:2 Fluorotelomersulfonic acid	ng/L	3.84	3.65	95	70	130	
NEtFOSAA	ng/L	4.00	3.93	98	70	130	
NMeFOSAA	ng/L	4.00	3.72	93	70	130	
Perfluorobutanoic acid	ng/L	4.00	4.30	107	70	130	
Perfluorobutanesulfonic acid	ng/L	3.55	3.68	104	70	130	
Perfluorodecanoic acid	ng/L	4.00	4.13	103	70	130	
Perfluorododecanoic acid	ng/L	4.00	3.20	80	70	130	
Perfluoroheptanoic acid	ng/L	4.00	3.76	94	70	130	
Perfluorohexanoic acid	ng/L	4.00	4.04	101	70	130	
Perfluorohexanesulfonic acid	ng/L	3.66	3.10	85	70	130	
Perfluorononanoic acid	ng/L	4.00	3.63	91	70	130	
Perfluorooctanoic acid	ng/L	4.00	3.82	95	70	130	
Perfluorooctanesulfonic acid	ng/L	3.71	3.16	85	70	130	
Perfluoropentanoic acid	ng/L	4.00	3.65	91	70	130	
Perfluorotetradecanoic acid	ng/L	4.00	3.88	97	70	130	
Perfluorotridecanoic acid	ng/L	4.00	3.34	84	70	130	
Perfluoroundecanoic acid	ng/L	4.00	3.64	91	70	130	

ORGANICS INSTRUMENT SENSITIVITY CHECK

Report No:	<u>221032903</u>	Instrument ID:	<u>QQQ1</u>
Analysis Date:	<u>04/02/2021 03:52</u>	Lab File ID:	<u>22100401A_65.d</u>
Analytical Method:	<u>EPA 537 Mod Isotope Dilution</u>	Analytical Batch:	<u>707996</u>

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomersulfonic acid	ng/L	3.81	4.08	107 ✓	70	130	
8:2 Fluorotelomersulfonic acid	ng/L	3.84	2.92	76	70	130	
NEtFOSAA	ng/L	4.00	4.90	123	70	130	
NMeFOSAA	ng/L	4.00	3.57	89	70	130	
Perfluorobutanoic acid	ng/L	4.00	4.39	110	70	130	
Perfluorobutanesulfonic acid	ng/L	3.55	3.83	108	70	130	
Perfluorodecanoic acid	ng/L	4.00	3.73	93	70	130	
Perfluorododecanoic acid	ng/L	4.00	3.72	93	70	130	
Perfluoroheptanoic acid	ng/L	4.00	3.50	88	70	130	
Perfluorohexanoic acid	ng/L	4.00	4.02	101	70	130	
Perfluorohexanesulfonic acid	ng/L	3.66	3.14	86	70	130	
Perfluorononanoic acid	ng/L	4.00	4.03	101	70	130	
Perfluorooctanoic acid	ng/L	4.00	3.79	95	70	130	
Perfluorooctanesulfonic acid	ng/L	3.71	4.10	110	70	130	
Perfluoropentanoic acid	ng/L	4.00	3.76	94	70	130	
Perfluorotetradecanoic acid	ng/L	4.00	3.96	99	70	130	
Perfluorotridecanoic acid	ng/L	4.00	3.37	84	70	130	
Perfluoroundecanoic acid	ng/L	4.00	3.62	90	70	130	

ORGANICS INITIAL CALIBRATION VERIFICATION

Report No:	221032903	Instrument ID:	QQQ1
Analysis Date:	04/01/2021 14:50	Lab File ID:	22100401A_12.d
Analytical Method:	EPA 537 Mod Isotope Dilution	Analytical Batch:	707996

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomersulfonic acid	ng/L	10000	8870	89 ✓	70	130	
8:2 Fluorotelomersulfonic acid	ng/L	10100	8760	87	70	130	
NEtFOSAA	ng/L	10000	10800	108	70	130	
NMeFOSAA	ng/L	10000	7320	73	70	130	
Perfluorobutanoic acid	ng/L	10000	8010	80	70	130	
Perfluorobutanesulfonic acid	ng/L	10000	8690	87	70	130	
Perfluorodecanoic acid	ng/L	10000	8880	89	70	130	
Perfluorododecanoic acid	ng/L	10000	8880	89	70	130	
Perfluoroheptanoic acid	ng/L	10000	8620	86	70	130	
Perfluorohexanoic acid	ng/L	10100	8310	82	70	130	
Perfluorohexanesulfonic acid	ng/L	10000	8990	90	70	130	
Perfluorononanoic acid	ng/L	10000	9740	97	70	130	
Perfluorooctanoic acid	ng/L	10100	9350	93	70	130	
Perfluorooctanesulfonic acid	ng/L	10000	7370	74	70	130	
Perfluoropentanoic acid	ng/L	10100	8260	82	70	130	
Perfluorotetradecanoic acid	ng/L	10000	9240	92	70	130	
Perfluorotridecanoic acid	ng/L	10000	7060	71	70	130	
Perfluoroundecanoic acid	ng/L	10000	8270	83	70	130	

ORGANICS INSTRUMENT BLANK

Report No:	221032903	Instrument ID:	QQQ1
Analysis Date:	04/01/2021 14:36	Lab File ID:	22100401A_11.d
Analytical Method:	EPA 537 Mod Isotope Dilution	Analytical Batch:	707996

ANALYTE	UNITS	RESULT	Q	DL	LOD	LOQ	#
6:2 Fluorotelomersulfonic acid	ng/L	2.00	U	0.94	2.00	4.00	
8:2 Fluorotelomersulfonic acid	ng/L	2.00	U	0.90	2.00	4.00	
NEtFOSAA	ng/L	4.00	U	0.97	4.00	8.00	
NMeFOSAA	ng/L	4.00	U	0.91	4.00	8.00	
Perfluorobutanesulfonic acid	ng/L	2.00	U	0.81	2.00	4.00	
Perfluorobutanoic acid	ng/L	1.56	J	0.90	2.00	4.00	
Perfluorodecanoic acid	ng/L	2.00	U	0.86	2.00	4.00	
Perfluorododecanoic acid	ng/L	2.00	U	0.88	2.00	4.00	
Perfluoroheptanoic acid	ng/L	2.00	U	0.48	2.00	4.00	
Perfluorohexanesulfonic acid	ng/L	2.00	U	0.95	2.00	4.00	
Perfluorohexanoic acid	ng/L	2.00	U	0.99	2.00	4.00	
Perfluorononanoic acid	ng/L	2.00	U	0.78	2.00	4.00	
Perfluorooctanesulfonic acid	ng/L	2.00	U	0.81	2.00	4.00	
Perfluorooctanoic acid	ng/L	2.00	U	0.95	2.00	4.00	
Perfluoropentanoic acid	ng/L	2.00	U	0.85	2.00	4.00	
Perfluorotetradecanoic acid	ng/L	2.00	U	0.98	2.00	4.00	
Perfluorotridecanoic acid	ng/L	2.00	U	0.99	2.00	4.00	
Perfluoroundecanoic acid	ng/L	2.00	U	0.95	2.00	4.00	

* - Result greater than 1/2 LOQ

Quantitative Analysis Calibration Report

Batch Data Path D:\MassHunter\Data\2210401ACAL\QuantResults\2210401A.batch.bin
 Analysis Time 4/9/2021 10:00 AM Analyst Name GCAL\lcms
 Report Time 4/9/2021 10:04 AM Reporter Name GCAL\lcms
 Last Calib Update 4/1/2021 4:36 PM Batch State Processed

Calibration Info

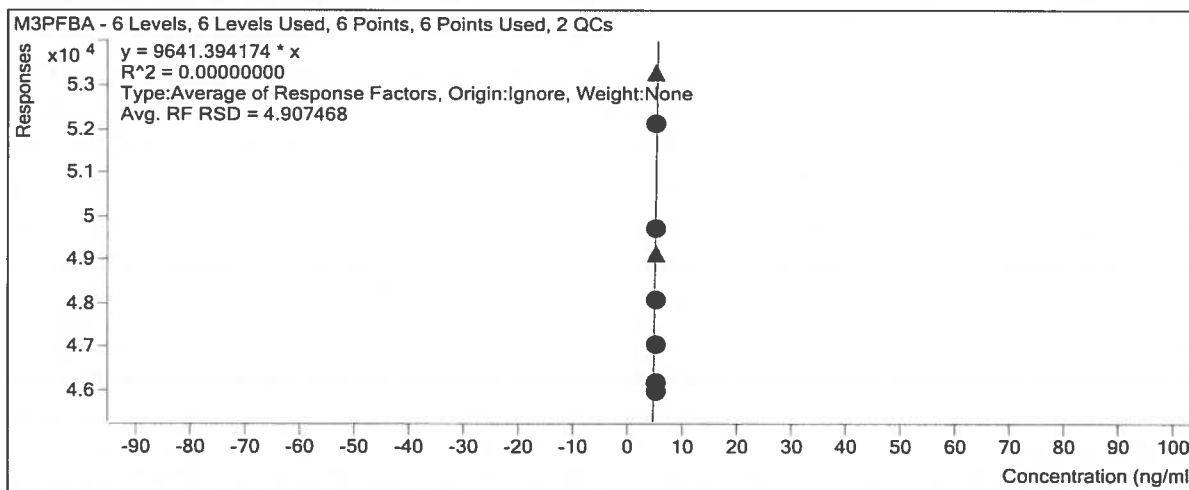
Extracted ISTD MPFBA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2210401ACAL\22100401A_04.d	Calibration	1	<input checked="" type="checkbox"/>	52381	5.0000	10476.1752
D:\MassHunter\Data\2210401ACAL\22100401A_05.d	Calibration	2	<input checked="" type="checkbox"/>	48208	5.0000	9641.6108
D:\MassHunter\Data\2210401ACAL\22100401A_06.d	Calibration	3	<input checked="" type="checkbox"/>	54572	5.0000	10914.4981
D:\MassHunter\Data\2210401ACAL\22100401A_07.d	Calibration	4	<input checked="" type="checkbox"/>	53363	5.0000	10672.6374
D:\MassHunter\Data\2210401ACAL\22100401A_08.d	Calibration	5	<input checked="" type="checkbox"/>	46708	5.0000	9341.5059
D:\MassHunter\Data\2210401ACAL\22100401A_09.d	Calibration	6	<input checked="" type="checkbox"/>	53678	5.0000	10735.5427

Instrument ISTD

M3PFBA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2210401ACAL\22100401A_04.d	Calibration	1	<input checked="" type="checkbox"/>	48108	5.0000	9621.6949
D:\MassHunter\Data\2210401ACAL\22100401A_05.d	Calibration	2	<input checked="" type="checkbox"/>	45997	5.0000	9199.4276
D:\MassHunter\Data\2210401ACAL\22100401A_06.d	Calibration	3	<input checked="" type="checkbox"/>	52149	5.0000	10429.7252
D:\MassHunter\Data\2210401ACAL\22100401A_07.d	Calibration	4	<input checked="" type="checkbox"/>	47073	5.0000	9414.6436
D:\MassHunter\Data\2210401ACAL\22100401A_08.d	Calibration	5	<input checked="" type="checkbox"/>	46205	5.0000	9240.9006
D:\MassHunter\Data\2210401ACAL\22100401A_09.d	Calibration	6	<input checked="" type="checkbox"/>	49710	5.0000	9941.9732



Target Compound

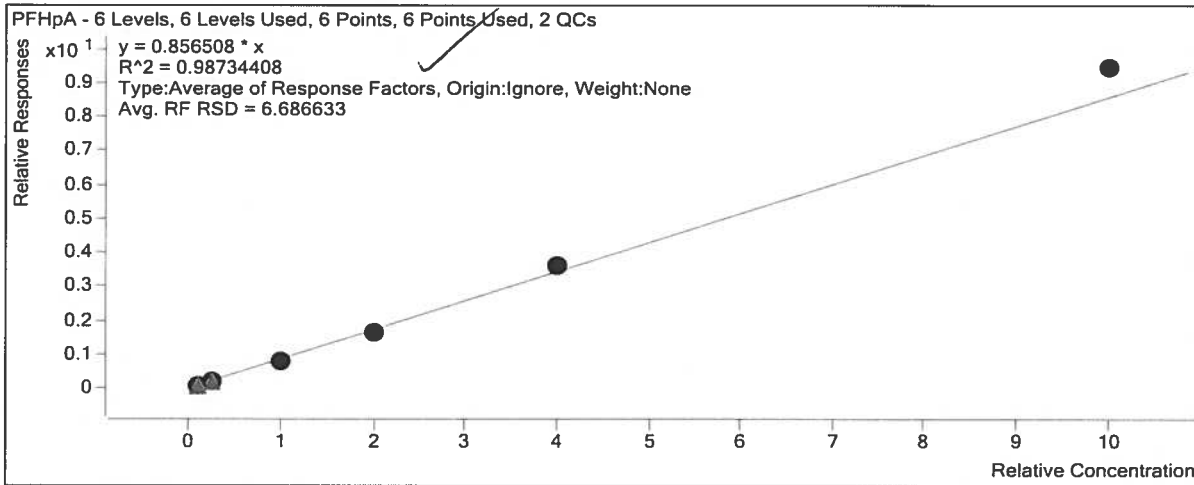
PFBA

Quantitative Analysis Calibration Report

Target Compound

PFHpA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2210401ACAL\22100401A_04.d	Calibration	1	<input checked="" type="checkbox"/>	6527	0.5000	0.8549
D:\MassHunter\Data\2210401ACAL\22100401A_05.d	Calibration	2	<input checked="" type="checkbox"/>	14771	1.2500	0.8200
D:\MassHunter\Data\2210401ACAL\22100401A_06.d	Calibration	3	<input checked="" type="checkbox"/>	66328	5.0000	0.7973
D:\MassHunter\Data\2210401ACAL\22100401A_07.d	Calibration	4	<input checked="" type="checkbox"/>	130529	10.0000	0.8174
D:\MassHunter\Data\2210401ACAL\22100401A_08.d	Calibration	5	<input checked="" type="checkbox"/>	265600	20.0000	0.9056
D:\MassHunter\Data\2210401ACAL\22100401A_09.d	Calibration	6	<input checked="" type="checkbox"/>	729071	50.0000	0.9438



Target Compound

PFHxS

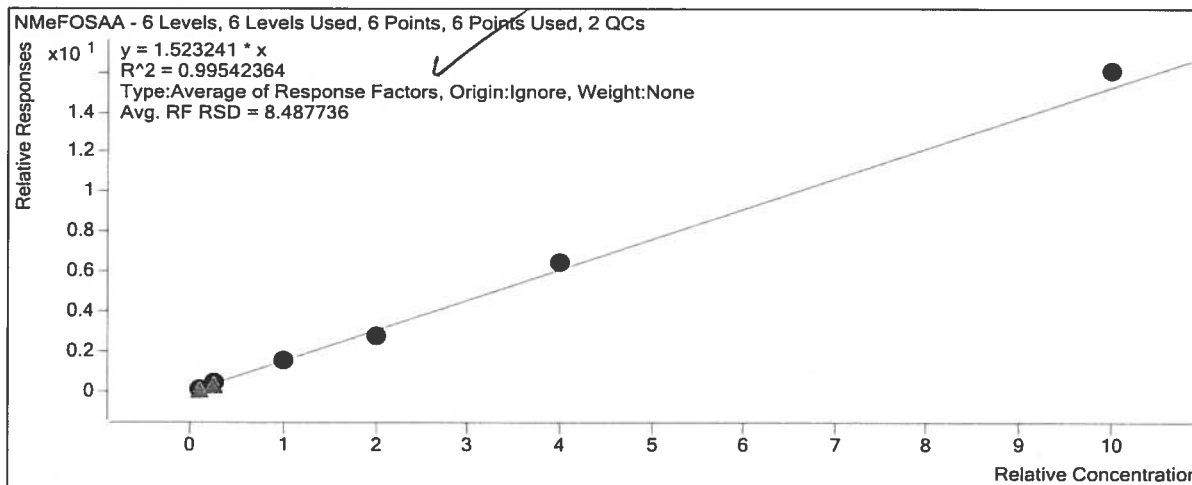
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2210401ACAL\22100401A_04.d	Calibration	1	<input checked="" type="checkbox"/>	2030	0.4570	2.1682
D:\MassHunter\Data\2210401ACAL\22100401A_05.d	Calibration	2	<input checked="" type="checkbox"/>	4122	1.1425	2.1602
D:\MassHunter\Data\2210401ACAL\22100401A_06.d	Calibration	3	<input checked="" type="checkbox"/>	18161	4.5700	1.9015
D:\MassHunter\Data\2210401ACAL\22100401A_07.d	Calibration	4	<input checked="" type="checkbox"/>	33953	9.1400	1.9454
D:\MassHunter\Data\2210401ACAL\22100401A_08.d	Calibration	5	<input checked="" type="checkbox"/>	69723	18.2800	2.3409
D:\MassHunter\Data\2210401ACAL\22100401A_09.d	Calibration	6	<input checked="" type="checkbox"/>	207678	45.7000	2.3474

Quantitative Analysis Calibration Report

Target Compound

NMeFOSAA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2210401ACAL\22100401A_04.d	Calibration	1	<input checked="" type="checkbox"/>	2704	0.5000	1.3283
D:\MassHunter\Data\2210401ACAL\22100401A_05.d	Calibration	2	<input checked="" type="checkbox"/>	7179	1.2500	1.6475
D:\MassHunter\Data\2210401ACAL\22100401A_06.d	Calibration	3	<input checked="" type="checkbox"/>	30067	5.0000	1.5526
D:\MassHunter\Data\2210401ACAL\22100401A_07.d	Calibration	4	<input checked="" type="checkbox"/>	56413	10.0000	1.3987
D:\MassHunter\Data\2210401ACAL\22100401A_08.d	Calibration	5	<input checked="" type="checkbox"/>	123341	20.0000	1.6075
D:\MassHunter\Data\2210401ACAL\22100401A_09.d	Calibration	6	<input checked="" type="checkbox"/>	331049	50.0000	1.6049



Extracted ISTD

d5-NEtFOSAA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2210401ACAL\22100401A_04.d	Calibration	1	<input checked="" type="checkbox"/>	26390	5.0000	5278.0047
D:\MassHunter\Data\2210401ACAL\22100401A_05.d	Calibration	2	<input checked="" type="checkbox"/>	21160	5.0000	4232.0139
D:\MassHunter\Data\2210401ACAL\22100401A_06.d	Calibration	3	<input checked="" type="checkbox"/>	24979	5.0000	4995.8567
D:\MassHunter\Data\2210401ACAL\22100401A_07.d	Calibration	4	<input checked="" type="checkbox"/>	24285	5.0000	4857.0606
D:\MassHunter\Data\2210401ACAL\22100401A_08.d	Calibration	5	<input checked="" type="checkbox"/>	22141	5.0000	4428.2524
D:\MassHunter\Data\2210401ACAL\22100401A_09.d	Calibration	6	<input checked="" type="checkbox"/>	22041	5.0000	4408.1223

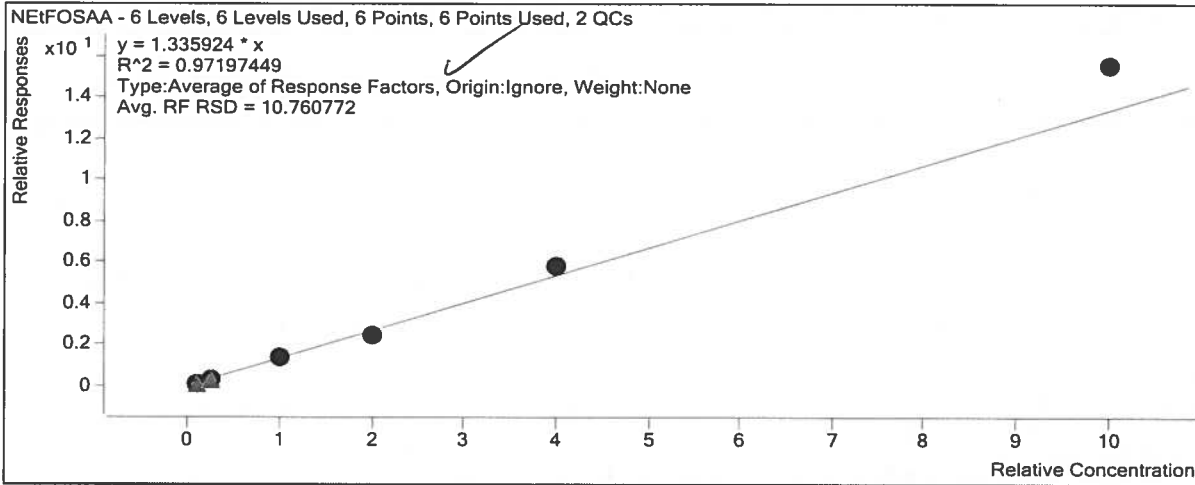
Target Compound

NEtFOSAA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2210401ACAL\22100401A_04.d	Calibration	1	<input checked="" type="checkbox"/>	3085	0.5000	1.1689

Quantitative Analysis Calibration Report

D:\MassHunter\Data\2210401ACAL\22100401A_05.d	Calibration	2	<input checked="" type="checkbox"/>	6614	1.2500	1.2503
D:\MassHunter\Data\2210401ACAL\22100401A_06.d	Calibration	3	<input checked="" type="checkbox"/>	33570	5.0000	1.3439
D:\MassHunter\Data\2210401ACAL\22100401A_07.d	Calibration	4	<input checked="" type="checkbox"/>	60575	10.0000	1.2471
D:\MassHunter\Data\2210401ACAL\22100401A_08.d	Calibration	5	<input checked="" type="checkbox"/>	128868	20.0000	1.4551
D:\MassHunter\Data\2210401ACAL\22100401A_09.d	Calibration	6	<input checked="" type="checkbox"/>	341690	50.0000	1.5503



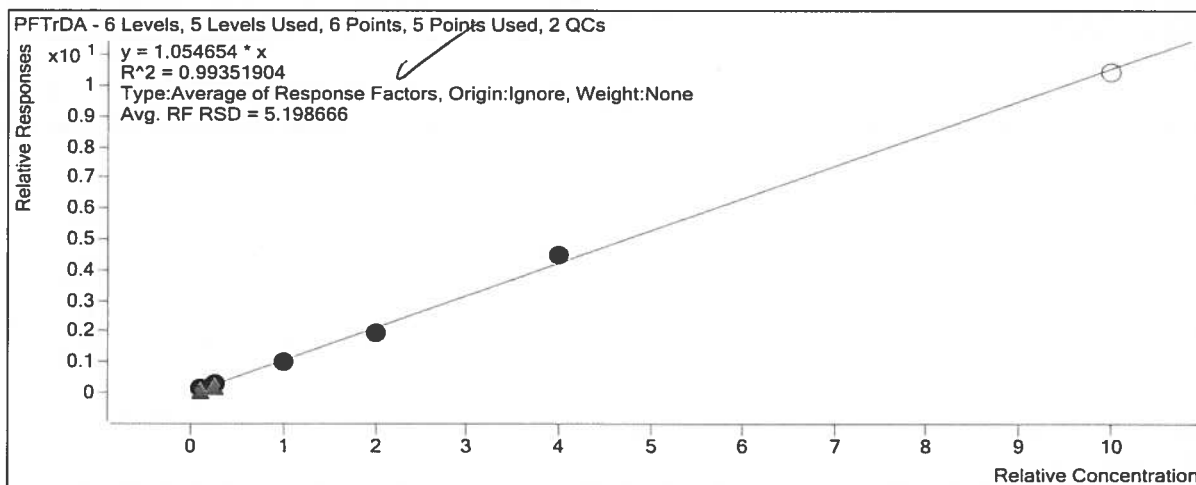
Target Compound

PFUnA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2210401ACAL\22100401A_04.d	Calibration	1	<input checked="" type="checkbox"/>	6637	0.5000	0.8185
D:\MassHunter\Data\2210401ACAL\22100401A_05.d	Calibration	2	<input checked="" type="checkbox"/>	15350	1.2500	0.8775
D:\MassHunter\Data\2210401ACAL\22100401A_06.d	Calibration	3	<input checked="" type="checkbox"/>	70098	5.0000	0.8280
D:\MassHunter\Data\2210401ACAL\22100401A_07.d	Calibration	4	<input checked="" type="checkbox"/>	127536	10.0000	0.8203
D:\MassHunter\Data\2210401ACAL\22100401A_08.d	Calibration	5	<input checked="" type="checkbox"/>	277684	20.0000	0.9473
D:\MassHunter\Data\2210401ACAL\22100401A_09.d	Calibration	6	<input checked="" type="checkbox"/>	723127	50.0000	1.0615

Quantitative Analysis Calibration Report

D:\MassHunter\Data\2210401ACAL\22100401A_05.d	Calibration	2	<input checked="" type="checkbox"/>	12737	1.2500	1.0280
D:\MassHunter\Data\2210401ACAL\22100401A_06.d	Calibration	3	<input checked="" type="checkbox"/>	58042	5.0000	1.0275
D:\MassHunter\Data\2210401ACAL\22100401A_07.d	Calibration	4	<input checked="" type="checkbox"/>	111714	10.0000	0.9929
D:\MassHunter\Data\2210401ACAL\22100401A_08.d	Calibration	5	<input checked="" type="checkbox"/>	228328	20.0000	1.1192
D:\MassHunter\Data\2210401ACAL\22100401A_09.d	Calibration	6	<input type="checkbox"/>	610752	50.0000	1.0428



Extracted ISTD

d-NEtFOSA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2210401ACAL\22100401A_04.d	Calibration	1	<input checked="" type="checkbox"/>	18329	5.0000	3665.7107
D:\MassHunter\Data\2210401ACAL\22100401A_05.d	Calibration	2	<input checked="" type="checkbox"/>	16811	5.0000	3362.1833
D:\MassHunter\Data\2210401ACAL\22100401A_06.d	Calibration	3	<input checked="" type="checkbox"/>	17049	5.0000	3409.7310
D:\MassHunter\Data\2210401ACAL\22100401A_07.d	Calibration	4	<input checked="" type="checkbox"/>	17289	5.0000	3457.8306
D:\MassHunter\Data\2210401ACAL\22100401A_08.d	Calibration	5	<input checked="" type="checkbox"/>	14442	5.0000	2888.3349
D:\MassHunter\Data\2210401ACAL\22100401A_09.d	Calibration	6	<input checked="" type="checkbox"/>	18199	5.0000	3639.7800

Extracted ISTD

d9-NEtFOSE

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2210401ACAL\22100401A_04.d	Calibration	1	<input checked="" type="checkbox"/>	32810	5.0000	6562.0353
D:\MassHunter\Data\2210401ACAL\22100401A_05.d	Calibration	2	<input checked="" type="checkbox"/>	30137	5.0000	6027.4186
D:\MassHunter\Data\2210401ACAL\22100401A_06.d	Calibration	3	<input checked="" type="checkbox"/>	34923	5.0000	6984.6106
D:\MassHunter\Data\2210401ACAL\22100401A_07.d	Calibration	4	<input checked="" type="checkbox"/>	35152	5.0000	7030.4014
D:\MassHunter\Data\2210401ACAL\22100401A_08.d	Calibration	5	<input checked="" type="checkbox"/>	31144	5.0000	6228.8689
D:\MassHunter\Data\2210401ACAL\22100401A_09.d	Calibration	6	<input checked="" type="checkbox"/>	33337	5.0000	6667.4930

7E
ORGANICS CALIBRATION VERIFICATION

Report No:	221032903	Instrument ID:	QQQ1
Analysis Date:	04/01/2021 19:44	Lab File ID:	22100401A_31.d
Analytical Method:	EPA 537 Mod Isotope Dilution	Analytical Batch:	707996

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomersulfonic acid	ng/L	9510	9970	105 ✓	70	130	
8:2 Fluorotelomersulfonic acid	ng/L	9600	8940	93	70	130	
NEtFOSAA	ng/L	10000	11200	112	70	130	
NMeFOSAA	ng/L	10000	9200	92	70	130	
Perfluorobutanoic acid	ng/L	10000	8970	90	70	130	
Perfluorobutanesulfonic acid	ng/L	8870	8730	98	70	130	
Perfluorodecanoic acid	ng/L	10000	10500	105	70	130	
Perfluorododecanoic acid	ng/L	10000	10000	100	70	130	
Perfluoroheptanoic acid	ng/L	10000	9760	98	70	130	
Perfluorohexanoic acid	ng/L	10000	9830	98	70	130	
Perfluorohexanesulfonic acid	ng/L	9140	8710	95	70	130	
Perfluorononanoic acid	ng/L	10000	10300	103	70	130	
Perfluorooctanoic acid	ng/L	10000	9930	99	70	130	
Perfluorooctanesulfonic acid	ng/L	9280	8430	91	70	130	
Perfluoropentanoic acid	ng/L	10000	9290	93	70	130	
Perfluorotetradecanoic acid	ng/L	10000	9510	95	70	130	
Perfluorotridecanoic acid	ng/L	10000	8160	82	70	130	
Perfluoroundecanoic acid	ng/L	10000	9680	97	70	130	

FORM 7E - ORG

7E
ORGANICS CALIBRATION VERIFICATION

Report No:	221032903	Instrument ID:	QQQ1
Analysis Date:	04/02/2021 00:17	Lab File ID:	22100401A_50.d
Analytical Method:	EPA 537 Mod Isotope Dilution	Analytical Batch:	707996

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomersulfonic acid	ng/L	9510	9960	105 ✓	70	130	
8:2 Fluorotelomersulfonic acid	ng/L	9600	8330	87	70	130	
NEtFOSAA	ng/L	10000	10900	109	70	130	
NMeFOSAA	ng/L	10000	8800	88	70	130	
Perfluorobutanoic acid	ng/L	10000	9020	90	70	130	
Perfluorobutanesulfonic acid	ng/L	8870	8840	100	70	130	
Perfluorodecanoic acid	ng/L	10000	9930	99	70	130	
Perfluorododecanoic acid	ng/L	10000	9610	96	70	130	
Perfluoroheptanoic acid	ng/L	10000	9660	97	70	130	
Perfluorohexanoic acid	ng/L	10000	9430	94	70	130	
Perfluorohexanesulfonic acid	ng/L	9140	8270	90	70	130	
Perfluorononanoic acid	ng/L	10000	9880	99	70	130	
Perfluorooctanoic acid	ng/L	10000	10200	102	70	130	
Perfluorooctanesulfonic acid	ng/L	9280	7740	83	70	130	
Perfluoropentanoic acid	ng/L	10000	9510	95	70	130	
Perfluorotetradecanoic acid	ng/L	10000	9350	94	70	130	
Perfluorotridecanoic acid	ng/L	10000	8130	81	70	130	
Perfluoroundecanoic acid	ng/L	10000	9790	98	70	130	

FORM 7E - ORG

INJECTION INTERNAL STANDARD AREA SUMMARY

Report No:	221032903	Standard ID:	1205 (ICAL Midpoint)
Analyst:	MRA	Instrument ID:	QQQ1
Analysis Date:	04/01/21 12:11	Lab File ID:	22100401A_08.d
Analytical Method:	PFAS Isotope Dilution QSM B15	Analytical Batch:	707996

	M2PFDA	M2PFHxA	M2PFOA	M4PFOS
	Area	Area	Area	Area
STANDARD	227690	424824	186405	30710

CLIENT SAMPLE ID	LAB SAMP ID	#	#	#	#	
MB2162464	2162464	73706	*	396553	204353	19655
LCS2162465	2162465	76425	*	402823	199453	21361
WL-DECON-01	22103290301	70783	*	384583	191105	18866

*for information only

AREA UPPER LIMIT = +50% of internal standard area

AREA LOWER LIMIT = -50% of internal standard area

Column used to flag values outside QC limits

* Value outside QC limits

QQQ2 Run Log

Analyst: MRA Expiration:
Instrument: QQQ2
Batch: 2210405A
Current ICAL Bath: 2210405ACAL
20mM Amm Acetate 016-48-7 4/7/2021
Methanol 2130017 6/30/2025
Calibration Std 016-45-2 9/30/2021
ICV Std 016-21-3 8/2/2021
EIS Mix 016-43-4 9/25/2021
IIS Mix 016-47-1 9/30/2021

Name	Data File	Type	Acq. Date-Time	Comment	Dil.
MeOH Shot	2210405A_01.d	MeOH Shot	4/5/2021 10:15	MRA, QQQ2; MeOH SHOT/INSTRUMENT IDLE	1
1206 RT Check	2210405A_02.d	QC	4/5/2021 10:28	MRA, QQQ2	1
MeOH Shot	2210405A_03.d	MeOH Shot	4/5/2021 10:41	MRA, QQQ2; MeOH SHOT/INSTRUMENT IDLE	1
1201	2210405A_04.d	Cal	4/5/2021 10:54	MRA, QQQ2; Cal	1
1202	2210405A_05.d	Cal	4/5/2021 11:07	MRA, QQQ2; Cal	1
1203	2210405A_06.d	Cal	4/5/2021 11:20	MRA, QQQ2; Cal	1
1204	2210405A_07.d	Cal	4/5/2021 11:33	MRA, QQQ2; Cal	1
1205	2210405A_08.d	Cal	4/5/2021 11:47	MRA, QQQ2; Cal	1
1206	2210405A_09.d	Cal	4/5/2021 12:00	MRA, QQQ2; Cal	1
MeOH Shot	2210405A_10.d	MeOH Shot	4/5/2021 12:30	MRA, QQQ2; MeOH SHOT/INSTRUMENT IDLE	1
1500	2210405A_11.d	Sample	4/5/2021 12:43	MRA, QQQ2	1
1600	2210405A_12.d	Sample	4/5/2021 12:56	MRA, QQQ2	1
1450	2210405A_13.d	QC	4/5/2021 13:10	MRA, QQQ2	1
1450	2210405A_14.d	QC	4/5/2021 13:23	MRA, QQQ2	1
MeOH Shot	2210405A_15.d	MeOH Shot	4/5/2021 14:09	MRA, QQQ2; MeOH SHOT/INSTRUMENT IDLE	1
22103272801 10x	2210405A_16.d	Sample	4/5/2021 14:22	MRA, QQQ2; 707245	10
22103272802 10x	2210405A_17.d	Sample	4/5/2021 14:35	MRA, QQQ2; 707245	10
MeOH Shot	2210405A_18.d	MeOH Shot	4/5/2021 15:01	MRA, QQQ2; MeOH SHOT/INSTRUMENT IDLE	1
2165007	2210405A_19.d	Sample	4/5/2021 15:14	MRA, QQQ2; 707245	1
2165008	2210405A_20.d	QC	4/5/2021 15:28	MRA, QQQ2; 707612	1

2165009	2210405A_21.d	QC	4/5/2021 15:41	MRA,QQQ2;707612	1
22103135002 10x	2210405A_22.d	Sample	4/5/2021 15:54	MRA,QQQ2;707612	10
22103135003 10x	2210405A_23.d	Sample	4/5/2021 16:07	MRA,QQQ2;707612	10
1400	2210405A_24.d	QC	4/5/2021 16:20	MRA,QQQ2;CCV	1
22103272801 10x	2210405A_25.d	Sample	4/5/2021 16:33	MRA,QQQ2;707612	10
22103272802 10x	2210405A_26.d	Sample	4/5/2021 16:46	MRA,QQQ2;707612	10
2162464	2210405A_27.d	Sample	4/5/2021 16:59	MRA,QQQ2;707127	1
2162465	2210405A_28.d	QC	4/5/2021 17:12	MRA,QQQ2;707127	1
22103244909	2210405A_29.d	Sample	4/5/2021 17:26	MRA,QQQ2;707127	1
22103245301	2210405A_30.d	Sample	4/5/2021 17:39	MRA,QQQ2;707127	1
22103255201	2210405A_31.d	Sample	4/5/2021 17:52	MRA,QQQ2;707127	1
22103290301	2210405A_32.d	Sample	4/5/2021 18:05	MRA,QQQ2;707127	1
22103243503	2210405A_33.d	Sample	4/5/2021 18:18	MRA,QQQ2;707245; IIS spiked 4x	1
22103243504	2210405A_34.d	Sample	4/5/2021 18:31	MRA,QQQ2;707245; IIS spiked 4x	1
22103243506	2210405A_35.d	Sample	4/5/2021 18:44	MRA,QQQ2;707245	1
22103264804	2210405A_36.d	Sample	4/5/2021 18:58	MRA,QQQ2;707245	1
1400	2210405A_37.d	QC	4/5/2021 19:11	MRA,QQQ2;CCV	1
2166243	2210405A_38.d	Sample	4/5/2021 19:24	MRA,QQQ2;707768	1
2166244	2210405A_39.d	QC	4/5/2021 19:37	MRA,QQQ2;707768	1
2166245	2210405A_40.d	QC	4/5/2021 19:50	MRA,QQQ2;707768	1
22104023101	2210405A_41.d	Sample	4/5/2021 20:03	MRA,QQQ2;707768	1
22104023105	2210405A_42.d	Sample	4/5/2021 20:16	MRA,QQQ2;707768	1
22104023106	2210405A_43.d	Sample	4/5/2021 20:29	MRA,QQQ2;707768	1
1400	2210405A_44.d	QC	4/5/2021 20:43	MRA,QQQ2;CCV	1
22103264903	2210405A_45.d	Sample	4/5/2021 20:56	MRA,QQQ2;707245	1
22103243501	2210405A_46.d	Sample	4/5/2021 21:09	MRA,QQQ2;707612	1
22103243502	2210405A_47.d	Sample	4/5/2021 21:22	MRA,QQQ2;707612	1
2164879	2210405A_48.d	Sample	4/5/2021 21:35	MRA,QQQ2;707586	1
2164880	2210405A_49.d	QC	4/5/2021 21:48	MRA,QQQ2;707586	1
22103265109 10x	2210405A_50.d	Sample	4/5/2021 22:01	MRA,QQQ2;707586	10
22103265111 10x	2210405A_51.d	Sample	4/5/2021 22:14	MRA,QQQ2;707586	10
22104022002	2210405A_52.d	Sample	4/5/2021 22:28	MRA,QQQ2;707586	1
22104022003	2210405A_53.d	Sample	4/5/2021 22:41	MRA,QQQ2;707586	1
22104022004	2210405A_54.d	Sample	4/5/2021 22:54	MRA,QQQ2;707586	1

2164882	2210405A_55.d	QC	4/5/2021 23:07	MRA,QQQ2;707586	1
2164883	2210405A_56.d	QC	4/5/2021 23:20	MRA,QQQ2;707586	1
22104022005	2210405A_57.d	Sample	4/5/2021 23:33	MRA,QQQ2;707586	1
22104022006	2210405A_58.d	Sample	4/5/2021 23:46	MRA,QQQ2;707586	1
1450	2210405A_59.d	QC	4/6/2021 0:00	MRA,QQQ2;CCV	1
1450	2210405A_60.d	QC	4/6/2021 0:13	MRA,QQQ2;CCV	1
22103265102	2210405A_61.d	Sample	4/6/2021 0:26	MRA,QQQ2;707586	1
22103265106	2210405A_62.d	Sample	4/6/2021 0:39	MRA,QQQ2;707586	1
22104023102 10x	2210405A_63.d	Sample	4/6/2021 0:52	MRA,QQQ2;707586	10
2165815	2210405A_64.d	Sample	4/6/2021 1:05	MRA,QQQ2;707694	1
2165816	2210405A_65.d	QC	4/6/2021 1:18	MRA,QQQ2;707694	1
2165817	2210405A_66.d	QC	4/6/2021 1:31	MRA,QQQ2;707694	1
22103243503	2210405A_67.d	Sample	4/6/2021 1:45	MRA,QQQ2;707694	1
22103243504	2210405A_68.d	Sample	4/6/2021 1:58	MRA,QQQ2;707694	1
22103243505	2210405A_69.d	Sample	4/6/2021 2:11	MRA,QQQ2;707694	1
22103243506	2210405A_70.d	Sample	4/6/2021 2:24	MRA,QQQ2;707694	1
22103264201	2210405A_71.d	Sample	4/6/2021 2:37	MRA,QQQ2;707694	1
22104023103	2210405A_72.d	Sample	4/6/2021 2:50	MRA,QQQ2;707694	1
22104023104	2210405A_73.d	Sample	4/6/2021 3:03	MRA,QQQ2;707694	1
1400	2210405A_74.d	QC	4/6/2021 3:17	MRA,QQQ2;CCV	1
22104023901	2210405A_75.d	Sample	4/6/2021 3:30	MRA,QQQ2;707694	1
22104026301 50x	2210405A_76.d	Sample	4/6/2021 3:43	MRA,QQQ2;707694	50
2161507	2210405A_77.d	Sample	4/6/2021 3:56	MRA,QQQ2;706944; M2PFDA spiked at 4x IIS	1
2161508	2210405A_78.d	QC	4/6/2021 4:09	MRA,QQQ2;706944	1
22103255721	2210405A_79.d	Sample	4/6/2021 4:22	MRA,QQQ2;706944	1
22103255722	2210405A_80.d	Sample	4/6/2021 4:35	MRA,QQQ2;706944	1
2161509	2210405A_81.d	QC	4/6/2021 4:48	MRA,QQQ2;706944	1
2161510	2210405A_82.d	QC	4/6/2021 5:02	MRA,QQQ2;706944	1
1400	2210405A_83.d	QC	4/6/2021 5:15	MRA,QQQ2;CCV	1
MeOH Shot	2210405A_84.d	Sample	4/6/2021 5:28	MRA,QQQ2;Instrument Blank	1

ORGANICS INSTRUMENT SENSITIVITY CHECK

Report No:	<u>221032903</u>	Instrument ID:	<u>QQQ2</u>
Analysis Date:	<u>04/05/2021 13:23</u>	Lab File ID:	<u>2210405A_14.d</u>
Analytical Method:	<u>EPA 537 Mod Isotope Dilution</u>	Analytical Batch:	<u>707851</u>

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomersulfonic acid	ng/L	3.81	3.67	97	70	130	
8:2 Fluorotelomersulfonic acid	ng/L	3.84	3.82	99	70	130	
NEtFOSAA	ng/L	4.00	3.78	94	70	130	
NMeFOSAA	ng/L	4.00	4.25	106	70	130	
Perfluorobutanoic acid	ng/L	4.00	4.05	101	70	130	
Perfluorobutanesulfonic acid	ng/L	3.55	3.43	97	70	130	
Perfluorodecanoic acid	ng/L	4.00	3.29	82	70	130	
Perfluorododecanoic acid	ng/L	4.00	4.90	122	70	130	
Perfluoroheptanoic acid	ng/L	4.00	4.04	101	70	130	
Perfluorohexanoic acid	ng/L	4.00	4.14	104	70	130	
Perfluorohexanesulfonic acid	ng/L	3.66	3.79	104	70	130	
Perfluorononanoic acid	ng/L	4.00	3.92	98	70	130	
Perfluorooctanoic acid	ng/L	4.00	4.40	110	70	130	
Perfluorooctanesulfonic acid	ng/L	3.71	3.77	102	70	130	
Perfluoropentanoic acid	ng/L	4.00	4.22	105	70	130	
Perfluorotetradecanoic acid	ng/L	4.00	3.88	97	70	130	
Perfluorotridecanoic acid	ng/L	4.00	5.50	137	70	130	*
Perfluoroundecanoic acid	ng/L	4.00	3.98	100	70	130	

ORGANICS INITIAL CALIBRATION VERIFICATION

Report No:	<u>221032903</u>	Instrument ID:	<u>QQQ2</u>
Analysis Date:	<u>04/05/2021 12:56</u>	Lab File ID:	<u>2210405A_12.d</u>
Analytical Method:	<u>EPA 537 Mod Isotope Dilution</u>	Analytical Batch:	<u>707851</u>

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomersulfonic acid	ng/L	10000	9120	91 ✓	70	130	
8:2 Fluorotelomersulfonic acid	ng/L	10100	8420	83	70	130	
NEtFOSAA	ng/L	10000	9600	96	70	130	
NMeFOSAA	ng/L	10000	8350	84	70	130	
Perfluorobutanoic acid	ng/L	10000	8390	84	70	130	
Perfluorobutanesulfonic acid	ng/L	10000	8630	86	70	130	
Perfluorodecanoic acid	ng/L	10000	8640	86	70	130	
Perfluorododecanoic acid	ng/L	10000	8920	89	70	130	
Perfluoroheptanoic acid	ng/L	10000	9020	90	70	130	
Perfluorohexanoic acid	ng/L	10100	8710	86	70	130	
Perfluorohexanesulfonic acid	ng/L	10000	9240	92	70	130	
Perfluorononanoic acid	ng/L	10000	9440	94	70	130	
Perfluorooctanoic acid	ng/L	10100	9080	90	70	130	
Perfluorooctanesulfonic acid	ng/L	10000	8620	86	70	130	
Perfluoropentanoic acid	ng/L	10100	8390	83	70	130	
Perfluorotetradecanoic acid	ng/L	10000	9150	91	70	130	
Perfluorotridecanoic acid	ng/L	10000	7680	77	70	130	
Perfluoroundecanoic acid	ng/L	10000	8710	87	70	130	

FORM 6I - ORG

ORGANICS INSTRUMENT BLANK

Report No:	221032903	Instrument ID:	QQQ2
Analysis Date:	04/05/2021 12:43	Lab File ID:	2210405A_11.d
Analytical Method:	EPA 537 Mod Isotope Dilution	Analytical Batch:	707851

ANALYTE	UNITS	RESULT	Q	DL	LOD	LOQ	#
6:2 Fluorotelomersulfonic acid	ng/L	2.00	U	0.94	2.00	4.00	
8:2 Fluorotelomersulfonic acid	ng/L	2.00	U	0.90	2.00	4.00	
NEtFOSAA	ng/L	4.00	U	0.97	4.00	8.00	
NMeFOSAA	ng/L	4.00	U	0.91	4.00	8.00	
Perfluorobutanesulfonic acid	ng/L	2.00	U	0.81	2.00	4.00	
Perfluorobutanoic acid	ng/L	2.00	U	0.90	2.00	4.00	
Perfluorodecanoic acid	ng/L	2.00	U	0.86	2.00	4.00	
Perfluorododecanoic acid	ng/L	2.00	U	0.88	2.00	4.00	
Perfluoroheptanoic acid	ng/L	2.00	U	0.48	2.00	4.00	
Perfluorohexanesulfonic acid	ng/L	2.00	U	0.95	2.00	4.00	
Perfluorohexanoic acid	ng/L	2.00	U	0.99	2.00	4.00	
Perfluorononanoic acid	ng/L	2.00	U	0.78	2.00	4.00	
Perfluorooctanesulfonic acid	ng/L	2.00	U	0.81	2.00	4.00	
Perfluorooctanoic acid	ng/L	2.00	U	0.95	2.00	4.00	
Perfluoropentanoic acid	ng/L	2.00	U	0.85	2.00	4.00	
Perfluorotetradecanoic acid	ng/L	2.00	U	0.98	2.00	4.00	
Perfluorotridecanoic acid	ng/L	2.00	U	0.99	2.00	4.00	
Perfluoroundecanoic acid	ng/L	2.00	U	0.95	2.00	4.00	

* - Result greater than 1/2 LOQ

Quantitative Analysis Calibration Report

Batch Data Path D:\MassHunter\Data\2210405ACAL\QuantResults\2210405A.batch.bin
Analysis Time 4/13/2021 8:42 AM Analyst Name GCAL\lcms
Report Time 4/13/2021 8:45 AM Reporter Name GCAL\lcms
Last Calib Update 4/6/2021 11:19 AM Batch State Processed

Calibration Info Extracted *ISTD*

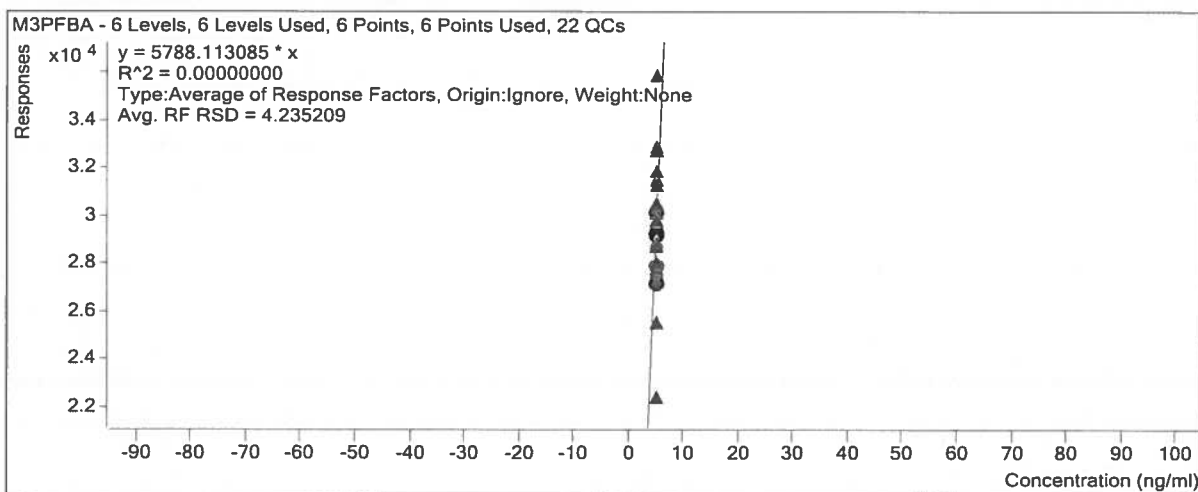
MPFBA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2210405ACAL\2210405A_04.d	Calibration	1	<input checked="" type="checkbox"/>	23952	5.0000	4790.3250
D:\MassHunter\Data\2210405ACAL\2210405A_05.d	Calibration	2	<input checked="" type="checkbox"/>	24564	5.0000	4912.8066
D:\MassHunter\Data\2210405ACAL\2210405A_06.d	Calibration	3	<input checked="" type="checkbox"/>	24267	5.0000	4853.4468
D:\MassHunter\Data\2210405ACAL\2210405A_07.d	Calibration	4	<input checked="" type="checkbox"/>	24941	5.0000	4988.2766
D:\MassHunter\Data\2210405ACAL\2210405A_08.d	Calibration	5	<input checked="" type="checkbox"/>	24467	5.0000	4893.4192
D:\MassHunter\Data\2210405ACAL\2210405A_09.d	Calibration	6	<input checked="" type="checkbox"/>	24677	5.0000	4935.4916

Instrument *ISTD*

M3PFBA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2210405ACAL\2210405A_04.d	Calibration	1	<input checked="" type="checkbox"/>	27863	5.0000	5572.6862
D:\MassHunter\Data\2210405ACAL\2210405A_05.d	Calibration	2	<input checked="" type="checkbox"/>	27119	5.0000	5423.8421
D:\MassHunter\Data\2210405ACAL\2210405A_06.d	Calibration	3	<input checked="" type="checkbox"/>	30163	5.0000	6032.5101
D:\MassHunter\Data\2210405ACAL\2210405A_07.d	Calibration	4	<input checked="" type="checkbox"/>	29226	5.0000	5845.1462
D:\MassHunter\Data\2210405ACAL\2210405A_08.d	Calibration	5	<input checked="" type="checkbox"/>	30132	5.0000	6026.4024
D:\MassHunter\Data\2210405ACAL\2210405A_09.d	Calibration	6	<input checked="" type="checkbox"/>	29140	5.0000	5828.0915

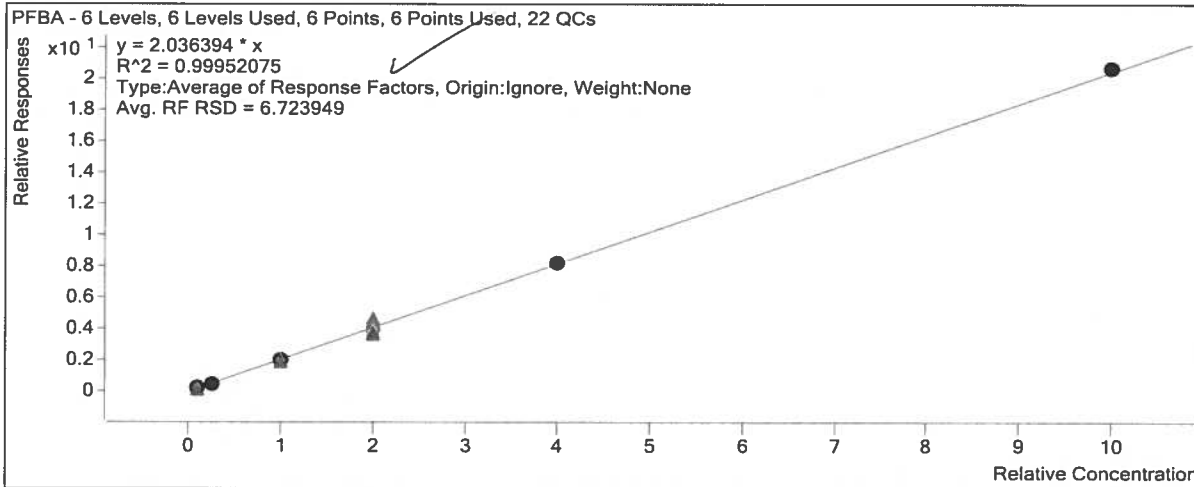


Target Compound

PFBA

Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2210405ACAL\2210405A_04.d	Calibration	1	<input checked="" type="checkbox"/>	5443	0.5000	2.2725
D:\MassHunter\Data\2210405ACAL\2210405A_05.d	Calibration	2	<input checked="" type="checkbox"/>	11497	1.2500	1.8722
D:\MassHunter\Data\2210405ACAL\2210405A_06.d	Calibration	3	<input checked="" type="checkbox"/>	48363	5.0000	1.9929
D:\MassHunter\Data\2210405ACAL\2210405A_07.d	Calibration	4	<input checked="" type="checkbox"/>	97270	10.0000	1.9500
D:\MassHunter\Data\2210405ACAL\2210405A_08.d	Calibration	5	<input checked="" type="checkbox"/>	201855	20.0000	2.0625
D:\MassHunter\Data\2210405ACAL\2210405A_09.d	Calibration	6	<input checked="" type="checkbox"/>	510383	50.0000	2.0682

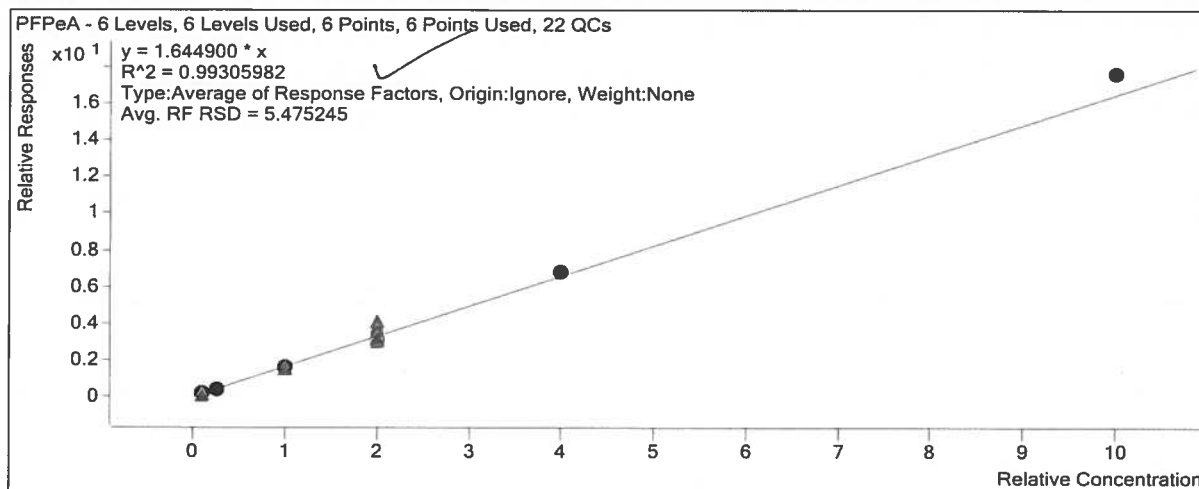


Target Compound

PFMPA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2210405ACAL\2210405A_04.d	Calibration	1	<input checked="" type="checkbox"/>	2431	0.5000	1.5067
D:\MassHunter\Data\2210405ACAL\2210405A_05.d	Calibration	2	<input checked="" type="checkbox"/>	5632	1.2500	1.3469
D:\MassHunter\Data\2210405ACAL\2210405A_06.d	Calibration	3	<input checked="" type="checkbox"/>	24390	5.0000	1.5000
D:\MassHunter\Data\2210405ACAL\2210405A_07.d	Calibration	4	<input checked="" type="checkbox"/>	48928	10.0000	1.4695
D:\MassHunter\Data\2210405ACAL\2210405A_08.d	Calibration	5	<input checked="" type="checkbox"/>	100427	20.0000	1.5261
D:\MassHunter\Data\2210405ACAL\2210405A_09.d	Calibration	6	<input checked="" type="checkbox"/>	258191	50.0000	1.5694

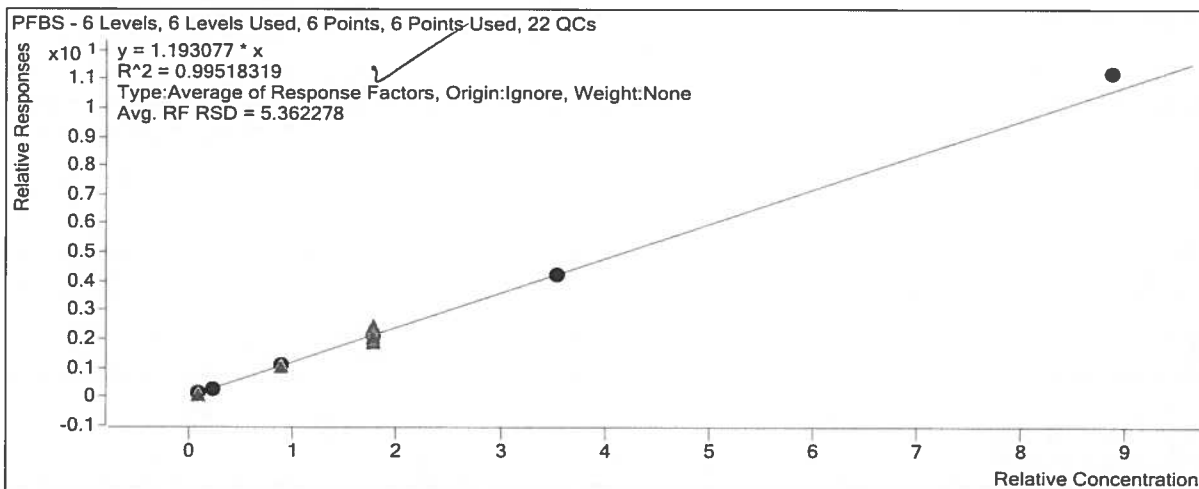
Quantitative Analysis Calibration Report



Target Compound

PFBS

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2210405ACAL\2210405A_04.d	Calibration	1	<input checked="" type="checkbox"/>	1260	0.4435	1.2085
D:\MassHunter\Data\2210405ACAL\2210405A_05.d	Calibration	2	<input checked="" type="checkbox"/>	2944	1.1088	1.0907
D:\MassHunter\Data\2210405ACAL\2210405A_06.d	Calibration	3	<input checked="" type="checkbox"/>	12897	4.4350	1.2475
D:\MassHunter\Data\2210405ACAL\2210405A_07.d	Calibration	4	<input checked="" type="checkbox"/>	24371	8.8700	1.1558
D:\MassHunter\Data\2210405ACAL\2210405A_08.d	Calibration	5	<input checked="" type="checkbox"/>	51704	17.7400	1.1894
D:\MassHunter\Data\2210405ACAL\2210405A_09.d	Calibration	6	<input checked="" type="checkbox"/>	131458	44.3500	1.2665



Extracted ISTD

M3PFBS

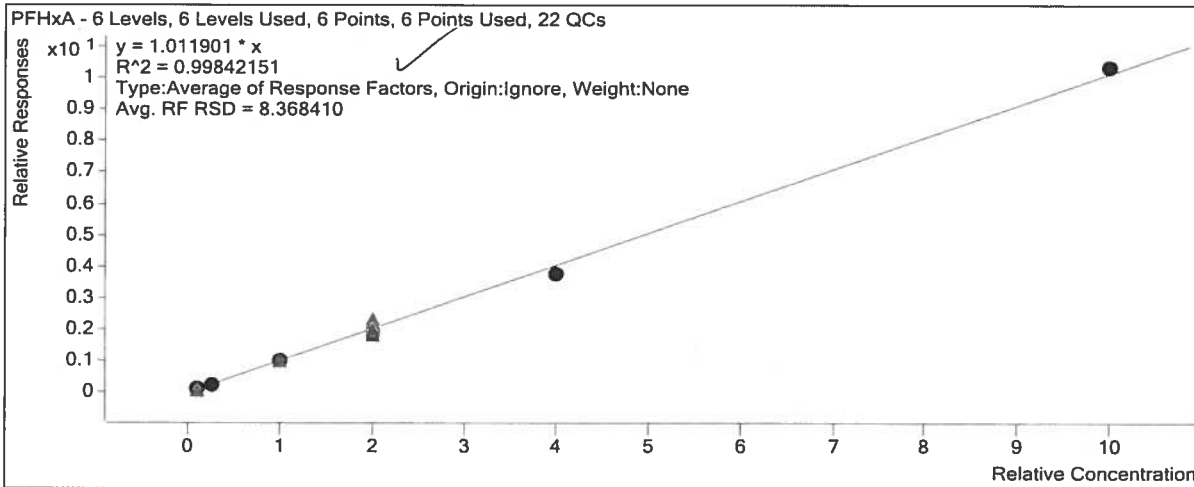
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2210405ACAL\2210405A_04.d	Calibration	1	<input checked="" type="checkbox"/>	11756	5.0000	2351.1363

Quantitative Analysis Calibration Report

Target Compound

PFHxA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2210405ACAL\2210405A_04.d	Calibration	1	<input checked="" type="checkbox"/>	2347	0.5000	1.1591
D:\MassHunter\Data\2210405ACAL\2210405A_05.d	Calibration	2	<input checked="" type="checkbox"/>	4934	1.2500	0.9361
D:\MassHunter\Data\2210405ACAL\2210405A_06.d	Calibration	3	<input checked="" type="checkbox"/>	21782	5.0000	1.0411
D:\MassHunter\Data\2210405ACAL\2210405A_07.d	Calibration	4	<input checked="" type="checkbox"/>	43284	10.0000	0.9588
D:\MassHunter\Data\2210405ACAL\2210405A_08.d	Calibration	5	<input checked="" type="checkbox"/>	85515	20.0000	0.9456
D:\MassHunter\Data\2210405ACAL\2210405A_09.d	Calibration	6	<input checked="" type="checkbox"/>	227214	50.0000	1.0307



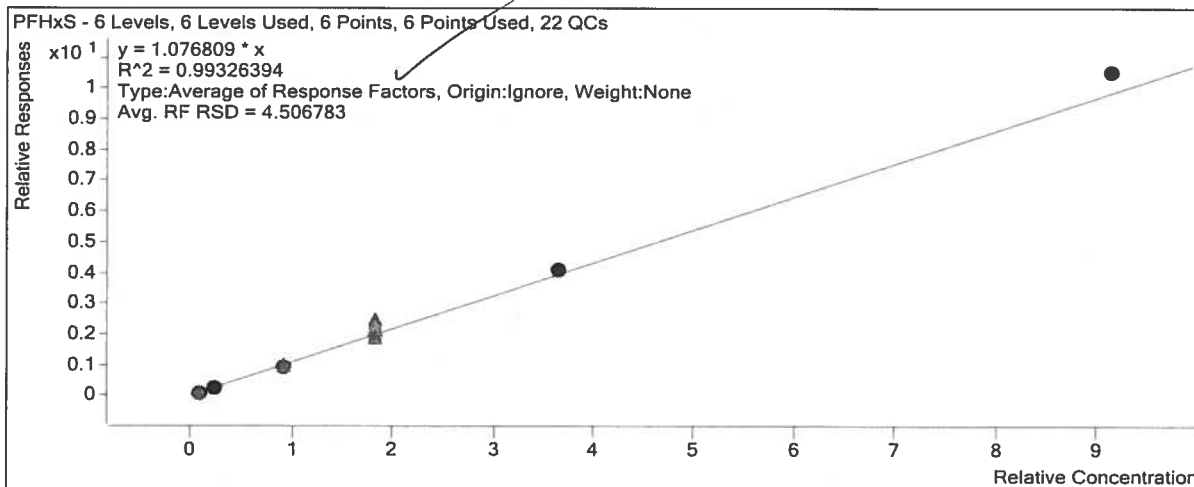
Instrument ISTD

M2PFHxA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2210405ACAL\2210405A_04.d	Calibration	1	<input checked="" type="checkbox"/>	178316	40.0000	4457.9012
D:\MassHunter\Data\2210405ACAL\2210405A_05.d	Calibration	2	<input checked="" type="checkbox"/>	184156	40.0000	4603.8876
D:\MassHunter\Data\2210405ACAL\2210405A_06.d	Calibration	3	<input checked="" type="checkbox"/>	198924	40.0000	4973.0933
D:\MassHunter\Data\2210405ACAL\2210405A_07.d	Calibration	4	<input checked="" type="checkbox"/>	196014	40.0000	4900.3416
D:\MassHunter\Data\2210405ACAL\2210405A_08.d	Calibration	5	<input checked="" type="checkbox"/>	197228	40.0000	4930.6896
D:\MassHunter\Data\2210405ACAL\2210405A_09.d	Calibration	6	<input checked="" type="checkbox"/>	191187	40.0000	4779.6855

Quantitative Analysis Calibration Report

D:\MassHunter\Data\2210405ACAL\2210405A_05.d	Calibration	2	<input checked="" type="checkbox"/>	3328	1.1425	1.0362
D:\MassHunter\Data\2210405ACAL\2210405A_06.d	Calibration	3	<input checked="" type="checkbox"/>	13319	4.5700	1.0285
D:\MassHunter\Data\2210405ACAL\2210405A_07.d	Calibration	4	<input checked="" type="checkbox"/>	27479	9.1400	1.0667
D:\MassHunter\Data\2210405ACAL\2210405A_08.d	Calibration	5	<input checked="" type="checkbox"/>	57283	18.2800	1.1123
D:\MassHunter\Data\2210405ACAL\2210405A_09.d	Calibration	6	<input checked="" type="checkbox"/>	144778	45.7000	1.1555

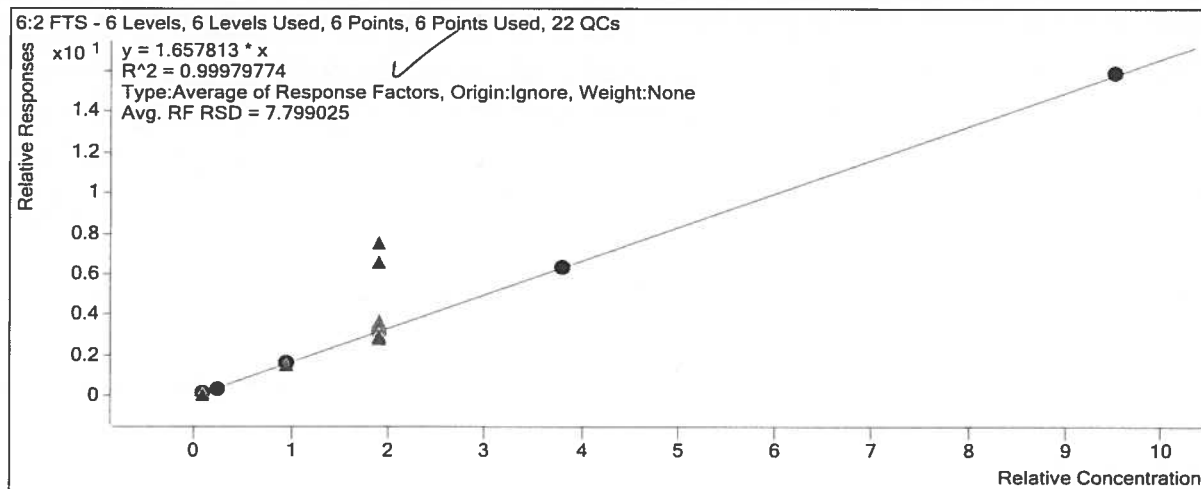


Target Compound

ADONA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2210405ACAL\2210405A_04.d	Calibration	1	<input checked="" type="checkbox"/>	8223	0.4725	2.6954
D:\MassHunter\Data\2210405ACAL\2210405A_05.d	Calibration	2	<input checked="" type="checkbox"/>	20238	1.1813	2.5178
D:\MassHunter\Data\2210405ACAL\2210405A_06.d	Calibration	3	<input checked="" type="checkbox"/>	85984	4.7250	2.7089
D:\MassHunter\Data\2210405ACAL\2210405A_07.d	Calibration	4	<input checked="" type="checkbox"/>	173264	9.4500	2.6394
D:\MassHunter\Data\2210405ACAL\2210405A_08.d	Calibration	5	<input checked="" type="checkbox"/>	358301	18.9000	2.7607
D:\MassHunter\Data\2210405ACAL\2210405A_09.d	Calibration	6	<input checked="" type="checkbox"/>	890134	47.2500	2.7898

Quantitative Analysis Calibration Report



Extracted ISTD

M8PFOA

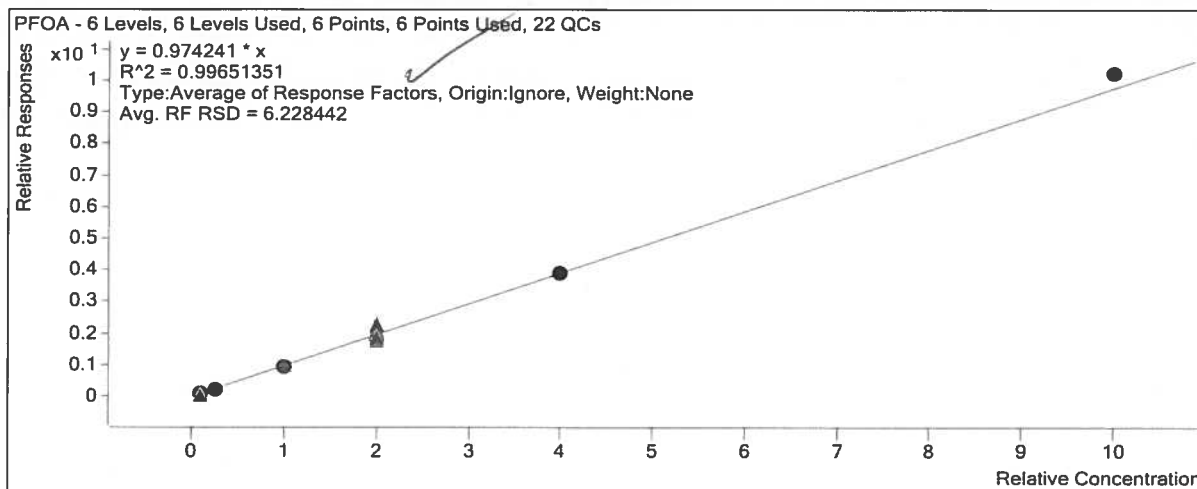
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2210405ACAL\2210405A_04.d	Calibration	1	<input checked="" type="checkbox"/>	32283	5.0000	6456.6781
D:\MassHunter\Data\2210405ACAL\2210405A_05.d	Calibration	2	<input checked="" type="checkbox"/>	34022	5.0000	6804.3172
D:\MassHunter\Data\2210405ACAL\2210405A_06.d	Calibration	3	<input checked="" type="checkbox"/>	33588	5.0000	6717.6480
D:\MassHunter\Data\2210405ACAL\2210405A_07.d	Calibration	4	<input checked="" type="checkbox"/>	34733	5.0000	6946.6115
D:\MassHunter\Data\2210405ACAL\2210405A_08.d	Calibration	5	<input checked="" type="checkbox"/>	34336	5.0000	6867.1001
D:\MassHunter\Data\2210405ACAL\2210405A_09.d	Calibration	6	<input checked="" type="checkbox"/>	33764	5.0000	6752.8016

Target Compound

PFOA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2210405ACAL\2210405A_04.d	Calibration	1	<input checked="" type="checkbox"/>	3422	0.5000	1.0601
D:\MassHunter\Data\2210405ACAL\2210405A_05.d	Calibration	2	<input checked="" type="checkbox"/>	7655	1.2500	0.9000
D:\MassHunter\Data\2210405ACAL\2210405A_06.d	Calibration	3	<input checked="" type="checkbox"/>	32428	5.0000	0.9655
D:\MassHunter\Data\2210405ACAL\2210405A_07.d	Calibration	4	<input checked="" type="checkbox"/>	63896	10.0000	0.9198
D:\MassHunter\Data\2210405ACAL\2210405A_08.d	Calibration	5	<input checked="" type="checkbox"/>	134039	20.0000	0.9759
D:\MassHunter\Data\2210405ACAL\2210405A_09.d	Calibration	6	<input checked="" type="checkbox"/>	345761	50.0000	1.0241

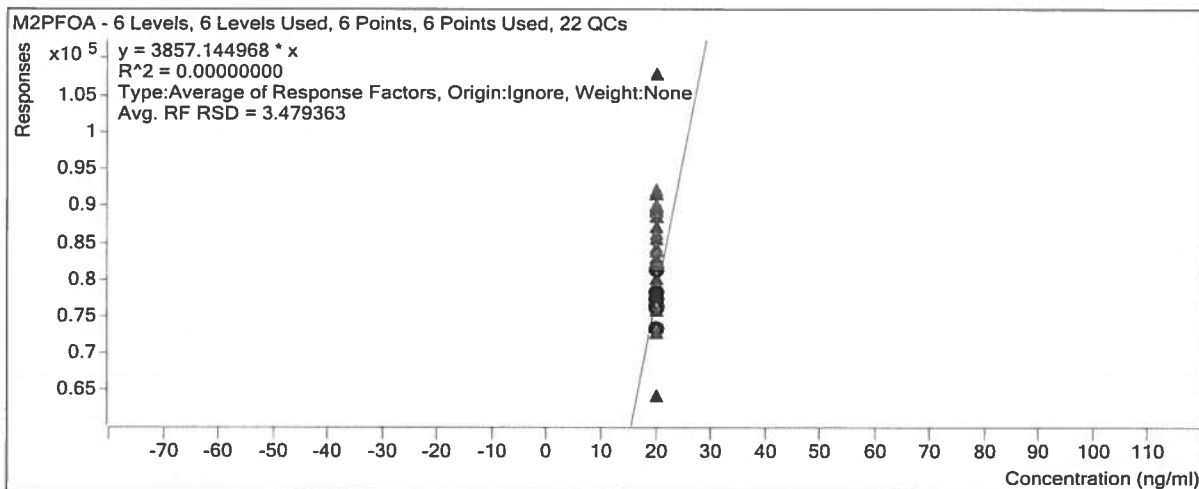
Quantitative Analysis Calibration Report



Instrument ISTD

M2PFOA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2210405ACAL\2210405A_04.d	Calibration	1	<input checked="" type="checkbox"/>	73271	20.0000	3663.5384
D:\MassHunter\Data\2210405ACAL\2210405A_05.d	Calibration	2	<input checked="" type="checkbox"/>	76263	20.0000	3813.1404
D:\MassHunter\Data\2210405ACAL\2210405A_06.d	Calibration	3	<input checked="" type="checkbox"/>	81426	20.0000	4071.2812
D:\MassHunter\Data\2210405ACAL\2210405A_07.d	Calibration	4	<input checked="" type="checkbox"/>	78240	20.0000	3912.0208
D:\MassHunter\Data\2210405ACAL\2210405A_08.d	Calibration	5	<input checked="" type="checkbox"/>	77334	20.0000	3866.6941
D:\MassHunter\Data\2210405ACAL\2210405A_09.d	Calibration	6	<input checked="" type="checkbox"/>	76324	20.0000	3816.1950

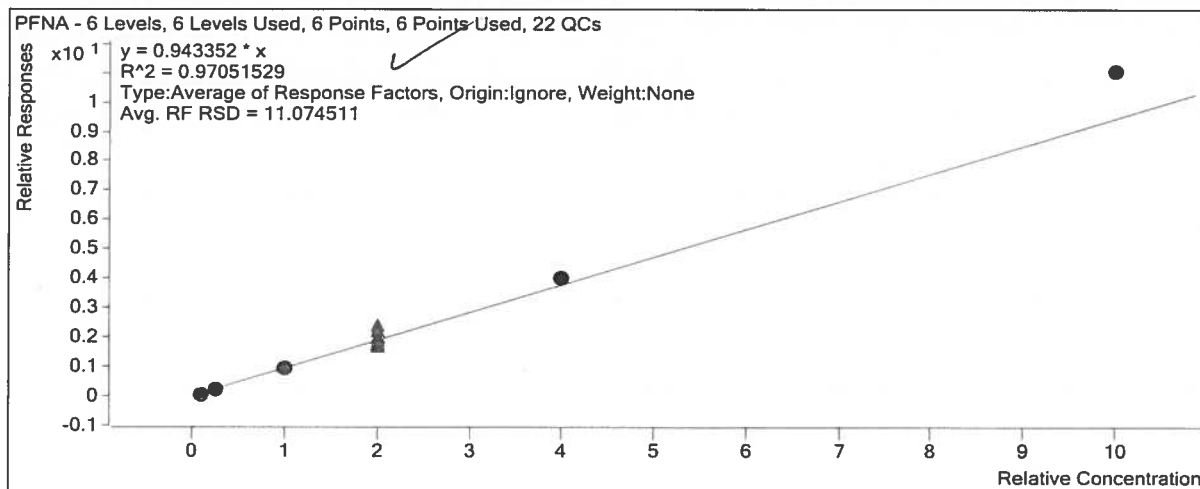


Instrument ISTD

MPFOA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2210405ACAL\2210405A_04.d	Calibration	1	<input checked="" type="checkbox"/>	439522	25.0000	17580.8922

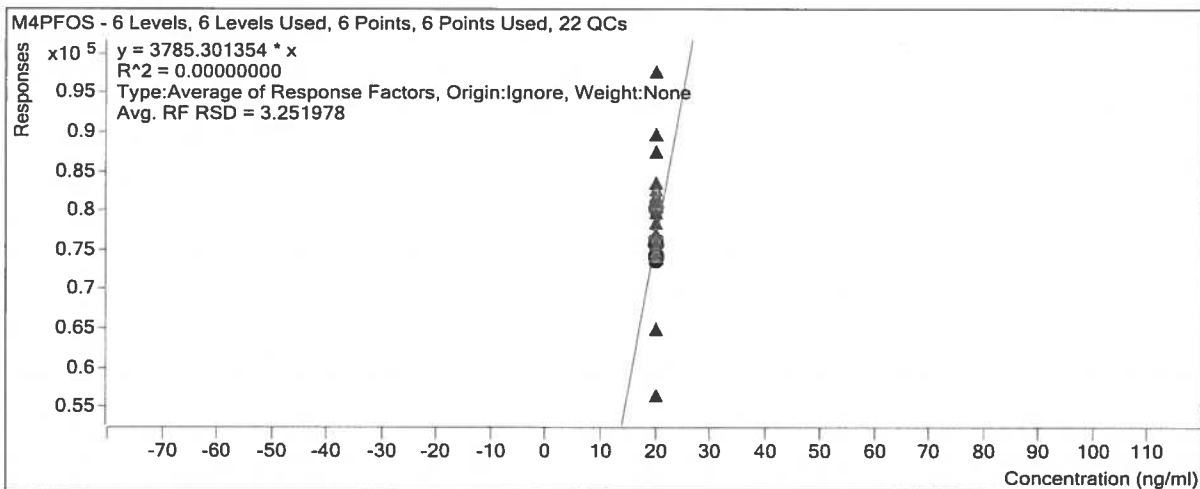
Quantitative Analysis Calibration Report



Instrument ISTD

M4PFOS

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2210405ACAL\2210405A_04.d	Calibration	1	<input checked="" type="checkbox"/>	74294	20.0000	3714.7241
D:\MassHunter\Data\2210405ACAL\2210405A_05.d	Calibration	2	<input checked="" type="checkbox"/>	73615	20.0000	3680.7526
D:\MassHunter\Data\2210405ACAL\2210405A_06.d	Calibration	3	<input checked="" type="checkbox"/>	80270	20.0000	4013.4855
D:\MassHunter\Data\2210405ACAL\2210405A_07.d	Calibration	4	<input checked="" type="checkbox"/>	76297	20.0000	3814.8653
D:\MassHunter\Data\2210405ACAL\2210405A_08.d	Calibration	5	<input checked="" type="checkbox"/>	75716	20.0000	3785.8099
D:\MassHunter\Data\2210405ACAL\2210405A_09.d	Calibration	6	<input checked="" type="checkbox"/>	74043	20.0000	3702.1708



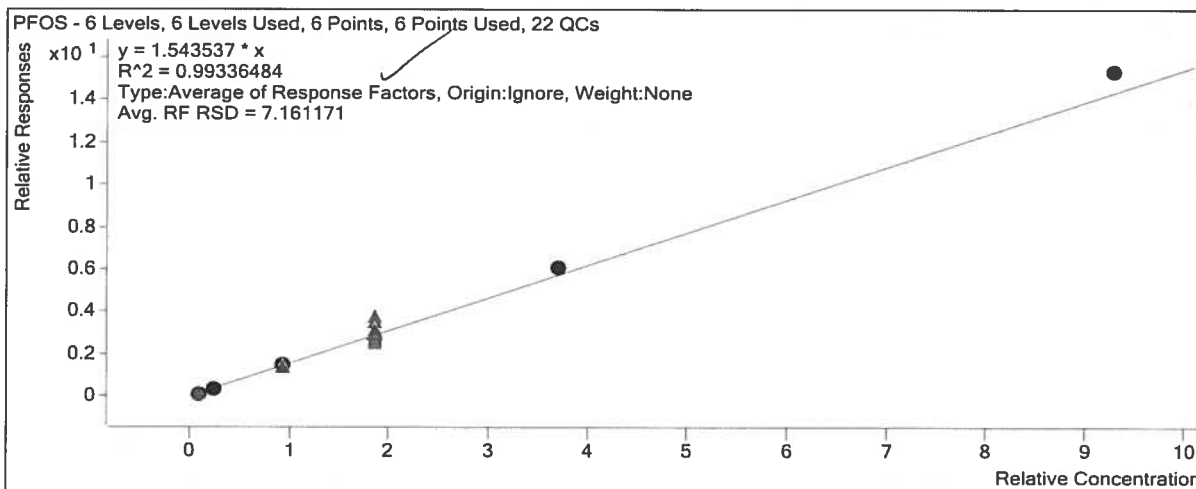
Target Compound

PFOS

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2210405ACAL\2210405A_04.d	Calibration	1	<input checked="" type="checkbox"/>	1605	0.4640	1.3566

Quantitative Analysis Calibration Report

D:\MassHunter\Data\2210405ACAL\2210405A_05.d	Calibration	2	<input checked="" type="checkbox"/>	4533	1.1600	1.5838
D:\MassHunter\Data\2210405ACAL\2210405A_06.d	Calibration	3	<input checked="" type="checkbox"/>	17514	4.6400	1.5538
D:\MassHunter\Data\2210405ACAL\2210405A_07.d	Calibration	4	<input checked="" type="checkbox"/>	35100	9.2800	1.4791
D:\MassHunter\Data\2210405ACAL\2210405A_08.d	Calibration	5	<input checked="" type="checkbox"/>	74320	18.5600	1.6380
D:\MassHunter\Data\2210405ACAL\2210405A_09.d	Calibration	6	<input checked="" type="checkbox"/>	191006	46.4000	1.6500



Extracted ISTD

M8PFOS

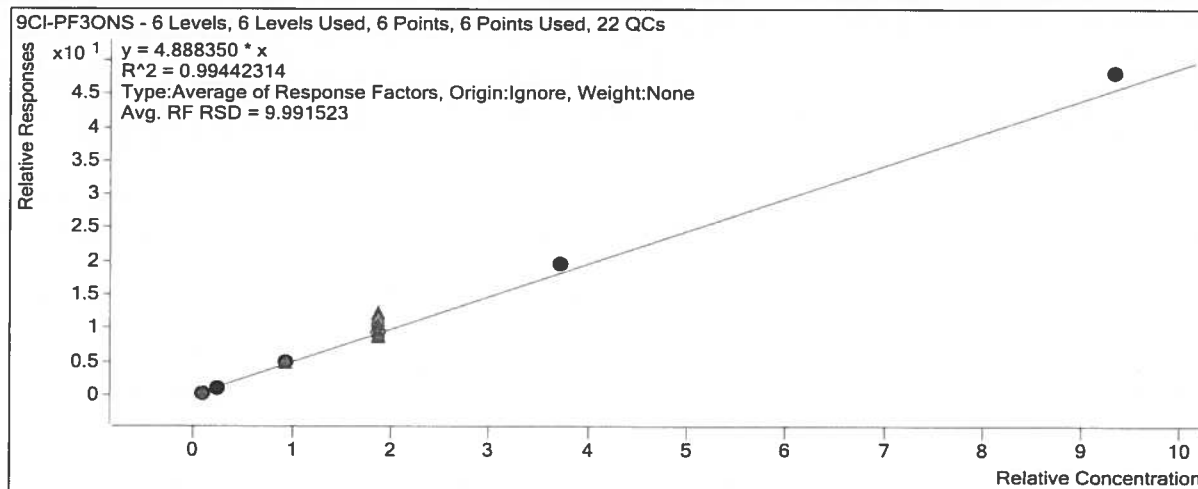
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2210405ACAL\2210405A_04.d	Calibration	1	<input checked="" type="checkbox"/>	12747	5.0000	2549.3192
D:\MassHunter\Data\2210405ACAL\2210405A_05.d	Calibration	2	<input checked="" type="checkbox"/>	12337	5.0000	2467.4566
D:\MassHunter\Data\2210405ACAL\2210405A_06.d	Calibration	3	<input checked="" type="checkbox"/>	12146	5.0000	2429.2913
D:\MassHunter\Data\2210405ACAL\2210405A_07.d	Calibration	4	<input checked="" type="checkbox"/>	12786	5.0000	2557.2340
D:\MassHunter\Data\2210405ACAL\2210405A_08.d	Calibration	5	<input checked="" type="checkbox"/>	12223	5.0000	2444.6934
D:\MassHunter\Data\2210405ACAL\2210405A_09.d	Calibration	6	<input checked="" type="checkbox"/>	12474	5.0000	2494.8320

Target Compound

9CI-PF3ONS

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2210405ACAL\2210405A_04.d	Calibration	1	<input checked="" type="checkbox"/>	4680	0.4665	3.9356
D:\MassHunter\Data\2210405ACAL\2210405A_05.d	Calibration	2	<input checked="" type="checkbox"/>	14027	1.1663	4.8742
D:\MassHunter\Data\2210405ACAL\2210405A_06.d	Calibration	3	<input checked="" type="checkbox"/>	57958	4.6650	5.1142
D:\MassHunter\Data\2210405ACAL\2210405A_07.d	Calibration	4	<input checked="" type="checkbox"/>	118337	9.3300	4.9598
D:\MassHunter\Data\2210405ACAL\2210405A_08.d	Calibration	5	<input checked="" type="checkbox"/>	240427	18.6600	5.2704
D:\MassHunter\Data\2210405ACAL\2210405A_09.d	Calibration	6	<input checked="" type="checkbox"/>	602380	46.6500	5.1758

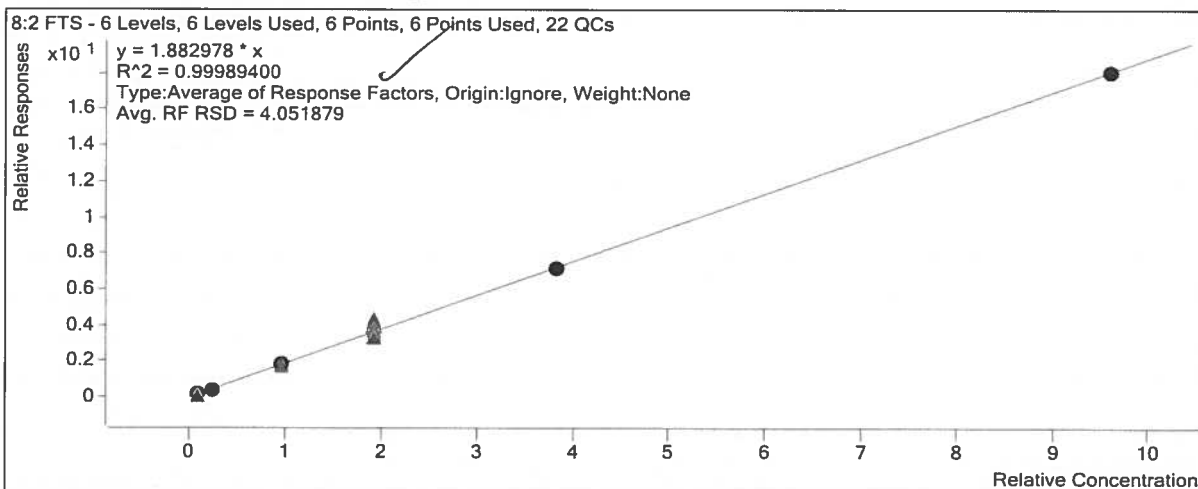
Quantitative Analysis Calibration Report



Target Compound

8:2 FTS

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2210405ACAL\2210405A_04.d	Calibration	1	<input checked="" type="checkbox"/>	1296	0.4800	2.0300
D:\MassHunter\Data\2210405ACAL\2210405A_05.d	Calibration	2	<input checked="" type="checkbox"/>	2712	1.2000	1.8116
D:\MassHunter\Data\2210405ACAL\2210405A_06.d	Calibration	3	<input checked="" type="checkbox"/>	11762	4.8000	1.8824
D:\MassHunter\Data\2210405ACAL\2210405A_07.d	Calibration	4	<input checked="" type="checkbox"/>	23307	9.6000	1.8461
D:\MassHunter\Data\2210405ACAL\2210405A_08.d	Calibration	5	<input checked="" type="checkbox"/>	47317	19.2000	1.8518
D:\MassHunter\Data\2210405ACAL\2210405A_09.d	Calibration	6	<input checked="" type="checkbox"/>	110071	48.0000	1.8760



Extracted ISTD

M2 8:2 FTS

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2210405ACAL\2210405A_04.d	Calibration	1	<input checked="" type="checkbox"/>	6651	5.0000	1330.1021

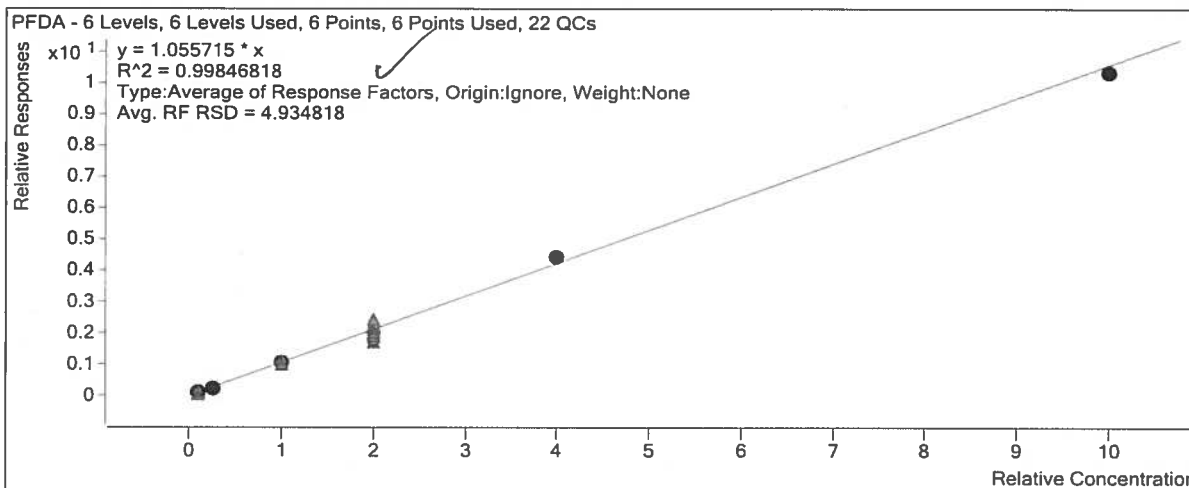
Quantitative Analysis Calibration Report

D:\MassHunter\Data\2210405ACAL\2210405A_05.d	Calibration	2	<input checked="" type="checkbox"/>	6237	5.0000	1247.3309
D:\MassHunter\Data\2210405ACAL\2210405A_06.d	Calibration	3	<input checked="" type="checkbox"/>	6509	5.0000	1301.7352
D:\MassHunter\Data\2210405ACAL\2210405A_07.d	Calibration	4	<input checked="" type="checkbox"/>	6576	5.0000	1315.1518
D:\MassHunter\Data\2210405ACAL\2210405A_08.d	Calibration	5	<input checked="" type="checkbox"/>	6654	5.0000	1330.8665
D:\MassHunter\Data\2210405ACAL\2210405A_09.d	Calibration	6	<input checked="" type="checkbox"/>	6112	5.0000	1222.3412

Target Compound

PFDA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2210405ACAL\2210405A_04.d	Calibration	1	<input checked="" type="checkbox"/>	1851	0.5000	1.1091
D:\MassHunter\Data\2210405ACAL\2210405A_05.d	Calibration	2	<input checked="" type="checkbox"/>	4381	1.2500	1.0060
D:\MassHunter\Data\2210405ACAL\2210405A_06.d	Calibration	3	<input checked="" type="checkbox"/>	16793	5.0000	1.0754
D:\MassHunter\Data\2210405ACAL\2210405A_07.d	Calibration	4	<input checked="" type="checkbox"/>	32763	10.0000	0.9937
D:\MassHunter\Data\2210405ACAL\2210405A_08.d	Calibration	5	<input checked="" type="checkbox"/>	73225	20.0000	1.1155
D:\MassHunter\Data\2210405ACAL\2210405A_09.d	Calibration	6	<input checked="" type="checkbox"/>	173553	50.0000	1.0346

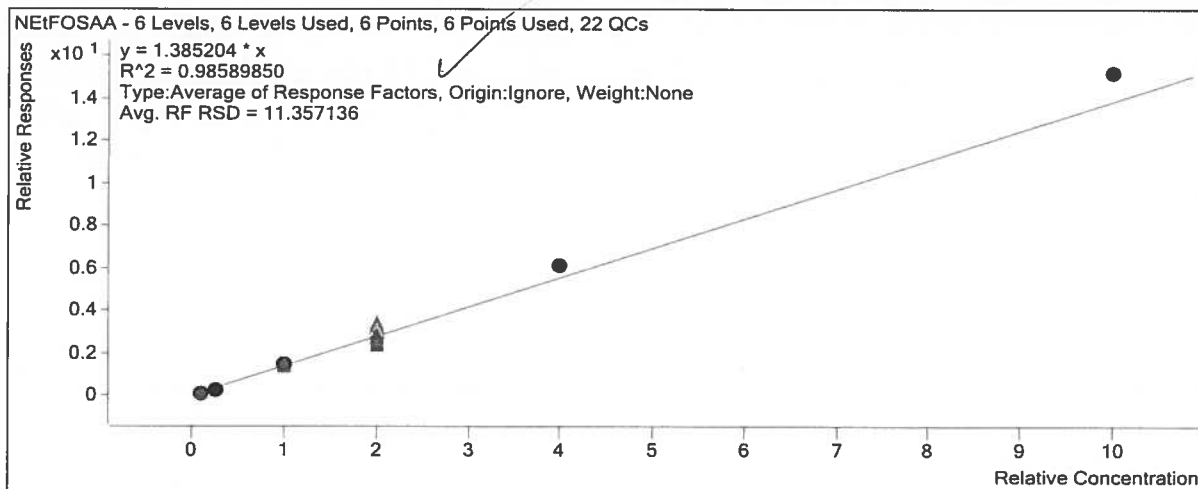


Extracted ISTD

M6PFDA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2210405ACAL\2210405A_04.d	Calibration	1	<input checked="" type="checkbox"/>	16693	5.0000	3338.5373
D:\MassHunter\Data\2210405ACAL\2210405A_05.d	Calibration	2	<input checked="" type="checkbox"/>	17420	5.0000	3484.0810
D:\MassHunter\Data\2210405ACAL\2210405A_06.d	Calibration	3	<input checked="" type="checkbox"/>	15615	5.0000	3123.0349
D:\MassHunter\Data\2210405ACAL\2210405A_07.d	Calibration	4	<input checked="" type="checkbox"/>	16485	5.0000	3297.0391
D:\MassHunter\Data\2210405ACAL\2210405A_08.d	Calibration	5	<input checked="" type="checkbox"/>	16411	5.0000	3282.2178
D:\MassHunter\Data\2210405ACAL\2210405A_09.d	Calibration	6	<input checked="" type="checkbox"/>	16774	5.0000	3354.8667

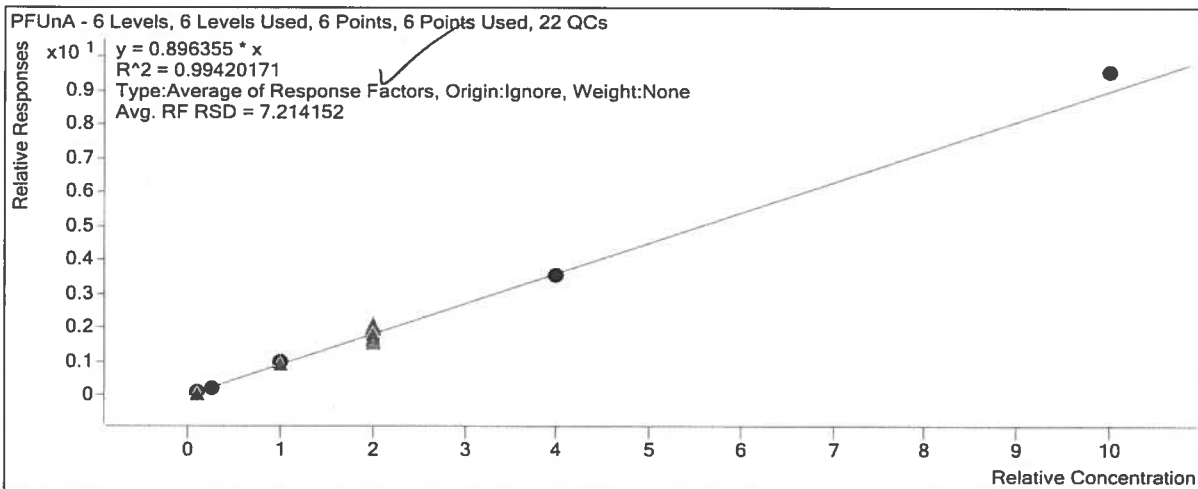
Quantitative Analysis Calibration Report



Target Compound

PFUnA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2210405ACAL\2210405A_04.d	Calibration	1	<input checked="" type="checkbox"/>	1551	0.5000	0.8853
D:\MassHunter\Data\2210405ACAL\2210405A_05.d	Calibration	2	<input checked="" type="checkbox"/>	3478	1.2500	0.7952
D:\MassHunter\Data\2210405ACAL\2210405A_06.d	Calibration	3	<input checked="" type="checkbox"/>	15681	5.0000	0.9770
D:\MassHunter\Data\2210405ACAL\2210405A_07.d	Calibration	4	<input checked="" type="checkbox"/>	31242	10.0000	0.8809
D:\MassHunter\Data\2210405ACAL\2210405A_08.d	Calibration	5	<input checked="" type="checkbox"/>	60342	20.0000	0.8830
D:\MassHunter\Data\2210405ACAL\2210405A_09.d	Calibration	6	<input checked="" type="checkbox"/>	158869	50.0000	0.9567

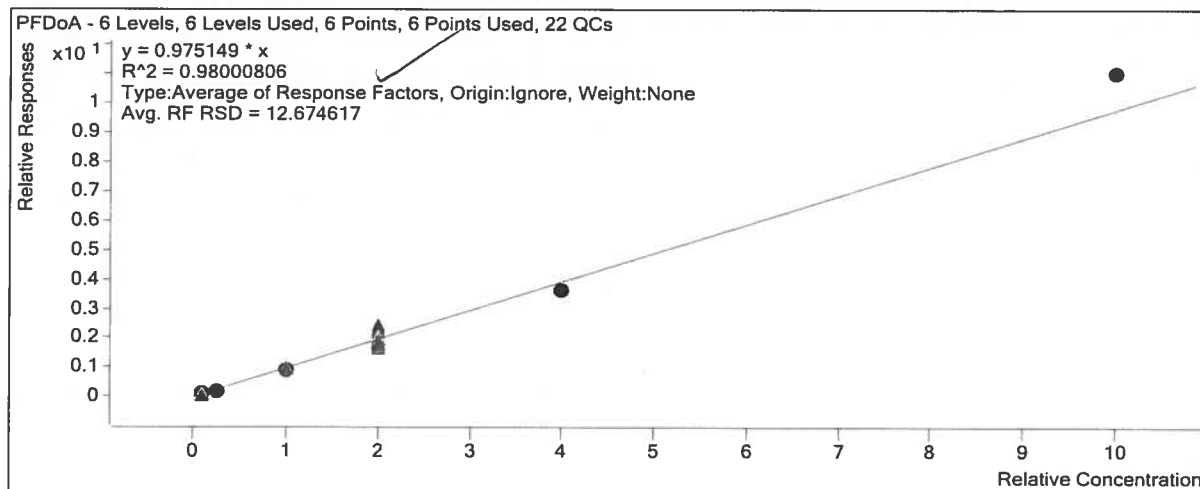


Extracted ISTD

M7PFUnA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2210405ACAL\2210405A_04.d	Calibration	1	<input checked="" type="checkbox"/>	17516	5.0000	3503.2944

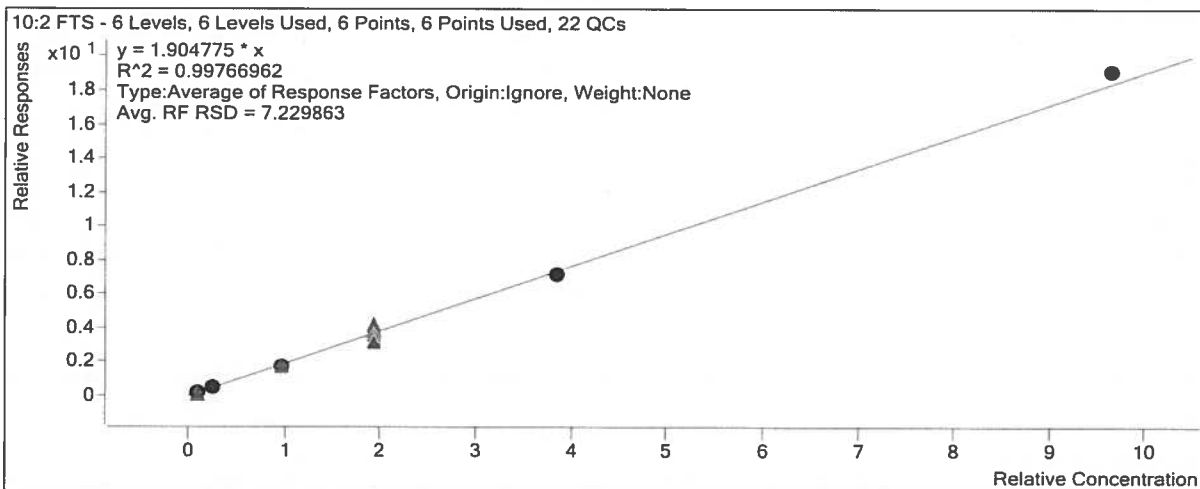
Quantitative Analysis Calibration Report



Target Compound

10:2 FTS

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2210405ACAL\2210405A_04.d	Calibration	1	<input checked="" type="checkbox"/>	1163	0.4820	1.8134
D:\MassHunter\Data\2210405ACAL\2210405A_05.d	Calibration	2	<input checked="" type="checkbox"/>	3230	1.2050	2.1493
D:\MassHunter\Data\2210405ACAL\2210405A_06.d	Calibration	3	<input checked="" type="checkbox"/>	11579	4.8200	1.8454
D:\MassHunter\Data\2210405ACAL\2210405A_07.d	Calibration	4	<input checked="" type="checkbox"/>	22548	9.6400	1.7785
D:\MassHunter\Data\2210405ACAL\2210405A_08.d	Calibration	5	<input checked="" type="checkbox"/>	47807	19.2800	1.8632
D:\MassHunter\Data\2210405ACAL\2210405A_09.d	Calibration	6	<input checked="" type="checkbox"/>	116589	48.2000	1.9789



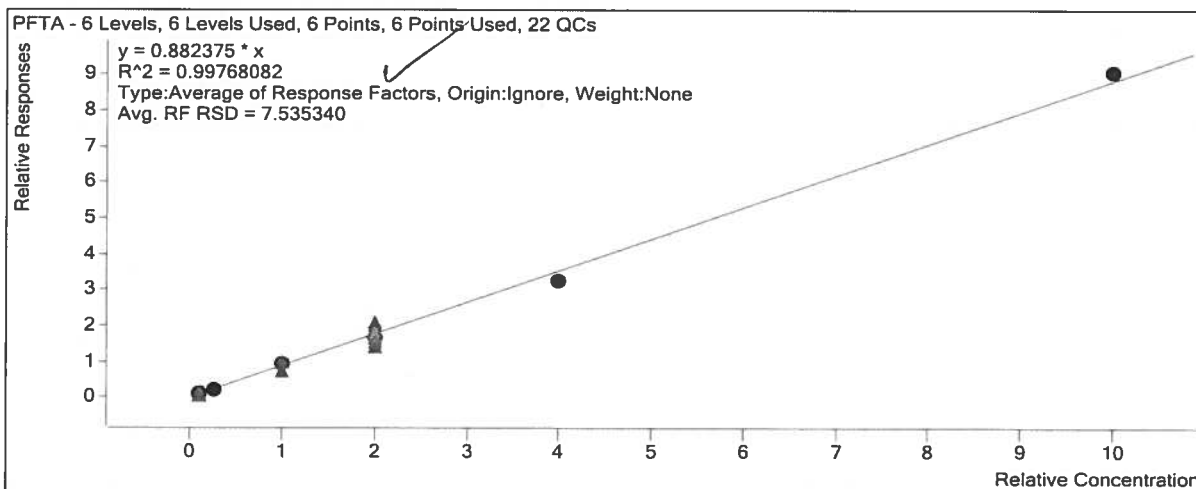
Extracted ISTD

d-NMeFOSA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2210405ACAL\2210405A_04.d	Calibration	1	<input checked="" type="checkbox"/>	8081	5.0000	1616.1769

Quantitative Analysis Calibration Report

D:\MassHunter\Data\2210405ACAL\2210405A_05.d	Calibration	2	<input checked="" type="checkbox"/>	1829	1.2500	0.8229
D:\MassHunter\Data\2210405ACAL\2210405A_06.d	Calibration	3	<input checked="" type="checkbox"/>	7211	5.0000	0.9318
D:\MassHunter\Data\2210405ACAL\2210405A_07.d	Calibration	4	<input checked="" type="checkbox"/>	14238	10.0000	0.8415
D:\MassHunter\Data\2210405ACAL\2210405A_08.d	Calibration	5	<input checked="" type="checkbox"/>	29289	20.0000	0.8143
D:\MassHunter\Data\2210405ACAL\2210405A_09.d	Calibration	6	<input checked="" type="checkbox"/>	77194	50.0000	0.9047



Extracted ISTD

M2PFHxDA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2210405ACAL\2210405A_04.d	Calibration	1	<input checked="" type="checkbox"/>	8616	5.0000	1723.1006
D:\MassHunter\Data\2210405ACAL\2210405A_05.d	Calibration	2	<input checked="" type="checkbox"/>	8457	5.0000	1691.3806
D:\MassHunter\Data\2210405ACAL\2210405A_06.d	Calibration	3	<input checked="" type="checkbox"/>	8280	5.0000	1656.0102
D:\MassHunter\Data\2210405ACAL\2210405A_07.d	Calibration	4	<input checked="" type="checkbox"/>	8320	5.0000	1663.9500
D:\MassHunter\Data\2210405ACAL\2210405A_08.d	Calibration	5	<input checked="" type="checkbox"/>	8529	5.0000	1705.8880
D:\MassHunter\Data\2210405ACAL\2210405A_09.d	Calibration	6	<input checked="" type="checkbox"/>	8314	5.0000	1662.7216

Target Compound

PFHxDA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2210405ACAL\2210405A_04.d	Calibration	1	<input checked="" type="checkbox"/>	1259	0.5000	1.4616
D:\MassHunter\Data\2210405ACAL\2210405A_05.d	Calibration	2	<input checked="" type="checkbox"/>	2182	1.2500	1.0320
D:\MassHunter\Data\2210405ACAL\2210405A_06.d	Calibration	3	<input checked="" type="checkbox"/>	7633	5.0000	0.9218
D:\MassHunter\Data\2210405ACAL\2210405A_07.d	Calibration	4	<input checked="" type="checkbox"/>	15144	10.0000	0.9101
D:\MassHunter\Data\2210405ACAL\2210405A_08.d	Calibration	5	<input checked="" type="checkbox"/>	29270	20.0000	0.8579
D:\MassHunter\Data\2210405ACAL\2210405A_09.d	Calibration	6	<input checked="" type="checkbox"/>	73417	50.0000	0.8831

7E
ORGANICS CALIBRATION VERIFICATION

Report No:	221032903	Instrument ID:	QQQ2
Analysis Date:	04/05/2021 16:20	Lab File ID:	2210405A_24.d
Analytical Method:	EPA 537 Mod Isotope Dilution	Analytical Batch:	707851

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomersulfonic acid	ng/L	9510	9270	97 ✓	70	130	
8:2 Fluorotelomersulfonic acid	ng/L	9600	9310	97	70	130	
NEtFOSAA	ng/L	10000	10900	109	70	130	
NMeFOSAA	ng/L	10000	10100	101	70	130	
Perfluorobutanoic acid	ng/L	10000	9500	95	70	130	
Perfluorobutanesulfonic acid	ng/L	8870	8630	97	70	130	
Perfluorodecanoic acid	ng/L	10000	9310	93	70	130	
Perfluorododecanoic acid	ng/L	10000	9970	100	70	130	
Perfluoroheptanoic acid	ng/L	10000	9670	97	70	130	
Perfluorohexanoic acid	ng/L	10000	9770	98	70	130	
Perfluorohexanesulfonic acid	ng/L	9140	8730	96	70	130	
Perfluorononanoic acid	ng/L	10000	10100	101	70	130	
Perfluorooctanoic acid	ng/L	10000	9800	98	70	130	
Perfluorooctanesulfonic acid	ng/L	9280	9380	101	70	130	
Perfluoropentanoic acid	ng/L	10000	9730	97	70	130	
Perfluorotetradecanoic acid	ng/L	10000	7990	80	70	130	
Perfluorotridecanoic acid	ng/L	10000	10100	101	70	130	
Perfluoroundecanoic acid	ng/L	10000	9560	96	70	130	

FORM 7E - ORG

7E
ORGANICS CALIBRATION VERIFICATION

Report No:	221032903	Instrument ID:	QQQ2
Analysis Date:	04/05/2021 19:11	Lab File ID:	2210405A_37.d
Analytical Method:	EPA 537 Mod Isotope Dilution	Analytical Batch:	707851

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomersulfonic acid	ng/L	9510	8990	95 ✓	70	130	
8:2 Fluorotelomersulfonic acid	ng/L	9600	9030	94	70	130	
NEtFOSAA	ng/L	10000	10100	101	70	130	
NMeFOSAA	ng/L	10000	8580	86	70	130	
Perfluorobutanoic acid	ng/L	10000	9640	96	70	130	
Perfluorobutanesulfonic acid	ng/L	8870	8350	94	70	130	
Perfluorodecanoic acid	ng/L	10000	9300	93	70	130	
Perfluorododecanoic acid	ng/L	10000	9900	99	70	130	
Perfluoroheptanoic acid	ng/L	10000	9950	100	70	130	
Perfluorohexanoic acid	ng/L	10000	9200	92	70	130	
Perfluorohexanesulfonic acid	ng/L	9140	8990	98	70	130	
Perfluorononanoic acid	ng/L	10000	10300	103	70	130	
Perfluorooctanoic acid	ng/L	10000	9520	95	70	130	
Perfluorooctanesulfonic acid	ng/L	9280	9310	100	70	130	
Perfluoropentanoic acid	ng/L	10000	9790	98	70	130	
Perfluorotetradecanoic acid	ng/L	10000	9960	100	70	130	
Perfluorotridecanoic acid	ng/L	10000	10200	102	70	130	
Perfluoroundecanoic acid	ng/L	10000	9390	94	70	130	

FORM 7E - ORG

INJECTION INTERNAL STANDARD AREA SUMMARY

Report No:	221032903	Standard ID:	1205 (ICAL Midpoint)
Analyst:	MRA	Instrument ID:	QQQ2
Analysis Date:	04/05/21 11:47	Lab File ID:	2210405A_08.d
Analytical Method:	PFAS Isotope Dilution QSM B15	Analytical Batch:	707851

	M2PFDA	M2PFHxA	M2PFOA	M4PFOS
	Area	Area	Area	Area
STANDARD	25381	197228	77334	75716

CLIENT SAMPLE ID	LAB SAMP ID	✓	#	✓	#	✓	#	✓	#
MB2162464RE	2162464RE	24379		181590		77454		68644	
LCS2162465RE	2162465RE	26944		216165		92194		80539	
WL-DECON-01RE	22103290301RE	22804		180679		79855		67330	

AREA UPPER LIMIT = +50% of internal standard area

AREA LOWER LIMIT = -50% of internal standard area

Column used to flag values outside QC limits

* Value outside QC limits

Instrument: QQQ3 HBN: 711273
Batch: 2210515A
Current ICAL Bath: 2210510ACAL
20mM Amm Acetate 016-74-3 5/17/2021
Methanol 2130147 6/30/2025
Calibration Std 016-68-2 8/24/2021
ICV Std 016-21-3 8/2/2021
EIS Mix 016-69-7 10/23/2021
IIS Mix 016-69-5 11/10/2021

Name	Data File	Type	Acq. Date-Time	Comment	Dil.
IB	2210510A_01.d	Sample	5/10/2021 14:35	RXJ,QQQ3;Instrument Blank/Instrument Idle	1
1204RT TEST	2210510A_02.d	Sample	5/10/2021 14:50	RXJ;QQQ3; RT TEST	1
1204RT TEST	2210510A_03.d	Sample	5/10/2021 15:08	RXJ;QQQ3; RT TEST	1
IB	2210510A_04.d	Sample	5/10/2021 15:31	RXJ,QQQ3;Instrument Blank/Instrument Idle	1
1201	2210510A_05.d	Cal	5/10/2021 15:45	RXJ;QQQ3; ICAL	1
1202	2210510A_06.d	Cal	5/10/2021 16:00	RXJ;QQQ3; ICAL	1
1203	2210510A_07.d	Cal	5/10/2021 16:15	RXJ;QQQ3; ICAL	1
1204	2210510A_08.d	Cal	5/10/2021 16:29	RXJ;QQQ3; ICAL	1
1205	2210510A_09.d	Cal	5/10/2021 16:44	RXJ;QQQ3; ICAL	1
1206	2210510A_10.d	Cal	5/10/2021 16:58	RXJ;QQQ3; ICAL	1
IB	2210510A_11.d	Sample	5/10/2021 17:22	RXJ,QQQ3;Instrument Blank/Instrument Idle	1
1500	2210510A_12.d	Blank	5/10/2021 17:36	RXJ;QQQ3; BLANK	1
1600	2210510A_13.d	Sample	5/10/2021 17:51	RXJ;QQQ3;ICV	1
1450	2210510A_14.d	QC	5/10/2021 18:06	RXJ,QQQ3;CCV	1
1500	2210515A_01.d	Blank	5/15/2021 11:14	MRA,QQQ3, DOD Blank	1
1450	2210515A_02.d	QC	5/15/2021 11:28	MRA,QQQ3, DOD CCV	1
1204 TEST	2210515A_03.d	QC	5/15/2021 11:43	MRA,QQQ3,Test	1
2184604	2210515A_04.d	Sample	5/15/2021 13:39	MRA,QQQ3,710894 RR	1
2184605	2210515A_05.d	QC	5/15/2021 13:53	MRA,QQQ3,710894 RR	1
22104244003	2210515A_06.d	Sample	5/15/2021 14:08	MRA,QQQ3,710894 RR	1
22104244006	2210515A_07.d	Sample	5/15/2021 14:23	MRA,QQQ3,710894 RR	1
22104244009	2210515A_08.d	Sample	5/15/2021 14:37	MRA,QQQ3,710894 RR	1
22104303601	2210515A_09.d	Sample	5/15/2021 14:52	MRA,QQQ3,710894 RR	1

22104303602	2210515A_10.d	Sample	5/15/2021 15:07	MRA,QQQ3,710894 RR	1
22105082901	2210515A_11.d	Sample	5/15/2021 15:21	MRA,QQQ3,710894 RR	1
22104292901 10x	2210515A_12.d	Sample	5/15/2021 15:36	MRA,QQQ3,709960 RR	10
22104300610 5x	2210515A_13.d	Sample	5/15/2021 15:50	MRA,QQQ3,709960 RR	5
22104303117	2210515A_14.d	Sample	5/15/2021 16:05	MRA,QQQ3,709960 RR	1
22105041139 5x	2210515A_15.d	Sample	5/15/2021 16:20	MRA,QQQ3,709960 RR	5
1400	2210515A_16.d	QC	5/15/2021 16:34	MRA,QQQ3, DOD CCV	1
22105041140 10x	2210515A_17.d	Sample	5/15/2021 16:49	MRA,QQQ3,709960 RR	10
22105041141 5x	2210515A_18.d	Sample	5/15/2021 17:03	MRA,QQQ3,709960 RR	5
22105041142 10x	2210515A_19.d	Sample	5/15/2021 17:18	MRA,QQQ3,709960 RR	10
2181401	2210515A_20.d	Sample	5/15/2021 17:33	MRA,QQQ3,710325	1
2181402	2210515A_21.d	QC	5/15/2021 17:47	MRA,QQQ3,710325	1
2181403	2210515A_22.d	QC	5/15/2021 18:02	MRA,QQQ3,710325	1
22104242917 20x	2210515A_23.d	Sample	5/15/2021 18:17	MRA,QQQ3,710325	20
22104242917 1x	2210515A_24.d	Sample	5/15/2021 18:31	MRA,QQQ3,710325	1
22104242928	2210515A_25.d	Sample	5/15/2021 18:46	MRA,QQQ3,710325	1
22104281801 10x	2210515A_26.d	Sample	5/15/2021 19:00	MRA,QQQ3,710894 RR	10
22104281802 10x	2210515A_27.d	Sample	5/15/2021 19:15	MRA,QQQ3,710894 RR	10
22104281803 10x	2210515A_28.d	Sample	5/15/2021 19:30	MRA,QQQ3,710894 RR	10
22104281804 10x	2210515A_29.d	Sample	5/15/2021 19:44	MRA,QQQ3,710894 RR	10
22104281808 10x	2210515A_33.d	Sample	5/15/2021 19:59	MRA,QQQ3,710894 RR	10
2183946	2210515A_34.d	Sample	5/15/2021 20:13	MRA,QQQ3,710742	1
2183947	2210515A_35.d	QC	5/15/2021 20:28	MRA,QQQ3,710742	1
2183948	2210515A_36.d	QC	5/15/2021 20:43	MRA,QQQ3,710742	1
22105041101	2210515A_37.d	Sample	5/15/2021 20:57	MRA,QQQ3,710742	1
22105041102	2210515A_38.d	Sample	5/15/2021 21:12	MRA,QQQ3,710742	1
22105041103	2210515A_39.d	Sample	5/15/2021 21:26	MRA,QQQ3,710742	1
22105041104	2210515A_40.d	Sample	5/15/2021 21:41	MRA,QQQ3,710742	1
22105041127	2210515A_41.d	Sample	5/15/2021 21:56	MRA,QQQ3,710742	1
22105041128	2210515A_42.d	Sample	5/15/2021 22:10	MRA,QQQ3,710742	1
22105041129	2210515A_43.d	Sample	5/15/2021 22:25	MRA,QQQ3,710742	1
22105041130	2210515A_45.d	Sample	5/15/2021 22:39	MRA,QQQ3,710742	1
22104306027 5x	2210515A_48.d	Sample	5/15/2021 22:54	MRA,QQQ3,710742	5
22104306027 1x	2210515A_49.d	Sample	5/15/2021 23:09	MRA,QQQ3,710742	1

22104306028 5x	2210515A_50.d	Sample	5/15/2021 23:23	MRA,QQQ3,710742	5
22104306028 1x	2210515A_51.d	Sample	5/15/2021 23:38	MRA,QQQ3,710742	1
22104306110	2210515A_54.d	Sample	5/15/2021 23:52	MRA,QQQ3,710742	1
1400	2210515A_55.d	QC	5/16/2021 0:07	MRA,QQQ3, DOD CCV	1
22104306113	2210515A_58.d	Sample	5/16/2021 0:22	MRA,QQQ3,710742	1
22104306114	2210515A_59.d	Sample	5/16/2021 0:37	MRA,QQQ3,710742	1
22104306116	2210515A_61.d	Sample	5/16/2021 0:52	MRA,QQQ3,710742	1
22104306201	2210515A_62.d	Sample	5/16/2021 1:06	MRA,QQQ3,710742	1
22104283105	2210515A_63.d	Sample	5/16/2021 1:21	MRA,QQQ3,710145 RR	1
22104283108 5x	2210515A_64.d	Sample	5/16/2021 1:36	MRA,QQQ3,710145 RR	5
22104283109 20x	2210515A_65.d	Sample	5/16/2021 1:50	MRA,QQQ3,710145 RR	20
22104283110 20x	2210515A_67.d	Sample	5/16/2021 2:05	MRA,QQQ3,710145 RR	20
22104274610 5x	2210515A_68.d	Sample	5/16/2021 2:19	MRA,QQQ3,710836 RR	5
22104274610 1x	2210515A_69.d	Sample	5/16/2021 2:34	MRA,QQQ3,710836 RR	1
22104274619	2210515A_70.d	Sample	5/16/2021 2:49	MRA,QQQ3,710836 RR	1
22104274601 50x	2210515A_71.d	Sample	5/16/2021 3:03	MRA,QQQ3,710836 RR	50
22104274601 1x	2210515A_72.d	Sample	5/16/2021 3:18	MRA,QQQ3,710836 RR	1
IB	2210515A_73.d	Blank	5/16/2021 3:32	RXJ,QQQ3;Instrument Blank/Instrument Idle	1
22104274602 50x	2210515A_74.d	Sample	5/16/2021 3:47	MRA,QQQ3,710836 RR	50
22104274602 1x	2210515A_75.d	Sample	5/16/2021 4:02	MRA,QQQ3,710836 RR	1
22104274603 50x	2210515A_77.d	Sample	5/16/2021 4:16	MRA,QQQ3,710836 RR	50
22104274603 1x	2210515A_78.d	Sample	5/16/2021 4:31	MRA,QQQ3,710836 RR	1
IB	2210515A_79.d	Blank	5/16/2021 4:45	RXJ,QQQ3;Instrument Blank/Instrument Idle	1
1400	2210515A_80.d	QC	5/16/2021 5:00	MRA,QQQ3, DOD CCV	1
2185559	2210515A_81.d	Sample	5/16/2021 5:15	MRA,QQQ3,711042	1
2185560	2210515A_82.d	QC	5/16/2021 5:30	MRA,QQQ3,711042	1
2185561	2210515A_83.d	QC	5/16/2021 5:44	MRA,QQQ3,711042	1
22104300604	2210515A_84.d	Sample	5/16/2021 5:59	MRA,QQQ3,711042	1
22104306301	2210515A_85.d	Sample	5/16/2021 6:14	MRA,QQQ3,711042	1
22104306302	2210515A_86.d	Sample	5/16/2021 6:28	MRA,QQQ3,711042	1
22104306303	2210515A_87.d	Sample	5/16/2021 6:43	MRA,QQQ3,711042	1
22105010915	2210515A_88.d	Sample	5/16/2021 6:57	MRA,QQQ3,711042	1
22105011117	2210515A_89.d	Sample	5/16/2021 7:12	MRA,QQQ3,711042	1
22105052610	2210515A_90.d	Sample	5/16/2021 7:27	MRA,QQQ3,711042	1

22105052611	2210515A_91.d	Sample	5/16/2021 7:41	MRA,QQQ3,711042	1
22105052612	2210515A_92.d	Sample	5/16/2021 7:56	MRA,QQQ3,711042	1
22105052613	2210515A_93.d	Sample	5/16/2021 8:11	MRA,QQQ3,711042	1
1400	2210515A_94.d	QC	5/16/2021 8:25	MRA,QQQ3, DOD CCV	1
22105052614	2210515A_95.d	Sample	5/16/2021 8:30	MRA,QQQ3,711042	1
22105052615	2210515A_96.d	Sample	5/16/2021 8:44	MRA,QQQ3,711042	1
22105052616	2210515A_97.d	Sample	5/16/2021 8:59	MRA,QQQ3,711042	1
22105052617	2210515A_98.d	Sample	5/16/2021 9:14	MRA,QQQ3,711042	1
22105052618	2210515A_99.d	Sample	5/16/2021 9:28	MRA,QQQ3,711042	1
22105052619	2210515A_100.d	Sample	5/16/2021 9:43	MRA,QQQ3,711042	1
22105052620	2210515A_101.d	Sample	5/16/2021 9:57	MRA,QQQ3,711042	1
22105052621	2210515A_102.d	QC	5/16/2021 10:12	MRA,QQQ3,711042	1
22105052622	2210515A_103.d	QC	5/16/2021 10:27	MRA,QQQ3,711042	1
22105052623	2210515A_104.d	Sample	5/16/2021 10:41	MRA,QQQ3,711042	1
22105052624	2210515A_105.d	Sample	5/16/2021 10:56	MRA,QQQ3,711042	1
22105052625	2210515A_106.d	Sample	5/16/2021 11:11	MRA,QQQ3,711042	1
1400	2210515A_107.d	QC	5/16/2021 11:25	MRA,QQQ3, DOD CCV	1
IB	2210515A_108.d	Blank	5/16/2021 11:30	RXJ,QQQ3;Instrument Blank/Instrument Idle	1
IB	2210515A_109.d	Blank	5/16/2021 11:44	RXJ,QQQ3;Instrument Blank/Instrument Idle	1

ORGANICS INITIAL CALIBRATION VERIFICATION

Report No:	221050411	Instrument ID:	QQQ3
Analysis Date:	05/10/2021 15:51	Lab File ID:	2210510A_13.d
Analytical Method:	EPA 537 Mod Isotope Dilution	Analytical Batch:	710792

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomersulfonic acid	ng/L	10000	8840	88 ✓	70	130	
8:2 Fluorotelomersulfonic acid	ng/L	10100	9190	91	70	130	
NEtFOSAA	ng/L	10000	9300	93	70	130	
NMeFOSAA	ng/L	10000	8470	85	70	130	
Perfluorobutanoic acid	ng/L	10000	8990	90	70	130	
Perfluorobutanesulfonic acid	ng/L	10000	8950	90	70	130	
Perfluorodecanoic acid	ng/L	10000	9600	96	70	130	
Perfluorododecanoic acid	ng/L	10000	9020	90	70	130	
Perfluoroheptanoic acid	ng/L	10000	9200	92	70	130	
Perfluorohexanoic acid	ng/L	10100	9220	91	70	130	
Perfluorohexanesulfonic acid	ng/L	10000	9200	92	70	130	
Perfluorononanoic acid	ng/L	10000	10200	102	70	130	
Perfluorooctanoic acid	ng/L	10100	9350	93	70	130	
Perfluorooctanesulfonic acid	ng/L	10000	8030	80	70	130	
Perfluoropentanoic acid	ng/L	10100	9110	90	70	130	
Perfluorotetradecanoic acid	ng/L	10000	10500	105	70	130	
Perfluorotridecanoic acid	ng/L	10000	8360	84	70	130	
Perfluoroundecanoic acid	ng/L	10000	9200	92	70	130	

FORM 6I - ORG

ORGANICS INSTRUMENT SENSITIVITY CHECK

Report No:	<u>221050411</u>	Instrument ID:	<u>QQQ3</u>
Analysis Date:	<u>05/15/2021 09:28</u>	Lab File ID:	<u>2210515A_02.d</u>
Analytical Method:	<u>EPA 537 Mod Isotope Dilution</u>	Analytical Batch:	<u>711273</u>

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomersulfonic acid	ng/L	3.81	3.95	104 ✓	70	130	
8:2 Fluorotelomersulfonic acid	ng/L	3.84	4.29	112	70	130	
NEtFOSAA	ng/L	4.00	4.12	103	70	130	
NMeFOSAA	ng/L	4.00	4.10	103	70	130	
Perfluorobutanoic acid	ng/L	4.00	4.32	108	70	130	
Perfluorobutanesulfonic acid	ng/L	3.55	3.75	106	70	130	
Perfluorodecanoic acid	ng/L	4.00	4.17	104	70	130	
Perfluorododecanoic acid	ng/L	4.00	4.25	106	70	130	
Perfluoroheptanoic acid	ng/L	4.00	4.09	102	70	130	
Perfluorohexanoic acid	ng/L	4.00	4.47	112	70	130	
Perfluorohexanesulfonic acid	ng/L	3.66	3.90	106	70	130	
Perfluorononanoic acid	ng/L	4.00	4.14	103	70	130	
Perfluorooctanoic acid	ng/L	4.00	4.29	107	70	130	
Perfluorooctanesulfonic acid	ng/L	3.71	4.06	109	70	130	
Perfluoropentanoic acid	ng/L	4.00	4.14	104	70	130	
Perfluorotetradecanoic acid	ng/L	4.00	4.38	110	70	130	
Perfluorotridecanoic acid	ng/L	4.00	4.19	105	70	130	
Perfluoroundecanoic acid	ng/L	4.00	4.14	104	70	130	

ORGANICS INSTRUMENT BLANK

Report No:	221050411	Instrument ID:	QQQ3
Analysis Date:	05/10/2021 15:36	Lab File ID:	2210510A_12.d
Analytical Method:	EPA 537 Mod Isotope Dilution	Analytical Batch:	711161

ANALYTE	UNITS	RESULT	Q	DL	LOD	LOQ	#
6:2 Fluorotelomersulfonic acid	ng/L	2.00	U	0.94	2.00	4.00	
8:2 Fluorotelomersulfonic acid	ng/L	2.00	U	0.90	2.00	4.00	
NEtFOSAA	ng/L	4.00	U	0.97	4.00	8.00	
NMeFOSAA	ng/L	4.00	U	0.90	4.00	8.00	
Perfluorobutanesulfonic acid	ng/L	2.00	U	0.62	2.00	4.00	
Perfluorobutanoic acid	ng/L	1.03	J	0.90	2.00	4.00	
Perfluorodecanoic acid	ng/L	2.00	U	0.86	2.00	4.00	
Perfluorododecanoic acid	ng/L	2.00	U	0.88	2.00	4.00	
Perfluoroheptanoic acid	ng/L	2.00	U	0.48	2.00	4.00	
Perfluorohexanesulfonic acid	ng/L	2.00	U	0.95	2.00	4.00	
Perfluorohexanoic acid	ng/L	2.00	U	0.94	2.00	4.00	
Perfluorononanoic acid	ng/L	2.00	U	0.78	2.00	4.00	
Perfluorooctanesulfonic acid	ng/L	2.00	U	0.76	2.00	4.00	
Perfluorooctanoic acid	ng/L	2.00	U	0.84	2.00	4.00	
Perfluoropentanoic acid	ng/L	2.00	U	0.85	2.00	4.00	
Perfluorotetradecanoic acid	ng/L	2.00	U	0.98	2.00	4.00	
Perfluorotridecanoic acid	ng/L	2.00	U	0.99	2.00	4.00	
Perfluoroundecanoic acid	ng/L	2.00	U	0.95	2.00	4.00	

* - Result greater than 1/2 LOQ

ORGANICS INSTRUMENT BLANK

Report No:	221050411	Instrument ID:	QQQ3
Analysis Date:	05/15/2021 09:14	Lab File ID:	2210515A_01.d
Analytical Method:	EPA 537 Mod Isotope Dilution	Analytical Batch:	711273

ANALYTE	UNITS	RESULT	Q	DL	LOD	LOQ	#
6:2 Fluorotelomersulfonic acid	ng/L	2.00	U	0.94	2.00	4.00	
8:2 Fluorotelomersulfonic acid	ng/L	2.00	U	0.90	2.00	4.00	
NEtFOSAA	ng/L	4.00	U	0.97	4.00	8.00	
NMeFOSAA	ng/L	4.00	U	0.90	4.00	8.00	
Perfluorobutanesulfonic acid	ng/L	2.00	U	0.62	2.00	4.00	
Perfluorobutanoic acid	ng/L	2.00	U	0.90	2.00	4.00	
Perfluorodecanoic acid	ng/L	2.00	U	0.86	2.00	4.00	
Perfluorododecanoic acid	ng/L	2.00	U	0.88	2.00	4.00	
Perfluoroheptanoic acid	ng/L	2.00	U	0.48	2.00	4.00	
Perfluorohexanesulfonic acid	ng/L	2.00	U	0.95	2.00	4.00	
Perfluorohexanoic acid	ng/L	2.00	U	0.94	2.00	4.00	
Perfluorononanoic acid	ng/L	2.00	U	0.78	2.00	4.00	
Perfluorooctanesulfonic acid	ng/L	2.00	U	0.76	2.00	4.00	
Perfluorooctanoic acid	ng/L	2.00	U	0.84	2.00	4.00	
Perfluoropentanoic acid	ng/L	2.00	U	0.85	2.00	4.00	
Perfluorotetradecanoic acid	ng/L	2.00	U	0.98	2.00	4.00	
Perfluorotridecanoic acid	ng/L	2.00	U	0.99	2.00	4.00	
Perfluoroundecanoic acid	ng/L	2.00	U	0.95	2.00	4.00	

* - Result greater than 1/2 LOQ

ORGANICS INSTRUMENT BLANK

Report No:	221050411	Instrument ID:	QQQ3
Analysis Date:	05/10/2021 15:36	Lab File ID:	2210510A_12.d
Analytical Method:	EPA 537 Mod Isotope Dilution	Analytical Batch:	711477

ANALYTE	UNITS	RESULT	Q	DL	LOD	LOQ	#
6:2 Fluorotelomersulfonic acid	ng/L	2.00	U	0.94	2.00	4.00	
8:2 Fluorotelomersulfonic acid	ng/L	2.00	U	0.90	2.00	4.00	
NEtFOSAA	ng/L	4.00	U	0.97	4.00	8.00	
NMeFOSAA	ng/L	4.00	U	0.90	4.00	8.00	
Perfluorobutanesulfonic acid	ng/L	2.00	U	0.62	2.00	4.00	
Perfluorobutanoic acid	ng/L	1.03	J	0.90	2.00	4.00	
Perfluorodecanoic acid	ng/L	2.00	U	0.86	2.00	4.00	
Perfluorododecanoic acid	ng/L	2.00	U	0.88	2.00	4.00	
Perfluoroheptanoic acid	ng/L	2.00	U	0.48	2.00	4.00	
Perfluorohexanesulfonic acid	ng/L	2.00	U	0.95	2.00	4.00	
Perfluorohexanoic acid	ng/L	2.00	U	0.94	2.00	4.00	
Perfluorononanoic acid	ng/L	2.00	U	0.78	2.00	4.00	
Perfluorooctanesulfonic acid	ng/L	2.00	U	0.76	2.00	4.00	
Perfluorooctanoic acid	ng/L	2.00	U	0.84	2.00	4.00	
Perfluoropentanoic acid	ng/L	2.00	U	0.85	2.00	4.00	
Perfluorotetradecanoic acid	ng/L	2.00	U	0.98	2.00	4.00	
Perfluorotridecanoic acid	ng/L	2.00	U	0.99	2.00	4.00	
Perfluoroundecanoic acid	ng/L	2.00	U	0.95	2.00	4.00	

* - Result greater than 1/2 LOQ

Quantitative Analysis Calibration Report

Batch Data Path H:\MassHunter\Data\2210515ACAL\QuantResults\2210515A.batch.bin
Analysis Time 5/18/2021 11:27 AM Analyst Name GCAL\rxj
Report Time 5/18/2021 4:39 PM Reporter Name GCAL\lcms
Last Calib Update 5/17/2021 2:36 PM Batch State Processed

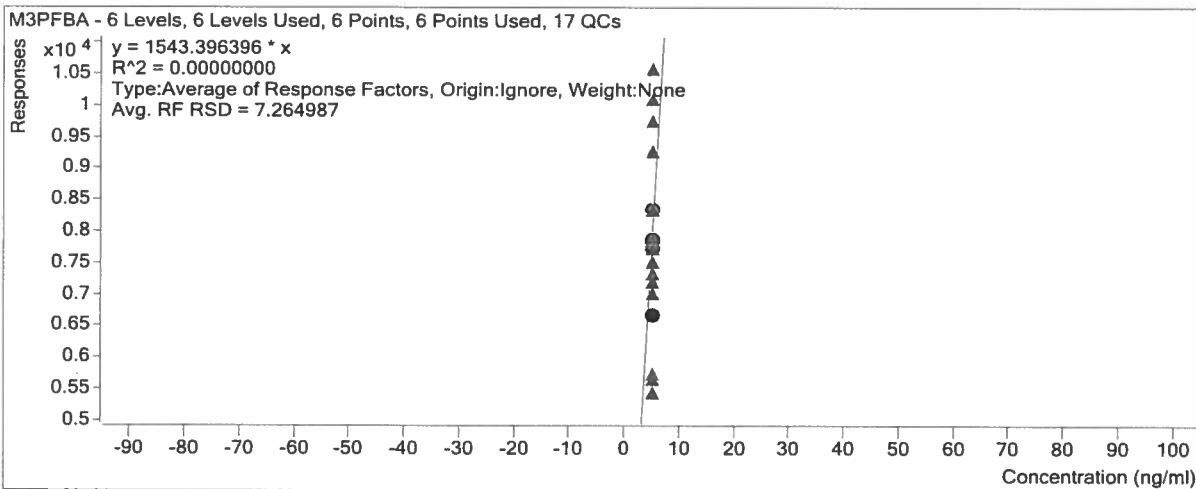
Calibration Info

Extracted *ISTD* MPFBA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
T:\MassHunter\Data\2210515ACAL\2210515A_02.d	Calibration	1	<input checked="" type="checkbox"/>	75337	5.0000	15067.3302
T:\MassHunter\Data\2210515ACAL\2210515A_03.d	Calibration	2	<input checked="" type="checkbox"/>	84442	5.0000	16888.4925
T:\MassHunter\Data\2210515ACAL\2210515A_04.d	Calibration	3	<input checked="" type="checkbox"/>	78385	5.0000	15676.9342
T:\MassHunter\Data\2210515ACAL\2210515A_05.d	Calibration	4	<input checked="" type="checkbox"/>	69105	5.0000	13821.0635
T:\MassHunter\Data\2210515ACAL\2210515A_06.d	Calibration	5	<input checked="" type="checkbox"/>	81068	5.0000	16213.5074
T:\MassHunter\Data\2210515ACAL\2210515A_07.d	Calibration	6	<input checked="" type="checkbox"/>	76566	5.0000	15313.2571

Instrument *ISTD* M3PFBA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
T:\MassHunter\Data\2210515ACAL\2210515A_02.d	Calibration	1	<input checked="" type="checkbox"/>	7724	5.0000	1544.8344
T:\MassHunter\Data\2210515ACAL\2210515A_03.d	Calibration	2	<input checked="" type="checkbox"/>	8351	5.0000	1670.1256
T:\MassHunter\Data\2210515ACAL\2210515A_04.d	Calibration	3	<input checked="" type="checkbox"/>	7850	5.0000	1570.0364
T:\MassHunter\Data\2210515ACAL\2210515A_05.d	Calibration	4	<input checked="" type="checkbox"/>	6662	5.0000	1332.4172
T:\MassHunter\Data\2210515ACAL\2210515A_06.d	Calibration	5	<input checked="" type="checkbox"/>	7861	5.0000	1572.1979
T:\MassHunter\Data\2210515ACAL\2210515A_07.d	Calibration	6	<input checked="" type="checkbox"/>	7854	5.0000	1570.7668

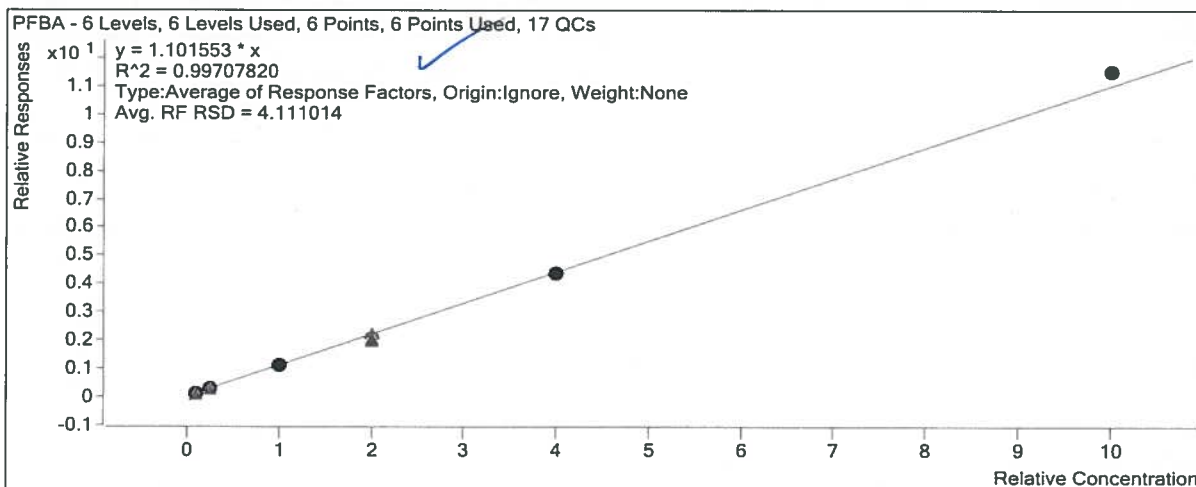


Target Compound

PFBA

Quantitative Analysis Calibration Report

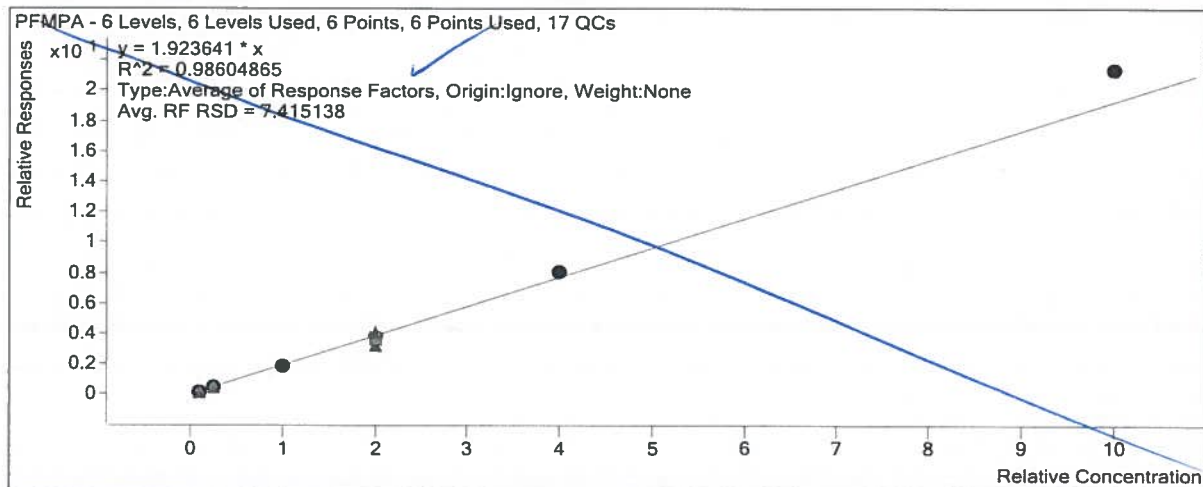
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
T:\MassHunter\Data\2210515ACAL\2210515A_07.d	Calibration	6	<input checked="" type="checkbox"/>	882292	50.0000	1.1523



Target Compound

PFMPA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
T:\MassHunter\Data\2210515ACAL\2210515A_02.d	Calibration	1	<input checked="" type="checkbox"/>	5931	0.5000	1.7447
T:\MassHunter\Data\2210515ACAL\2210515A_03.d	Calibration	2	<input checked="" type="checkbox"/>	16440	1.2500	1.8042
T:\MassHunter\Data\2210515ACAL\2210515A_04.d	Calibration	3	<input checked="" type="checkbox"/>	66236	5.0000	1.9435
T:\MassHunter\Data\2210515ACAL\2210515A_05.d	Calibration	4	<input checked="" type="checkbox"/>	113582	10.0000	1.8914
T:\MassHunter\Data\2210515ACAL\2210515A_06.d	Calibration	5	<input checked="" type="checkbox"/>	282600	20.0000	2.0253
T:\MassHunter\Data\2210515ACAL\2210515A_07.d	Calibration	6	<input checked="" type="checkbox"/>	704142	50.0000	2.1327



Extracted ISTD

M5PFPeA

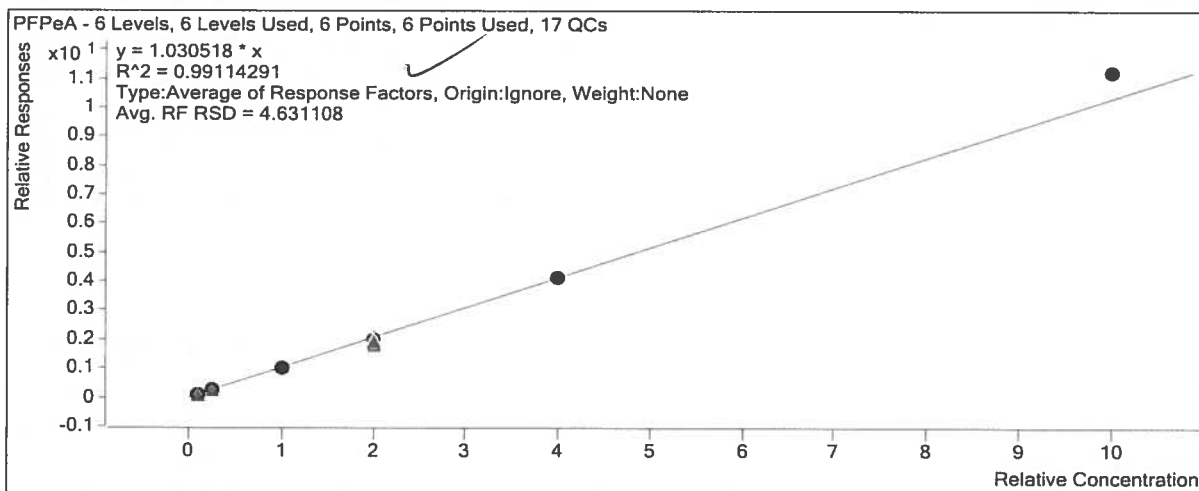
Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
T:\MassHunter\Data\2210515ACAL\2210515A_06.d	Calibration	5	<input checked="" type="checkbox"/>	34884	5.0000	6976.7636
T:\MassHunter\Data\2210515ACAL\2210515A_07.d	Calibration	6	<input checked="" type="checkbox"/>	33017	5.0000	6603.4234

Target Compound

PFPeA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
T:\MassHunter\Data\2210515ACAL\2210515A_02.d	Calibration	1	<input checked="" type="checkbox"/>	3487	0.5000	1.0258
T:\MassHunter\Data\2210515ACAL\2210515A_03.d	Calibration	2	<input checked="" type="checkbox"/>	9361	1.2500	1.0273
T:\MassHunter\Data\2210515ACAL\2210515A_04.d	Calibration	3	<input checked="" type="checkbox"/>	33976	5.0000	0.9970
T:\MassHunter\Data\2210515ACAL\2210515A_05.d	Calibration	4	<input checked="" type="checkbox"/>	58926	10.0000	0.9813
T:\MassHunter\Data\2210515ACAL\2210515A_06.d	Calibration	5	<input checked="" type="checkbox"/>	144143	20.0000	1.0330
T:\MassHunter\Data\2210515ACAL\2210515A_07.d	Calibration	6	<input checked="" type="checkbox"/>	369402	50.0000	1.1188

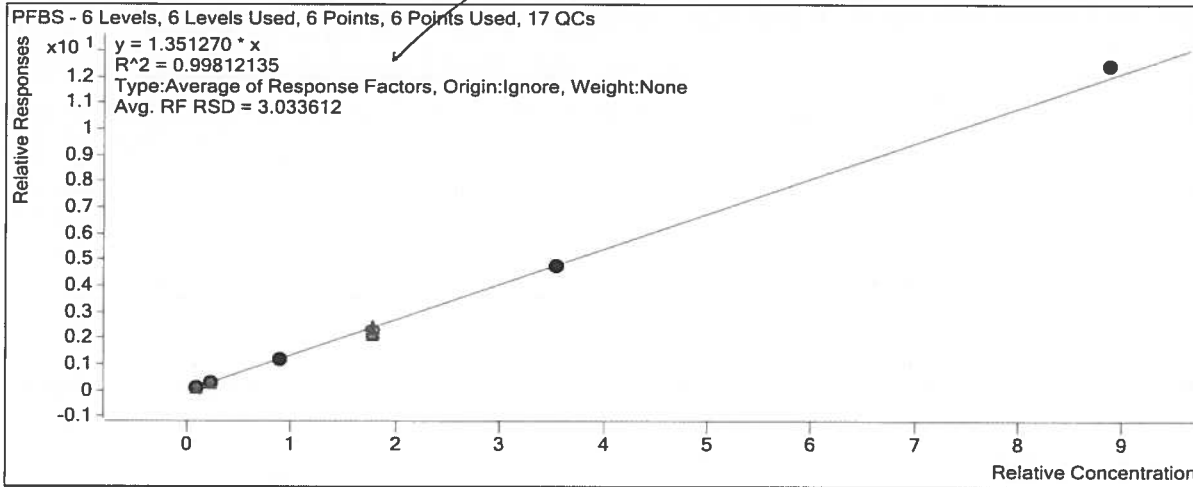


Target Compound

PFBS

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
T:\MassHunter\Data\2210515ACAL\2210515A_02.d	Calibration	1	<input checked="" type="checkbox"/>	2720	0.4435	1.3786
T:\MassHunter\Data\2210515ACAL\2210515A_03.d	Calibration	2	<input checked="" type="checkbox"/>	7333	1.1088	1.3480
T:\MassHunter\Data\2210515ACAL\2210515A_04.d	Calibration	3	<input checked="" type="checkbox"/>	27499	4.4350	1.3558
T:\MassHunter\Data\2210515ACAL\2210515A_05.d	Calibration	4	<input checked="" type="checkbox"/>	45922	8.8700	1.2793
T:\MassHunter\Data\2210515ACAL\2210515A_06.d	Calibration	5	<input checked="" type="checkbox"/>	113531	17.7400	1.3457
T:\MassHunter\Data\2210515ACAL\2210515A_07.d	Calibration	6	<input checked="" type="checkbox"/>	289409	44.3500	1.4003

Quantitative Analysis Calibration Report



Extracted ISTD

M3PFBS

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
T:\MassHunter\Data\2210515ACAL\2210515A_02.d	Calibration	1	<input checked="" type="checkbox"/>	22240	5.0000	4447.9669
T:\MassHunter\Data\2210515ACAL\2210515A_03.d	Calibration	2	<input checked="" type="checkbox"/>	24533	5.0000	4906.5995
T:\MassHunter\Data\2210515ACAL\2210515A_04.d	Calibration	3	<input checked="" type="checkbox"/>	22867	5.0000	4573.3592
T:\MassHunter\Data\2210515ACAL\2210515A_05.d	Calibration	4	<input checked="" type="checkbox"/>	20235	5.0000	4047.0532
T:\MassHunter\Data\2210515ACAL\2210515A_06.d	Calibration	5	<input checked="" type="checkbox"/>	23779	5.0000	4755.8067
T:\MassHunter\Data\2210515ACAL\2210515A_07.d	Calibration	6	<input checked="" type="checkbox"/>	23300	5.0000	4660.0616

Target Compound

PFMBA

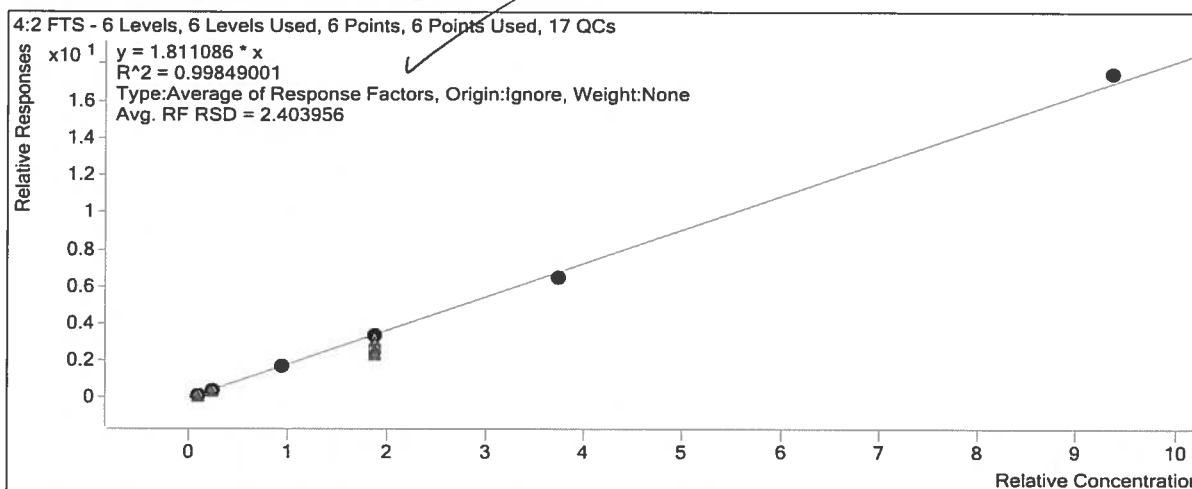
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
T:\MassHunter\Data\2210515ACAL\2210515A_02.d	Calibration	1	<input checked="" type="checkbox"/>	5667	0.5000	0.9097
T:\MassHunter\Data\2210515ACAL\2210515A_03.d	Calibration	2	<input checked="" type="checkbox"/>	15098	1.2500	0.8720
T:\MassHunter\Data\2210515ACAL\2210515A_04.d	Calibration	3	<input checked="" type="checkbox"/>	57698	5.0000	0.9246
T:\MassHunter\Data\2210515ACAL\2210515A_05.d	Calibration	4	<input checked="" type="checkbox"/>	99256	10.0000	0.9069
T:\MassHunter\Data\2210515ACAL\2210515A_06.d	Calibration	5	<input checked="" type="checkbox"/>	242636	20.0000	0.9445
T:\MassHunter\Data\2210515ACAL\2210515A_07.d	Calibration	6	<input checked="" type="checkbox"/>	610993	50.0000	0.9985

Quantitative Analysis Calibration Report

Target Compound

4:2 FTS

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
T:\MassHunter\Data\2210515ACAL\2210515A_02.d	Calibration	1	<input checked="" type="checkbox"/>	1992	0.4685	1.8016
T:\MassHunter\Data\2210515ACAL\2210515A_03.d	Calibration	2	<input checked="" type="checkbox"/>	5676	1.1713	1.8007
T:\MassHunter\Data\2210515ACAL\2210515A_04.d	Calibration	3	<input checked="" type="checkbox"/>	21313	4.6850	1.8493
T:\MassHunter\Data\2210515ACAL\2210515A_05.d	Calibration	4	<input checked="" type="checkbox"/>	36655	9.3700	1.8090
T:\MassHunter\Data\2210515ACAL\2210515A_06.d	Calibration	5	<input checked="" type="checkbox"/>	87177	18.7400	1.7410
T:\MassHunter\Data\2210515ACAL\2210515A_07.d	Calibration	6	<input checked="" type="checkbox"/>	210459	46.8500	1.8650



Extracted ISTD

M2 4:2 FTS

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
T:\MassHunter\Data\2210515ACAL\2210515A_02.d	Calibration	1	<input checked="" type="checkbox"/>	11798	5.0000	2359.6174
T:\MassHunter\Data\2210515ACAL\2210515A_03.d	Calibration	2	<input checked="" type="checkbox"/>	13457	5.0000	2691.4457
T:\MassHunter\Data\2210515ACAL\2210515A_04.d	Calibration	3	<input checked="" type="checkbox"/>	12300	5.0000	2459.9529
T:\MassHunter\Data\2210515ACAL\2210515A_05.d	Calibration	4	<input checked="" type="checkbox"/>	10813	5.0000	2162.5377
T:\MassHunter\Data\2210515ACAL\2210515A_06.d	Calibration	5	<input checked="" type="checkbox"/>	13360	5.0000	2671.9886
T:\MassHunter\Data\2210515ACAL\2210515A_07.d	Calibration	6	<input checked="" type="checkbox"/>	12043	5.0000	2408.6930

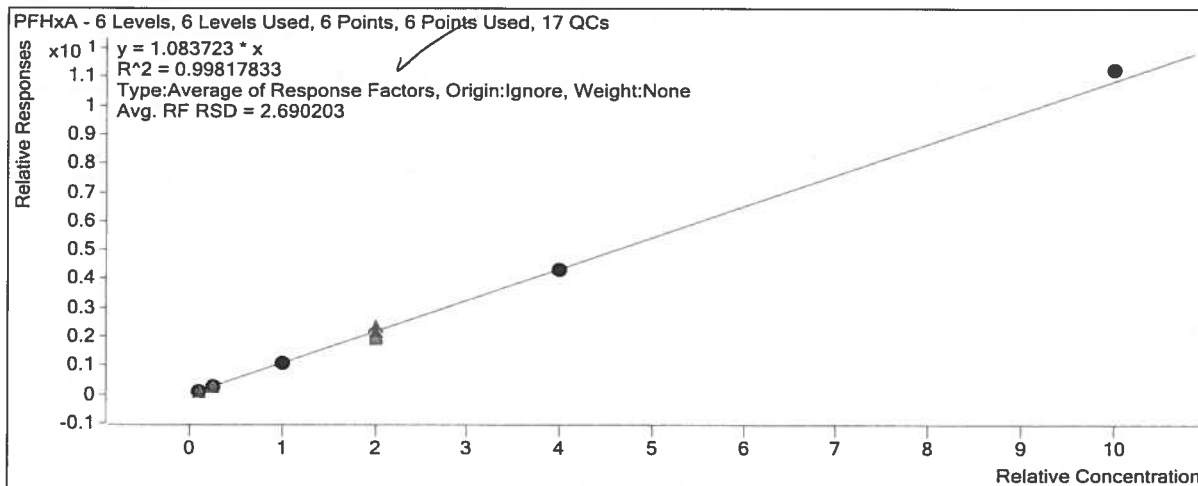
Target Compound

PFHxA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
T:\MassHunter\Data\2210515ACAL\2210515A_02.d	Calibration	1	<input checked="" type="checkbox"/>	6939	0.5000	1.1139
T:\MassHunter\Data\2210515ACAL\2210515A_03.d	Calibration	2	<input checked="" type="checkbox"/>	18553	1.2500	1.0715

Quantitative Analysis Calibration Report

T:\MassHunter\Data\2210515ACAL\2210515A_04.d	Calibration	3	<input checked="" type="checkbox"/>	66534	5.0000	1.0662
T:\MassHunter\Data\2210515ACAL\2210515A_05.d	Calibration	4	<input checked="" type="checkbox"/>	114674	10.0000	1.0478
T:\MassHunter\Data\2210515ACAL\2210515A_06.d	Calibration	5	<input checked="" type="checkbox"/>	277331	20.0000	1.0795
T:\MassHunter\Data\2210515ACAL\2210515A_07.d	Calibration	6	<input checked="" type="checkbox"/>	687419	50.0000	1.1234



Extracted ISTD

M5PFHxA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
T:\MassHunter\Data\2210515ACAL\2210515A_02.d	Calibration	1	<input checked="" type="checkbox"/>	62293	5.0000	12458.6421
T:\MassHunter\Data\2210515ACAL\2210515A_03.d	Calibration	2	<input checked="" type="checkbox"/>	69257	5.0000	13851.4325
T:\MassHunter\Data\2210515ACAL\2210515A_04.d	Calibration	3	<input checked="" type="checkbox"/>	62403	5.0000	12480.5230
T:\MassHunter\Data\2210515ACAL\2210515A_05.d	Calibration	4	<input checked="" type="checkbox"/>	54722	5.0000	10944.4478
T:\MassHunter\Data\2210515ACAL\2210515A_06.d	Calibration	5	<input checked="" type="checkbox"/>	64225	5.0000	12844.9499
T:\MassHunter\Data\2210515ACAL\2210515A_07.d	Calibration	6	<input checked="" type="checkbox"/>	61189	5.0000	12237.8887

Instrument ISTD

M2PFHxA

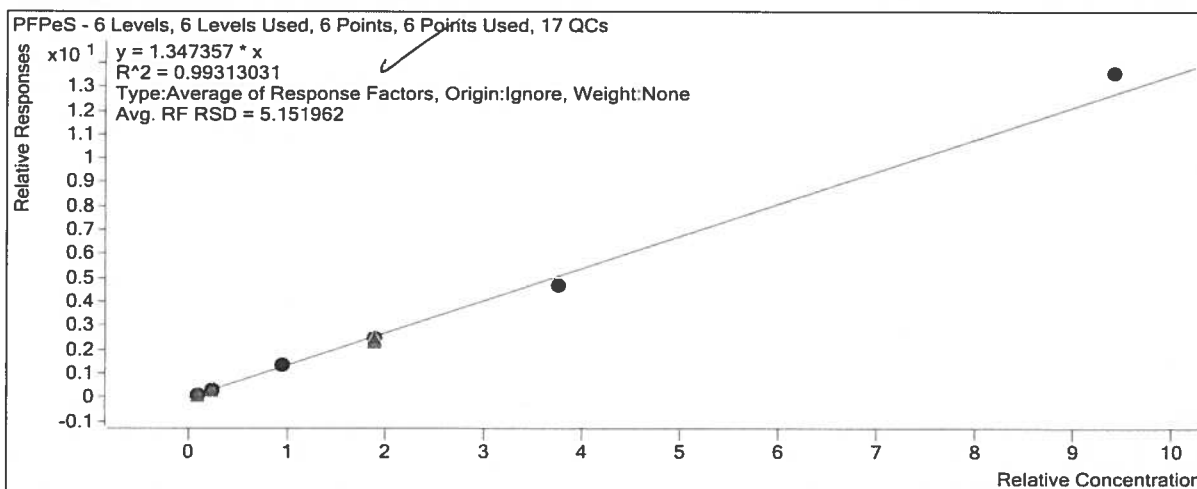
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
T:\MassHunter\Data\2210515ACAL\2210515A_02.d	Calibration	1	<input checked="" type="checkbox"/>	646363	40.0000	16159.0800
T:\MassHunter\Data\2210515ACAL\2210515A_03.d	Calibration	2	<input checked="" type="checkbox"/>	695574	40.0000	17389.3594
T:\MassHunter\Data\2210515ACAL\2210515A_04.d	Calibration	3	<input checked="" type="checkbox"/>	654061	40.0000	16351.5171
T:\MassHunter\Data\2210515ACAL\2210515A_05.d	Calibration	4	<input checked="" type="checkbox"/>	517324	40.0000	12933.0954
T:\MassHunter\Data\2210515ACAL\2210515A_06.d	Calibration	5	<input checked="" type="checkbox"/>	654861	40.0000	16371.5329
T:\MassHunter\Data\2210515ACAL\2210515A_07.d	Calibration	6	<input checked="" type="checkbox"/>	558762	40.0000	13969.0529

Quantitative Analysis Calibration Report

Target Compound

PFPeS

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
T:\MassHunter\Data\2210515ACAL\2210515A_02.d	Calibration	1	<input checked="" type="checkbox"/>	2727	0.4705	1.3033
T:\MassHunter\Data\2210515ACAL\2210515A_03.d	Calibration	2	<input checked="" type="checkbox"/>	7871	1.1763	1.3637
T:\MassHunter\Data\2210515ACAL\2210515A_04.d	Calibration	3	<input checked="" type="checkbox"/>	30310	4.7050	1.4086
T:\MassHunter\Data\2210515ACAL\2210515A_05.d	Calibration	4	<input checked="" type="checkbox"/>	49933	9.4100	1.3112
T:\MassHunter\Data\2210515ACAL\2210515A_06.d	Calibration	5	<input checked="" type="checkbox"/>	112504	18.8200	1.2570
T:\MassHunter\Data\2210515ACAL\2210515A_07.d	Calibration	6	<input checked="" type="checkbox"/>	315809	47.0500	1.4404



Extracted ISTD

M3HFPODA

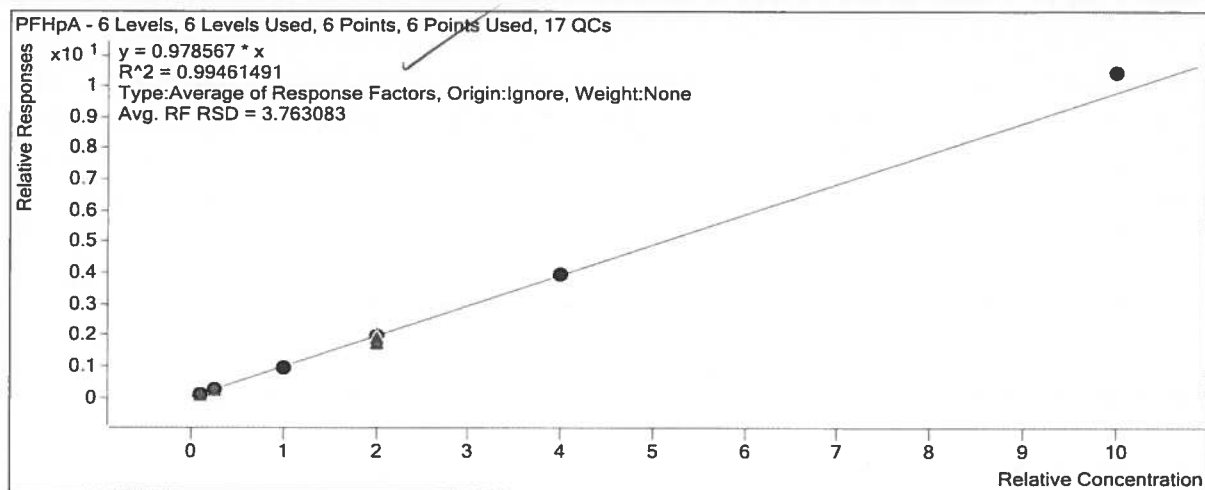
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
T:\MassHunter\Data\2210515ACAL\2210515A_02.d	Calibration	1	<input checked="" type="checkbox"/>	5633	10.0000	563.2882
T:\MassHunter\Data\2210515ACAL\2210515A_03.d	Calibration	2	<input checked="" type="checkbox"/>	6209	10.0000	620.8722
T:\MassHunter\Data\2210515ACAL\2210515A_04.d	Calibration	3	<input checked="" type="checkbox"/>	5728	10.0000	572.7741
T:\MassHunter\Data\2210515ACAL\2210515A_05.d	Calibration	4	<input checked="" type="checkbox"/>	5047	10.0000	504.6770
T:\MassHunter\Data\2210515ACAL\2210515A_06.d	Calibration	5	<input checked="" type="checkbox"/>	6057	10.0000	605.6622
T:\MassHunter\Data\2210515ACAL\2210515A_07.d	Calibration	6	<input checked="" type="checkbox"/>	5340	10.0000	533.9819

Target Compound

HFPO-DA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
T:\MassHunter\Data\2210515ACAL\2210515A_02.d	Calibration	1	<input type="checkbox"/>	707	1.0000	1.2558
T:\MassHunter\Data\2210515ACAL\2210515A_03.d	Calibration	2	<input checked="" type="checkbox"/>	1767	2.5000	1.1381

Quantitative Analysis Calibration Report

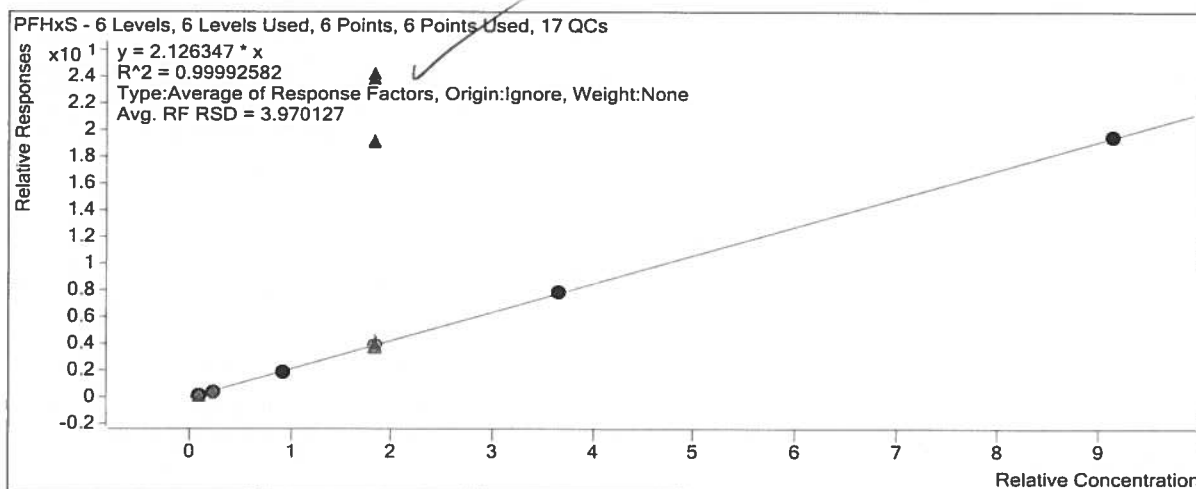


Quantitative Analysis Calibration Report

Target Compound

PFHxS

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
T:\MassHunter\Data\2210515ACAL\2210515A_02.d	Calibration	1	<input checked="" type="checkbox"/>	3679	0.4570	2.2562
T:\MassHunter\Data\2210515ACAL\2210515A_03.d	Calibration	2	<input checked="" type="checkbox"/>	9119	1.1425	2.0343
T:\MassHunter\Data\2210515ACAL\2210515A_04.d	Calibration	3	<input checked="" type="checkbox"/>	34387	4.5700	2.0321
T:\MassHunter\Data\2210515ACAL\2210515A_05.d	Calibration	4	<input checked="" type="checkbox"/>	62585	9.1400	2.1543
T:\MassHunter\Data\2210515ACAL\2210515A_06.d	Calibration	5	<input checked="" type="checkbox"/>	144077	18.2800	2.1514
T:\MassHunter\Data\2210515ACAL\2210515A_07.d	Calibration	6	<input checked="" type="checkbox"/>	366484	45.7000	2.1298



Extracted ISTD

M3PFHxS

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
T:\MassHunter\Data\2210515ACAL\2210515A_02.d	Calibration	1	<input checked="" type="checkbox"/>	17842	5.0000	3568.4195
T:\MassHunter\Data\2210515ACAL\2210515A_03.d	Calibration	2	<input checked="" type="checkbox"/>	19618	5.0000	3923.5435
T:\MassHunter\Data\2210515ACAL\2210515A_04.d	Calibration	3	<input checked="" type="checkbox"/>	18514	5.0000	3702.7912
T:\MassHunter\Data\2210515ACAL\2210515A_05.d	Calibration	4	<input checked="" type="checkbox"/>	15893	5.0000	3178.5202
T:\MassHunter\Data\2210515ACAL\2210515A_06.d	Calibration	5	<input checked="" type="checkbox"/>	18317	5.0000	3663.4559
T:\MassHunter\Data\2210515ACAL\2210515A_07.d	Calibration	6	<input checked="" type="checkbox"/>	18827	5.0000	3765.3288

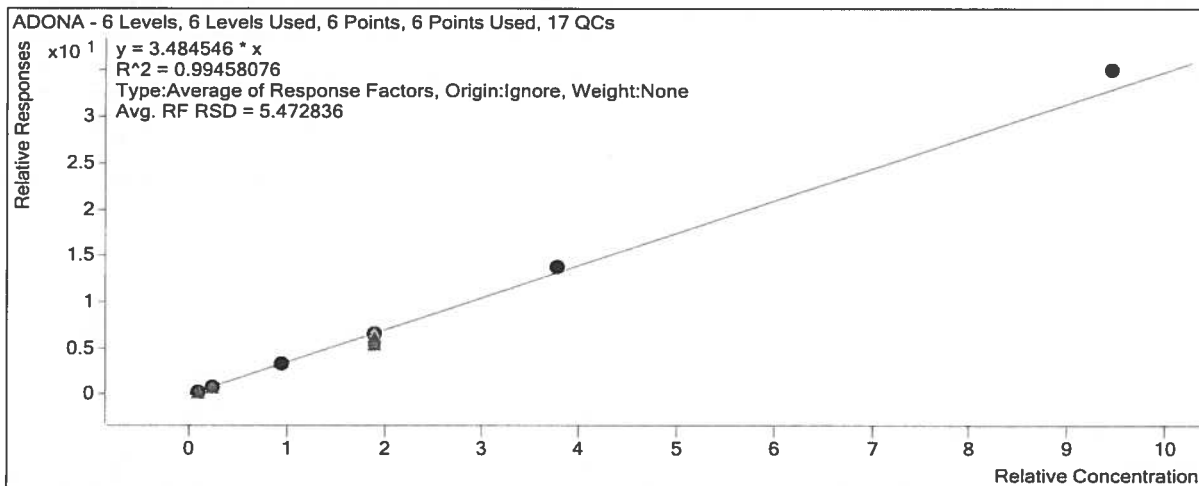
Target Compound

ADONA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
T:\MassHunter\Data\2210515ACAL\2210515A_02.d	Calibration	1	<input checked="" type="checkbox"/>	15812	0.4725	3.2432
T:\MassHunter\Data\2210515ACAL\2210515A_03.d	Calibration	2	<input checked="" type="checkbox"/>	44970	1.1813	3.2868

Quantitative Analysis Calibration Report

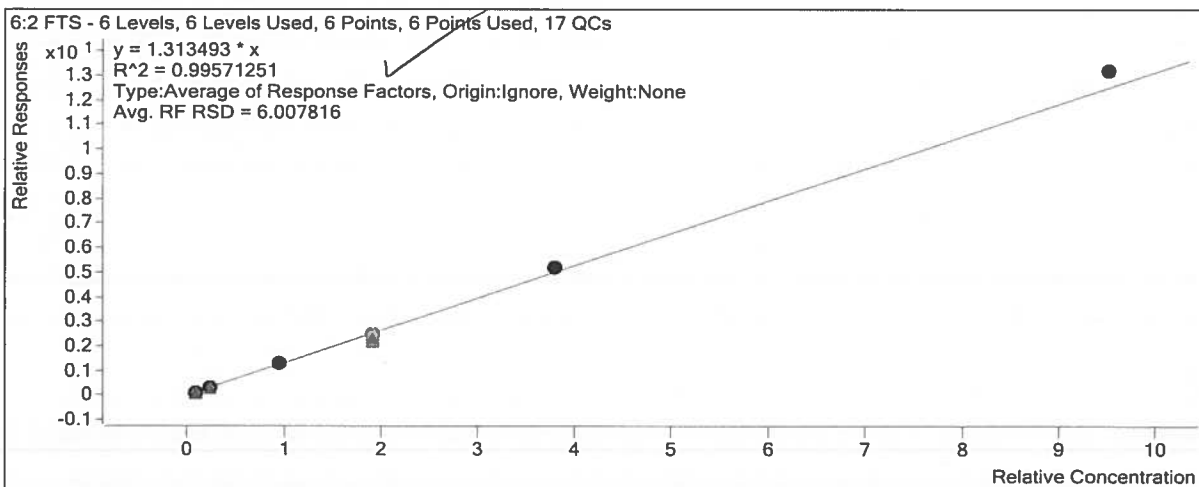
T:\MassHunter\Data\2210515ACAL\2210515A_04.d	Calibration	3	<input checked="" type="checkbox"/>	173979	4.7250	3.5989
T:\MassHunter\Data\2210515ACAL\2210515A_05.d	Calibration	4	<input checked="" type="checkbox"/>	299882	9.4500	3.4446
T:\MassHunter\Data\2210515ACAL\2210515A_06.d	Calibration	5	<input checked="" type="checkbox"/>	712973	18.9000	3.6265
T:\MassHunter\Data\2210515ACAL\2210515A_07.d	Calibration	6	<input checked="" type="checkbox"/>	1723923	47.2500	3.7074



Target Compound

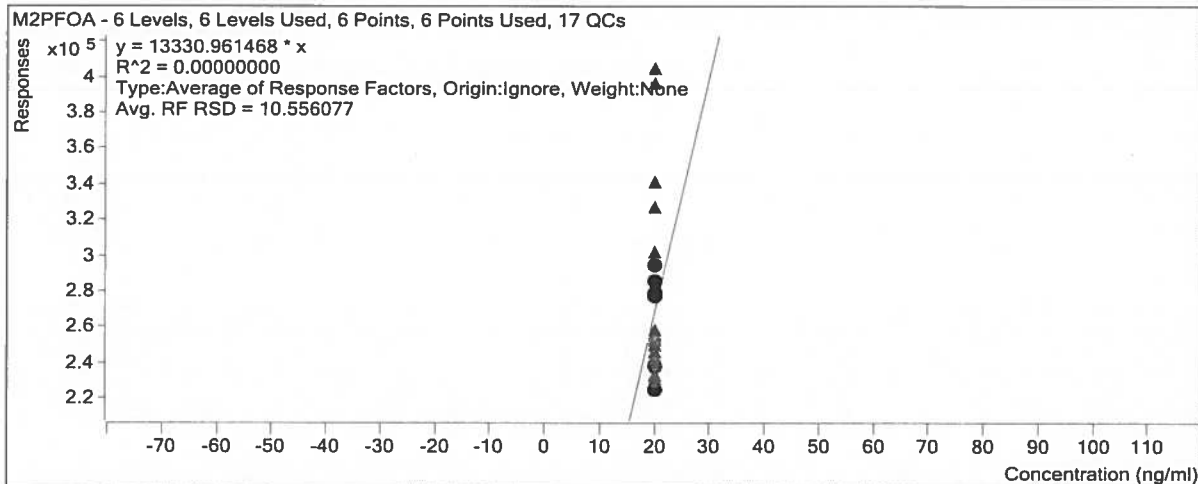
6:2 FTS

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
T:\MassHunter\Data\2210515ACAL\2210515A_02.d	Calibration	1	<input checked="" type="checkbox"/>	2766	0.4755	1.1787
T:\MassHunter\Data\2210515ACAL\2210515A_03.d	Calibration	2	<input checked="" type="checkbox"/>	8385	1.1888	1.2745
T:\MassHunter\Data\2210515ACAL\2210515A_04.d	Calibration	3	<input checked="" type="checkbox"/>	34142	4.7550	1.3674
T:\MassHunter\Data\2210515ACAL\2210515A_05.d	Calibration	4	<input checked="" type="checkbox"/>	57704	9.5100	1.3042
T:\MassHunter\Data\2210515ACAL\2210515A_06.d	Calibration	5	<input checked="" type="checkbox"/>	134677	19.0200	1.3695
T:\MassHunter\Data\2210515ACAL\2210515A_07.d	Calibration	6	<input checked="" type="checkbox"/>	317313	47.5500	1.3865



Quantitative Analysis Calibration Report

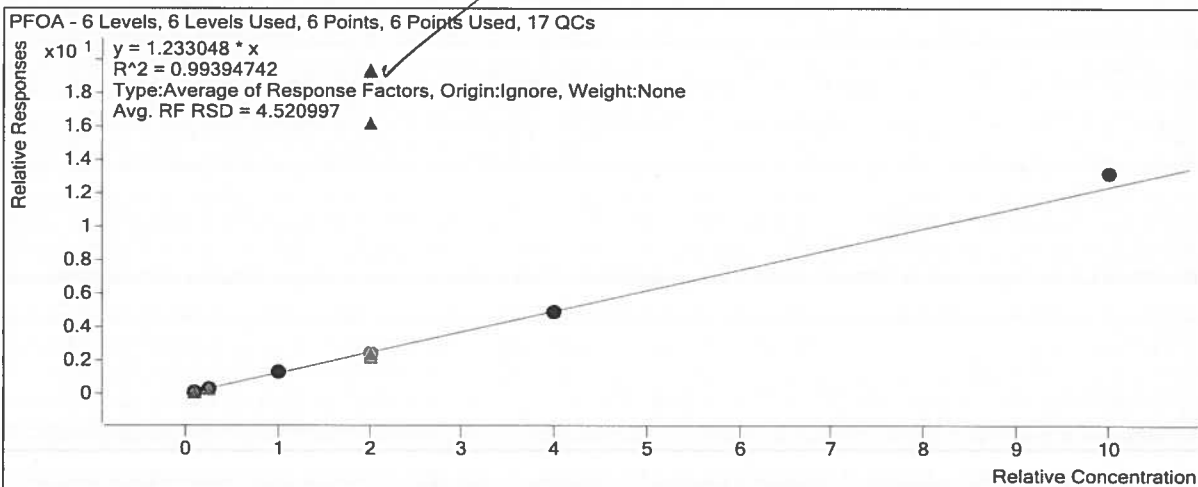
T:\MassHunter\Data\2210515ACAL\2210515A_04.d	Calibration	3	<input checked="" type="checkbox"/>	279141	20.0000	13957.0670
T:\MassHunter\Data\2210515ACAL\2210515A_05.d	Calibration	4	<input checked="" type="checkbox"/>	225068	20.0000	11253.3920
T:\MassHunter\Data\2210515ACAL\2210515A_06.d	Calibration	5	<input checked="" type="checkbox"/>	277084	20.0000	13854.2062
T:\MassHunter\Data\2210515ACAL\2210515A_07.d	Calibration	6	<input checked="" type="checkbox"/>	238090	20.0000	11904.4872



Target Compound

PFOA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
T:\MassHunter\Data\2210515ACAL\2210515A_02.d	Calibration	1	<input checked="" type="checkbox"/>	6383	0.5000	1.2373
T:\MassHunter\Data\2210515ACAL\2210515A_03.d	Calibration	2	<input checked="" type="checkbox"/>	16953	1.2500	1.1710
T:\MassHunter\Data\2210515ACAL\2210515A_04.d	Calibration	3	<input checked="" type="checkbox"/>	64634	5.0000	1.2635
T:\MassHunter\Data\2210515ACAL\2210515A_05.d	Calibration	4	<input checked="" type="checkbox"/>	108221	10.0000	1.1747
T:\MassHunter\Data\2210515ACAL\2210515A_06.d	Calibration	5	<input checked="" type="checkbox"/>	256554	20.0000	1.2332
T:\MassHunter\Data\2210515ACAL\2210515A_07.d	Calibration	6	<input checked="" type="checkbox"/>	648882	50.0000	1.3187

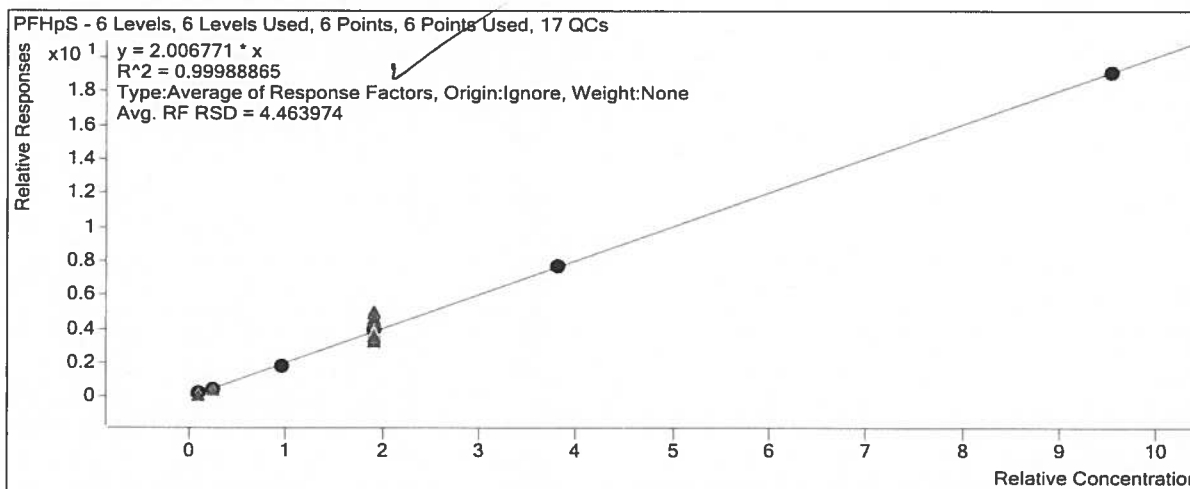


Quantitative Analysis Calibration Report

Target Compound

PFHpS

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
T:\MassHunter\Data\2210515ACAL\2210515A_02.d	Calibration	1	<input checked="" type="checkbox"/>	3593	0.4765	2.1133
T:\MassHunter\Data\2210515ACAL\2210515A_03.d	Calibration	2	<input checked="" type="checkbox"/>	8720	1.1913	1.8657
T:\MassHunter\Data\2210515ACAL\2210515A_04.d	Calibration	3	<input checked="" type="checkbox"/>	34435	4.7650	1.9517
T:\MassHunter\Data\2210515ACAL\2210515A_05.d	Calibration	4	<input checked="" type="checkbox"/>	63039	9.5300	2.0811
T:\MassHunter\Data\2210515ACAL\2210515A_06.d	Calibration	5	<input checked="" type="checkbox"/>	141340	19.0600	2.0242
T:\MassHunter\Data\2210515ACAL\2210515A_07.d	Calibration	6	<input checked="" type="checkbox"/>	359672	47.6500	2.0047

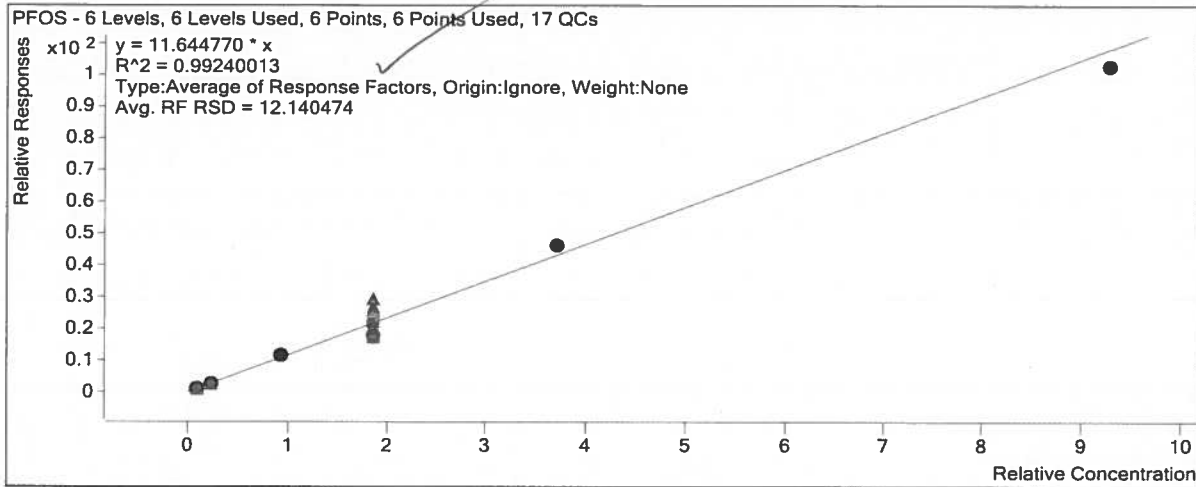


Target Compound

PFOS

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
T:\MassHunter\Data\2210515ACAL\2210515A_02.d	Calibration	1	<input checked="" type="checkbox"/>	2481	0.4640	13.2660
T:\MassHunter\Data\2210515ACAL\2210515A_03.d	Calibration	2	<input checked="" type="checkbox"/>	6649	1.1600	10.7224
T:\MassHunter\Data\2210515ACAL\2210515A_04.d	Calibration	3	<input checked="" type="checkbox"/>	22977	4.6400	12.7067
T:\MassHunter\Data\2210515ACAL\2210515A_05.d	Calibration	4	<input checked="" type="checkbox"/>	37923	9.2800	9.5895
T:\MassHunter\Data\2210515ACAL\2210515A_06.d	Calibration	5	<input checked="" type="checkbox"/>	93535	18.5600	12.5399
T:\MassHunter\Data\2210515ACAL\2210515A_07.d	Calibration	6	<input checked="" type="checkbox"/>	251755	46.4000	11.0441

Quantitative Analysis Calibration Report



Extracted ISTD

M9PFNA

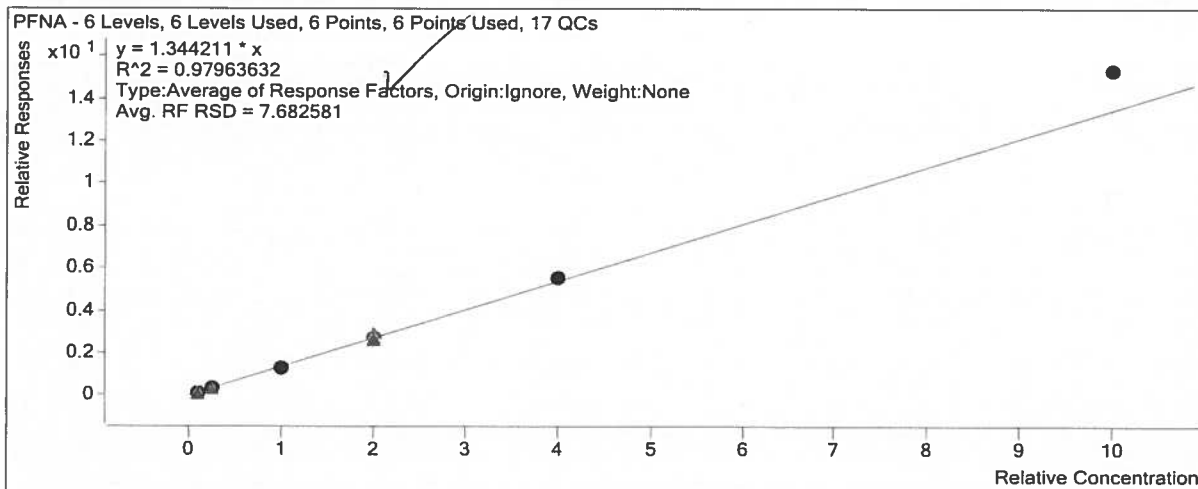
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
T:\MassHunter\Data\2210515ACAL\2210515A_02.d	Calibration	1	<input checked="" type="checkbox"/>	56278	5.0000	11255.6087
T:\MassHunter\Data\2210515ACAL\2210515A_03.d	Calibration	2	<input checked="" type="checkbox"/>	58961	5.0000	11792.1048
T:\MassHunter\Data\2210515ACAL\2210515A_04.d	Calibration	3	<input checked="" type="checkbox"/>	53642	5.0000	10728.4499
T:\MassHunter\Data\2210515ACAL\2210515A_05.d	Calibration	4	<input checked="" type="checkbox"/>	44965	5.0000	8993.0471
T:\MassHunter\Data\2210515ACAL\2210515A_06.d	Calibration	5	<input checked="" type="checkbox"/>	53172	5.0000	10634.3820
T:\MassHunter\Data\2210515ACAL\2210515A_07.d	Calibration	6	<input checked="" type="checkbox"/>	46689	5.0000	9337.7350

Quantitative Analysis Calibration Report

Target Compound

PFNA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
T:\MassHunter\Data\2210515ACAL\2210515A_02.d	Calibration	1	<input checked="" type="checkbox"/>	7006	0.5000	1.2448
T:\MassHunter\Data\2210515ACAL\2210515A_03.d	Calibration	2	<input checked="" type="checkbox"/>	18501	1.2500	1.2552
T:\MassHunter\Data\2210515ACAL\2210515A_04.d	Calibration	3	<input checked="" type="checkbox"/>	71041	5.0000	1.3244
T:\MassHunter\Data\2210515ACAL\2210515A_05.d	Calibration	4	<input checked="" type="checkbox"/>	119911	10.0000	1.3334
T:\MassHunter\Data\2210515ACAL\2210515A_06.d	Calibration	5	<input checked="" type="checkbox"/>	293422	20.0000	1.3796
T:\MassHunter\Data\2210515ACAL\2210515A_07.d	Calibration	6	<input checked="" type="checkbox"/>	713375	50.0000	1.5279



Extracted ISTD

M8PFOS

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
T:\MassHunter\Data\2210515ACAL\2210515A_02.d	Calibration	1	<input checked="" type="checkbox"/>	2015	5.0000	403.0051
T:\MassHunter\Data\2210515ACAL\2210515A_03.d	Calibration	2	<input checked="" type="checkbox"/>	2673	5.0000	534.5757
T:\MassHunter\Data\2210515ACAL\2210515A_04.d	Calibration	3	<input checked="" type="checkbox"/>	1949	5.0000	389.7167
T:\MassHunter\Data\2210515ACAL\2210515A_05.d	Calibration	4	<input checked="" type="checkbox"/>	2131	5.0000	426.1457
T:\MassHunter\Data\2210515ACAL\2210515A_06.d	Calibration	5	<input checked="" type="checkbox"/>	2009	5.0000	401.8850
T:\MassHunter\Data\2210515ACAL\2210515A_07.d	Calibration	6	<input checked="" type="checkbox"/>	2456	5.0000	491.2806

Instrument ISTD

M4PFOS

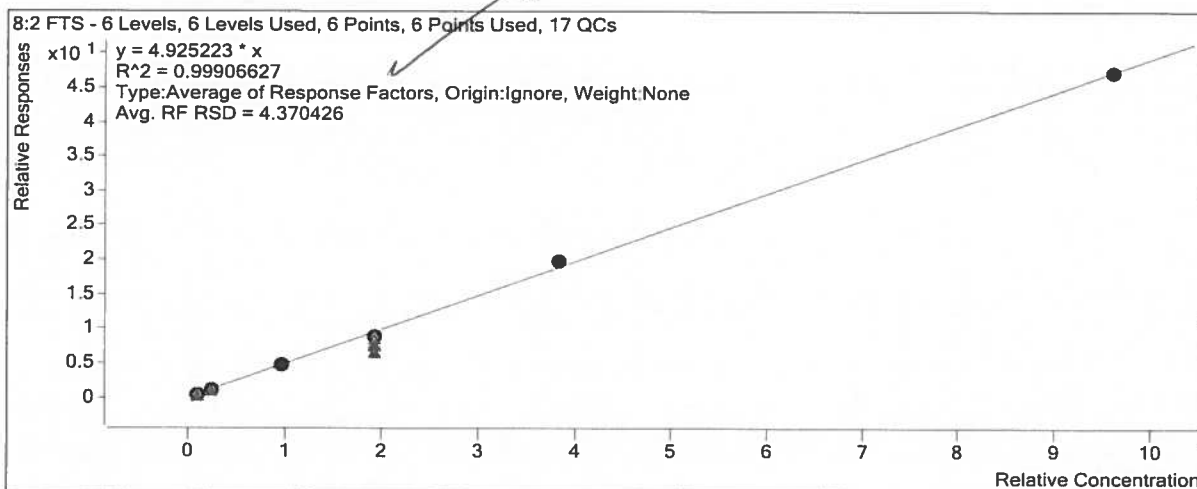
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
T:\MassHunter\Data\2210515ACAL\2210515A_02.d	Calibration	1	<input checked="" type="checkbox"/>	43943	20.0000	2197.1313
T:\MassHunter\Data\2210515ACAL\2210515A_03.d	Calibration	2	<input checked="" type="checkbox"/>	45053	20.0000	2252.6347

Quantitative Analysis Calibration Report

Target Compound

8:2 FTS

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
T:\MassHunter\Data\2210515ACAL\2210515A_02.d	Calibration	1	<input checked="" type="checkbox"/>	2511	0.4800	4.8279
T:\MassHunter\Data\2210515ACAL\2210515A_03.d	Calibration	2	<input checked="" type="checkbox"/>	6584	1.2000	5.0334
T:\MassHunter\Data\2210515ACAL\2210515A_04.d	Calibration	3	<input checked="" type="checkbox"/>	23603	4.8000	5.0389
T:\MassHunter\Data\2210515ACAL\2210515A_05.d	Calibration	4	<input checked="" type="checkbox"/>	39163	9.6000	4.5616
T:\MassHunter\Data\2210515ACAL\2210515A_06.d	Calibration	5	<input checked="" type="checkbox"/>	92900	19.2000	5.1804
T:\MassHunter\Data\2210515ACAL\2210515A_07.d	Calibration	6	<input checked="" type="checkbox"/>	224703	48.0000	4.9090

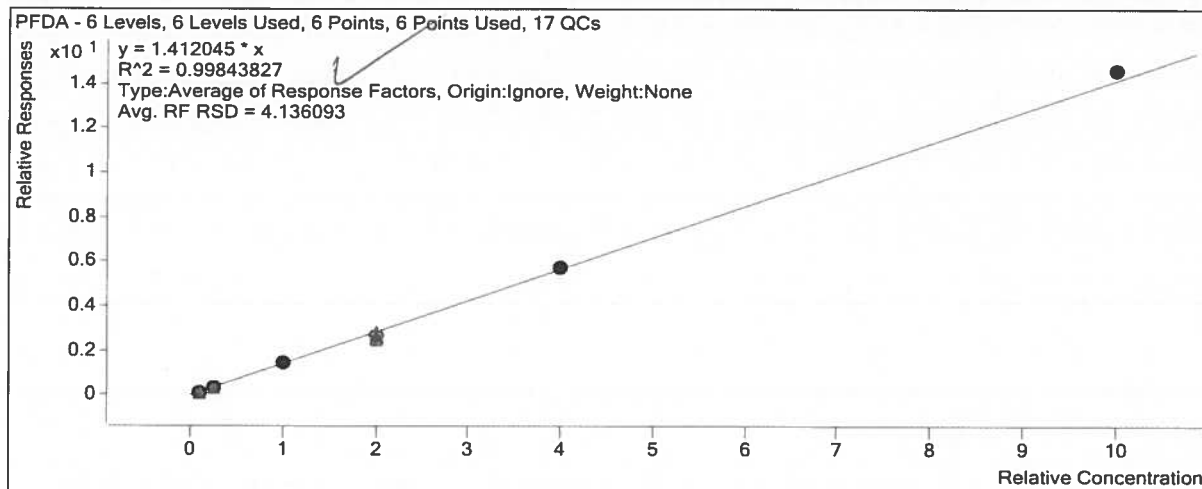


Target Compound

PFDA

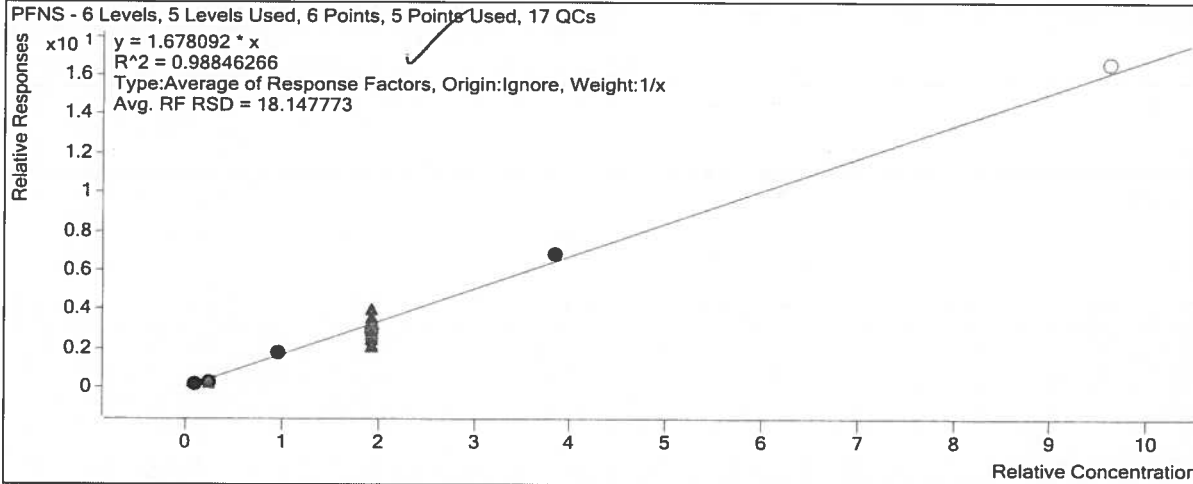
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
T:\MassHunter\Data\2210515ACAL\2210515A_02.d	Calibration	1	<input checked="" type="checkbox"/>	8775	0.5000	1.3805
T:\MassHunter\Data\2210515ACAL\2210515A_03.d	Calibration	2	<input checked="" type="checkbox"/>	23647	1.2500	1.4138
T:\MassHunter\Data\2210515ACAL\2210515A_04.d	Calibration	3	<input checked="" type="checkbox"/>	87337	5.0000	1.4724
T:\MassHunter\Data\2210515ACAL\2210515A_05.d	Calibration	4	<input checked="" type="checkbox"/>	145463	10.0000	1.3125
T:\MassHunter\Data\2210515ACAL\2210515A_06.d	Calibration	5	<input checked="" type="checkbox"/>	349013	20.0000	1.4384
T:\MassHunter\Data\2210515ACAL\2210515A_07.d	Calibration	6	<input checked="" type="checkbox"/>	821690	50.0000	1.4546

Quantitative Analysis Calibration Report



Quantitative Analysis Calibration Report

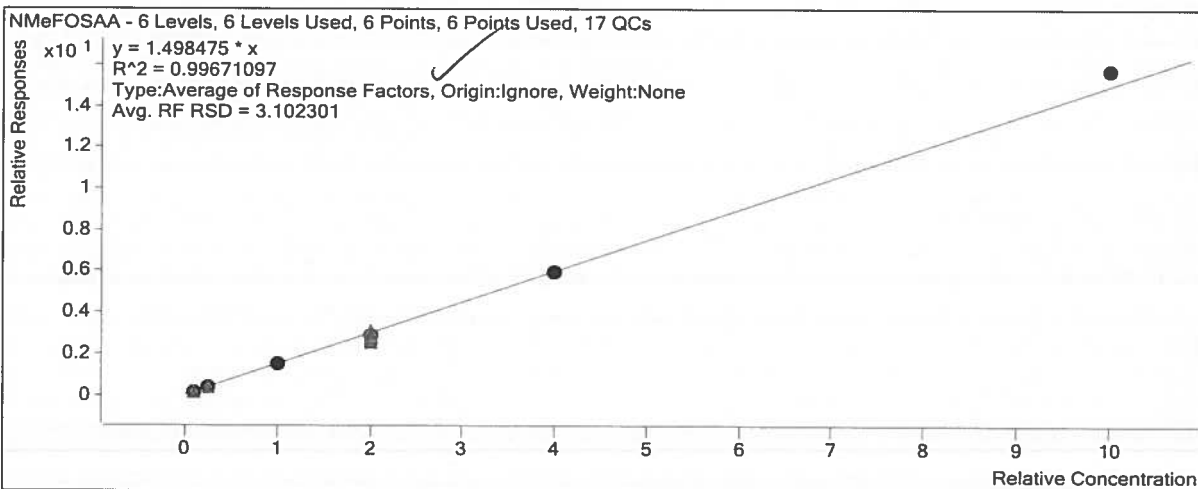
T:\MassHunter\Data\2210515ACAL\2210515A_04.d	Calibration	3	<input checked="" type="checkbox"/>	3508	4.8100	1.8712
T:\MassHunter\Data\2210515ACAL\2210515A_05.d	Calibration	4	<input checked="" type="checkbox"/>	6191	9.6200	1.5102
T:\MassHunter\Data\2210515ACAL\2210515A_06.d	Calibration	5	<input checked="" type="checkbox"/>	13719	19.2400	1.7743
T:\MassHunter\Data\2210515ACAL\2210515A_07.d	Calibration	6	<input type="checkbox"/>	40752	48.1000	1.7245



Target Compound

NMeFOSAA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
T:\MassHunter\Data\2210515ACAL\2210515A_02.d	Calibration	1	<input checked="" type="checkbox"/>	4277	0.5000	1.5090
T:\MassHunter\Data\2210515ACAL\2210515A_03.d	Calibration	2	<input checked="" type="checkbox"/>	12079	1.2500	1.4587
T:\MassHunter\Data\2210515ACAL\2210515A_04.d	Calibration	3	<input checked="" type="checkbox"/>	45681	5.0000	1.5106
T:\MassHunter\Data\2210515ACAL\2210515A_05.d	Calibration	4	<input checked="" type="checkbox"/>	79161	10.0000	1.4410
T:\MassHunter\Data\2210515ACAL\2210515A_06.d	Calibration	5	<input checked="" type="checkbox"/>	192211	20.0000	1.4980
T:\MassHunter\Data\2210515ACAL\2210515A_07.d	Calibration	6	<input checked="" type="checkbox"/>	464617	50.0000	1.5737

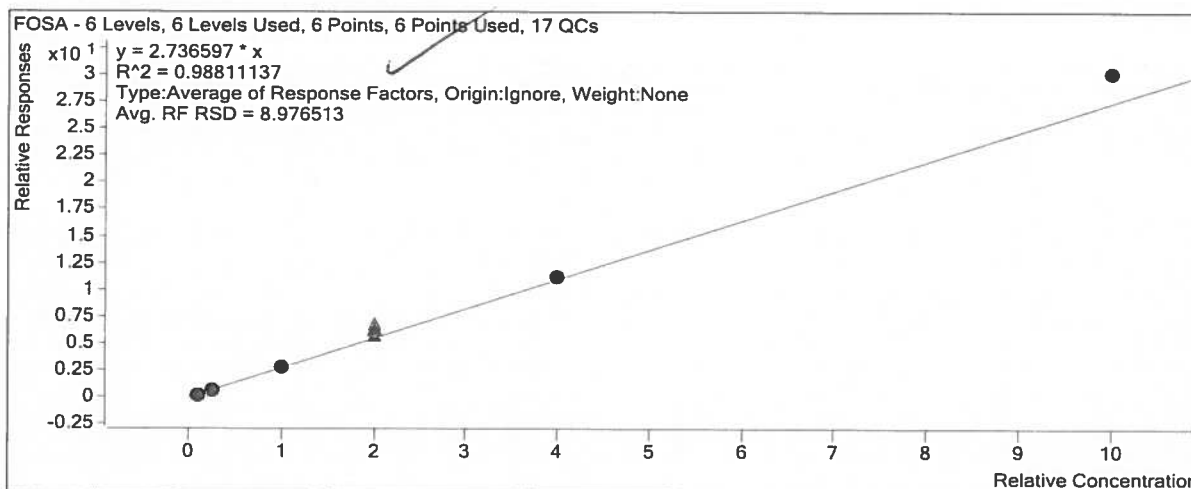


Quantitative Analysis Calibration Report

Target Compound

FOSA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
T:\MassHunter\Data\2210515ACAL\2210515A_02.d	Calibration	1	<input checked="" type="checkbox"/>	7034	0.5000	2.3585
T:\MassHunter\Data\2210515ACAL\2210515A_03.d	Calibration	2	<input checked="" type="checkbox"/>	19933	1.2500	2.5192
T:\MassHunter\Data\2210515ACAL\2210515A_04.d	Calibration	3	<input checked="" type="checkbox"/>	75842	5.0000	2.8369
T:\MassHunter\Data\2210515ACAL\2210515A_05.d	Calibration	4	<input checked="" type="checkbox"/>	133682	10.0000	2.8809
T:\MassHunter\Data\2210515ACAL\2210515A_06.d	Calibration	5	<input checked="" type="checkbox"/>	315757	20.0000	2.8143
T:\MassHunter\Data\2210515ACAL\2210515A_07.d	Calibration	6	<input checked="" type="checkbox"/>	807013	50.0000	3.0097



Extracted ISTD

d3-NMeFOSAA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
T:\MassHunter\Data\2210515ACAL\2210515A_02.d	Calibration	1	<input checked="" type="checkbox"/>	28347	5.0000	5669.3787
T:\MassHunter\Data\2210515ACAL\2210515A_03.d	Calibration	2	<input checked="" type="checkbox"/>	33125	5.0000	6624.9576
T:\MassHunter\Data\2210515ACAL\2210515A_04.d	Calibration	3	<input checked="" type="checkbox"/>	30241	5.0000	6048.1592
T:\MassHunter\Data\2210515ACAL\2210515A_05.d	Calibration	4	<input checked="" type="checkbox"/>	27468	5.0000	5493.6753
T:\MassHunter\Data\2210515ACAL\2210515A_06.d	Calibration	5	<input checked="" type="checkbox"/>	32078	5.0000	6415.5158
T:\MassHunter\Data\2210515ACAL\2210515A_07.d	Calibration	6	<input checked="" type="checkbox"/>	29524	5.0000	5904.8633

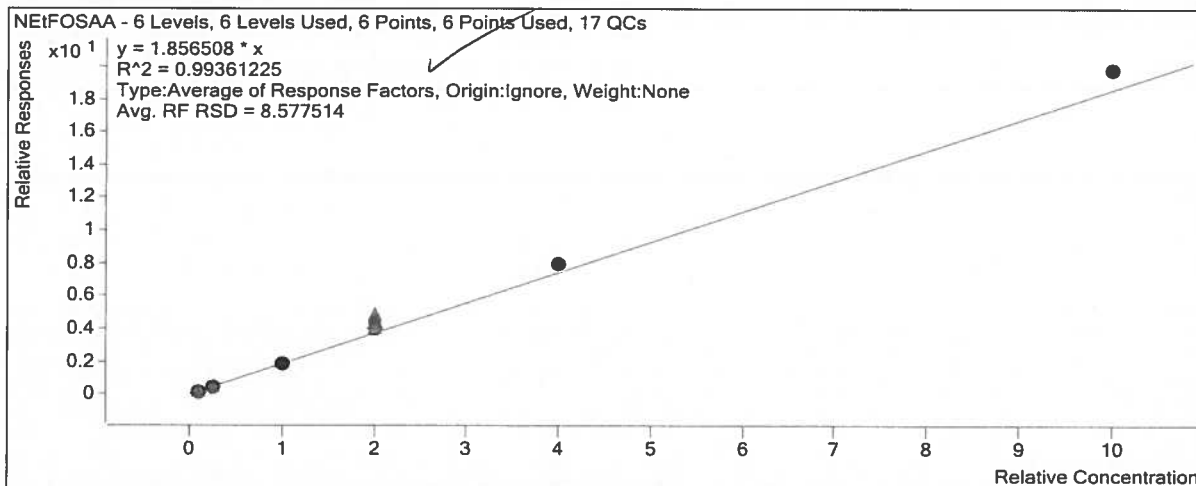
Target Compound

NETFOSAA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
T:\MassHunter\Data\2210515ACAL\2210515A_02.d	Calibration	1	<input checked="" type="checkbox"/>	4545	0.5000	1.5942
T:\MassHunter\Data\2210515ACAL\2210515A_03.d	Calibration	2	<input checked="" type="checkbox"/>	12895	1.2500	1.7521

Quantitative Analysis Calibration Report

T:\MassHunter\Data\2210515ACAL\2210515A_04.d	Calibration	3	<input checked="" type="checkbox"/>	49469	5.0000	1.8482
T:\MassHunter\Data\2210515ACAL\2210515A_05.d	Calibration	4	<input checked="" type="checkbox"/>	92074	10.0000	1.9779
T:\MassHunter\Data\2210515ACAL\2210515A_06.d	Calibration	5	<input checked="" type="checkbox"/>	215442	20.0000	1.9904
T:\MassHunter\Data\2210515ACAL\2210515A_07.d	Calibration	6	<input checked="" type="checkbox"/>	506783	50.0000	1.9763



Extracted ISTD

d5-NEtFOSAA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
T:\MassHunter\Data\2210515ACAL\2210515A_02.d	Calibration	1	<input checked="" type="checkbox"/>	28509	5.0000	5701.8723
T:\MassHunter\Data\2210515ACAL\2210515A_03.d	Calibration	2	<input checked="" type="checkbox"/>	29438	5.0000	5887.5692
T:\MassHunter\Data\2210515ACAL\2210515A_04.d	Calibration	3	<input checked="" type="checkbox"/>	26766	5.0000	5353.2626
T:\MassHunter\Data\2210515ACAL\2210515A_05.d	Calibration	4	<input checked="" type="checkbox"/>	23276	5.0000	4655.2331
T:\MassHunter\Data\2210515ACAL\2210515A_06.d	Calibration	5	<input checked="" type="checkbox"/>	27061	5.0000	5412.1429
T:\MassHunter\Data\2210515ACAL\2210515A_07.d	Calibration	6	<input checked="" type="checkbox"/>	25642	5.0000	5128.4743

Extracted ISTD

M7PFUnA

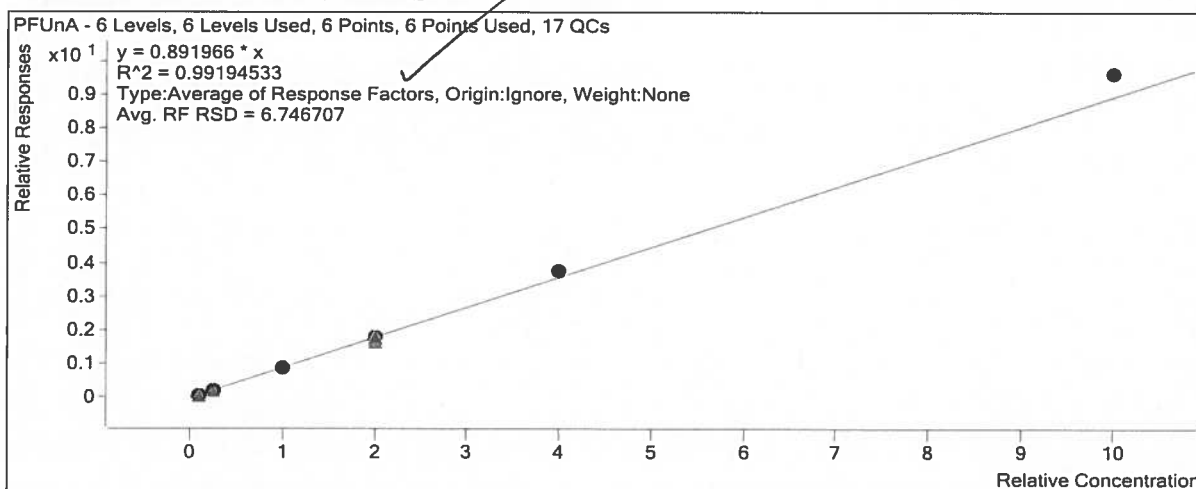
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
T:\MassHunter\Data\2210515ACAL\2210515A_02.d	Calibration	1	<input checked="" type="checkbox"/>	100169	5.0000	20033.8294
T:\MassHunter\Data\2210515ACAL\2210515A_03.d	Calibration	2	<input checked="" type="checkbox"/>	108236	5.0000	21647.2273
T:\MassHunter\Data\2210515ACAL\2210515A_04.d	Calibration	3	<input checked="" type="checkbox"/>	99833	5.0000	19966.6871
T:\MassHunter\Data\2210515ACAL\2210515A_05.d	Calibration	4	<input checked="" type="checkbox"/>	85907	5.0000	17181.4994
T:\MassHunter\Data\2210515ACAL\2210515A_06.d	Calibration	5	<input checked="" type="checkbox"/>	95355	5.0000	19071.0820
T:\MassHunter\Data\2210515ACAL\2210515A_07.d	Calibration	6	<input checked="" type="checkbox"/>	90794	5.0000	18158.7644

Quantitative Analysis Calibration Report

Target Compound

PFUnA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
T:\MassHunter\Data\2210515ACAL\2210515A_02.d	Calibration	1	<input checked="" type="checkbox"/>	8294	0.5000	0.8280
T:\MassHunter\Data\2210515ACAL\2210515A_03.d	Calibration	2	<input checked="" type="checkbox"/>	22020	1.2500	0.8138
T:\MassHunter\Data\2210515ACAL\2210515A_04.d	Calibration	3	<input checked="" type="checkbox"/>	89865	5.0000	0.9001
T:\MassHunter\Data\2210515ACAL\2210515A_05.d	Calibration	4	<input checked="" type="checkbox"/>	155131	10.0000	0.9029
T:\MassHunter\Data\2210515ACAL\2210515A_06.d	Calibration	5	<input checked="" type="checkbox"/>	360572	20.0000	0.9453
T:\MassHunter\Data\2210515ACAL\2210515A_07.d	Calibration	6	<input checked="" type="checkbox"/>	873152	50.0000	0.9617

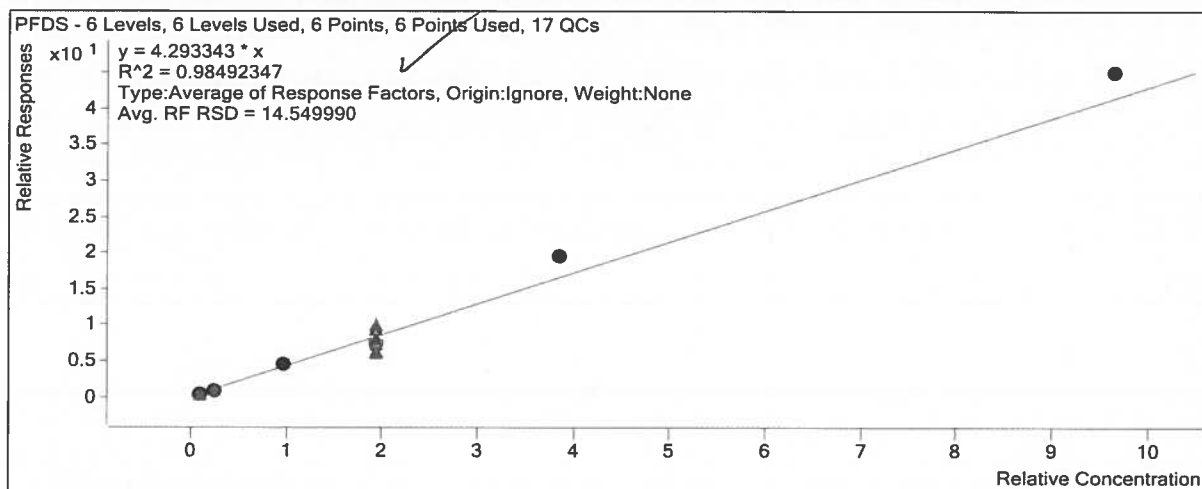


Target Compound

PFDS

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
T:\MassHunter\Data\2210515ACAL\2210515A_02.d	Calibration	1	<input checked="" type="checkbox"/>	827	0.4825	4.2538
T:\MassHunter\Data\2210515ACAL\2210515A_03.d	Calibration	2	<input checked="" type="checkbox"/>	2149	1.2063	3.3327
T:\MassHunter\Data\2210515ACAL\2210515A_04.d	Calibration	3	<input checked="" type="checkbox"/>	8691	4.8250	4.6218
T:\MassHunter\Data\2210515ACAL\2210515A_05.d	Calibration	4	<input checked="" type="checkbox"/>	15779	9.6500	3.8370
T:\MassHunter\Data\2210515ACAL\2210515A_06.d	Calibration	5	<input checked="" type="checkbox"/>	39171	19.3000	5.0502
T:\MassHunter\Data\2210515ACAL\2210515A_07.d	Calibration	6	<input checked="" type="checkbox"/>	110567	48.2500	4.6644

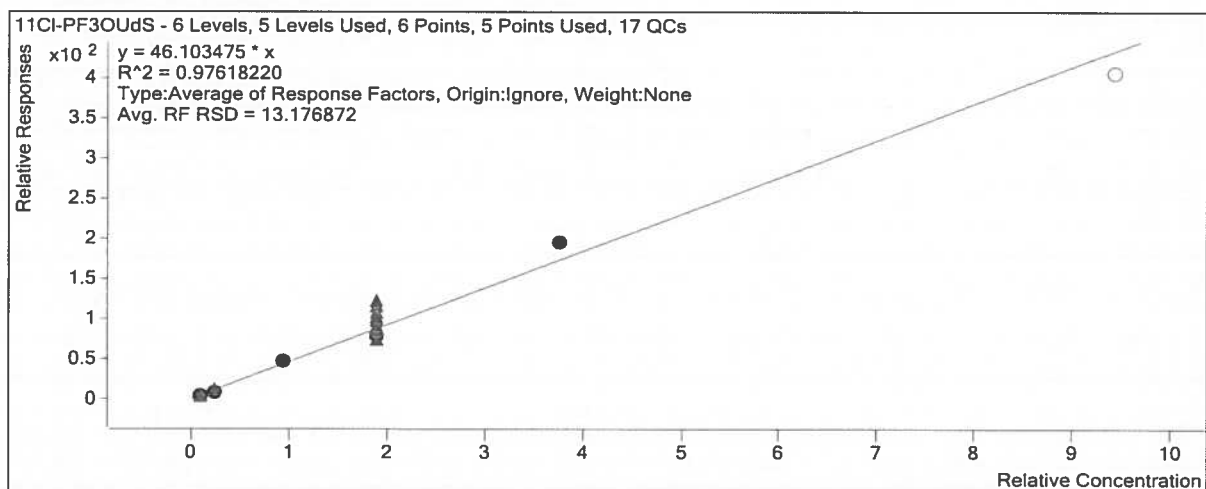
Quantitative Analysis Calibration Report



Target Compound

11CI-PF3OUdS

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
T:\MassHunter\Data\2210515ACAL\2210515A_02.d	Calibration	1	<input checked="" type="checkbox"/>	9296	0.4715	48.9212
T:\MassHunter\Data\2210515ACAL\2210515A_03.d	Calibration	2	<input checked="" type="checkbox"/>	23852	1.1788	37.8502
T:\MassHunter\Data\2210515ACAL\2210515A_04.d	Calibration	3	<input checked="" type="checkbox"/>	92215	4.7150	50.1846
T:\MassHunter\Data\2210515ACAL\2210515A_05.d	Calibration	4	<input checked="" type="checkbox"/>	167111	9.4300	41.5848
T:\MassHunter\Data\2210515ACAL\2210515A_06.d	Calibration	5	<input checked="" type="checkbox"/>	393959	18.8600	51.9765
T:\MassHunter\Data\2210515ACAL\2210515A_07.d	Calibration	6	<input type="checkbox"/>	998700	47.1500	43.1145

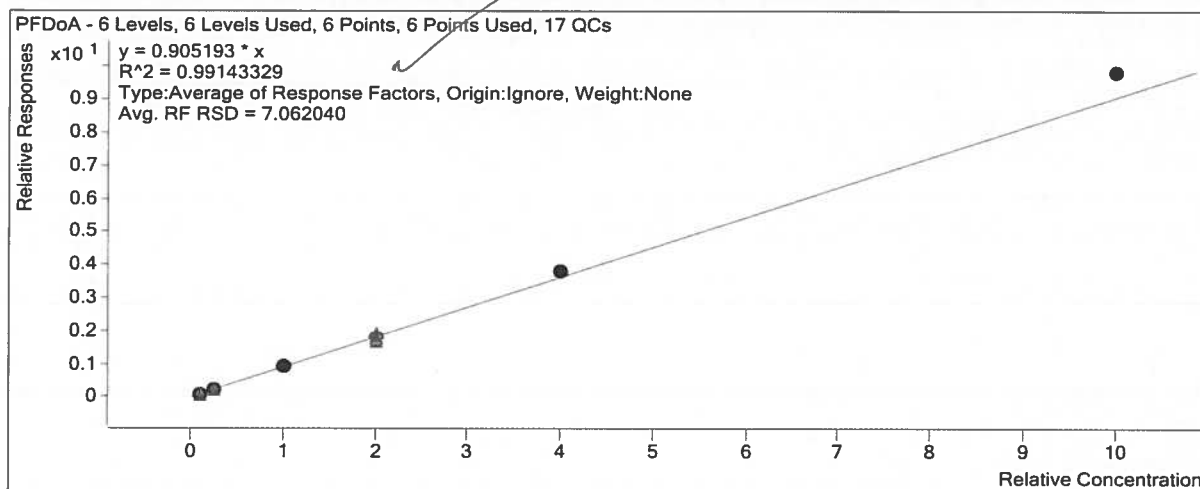


Target Compound

10:2 FTS

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
T:\MassHunter\Data\2210515ACAL\2210515A_02.d	Calibration	1	<input checked="" type="checkbox"/>	3629	0.4820	6.9490

Quantitative Analysis Calibration Report



Extracted ISTD

MPFD_oA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
T:\MassHunter\Data\2210515ACAL\2210515A_02.d	Calibration	1	<input checked="" type="checkbox"/>	66028	5.0000	13205.5427
T:\MassHunter\Data\2210515ACAL\2210515A_03.d	Calibration	2	<input checked="" type="checkbox"/>	73055	5.0000	14610.9923
T:\MassHunter\Data\2210515ACAL\2210515A_04.d	Calibration	3	<input checked="" type="checkbox"/>	64312	5.0000	12862.3812
T:\MassHunter\Data\2210515ACAL\2210515A_05.d	Calibration	4	<input checked="" type="checkbox"/>	57403	5.0000	11480.6046
T:\MassHunter\Data\2210515ACAL\2210515A_06.d	Calibration	5	<input checked="" type="checkbox"/>	66039	5.0000	13207.8734
T:\MassHunter\Data\2210515ACAL\2210515A_07.d	Calibration	6	<input checked="" type="checkbox"/>	65106	5.0000	13021.2476

Extracted ISTD

d-NMeFOSA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
T:\MassHunter\Data\2210515ACAL\2210515A_02.d	Calibration	1	<input checked="" type="checkbox"/>	27701	5.0000	5540.1328
T:\MassHunter\Data\2210515ACAL\2210515A_03.d	Calibration	2	<input checked="" type="checkbox"/>	31047	5.0000	6209.4867
T:\MassHunter\Data\2210515ACAL\2210515A_04.d	Calibration	3	<input checked="" type="checkbox"/>	28948	5.0000	5789.6841
T:\MassHunter\Data\2210515ACAL\2210515A_05.d	Calibration	4	<input checked="" type="checkbox"/>	25611	5.0000	5122.1762
T:\MassHunter\Data\2210515ACAL\2210515A_06.d	Calibration	5	<input checked="" type="checkbox"/>	30175	5.0000	6034.9730
T:\MassHunter\Data\2210515ACAL\2210515A_07.d	Calibration	6	<input checked="" type="checkbox"/>	30999	5.0000	6199.8419

Target Compound

NMeFOSA

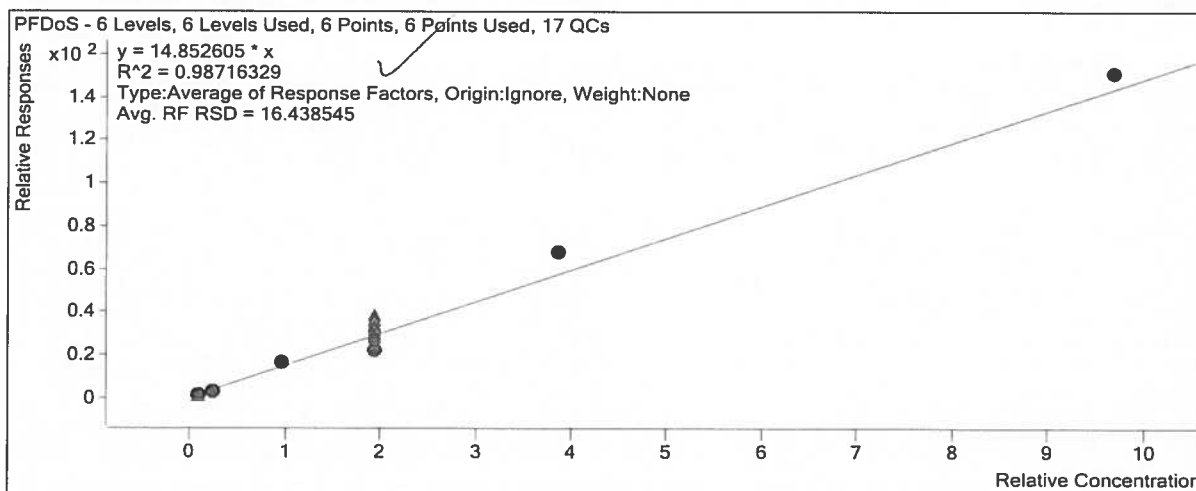
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
T:\MassHunter\Data\2210515ACAL\2210515A_02.d	Calibration	1	<input checked="" type="checkbox"/>	2334	0.5000	0.8428

Quantitative Analysis Calibration Report

Target Compound

PFDoS

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
T:\MassHunter\Data\2210515ACAL\2210515A_02.d	Calibration	1	<input checked="" type="checkbox"/>	2842	0.4840	14.5724
T:\MassHunter\Data\2210515ACAL\2210515A_03.d	Calibration	2	<input checked="" type="checkbox"/>	8088	1.2100	12.5040
T:\MassHunter\Data\2210515ACAL\2210515A_04.d	Calibration	3	<input checked="" type="checkbox"/>	32427	4.8400	17.1916
T:\MassHunter\Data\2210515ACAL\2210515A_05.d	Calibration	4	<input checked="" type="checkbox"/>	47879	9.6800	11.6069
T:\MassHunter\Data\2210515ACAL\2210515A_06.d	Calibration	5	<input checked="" type="checkbox"/>	137008	19.3600	17.6091
T:\MassHunter\Data\2210515ACAL\2210515A_07.d	Calibration	6	<input checked="" type="checkbox"/>	371690	48.4000	15.6317

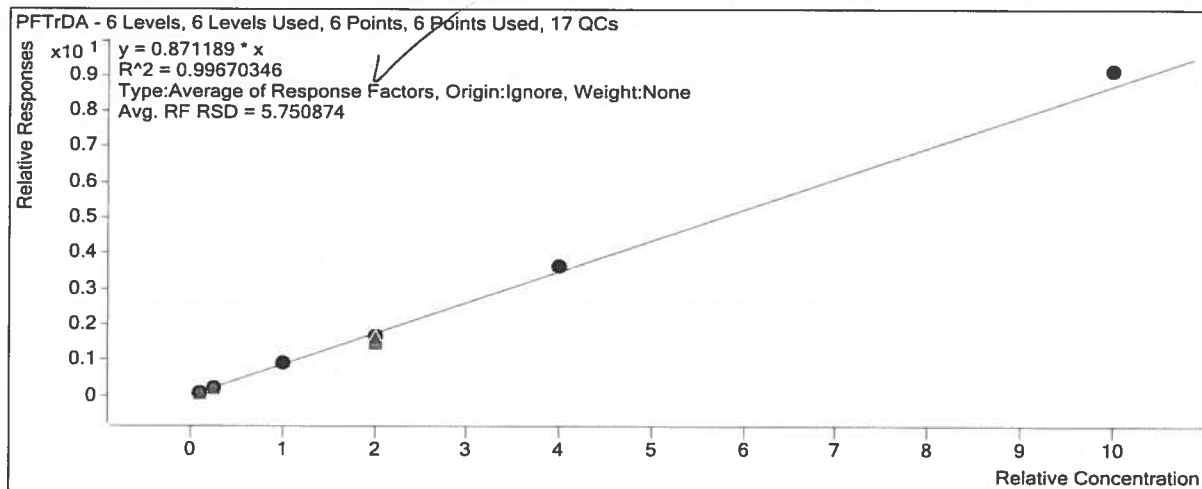


Target Compound

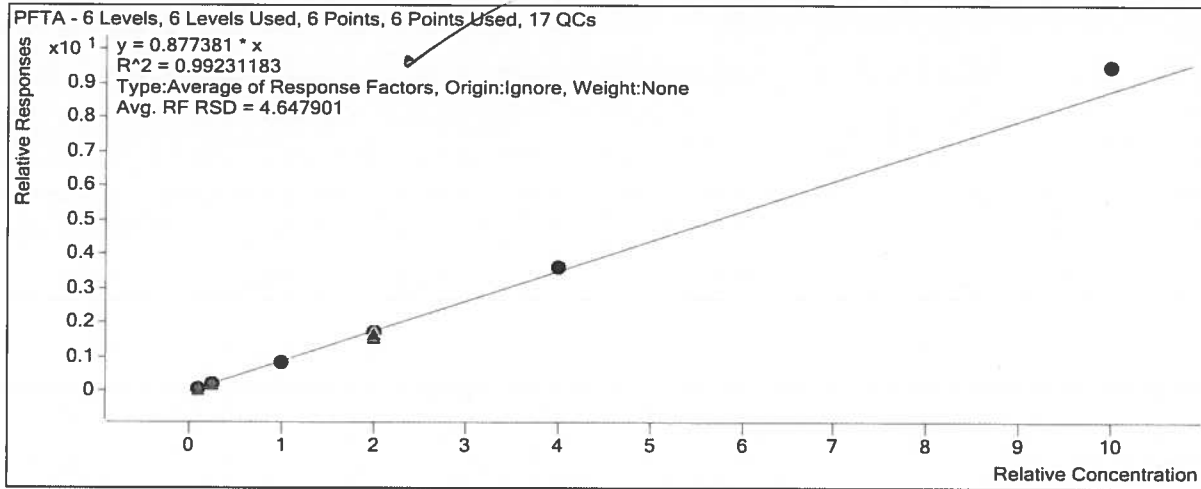
PFTrDA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
T:\MassHunter\Data\2210515ACAL\2210515A_02.d	Calibration	1	<input checked="" type="checkbox"/>	5829	0.5000	0.8828
T:\MassHunter\Data\2210515ACAL\2210515A_03.d	Calibration	2	<input checked="" type="checkbox"/>	14305	1.2500	0.7833
T:\MassHunter\Data\2210515ACAL\2210515A_04.d	Calibration	3	<input checked="" type="checkbox"/>	57717	5.0000	0.8975
T:\MassHunter\Data\2210515ACAL\2210515A_05.d	Calibration	4	<input checked="" type="checkbox"/>	96668	10.0000	0.8420
T:\MassHunter\Data\2210515ACAL\2210515A_06.d	Calibration	5	<input checked="" type="checkbox"/>	240233	20.0000	0.9094
T:\MassHunter\Data\2210515ACAL\2210515A_07.d	Calibration	6	<input checked="" type="checkbox"/>	593880	50.0000	0.9122

Quantitative Analysis Calibration Report



Quantitative Analysis Calibration Report



7E
ORGANICS CALIBRATION VERIFICATION

Report No:	221050411	Instrument ID:	QQQ1
Analysis Date:	05/15/2021 17:55	Lab File ID:	2210515A_30.d
Analytical Method:	EPA 537 Mod Isotope Dilution	Analytical Batch:	711275

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomersulfonic acid	ng/L	9510	9760	103 ✓	70	130	
8:2 Fluorotelomersulfonic acid	ng/L	9600	7930	83	70	130	
NEtFOSAA	ng/L	10000	11700	117	70	130	
NMeFOSAA	ng/L	10000	8960	90	70	130	
Perfluorobutanoic acid	ng/L	10000	9430	94	70	130	
Perfluorobutanesulfonic acid	ng/L	8870	8520	96	70	130	
Perfluorodecanoic acid	ng/L	10000	9990	100	70	130	
Perfluorododecanoic acid	ng/L	10000	9950	100	70	130	
Perfluoroheptanoic acid	ng/L	10000	10000	100	70	130	
Perfluorohexanoic acid	ng/L	10000	9520	95	70	130	
Perfluorohexanesulfonic acid	ng/L	9140	9230	101	70	130	
Perfluorononanoic acid	ng/L	10000	10200	102	70	130	
Perfluorooctanoic acid	ng/L	10000	9830	98	70	130	
Perfluorooctanesulfonic acid	ng/L	9280	10100	108	70	130	
Perfluoropentanoic acid	ng/L	10000	9510	95	70	130	
Perfluorotetradecanoic acid	ng/L	10000	9830	98	70	130	
Perfluorotridecanoic acid	ng/L	10000	9540	95	70	130	
Perfluoroundecanoic acid	ng/L	10000	9710	97	70	130	

FORM 7E - ORG

7E
ORGANICS CALIBRATION VERIFICATION

Report No:	221050411	Instrument ID:	QQQ1
Analysis Date:	05/15/2021 21:06	Lab File ID:	2210515A_41.d
Analytical Method:	EPA 537 Mod Isotope Dilution	Analytical Batch:	711275

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomersulfonic acid	ng/L	9510	9380	99 ✓	70	130	
8:2 Fluorotelomersulfonic acid	ng/L	9600	7810	81	70	130	
NEtFOSAA	ng/L	10000	11400	114	70	130	
NMeFOSAA	ng/L	10000	8440	84	70	130	
Perfluorobutanoic acid	ng/L	10000	9550	96	70	130	
Perfluorobutanesulfonic acid	ng/L	8870	8330	94	70	130	
Perfluorodecanoic acid	ng/L	10000	9590	96	70	130	
Perfluorododecanoic acid	ng/L	10000	9850	99	70	130	
Perfluoroheptanoic acid	ng/L	10000	10100	101	70	130	
Perfluorohexanoic acid	ng/L	10000	9870	99	70	130	
Perfluorohexanesulfonic acid	ng/L	9140	9100	100	70	130	
Perfluorononanoic acid	ng/L	10000	10000	100	70	130	
Perfluorooctanoic acid	ng/L	10000	10000	100	70	130	
Perfluorooctanesulfonic acid	ng/L	9280	11600	125	70	130	
Perfluoropentanoic acid	ng/L	10000	9370	94	70	130	
Perfluorotetradecanoic acid	ng/L	10000	9950	100	70	130	
Perfluorotridecanoic acid	ng/L	10000	9520	95	70	130	
Perfluoroundecanoic acid	ng/L	10000	9530	95	70	130	

FORM 7E - ORG

INJECTION INTERNAL STANDARD AREA SUMMARY

Report No:	<u>221050411</u>	Standard ID:	<u>1205 (ICAL Midpoint)</u>
Analyst:	<u>RXJ</u>	Instrument ID:	<u>QQQ3</u>
Analysis Date:	<u>05/10/21 14:44</u>	Lab File ID:	<u>2210510A_09.d</u>
Analytical Method:	<u>PFAS Isotope Dilution QSM B15</u>	Analytical Batch:	<u>711161</u>

	M2PFDA	M2PFHxA	M2PFOA	M4PFOS
	Area	Area	Area	Area
STANDARD	203872	327393	162813	33012

CLIENT SAMPLE ID	LAB SAMP ID	✓	#	✓	#	✓	#	✓	#
MB2179810	2179810	213993		346375		177496		33277	
LCS2179811	2179811	202214		315715		161905		31330	
LCSD2179812	2179812	214371		338435		174243		33092	

AREA UPPER LIMIT = +50% of internal standard area

AREA LOWER LIMIT = -50% of internal standard area

Column used to flag values outside QC limits

* Value outside QC limits

Instrument: QQQ3 HBN: 711477
 Batch: 2210517A
 Current ICAL Bath: 2210510ACAL
 20mM Amm Acetate 016-75-3 5/19/2021
 Methanol 2130147 6/30/2025
 Calibration Std 016-68-2 8/24/2021
 ICV Std 016-21-3 8/2/2021
 EIS Mix 016-69-7 10/23/2021
 IIS Mix 016-69-5 11/10/2021

Name	Data File	Type	Acq. Date-Time	Comment	Dil.
IB	2210510A_01.d	Sample	5/10/2021 14:35	RXJ,QQQ3;Instrument Blank/Instrument Idle	1
1204RT TEST	2210510A_02.d	Sample	5/10/2021 14:50	RXJ,QQQ3; RT TEST	1
1204RT TEST	2210510A_03.d	Sample	5/10/2021 15:08	RXJ,QQQ3; RT TEST	1
IB	2210510A_04.d	Sample	5/10/2021 15:31	RXJ,QQQ3;Instrument Blank/Instrument Idle	1
1201	2210510A_05.d	Cal	5/10/2021 15:45	RXJ,QQQ3; ICAL	1
1202	2210510A_06.d	Cal	5/10/2021 16:00	RXJ,QQQ3; ICAL	1
1203	2210510A_07.d	Cal	5/10/2021 16:15	RXJ,QQQ3; ICAL	1
1204	2210510A_08.d	Cal	5/10/2021 16:29	RXJ,QQQ3; ICAL	1
1205	2210510A_09.d	Cal	5/10/2021 16:44	RXJ,QQQ3; ICAL	1
1206	2210510A_10.d	Cal	5/10/2021 16:58	RXJ,QQQ3; ICAL	1
IB	2210510A_11.d	Sample	5/10/2021 17:22	RXJ,QQQ3;Instrument Blank/Instrument Idle	1
1500	2210510A_12.d	Blank	5/10/2021 17:36	RXJ,QQQ3; BLANK	1
1600	2210510A_13.d	Sample	5/10/2021 17:51	RXJ,QQQ3;ICV	1
1450	2210510A_14.d	QC	5/10/2021 18:06	RXJ,QQQ3;CCV	1
1500	2210517A_01.d	Sample	5/17/2021 18:34	RXJ,QQQ3;BLANK	1
1450	2210517A_02.d	Sample	5/17/2021 18:49	RXJ,QQQ3;CCV	1
1500	2210517A_03.d	Blank	5/17/2021 19:04	RXJ,QQQ3;CCV	1
1450	2210517A_04.d	QC	5/17/2021 19:19	RXJ,QQQ3;CCV	1
1204 Test	2210517A_05.d	QC	5/17/2021 19:34	RXJ,QQQ3;	1
22104274603	2210517A_06.d	Sample	5/17/2021 19:51	MRA,QQQ3,710836	50
22104274603	2210517A_07.d	Sample	5/17/2021 20:06	MRA,QQQ3,710836	1
22104283105	2210517A_08.d	Sample	5/17/2021 20:21	MRA,QQQ3,710145	1
22104283108	2210517A_09.d	Sample	5/17/2021 20:35	MRA,QQQ3,710145	5

22104283109	2210517A_10.d	Sample	5/17/2021 20:50	MRA,QQQ3,710145	20
22104283110	2210517A_11.d	Sample	5/17/2021 21:05	MRA,QQQ3,710145	20
22105041140	2210517A_12.d	Sample	5/17/2021 21:19	MRA,QQQ3,709960	10
22105041141	2210517A_13.d	Sample	5/17/2021 21:34	MRA,QQQ3,709960	5
22105041142	2210517A_14.d	Sample	5/17/2021 21:49	MRA,QQQ3,709960	10
2183955	2210517A_15.d	Blank	5/17/2021 22:07	MRA,QQQ3,710743	1
2183946	2210517A_16.d	Blank	5/17/2021 22:24	MRA,QQQ3,710742	1
2183947	2210517A_17.d	QC	5/17/2021 22:38	MRA,QQQ3,710742	1
2183948	2210517A_18.d	QC	5/17/2021 22:53	MRA,QQQ3,710742	1
2183956	2210517A_19.d	QC	5/17/2021 23:08	MRA,QQQ3,710743	1
22104306202	2210517A_20.d	Sample	5/17/2021 23:23	MRA,QQQ3,710743	1
1400	2210517A_21.d	QC	5/17/2021 23:37	MRA,QQQ3,710743	1
22104306203	2210517A_22.d	Sample	5/17/2021 23:52	MRA,QQQ3,710743	1
22104306204	2210517A_23.d	Sample	5/18/2021 0:07	MRA,QQQ3,710743	1
22104306205	2210517A_24.d	Sample	5/18/2021 0:21	MRA,QQQ3,710743	1
22104306206	2210517A_25.d	Sample	5/18/2021 0:36	MRA,QQQ3,710743	1
22104306207	2210517A_26.d	Sample	5/18/2021 0:51	MRA,QQQ3,710743	1
22104306208	2210517A_27.d	Sample	5/18/2021 1:05	MRA,QQQ3,710743	1
22104306209	2210517A_28.d	Sample	5/18/2021 1:20	MRA,QQQ3,710743	1
22104306210	2210517A_29.d	Sample	5/18/2021 1:35	MRA,QQQ3,710743	1
22104306211	2210517A_30.d	Sample	5/18/2021 1:49	MRA,QQQ3,710743	1
1400	2210517A_31.d	QC	5/18/2021 2:04	MRA,QQQ3,710743	1
22104306212	2210517A_32.d	Sample	5/18/2021 2:19	MRA,QQQ3,710743	1
22105011113	2210517A_33.d	Sample	5/18/2021 2:34	MRA,QQQ3,710743	1
22105011114	2210517A_34.d	Sample	5/18/2021 2:48	MRA,QQQ3,710743	1
22105011115	2210517A_35.d	Sample	5/18/2021 3:03	MRA,QQQ3,710743	1
22105011116	2210517A_36.d	Sample	5/18/2021 3:17	MRA,QQQ3,710743	1
22105011125	2210517A_37.d	Sample	5/18/2021 3:32	MRA,QQQ3,710743	1
22105011126	2210517A_38.d	Sample	5/18/2021 3:47	MRA,QQQ3,710743	1
22105011127	2210517A_39.d	Sample	5/18/2021 4:01	MRA,QQQ3,710743	1
22105011128	2210517A_40.d	Sample	5/18/2021 4:16	MRA,QQQ3,710743	1
22105011129	2210517A_41.d	Sample	5/18/2021 4:30	MRA,QQQ3,710743	1
1450	2210517A_42.d	QC	5/18/2021 4:45	MRA,QQQ3,CCV	1
22105011130	2210517A_43.d	Sample	5/18/2021 5:00	MRA,QQQ3,710743	1

22105011131	2210517A_44a.d	Sample	5/18/2021 5:15	MRA,QQQ3,710743	1
22105041101	2210517A_45a.d	Sample	5/18/2021 5:29	MRA,QQQ3,710742	1
22105041102	2210517A_46.d	Sample	5/18/2021 5:44	MRA,QQQ3,710742	1
22105041103	2210517A_47.d	Sample	5/18/2021 5:59	MRA,QQQ3,710742	1
22105041104	2210517A_48.d	Sample	5/18/2021 6:13	MRA,QQQ3,710742	1
22105041127	2210517A_49.d	Sample	5/18/2021 6:28	MRA,QQQ3,710742	1
22105041128	2210517A_50.d	Sample	5/18/2021 6:43	MRA,QQQ3,710742	1
22105041129	2210517A_51.d	Sample	5/18/2021 6:57	MRA,QQQ3,710742	1
22105041130	2210517A_52.d	Sample	5/18/2021 7:12	MRA,QQQ3,710742	1
1400	2210517A_53.d	QC	5/18/2021 7:26	MRA,QQQ3,CCV	1
22104306026	2210517A_54.d	Sample	5/18/2021 7:41	MRA,QQQ3,710742	1
22104306027	2210517A_55.d	Sample	5/18/2021 7:56	MRA,QQQ3,710742	1
22104306028	2210517A_56.d	Sample	5/18/2021 8:10	MRA,QQQ3,710742	1
22104306029	2210517A_57.d	Sample	5/18/2021 8:25	MRA,QQQ3,710742	1
22104306110	2210517A_58.d	Sample	5/18/2021 8:39	MRA,QQQ3,710742	1
22104306111	2210517A_59a.d	Sample	5/18/2021 8:54	MRA,QQQ3,710742	1
22104306112	2210517A_60.d	Sample	5/18/2021 9:09	MRA,QQQ3,710742	1
22104306113	2210517A_61.d	Sample	5/18/2021 9:24	MRA,QQQ3,710742	1
22104306114	2210517A_62.d	Sample	5/18/2021 9:38	MRA,QQQ3,710742	1
22104306115	2210517A_63.d	Sample	5/18/2021 9:53	MRA,QQQ3,710742	1
1400	2210517A_64.d	QC	5/18/2021 10:07	MRA,QQQ3,CCV	1
22104306116	2210517A_65.d	Sample	5/18/2021 10:22	MRA,QQQ3,710742	1
22104306201	2210517A_66.d	Sample	5/18/2021 10:37	MRA,QQQ3,710742	1
22104306026	2210517A_67.d	Sample	5/18/2021 10:52	MRA,QQQ3,710742	5
22104306027	2210517A_68.d	Sample	5/18/2021 11:06	MRA,QQQ3,710742	5
22104306028	2210517A_69.d	Sample	5/18/2021 11:21	MRA,QQQ3,710742	5
22104306029	2210517A_70.d	Sample	5/18/2021 11:36	MRA,QQQ3,710742	5
1400	2210517A_71.d	QC	5/18/2021 11:50	MRA,QQQ3,CCV	1
2186346	2210517A_72.d	Blank	5/18/2021 12:10	MRA,QQQ3,711160	1
2186347	2210517A_73.d	QC	5/18/2021 12:25	MRA,QQQ3,711160	1
22105133501	2210517A_74.d	Sample	5/18/2021 12:40	MRA,QQQ3,711160	1
22105133801	2210517A_75.d	Sample	5/18/2021 12:54	MRA,QQQ3,711160	1
22105055815	2210517A_76.d	Sample	5/18/2021 13:09	MRA,QQQ3,711160	1
22105055816	2210517A_77.d	QC	5/18/2021 13:23	MRA,QQQ3,711160	1

22105055817	2210517A_78.d	QC	5/18/2021 13:38	MRA,QQQ3,711160	1
2185559	2210517A_79.d	Blank	5/18/2021 13:54	MRA,QQQ3,711042	1
2185560	2210517A_80.d	QC	5/18/2021 14:09	MRA,QQQ3,711042	1
2185561	2210517A_81.d	QC	5/18/2021 14:23	MRA,QQQ3,711042	1
22104300604	2210517A_82.d	Sample	5/18/2021 14:38	MRA,QQQ3,711042	1
22104306301	2210517A_83.d	Sample	5/18/2021 14:53	MRA,QQQ3,711042	1
22104306302	2210517A_84.d	Sample	5/18/2021 15:07	MRA,QQQ3,711042	1
22104306303	2210517A_85.d	Sample	5/18/2021 15:22	MRA,QQQ3,711042	1
22104280103	2210517A_86.d	Sample	5/18/2021 15:45	MRA,QQQ3,710368	10
22104280103	2210517A_87.d	Sample	5/18/2021 16:00	MRA,QQQ3,710368	20
22104280105	2210517A_88.d	Sample	5/18/2021 16:15	MRA,QQQ3,710368	5
1400	2210517A_89.d	Sample	5/18/2021 16:29	MRA,QQQ3,CCV	1
22105010915	2210517A_90.d	Sample	5/18/2021 16:44	MRA,QQQ3,711042	1
22105011117	2210517A_91a.d	Sample	5/18/2021 16:59	MRA,QQQ3,711042	1
2187770	2210517A_92.d	Sample	5/18/2021 17:15	MRA,QQQ3,711388	1
2187771	2210517A_93.d	Sample	5/18/2021 17:30	MRA,QQQ3,711388	1
2187772	2210517A_94.d	Sample	5/18/2021 17:45	MRA,QQQ3,711388	1
22105171801	2210517A_95.d	Sample	5/18/2021 17:59	MRA,QQQ3,711388	1
22105171802	2210517A_96.d	Sample	5/18/2021 18:14	MRA,QQQ3,711388	1
1450	2210517A_97.d	QC	5/18/2021 18:29	MRA,QQQ3,CCV	1

ORGANICS INSTRUMENT SENSITIVITY CHECK

Report No:	<u>221050411</u>	Instrument ID:	<u>QQQ3</u>
Analysis Date:	<u>05/17/2021 17:19</u>	Lab File ID:	<u>2210517A_04.d</u>
Analytical Method:	<u>EPA 537 Mod Isotope Dilution</u>	Analytical Batch:	<u>711477</u>

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomersulfonic acid	ng/L	3.81	4.24	112 ✓	70	130	
8:2 Fluorotelomersulfonic acid	ng/L	3.84	4.55	118	70	130	
NEtFOSAA	ng/L	4.00	4.08	102	70	130	
NMeFOSAA	ng/L	4.00	4.54	113	70	130	
Perfluorobutanoic acid	ng/L	4.00	4.37	109	70	130	
Perfluorobutanesulfonic acid	ng/L	3.55	3.61	102	70	130	
Perfluorodecanoic acid	ng/L	4.00	4.33	108	70	130	
Perfluorododecanoic acid	ng/L	4.00	4.10	103	70	130	
Perfluoroheptanoic acid	ng/L	4.00	4.34	109	70	130	
Perfluorohexanoic acid	ng/L	4.00	4.51	113	70	130	
Perfluorohexanesulfonic acid	ng/L	3.66	3.98	109	70	130	
Perfluorononanoic acid	ng/L	4.00	4.25	106	70	130	
Perfluorooctanoic acid	ng/L	4.00	4.37	109	70	130	
Perfluorooctanesulfonic acid	ng/L	3.71	4.11	111	70	130	
Perfluoropentanoic acid	ng/L	4.00	4.25	106	70	130	
Perfluorotetradecanoic acid	ng/L	4.00	4.24	106	70	130	
Perfluorotridecanoic acid	ng/L	4.00	4.17	104	70	130	
Perfluoroundecanoic acid	ng/L	4.00	4.22	106	70	130	

ORGANICS INSTRUMENT SENSITIVITY CHECK

Report No:	<u>221050411</u>	Instrument ID:	<u>QQQ3</u>
Analysis Date:	<u>05/18/2021 02:45</u>	Lab File ID:	<u>2210517A_42.d</u>
Analytical Method:	<u>EPA 537 Mod Isotope Dilution</u>	Analytical Batch:	<u>711477</u>

<i>ANALYTE</i>	<i>UNITS</i>	<i>TRUE</i>	<i>FOUND</i>	<i>% REC</i>	<i>LCL</i>	<i>UCL</i>	<i>Q</i>
6:2 Fluorotelomersulfonic acid	ng/L	3.81	3.99	105 ✓	70	130	
8:2 Fluorotelomersulfonic acid	ng/L	3.84	4.38	114	70	130	
NEtFOSAA	ng/L	4.00	4.45	111	70	130	
NMeFOSAA	ng/L	4.00	4.02	101	70	130	
Perfluorobutanoic acid	ng/L	4.00	4.37	109	70	130	
Perfluorobutanesulfonic acid	ng/L	3.55	3.77	106	70	130	
Perfluorodecanoic acid	ng/L	4.00	4.29	107	70	130	
Perfluorododecanoic acid	ng/L	4.00	4.09	102	70	130	
Perfluoroheptanoic acid	ng/L	4.00	4.30	107	70	130	
Perfluorohexanoic acid	ng/L	4.00	4.27	107	70	130	
Perfluorohexanesulfonic acid	ng/L	3.66	3.98	109	70	130	
Perfluorononanoic acid	ng/L	4.00	4.28	107	70	130	
Perfluorooctanoic acid	ng/L	4.00	4.41	110	70	130	
Perfluorooctanesulfonic acid	ng/L	3.71	4.25	115	70	130	
Perfluoropentanoic acid	ng/L	4.00	4.20	105	70	130	
Perfluorotetradecanoic acid	ng/L	4.00	4.33	108	70	130	
Perfluorotridecanoic acid	ng/L	4.00	4.15	104	70	130	
Perfluoroundecanoic acid	ng/L	4.00	4.11	103	70	130	

ORGANICS INSTRUMENT BLANK

Report No:	221050411	Instrument ID:	QQQ3
Analysis Date:	05/17/2021 17:04	Lab File ID:	2210517A_03.d
Analytical Method:	EPA 537 Mod Isotope Dilution	Analytical Batch:	711477

ANALYTE	UNITS	RESULT	Q	DL	LOD	LOQ	#
6:2 Fluorotelomersulfonic acid	ng/L	2.00	U	0.94	2.00	4.00	
8:2 Fluorotelomersulfonic acid	ng/L	2.00	U	0.90	2.00	4.00	
NEtFOSAA	ng/L	4.00	U	0.97	4.00	8.00	
NMeFOSAA	ng/L	4.00	U	0.90	4.00	8.00	
Perfluorobutanesulfonic acid	ng/L	2.00	U	0.62	2.00	4.00	
Perfluorobutanoic acid	ng/L	2.00	U	0.90	2.00	4.00	
Perfluorodecanoic acid	ng/L	2.00	U	0.86	2.00	4.00	
Perfluorododecanoic acid	ng/L	2.00	U	0.88	2.00	4.00	
Perfluoroheptanoic acid	ng/L	2.00	U	0.48	2.00	4.00	
Perfluorohexanesulfonic acid	ng/L	2.00	U	0.95	2.00	4.00	
Perfluorohexanoic acid	ng/L	2.00	U	0.94	2.00	4.00	
Perfluorononanoic acid	ng/L	2.00	U	0.78	2.00	4.00	
Perfluorooctanesulfonic acid	ng/L	2.00	U	0.76	2.00	4.00	
Perfluorooctanoic acid	ng/L	2.00	U	0.84	2.00	4.00	
Perfluoropentanoic acid	ng/L	2.00	U	0.85	2.00	4.00	
Perfluorotetradecanoic acid	ng/L	2.00	U	0.98	2.00	4.00	
Perfluorotridecanoic acid	ng/L	2.00	U	0.99	2.00	4.00	
Perfluoroundecanoic acid	ng/L	2.00	U	0.95	2.00	4.00	

* - Result greater than 1/2 LOQ

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ORGANICS CALIBRATION VERIFICATION

Report No:	221050411	Instrument ID:	QQQ3
Analysis Date:	05/17/2021 21:37	Lab File ID:	2210517A_21.d
Analytical Method:	EPA 537 Mod Isotope Dilution	Analytical Batch:	711477

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomersulfonic acid	ng/L	9510	9190	97 ✓	70	130	
8:2 Fluorotelomersulfonic acid	ng/L	9600	9460	99	70	130	
NEtFOSAA	ng/L	10000	9230	92	70	130	
NMeFOSAA	ng/L	10000	9330	93	70	130	
Perfluorobutanoic acid	ng/L	10000	9270	93	70	130	
Perfluorobutanesulfonic acid	ng/L	8870	8350	94	70	130	
Perfluorodecanoic acid	ng/L	10000	9530	95	70	130	
Perfluorododecanoic acid	ng/L	10000	9600	96	70	130	
Perfluoroheptanoic acid	ng/L	10000	9580	96	70	130	
Perfluorohexanoic acid	ng/L	10000	9120	91	70	130	
Perfluorohexanesulfonic acid	ng/L	9140	8840	97	70	130	
Perfluorononanoic acid	ng/L	10000	9360	94	70	130	
Perfluorooctanoic acid	ng/L	10000	9430	94	70	130	
Perfluorooctanesulfonic acid	ng/L	9280	8750	94	70	130	
Perfluoropentanoic acid	ng/L	10000	9600	96	70	130	
Perfluorotetradecanoic acid	ng/L	10000	9650	97	70	130	
Perfluorotridecanoic acid	ng/L	10000	9730	97	70	130	
Perfluoroundecanoic acid	ng/L	10000	9510	95	70	130	

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ORGANICS CALIBRATION VERIFICATION

Report No:	221050411	Instrument ID:	QQQ3
Analysis Date:	05/18/2021 00:04	Lab File ID:	2210517A_31.d
Analytical Method:	EPA 537 Mod Isotope Dilution	Analytical Batch:	711477

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomersulfonic acid	ng/L	9510	9100	96 ✓	70	130	
8:2 Fluorotelomersulfonic acid	ng/L	9600	9990	104	70	130	
NEtFOSAA	ng/L	10000	9150	91	70	130	
NMeFOSAA	ng/L	10000	9120	91	70	130	
Perfluorobutanoic acid	ng/L	10000	9310	93	70	130	
Perfluorobutanesulfonic acid	ng/L	8870	8150	92	70	130	
Perfluorodecanoic acid	ng/L	10000	9520	95	70	130	
Perfluorododecanoic acid	ng/L	10000	9700	97	70	130	
Perfluoroheptanoic acid	ng/L	10000	9480	95	70	130	
Perfluorohexanoic acid	ng/L	10000	9440	94	70	130	
Perfluorohexanesulfonic acid	ng/L	9140	8710	95	70	130	
Perfluorononanoic acid	ng/L	10000	9550	96	70	130	
Perfluorooctanoic acid	ng/L	10000	9360	94	70	130	
Perfluorooctanesulfonic acid	ng/L	9280	8790	95	70	130	
Perfluoropentanoic acid	ng/L	10000	9490	95	70	130	
Perfluorotetradecanoic acid	ng/L	10000	9740	97	70	130	
Perfluorotridecanoic acid	ng/L	10000	9680	97	70	130	
Perfluoroundecanoic acid	ng/L	10000	9660	97	70	130	

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ORGANICS CALIBRATION VERIFICATION

Report No:	221050411	Instrument ID:	QQQ3
Analysis Date:	05/18/2021 05:26	Lab File ID:	2210517A_53.d
Analytical Method:	EPA 537 Mod Isotope Dilution	Analytical Batch:	711477

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomersulfonic acid	ng/L	9510	9100	96 ✓	70	130	
8:2 Fluorotelomersulfonic acid	ng/L	9600	9460	99	70	130	
NEtFOSAA	ng/L	10000	9540	95	70	130	
NMeFOSAA	ng/L	10000	9540	95	70	130	
Perfluorobutanoic acid	ng/L	10000	9330	93	70	130	
Perfluorobutanesulfonic acid	ng/L	8870	8270	93	70	130	
Perfluorodecanoic acid	ng/L	10000	9530	95	70	130	
Perfluorododecanoic acid	ng/L	10000	9740	97	70	130	
Perfluoroheptanoic acid	ng/L	10000	9640	96	70	130	
Perfluorohexanoic acid	ng/L	10000	9430	94	70	130	
Perfluorohexanesulfonic acid	ng/L	9140	8730	95	70	130	
Perfluorononanoic acid	ng/L	10000	9610	96	70	130	
Perfluorooctanoic acid	ng/L	10000	9280	93	70	130	
Perfluorooctanesulfonic acid	ng/L	9280	8810	95	70	130	
Perfluoropentanoic acid	ng/L	10000	9490	95	70	130	
Perfluorotetradecanoic acid	ng/L	10000	9750	97	70	130	
Perfluorotridecanoic acid	ng/L	10000	9690	97	70	130	
Perfluoroundecanoic acid	ng/L	10000	9710	97	70	130	

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ORGANICS CALIBRATION VERIFICATION

Report No:	221050411	Instrument ID:	QQQ3
Analysis Date:	05/18/2021 08:07	Lab File ID:	2210517A_64.d
Analytical Method:	EPA 537 Mod Isotope Dilution	Analytical Batch:	711477

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomersulfonic acid	ng/L	9510	9080	95 ✓	70	130	
8:2 Fluorotelomersulfonic acid	ng/L	9600	9540	99	70	130	
NEtFOSAA	ng/L	10000	9360	94	70	130	
NMeFOSAA	ng/L	10000	9070	91	70	130	
Perfluorobutanoic acid	ng/L	10000	9370	94	70	130	
Perfluorobutanesulfonic acid	ng/L	8870	8320	94	70	130	
Perfluorodecanoic acid	ng/L	10000	9570	96	70	130	
Perfluorododecanoic acid	ng/L	10000	9570	96	70	130	
Perfluoroheptanoic acid	ng/L	10000	9440	94	70	130	
Perfluorohexanoic acid	ng/L	10000	9430	94	70	130	
Perfluorohexanesulfonic acid	ng/L	9140	8730	96	70	130	
Perfluorononanoic acid	ng/L	10000	9500	95	70	130	
Perfluorooctanoic acid	ng/L	10000	9520	95	70	130	
Perfluorooctanesulfonic acid	ng/L	9280	8910	96	70	130	
Perfluoropentanoic acid	ng/L	10000	9500	95	70	130	
Perfluorotetradecanoic acid	ng/L	10000	9710	97	70	130	
Perfluorotridecanoic acid	ng/L	10000	9550	96	70	130	
Perfluoroundecanoic acid	ng/L	10000	9550	96	70	130	

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ORGANICS CALIBRATION VERIFICATION

Report No:	221050411	Instrument ID:	QQQ3
Analysis Date:	05/18/2021 09:50	Lab File ID:	2210517A_71.d
Analytical Method:	EPA 537 Mod Isotope Dilution	Analytical Batch:	711477

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomersulfonic acid	ng/L	9510	9460	99 ✓	70	130	
8:2 Fluorotelomersulfonic acid	ng/L	9600	9660	101	70	130	
NEtFOSAA	ng/L	10000	9350	94	70	130	
NMeFOSAA	ng/L	10000	9650	96	70	130	
Perfluorobutanoic acid	ng/L	10000	9340	93	70	130	
Perfluorobutanesulfonic acid	ng/L	8870	8410	95	70	130	
Perfluorodecanoic acid	ng/L	10000	9670	97	70	130	
Perfluorododecanoic acid	ng/L	10000	9680	97	70	130	
Perfluoroheptanoic acid	ng/L	10000	9460	95	70	130	
Perfluorohexanoic acid	ng/L	10000	9380	94	70	130	
Perfluorohexanesulfonic acid	ng/L	9140	8890	97	70	130	
Perfluorononanoic acid	ng/L	10000	9540	95	70	130	
Perfluorooctanoic acid	ng/L	10000	9070	91	70	130	
Perfluorooctanesulfonic acid	ng/L	9280	8660	93	70	130	
Perfluoropentanoic acid	ng/L	10000	9680	97	70	130	
Perfluorotetradecanoic acid	ng/L	10000	9660	97	70	130	
Perfluorotridecanoic acid	ng/L	10000	9690	97	70	130	
Perfluoroundecanoic acid	ng/L	10000	9650	96	70	130	

FORM 7E - ORG

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ORGANICS CALIBRATION VERIFICATION

Report No:	221050411	Instrument ID:	QQQ3
Analysis Date:	05/18/2021 14:29	Lab File ID:	2210517A_89.d
Analytical Method:	EPA 537 Mod Isotope Dilution	Analytical Batch:	711477

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomersulfonic acid	ng/L	9510	9360	98 ✓	70	130	
8:2 Fluorotelomersulfonic acid	ng/L	9600	9280	97	70	130	
NEtFOSAA	ng/L	10000	9600	96	70	130	
NMeFOSAA	ng/L	10000	9580	96	70	130	
Perfluorobutanoic acid	ng/L	10000	9320	93	70	130	
Perfluorobutanesulfonic acid	ng/L	8870	8450	95	70	130	
Perfluorodecanoic acid	ng/L	10000	9520	95	70	130	
Perfluorododecanoic acid	ng/L	10000	9670	97	70	130	
Perfluoroheptanoic acid	ng/L	10000	9640	96	70	130	
Perfluorohexanoic acid	ng/L	10000	9340	93	70	130	
Perfluorohexanesulfonic acid	ng/L	9140	8970	98	70	130	
Perfluorononanoic acid	ng/L	10000	9550	95	70	130	
Perfluorooctanoic acid	ng/L	10000	9270	93	70	130	
Perfluorooctanesulfonic acid	ng/L	9280	8610	93	70	130	
Perfluoropentanoic acid	ng/L	10000	9540	95	70	130	
Perfluorotetradecanoic acid	ng/L	10000	9640	96	70	130	
Perfluorotridecanoic acid	ng/L	10000	9810	98	70	130	
Perfluoroundecanoic acid	ng/L	10000	9700	97	70	130	

FORM 7E - ORG

INJECTION INTERNAL STANDARD AREA SUMMARY

Report No:	<u>221050411</u>	Standard ID:	<u>1205 (ICAL Midpoint)</u>
Analyst:	<u>MRA</u>	Instrument ID:	<u>QQQ3</u>
Analysis Date:	<u>05/10/21 14:44</u>	Lab File ID:	<u>2210510A_09.d</u>
Analytical Method:	<u>PFAS Isotope Dilution QSM B15</u>	Analytical Batch:	<u>711273</u>

	M2PFDA	M2PFHxA	M2PFOA	M4PFOS
	Area	Area	Area	Area
STANDARD	203872	327393	162813	33012

CLIENT SAMPLE ID	LAB SAMP ID	✓	#	✓	#	✓	#	✓	#
AOI01-02-GWDL	22105041139DL	252008		364884		196633		41933	

AREA UPPER LIMIT = +50% of internal standard area
 AREA LOWER LIMIT = -50% of internal standard area

Column used to flag values outside QC limits
 * Value outside QC limits

Instrument: QQQ3 HBN: 711722
 Batch: 2210520A
 Current ICAL Bath: 2210510ACAL
 20mM Amm Acetate 016-77-5 5/22/2021
 Methanol 2130147 6/30/2025
 Calibration Std 016-68-2 8/24/2021
 ICV Std 016-21-3 8/2/2021
 EIS Mix 016-69-7 10/23/2021
 IIS Mix 016-69-5 11/10/2021

Name	Data File	Type	Acq. Date-Time	Comment	Dil.
IB	2210510A_01.d	Sample	5/10/2021 14:35	RXJ,QQQ3;Instrument Blank/Instrument Idle	1
1204RT TEST	2210510A_02.d	Sample	5/10/2021 14:50	RXJ,QQQ3; RT TEST	1
1204RT TEST	2210510A_03.d	Sample	5/10/2021 15:08	RXJ,QQQ3; RT TEST	1
IB	2210510A_04.d	Sample	5/10/2021 15:31	RXJ,QQQ3;Instrument Blank/Instrument Idle	1
1201	2210510A_05.d	Cal	5/10/2021 15:45	RXJ,QQQ3; ICAL	1
1202	2210510A_06.d	Cal	5/10/2021 16:00	RXJ,QQQ3; ICAL	1
1203	2210510A_07.d	Cal	5/10/2021 16:15	RXJ,QQQ3; ICAL	1
1204	2210510A_08.d	Cal	5/10/2021 16:29	RXJ,QQQ3; ICAL	1
1205	2210510A_09.d	Cal	5/10/2021 16:44	RXJ,QQQ3; ICAL	1
1206	2210510A_10.d	Cal	5/10/2021 16:58	RXJ,QQQ3; ICAL	1
IB	2210510A_11.d	Sample	5/10/2021 17:22	RXJ,QQQ3;Instrument Blank/Instrument Idle	1
1500	2210510A_12.d	Blank	5/10/2021 17:36	RXJ,QQQ3; BLANK	1
1600	2210510A_13.d	Sample	5/10/2021 17:51	RXJ,QQQ3;ICV	1
1450	2210510A_14.d	QC	5/10/2021 18:06	RXJ,QQQ3;CCV	1
1500	2210520A_01.d	Sample	5/20/2021 19:52	RXJ,QQQ3;BLANK	1
1450	2210520A_02.d	Sample	5/20/2021 20:07	RXJ,QQQ3;CCV	1
2189169	2210520A_03.d	Blank	5/20/2021 20:22	RXJ,QQQ3;711639	1
2189170	2210520A_04.d	QC	5/20/2021 20:36	RXJ,QQQ3;711639	1
2189171	2210520A_05.d	QC	5/20/2021 20:51	RXJ,QQQ3;711639	1
22104075207	2210520A_06.d	Sample	5/20/2021 21:06	RXJ,QQQ3;711639	1
22104075208	2210520A_07.d	Sample	5/20/2021 21:20	RXJ,QQQ3;711639	1
22104075209	2210520A_08.d	Sample	5/20/2021 21:35	RXJ,QQQ3;711639	1
22105198601	2210520A_09.d	Sample	5/20/2021 21:49	RXJ,QQQ3;711639	1

22105183801	2210520A_10.d	Sample	5/20/2021 22:04	RXJ,QQQ3;711639	1
22105183001	2210520A_11.d	Sample	5/20/2021 22:19	RXJ,QQQ3;711639	1
22105183002	2210520A_12.d	Sample	5/20/2021 22:33	RXJ,QQQ3;711639	1
22105183003	2210520A_13.d	Sample	5/20/2021 22:48	RXJ,QQQ3;711639	1
22105183004	2210520A_14.d	Sample	5/20/2021 23:02	RXJ,QQQ3;711639	1
22105183005	2210520A_15.d	Sample	5/20/2021 23:17	RXJ,QQQ3;711639	1
1400	2210520A_16.d	QC	5/20/2021 23:32	RXJ,QQQ3;711639	1
22105183006	2210520A_17.d	Sample	5/20/2021 23:46	RXJ,QQQ3;711639	1
22105183007	2210520A_18.d	Sample	5/21/2021 0:01	RXJ,QQQ3;711639	1
22105183008	2210520A_19.d	Sample	5/21/2021 0:16	RXJ,QQQ3;711639	1
22105183009	2210520A_20.d	Sample	5/21/2021 0:30	RXJ,QQQ3;711639	1
22105183010	2210520A_21.d	Sample	5/21/2021 0:45	RXJ,QQQ3;711639	1
22105183011	2210520A_22.d	Sample	5/21/2021 0:59	RXJ,QQQ3;711639	1
22105183012	2210520A_23.d	Sample	5/21/2021 1:14	RXJ,QQQ3;711639	1
22105183013	2210520A_24.d	Sample	5/21/2021 1:29	RXJ,QQQ3;711639	1
22105183014	2210520A_25.d	Sample	5/21/2021 1:43	RXJ,QQQ3;711639	1
22105193001	2210520A_26.d	Sample	5/21/2021 1:58	RXJ,QQQ3;711639	1
1400	2210520A_27.d	QC	5/21/2021 2:12	RXJ,QQQ3;711639	1
22105193002	2210520A_28.d	Sample	5/21/2021 2:27	RXJ,QQQ3;711639	1
22105193003	2210520A_29.d	Sample	5/21/2021 2:42	RXJ,QQQ3;711639	1
1400	2210520A_30.d	QC	5/21/2021 2:56	RXJ,QQQ3;711639	1
IB	2210520A_31.d	Sample	5/21/2021 3:11	RXJ,QQQ3;Instrument Blank	1
IB	2210520A_32.d	Sample	5/21/2021 3:25	RXJ,QQQ3;Instrument Blank	1
1500	2210520A_33.d	Blank	5/21/2021 3:40	RXJ,QQQ3;Instrument Blank	1
1450	2210520A_34.d	QC	5/21/2021 3:55	RXJ,QQQ3;CCV	1
1450	2210520A_35.d	QC	5/21/2021 4:10	RXJ,QQQ3;CCV	1
2189149	2210520A_36.d	Blank	5/21/2021 4:24	RXJ,QQQ3;711634	1
2189150	2210520A_37.d	QC	5/21/2021 4:39	RXJ,QQQ3;711634	1
2189151	2210520A_38.d	QC	5/21/2021 4:54	RXJ,QQQ3;711634	1
22104283104	2210520A_39.d	Sample	5/21/2021 5:08	RXJ,QQQ3;711634	1
22104283106	2210520A_40.d	Sample	5/21/2021 5:23	RXJ,QQQ3;711634	1
22104283109	2210520A_41.d	Sample	5/21/2021 5:38	RXJ,QQQ3;711634	1
22104283110	2210520A_42.d	Sample	5/21/2021 5:52	RXJ,QQQ3;711639	1
2184338	2210520A_43.d	Blank	5/21/2021 6:07	RXJ,QQQ3;710837	1

2184339	2210520A_44.d	QC	5/21/2021 6:21	RXJ,QQQ3;710837	1
22104274604	2210520A_45.d	Sample	5/21/2021 6:36	RXJ,QQQ3;710837	1
22105041105	2210520A_46.d	Sample	5/21/2021 6:51	RXJ,QQQ3;710837	1
22105041106	2210520A_47.d	Sample	5/21/2021 7:05	RXJ,QQQ3;710837	1
22105041107	2210520A_48.d	Sample	5/21/2021 7:20	RXJ,QQQ3;710837	1
22105041108	2210520A_49.d	Sample	5/21/2021 7:34	RXJ,QQQ3;710837	1
22105041109	2210520A_50.d	Sample	5/21/2021 7:49	RXJ,QQQ3;710837	1
1400	2210520A_51.d	QC	5/21/2021 8:04	RXJ,QQQ3;CCV	1
22105041111	2210520A_52.d	Sample	5/21/2021 8:19	RXJ,QQQ3;710837	1
22105041113	2210520A_53.d	Sample	5/21/2021 8:33	RXJ,QQQ3;710837	1
22105041114	2210520A_54.d	Sample	5/21/2021 8:48	RXJ,QQQ3;710837	1
22105041116	2210520A_55.d	Sample	5/21/2021 9:03	RXJ,QQQ3;710837	1
22105041117	2210520A_56.d	Sample	5/21/2021 9:17	RXJ,QQQ3;710837	1
22105041118	2210520A_57.d	Sample	5/21/2021 9:32	RXJ,QQQ3;710837	1
22105041119	2210520A_58.d	Sample	5/21/2021 9:47	RXJ,QQQ3;710837	1
22105041120	2210520A_59.d	Sample	5/21/2021 10:01	RXJ,QQQ3;710837	1
22105041121	2210520A_60.d	Sample	5/21/2021 10:16	RXJ,QQQ3;710837	1
22105041122	2210520A_61.d	Sample	5/21/2021 10:31	RXJ,QQQ3;710837	1
22105041123*ms	2210520A_62.d	QC	5/21/2021 10:45	RXJ,QQQ3;710837	1
22105041124*msd	2210520A_63.d	QC	5/21/2021 11:00	RXJ,QQQ3;710837	1
1400	2210520A_64.d	QC	5/21/2021 11:14	RXJ,QQQ3;CCV	1
22105041125*10	2210520A_65.d	Sample	5/21/2021 11:29	RXJ,QQQ3;710837	10
22105041125	2210520A_66.d	Sample	5/21/2021 11:44	RXJ,QQQ3;710837	1
22105041126	2210520A_67.d	Sample	5/21/2021 11:58	RXJ,QQQ3;710837	1
22105041131	2210520A_68.d	Sample	5/21/2021 12:13	RXJ,QQQ3;710837	1
22105041132	2210520A_69.d	Sample	5/21/2021 12:28	RXJ,QQQ3;710837	1
2187004	2210520A_70.d	Blank	5/21/2021 12:42	RXJ,QQQ3;711253	1
2187005	2210520A_71.d	QC	5/21/2021 12:57	RXJ,QQQ3;711253	1
2187042	2210520A_72.d	QC	5/21/2021 13:11	RXJ,QQQ3;711253	1
22104283104	2210520A_73.d	Sample	5/21/2021 13:26	RXJ,QQQ3;711634	50
2184338	2210520A_74.d	Blank	5/21/2021 13:41	RXJ,QQQ3;710837	1
22104283106	2210520A_75.d	Sample	5/21/2021 13:55	RXJ,QQQ3;711634	5
22104283109	2210520A_76.d	Sample	5/21/2021 14:10	RXJ,QQQ3;711634	50
22104283110	2210520A_77.d	Sample	5/21/2021 14:24	RXJ,QQQ3;711634	50

22105102606	2210520A_78.d	Sample	5/21/2021 14:39	RXJ,QQQ3;711253	1
1400	2210520A_79.d	QC	5/21/2021 14:54	RXJ,QQQ3;CCV	1
22105041125	2210520A_80.d	Sample	5/21/2021 15:08	RXJ,QQQ3;710837	10
22105011123	2210520A_81.d	Sample	5/21/2021 15:23	RXJ,QQQ3;711099	1
1450	2210520A_82.d	QC	5/21/2021 15:38	RXJ,QQQ3;711099	1
22105011135	2210520A_83.d	Sample	5/21/2021 15:52	RXJ,QQQ3;711099	1
22105011136	2210520A_84.d	Sample	5/21/2021 16:07	RXJ,QQQ3;711099	1
22105055801	2210520A_85.d	Sample	5/21/2021 16:21	RXJ,QQQ3;711099;1X NOT RUN	50
22105055802	2210520A_86.d	Sample	5/21/2021 16:36	RXJ,QQQ3;711099	1
22105055803	2210520A_87.d	Sample	5/21/2021 16:51	RXJ,QQQ3;711099;1X NOT RUN	50
22105055804	2210520A_88.d	Sample	5/21/2021 17:05	RXJ,QQQ3;711099	1
22105055805	2210520A_89.d	Sample	5/21/2021 17:20	RXJ,QQQ3;711099	1
22105055806	2210520A_90.d	Sample	5/21/2021 17:34	RXJ,QQQ3;711099	1
22105102606*20	2210520A_91.d	Sample	5/21/2021 17:53	RXJ,QQQ3;711253	20
22105102606*100dai	2210520A_92.d	Sample	5/21/2021 18:08	RXJ,QQQ3;711253:ran again 052121A	1
1400	2210520A_93.d	QC	5/21/2021 18:22	RXJ,QQQ3;CCV	1

ORGANICS INSTRUMENT SENSITIVITY CHECK

Report No:	<u>221050411</u>	Instrument ID:	<u>QQQ3</u>
Analysis Date:	<u>05/21/2021 02:10</u>	Lab File ID:	<u>2210520A_35.d</u>
Analytical Method:	<u>EPA 537 Mod Isotope Dilution</u>	Analytical Batch:	<u>711722</u>

<i>ANALYTE</i>	<i>UNITS</i>	<i>TRUE</i>	<i>FOUND</i>	<i>% REC</i>	<i>LCL</i>	<i>UCL</i>	<i>Q</i>
6:2 Fluorotelomersulfonic acid	ng/L	3.81	4.23	111 ✓	70	130	
8:2 Fluorotelomersulfonic acid	ng/L	3.84	3.91	102	70	130	
NEtFOSAA	ng/L	4.00	4.40	110	70	130	
NMeFOSAA	ng/L	4.00	4.38	109	70	130	
Perfluorobutanoic acid	ng/L	4.00	4.32	108	70	130	
Perfluorobutanesulfonic acid	ng/L	3.55	3.82	108	70	130	
Perfluorodecanoic acid	ng/L	4.00	4.34	108	70	130	
Perfluorododecanoic acid	ng/L	4.00	4.32	108	70	130	
Perfluoroheptanoic acid	ng/L	4.00	4.27	107	70	130	
Perfluorohexanoic acid	ng/L	4.00	4.41	110	70	130	
Perfluorohexanesulfonic acid	ng/L	3.66	4.05	111	70	130	
Perfluorononanoic acid	ng/L	4.00	4.22	105	70	130	
Perfluorooctanoic acid	ng/L	4.00	4.29	107	70	130	
Perfluorooctanesulfonic acid	ng/L	3.71	4.20	113	70	130	
Perfluoropentanoic acid	ng/L	4.00	4.19	105	70	130	
Perfluorotetradecanoic acid	ng/L	4.00	4.27	107	70	130	
Perfluorotridecanoic acid	ng/L	4.00	4.22	106	70	130	
Perfluoroundecanoic acid	ng/L	4.00	4.04	101	70	130	

ORGANICS INSTRUMENT BLANK

Report No:	<u>221050411</u>	Instrument ID:	<u>QQQ3</u>
Analysis Date:	<u>05/21/2021 01:40</u>	Lab File ID:	<u>2210520A_33.d</u>
Analytical Method:	<u>EPA 537 Mod Isotope Dilution</u>	Analytical Batch:	<u>711722</u>

ANALYTE	UNITS	RESULT	Q	DL	LOD	LOQ	#
6:2 Fluorotelomersulfonic acid	ng/L	2.00	U ✓	0.94	2.00	4.00	
8:2 Fluorotelomersulfonic acid	ng/L	2.00	U	0.90	2.00	4.00	
NETFOSAA	ng/L	4.00	U	0.97	4.00	8.00	
NMeFOSAA	ng/L	4.00	U	0.90	4.00	8.00	
Perfluorobutanesulfonic acid	ng/L	2.00	U	0.62	2.00	4.00	
Perfluorobutanoic acid	ng/L	2.00	U	0.90	2.00	4.00	
Perfluorodecanoic acid	ng/L	2.00	U	0.86	2.00	4.00	
Perfluorododecanoic acid	ng/L	2.00	U	0.88	2.00	4.00	
Perfluoroheptanoic acid	ng/L	2.00	U	0.48	2.00	4.00	
Perfluorohexanesulfonic acid	ng/L	2.00	U	0.95	2.00	4.00	
Perfluorohexanoic acid	ng/L	2.00	U	0.94	2.00	4.00	
Perfluorononanoic acid	ng/L	2.00	U	0.78	2.00	4.00	
Perfluorooctanesulfonic acid	ng/L	2.00	U	0.76	2.00	4.00	
Perfluorooctanoic acid	ng/L	2.00	U	0.84	2.00	4.00	
Perfluoropentanoic acid	ng/L	2.00	U	0.85	2.00	4.00	
Perfluorotetradecanoic acid	ng/L	2.00	U	0.98	2.00	4.00	
Perfluorotridecanoic acid	ng/L	2.00	U	0.99	2.00	4.00	
Perfluoroundecanoic acid	ng/L	2.00	U	0.95	2.00	4.00	

* - Result greater than 1/2 LOQ

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ORGANICS CALIBRATION VERIFICATION

Report No:	221050411	Instrument ID:	QQQ3
Analysis Date:	05/21/2021 06:04	Lab File ID:	2210520A_51.d
Analytical Method:	EPA 537 Mod Isotope Dilution	Analytical Batch:	711722

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomersulfonic acid	ng/L	9510	9010	95	70	130	
8:2 Fluorotelomersulfonic acid	ng/L	9600	9180	96	70	130	
NEtFOSAA	ng/L	10000	9410	94	70	130	
NMeFOSAA	ng/L	10000	9490	95	70	130	
Perfluorobutanoic acid	ng/L	10000	9270	93	70	130	
Perfluorobutanesulfonic acid	ng/L	8870	8380	94	70	130	
Perfluorodecanoic acid	ng/L	10000	9630	96	70	130	
Perfluorododecanoic acid	ng/L	10000	9530	95	70	130	
Perfluoroheptanoic acid	ng/L	10000	9500	95	70	130	
Perfluorohexanoic acid	ng/L	10000	9430	94	70	130	
Perfluorohexanesulfonic acid	ng/L	9140	8660	95	70	130	
Perfluorononanoic acid	ng/L	10000	9320	93	70	130	
Perfluorooctanoic acid	ng/L	10000	9280	93	70	130	
Perfluorooctanesulfonic acid	ng/L	9280	8820	95	70	130	
Perfluoropentanoic acid	ng/L	10000	9620	96	70	130	
Perfluorotetradecanoic acid	ng/L	10000	9490	95	70	130	
Perfluorotridecanoic acid	ng/L	10000	9670	97	70	130	
Perfluoroundecanoic acid	ng/L	10000	9350	93	70	130	

FORM 7E - ORG

7E
ORGANICS CALIBRATION VERIFICATION

Report No:	221050411	Instrument ID:	QQQ3
Analysis Date:	05/21/2021 09:14	Lab File ID:	2210520A_64.d
Analytical Method:	EPA 537 Mod Isotope Dilution	Analytical Batch:	711722

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomersulfonic acid	ng/L	9510	9900	104 ✓	70	130	
8:2 Fluorotelomersulfonic acid	ng/L	9600	9430	98	70	130	
NEtFOSAA	ng/L	10000	9260	93	70	130	
NMeFOSAA	ng/L	10000	9600	96	70	130	
Perfluorobutanoic acid	ng/L	10000	9350	94	70	130	
Perfluorobutanesulfonic acid	ng/L	8870	8300	94	70	130	
Perfluorodecanoic acid	ng/L	10000	9540	95	70	130	
Perfluorododecanoic acid	ng/L	10000	9630	96	70	130	
Perfluoroheptanoic acid	ng/L	10000	9520	95	70	130	
Perfluorohexanoic acid	ng/L	10000	9390	94	70	130	
Perfluorohexanesulfonic acid	ng/L	9140	8900	97	70	130	
Perfluorononanoic acid	ng/L	10000	9460	95	70	130	
Perfluorooctanoic acid	ng/L	10000	9280	93	70	130	
Perfluorooctanesulfonic acid	ng/L	9280	8670	93	70	130	
Perfluoropentanoic acid	ng/L	10000	9710	97	70	130	
Perfluorotetradecanoic acid	ng/L	10000	9760	98	70	130	
Perfluorotridecanoic acid	ng/L	10000	9620	96	70	130	
Perfluoroundecanoic acid	ng/L	10000	9420	94	70	130	

FORM 7E - ORG

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ORGANICS CALIBRATION VERIFICATION

Report No:	<u>221050411</u>	Instrument ID:	<u>QQQ3</u>
Analysis Date:	<u>05/21/2021 12:54</u>	Lab File ID:	<u>2210520A_79.d</u>
Analytical Method:	<u>EPA 537 Mod Isotope Dilution</u>	Analytical Batch:	<u>711722</u>

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomersulfonic acid	ng/L	9510	8940	94 ✓	70	130	
8:2 Fluorotelomersulfonic acid	ng/L	9600	9020	94	70	130	
NEtFOSAA	ng/L	10000	9440	94	70	130	
NMeFOSAA	ng/L	10000	9400	94	70	130	
Perfluorobutanoic acid	ng/L	10000	9340	93	70	130	
Perfluorobutanesulfonic acid	ng/L	8870	8240	93	70	130	
Perfluorodecanoic acid	ng/L	10000	9630	96	70	130	
Perfluorododecanoic acid	ng/L	10000	9640	96	70	130	
Perfluoroheptanoic acid	ng/L	10000	9550	96	70	130	
Perfluorohexanoic acid	ng/L	10000	9370	94	70	130	
Perfluorohexanesulfonic acid	ng/L	9140	8790	96	70	130	
Perfluorononanoic acid	ng/L	10000	9390	94	70	130	
Perfluorooctanoic acid	ng/L	10000	9430	94	70	130	
Perfluorooctanesulfonic acid	ng/L	9280	8690	94	70	130	
Perfluoropentanoic acid	ng/L	10000	9500	95	70	130	
Perfluorotetradecanoic acid	ng/L	10000	9520	95	70	130	
Perfluorotridecanoic acid	ng/L	10000	9810	98	70	130	
Perfluoroundecanoic acid	ng/L	10000	9610	96	70	130	

FORM 7E - ORG

7E
ORGANICS CALIBRATION VERIFICATION

Report No:	<u>221050411</u>	Instrument ID:	<u>QQQ3</u>
Analysis Date:	<u>05/21/2021 16:22</u>	Lab File ID:	<u>2210520A_93.d</u>
Analytical Method:	<u>EPA 537 Mod Isotope Dilution</u>	Analytical Batch:	<u>711722</u>

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomersulfonic acid	ng/L	9510	9180	97 ✓	70	130	
8:2 Fluorotelomersulfonic acid	ng/L	9600	9530	99	70	130	
NEtFOSAA	ng/L	10000	9270	93	70	130	
NMeFOSAA	ng/L	10000	8950	89	70	130	
Perfluorobutanoic acid	ng/L	10000	9250	92	70	130	
Perfluorobutanesulfonic acid	ng/L	8870	8210	93	70	130	
Perfluorodecanoic acid	ng/L	10000	9520	95	70	130	
Perfluorododecanoic acid	ng/L	10000	9590	96	70	130	
Perfluoroheptanoic acid	ng/L	10000	9540	95	70	130	
Perfluorohexanoic acid	ng/L	10000	9530	95	70	130	
Perfluorohexanesulfonic acid	ng/L	9140	8650	95	70	130	
Perfluorononanoic acid	ng/L	10000	9500	95	70	130	
Perfluorooctanoic acid	ng/L	10000	9280	93	70	130	
Perfluorooctanesulfonic acid	ng/L	9280	8710	94	70	130	
Perfluoropentanoic acid	ng/L	10000	9530	95	70	130	
Perfluorotetradecanoic acid	ng/L	10000	9840	98	70	130	
Perfluorotridecanoic acid	ng/L	10000	9700	97	70	130	
Perfluoroundecanoic acid	ng/L	10000	9590	96	70	130	

FORM 7E - ORG

Instrument HBN:711941
 Batch: 2210521A
 Current ICAL Bath: 2210521ACAL
 20mM Amm Acetate 016-78-7 5/23/2021
 Methanol 2130330 2/1/2026
 Calibration Std 016-74-9 11/17/2021
 ICV Std 016-21-3 8/2/2021
 EIS Mix 016-77-7 11/20/2021
 IIS Mix 016-78-3 11/20/2021

Name	Data File	Type	Acq. Date-Time	Comment	Dil.
MeOH Shot	2210521A_01.d	Blank	5/21/2021 10:32	MRA, MeOH SHOT/INSTRUMENT IDL	1
1201	2210521A_02.d	Cal	5/21/2021 10:49	MRA, QQQ1; Cal	1
1202	2210521A_03.d	Cal	5/21/2021 11:07	MRA, QQQ1; Cal	1
1203	2210521A_04.d	Cal	5/21/2021 11:24	MRA, QQQ1; Cal	1
1204	2210521A_05.d	Cal	5/21/2021 11:41	MRA, QQQ1; Cal	1
1205	2210521A_06.d	Cal	5/21/2021 11:58	MRA, QQQ1; Cal	1
1206	2210521A_07.d	Cal	5/21/2021 12:16	MRA, QQQ1; Cal	1
1207	2210521A_08.d	Cal	5/21/2021 12:33	MRA, QQQ1; Cal	1
MeOH Shot	2210521A_09.d	Blank	5/21/2021 14:08	MRA, MeOH SHOT/INSTRUMENT IDL	1
1205	2210521A_10.d	Cal	5/21/2021 14:25	MRA, QQQ1; Cal	1
MeOH Shot	2210521A_11.d	Blank	5/21/2021 15:08	MRA, MeOH SHOT/INSTRUMENT IDL	1
1202	2210521A_12.d	Cal	5/21/2021 15:26	MRA, QQQ1; Cal	1
MeOH Shot	2210521A_13.d	Blank	5/21/2021 15:43	MRA, MeOH SHOT/INSTRUMENT IDL	1
1500	2210521A_14.d	Sample	5/21/2021 16:00	MRA, QQQ1	1
1600	2210521A_15.d	Sample	5/21/2021 16:17	MRA, QQQ1	1
MeOH Shot	2210521A_16.d	Blank	5/21/2021 16:36	MRA, MeOH SHOT/INSTRUMENT IDL	1
1450	2210521A_17.d	QC	5/21/2021 16:53	MRA, QQQ1	1
1450	2210521A_18.d	QC	5/21/2021 17:10	MRA, QQQ1	1
1600	2210521A_19.d	Sample	5/21/2021 17:27	MRA, QQQ1	1
MeOH Shot	2210521A_20.d	Blank	5/21/2021 17:45	MRA, MeOH SHOT/INSTRUMENT IDL	1
MeOH Shot	2210521A_21.d	Blank	5/21/2021 18:02	MRA, MeOH SHOT/INSTRUMENT IDL	1
2188447	2210521A_22.d	Sample	5/21/2021 18:19	MRA, QQQ1; 711505 1st run	1
2188448	2210521A_23.d	QC	5/21/2021 18:36	MRA, QQQ1; 711505 1st run	1

22105041105	2210521A_24.d	Sample	5/21/2021 18:53	MRA,QQQ1;711505 1st run	1
22105041109	2210521A_25.d	Sample	5/21/2021 19:11	MRA,QQQ1;711505 1st run	1
22105041155	2210521A_26.d	Sample	5/21/2021 19:28	MRA,QQQ1;711505 1st run	1
22105041156	2210521A_27.d	QC	5/21/2021 19:45	MRA,QQQ1;711505 1st run	1
22105041157	2210521A_28.d	QC	5/21/2021 20:03	MRA,QQQ1;711505 1st run	1
22105011207	2210521A_29.d	Sample	5/21/2021 20:20	MRA,QQQ1;711505 1st run	1
22105011208	2210521A_30.d	Sample	5/21/2021 20:37	MRA,QQQ1;711505 1st run	1
22105055702	2210521A_31.d	Sample	5/21/2021 20:55	MRA,QQQ1;711505 1st run	1
22105010901	2210521A_32.d	Sample	5/21/2021 21:12	MRA,QQQ1;711505 1st run	1
22105010902	2210521A_33.d	Sample	5/21/2021 21:29	MRA,QQQ1;711505 1st run	1
22105010903	2210521A_34.d	Sample	5/21/2021 21:47	MRA,QQQ1;711505 1st run	1
22105118901	2210521A_35.d	Sample	5/21/2021 22:04	MRA,QQQ1;711505 1st run	1
1400	2210521A_36.d	QC	5/21/2021 22:21	MRA,QQQ1;CCV	1
22105118902	2210521A_37.d	Sample	5/21/2021 22:38	MRA,QQQ1;711505 1st run	1
22105118903	2210521A_38.d	QC	5/21/2021 22:56	MRA,QQQ1;711505 1st run	1
22105118904	2210521A_39.d	QC	5/21/2021 23:13	MRA,QQQ1;711505 1st run	1
22105118907	2210521A_40.d	Sample	5/21/2021 23:30	MRA,QQQ1;711505 1st run	1
22105118911	2210521A_41.d	Sample	5/21/2021 23:48	MRA,QQQ1;711505 1st run	1
22105118912	2210521A_42.d	Sample	5/22/2021 0:05	MRA,QQQ1;711505 1st run	1
22105118913	2210521A_43.d	Sample	5/22/2021 0:22	MRA,QQQ1;711505 1st run	1
22105118914	2210521A_44.d	Sample	5/22/2021 0:40	MRA,QQQ1;711505 1st run	1
22105118915	2210521A_45.d	Sample	5/22/2021 0:57	MRA,QQQ1;711505 1st run	1
22105118917	2210521A_46.d	QC	5/22/2021 1:14	MRA,QQQ1;711505 1st run	1
22105118918	2210521A_47.d	QC	5/22/2021 1:32	MRA,QQQ1;711505 1st run	1
1400	2210521A_48.d	QC	5/22/2021 1:49	MRA,QQQ1;CCV	1

ORGANICS INITIAL CALIBRATION VERIFICATION

Report No:	<u>221050411</u>	Instrument ID:	<u>QQQ1</u>
Analysis Date:	<u>05/21/2021 17:27</u>	Lab File ID:	<u>2210521A_19.d</u>
Analytical Method:	<u>EPA 537 Mod Isotope Dilution</u>	Analytical Batch:	<u>711941</u>

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomersulfonic acid	ng/L	10000	11500	115 ✓	70	130	
8:2 Fluorotelomersulfonic acid	ng/L	10100	10400	103	70	130	
NEtFOSAA	ng/L	10000	11900	119	70	130	
NMeFOSAA	ng/L	10000	12000	120	70	130	
Perfluorobutanoic acid	ng/L	10000	11400	114	70	130	
Perfluorobutanesulfonic acid	ng/L	10000	10700	107	70	130	
Perfluorodecanoic acid	ng/L	10000	11400	114	70	130	
Perfluorododecanoic acid	ng/L	10000	11600	116	70	130	
Perfluoroheptanoic acid	ng/L	10000	11400	114	70	130	
Perfluorohexanoic acid	ng/L	10100	11000	109	70	130	
Perfluorohexanesulfonic acid	ng/L	10000	12100	121	70	130	
Perfluorononanoic acid	ng/L	10000	12800	128	70	130	
Perfluorooctanoic acid	ng/L	10100	10900	108	70	130	
Perfluorooctanesulfonic acid	ng/L	10000	8790	88	70	130	
Perfluoropentanoic acid	ng/L	10100	11000	109	70	130	
Perfluorotetradecanoic acid	ng/L	10000	13000	130	70	130	
Perfluorotridecanoic acid	ng/L	10000	9520	95	70	130	
Perfluoroundecanoic acid	ng/L	10000	10900	109	70	130	

FORM 6I - ORG

ORGANICS INSTRUMENT SENSITIVITY CHECK

Report No:	<u>221050411</u>	Instrument ID:	<u>QQQ1</u>
Analysis Date:	<u>05/21/2021 16:53</u>	Lab File ID:	<u>2210521A_17.d</u>
Analytical Method:	<u>EPA 537 Mod Isotope Dilution</u>	Analytical Batch:	<u>711941</u>

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomersulfonic acid	ng/L	9.52	9.04	95 ✓	70	130	
8:2 Fluorotelomersulfonic acid	ng/L	9.60	7.90	82	70	130	
NEtFOSAA	ng/L	10.0	9.36	93	70	130	
NMeFOSAA	ng/L	10.0	9.76	98	70	130	
Perfluorobutanoic acid	ng/L	10.0	8.64	86	70	130	
Perfluorobutanesulfonic acid	ng/L	8.88	8.32	94	70	130	
Perfluorodecanoic acid	ng/L	10.0	8.48	85	70	130	
Perfluorododecanoic acid	ng/L	10.0	8.24	82	70	130	
Perfluoroheptanoic acid	ng/L	10.0	8.64	86	70	130	
Perfluorohexanoic acid	ng/L	10.0	8.88	89	70	130	
Perfluorohexanesulfonic acid	ng/L	9.12	10.1	110	70	130	
Perfluorononanoic acid	ng/L	10.0	8.80	88	70	130	
Perfluorooctanoic acid	ng/L	10.0	8.80	88	70	130	
Perfluorooctanesulfonic acid	ng/L	9.28	8.32	90	70	130	
Perfluoropentanoic acid	ng/L	10.0	9.04	90	70	130	
Perfluorotetradecanoic acid	ng/L	10.0	8.96	90	70	130	
Perfluorotridecanoic acid	ng/L	10.0	7.96	80	70	130	
Perfluoroundecanoic acid	ng/L	10.0	8.64	86	70	130	

ORGANICS INSTRUMENT BLANK

Report No:	221050411	Instrument ID:	QQQ1
Analysis Date:	05/21/2021 16:00	Lab File ID:	2210521A_14.d
Analytical Method:	EPA 537 Mod Isotope Dilution	Analytical Batch:	711941

ANALYTE	UNITS	RESULT	Q	DL	LOD	LOQ	#
6:2 Fluorotelomersulfonic acid	ng/L	2.00	U	0.94	2.00	4.00	
8:2 Fluorotelomersulfonic acid	ng/L	2.00	U	0.90	2.00	4.00	
NETFOSAA	ng/L	4.00	U	0.97	4.00	8.00	
NMeFOSAA	ng/L	4.00	U	0.90	4.00	8.00	
Perfluorobutanesulfonic acid	ng/L	2.00	U	0.62	2.00	4.00	
Perfluorobutanoic acid	ng/L	2.00	U	0.90	2.00	4.00	
Perfluorodecanoic acid	ng/L	2.00	U	0.86	2.00	4.00	
Perfluorododecanoic acid	ng/L	2.00	U	0.88	2.00	4.00	
Perfluoroheptanoic acid	ng/L	2.00	U	0.48	2.00	4.00	
Perfluorohexanesulfonic acid	ng/L	2.00	U	0.95	2.00	4.00	
Perfluorohexanoic acid	ng/L	2.00	U	0.94	2.00	4.00	
Perfluorononanoic acid	ng/L	2.00	U	0.78	2.00	4.00	
Perfluorooctanesulfonic acid	ng/L	2.00	U	0.76	2.00	4.00	
Perfluorooctanoic acid	ng/L	2.00	U	0.84	2.00	4.00	
Perfluoropentanoic acid	ng/L	2.00	U	0.85	2.00	4.00	
Perfluorotetradecanoic acid	ng/L	2.00	U	0.98	2.00	4.00	
Perfluorotridecanoic acid	ng/L	2.00	U	0.99	2.00	4.00	
Perfluoroundecanoic acid	ng/L	2.00	U	0.95	2.00	4.00	

* - Result greater than 1/2 LOQ

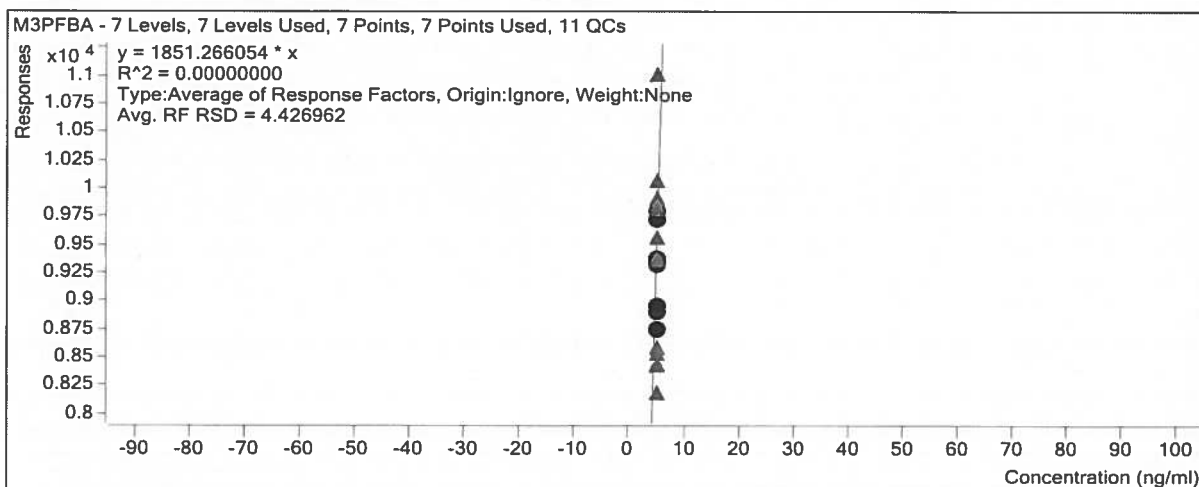
Quantitative Analysis Calibration Report

Batch Data Path	C:\MassHunter\Data\QQQ1\2210521ACAL\QuantResults\2210521A.batch.bin		
Analysis Time	6/5/2021 6:18 PM	Analyst Name	GCAL\lcms
Report Time	6/5/2021 6:29 PM	Reporter Name	GCAL\lcms
Last Calib Update	5/27/2021 2:43 PM	Batch State	Processed

Calibration Info

Instrument ISTD *M3PFBA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
I:\MassHunter\Data\2210521ACAL\2210521A_02.d	Calibration	1	<input checked="" type="checkbox"/>	8901	5.0000	1780.2878
I:\MassHunter\Data\2210521ACAL\2210521A_03.d	Calibration	2	<input checked="" type="checkbox"/>	9378	5.0000	1875.6519
I:\MassHunter\Data\2210521ACAL\2210521A_04.d	Calibration	3	<input checked="" type="checkbox"/>	9319	5.0000	1863.8954
I:\MassHunter\Data\2210521ACAL\2210521A_05.d	Calibration	4	<input checked="" type="checkbox"/>	8953	5.0000	1790.5082
I:\MassHunter\Data\2210521ACAL\2210521A_10.d	Calibration	5	<input checked="" type="checkbox"/>	9718	5.0000	1943.6713
I:\MassHunter\Data\2210521ACAL\2210521A_07.d	Calibration	6	<input checked="" type="checkbox"/>	9790	5.0000	1957.9573
I:\MassHunter\Data\2210521ACAL\2210521A_08.d	Calibration	7	<input checked="" type="checkbox"/>	8734	5.0000	1746.8906

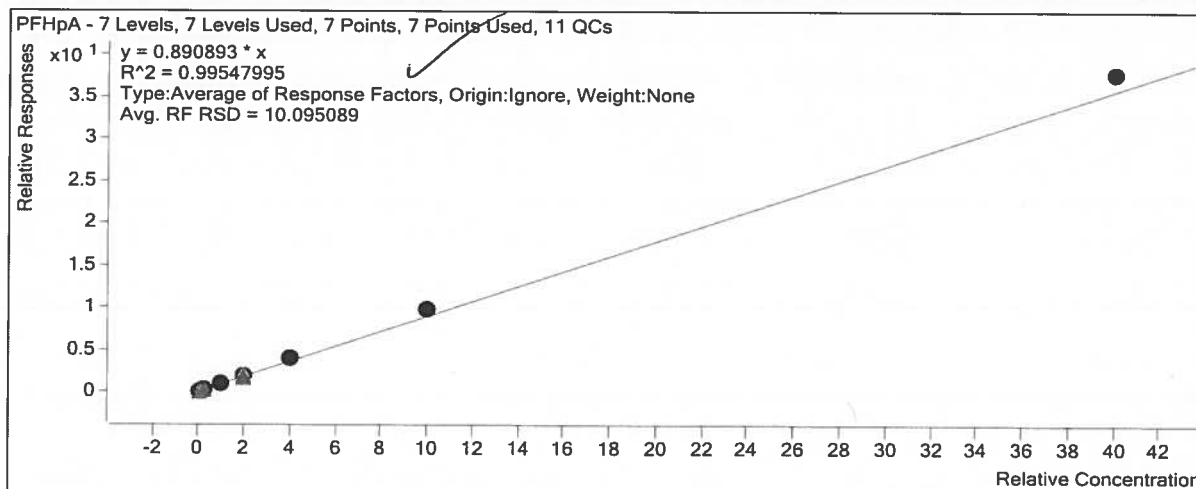


Target Compound

PFBA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
I:\MassHunter\Data\2210521ACAL\2210521A_02.d	Calibration	1	<input checked="" type="checkbox"/>	6168	0.5000	0.8202
I:\MassHunter\Data\2210521ACAL\2210521A_03.d	Calibration	2	<input checked="" type="checkbox"/>	15478	1.2500	0.8169
I:\MassHunter\Data\2210521ACAL\2210521A_04.d	Calibration	3	<input checked="" type="checkbox"/>	74124	5.0000	0.9151
I:\MassHunter\Data\2210521ACAL\2210521A_05.d	Calibration	4	<input checked="" type="checkbox"/>	161836	10.0000	0.9849
I:\MassHunter\Data\2210521ACAL\2210521A_10.d	Calibration	5	<input checked="" type="checkbox"/>	378395	20.0000	1.0381
I:\MassHunter\Data\2210521ACAL\2210521A_07.d	Calibration	6	<input checked="" type="checkbox"/>	968159	50.0000	1.0550
I:\MassHunter\Data\2210521ACAL\2210521A_08.d	Calibration	7	<input checked="" type="checkbox"/>	3114956	200.0000	0.9983

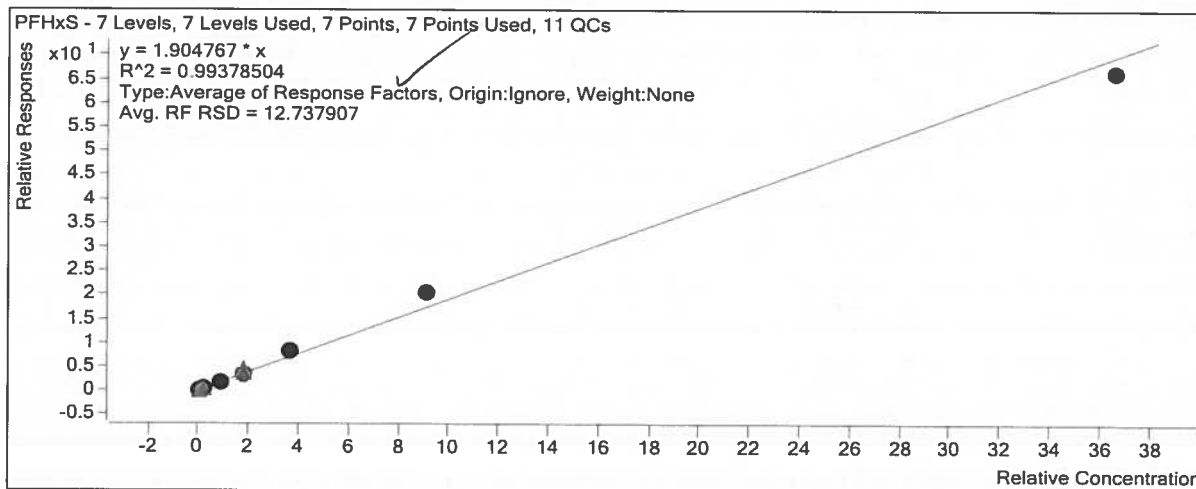
Quantitative Analysis Calibration Report



Target Compound

PFHxS

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
I:\MassHunter\Data\2210521ACAL\2210521A_02.d	Calibration	1	<input checked="" type="checkbox"/>	2700	0.4570	1.6432
I:\MassHunter\Data\2210521ACAL\2210521A_03.d	Calibration	2	<input checked="" type="checkbox"/>	6688	1.1425	1.7181
I:\MassHunter\Data\2210521ACAL\2210521A_04.d	Calibration	3	<input checked="" type="checkbox"/>	29605	4.5700	1.7556
I:\MassHunter\Data\2210521ACAL\2210521A_05.d	Calibration	4	<input checked="" type="checkbox"/>	64882	9.1400	1.9291
I:\MassHunter\Data\2210521ACAL\2210521A_10.d	Calibration	5	<input checked="" type="checkbox"/>	145466	18.2800	2.2303
I:\MassHunter\Data\2210521ACAL\2210521A_07.d	Calibration	6	<input checked="" type="checkbox"/>	376406	45.7000	2.2413
I:\MassHunter\Data\2210521ACAL\2210521A_08.d	Calibration	7	<input checked="" type="checkbox"/>	1228437	182.8000	1.8157



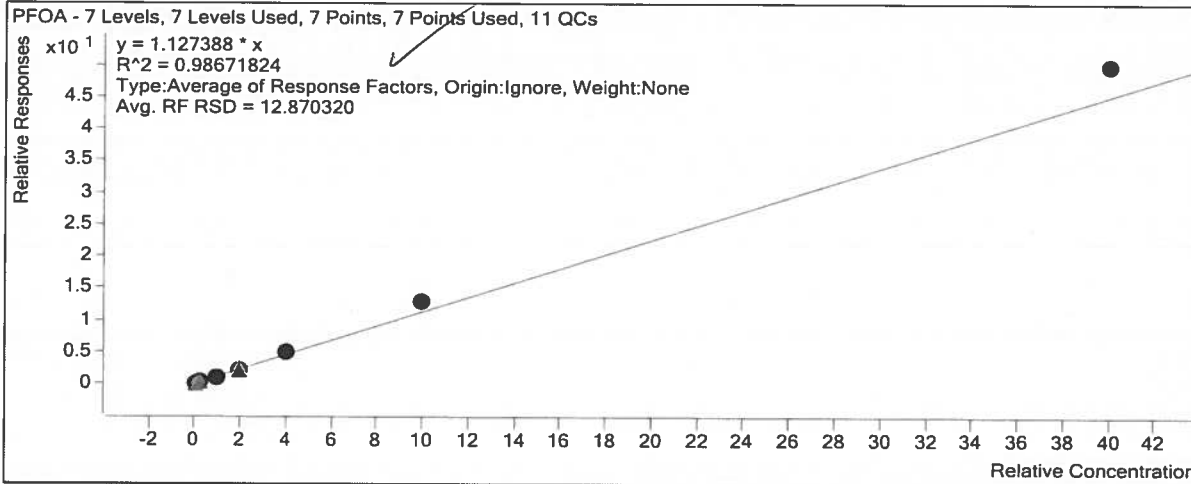
Extracted ISTD

M3PFHxS

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
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Quantitative Analysis Calibration Report

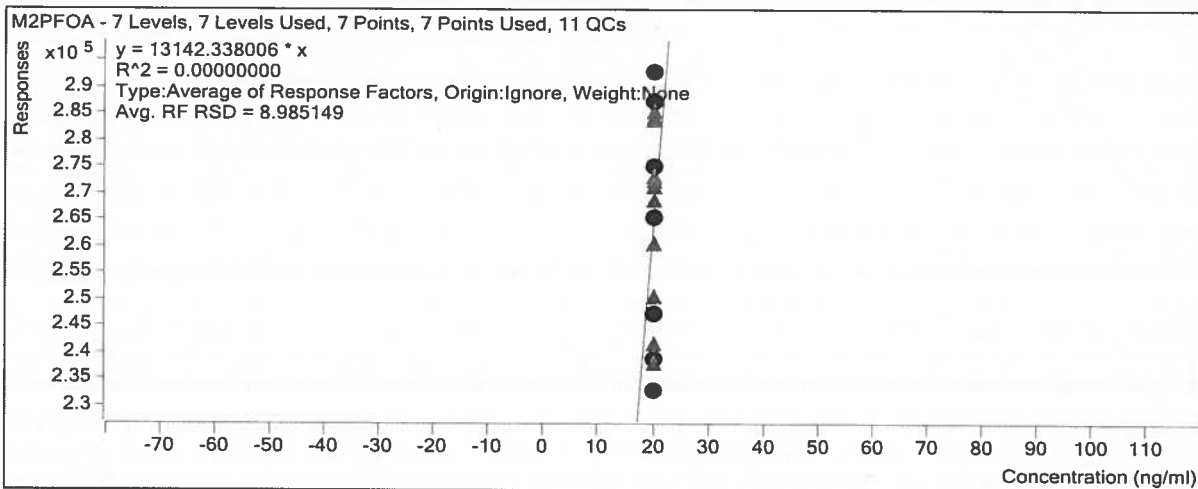
I:\MassHunter\Data\2210521ACAL\2210521A_08.d Calibration 7 ☒ 2102724 200.0000 1.2463



Instrument ISTD

M2PFOA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
I:\MassHunter\Data\2210521ACAL\2210521A_02.d	Calibration	1	<input checked="" type="checkbox"/>	239024	20.0000	11951.1808
I:\MassHunter\Data\2210521ACAL\2210521A_03.d	Calibration	2	<input checked="" type="checkbox"/>	247218	20.0000	12360.9007
I:\MassHunter\Data\2210521ACAL\2210521A_04.d	Calibration	3	<input checked="" type="checkbox"/>	275264	20.0000	13763.1982
I:\MassHunter\Data\2210521ACAL\2210521A_05.d	Calibration	4	<input checked="" type="checkbox"/>	265537	20.0000	13276.8373
I:\MassHunter\Data\2210521ACAL\2210521A_10.d	Calibration	5	<input checked="" type="checkbox"/>	287104	20.0000	14355.2188
I:\MassHunter\Data\2210521ACAL\2210521A_07.d	Calibration	6	<input checked="" type="checkbox"/>	292765	20.0000	14638.2382
I:\MassHunter\Data\2210521ACAL\2210521A_08.d	Calibration	7	<input checked="" type="checkbox"/>	233016	20.0000	11650.7921



Extracted ISTD

M8PFOA

7E
ORGANICS CALIBRATION VERIFICATION

Report No:	221050411	Instrument ID:	QQQ1
Analysis Date:	05/21/2021 22:21	Lab File ID:	2210521A_36.d
Analytical Method:	EPA 537 Mod Isotope Dilution	Analytical Batch:	711941

<i>ANALYTE</i>	<i>UNITS</i>	<i>TRUE</i>	<i>FOUND</i>	<i>% REC</i>	<i>LCL</i>	<i>UCL</i>	<i>Q</i>
6:2 Fluorotelomersulfonic acid	ng/L	9510	9980	105 ✓	70	130	
8:2 Fluorotelomersulfonic acid	ng/L	9600	8750	91	70	130	
NEtFOSAA	ng/L	10000	10600	106	70	130	
NMeFOSAA	ng/L	10000	10800	108	70	130	
Perfluorobutanoic acid	ng/L	10000	10400	104	70	130	
Perfluorobutanesulfonic acid	ng/L	8870	9450	107	70	130	
Perfluorodecanoic acid	ng/L	10000	10000	100	70	130	
Perfluorododecanoic acid	ng/L	10000	10800	108	70	130	
Perfluoroheptanoic acid	ng/L	10000	10300	103	70	130	
Perfluorohexanoic acid	ng/L	10000	9960	100	70	130	
Perfluorohexanesulfonic acid	ng/L	9140	10200	111	70	130	
Perfluorononanoic acid	ng/L	10000	10500	105	70	130	
Perfluorooctanoic acid	ng/L	10000	10800	108	70	130	
Perfluorooctanesulfonic acid	ng/L	9280	9910	107	70	130	
Perfluoropentanoic acid	ng/L	10000	10000	100	70	130	
Perfluorotetradecanoic acid	ng/L	10000	10400	104	70	130	
Perfluorotridecanoic acid	ng/L	10000	10300	103	70	130	
Perfluoroundecanoic acid	ng/L	10000	10200	102	70	130	

FORM 7E - ORG

7E
ORGANICS CALIBRATION VERIFICATION

Report No:	<u>221050411</u>	Instrument ID:	<u>QQQ1</u>
Analysis Date:	<u>05/22/2021 01:49</u>	Lab File ID:	<u>2210521A_48.d</u>
Analytical Method:	<u>EPA 537 Mod Isotope Dilution</u>	Analytical Batch:	<u>711941</u>

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomersulfonic acid	ng/L	9510	10200	107 ✓	70	130	
8:2 Fluorotelomersulfonic acid	ng/L	9600	9300	97	70	130	
NEtFOSAA	ng/L	10000	11200	112	70	130	
NMeFOSAA	ng/L	10000	10600	106	70	130	
Perfluorobutanoic acid	ng/L	10000	10400	104	70	130	
Perfluorobutanesulfonic acid	ng/L	8870	8570	97	70	130	
Perfluorodecanoic acid	ng/L	10000	10700	107	70	130	
Perfluorododecanoic acid	ng/L	10000	10500	105	70	130	
Perfluoroheptanoic acid	ng/L	10000	10100	101	70	130	
Perfluorohexanoic acid	ng/L	10000	10100	101	70	130	
Perfluorohexanesulfonic acid	ng/L	9140	9970	109	70	130	
Perfluorononanoic acid	ng/L	10000	10400	104	70	130	
Perfluorooctanoic acid	ng/L	10000	10200	102	70	130	
Perfluorooctanesulfonic acid	ng/L	9280	9790	105	70	130	
Perfluoropentanoic acid	ng/L	10000	10000	100	70	130	
Perfluorotetradecanoic acid	ng/L	10000	9950	99	70	130	
Perfluorotridecanoic acid	ng/L	10000	9850	98	70	130	
Perfluoroundecanoic acid	ng/L	10000	10700	107	70	130	

FORM 7E - ORG

INJECTION INTERNAL STANDARD AREA SUMMARY

Report No:	221050411	Standard ID:	1205 (ICAL Midpoint)
Analyst:	MRA	Instrument ID:	QQQ1
Analysis Date:	05/21/21 14:25	Lab File ID:	2210521A_10.d
Analytical Method:	PFAS Isotope Dilution QSM B15	Analytical Batch:	711941

	M2PFDA	M2PFHxA	M2PFOA	M4PFOS
	Area	Area	Area	Area
STANDARD	373044	653927	287104	100653

CLIENT SAMPLE ID	LAB SAMP ID	✓	#	✓	#	✓	#	✓	#
MB2188447	2188447	268838		544004		243467		77619	
LCS2188448	2188448	261756		529406		241792		72660	
AOI01-10-SB-03-05 (RE)	22105041155	249259		522829		237171		70680	
AOI01-10-SB-03-05-MS (RE)	22105041156	262986		527472		238250		73972	
AOI01-10-SB-03-05-MSD (RE)	22105041157	272761		544249		250643		105617	

AREA UPPER LIMIT = +50% of internal standard area
 AREA LOWER LIMIT = -50% of internal standard area

Column used to flag values outside QC limits
 * Value outside QC limits

Instrument: HBN: 712118
 Batch: 2210525A
 Current ICAL Bath: 22105248CAL
 20mM Amm Acetate 016-80-1 5/27/2021
 Methanol 2130330 2/1/2026
 Calibration Std 016-79-3 11/23/2021
 ICV Std 016-21-3 8/2/2021
 EIS Mix 016-79-7 11/24/2021
 IIS Mix 016-78-3 11/20/2021

Name	Data File	Type	Acq. Date-Time	Comment	Dil.
1201	22105248_01.d	Cal	5/24/2021 19:48	RXJ,QQQ3;ICAL	1
1202	22105248_02.d	Cal	5/24/2021 20:03	RXJ,QQQ3;ICAL	1
1203	22105248_03.d	Cal	5/24/2021 20:20	RXJ,QQQ3;ICAL	1
1204	22105248_04.d	Cal	5/24/2021 20:35	RXJ,QQQ3;ICAL	1
1205	22105248_05.d	Cal	5/24/2021 20:50	RXJ,QQQ3;ICAL	1
1206	22105248_06.d	Cal	5/24/2021 21:04	RXJ,QQQ3;ICAL	1
1207	22105248_07.d	Cal	5/24/2021 21:19	RXJ,QQQ3;ICAL	1
1500	22105248_08.d	Sample	5/24/2021 21:41	RXJ,QQQ3;BLANK	1
1600	22105248_09.d	Sample	5/24/2021 21:55	RXJ,QQQ3;	1
1450	22105248_10.d	QC	5/24/2021 22:10	RXJ,QQQ3;	1
1500	2210525A_01.d	Sample	5/25/2021 15:40	RXJ,QQQ3;BLANK	1
1450	2210525A_02.d	QC	5/25/2021 15:54	RXJ,QQQ3;	1
1400 test	2210525A_03.d	QC	5/25/2021 16:11	RXJ,QQQ3;	1
22105203905	2210525A_04.d	Sample	5/25/2021 16:26	RXJ,QQQ3;711939;reprep sample	10
1400	2210525A_05.d	QC	5/25/2021 16:40	RXJ,QQQ3;711939;CCV	1
2187905	2210525A_06.d	Blank	5/25/2021 17:21	RXJ,QQQ3;711419	1
2187906	2210525A_07.d	QC	5/25/2021 17:36	RXJ,QQQ3;711419	1
2187907	2210525A_08.d	QC	5/25/2021 17:51	RXJ,QQQ3;711419; extraction error - cancel	1
22105127201	2210525A_09.d	Sample	5/25/2021 18:05	RXJ,QQQ3;711419	1
22105127202	2210525A_10.d	Sample	5/25/2021 18:20	RXJ,QQQ3;711419	1
22105127203	2210525A_11.d	Sample	5/25/2021 18:39	RXJ,QQQ3;711419	1
22105127204	2210525A_12.d	Sample	5/25/2021 18:54	RXJ,QQQ3;711419	1
22105127205*ms	2210525A_13.d	QC	5/25/2021 19:08	RXJ,QQQ3;711419	1

22105127206*msd	2210525A_14.d	QC	5/25/2021 19:23	RXJ,QQQ3;711419	1
22105127207	2210525A_15.d	Sample	5/25/2021 19:37	RXJ,QQQ3;711419	1
22105127208	2210525A_16.d	Sample	5/25/2021 19:52	RXJ,QQQ3;711419	1
22105127209	2210525A_17.d	Sample	5/25/2021 20:07	RXJ,QQQ3;711419	1
22105127210	2210525A_18.d	Sample	5/25/2021 20:28	RXJ,QQQ3;711419	1
22105127211	2210525A_19.d	Sample	5/25/2021 20:42	RXJ,QQQ3;711419	1
22105127212	2210525A_20.d	Sample	5/25/2021 21:01	RXJ,QQQ3;711419	1
1400	2210525A_21.d	QC	5/25/2021 21:16	RXJ,QQQ3;CCV	1
22105127213	2210525A_22.d	Sample	5/25/2021 21:30	RXJ,QQQ3;711419	1
22105127214	2210525A_23.d	Sample	5/25/2021 21:45	RXJ,QQQ3;711419	1
22105127219	2210525A_24.d	Sample	5/25/2021 21:59	RXJ,QQQ3;711419	1
22105127220	2210525A_25.d	Sample	5/25/2021 22:14	RXJ,QQQ3;711419	1
22105127221	2210525A_26.d	Sample	5/25/2021 22:29	RXJ,QQQ3;711419	1
22105127222	2210525A_27.d	Sample	5/25/2021 22:43	RXJ,QQQ3;711419	1
22105127223	2210525A_28.d	Sample	5/25/2021 22:58	RXJ,QQQ3;711419	1
22105158101	2210525A_29.d	Sample	5/25/2021 23:13	RXJ,QQQ3;711419	1
22105086007	2210525A_30.d	Sample	5/25/2021 23:27	RXJ,QQQ3;711316	1
22105086008	2210525A_31.d	Sample	5/25/2021 23:42	RXJ,QQQ3;711316	1
1400	2210525A_32.d	QC	5/25/2021 23:56	RXJ,QQQ3;CCV	1
22105086009	2210525A_33.d	Sample	5/26/2021 0:11	RXJ,QQQ3;711316	1
22105086013	2210525A_34.d	Sample	5/26/2021 0:26	RXJ,QQQ3;711316	1
22105086014	2210525A_35.d	Sample	5/26/2021 0:40	RXJ,QQQ3;711316	1
22105086017	2210525A_36.d	Sample	5/26/2021 0:55	RXJ,QQQ3;711316	1
22105086018	2210525A_37.d	Sample	5/26/2021 1:09	RXJ,QQQ3;711316	1
22105086019	2210525A_38.d	Sample	5/26/2021 1:24	RXJ,QQQ3;711316	1
22105086020	2210525A_39.d	Sample	5/26/2021 1:39	RXJ,QQQ3;711316	1
22105086021	2210525A_40.d	Sample	5/26/2021 1:53	RXJ,QQQ3;711316	1
22105086022	2210525A_41.d	Sample	5/26/2021 2:08	RXJ,QQQ3;711316	1
22105127215*10	2210525A_42.d	Sample	5/26/2021 2:23	RXJ,QQQ3;711316	10
1450	2210525A_43.d	QC	5/26/2021 2:37	RXJ,QQQ3;CCV	1
22105127216*10	2210525A_44.d	Sample	5/26/2021 2:52	RXJ,QQQ3;711316	10
22105101513*5	2210525A_45.d	Sample	5/26/2021 3:07	RXJ,QQQ3;711258	5
22105101513*50	2210525A_46.d	Sample	5/26/2021 3:22	RXJ,QQQ3;711258	50
22105055801*50	2210525A_47.d	Sample	5/26/2021 3:36	RXJ,QQQ3;711099	50

22105055801*2000xdai	2210525A_48.d	Sample	5/26/2021 3:51	RXJ,QQQ3;711099	1
2194560	2210525A_49.d	Sample	5/26/2021 4:06	RXJ,QQQ3;711099	1
22105055803*5	2210525A_50.d	Sample	5/26/2021 4:20	RXJ,QQQ3;711099	5
22104242921*	2210525A_51.d	Sample	5/26/2021 4:35	RXJ,QQQ3;709858	1
22104300602*5	2210525A_52.d	Sample	5/26/2021 4:49	RXJ,QQQ3;710144	5
22104303107*100	2210525A_53.d	Sample	5/26/2021 5:04	RXJ,QQQ3;710144	1
1400	2210525A_54.d	Sample	5/26/2021 5:19	RXJ,QQQ3;CCV	1
2194582	2210525A_55.d	Sample	5/26/2021 5:33	RXJ,QQQ3;710144	1
2183139	2210525A_56.d	Blank	5/26/2021 5:48	RXJ,QQQ3;710580	1
2183140	2210525A_57.d	QC	5/26/2021 6:02	RXJ,QQQ3;710580	1
2183141	2210525A_58.d	QC	5/26/2021 6:17	RXJ,QQQ3;710580	1
22105041110	2210525A_59.d	Sample	5/26/2021 6:32	RXJ,QQQ3;710580	1
22105041145	2210525A_60.d	Sample	5/26/2021 6:46	RXJ,QQQ3;710580	1
22105041146	2210525A_61.d	Sample	5/26/2021 7:01	RXJ,QQQ3;710580	1
22105041148	2210525A_62.d	Sample	5/26/2021 7:15	RXJ,QQQ3;710580	1
22105041149	2210525A_63.d	Sample	5/26/2021 7:30	RXJ,QQQ3;710580	1
22105041150	2210525A_64.d	Sample	5/26/2021 7:45	RXJ,QQQ3;710580	1
22105041151	2210525A_65.d	Sample	5/26/2021 7:59	RXJ,QQQ3;710580	1
22105041152	2210525A_66.d	Sample	5/26/2021 8:14	RXJ,QQQ3;710580	1
22105041153	2210525A_67.d	Sample	5/26/2021 8:29	RXJ,QQQ3;710580	1
1400	2210525A_68.d	QC	5/26/2021 8:43	RXJ,QQQ3;CCV	1
22105041154	2210525A_69.d	Sample	5/26/2021 8:58	RXJ,QQQ3;710580	1
22105011124	2210525A_70.d	Sample	5/26/2021 9:12	RXJ,QQQ3;710580	1
22104280209*5	2210525A_71.d	Sample	5/26/2021 9:27	RXJ,QQQ3;710373	5
1400	2210525A_72.d	QC	5/26/2021 9:42	RXJ,QQQ3;CCV	1
2189803	2210525A_73.d	Blank	5/26/2021 10:03	RXJ,QQQ3;711753	1
2189804	2210525A_74.d	QC	5/26/2021 10:17	RXJ,QQQ3;711753	1
22104306016	2210525A_75.d	Sample	5/26/2021 10:32	RXJ,QQQ3;711753	1
22104306017	2210525A_76.d	Sample	5/26/2021 10:47	RXJ,QQQ3;711753	1
22104306019	2210525A_77.d	Sample	5/26/2021 11:01	RXJ,QQQ3;711753	1
22104306020	2210525A_78.d	Sample	5/26/2021 11:16	RXJ,QQQ3;711753	1
22104306021	2210525A_79.d	Sample	5/26/2021 11:30	RXJ,QQQ3;711753	1
22104306022	2210525A_80.d	Sample	5/26/2021 11:45	RXJ,QQQ3;711753	1
1500TEST	2210525A_81.d	Sample	5/26/2021 12:01	RXJ,QQQ3;711753	1

22105203905	2210525A_82.d	Sample	5/26/2021 12:16	RXJ,QQQ3;711753	10
22104306023	2210525A_83.d	Sample	5/26/2021 12:31	RXJ,QQQ3;711753	1
22104306024	2210525A_84.d	Sample	5/26/2021 12:45	RXJ,QQQ3;711753	1
22104306025	2210525A_85.d	Sample	5/26/2021 13:00	RXJ,QQQ3;711753	1
1400	2210525A_86.d	QC	5/26/2021 13:15	RXJ,QQQ3;CCV	1

ORGANICS INITIAL CALIBRATION VERIFICATION

Report No:	<u>221050411</u>	Instrument ID:	<u>QQQ3</u>
Analysis Date:	<u>05/24/2021 21:55</u>	Lab File ID:	<u>2210524B_09.d</u>
Analytical Method:	<u>EPA 537 Mod Isotope Dilution</u>	Analytical Batch:	<u>711987</u>

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomersulfonic acid	ng/L	10000	11900	119 ✓	70	130	
8:2 Fluorotelomersulfonic acid	ng/L	10100	11400	113	70	130	
NEtFOSAA	ng/L	10000	11300	113	70	130	
NMeFOSAA	ng/L	10000	10500	105	70	130	
Perfluorobutanoic acid	ng/L	10000	11500	115	70	130	
Perfluorobutanesulfonic acid	ng/L	10000	11500	115	70	130	
Perfluorodecanoic acid	ng/L	10000	12100	121	70	130	
Perfluorododecanoic acid	ng/L	10000	11400	114	70	130	
Perfluoroheptanoic acid	ng/L	10000	11700	117	70	130	
Perfluorohexanoic acid	ng/L	10100	11400	113	70	130	
Perfluorohexanesulfonic acid	ng/L	10000	11600	116	70	130	
Perfluorononanoic acid	ng/L	10000	12900	129	70	130	
Perfluorooctanoic acid	ng/L	10100	11600	114	70	130	
Perfluorooctanesulfonic acid	ng/L	10000	10000	100	70	130	
Perfluoropentanoic acid	ng/L	10100	11600	114	70	130	
Perfluorotetradecanoic acid	ng/L	10000	13000	130	70	130	
Perfluorotridecanoic acid	ng/L	10000	10400	104	70	130	
Perfluoroundecanoic acid	ng/L	10000	11900	119	70	130	

FORM 6I - ORG

ORGANICS INSTRUMENT SENSITIVITY CHECK

Report No:	<u>221050411</u>	Instrument ID:	<u>QQQ3</u>
Analysis Date:	<u>05/26/2021 02:37</u>	Lab File ID:	<u>2210525A_43.d</u>
Analytical Method:	<u>EPA 537 Mod Isotope Dilution</u>	Analytical Batch:	<u>712118</u>

<i>ANALYTE</i>	<i>UNITS</i>	<i>TRUE</i>	<i>FOUND</i>	<i>% REC</i>	<i>LCL</i>	<i>UCL</i>	<i>Q</i>
6:2 Fluorotelomersulfonic acid	ng/L	3.81	4.12	108 ✓	70	130	
8:2 Fluorotelomersulfonic acid	ng/L	3.84	4.22	110	70	130	
NEtFOSAA	ng/L	4.00	4.22	105	70	130	
NMeFOSAA	ng/L	4.00	3.83	96	70	130	
Perfluorobutanoic acid	ng/L	4.00	4.07	102	70	130	
Perfluorobutanesulfonic acid	ng/L	3.55	3.61	102	70	130	
Perfluorodecanoic acid	ng/L	4.00	3.98	99	70	130	
Perfluorododecanoic acid	ng/L	4.00	4.06	101	70	130	
Perfluoroheptanoic acid	ng/L	4.00	3.99	100	70	130	
Perfluorohexanoic acid	ng/L	4.00	4.10	102	70	130	
Perfluorohexanesulfonic acid	ng/L	3.66	4.05	111	70	130	
Perfluorononanoic acid	ng/L	4.00	3.98	99	70	130	
Perfluorooctanoic acid	ng/L	4.00	4.17	104	70	130	
Perfluorooctanesulfonic acid	ng/L	3.71	3.74	101	70	130	
Perfluoropentanoic acid	ng/L	4.00	4.10	102	70	130	
Perfluorotetradecanoic acid	ng/L	4.00	3.86	97	70	130	
Perfluorotridecanoic acid	ng/L	4.00	4.14	103	70	130	
Perfluoroundecanoic acid	ng/L	4.00	3.98	99	70	130	

FORM 7S - ORG

ORGANICS INSTRUMENT BLANK

Report No:	221050411	Instrument ID:	QQQ3
Analysis Date:	05/25/2021 15:40	Lab File ID:	2210525A_01.d
Analytical Method:	EPA 537 Mod Isotope Dilution	Analytical Batch:	712118

ANALYTE	UNITS	RESULT	Q	DL	LOD	LOQ	#
6:2 Fluorotelomersulfonic acid	ng/L	2.00	U✓	0.94	2.00	4.00	
8:2 Fluorotelomersulfonic acid	ng/L	2.00	U	0.90	2.00	4.00	
NETFOSAA	ng/L	4.00	U	0.97	4.00	8.00	
NMeFOSAA	ng/L	4.00	U	0.90	4.00	8.00	
Perfluorobutanesulfonic acid	ng/L	2.00	U	0.62	2.00	4.00	
Perfluorobutanoic acid	ng/L	2.00	U	0.90	2.00	4.00	
Perfluorodecanoic acid	ng/L	2.00	U	0.86	2.00	4.00	
Perfluorododecanoic acid	ng/L	2.00	U	0.88	2.00	4.00	
Perfluoroheptanoic acid	ng/L	2.00	U	0.48	2.00	4.00	
Perfluorohexanesulfonic acid	ng/L	2.00	U	0.95	2.00	4.00	
Perfluorohexanoic acid	ng/L	2.00	U	0.94	2.00	4.00	
Perfluorononanoic acid	ng/L	2.00	U	0.78	2.00	4.00	
Perfluorooctanesulfonic acid	ng/L	2.00	U	0.76	2.00	4.00	
Perfluorooctanoic acid	ng/L	2.00	U	0.84	2.00	4.00	
Perfluoropentanoic acid	ng/L	2.00	U	0.85	2.00	4.00	
Perfluorotetradecanoic acid	ng/L	2.00	U	0.98	2.00	4.00	
Perfluorotridecanoic acid	ng/L	2.00	U	0.99	2.00	4.00	
Perfluoroundecanoic acid	ng/L	2.00	U	0.95	2.00	4.00	

* - Result greater than 1/2 LOQ

Quantitative Analysis Calibration Report

Batch Data Path	D:\MassHunter\Data\2210524BCAL\QuantResults\2210525A.batch.bin		
Analysis Time	5/31/2021 11:06 AM	Analyst Name	GCAL\awg
Report Time	6/2/2021 1:57 PM	Reporter Name	GCAL\lcms
Last Calib Update	5/25/2021 4:31 PM	Batch State	Processed

Calibration Info

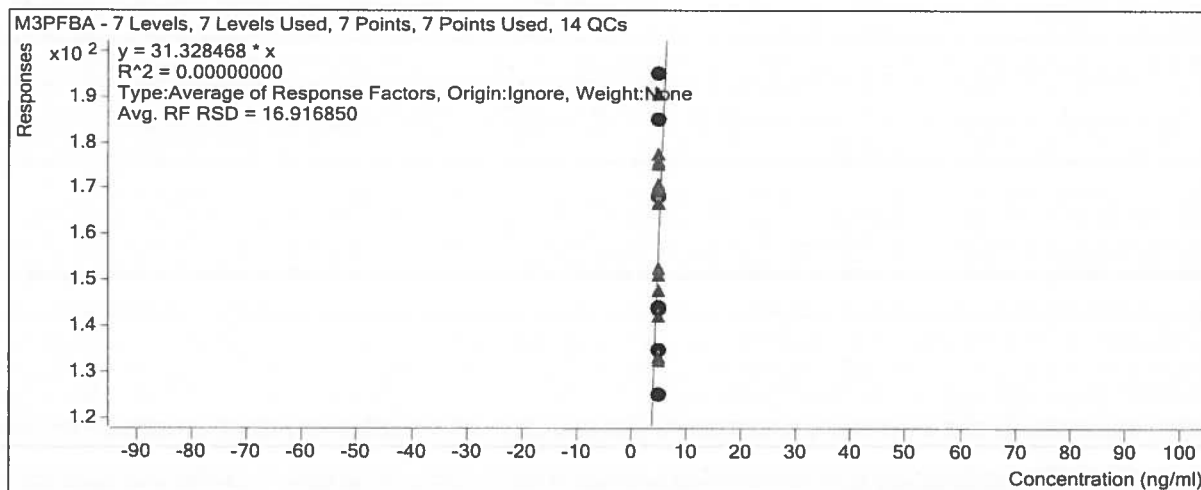
Extracted ISTD *MPFBA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210524BDW\2210524B_01.d	Calibration	1	<input checked="" type="checkbox"/>	23436	5.0000	4687.2742
K:\MassHunter\Data\2210524BDW\2210524B_02.d	Calibration	2	<input checked="" type="checkbox"/>	25869	5.0000	5173.7527
K:\MassHunter\Data\2210524BDW\2210524B_03.d	Calibration	3	<input checked="" type="checkbox"/>	25787	5.0000	5157.4696
K:\MassHunter\Data\2210524BDW\2210524B_04.d	Calibration	4	<input checked="" type="checkbox"/>	28371	5.0000	5674.1952
K:\MassHunter\Data\2210524BDW\2210524B_05.d	Calibration	5	<input checked="" type="checkbox"/>	30247	5.0000	6049.3945
K:\MassHunter\Data\2210524BDW\2210524B_06.d	Calibration	6	<input checked="" type="checkbox"/>	27491	5.0000	5498.2819
K:\MassHunter\Data\2210524BDW\2210524B_07.d	Calibration	7	<input checked="" type="checkbox"/>	30641	5.0000	6128.1895

Instrument ISTD

M3PFBA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210524BDW\2210524B_01.d	Calibration	1	<input checked="" type="checkbox"/>	135	5.0000	26.9880
K:\MassHunter\Data\2210524BDW\2210524B_02.d	Calibration	2	<input checked="" type="checkbox"/>	144	5.0000	28.8020
K:\MassHunter\Data\2210524BDW\2210524B_03.d	Calibration	3	<input checked="" type="checkbox"/>	125	5.0000	25.0353
K:\MassHunter\Data\2210524BDW\2210524B_04.d	Calibration	4	<input checked="" type="checkbox"/>	144	5.0000	28.7516
K:\MassHunter\Data\2210524BDW\2210524B_05.d	Calibration	5	<input checked="" type="checkbox"/>	195	5.0000	39.0197
K:\MassHunter\Data\2210524BDW\2210524B_06.d	Calibration	6	<input checked="" type="checkbox"/>	168	5.0000	33.6872
K:\MassHunter\Data\2210524BDW\2210524B_07.d	Calibration	7	<input checked="" type="checkbox"/>	185	5.0000	37.0154

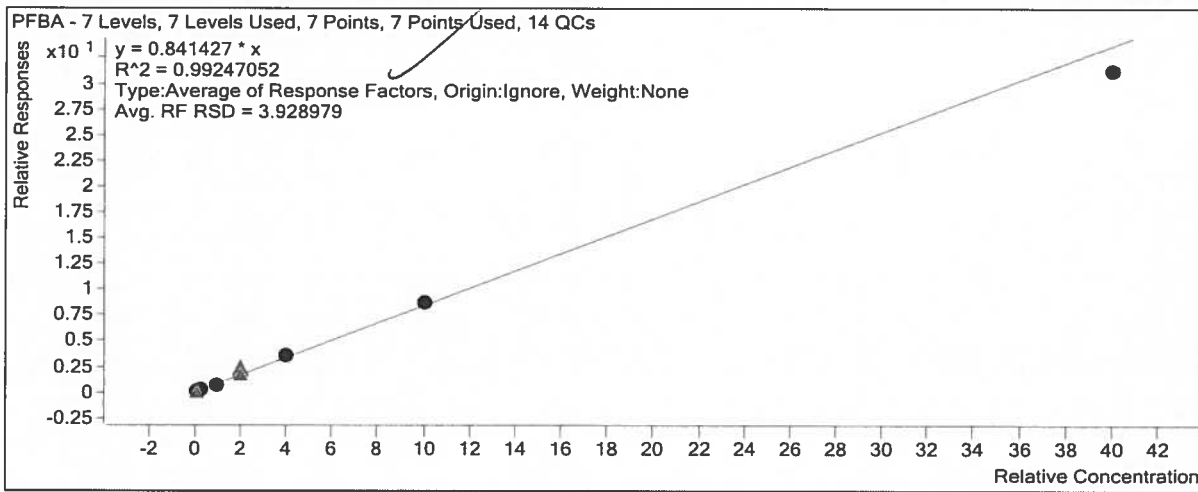


Quantitative Analysis Calibration Report

Target Compound

PFBA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210524BDW\2210524B_01.d	Calibration	1	<input checked="" type="checkbox"/>	2004	0.5000	0.8552
K:\MassHunter\Data\2210524BDW\2210524B_02.d	Calibration	2	<input checked="" type="checkbox"/>	5390	1.2500	0.8335
K:\MassHunter\Data\2210524BDW\2210524B_03.d	Calibration	3	<input checked="" type="checkbox"/>	21110	5.0000	0.8186
K:\MassHunter\Data\2210524BDW\2210524B_04.d	Calibration	4	<input checked="" type="checkbox"/>	48441	10.0000	0.8537
K:\MassHunter\Data\2210524BDW\2210524B_05.d	Calibration	5	<input checked="" type="checkbox"/>	106251	20.0000	0.8782
K:\MassHunter\Data\2210524BDW\2210524B_06.d	Calibration	6	<input checked="" type="checkbox"/>	238851	50.0000	0.8688
K:\MassHunter\Data\2210524BDW\2210524B_07.d	Calibration	7	<input checked="" type="checkbox"/>	958439	200.0000	0.7820

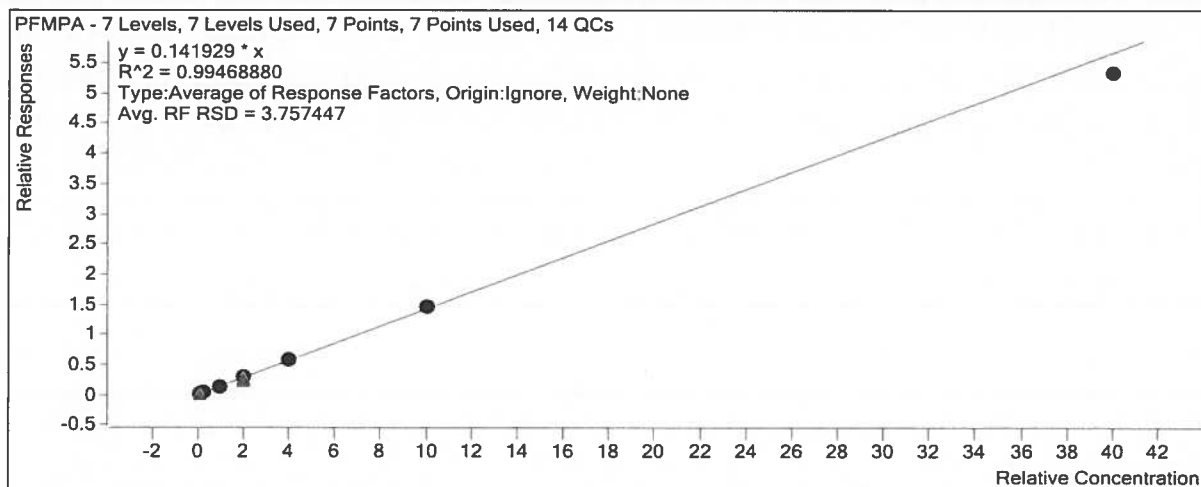


Target Compound

PFMPA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210524BDW\2210524B_01.d	Calibration	1	<input checked="" type="checkbox"/>	393	0.5000	0.1437
K:\MassHunter\Data\2210524BDW\2210524B_02.d	Calibration	2	<input checked="" type="checkbox"/>	995	1.2500	0.1362
K:\MassHunter\Data\2210524BDW\2210524B_03.d	Calibration	3	<input checked="" type="checkbox"/>	4044	5.0000	0.1411
K:\MassHunter\Data\2210524BDW\2210524B_04.d	Calibration	4	<input checked="" type="checkbox"/>	9179	10.0000	0.1447
K:\MassHunter\Data\2210524BDW\2210524B_05.d	Calibration	5	<input checked="" type="checkbox"/>	19997	20.0000	0.1470
K:\MassHunter\Data\2210524BDW\2210524B_06.d	Calibration	6	<input checked="" type="checkbox"/>	44683	50.0000	0.1473
K:\MassHunter\Data\2210524BDW\2210524B_07.d	Calibration	7	<input checked="" type="checkbox"/>	173888	200.0000	0.1335

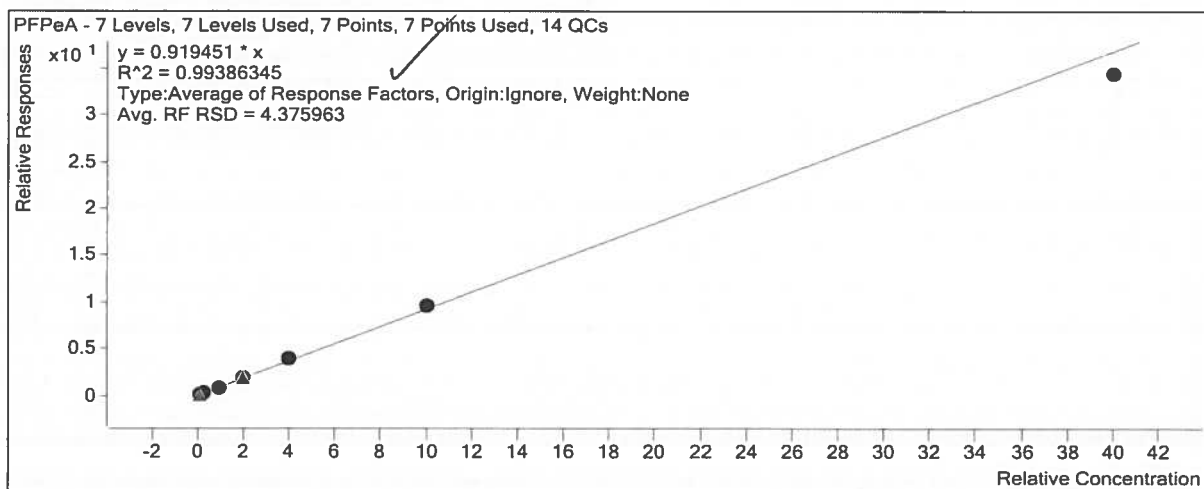
Quantitative Analysis Calibration Report



Target Compound

PFPeA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210524BDW\2210524B_01.d	Calibration	1	<input checked="" type="checkbox"/>	2520	0.5000	0.9205
K:\MassHunter\Data\2210524BDW\2210524B_02.d	Calibration	2	<input checked="" type="checkbox"/>	6442	1.2500	0.8818
K:\MassHunter\Data\2210524BDW\2210524B_03.d	Calibration	3	<input checked="" type="checkbox"/>	25826	5.0000	0.9013
K:\MassHunter\Data\2210524BDW\2210524B_04.d	Calibration	4	<input checked="" type="checkbox"/>	60051	10.0000	0.9466
K:\MassHunter\Data\2210524BDW\2210524B_05.d	Calibration	5	<input checked="" type="checkbox"/>	131759	20.0000	0.9687
K:\MassHunter\Data\2210524BDW\2210524B_06.d	Calibration	6	<input checked="" type="checkbox"/>	290122	50.0000	0.9564
K:\MassHunter\Data\2210524BDW\2210524B_07.d	Calibration	7	<input checked="" type="checkbox"/>	1121612	200.0000	0.8608



Extracted ISTD

M5PFPeA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
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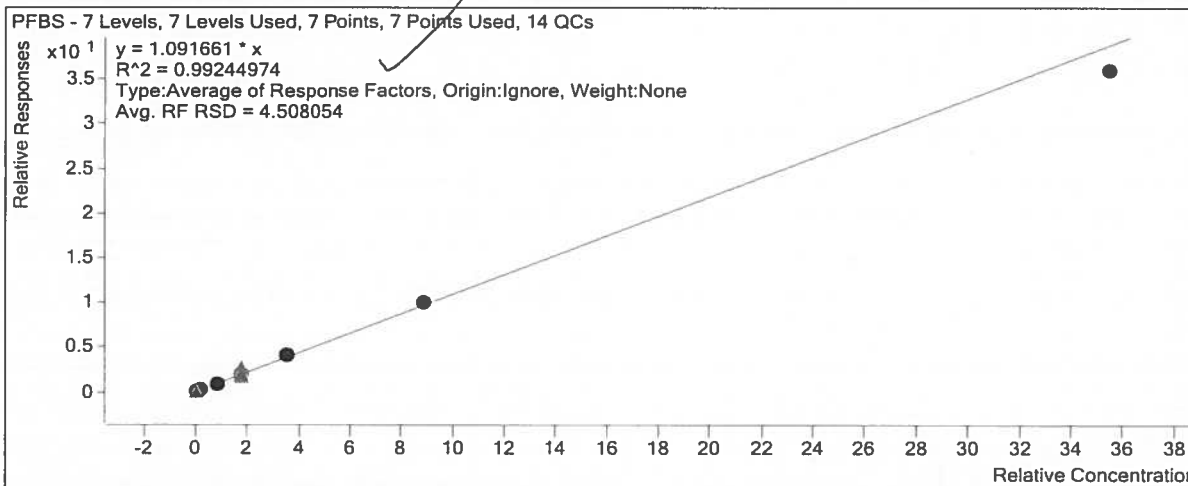
Quantitative Analysis Calibration Report

K:\MassHunter\Data\2210524BDW\2210524B_01.d	Calibration	1	<input checked="" type="checkbox"/>	27381	5.0000	5476.1031
K:\MassHunter\Data\2210524BDW\2210524B_02.d	Calibration	2	<input checked="" type="checkbox"/>	29221	5.0000	5844.1203
K:\MassHunter\Data\2210524BDW\2210524B_03.d	Calibration	3	<input checked="" type="checkbox"/>	28655	5.0000	5730.9106
K:\MassHunter\Data\2210524BDW\2210524B_04.d	Calibration	4	<input checked="" type="checkbox"/>	31718	5.0000	6343.6287
K:\MassHunter\Data\2210524BDW\2210524B_05.d	Calibration	5	<input checked="" type="checkbox"/>	34005	5.0000	6801.0331
K:\MassHunter\Data\2210524BDW\2210524B_06.d	Calibration	6	<input checked="" type="checkbox"/>	30334	5.0000	6066.7963
K:\MassHunter\Data\2210524BDW\2210524B_07.d	Calibration	7	<input checked="" type="checkbox"/>	32574	5.0000	6514.7568

Target Compound

PFBS

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210524BDW\2210524B_01.d	Calibration	1	<input checked="" type="checkbox"/>	872	0.4435	1.0890
K:\MassHunter\Data\2210524BDW\2210524B_02.d	Calibration	2	<input checked="" type="checkbox"/>	2252	1.1088	1.0651
K:\MassHunter\Data\2210524BDW\2210524B_03.d	Calibration	3	<input checked="" type="checkbox"/>	8820	4.4350	1.0642
K:\MassHunter\Data\2210524BDW\2210524B_04.d	Calibration	4	<input checked="" type="checkbox"/>	20111	8.8700	1.1193
K:\MassHunter\Data\2210524BDW\2210524B_05.d	Calibration	5	<input checked="" type="checkbox"/>	43972	17.7400	1.1639
K:\MassHunter\Data\2210524BDW\2210524B_06.d	Calibration	6	<input checked="" type="checkbox"/>	97588	44.3500	1.1255
K:\MassHunter\Data\2210524BDW\2210524B_07.d	Calibration	7	<input checked="" type="checkbox"/>	363876	177.4000	1.0146



Extracted ISTD

M3PFBS

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210524BDW\2210524B_01.d	Calibration	1	<input checked="" type="checkbox"/>	9029	5.0000	1805.7859
K:\MassHunter\Data\2210524BDW\2210524B_02.d	Calibration	2	<input checked="" type="checkbox"/>	9534	5.0000	1906.8859
K:\MassHunter\Data\2210524BDW\2210524B_03.d	Calibration	3	<input checked="" type="checkbox"/>	9344	5.0000	1868.8929

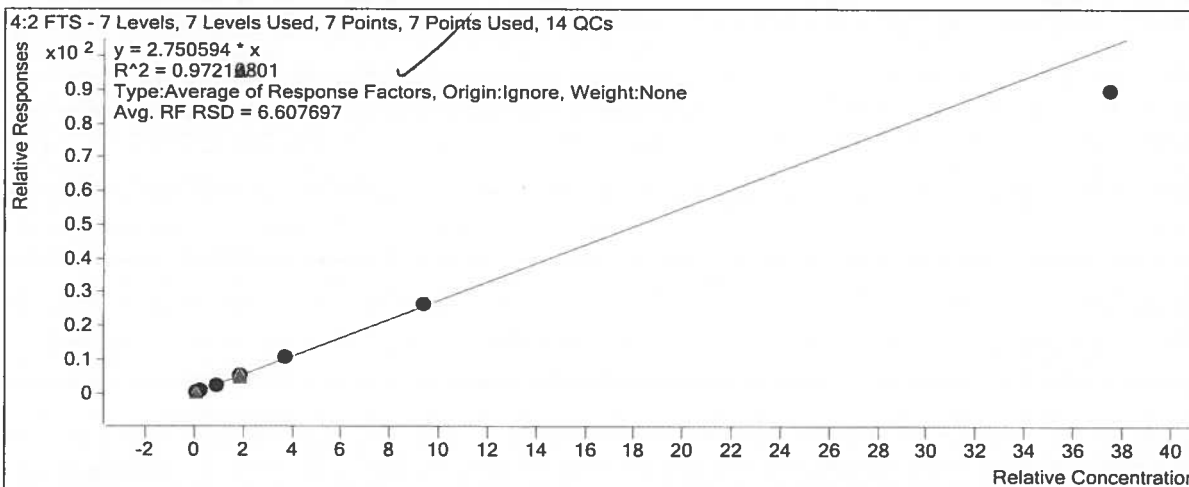
Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210524BDW\2210524B_01.d	Calibration	1	<input checked="" type="checkbox"/>	3023	5.0000	604.5259
K:\MassHunter\Data\2210524BDW\2210524B_02.d	Calibration	2	<input checked="" type="checkbox"/>	2964	5.0000	592.7038
K:\MassHunter\Data\2210524BDW\2210524B_03.d	Calibration	3	<input checked="" type="checkbox"/>	3158	5.0000	631.5754
K:\MassHunter\Data\2210524BDW\2210524B_04.d	Calibration	4	<input checked="" type="checkbox"/>	3233	5.0000	646.6807
K:\MassHunter\Data\2210524BDW\2210524B_05.d	Calibration	5	<input checked="" type="checkbox"/>	3336	5.0000	667.2550
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K:\MassHunter\Data\2210524BDW\2210524B_07.d	Calibration	7	<input checked="" type="checkbox"/>	2834	5.0000	566.7417

Target Compound

4:2 FTS

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210524BDW\2210524B_01.d	Calibration	1	<input checked="" type="checkbox"/>	828	0.4685	2.9230
K:\MassHunter\Data\2210524BDW\2210524B_02.d	Calibration	2	<input checked="" type="checkbox"/>	1891	1.1713	2.7238
K:\MassHunter\Data\2210524BDW\2210524B_03.d	Calibration	3	<input checked="" type="checkbox"/>	7854	4.6850	2.6543
K:\MassHunter\Data\2210524BDW\2210524B_04.d	Calibration	4	<input checked="" type="checkbox"/>	17062	9.3700	2.8158
K:\MassHunter\Data\2210524BDW\2210524B_05.d	Calibration	5	<input checked="" type="checkbox"/>	36243	18.7400	2.8985
K:\MassHunter\Data\2210524BDW\2210524B_06.d	Calibration	6	<input checked="" type="checkbox"/>	77684	46.8500	2.8407
K:\MassHunter\Data\2210524BDW\2210524B_07.d	Calibration	7	<input checked="" type="checkbox"/>	254694	187.4000	2.3981



Extracted ISTD

M5PFHxA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210524BDW\2210524B_01.d	Calibration	1	<input checked="" type="checkbox"/>	35247	5.0000	7049.3758

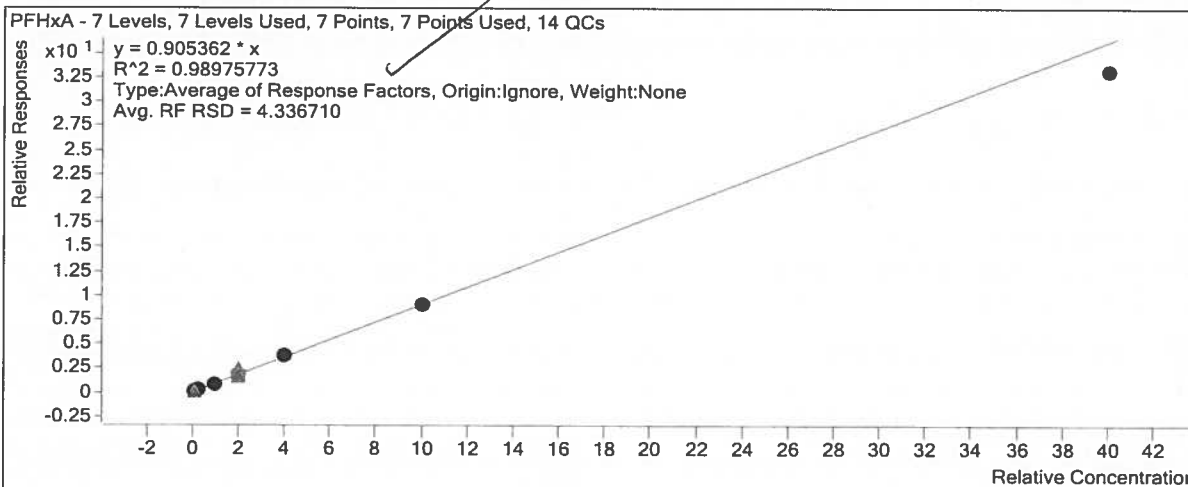
Quantitative Analysis Calibration Report

K:\MassHunter\Data\2210524BDW\2210524B_02.d	Calibration	2	<input checked="" type="checkbox"/>	36778	5.0000	7355.6792
K:\MassHunter\Data\2210524BDW\2210524B_03.d	Calibration	3	<input checked="" type="checkbox"/>	36688	5.0000	7337.6001
K:\MassHunter\Data\2210524BDW\2210524B_04.d	Calibration	4	<input checked="" type="checkbox"/>	39507	5.0000	7901.3299
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K:\MassHunter\Data\2210524BDW\2210524B_06.d	Calibration	6	<input checked="" type="checkbox"/>	38765	5.0000	7752.9996
K:\MassHunter\Data\2210524BDW\2210524B_07.d	Calibration	7	<input checked="" type="checkbox"/>	41103	5.0000	8220.6238

Target Compound

PFHxA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210524BDW\2210524B_01.d	Calibration	1	<input checked="" type="checkbox"/>	3237	0.5000	0.9183
K:\MassHunter\Data\2210524BDW\2210524B_02.d	Calibration	2	<input checked="" type="checkbox"/>	8352	1.2500	0.9083
K:\MassHunter\Data\2210524BDW\2210524B_03.d	Calibration	3	<input checked="" type="checkbox"/>	32301	5.0000	0.8804
K:\MassHunter\Data\2210524BDW\2210524B_04.d	Calibration	4	<input checked="" type="checkbox"/>	74833	10.0000	0.9471
K:\MassHunter\Data\2210524BDW\2210524B_05.d	Calibration	5	<input checked="" type="checkbox"/>	161327	20.0000	0.9394
K:\MassHunter\Data\2210524BDW\2210524B_06.d	Calibration	6	<input checked="" type="checkbox"/>	353784	50.0000	0.9126
K:\MassHunter\Data\2210524BDW\2210524B_07.d	Calibration	7	<input checked="" type="checkbox"/>	1366672	200.0000	0.8312



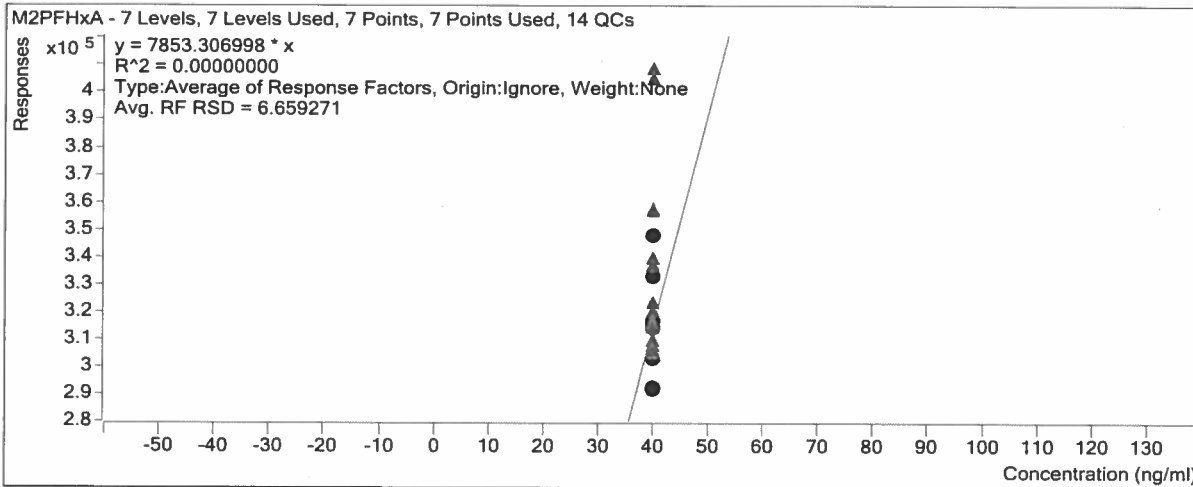
Instrument ISTD

M2PFHxA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
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K:\MassHunter\Data\2210524BDW\2210524B_02.d	Calibration	2	<input checked="" type="checkbox"/>	291637	40.0000	7290.9298
K:\MassHunter\Data\2210524BDW\2210524B_03.d	Calibration	3	<input checked="" type="checkbox"/>	303245	40.0000	7581.1348
K:\MassHunter\Data\2210524BDW\2210524B_04.d	Calibration	4	<input checked="" type="checkbox"/>	332931	40.0000	8323.2763

Quantitative Analysis Calibration Report

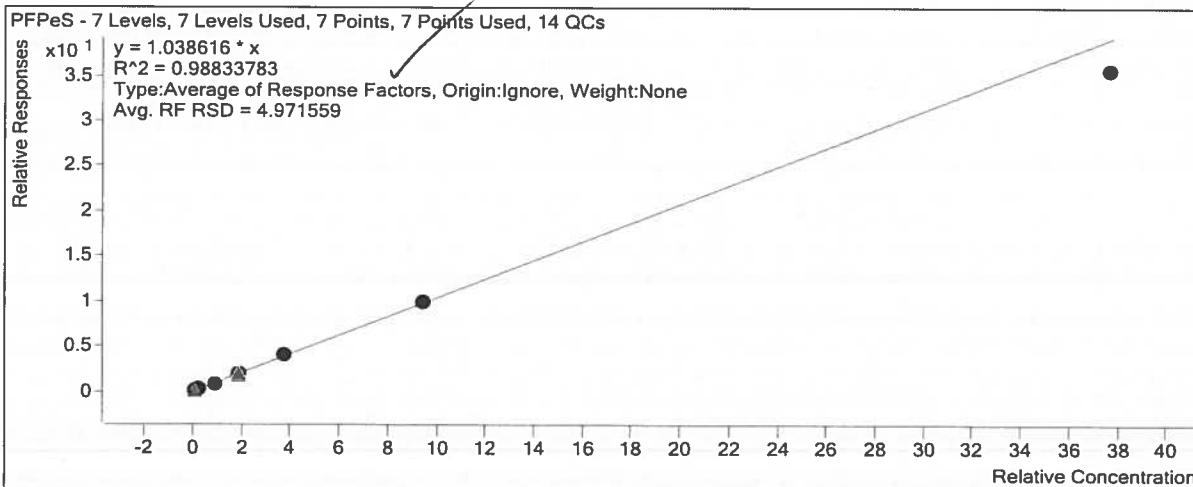
K:\MassHunter\Data\2210524BDW\2210524B_05.d	Calibration	5	<input checked="" type="checkbox"/>	348110	40.0000	8702.7537
K:\MassHunter\Data\2210524BDW\2210524B_06.d	Calibration	6	<input checked="" type="checkbox"/>	314311	40.0000	7857.7649
K:\MassHunter\Data\2210524BDW\2210524B_07.d	Calibration	7	<input checked="" type="checkbox"/>	316625	40.0000	7915.6372



Target Compound

PFPeS

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210524BDW\2210524B_01.d	Calibration	1	<input checked="" type="checkbox"/>	912	0.4705	1.0736
K:\MassHunter\Data\2210524BDW\2210524B_02.d	Calibration	2	<input checked="" type="checkbox"/>	2262	1.1763	1.0083
K:\MassHunter\Data\2210524BDW\2210524B_03.d	Calibration	3	<input checked="" type="checkbox"/>	8880	4.7050	1.0099
K:\MassHunter\Data\2210524BDW\2210524B_04.d	Calibration	4	<input checked="" type="checkbox"/>	20436	9.4100	1.0721
K:\MassHunter\Data\2210524BDW\2210524B_05.d	Calibration	5	<input checked="" type="checkbox"/>	43913	18.8200	1.0956
K:\MassHunter\Data\2210524BDW\2210524B_06.d	Calibration	6	<input checked="" type="checkbox"/>	97701	47.0500	1.0621
K:\MassHunter\Data\2210524BDW\2210524B_07.d	Calibration	7	<input checked="" type="checkbox"/>	360900	188.2000	0.9486



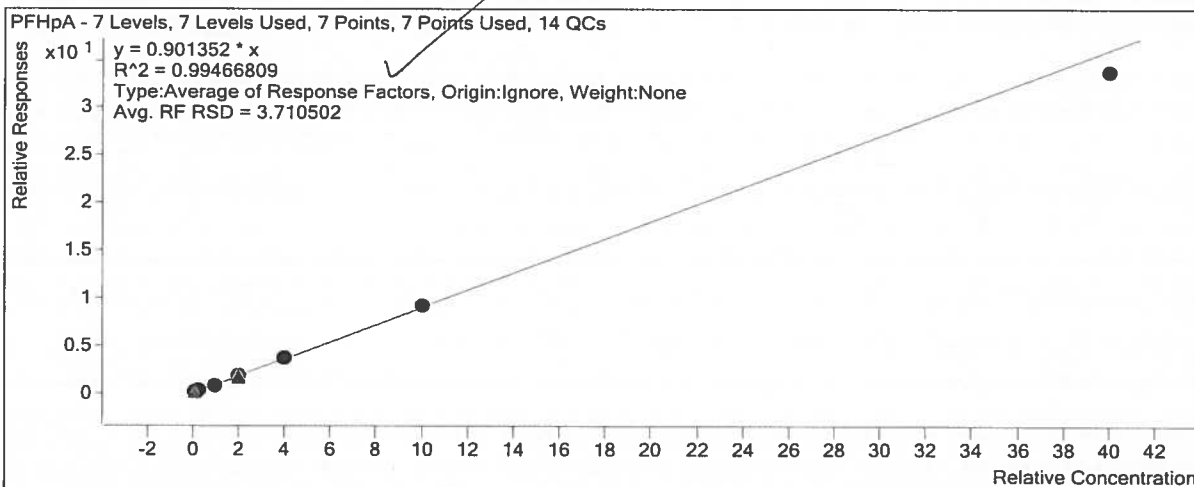
Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210524BDW\2210524B_01.d	Calibration	1	<input checked="" type="checkbox"/>	42824	5.0000	8564.7910
K:\MassHunter\Data\2210524BDW\2210524B_02.d	Calibration	2	<input checked="" type="checkbox"/>	44855	5.0000	8970.9991
K:\MassHunter\Data\2210524BDW\2210524B_03.d	Calibration	3	<input checked="" type="checkbox"/>	44877	5.0000	8975.4072
K:\MassHunter\Data\2210524BDW\2210524B_04.d	Calibration	4	<input checked="" type="checkbox"/>	48593	5.0000	9718.5949
K:\MassHunter\Data\2210524BDW\2210524B_05.d	Calibration	5	<input checked="" type="checkbox"/>	51930	5.0000	10385.9793
K:\MassHunter\Data\2210524BDW\2210524B_06.d	Calibration	6	<input checked="" type="checkbox"/>	46759	5.0000	9351.8277
K:\MassHunter\Data\2210524BDW\2210524B_07.d	Calibration	7	<input checked="" type="checkbox"/>	48717	5.0000	9743.3548

Target Compound

PFHpA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210524BDW\2210524B_01.d	Calibration	1	<input checked="" type="checkbox"/>	3916	0.5000	0.9144
K:\MassHunter\Data\2210524BDW\2210524B_02.d	Calibration	2	<input checked="" type="checkbox"/>	9855	1.2500	0.8789
K:\MassHunter\Data\2210524BDW\2210524B_03.d	Calibration	3	<input checked="" type="checkbox"/>	39541	5.0000	0.8811
K:\MassHunter\Data\2210524BDW\2210524B_04.d	Calibration	4	<input checked="" type="checkbox"/>	89723	10.0000	0.9232
K:\MassHunter\Data\2210524BDW\2210524B_05.d	Calibration	5	<input checked="" type="checkbox"/>	196131	20.0000	0.9442
K:\MassHunter\Data\2210524BDW\2210524B_06.d	Calibration	6	<input checked="" type="checkbox"/>	430456	50.0000	0.9206
K:\MassHunter\Data\2210524BDW\2210524B_07.d	Calibration	7	<input checked="" type="checkbox"/>	1650748	200.0000	0.8471



Extracted ISTD

M3PFHxS

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210524BDW\2210524B_01.d	Calibration	1	<input checked="" type="checkbox"/>	7323	5.0000	1464.5904

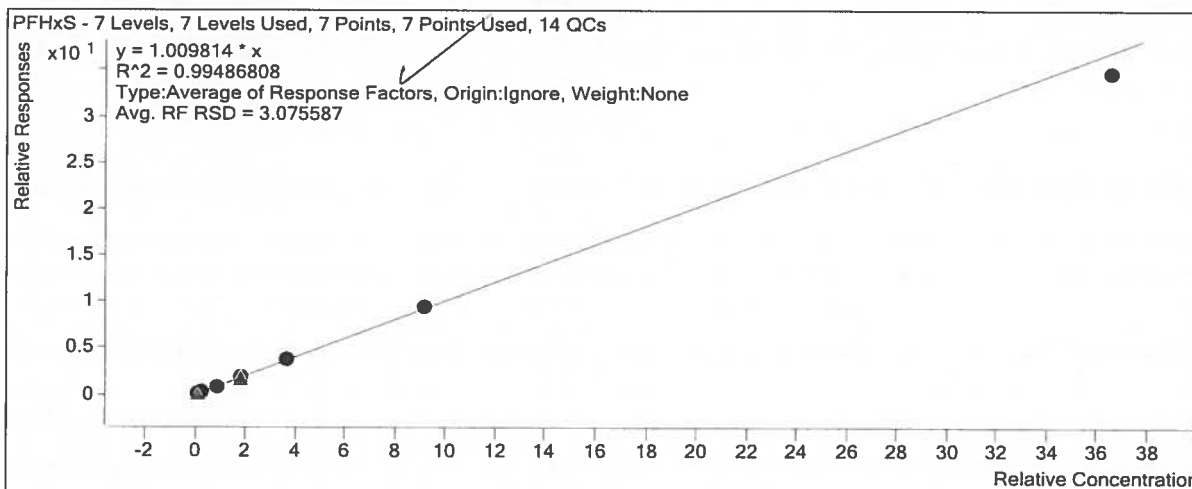
Quantitative Analysis Calibration Report

K:\MassHunter\Data\2210524BDW\2210524B_02.d	Calibration	2	<input checked="" type="checkbox"/>	7643	5.0000	1528.5110
K:\MassHunter\Data\2210524BDW\2210524B_03.d	Calibration	3	<input checked="" type="checkbox"/>	7730	5.0000	1545.9946
K:\MassHunter\Data\2210524BDW\2210524B_04.d	Calibration	4	<input checked="" type="checkbox"/>	8278	5.0000	1655.5151
K:\MassHunter\Data\2210524BDW\2210524B_05.d	Calibration	5	<input checked="" type="checkbox"/>	8817	5.0000	1763.3306
K:\MassHunter\Data\2210524BDW\2210524B_06.d	Calibration	6	<input checked="" type="checkbox"/>	7794	5.0000	1558.7249
K:\MassHunter\Data\2210524BDW\2210524B_07.d	Calibration	7	<input checked="" type="checkbox"/>	7958	5.0000	1591.5690

Target Compound

PFHxS

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210524BDW\2210524B_01.d	Calibration	1	<input checked="" type="checkbox"/>	679	0.4570	1.0147
K:\MassHunter\Data\2210524BDW\2210524B_02.d	Calibration	2	<input checked="" type="checkbox"/>	1763	1.1425	1.0093
K:\MassHunter\Data\2210524BDW\2210524B_03.d	Calibration	3	<input checked="" type="checkbox"/>	7015	4.5700	0.9928
K:\MassHunter\Data\2210524BDW\2210524B_04.d	Calibration	4	<input checked="" type="checkbox"/>	15491	9.1400	1.0237
K:\MassHunter\Data\2210524BDW\2210524B_05.d	Calibration	5	<input checked="" type="checkbox"/>	33331	18.2800	1.0340
K:\MassHunter\Data\2210524BDW\2210524B_06.d	Calibration	6	<input checked="" type="checkbox"/>	74352	45.7000	1.0438
K:\MassHunter\Data\2210524BDW\2210524B_07.d	Calibration	7	<input checked="" type="checkbox"/>	276481	182.8000	0.9503

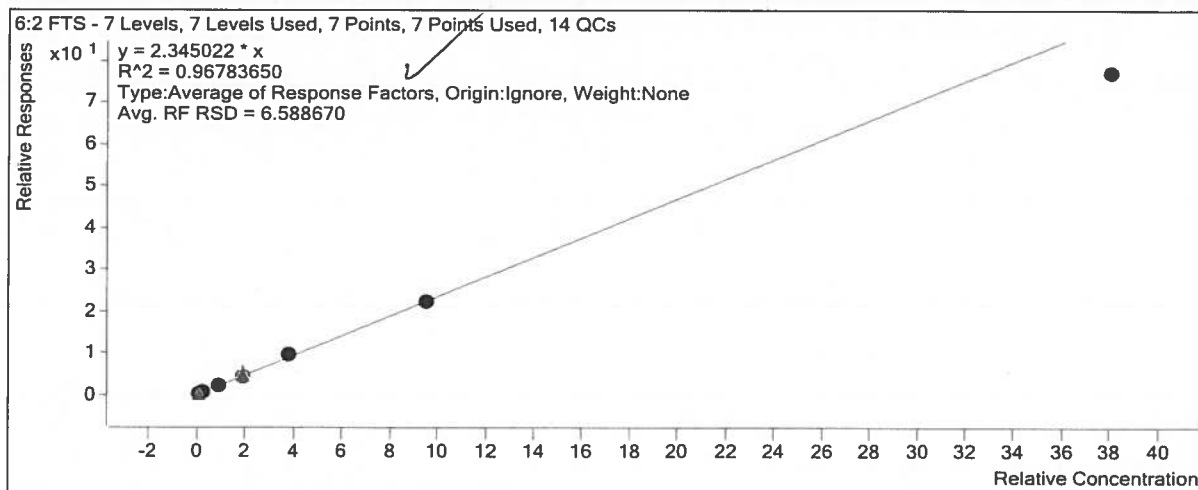


Target Compound

ADONA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210524BDW\2210524B_01.d	Calibration	1	<input checked="" type="checkbox"/>	5948	0.4725	1.6499
K:\MassHunter\Data\2210524BDW\2210524B_02.d	Calibration	2	<input checked="" type="checkbox"/>	15279	1.1813	1.5960
K:\MassHunter\Data\2210524BDW\2210524B_03.d	Calibration	3	<input checked="" type="checkbox"/>	61432	4.7250	1.6087
K:\MassHunter\Data\2210524BDW\2210524B_04.d	Calibration	4	<input checked="" type="checkbox"/>	141859	9.4500	1.7253

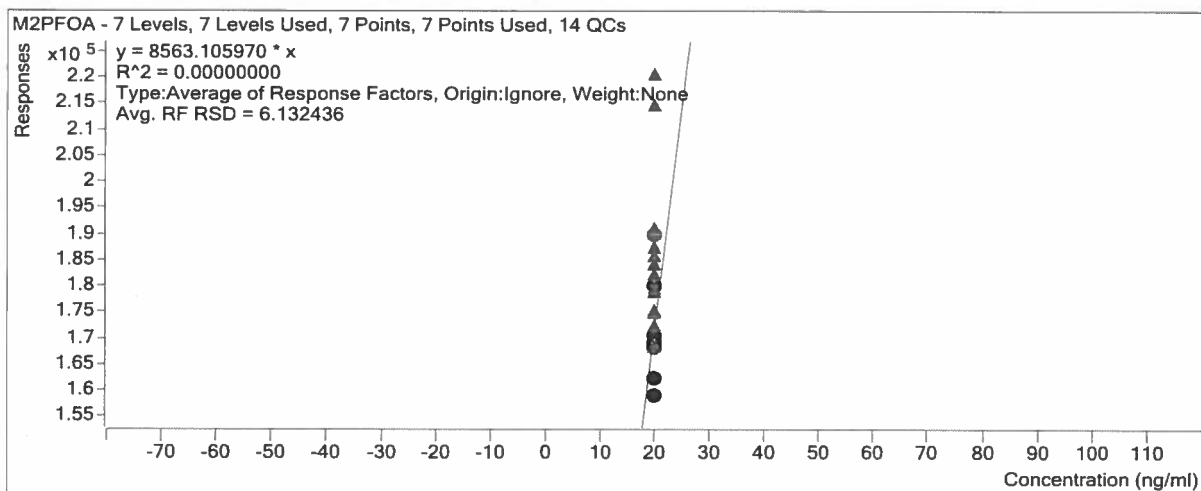
Quantitative Analysis Calibration Report



Instrument ISTD

M2PFOA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210524BDW\2210524B_01.d	Calibration	1	<input checked="" type="checkbox"/>	162469	20.0000	8123.4490
K:\MassHunter\Data\2210524BDW\2210524B_02.d	Calibration	2	<input checked="" type="checkbox"/>	158978	20.0000	7948.8997
K:\MassHunter\Data\2210524BDW\2210524B_03.d	Calibration	3	<input checked="" type="checkbox"/>	168078	20.0000	8403.8957
K:\MassHunter\Data\2210524BDW\2210524B_04.d	Calibration	4	<input checked="" type="checkbox"/>	179935	20.0000	8996.7524
K:\MassHunter\Data\2210524BDW\2210524B_05.d	Calibration	5	<input checked="" type="checkbox"/>	189779	20.0000	9488.9369
K:\MassHunter\Data\2210524BDW\2210524B_06.d	Calibration	6	<input checked="" type="checkbox"/>	169060	20.0000	8452.9896
K:\MassHunter\Data\2210524BDW\2210524B_07.d	Calibration	7	<input checked="" type="checkbox"/>	170536	20.0000	8526.8184



Extracted ISTD

M8PFOA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
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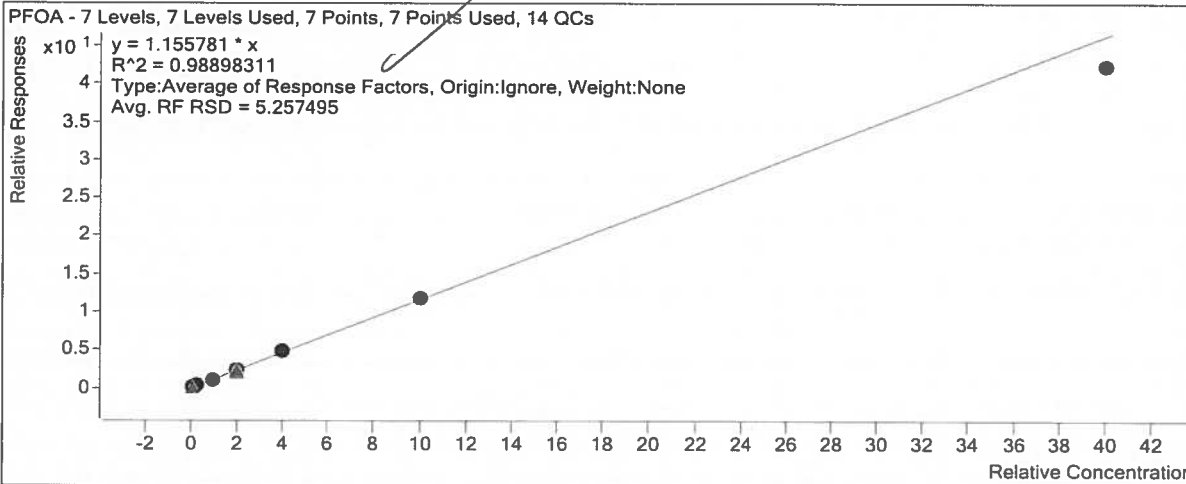
Quantitative Analysis Calibration Report

K:\MassHunter\Data\2210524BDW\2210524B_01.d	Calibration	1	<input checked="" type="checkbox"/>	38148	5.0000	7629.6999
K:\MassHunter\Data\2210524BDW\2210524B_02.d	Calibration	2	<input checked="" type="checkbox"/>	40521	5.0000	8104.1340
K:\MassHunter\Data\2210524BDW\2210524B_03.d	Calibration	3	<input checked="" type="checkbox"/>	40411	5.0000	8082.1205
K:\MassHunter\Data\2210524BDW\2210524B_04.d	Calibration	4	<input checked="" type="checkbox"/>	43503	5.0000	8700.5716
K:\MassHunter\Data\2210524BDW\2210524B_05.d	Calibration	5	<input checked="" type="checkbox"/>	46260	5.0000	9251.9984
K:\MassHunter\Data\2210524BDW\2210524B_06.d	Calibration	6	<input checked="" type="checkbox"/>	40698	5.0000	8139.6213
K:\MassHunter\Data\2210524BDW\2210524B_07.d	Calibration	7	<input checked="" type="checkbox"/>	43199	5.0000	8639.7884

Target Compound

PFOA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210524BDW\2210524B_01.d	Calibration	1	<input checked="" type="checkbox"/>	4737	0.5000	1.2417
K:\MassHunter\Data\2210524BDW\2210524B_02.d	Calibration	2	<input checked="" type="checkbox"/>	11430	1.2500	1.1283
K:\MassHunter\Data\2210524BDW\2210524B_03.d	Calibration	3	<input checked="" type="checkbox"/>	44948	5.0000	1.1123
K:\MassHunter\Data\2210524BDW\2210524B_04.d	Calibration	4	<input checked="" type="checkbox"/>	101736	10.0000	1.1693
K:\MassHunter\Data\2210524BDW\2210524B_05.d	Calibration	5	<input checked="" type="checkbox"/>	220540	20.0000	1.1919
K:\MassHunter\Data\2210524BDW\2210524B_06.d	Calibration	6	<input checked="" type="checkbox"/>	483861	50.0000	1.1889
K:\MassHunter\Data\2210524BDW\2210524B_07.d	Calibration	7	<input checked="" type="checkbox"/>	1828336	200.0000	1.0581

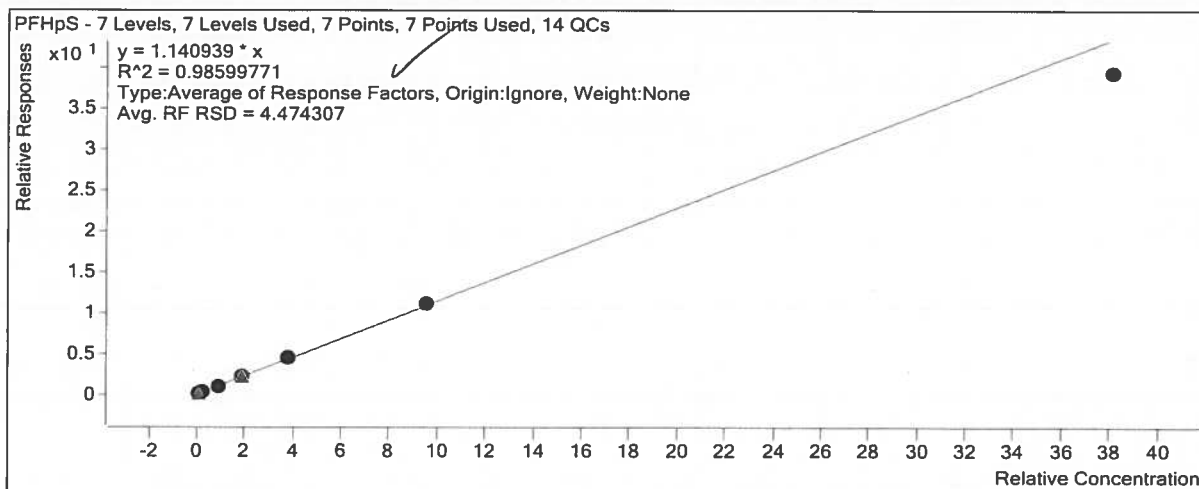


Instrument ISTD

MPFOA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210524BDW\2210524B_01.d	Calibration	1	<input checked="" type="checkbox"/>	1125106	25.0000	45004.2482
K:\MassHunter\Data\2210524BDW\2210524B_02.d	Calibration	2	<input checked="" type="checkbox"/>	1115712	25.0000	44628.4654
K:\MassHunter\Data\2210524BDW\2210524B_03.d	Calibration	3	<input checked="" type="checkbox"/>	1131983	25.0000	45279.3075

Quantitative Analysis Calibration Report



Extracted ISTD

M9PFNA

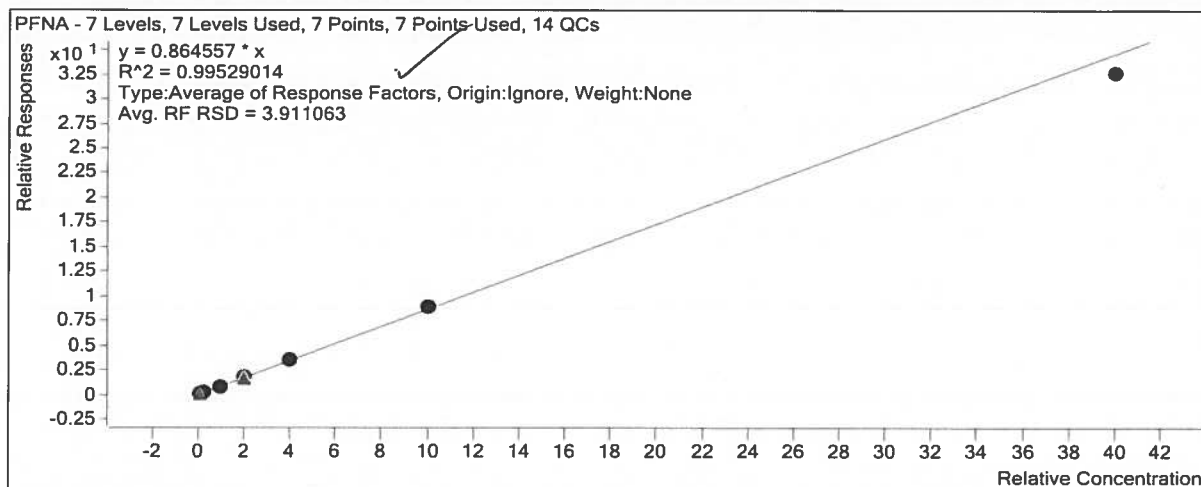
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210524BDW\2210524B_01.d	Calibration	1	<input checked="" type="checkbox"/>	50738	5.0000	10147.5783
K:\MassHunter\Data\2210524BDW\2210524B_02.d	Calibration	2	<input checked="" type="checkbox"/>	53528	5.0000	10705.5739
K:\MassHunter\Data\2210524BDW\2210524B_03.d	Calibration	3	<input checked="" type="checkbox"/>	53224	5.0000	10644.7153
K:\MassHunter\Data\2210524BDW\2210524B_04.d	Calibration	4	<input checked="" type="checkbox"/>	56741	5.0000	11348.1833
K:\MassHunter\Data\2210524BDW\2210524B_05.d	Calibration	5	<input checked="" type="checkbox"/>	60442	5.0000	12088.4562
K:\MassHunter\Data\2210524BDW\2210524B_06.d	Calibration	6	<input checked="" type="checkbox"/>	52943	5.0000	10588.5802
K:\MassHunter\Data\2210524BDW\2210524B_07.d	Calibration	7	<input checked="" type="checkbox"/>	53895	5.0000	10779.0990

Target Compound

PFNA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210524BDW\2210524B_01.d	Calibration	1	<input checked="" type="checkbox"/>	4330	0.5000	0.8534
K:\MassHunter\Data\2210524BDW\2210524B_02.d	Calibration	2	<input checked="" type="checkbox"/>	11287	1.2500	0.8434
K:\MassHunter\Data\2210524BDW\2210524B_03.d	Calibration	3	<input checked="" type="checkbox"/>	44930	5.0000	0.8442
K:\MassHunter\Data\2210524BDW\2210524B_04.d	Calibration	4	<input checked="" type="checkbox"/>	101321	10.0000	0.8928
K:\MassHunter\Data\2210524BDW\2210524B_05.d	Calibration	5	<input checked="" type="checkbox"/>	218959	20.0000	0.9057
K:\MassHunter\Data\2210524BDW\2210524B_06.d	Calibration	6	<input checked="" type="checkbox"/>	474631	50.0000	0.8965
K:\MassHunter\Data\2210524BDW\2210524B_07.d	Calibration	7	<input checked="" type="checkbox"/>	1758999	200.0000	0.8159

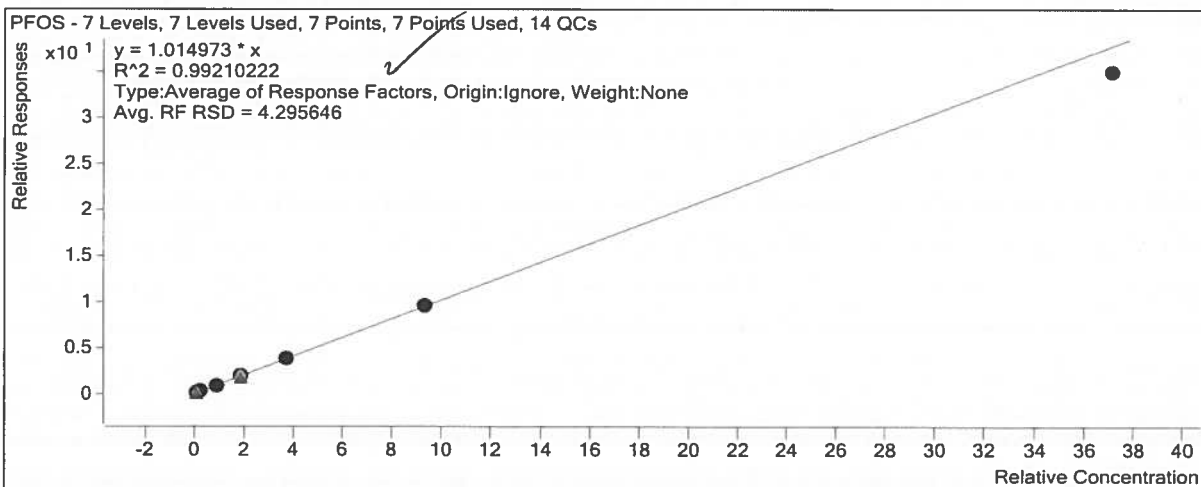
Quantitative Analysis Calibration Report



Target Compound

PFOS

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210524BDW\2210524B_01.d	Calibration	1	✓	761	0.4640	1.0233
K:\MassHunter\Data\2210524BDW\2210524B_02.d	Calibration	2	✓	2105	1.1600	1.0706
K:\MassHunter\Data\2210524BDW\2210524B_03.d	Calibration	3	✓	7718	4.6400	0.9735
K:\MassHunter\Data\2210524BDW\2210524B_04.d	Calibration	4	✓	17434	9.2800	1.0211
K:\MassHunter\Data\2210524BDW\2210524B_05.d	Calibration	5	✓	37060	18.5600	1.0417
K:\MassHunter\Data\2210524BDW\2210524B_06.d	Calibration	6	✓	82022	46.4000	1.0333
K:\MassHunter\Data\2210524BDW\2210524B_07.d	Calibration	7	✓	300784	185.6000	0.9413



Instrument ISTD

M4PFOS

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
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Quantitative Analysis Calibration Report

K:\MassHunter\Data\2210524BDW\2210524B_07.d

Calibration

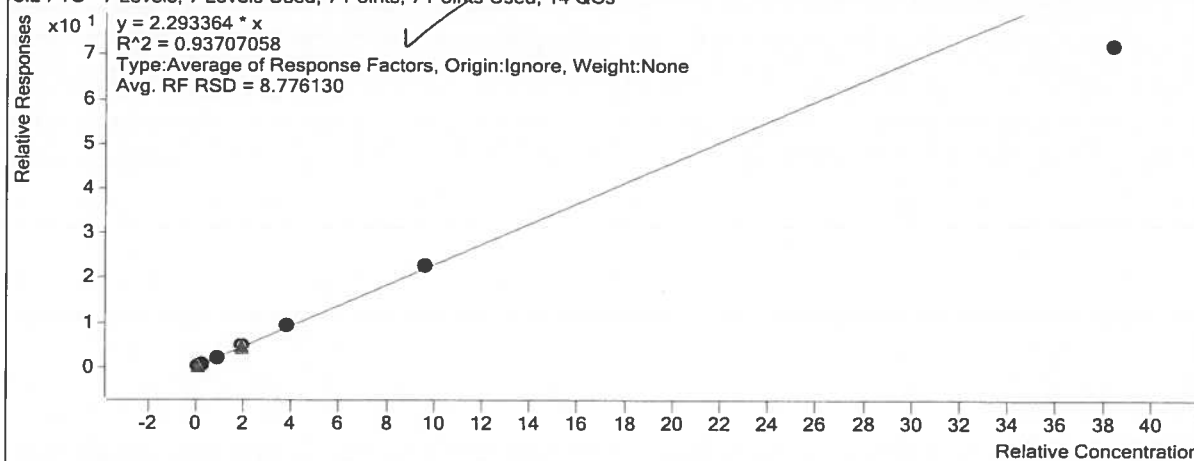
7

☒

165292 192.0000

1.8786

8:2 FTS - 7 Levels, 7 Levels Used, 7 Points, 7 Points Used, 14 QCs

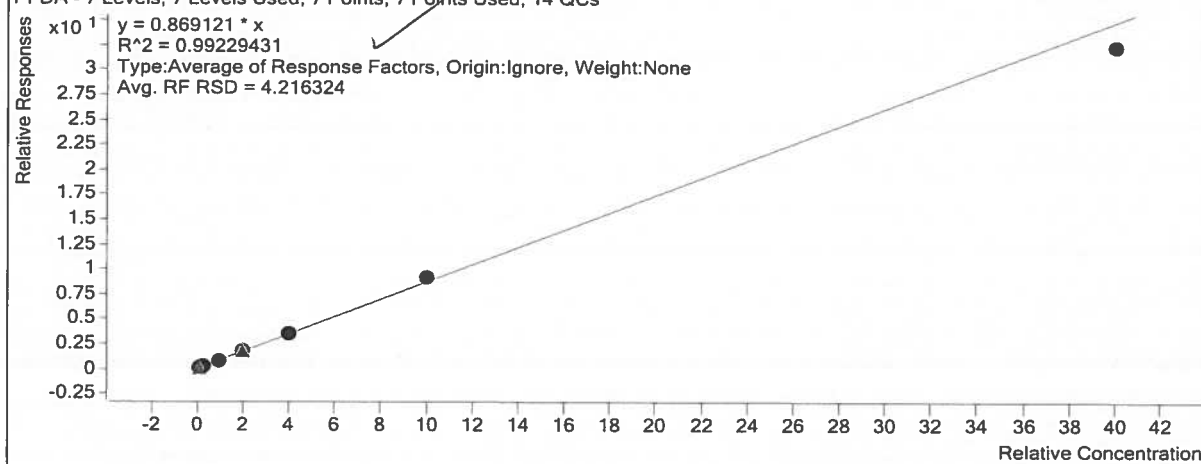


Target Compound

PFDA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210524BDW\2210524B_01.d	Calibration	1	<input checked="" type="checkbox"/>	4542	0.5000	0.8829
K:\MassHunter\Data\2210524BDW\2210524B_02.d	Calibration	2	<input checked="" type="checkbox"/>	11523	1.2500	0.8520
K:\MassHunter\Data\2210524BDW\2210524B_03.d	Calibration	3	<input checked="" type="checkbox"/>	45283	5.0000	0.8428
K:\MassHunter\Data\2210524BDW\2210524B_04.d	Calibration	4	<input checked="" type="checkbox"/>	104045	10.0000	0.8881
K:\MassHunter\Data\2210524BDW\2210524B_05.d	Calibration	5	<input checked="" type="checkbox"/>	219564	20.0000	0.8982
K:\MassHunter\Data\2210524BDW\2210524B_06.d	Calibration	6	<input checked="" type="checkbox"/>	489224	50.0000	0.9124
K:\MassHunter\Data\2210524BDW\2210524B_07.d	Calibration	7	<input checked="" type="checkbox"/>	1741178	200.0000	0.8075

PFDA - 7 Levels, 7 Levels Used, 7 Points, 7 Points Used, 14 QCs

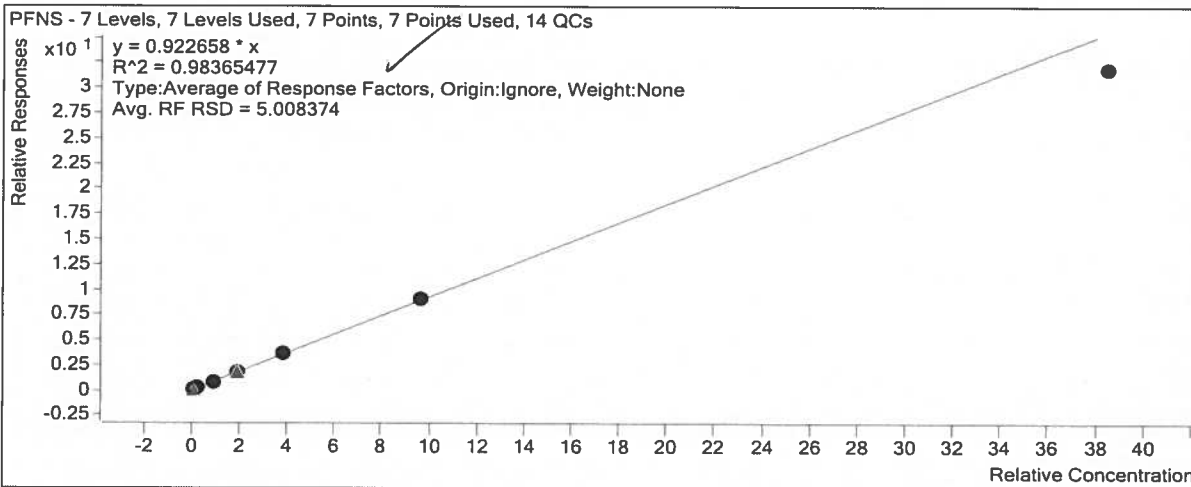


Target Compound

PFNS

Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210524BDW\2210524B_01.d	Calibration	1	<input checked="" type="checkbox"/>	725	0.4810	0.9409
K:\MassHunter\Data\2210524BDW\2210524B_02.d	Calibration	2	<input checked="" type="checkbox"/>	1897	1.2025	0.9305
K:\MassHunter\Data\2210524BDW\2210524B_03.d	Calibration	3	<input checked="" type="checkbox"/>	7381	4.8100	0.8981
K:\MassHunter\Data\2210524BDW\2210524B_04.d	Calibration	4	<input checked="" type="checkbox"/>	16778	9.6200	0.9479
K:\MassHunter\Data\2210524BDW\2210524B_05.d	Calibration	5	<input checked="" type="checkbox"/>	35670	19.2400	0.9672
K:\MassHunter\Data\2210524BDW\2210524B_06.d	Calibration	6	<input checked="" type="checkbox"/>	77737	48.1000	0.9447
K:\MassHunter\Data\2210524BDW\2210524B_07.d	Calibration	7	<input checked="" type="checkbox"/>	274725	192.4000	0.8293



Extracted ISTD

M6PFDA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210524BDW\2210524B_01.d	Calibration	1	<input checked="" type="checkbox"/>	51446	5.0000	10289.2694
K:\MassHunter\Data\2210524BDW\2210524B_02.d	Calibration	2	<input checked="" type="checkbox"/>	54098	5.0000	10819.6638
K:\MassHunter\Data\2210524BDW\2210524B_03.d	Calibration	3	<input checked="" type="checkbox"/>	53732	5.0000	10746.4567
K:\MassHunter\Data\2210524BDW\2210524B_04.d	Calibration	4	<input checked="" type="checkbox"/>	58575	5.0000	11715.0176
K:\MassHunter\Data\2210524BDW\2210524B_05.d	Calibration	5	<input checked="" type="checkbox"/>	61109	5.0000	12221.8959
K:\MassHunter\Data\2210524BDW\2210524B_06.d	Calibration	6	<input checked="" type="checkbox"/>	53621	5.0000	10724.1472
K:\MassHunter\Data\2210524BDW\2210524B_07.d	Calibration	7	<input checked="" type="checkbox"/>	53907	5.0000	10781.4466

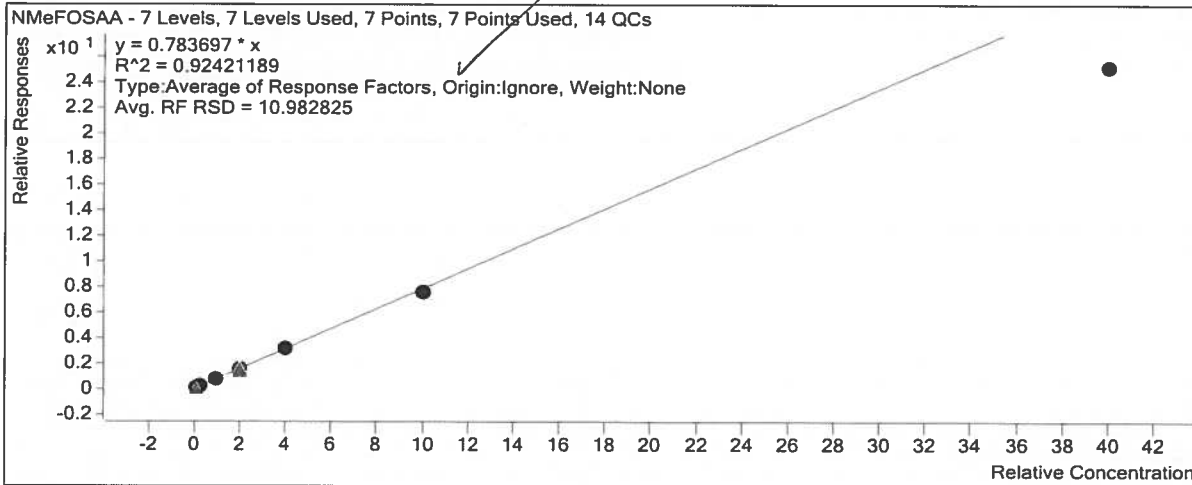
Instrument ISTD

M2PFDA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210524BDW\2210524B_01.d	Calibration	1	<input checked="" type="checkbox"/>	219154	20.0000	10957.7204

Quantitative Analysis Calibration Report

K:\MassHunter\Data\2210524BDW\2210524B_05.d	Calibration	5	<input checked="" type="checkbox"/>	19736	20.0000	0.8100
K:\MassHunter\Data\2210524BDW\2210524B_06.d	Calibration	6	<input checked="" type="checkbox"/>	43085	50.0000	0.7591
K:\MassHunter\Data\2210524BDW\2210524B_07.d	Calibration	7	<input checked="" type="checkbox"/>	168455	200.0000	0.6309



Extracted ISTD

M8FOSA

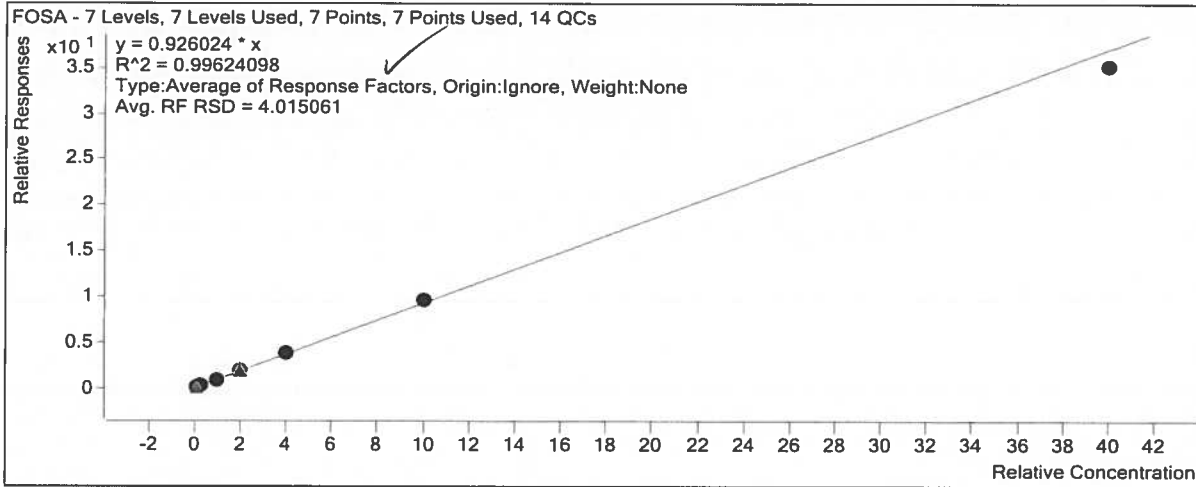
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210524BDW\2210524B_01.d	Calibration	1	<input checked="" type="checkbox"/>	16577	5.0000	3315.3815
K:\MassHunter\Data\2210524BDW\2210524B_02.d	Calibration	2	<input checked="" type="checkbox"/>	17344	5.0000	3468.8195
K:\MassHunter\Data\2210524BDW\2210524B_03.d	Calibration	3	<input checked="" type="checkbox"/>	16848	5.0000	3369.6434
K:\MassHunter\Data\2210524BDW\2210524B_04.d	Calibration	4	<input checked="" type="checkbox"/>	18486	5.0000	3697.1063
K:\MassHunter\Data\2210524BDW\2210524B_05.d	Calibration	5	<input checked="" type="checkbox"/>	19782	5.0000	3956.3290
K:\MassHunter\Data\2210524BDW\2210524B_06.d	Calibration	6	<input checked="" type="checkbox"/>	17669	5.0000	3533.8959
K:\MassHunter\Data\2210524BDW\2210524B_07.d	Calibration	7	<input checked="" type="checkbox"/>	18739	5.0000	3747.8082

Target Compound

FOSA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210524BDW\2210524B_01.d	Calibration	1	<input checked="" type="checkbox"/>	1476	0.5000	0.8903
K:\MassHunter\Data\2210524BDW\2210524B_02.d	Calibration	2	<input checked="" type="checkbox"/>	3886	1.2500	0.8961
K:\MassHunter\Data\2210524BDW\2210524B_03.d	Calibration	3	<input checked="" type="checkbox"/>	15693	5.0000	0.9314
K:\MassHunter\Data\2210524BDW\2210524B_04.d	Calibration	4	<input checked="" type="checkbox"/>	35684	10.0000	0.9652
K:\MassHunter\Data\2210524BDW\2210524B_05.d	Calibration	5	<input checked="" type="checkbox"/>	76408	20.0000	0.9656
K:\MassHunter\Data\2210524BDW\2210524B_06.d	Calibration	6	<input checked="" type="checkbox"/>	168615	50.0000	0.9543
K:\MassHunter\Data\2210524BDW\2210524B_07.d	Calibration	7	<input checked="" type="checkbox"/>	658978	200.0000	0.8792

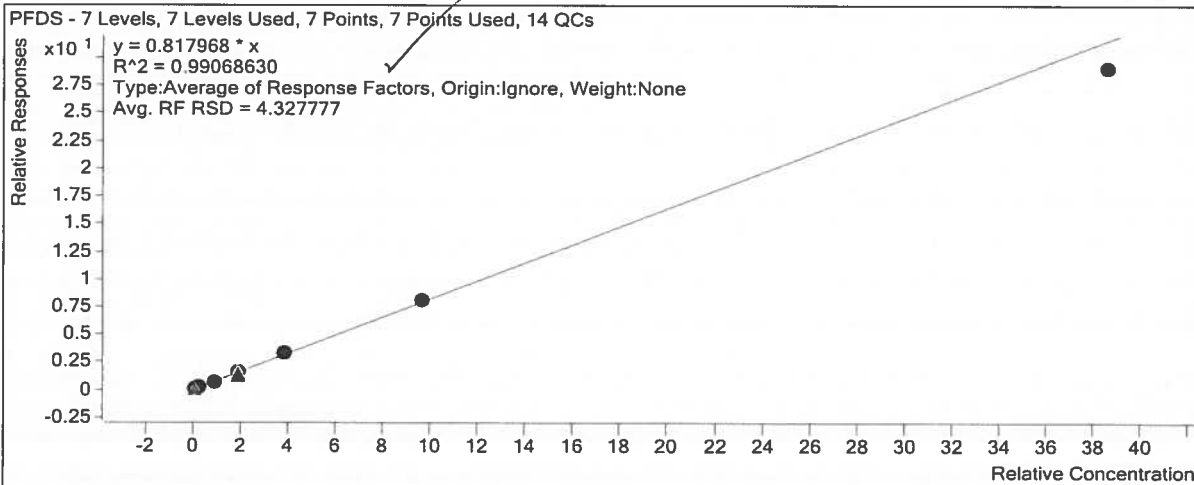
Quantitative Analysis Calibration Report



Target Compound

PFDS

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210524BDW\2210524B_01.d	Calibration	1	<input checked="" type="checkbox"/>	622	0.4825	0.8040
K:\MassHunter\Data\2210524BDW\2210524B_02.d	Calibration	2	<input checked="" type="checkbox"/>	1731	1.2063	0.8467
K:\MassHunter\Data\2210524BDW\2210524B_03.d	Calibration	3	<input checked="" type="checkbox"/>	6558	4.8250	0.7956
K:\MassHunter\Data\2210524BDW\2210524B_04.d	Calibration	4	<input checked="" type="checkbox"/>	14729	9.6500	0.8296
K:\MassHunter\Data\2210524BDW\2210524B_05.d	Calibration	5	<input checked="" type="checkbox"/>	31395	19.3000	0.8486
K:\MassHunter\Data\2210524BDW\2210524B_06.d	Calibration	6	<input checked="" type="checkbox"/>	69925	48.2500	0.8471
K:\MassHunter\Data\2210524BDW\2210524B_07.d	Calibration	7	<input checked="" type="checkbox"/>	250601	193.0000	0.7542

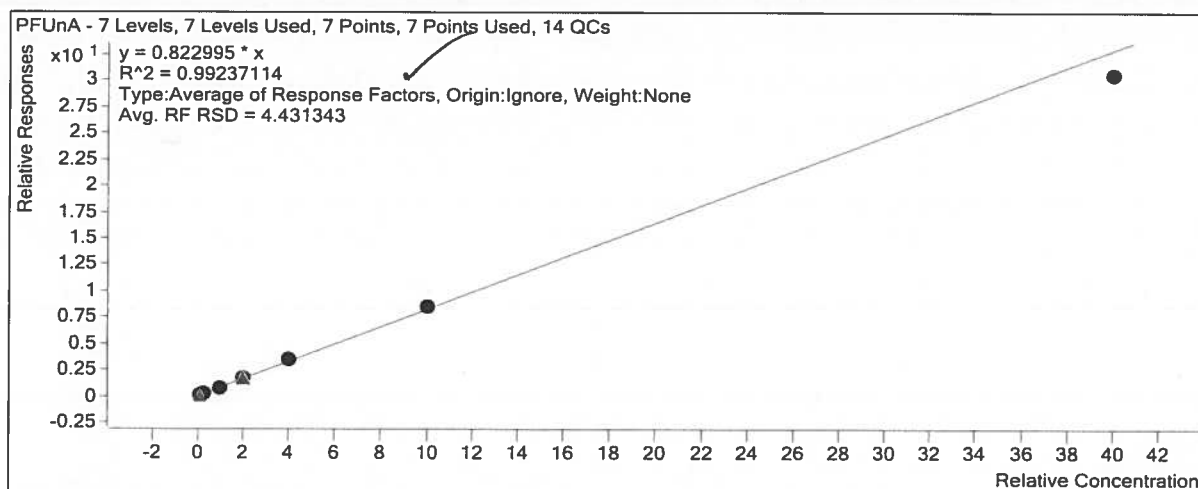


Extracted ISTD

d5-NETFOSAA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
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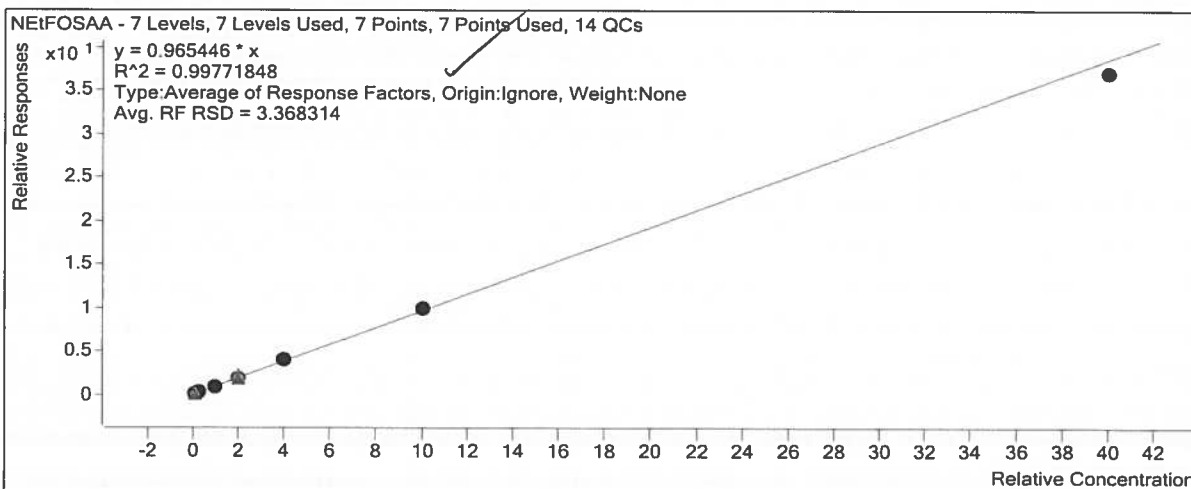
Quantitative Analysis Calibration Report



Target Compound

NEtFOSAA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210524BDW\2210524B_01.d	Calibration	1	<input checked="" type="checkbox"/>	929	0.5000	0.9936
K:\MassHunter\Data\2210524BDW\2210524B_02.d	Calibration	2	<input checked="" type="checkbox"/>	2235	1.2500	0.9432
K:\MassHunter\Data\2210524BDW\2210524B_03.d	Calibration	3	<input checked="" type="checkbox"/>	8607	5.0000	0.9267
K:\MassHunter\Data\2210524BDW\2210524B_04.d	Calibration	4	<input checked="" type="checkbox"/>	19986	10.0000	0.9726
K:\MassHunter\Data\2210524BDW\2210524B_05.d	Calibration	5	<input checked="" type="checkbox"/>	42831	20.0000	0.9989
K:\MassHunter\Data\2210524BDW\2210524B_06.d	Calibration	6	<input checked="" type="checkbox"/>	92346	50.0000	0.9959
K:\MassHunter\Data\2210524BDW\2210524B_07.d	Calibration	7	<input checked="" type="checkbox"/>	331379	200.0000	0.9272



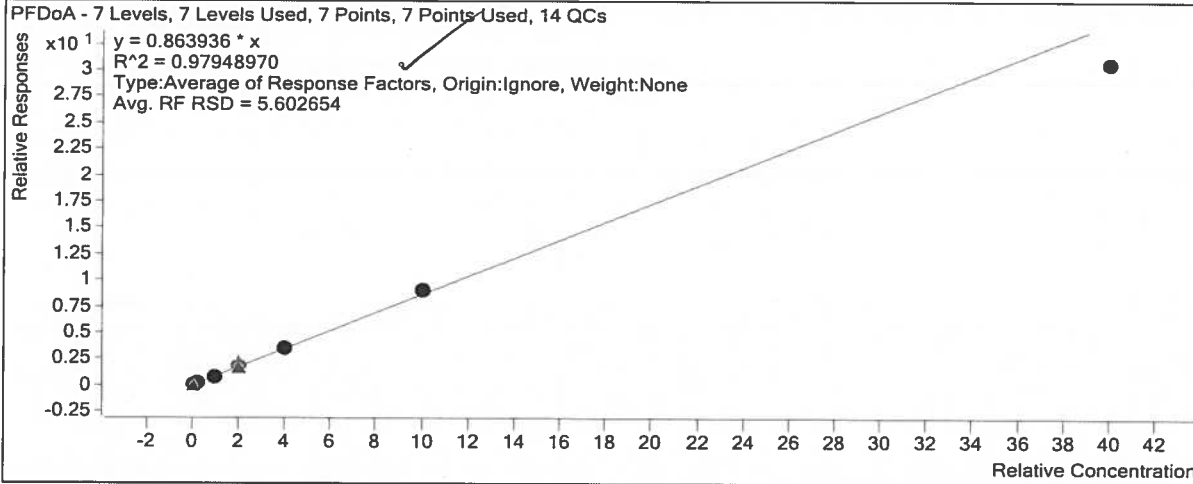
Target Compound

11CI-PF3OUdS

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
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Quantitative Analysis Calibration Report

K:\MassHunter\Data\2210524BDW\2210524B_04.d	Calibration	4	<input checked="" type="checkbox"/>	129799	10.0000	0.8843
K:\MassHunter\Data\2210524BDW\2210524B_05.d	Calibration	5	<input checked="" type="checkbox"/>	278834	20.0000	0.8922
K:\MassHunter\Data\2210524BDW\2210524B_06.d	Calibration	6	<input checked="" type="checkbox"/>	629127	50.0000	0.9028
K:\MassHunter\Data\2210524BDW\2210524B_07.d	Calibration	7	<input checked="" type="checkbox"/>	2404472	200.0000	0.7674

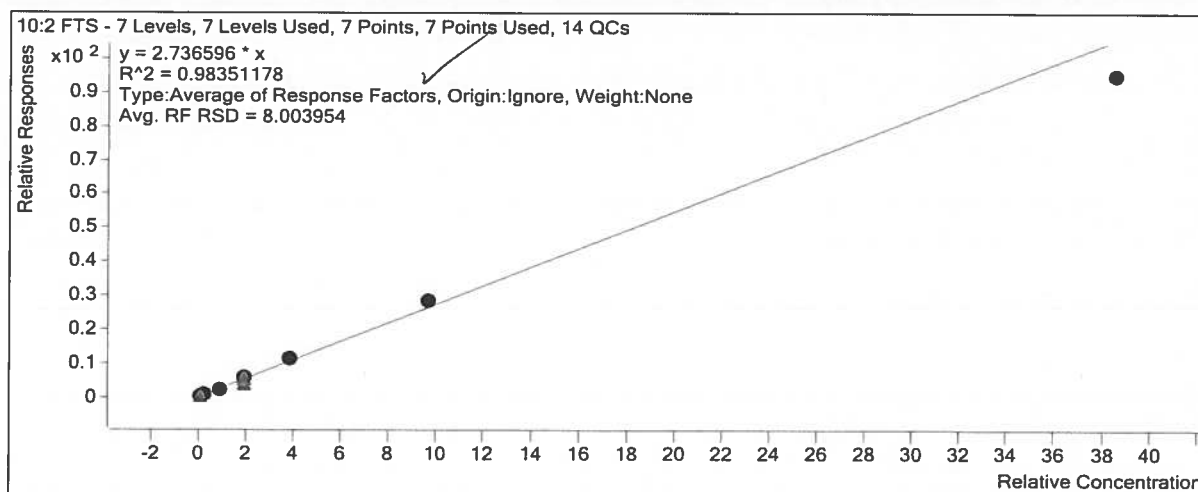


Target Compound

10:2 FTS

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210524BDW\2210524B_01.d	Calibration	1	<input checked="" type="checkbox"/>	604	0.4820	2.5875
K:\MassHunter\Data\2210524BDW\2210524B_02.d	Calibration	2	<input checked="" type="checkbox"/>	1578	1.2050	2.6331
K:\MassHunter\Data\2210524BDW\2210524B_03.d	Calibration	3	<input checked="" type="checkbox"/>	6342	4.8200	2.5843
K:\MassHunter\Data\2210524BDW\2210524B_04.d	Calibration	4	<input checked="" type="checkbox"/>	14646	9.6400	3.0059
K:\MassHunter\Data\2210524BDW\2210524B_05.d	Calibration	5	<input checked="" type="checkbox"/>	29950	19.2800	2.9122
K:\MassHunter\Data\2210524BDW\2210524B_06.d	Calibration	6	<input checked="" type="checkbox"/>	65343	48.2000	2.9692
K:\MassHunter\Data\2210524BDW\2210524B_07.d	Calibration	7	<input checked="" type="checkbox"/>	217710	192.8000	2.4640

Quantitative Analysis Calibration Report



Extracted ISTD

d-NMeFOSA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210524BDW\2210524B_01.d	Calibration	1	<input checked="" type="checkbox"/>	3972	5.0000	794.4294
K:\MassHunter\Data\2210524BDW\2210524B_02.d	Calibration	2	<input checked="" type="checkbox"/>	4128	5.0000	825.6370
K:\MassHunter\Data\2210524BDW\2210524B_03.d	Calibration	3	<input checked="" type="checkbox"/>	3957	5.0000	791.3911
K:\MassHunter\Data\2210524BDW\2210524B_04.d	Calibration	4	<input checked="" type="checkbox"/>	4674	5.0000	934.7493
K:\MassHunter\Data\2210524BDW\2210524B_05.d	Calibration	5	<input checked="" type="checkbox"/>	4848	5.0000	969.6440
K:\MassHunter\Data\2210524BDW\2210524B_06.d	Calibration	6	<input checked="" type="checkbox"/>	4343	5.0000	868.5146
K:\MassHunter\Data\2210524BDW\2210524B_07.d	Calibration	7	<input checked="" type="checkbox"/>	4817	5.0000	963.3181

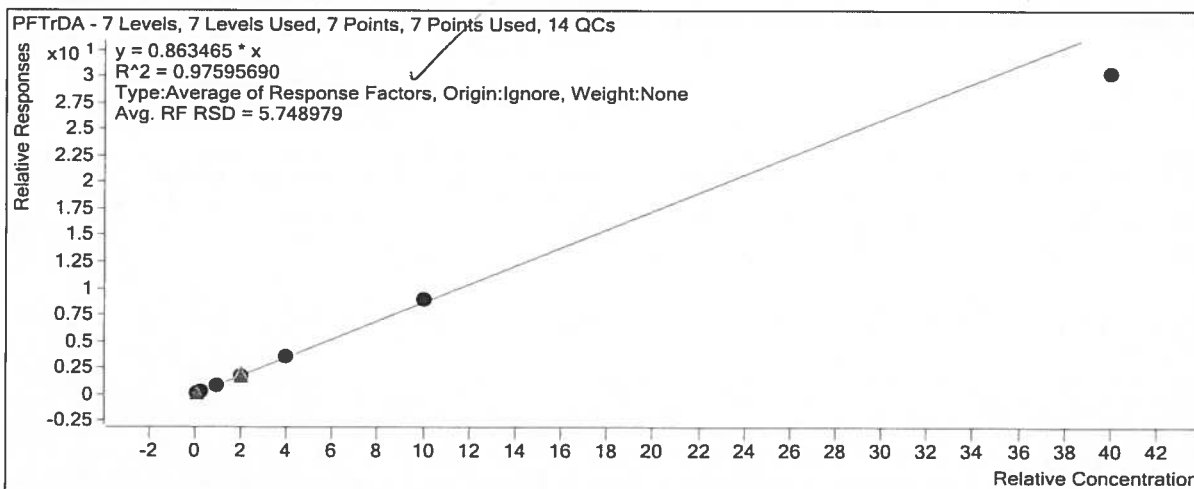
Target Compound

NMeFOSA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210524BDW\2210524B_01.d	Calibration	1	<input checked="" type="checkbox"/>	1404	0.5000	3.5353
K:\MassHunter\Data\2210524BDW\2210524B_02.d	Calibration	2	<input checked="" type="checkbox"/>	2138	1.2500	2.0714
K:\MassHunter\Data\2210524BDW\2210524B_03.d	Calibration	3	<input checked="" type="checkbox"/>	5212	5.0000	1.3172
K:\MassHunter\Data\2210524BDW\2210524B_04.d	Calibration	4	<input checked="" type="checkbox"/>	10327	10.0000	1.1048
K:\MassHunter\Data\2210524BDW\2210524B_05.d	Calibration	5	<input checked="" type="checkbox"/>	21158	20.0000	1.0910
K:\MassHunter\Data\2210524BDW\2210524B_06.d	Calibration	6	<input checked="" type="checkbox"/>	44630	50.0000	1.0277
K:\MassHunter\Data\2210524BDW\2210524B_07.d	Calibration	7	<input checked="" type="checkbox"/>	164320	200.0000	0.8529

Quantitative Analysis Calibration Report

K:\MassHunter\Data\2210524BDW\2210524B_01.d	Calibration	1	<input checked="" type="checkbox"/>	5776	0.5000	0.8804
K:\MassHunter\Data\2210524BDW\2210524B_02.d	Calibration	2	<input checked="" type="checkbox"/>	14209	1.2500	0.8480
K:\MassHunter\Data\2210524BDW\2210524B_03.d	Calibration	3	<input checked="" type="checkbox"/>	58511	5.0000	0.8636
K:\MassHunter\Data\2210524BDW\2210524B_04.d	Calibration	4	<input checked="" type="checkbox"/>	130679	10.0000	0.8903
K:\MassHunter\Data\2210524BDW\2210524B_05.d	Calibration	5	<input checked="" type="checkbox"/>	281179	20.0000	0.8997
K:\MassHunter\Data\2210524BDW\2210524B_06.d	Calibration	6	<input checked="" type="checkbox"/>	628769	50.0000	0.9023
K:\MassHunter\Data\2210524BDW\2210524B_07.d	Calibration	7	<input checked="" type="checkbox"/>	2381140	200.0000	0.7599



Extracted ISTD

d9-NEtFOSE

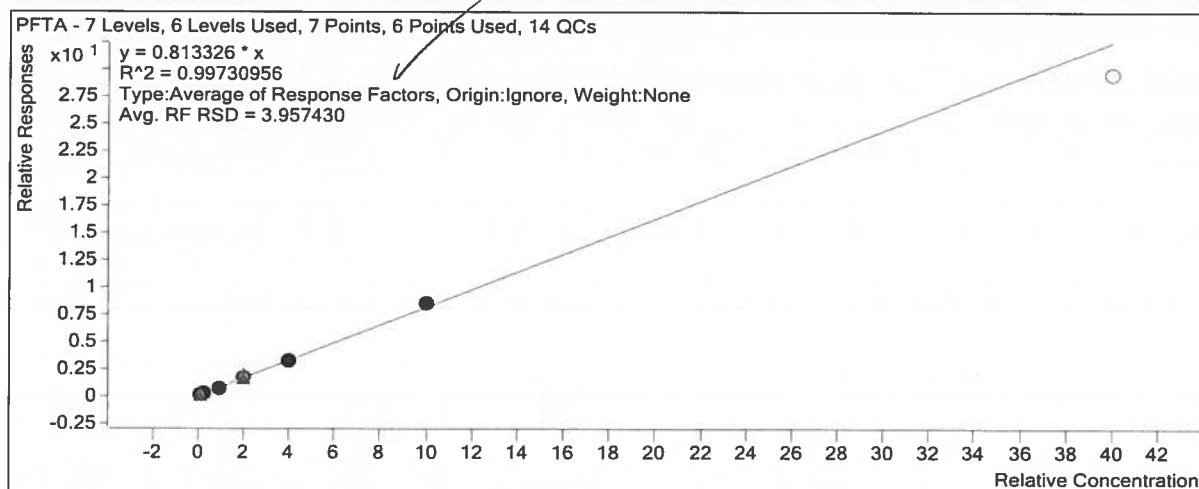
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210524BDW\2210524B_01.d	Calibration	1	<input checked="" type="checkbox"/>	2897	5.0000	579.4063
K:\MassHunter\Data\2210524BDW\2210524B_02.d	Calibration	2	<input checked="" type="checkbox"/>	2910	5.0000	582.0000
K:\MassHunter\Data\2210524BDW\2210524B_03.d	Calibration	3	<input checked="" type="checkbox"/>	2860	5.0000	572.0923
K:\MassHunter\Data\2210524BDW\2210524B_04.d	Calibration	4	<input checked="" type="checkbox"/>	3111	5.0000	622.2621
K:\MassHunter\Data\2210524BDW\2210524B_05.d	Calibration	5	<input checked="" type="checkbox"/>	3363	5.0000	672.5554
K:\MassHunter\Data\2210524BDW\2210524B_06.d	Calibration	6	<input checked="" type="checkbox"/>	2945	5.0000	589.0653
K:\MassHunter\Data\2210524BDW\2210524B_07.d	Calibration	7	<input checked="" type="checkbox"/>	3323	5.0000	664.5875

Extracted ISTD

d-NEtFOSA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210524BDW\2210524B_01.d	Calibration	1	<input checked="" type="checkbox"/>	4260	5.0000	852.0523
K:\MassHunter\Data\2210524BDW\2210524B_02.d	Calibration	2	<input checked="" type="checkbox"/>	4377	5.0000	875.4510
K:\MassHunter\Data\2210524BDW\2210524B_03.d	Calibration	3	<input checked="" type="checkbox"/>	4269	5.0000	853.7278

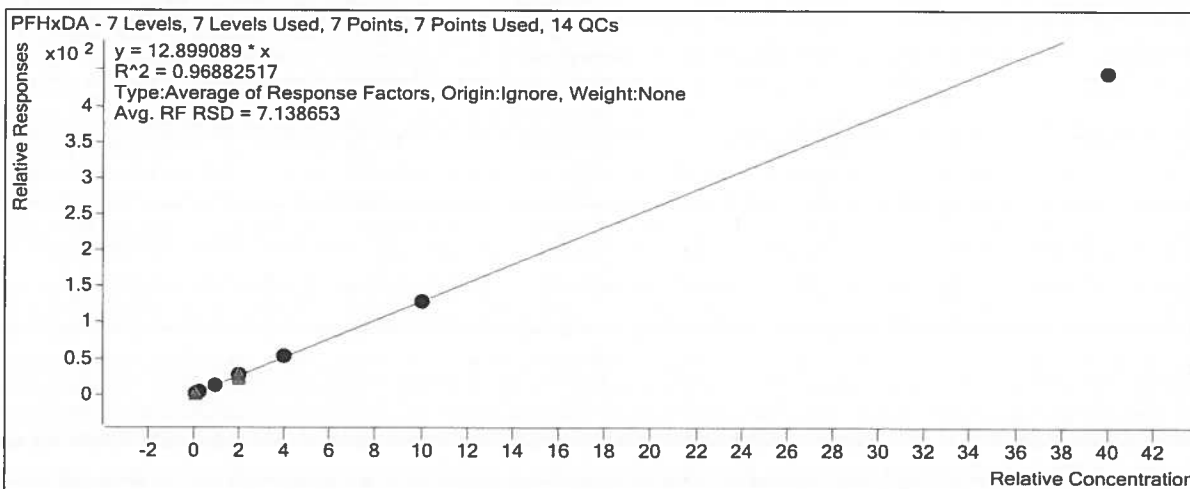
Quantitative Analysis Calibration Report



Target Compound

PFHxDA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210524BDW\2210524B_01.d	Calibration	1	<input checked="" type="checkbox"/>	7458	0.5000	13.8994
K:\MassHunter\Data\2210524BDW\2210524B_02.d	Calibration	2	<input checked="" type="checkbox"/>	17473	1.2500	12.6292
K:\MassHunter\Data\2210524BDW\2210524B_03.d	Calibration	3	<input checked="" type="checkbox"/>	71609	5.0000	12.5491
K:\MassHunter\Data\2210524BDW\2210524B_04.d	Calibration	4	<input checked="" type="checkbox"/>	156576	10.0000	13.4867
K:\MassHunter\Data\2210524BDW\2210524B_05.d	Calibration	5	<input checked="" type="checkbox"/>	339435	20.0000	13.6278
K:\MassHunter\Data\2210524BDW\2210524B_06.d	Calibration	6	<input checked="" type="checkbox"/>	782304	50.0000	12.9384
K:\MassHunter\Data\2210524BDW\2210524B_07.d	Calibration	7	<input checked="" type="checkbox"/>	3058331	200.0000	11.1631



Extracted ISTD

M2PFHxDA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
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7E
ORGANICS CALIBRATION VERIFICATION

Report No:	221050411	Instrument ID:	QQQ3
Analysis Date:	05/25/2021 16:40	Lab File ID:	2210525A_05.d
Analytical Method:	EPA 537 Mod Isotope Dilution	Analytical Batch:	712118

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomersulfonic acid	ng/L	9510	10300	109 ✓	70	130	
8:2 Fluorotelomersulfonic acid	ng/L	9600	10400	108	70	130	
NEtFOSAA	ng/L	10000	10200	102	70	130	
NMeFOSAA	ng/L	10000	10200	102	70	130	
Perfluorobutanoic acid	ng/L	10000	10200	102	70	130	
Perfluorobutanesulfonic acid	ng/L	8870	9180	103	70	130	
Perfluorodecanoic acid	ng/L	10000	10200	102	70	130	
Perfluorododecanoic acid	ng/L	10000	10400	104	70	130	
Perfluoroheptanoic acid	ng/L	10000	10000	100	70	130	
Perfluorohexanoic acid	ng/L	10000	10200	102	70	130	
Perfluorohexanesulfonic acid	ng/L	9140	9410	103	70	130	
Perfluorononanoic acid	ng/L	10000	10200	102	70	130	
Perfluorooctanoic acid	ng/L	10000	10100	101	70	130	
Perfluorooctanesulfonic acid	ng/L	9280	9100	98	70	130	
Perfluoropentanoic acid	ng/L	10000	10300	103	70	130	
Perfluorotetradecanoic acid	ng/L	10000	10200	102	70	130	
Perfluorotridecanoic acid	ng/L	10000	10500	105	70	130	
Perfluoroundecanoic acid	ng/L	10000	10400	104	70	130	

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7E
ORGANICS CALIBRATION VERIFICATION

Report No:	221050411	Instrument ID:	QQQ3
Analysis Date:	05/25/2021 21:16	Lab File ID:	2210525A_21.d
Analytical Method:	EPA 537 Mod Isotope Dilution	Analytical Batch:	712118

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomersulfonic acid	ng/L	9510	10100	106 ✓	70	130	
8:2 Fluorotelomersulfonic acid	ng/L	9600	10000	105	70	130	
NEtFOSAA	ng/L	10000	9850	99	70	130	
NMeFOSAA	ng/L	10000	10100	101	70	130	
Perfluorobutanoic acid	ng/L	10000	10200	102	70	130	
Perfluorobutanesulfonic acid	ng/L	8870	9020	102	70	130	
Perfluorodecanoic acid	ng/L	10000	10100	101	70	130	
Perfluorododecanoic acid	ng/L	10000	10300	103	70	130	
Perfluoroheptanoic acid	ng/L	10000	10200	102	70	130	
Perfluorohexanoic acid	ng/L	10000	10200	102	70	130	
Perfluorohexanesulfonic acid	ng/L	9140	9280	102	70	130	
Perfluorononanoic acid	ng/L	10000	10100	101	70	130	
Perfluorooctanoic acid	ng/L	10000	10200	102	70	130	
Perfluorooctanesulfonic acid	ng/L	9280	9270	100	70	130	
Perfluoropentanoic acid	ng/L	10000	10100	101	70	130	
Perfluorotetradecanoic acid	ng/L	10000	10100	101	70	130	
Perfluorotridecanoic acid	ng/L	10000	10400	104	70	130	
Perfluoroundecanoic acid	ng/L	10000	10100	101	70	130	

FORM 7E - ORG

7E
ORGANICS CALIBRATION VERIFICATION

Report No:	221050411	Instrument ID:	QQQ3
Analysis Date:	05/25/2021 23:56	Lab File ID:	2210525A_32.d
Analytical Method:	EPA 537 Mod Isotope Dilution	Analytical Batch:	712118

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomersulfonic acid	ng/L	9510	10200	108 ✓	70	130	
8:2 Fluorotelomersulfonic acid	ng/L	9600	10200	107	70	130	
NEtFOSAA	ng/L	10000	10100	101	70	130	
NMeFOSAA	ng/L	10000	10200	102	70	130	
Perfluorobutanoic acid	ng/L	10000	10200	102	70	130	
Perfluorobutanesulfonic acid	ng/L	8870	9050	102	70	130	
Perfluorodecanoic acid	ng/L	10000	10200	102	70	130	
Perfluorododecanoic acid	ng/L	10000	10400	104	70	130	
Perfluoroheptanoic acid	ng/L	10000	10300	103	70	130	
Perfluorohexanoic acid	ng/L	10000	10300	103	70	130	
Perfluorohexanesulfonic acid	ng/L	9140	9280	102	70	130	
Perfluorononanoic acid	ng/L	10000	10300	103	70	130	
Perfluorooctanoic acid	ng/L	10000	10000	100	70	130	
Perfluorooctanesulfonic acid	ng/L	9280	9170	99	70	130	
Perfluoropentanoic acid	ng/L	10000	10300	103	70	130	
Perfluorotetradecanoic acid	ng/L	10000	9970	100	70	130	
Perfluorotridecanoic acid	ng/L	10000	10700	107	70	130	
Perfluoroundecanoic acid	ng/L	10000	10100	101	70	130	

FORM 7E - ORG

7E
ORGANICS CALIBRATION VERIFICATION

Report No:	221050411	Instrument ID:	QQQ3
Analysis Date:	05/26/2021 05:19	Lab File ID:	2210525A_54.d
Analytical Method:	EPA 537 Mod Isotope Dilution	Analytical Batch:	712118

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomersulfonic acid	ng/L	9510	10200	107 ✓	70	130	
8:2 Fluorotelomersulfonic acid	ng/L	9600	10600	110	70	130	
NEtFOSAA	ng/L	10000	9680	97	70	130	
NMeFOSAA	ng/L	10000	10100	101	70	130	
Perfluorobutanoic acid	ng/L	10000	10200	102	70	130	
Perfluorobutanesulfonic acid	ng/L	8870	9080	102	70	130	
Perfluorodecanoic acid	ng/L	10000	10300	103	70	130	
Perfluorododecanoic acid	ng/L	10000	10100	101	70	130	
Perfluoroheptanoic acid	ng/L	10000	10100	101	70	130	
Perfluorohexanoic acid	ng/L	10000	10300	103	70	130	
Perfluorohexanesulfonic acid	ng/L	9140	9080	99	70	130	
Perfluorononanoic acid	ng/L	10000	10200	102	70	130	
Perfluorooctanoic acid	ng/L	10000	10200	102	70	130	
Perfluorooctanesulfonic acid	ng/L	9280	9320	100	70	130	
Perfluoropentanoic acid	ng/L	10000	10100	101	70	130	
Perfluorotetradecanoic acid	ng/L	10000	10200	102	70	130	
Perfluorotridecanoic acid	ng/L	10000	10400	104	70	130	
Perfluoroundecanoic acid	ng/L	10000	10300	103	70	130	

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7E
ORGANICS CALIBRATION VERIFICATION

Report No:	221050411	Instrument ID:	QQQ3
Analysis Date:	05/26/2021 08:43	Lab File ID:	2210525A_68.d
Analytical Method:	EPA 537 Mod Isotope Dilution	Analytical Batch:	712118

<i>ANALYTE</i>	<i>UNITS</i>	<i>TRUE</i>	<i>FOUND</i>	<i>% REC</i>	<i>LCL</i>	<i>UCL</i>	<i>Q</i>
6:2 Fluorotelomersulfonic acid	ng/L	9510	10400	109 ✓	70	130	
8:2 Fluorotelomersulfonic acid	ng/L	9600	10500	109	70	130	
NEtFOSAA	ng/L	10000	9800	98	70	130	
NMeFOSAA	ng/L	10000	9880	99	70	130	
Perfluorobutanoic acid	ng/L	10000	10200	102	70	130	
Perfluorobutanesulfonic acid	ng/L	8870	9210	104	70	130	
Perfluorodecanoic acid	ng/L	10000	10100	101	70	130	
Perfluorododecanoic acid	ng/L	10000	10200	102	70	130	
Perfluoroheptanoic acid	ng/L	10000	10100	101	70	130	
Perfluorohexanoic acid	ng/L	10000	10100	101	70	130	
Perfluorohexanesulfonic acid	ng/L	9140	9230	101	70	130	
Perfluorononanoic acid	ng/L	10000	10200	102	70	130	
Perfluorooctanoic acid	ng/L	10000	9920	99	70	130	
Perfluorooctanesulfonic acid	ng/L	9280	9380	101	70	130	
Perfluoropentanoic acid	ng/L	10000	10200	102	70	130	
Perfluorotetradecanoic acid	ng/L	10000	10000	100	70	130	
Perfluorotridecanoic acid	ng/L	10000	10400	104	70	130	
Perfluoroundecanoic acid	ng/L	10000	10300	103	70	130	

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ORGANICS CALIBRATION VERIFICATION

Report No:	<u>221050411</u>	Instrument ID:	<u>QQQ3</u>
Analysis Date:	<u>05/26/2021 09:42</u>	Lab File ID:	<u>2210525A_72.d</u>
Analytical Method:	<u>EPA 537 Mod Isotope Dilution</u>	Analytical Batch:	<u>712118</u>

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomersulfonic acid	ng/L	9510	10100	107 ✓	70	130	
8:2 Fluorotelomersulfonic acid	ng/L	9600	10000	105	70	130	
NEtFOSAA	ng/L	10000	9870	99	70	130	
NMeFOSAA	ng/L	10000	10100	101	70	130	
Perfluorobutanoic acid	ng/L	10000	10200	102	70	130	
Perfluorobutanesulfonic acid	ng/L	8870	9300	105	70	130	
Perfluorodecanoic acid	ng/L	10000	10100	101	70	130	
Perfluorododecanoic acid	ng/L	10000	10400	104	70	130	
Perfluoroheptanoic acid	ng/L	10000	10200	102	70	130	
Perfluorohexanoic acid	ng/L	10000	9960	100	70	130	
Perfluorohexanesulfonic acid	ng/L	9140	9200	101	70	130	
Perfluorononanoic acid	ng/L	10000	10200	102	70	130	
Perfluorooctanoic acid	ng/L	10000	9980	100	70	130	
Perfluorooctanesulfonic acid	ng/L	9280	9370	101	70	130	
Perfluoropentanoic acid	ng/L	10000	10300	103	70	130	
Perfluorotetradecanoic acid	ng/L	10000	10100	101	70	130	
Perfluorotridecanoic acid	ng/L	10000	10300	103	70	130	
Perfluoroundecanoic acid	ng/L	10000	10200	102	70	130	

FORM 7E - ORG

7E
ORGANICS CALIBRATION VERIFICATION

Report No:	221050411	Instrument ID:	QQQ3
Analysis Date:	05/26/2021 13:15	Lab File ID:	2210525A_86.d
Analytical Method:	EPA 537 Mod Isotope Dilution	Analytical Batch:	712118

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomersulfonic acid	ng/L	9510	10600	111 ✓	70	130	
8:2 Fluorotelomersulfonic acid	ng/L	9600	10200	106	70	130	
NEtFOSAA	ng/L	10000	9680	97	70	130	
NMeFOSAA	ng/L	10000	9470	95	70	130	
Perfluorobutanoic acid	ng/L	10000	10100	101	70	130	
Perfluorobutanesulfonic acid	ng/L	8870	9000	101	70	130	
Perfluorodecanoic acid	ng/L	10000	10100	101	70	130	
Perfluorododecanoic acid	ng/L	10000	10300	103	70	130	
Perfluoroheptanoic acid	ng/L	10000	10300	103	70	130	
Perfluorohexanoic acid	ng/L	10000	10300	103	70	130	
Perfluorohexanesulfonic acid	ng/L	9140	9070	99	70	130	
Perfluorononanoic acid	ng/L	10000	10300	103	70	130	
Perfluorooctanoic acid	ng/L	10000	10100	101	70	130	
Perfluorooctanesulfonic acid	ng/L	9280	9100	98	70	130	
Perfluoropentanoic acid	ng/L	10000	10200	102	70	130	
Perfluorotetradecanoic acid	ng/L	10000	10100	101	70	130	
Perfluorotridecanoic acid	ng/L	10000	10300	103	70	130	
Perfluoroundecanoic acid	ng/L	10000	10200	102	70	130	

FORM 7E - ORG

INJECTION INTERNAL STANDARD AREA SUMMARY

Report No:	<u>221050411</u>	Standard ID:	<u>1450 (ISC)</u>
Analyst:	<u>RXJ</u>	Instrument ID:	<u>QQQ3</u>
Analysis Date:	<u>05/25/21 15:54</u>	Lab File ID:	<u>2210525A_02.d</u>
Analytical Method:	<u>PFAS Isotope Dilution QSM B15</u>	Analytical Batch:	<u>712118</u>

	M2PFDA	M2PFHxA	M2PFOA	M4PFOS
	<i>Area</i>	<i>Area</i>	<i>Area</i>	<i>Area</i>
STANDARD	227267	294870	160197	37630

CLIENT SAMPLE ID	LAB SAMP ID	✓	#	✓	#	✓	#	✓	#
MB2183139RE	2183139RE	220856		320334		170589		36078	
LCS2183140RE	2183140RE	216016		320081		169102		35682	
LCSD2183141RE	2183141RE	209096		308427		162958		34197	
WL-FRB-01	22105041110	251255		358948		189473		39462	
AOI01-07-GW	22105041145	231670		336812		181447		37691	
AOI01-08-GW	22105041146	233732		340166		182038		35816	
AOI01-10-GW	22105041148	231844		337043		179593		37318	
AOI01-10-GW-MS	22105041149	235129		346657		182985		38331	
AOI01-10-GW-MSD	22105041150	231556		339926		180982		37881	
WL-ERB-02	22105041151	230309		338536		179082		37325	
WL-ERB-03	22105041152	229481		328038		175847		36513	
WL-ERB-04	22105041153	235328		337562		182667		37484	
WL-ERB-01	22105041154	234187		340721		181527		37408	

AREA UPPER LIMIT = +50% of internal standard area
 AREA LOWER LIMIT = -50% of internal standard area

Column used to flag values outside QC limits
 * Value outside QC limits

Instrument: QQQ3 HBN: 712388
 Batch: 2210527A
 Current ICAL Bath: 2210524BCAL
 20mM Amm Acetate 016-81-1 5/29/2021
 Methanol 2130330 2/1/2026
 Calibration Std 016-79-3 11/23/2021
 ICV Std 016-21-3 8/2/2021
 EIS Mix 016-79-7 11/24/2021
 IIS Mix 016-78-3 11/20/2021

Name	Data File	Type	Acq. Date-Time	Comment	Dil.
1201	2210524B_01.d	Cal	5/24/2021 19:48	RXJ,QQQ3;ICAL	1
1202	2210524B_02.d	Cal	5/24/2021 20:03	RXJ,QQQ3;ICAL	1
1203	2210524B_03.d	Cal	5/24/2021 20:20	RXJ,QQQ3;ICAL	1
1204	2210524B_04.d	Cal	5/24/2021 20:35	RXJ,QQQ3;ICAL	1
1205	2210524B_05.d	Cal	5/24/2021 20:50	RXJ,QQQ3;ICAL	1
1206	2210524B_06.d	Cal	5/24/2021 21:04	RXJ,QQQ3;ICAL	1
1207	2210524B_07.d	Cal	5/24/2021 21:19	RXJ,QQQ3;ICAL	1
1500	2210524B_08.d	Sample	5/24/2021 21:41	RXJ,QQQ3;BLANK	1
1600	2210524B_09.d	Sample	5/24/2021 21:55	RXJ,QQQ3;	1
1450	2210524B_10.d	QC	5/24/2021 22:10	RXJ,QQQ3;CCV	1
1400TEST	2210527A_01.d	QC	5/27/2021 15:55	RXJ,QQQ3;TEST	1
1500	2210527A_02.d	Sample	5/27/2021 16:10	RXJ,QQQ3;BLANK	1
1450	2210527A_03.d	QC	5/27/2021 16:24	RXJ,QQQ3;CCV	1
22105052602	2210527A_04.d	Sample	5/27/2021 17:38	RXJ,QQQ3;710824	1
22105052603	2210527A_05.d	Sample	5/27/2021 17:52	RXJ,QQQ3;710824	1
22105052604	2210527A_06.d	Sample	5/27/2021 18:07	RXJ,QQQ3;710824	5
22105052605	2210527A_07.d	Sample	5/27/2021 18:22	RXJ,QQQ3;710824	5
22105052606	2210527A_08.d	Sample	5/27/2021 18:52	RXJ,QQQ3;710824	5
22105052607	2210527A_09.d	Sample	5/27/2021 19:11	RXJ,QQQ3;710824	5
22105052608	2210527A_10.d	Sample	5/27/2021 19:26	RXJ,QQQ3;710824	5
22105052609	2210527A_11.d	Sample	5/27/2021 19:40	RXJ,QQQ3;710824	5
22104300604	2210527A_12.d	Sample	5/27/2021 19:55	RXJ,QQQ3;710824	10
22105052612	2210527A_13.d	Sample	5/27/2021 20:10	RXJ,QQQ3;711042	1

1400	2210527A_14.d	QC	5/27/2021 20:24	RXJ,QQQ3;CCV	1
22105052615	2210527A_15.d	Sample	5/27/2021 20:39	RXJ,QQQ3;711042	1
22105052616	2210527A_16.d	Sample	5/27/2021 20:53	RXJ,QQQ3;711042	1
22105052617	2210527A_17.d	Sample	5/27/2021 21:08	RXJ,QQQ3;711042	1
22105052618	2210527A_18.d	Sample	5/27/2021 21:23	RXJ,QQQ3;711042	1
22105052619	2210527A_19.d	Sample	5/27/2021 21:37	RXJ,QQQ3;711042	1
22105052620	2210527A_20.d	Sample	5/27/2021 21:52	RXJ,QQQ3;711042	1
22105052621	2210527A_21.d	Sample	5/27/2021 22:07	RXJ,QQQ3;711042	1
22105052622	2210527A_22.d	Sample	5/27/2021 22:21	RXJ,QQQ3;711042	1
22105052623	2210527A_23.d	Sample	5/27/2021 22:36	RXJ,QQQ3;711042	1
22105052624	2210527A_24.d	Sample	5/27/2021 22:50	RXJ,QQQ3;711042	1
1400	2210527A_25.d	QC	5/27/2021 23:05	RXJ,QQQ3;CCV	1
22105052625	2210527A_26.d	Sample	5/27/2021 23:20	RXJ,QQQ3;711042	1
22104280215	2210527A_27.d	Sample	5/27/2021 23:34	RXJ,QQQ3;709734	1
22104280216	2210527A_28.d	Sample	5/27/2021 23:49	RXJ,QQQ3;709734	1
22104280218	2210527A_29.d	Sample	5/28/2021 0:03	RXJ,QQQ3;709734	1
22105041147	2210527A_30.d	Sample	5/28/2021 0:18	RXJ,QQQ3;710037	1
22105041140	2210527A_31.d	Sample	5/28/2021 0:33	RXJ,QQQ3;709960	5
22104300702	2210527A_32.d	Sample	5/28/2021 0:47	RXJ,QQQ3;709960	1
22104300707	2210527A_33.d	Sample	5/28/2021 1:02	RXJ,QQQ3;709960	1
22104280208	2210527A_34.d	Sample	5/28/2021 1:17	RXJ,QQQ3;710368	1
22105073101	2210527A_35.d	Sample	5/28/2021 1:31	RXJ,QQQ3;710561	1
1400	2210527A_36.d	QC	5/28/2021 1:46	RXJ,QQQ3;CCV	1
22105073102	2210527A_37.d	Sample	5/28/2021 2:00	RXJ,QQQ3;710561	1
22105073103	2210527A_38.d	Sample	5/28/2021 2:15	RXJ,QQQ3;710561	1
22104300701	2210527A_39.d	Sample	5/28/2021 2:30	RXJ,QQQ3;710144	5
22105072101	2210527A_40.d	Sample	5/28/2021 2:44	RXJ,QQQ3;710561	1
22105078801	WorklistData-0062.d	Sample	5/28/2021 2:59	RXJ,QQQ3;711315	1
22105082902	2210527A_41.d	Sample	5/28/2021 3:13	RXJ,QQQ3;711315	1
22105111101	2210527A_42.d	Sample	5/28/2021 3:28	RXJ,QQQ3;711315	1
22105111102	2210527A_43.d	Sample	5/28/2021 3:43	RXJ,QQQ3;711315	1
22105111103	2210527A_44.d	Sample	5/28/2021 3:57	RXJ,QQQ3;711315	1
22105111104	2210527A_45.d	Sample	5/28/2021 4:12	RXJ,QQQ3;711315	1
1450	2210527A_46.d	QC	5/28/2021 4:26	RXJ,QQQ3;CCV	1

22105111105	2210527A_47.d	Sample	5/28/2021 4:41	RXJ,QQQ3;711315	1
22105154101	2210527A_48.d	Sample	5/28/2021 4:56	RXJ,QQQ3;711315	1
22105154102	2210527A_49.d	Sample	5/28/2021 5:10	RXJ,QQQ3;711315	1
22105154103	2210527A_50.d	Sample	5/28/2021 5:25	RXJ,QQQ3;711315	1
22105154104	2210527A_51.d	Sample	5/28/2021 5:40	RXJ,QQQ3;711315	1
22105154105	2210527A_52.d	Sample	5/28/2021 5:54	RXJ,QQQ3;711315	1
22105154106	2210527A_53.d	Sample	5/28/2021 6:09	RXJ,QQQ3;711315	1
22105154107	2210527A_54.d	Sample	5/28/2021 6:24	RXJ,QQQ3;711315	1
22105154108	2210527A_55.d	Sample	5/28/2021 6:38	RXJ,QQQ3;711315	1
22105154109	2210527A_56.d	Sample	5/28/2021 6:53	RXJ,QQQ3;711315	1
1400	2210527A_57.d	QC	5/28/2021 7:07	RXJ,QQQ3;CCV	1

ORGANICS INSTRUMENT SENSITIVITY CHECK

Report No:	<u>221050411</u>	Instrument ID:	<u>QQQ3</u>
Analysis Date:	<u>05/27/2021 16:24</u>	Lab File ID:	<u>2210527A_03.d</u>
Analytical Method:	<u>EPA 537 Mod Isotope Dilution</u>	Analytical Batch:	<u>712388</u>

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomersulfonic acid	ng/L	3.81	4.10	108	70	130	
8:2 Fluorotelomersulfonic acid	ng/L	3.84	4.39	114	70	130	
NEtFOSAA	ng/L	4.00	4.02	100	70	130	
NMeFOSAA	ng/L	4.00	3.62	91	70	130	
Perfluorobutanoic acid	ng/L	4.00	3.99	100	70	130	
Perfluorobutanesulfonic acid	ng/L	3.55	3.90	110	70	130	
Perfluorodecanoic acid	ng/L	4.00	4.08	102	70	130	
Perfluorododecanoic acid	ng/L	4.00	4.00	100	70	130	
Perfluoroheptanoic acid	ng/L	4.00	3.99	100	70	130	
Perfluorohexanoic acid	ng/L	4.00	4.31	108	70	130	
Perfluorohexanesulfonic acid	ng/L	3.66	3.70	101	70	130	
Perfluorononanoic acid	ng/L	4.00	4.06	101	70	130	
Perfluorooctanoic acid	ng/L	4.00	4.14	104	70	130	
Perfluorooctanesulfonic acid	ng/L	3.71	3.75	101	70	130	
Perfluoropentanoic acid	ng/L	4.00	4.06	102	70	130	
Perfluorotetradecanoic acid	ng/L	4.00	4.00	100	70	130	
Perfluorotridecanoic acid	ng/L	4.00	3.88	97	70	130	
Perfluoroundecanoic acid	ng/L	4.00	4.13	103	70	130	

ORGANICS INSTRUMENT BLANK

Report No:	<u>221050411</u>	Instrument ID:	<u>QQQ3</u>
Analysis Date:	<u>05/27/2021 16:10</u>	Lab File ID:	<u>2210527A_02.d</u>
Analytical Method:	<u>EPA 537 Mod Isotope Dilution</u>	Analytical Batch:	<u>712388</u>

ANALYTE	UNITS	RESULT	Q	DL	LOD	LOQ	#
6:2 Fluorotelomersulfonic acid	ng/L	2.00	U	0.94	2.00	4.00	
8:2 Fluorotelomersulfonic acid	ng/L	2.00	U	0.90	2.00	4.00	
NEtFOSAA	ng/L	4.00	U	0.97	4.00	8.00	
NMeFOSAA	ng/L	4.00	U	0.90	4.00	8.00	
Perfluorobutanesulfonic acid	ng/L	2.00	U	0.62	2.00	4.00	
Perfluorobutanoic acid	ng/L	2.00	U	0.90	2.00	4.00	
Perfluorodecanoic acid	ng/L	2.00	U	0.86	2.00	4.00	
Perfluorododecanoic acid	ng/L	2.00	U	0.88	2.00	4.00	
Perfluoroheptanoic acid	ng/L	2.00	U	0.48	2.00	4.00	
Perfluorohexanesulfonic acid	ng/L	2.00	U	0.95	2.00	4.00	
Perfluorohexanoic acid	ng/L	2.00	U	0.94	2.00	4.00	
Perfluorononanoic acid	ng/L	2.00	U	0.78	2.00	4.00	
Perfluorooctanesulfonic acid	ng/L	2.00	U	0.76	2.00	4.00	
Perfluorooctanoic acid	ng/L	2.00	U	0.84	2.00	4.00	
Perfluoropentanoic acid	ng/L	2.00	U	0.85	2.00	4.00	
Perfluorotetradecanoic acid	ng/L	2.00	U	0.98	2.00	4.00	
Perfluorotridecanoic acid	ng/L	2.00	U	0.99	2.00	4.00	
Perfluoroundecanoic acid	ng/L	2.00	U	0.95	2.00	4.00	

* - Result greater than 1/2 LOQ

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ORGANICS CALIBRATION VERIFICATION

Report No:	221050411	Instrument ID:	QQQ3
Analysis Date:	05/27/2021 20:24	Lab File ID:	2210527A_14.d
Analytical Method:	EPA 537 Mod Isotope Dilution	Analytical Batch:	712388

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomersulfonic acid	ng/L	9510	10000	105 ✓	70	130	
8:2 Fluorotelomersulfonic acid	ng/L	9600	9860	103	70	130	
NEtFOSAA	ng/L	10000	9990	100	70	130	
NMeFOSAA	ng/L	10000	9780	98	70	130	
Perfluorobutanoic acid	ng/L	10000	10200	102	70	130	
Perfluorobutanesulfonic acid	ng/L	8870	9190	104	70	130	
Perfluorodecanoic acid	ng/L	10000	10100	101	70	130	
Perfluorododecanoic acid	ng/L	10000	10600	106	70	130	
Perfluoroheptanoic acid	ng/L	10000	10200	102	70	130	
Perfluorohexanoic acid	ng/L	10000	10100	101	70	130	
Perfluorohexanesulfonic acid	ng/L	9140	9260	101	70	130	
Perfluorononanoic acid	ng/L	10000	10300	103	70	130	
Perfluorooctanoic acid	ng/L	10000	9970	100	70	130	
Perfluorooctanesulfonic acid	ng/L	9280	9060	98	70	130	
Perfluoropentanoic acid	ng/L	10000	10300	103	70	130	
Perfluorotetradecanoic acid	ng/L	10000	10100	101	70	130	
Perfluorotridecanoic acid	ng/L	10000	10400	104	70	130	
Perfluoroundecanoic acid	ng/L	10000	10300	103	70	130	

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ORGANICS CALIBRATION VERIFICATION

Report No:	221050411	Instrument ID:	QQQ3
Analysis Date:	05/27/2021 23:05	Lab File ID:	2210527A_25.d
Analytical Method:	EPA 537 Mod Isotope Dilution	Analytical Batch:	712388

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomersulfonic acid	ng/L	9510	10400	110 ✓	70	130	
8:2 Fluorotelomersulfonic acid	ng/L	9600	10300	108	70	130	
NEtFOSAA	ng/L	10000	9940	99	70	130	
NMeFOSAA	ng/L	10000	9760	98	70	130	
Perfluorobutanoic acid	ng/L	10000	10200	102	70	130	
Perfluorobutanesulfonic acid	ng/L	8870	9230	104	70	130	
Perfluorodecanoic acid	ng/L	10000	10300	103	70	130	
Perfluorododecanoic acid	ng/L	10000	10200	102	70	130	
Perfluoroheptanoic acid	ng/L	10000	10200	102	70	130	
Perfluorohexanoic acid	ng/L	10000	10200	102	70	130	
Perfluorohexanesulfonic acid	ng/L	9140	9350	102	70	130	
Perfluorononanoic acid	ng/L	10000	10300	103	70	130	
Perfluorooctanoic acid	ng/L	10000	10100	101	70	130	
Perfluorooctanesulfonic acid	ng/L	9280	9190	99	70	130	
Perfluoropentanoic acid	ng/L	10000	10200	102	70	130	
Perfluorotetradecanoic acid	ng/L	10000	10100	101	70	130	
Perfluorotridecanoic acid	ng/L	10000	10100	101	70	130	
Perfluoroundecanoic acid	ng/L	10000	10400	104	70	130	

FORM 7E - ORG

7E
ORGANICS CALIBRATION VERIFICATION

Report No:	221050411	Instrument ID:	QQQ3
Analysis Date:	05/28/2021 01:46	Lab File ID:	2210527A_36.d
Analytical Method:	EPA 537 Mod Isotope Dilution	Analytical Batch:	712388

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomersulfonic acid	ng/L	9510	10300	108 ✓	70	130	
8:2 Fluorotelomersulfonic acid	ng/L	9600	9710	101	70	130	
NEtFOSAA	ng/L	10000	9990	100	70	130	
NMeFOSAA	ng/L	10000	9910	99	70	130	
Perfluorobutanoic acid	ng/L	10000	10100	101	70	130	
Perfluorobutanesulfonic acid	ng/L	8870	9150	103	70	130	
Perfluorodecanoic acid	ng/L	10000	10400	104	70	130	
Perfluorododecanoic acid	ng/L	10000	10300	103	70	130	
Perfluoroheptanoic acid	ng/L	10000	10200	102	70	130	
Perfluorohexanoic acid	ng/L	10000	10100	101	70	130	
Perfluorohexanesulfonic acid	ng/L	9140	9210	101	70	130	
Perfluorononanoic acid	ng/L	10000	10200	102	70	130	
Perfluorooctanoic acid	ng/L	10000	10100	101	70	130	
Perfluorooctanesulfonic acid	ng/L	9280	9190	99	70	130	
Perfluoropentanoic acid	ng/L	10000	10200	102	70	130	
Perfluorotetradecanoic acid	ng/L	10000	9990	100	70	130	
Perfluorotridecanoic acid	ng/L	10000	10300	103	70	130	
Perfluoroundecanoic acid	ng/L	10000	10300	103	70	130	

FORM 7E - ORG

7E
ORGANICS CALIBRATION VERIFICATION

Report No: <u>221050411</u>	Instrument ID: <u>QQQ3</u>
Analysis Date: <u>05/28/2021 07:07</u>	Lab File ID: <u>2210527A_57.d</u>
Analytical Method: <u>EPA 537 Mod Isotope Dilution</u>	Analytical Batch: <u>712388</u>

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomersulfonic acid	ng/L	9510	10000	105 ✓	70	130	
8:2 Fluorotelomersulfonic acid	ng/L	9600	10500	109	70	130	
NEtFOSAA	ng/L	10000	10200	102	70	130	
NMeFOSAA	ng/L	10000	9920	99	70	130	
Perfluorobutanoic acid	ng/L	10000	10200	102	70	130	
Perfluorobutanesulfonic acid	ng/L	8870	8950	101	70	130	
Perfluorodecanoic acid	ng/L	10000	10100	101	70	130	
Perfluorododecanoic acid	ng/L	10000	10400	104	70	130	
Perfluoroheptanoic acid	ng/L	10000	10200	102	70	130	
Perfluorohexanoic acid	ng/L	10000	10100	101	70	130	
Perfluorohexanesulfonic acid	ng/L	9140	9300	102	70	130	
Perfluorononanoic acid	ng/L	10000	10200	102	70	130	
Perfluorooctanoic acid	ng/L	10000	10100	101	70	130	
Perfluorooctanesulfonic acid	ng/L	9280	9160	99	70	130	
Perfluoropentanoic acid	ng/L	10000	10300	103	70	130	
Perfluorotetradecanoic acid	ng/L	10000	10200	102	70	130	
Perfluorotridecanoic acid	ng/L	10000	10200	102	70	130	
Perfluoroundecanoic acid	ng/L	10000	9940	99	70	130	

FORM 7E - ORG

Instrument: QQQ3 HBN: 712820
 Batch: 2210602C
 Current ICAL Bath: 2210602CCAL
 20mM Amm Acetate 016-82-7 6/4/2021
 Methanol 2130330 2/1/2026
 Calibration Std 016-79-3 11/23/2021
 ICV Std 016-21-3 8/2/2021
 EIS Mix 016-82-8 11/20/2021
 IIS Mix 016-83-1 12/1/2021

Name	Data File	Type	Acq. Date-Time	Comment	Dil.
1201	2210602C_01.d	Cal	6/2/2021 18:27	RXJ,QQQ3;ICAL	1
1202	2210602C_02.d	Cal	6/2/2021 18:41	RXJ,QQQ3;ICAL	1
1203	2210602C_03.d	Cal	6/2/2021 18:56	RXJ,QQQ3;ICAL	1
1204	2210602C_04.d	Cal	6/2/2021 19:11	RXJ,QQQ3;ICAL	1
1205	2210602C_05.d	Cal	6/2/2021 19:25	RXJ,QQQ3;ICAL	1
1206	2210602C_06.d	Cal	6/2/2021 19:40	RXJ,QQQ3;ICAL	1
1207	2210602C_07.d	Cal	6/2/2021 19:54	RXJ,QQQ3;ICAL	1
1500	2210602C_08.d	Blank	6/2/2021 20:09	RXJ,QQQ3;BLANK	1
1600	2210602C_09.d	Sample	6/2/2021 20:24	RXJ,QQQ3;ICAL	1
1450	2210602C_10.d	QC	6/2/2021 20:38	RXJ,QQQ3;CCV	1
22105147313	2210602C_11.d	Sample	6/2/2021 20:53	RXJ,QQQ3;711580	1
22105147314	2210602C_12.d	Sample	6/2/2021 21:08	RXJ,QQQ3;711580	1
22105147315	2210602C_13.d	Sample	6/2/2021 21:22	RXJ,QQQ3;711580	1
22105147530	2210602C_14.d	Sample	6/2/2021 21:37	RXJ,QQQ3;711580	1
22105157812	2210602C_15.d	Sample	6/2/2021 21:52	RXJ,QQQ3;711580	1
22105157903	2210602C_16.d	Sample	6/2/2021 22:06	RXJ,QQQ3;711580	1
22105157909	2210602C_17.d	Sample	6/2/2021 22:21	RXJ,QQQ3;711580	1
22105157910	2210602C_18.d	Sample	6/2/2021 22:35	RXJ,QQQ3;711580	1
22105157911	2210602C_19.d	Sample	6/2/2021 22:50	RXJ,QQQ3;711580	1
22105055815*50	2210602C_20.d	Sample	6/2/2021 23:05	RXJ,QQQ3;711160	50
1400	2210602C_21.d	QC	6/2/2021 23:20	RXJ,QQQ3;CCV	50
22105055816*50	2210602C_22.d	Sample	6/2/2021 23:34	RXJ,QQQ3;711160	50
22105055817*50	2210602C_23.d	Sample	6/2/2021 23:49	RXJ,QQQ3;711160	50

22105055818*50	2210602C_24.d	Sample	6/3/2021 0:03	RXJ,QQQ3;711160	50
22105055819*20	2210602C_25.d	Sample	6/3/2021 0:18	RXJ,QQQ3;711160	20
22105055820*20	2210602C_26.d	Sample	6/3/2021 0:33	RXJ,QQQ3;711160	20
22105055821*20	2210602C_27.d	Sample	6/3/2021 0:47	RXJ,QQQ3;711160	20
22105055822*10	2210602C_28.d	Sample	6/3/2021 1:02	RXJ,QQQ3;711160	10
22105055826*10	2210602C_29.d	Sample	6/3/2021 1:16	RXJ,QQQ3;711160	10
22105055815*5	2210602C_30.d	Sample	6/3/2021 1:31	RXJ,QQQ3;711160	5
22105055816*5	2210602C_31.d	Sample	6/3/2021 1:46	RXJ,QQQ3;711160	5
1400	2210602C_32.d	QC	6/3/2021 2:00	RXJ,QQQ3;CCV	5
22105055817*5	2210602C_33.d	Sample	6/3/2021 2:15	RXJ,QQQ3;711160	5
22105055818*5	2210602C_34.d	Sample	6/3/2021 2:29	RXJ,QQQ3;711160	5
22105055819	2210602C_35.d	Sample	6/3/2021 2:44	RXJ,QQQ3;711160	1
22105055820	2210602C_36.d	Sample	6/3/2021 2:59	RXJ,QQQ3;711160	1
22105055821	2210602C_37.d	Sample	6/3/2021 3:13	RXJ,QQQ3;711160	1
22105055822	2210602C_38.d	Sample	6/3/2021 3:28	RXJ,QQQ3;711160	1
22105055826	2210602C_39.d	Sample	6/3/2021 3:42	RXJ,QQQ3;711160	1
22105041110	2210602C_40.d	Sample	6/3/2021 3:57	RXJ,QQQ3;710580	1
22104303107*20	2210602C_41.d	Sample	6/3/2021 4:12	RXJ,QQQ3;710144	20
2190877	2210602C_42.d	Sample	6/3/2021 4:26	RXJ,QQQ3;711946	1
2190878	2210602C_43.d	Sample	6/3/2021 4:41	RXJ,QQQ3;711946	1
22105133601	2210602C_44.d	Sample	6/3/2021 4:56	RXJ,QQQ3;711946	1
1450	2210602C_45.d	QC	6/3/2021 5:10	RXJ,QQQ3;CCV	1
22105133602	2210602C_46.d	Sample	6/3/2021 5:25	RXJ,QQQ3;711946	1
22105133603	2210602C_47.d	Sample	6/3/2021 5:39	RXJ,QQQ3;711946	1
22105147517	2210602C_48.d	Sample	6/3/2021 5:54	RXJ,QQQ3;711946	1
22105147518	2210602C_49.d	Sample	6/3/2021 6:09	RXJ,QQQ3;711946	1
22105147519	2210602C_50.d	Sample	6/3/2021 6:23	RXJ,QQQ3;711946	1
22105147520	2210602C_51.d	Sample	6/3/2021 6:38	RXJ,QQQ3;711946	1
22105147521	2210602C_52.d	Sample	6/3/2021 6:52	RXJ,QQQ3;711946	1
22105147522	2210602C_53.d	Sample	6/3/2021 7:07	RXJ,QQQ3;711946	1
2190879	2210602C_54.d	Sample	6/3/2021 7:22	RXJ,QQQ3;711946	1
2190880	2210602C_55.d	Sample	6/3/2021 7:36	RXJ,QQQ3;711946	1
22105147523	2210602C_56.d	Sample	6/3/2021 7:51	RXJ,QQQ3;711946	1
22105147524	2210602C_57.d	Sample	6/3/2021 8:05	RXJ,QQQ3;711946	1

1400	2210602C_58.d	QC	6/3/2021 8:20	RXJ,QQQ3;CCV	1
22105147525	2210602C_59.d	Sample	6/3/2021 8:35	RXJ,QQQ3;711946	1
22105147526	2210602C_60.d	Sample	6/3/2021 8:49	RXJ,QQQ3;711946	1
22105147527	2210602C_61.d	Sample	6/3/2021 9:04	RXJ,QQQ3;711946	1
22105147528	2210602C_62.d	Sample	6/3/2021 9:19	RXJ,QQQ3;711946	1
22105147529	2210602C_63.d	Sample	6/3/2021 9:33	RXJ,QQQ3;711946	1
22105150501	2210602C_64.d	Sample	6/3/2021 9:48	RXJ,QQQ3;711946	1
22105150502	2210602C_65.d	Sample	6/3/2021 10:02	RXJ,QQQ3;711946	1
22105150503	2210602C_66.d	Sample	6/3/2021 10:17	RXJ,QQQ3;711946	1
22105150504	2210602C_67.d	Sample	6/3/2021 10:32	RXJ,QQQ3;711946	1
22105182302	2210602C_68.d	Sample	6/3/2021 10:46	RXJ,QQQ3;712006	1
2190632	2210602C_69.d	Sample	6/3/2021 11:01	RXJ,QQQ3;711875	1
1400	2210602C_70.d	QC	6/3/2021 11:15	RXJ,QQQ3;CCV	1
22105118619	2210602C_71.d	Sample	6/3/2021 11:30	RXJ,QQQ3;711515	1
22105182303	2210602C_72.d	Sample	6/3/2021 11:45	RXJ,QQQ3;712006	1
22105182304	2210602C_73.d	Sample	6/3/2021 12:00	RXJ,QQQ3;712006	1
22105182305	2210602C_74.d	Sample	6/3/2021 12:14	RXJ,QQQ3;712006	1
22105182306	2210602C_75.d	Sample	6/3/2021 12:29	RXJ,QQQ3;712006	1
1400	2210602C_76.d	QC	6/3/2021 12:43	RXJ,QQQ3;CCV	1

ORGANICS INITIAL CALIBRATION VERIFICATION

Report No:	<u>221050411</u>	Instrument ID:	<u>QQQ3</u>
Analysis Date:	<u>06/02/2021 20:24</u>	Lab File ID:	<u>2210602C_09.d</u>
Analytical Method:	<u>EPA 537 Mod Isotope Dilution</u>	Analytical Batch:	<u>712820</u>

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomersulfonic acid	ng/L	10000	11000	110	70	130	
8:2 Fluorotelomersulfonic acid	ng/L	10100	11100	110	70	130	
NEtFOSAA	ng/L	10000	11100	111	70	130	
NMeFOSAA	ng/L	10000	11200	112	70	130	
Perfluorobutanoic acid	ng/L	10000	11000	110	70	130	
Perfluorobutanesulfonic acid	ng/L	10000	10200	102	70	130	
Perfluorodecanoic acid	ng/L	10000	11500	115	70	130	
Perfluorododecanoic acid	ng/L	10000	11000	110	70	130	
Perfluoroheptanoic acid	ng/L	10000	11200	112	70	130	
Perfluorohexanoic acid	ng/L	10100	11000	109	70	130	
Perfluorohexanesulfonic acid	ng/L	10000	11200	112	70	130	
Perfluorononanoic acid	ng/L	10000	12400	124	70	130	
Perfluorooctanoic acid	ng/L	10100	10700	106	70	130	
Perfluorooctanesulfonic acid	ng/L	10000	9570	96	70	130	
Perfluoropentanoic acid	ng/L	10100	11100	110	70	130	
Perfluorotetradecanoic acid	ng/L	10000	12700	127	70	130	
Perfluorotridecanoic acid	ng/L	10000	9910	99	70	130	
Perfluoroundecanoic acid	ng/L	10000	11100	111	70	130	

ORGANICS INSTRUMENT SENSITIVITY CHECK

Report No:	<u>221050411</u>	Instrument ID:	<u>QQQ3</u>
Analysis Date:	<u>06/03/2021 05:10</u>	Lab File ID:	<u>2210602C_45.d</u>
Analytical Method:	<u>EPA 537 Mod Isotope Dilution</u>	Analytical Batch:	<u>712820</u>

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomersulfonic acid	ng/L	3.81	4.17	109 ✓	70	130	
8:2 Fluorotelomersulfonic acid	ng/L	3.84	4.84	126	70	130	
NETFOSAA	ng/L	4.00	4.56	114	70	130	
NMeFOSAA	ng/L	4.00	4.44	111	70	130	
Perfluorobutanoic acid	ng/L	4.00	4.08	102	70	130	
Perfluorobutanesulfonic acid	ng/L	3.55	3.54	100	70	130	
Perfluorodecanoic acid	ng/L	4.00	3.99	100	70	130	
Perfluorododecanoic acid	ng/L	4.00	4.04	101	70	130	
Perfluoroheptanoic acid	ng/L	4.00	3.99	100	70	130	
Perfluorohexanoic acid	ng/L	4.00	4.10	103	70	130	
Perfluorohexanesulfonic acid	ng/L	3.66	3.74	102	70	130	
Perfluorononanoic acid	ng/L	4.00	3.92	98	70	130	
Perfluorooctanoic acid	ng/L	4.00	4.20	105	70	130	
Perfluorooctanesulfonic acid	ng/L	3.71	4.30	116	70	130	
Perfluoropentanoic acid	ng/L	4.00	3.96	99	70	130	
Perfluorotetradecanoic acid	ng/L	4.00	3.95	99	70	130	
Perfluorotridecanoic acid	ng/L	4.00	4.17	104	70	130	
Perfluoroundecanoic acid	ng/L	4.00	3.94	98	70	130	

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Report No:	221050411	Instrument ID:	QQQ3
Analysis Date:	06/02/2021 20:09	Lab File ID:	2210602C_08.d
Analytical Method:	EPA 537 Mod Isotope Dilution	Analytical Batch:	712820

ANALYTE	UNITS	RESULT	Q	DL	LOD	LOQ	#
6:2 Fluorotelomersulfonic acid	ng/L	2.00	U	0.94	2.00	4.00	
8:2 Fluorotelomersulfonic acid	ng/L	2.00	U	0.90	2.00	4.00	
NETFOSAA	ng/L	4.00	U	0.97	4.00	8.00	
NMeFOSAA	ng/L	4.00	U	0.90	4.00	8.00	
Perfluorobutanesulfonic acid	ng/L	2.00	U	0.62	2.00	4.00	
Perfluorobutanoic acid	ng/L	2.00	U	0.90	2.00	4.00	
Perfluorodecanoic acid	ng/L	2.00	U	0.86	2.00	4.00	
Perfluorododecanoic acid	ng/L	2.00	U	0.88	2.00	4.00	
Perfluoroheptanoic acid	ng/L	2.00	U	0.48	2.00	4.00	
Perfluorohexanesulfonic acid	ng/L	2.00	U	0.95	2.00	4.00	
Perfluorohexanoic acid	ng/L	2.00	U	0.94	2.00	4.00	
Perfluorononanoic acid	ng/L	2.00	U	0.78	2.00	4.00	
Perfluorooctanesulfonic acid	ng/L	2.00	U	0.76	2.00	4.00	
Perfluorooctanoic acid	ng/L	2.00	U	0.84	2.00	4.00	
Perfluoropentanoic acid	ng/L	2.00	U	0.85	2.00	4.00	
Perfluorotetradecanoic acid	ng/L	2.00	U	0.98	2.00	4.00	
Perfluorotridecanoic acid	ng/L	2.00	U	0.99	2.00	4.00	
Perfluoroundecanoic acid	ng/L	2.00	U	0.95	2.00	4.00	

* - Result greater than 1/2 LOQ

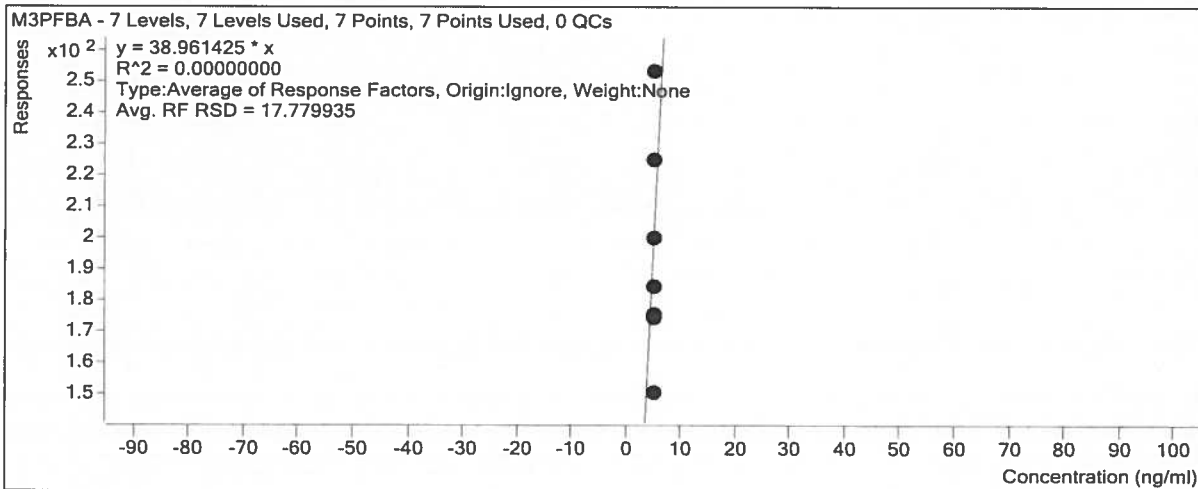
Quantitative Analysis Calibration Report

Batch Data Path D:\MassHunter\Data\QQQ3\2210602CCAL\QuantResults\2210602C.batch.bin
Analysis Time 6/8/2021 1:30 PM Analyst Name GCAL\lcms
Report Time 6/9/2021 1:19 PM Reporter Name GCAL\lcms
Last Calib Update 6/3/2021 9:17 AM Batch State Processed

Calibration Info

Instrument *ISTD* M3PFBA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2210602CCAL\2210602C_01.d	Calibration	1	<input checked="" type="checkbox"/>	151	5.0000	30.1536
D:\MassHunter\Data\2210602CCAL\2210602C_02.d	Calibration	2	<input checked="" type="checkbox"/>	175	5.0000	34.9107
D:\MassHunter\Data\2210602CCAL\2210602C_03.d	Calibration	3	<input checked="" type="checkbox"/>	225	5.0000	45.0124
D:\MassHunter\Data\2210602CCAL\2210602C_04.d	Calibration	4	<input checked="" type="checkbox"/>	184	5.0000	36.8939
D:\MassHunter\Data\2210602CCAL\2210602C_05.d	Calibration	5	<input checked="" type="checkbox"/>	253	5.0000	50.6784
D:\MassHunter\Data\2210602CCAL\2210602C_06.d	Calibration	6	<input checked="" type="checkbox"/>	176	5.0000	35.1193
D:\MassHunter\Data\2210602CCAL\2210602C_07.d	Calibration	7	<input checked="" type="checkbox"/>	200	5.0000	39.9617



Target Compound

PFBA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2210602CCAL\2210602C_01.d	Calibration	1	<input checked="" type="checkbox"/>	2357	0.5000	0.8564
D:\MassHunter\Data\2210602CCAL\2210602C_02.d	Calibration	2	<input checked="" type="checkbox"/>	6223	1.2500	0.8404
D:\MassHunter\Data\2210602CCAL\2210602C_03.d	Calibration	3	<input checked="" type="checkbox"/>	27222	5.0000	0.8225
D:\MassHunter\Data\2210602CCAL\2210602C_04.d	Calibration	4	<input checked="" type="checkbox"/>	56208	10.0000	0.8615
D:\MassHunter\Data\2210602CCAL\2210602C_05.d	Calibration	5	<input checked="" type="checkbox"/>	122904	20.0000	0.8836
D:\MassHunter\Data\2210602CCAL\2210602C_06.d	Calibration	6	<input checked="" type="checkbox"/>	297554	50.0000	0.8782
D:\MassHunter\Data\2210602CCAL\2210602C_07.d	Calibration	7	<input checked="" type="checkbox"/>	1057342	200.0000	0.7870

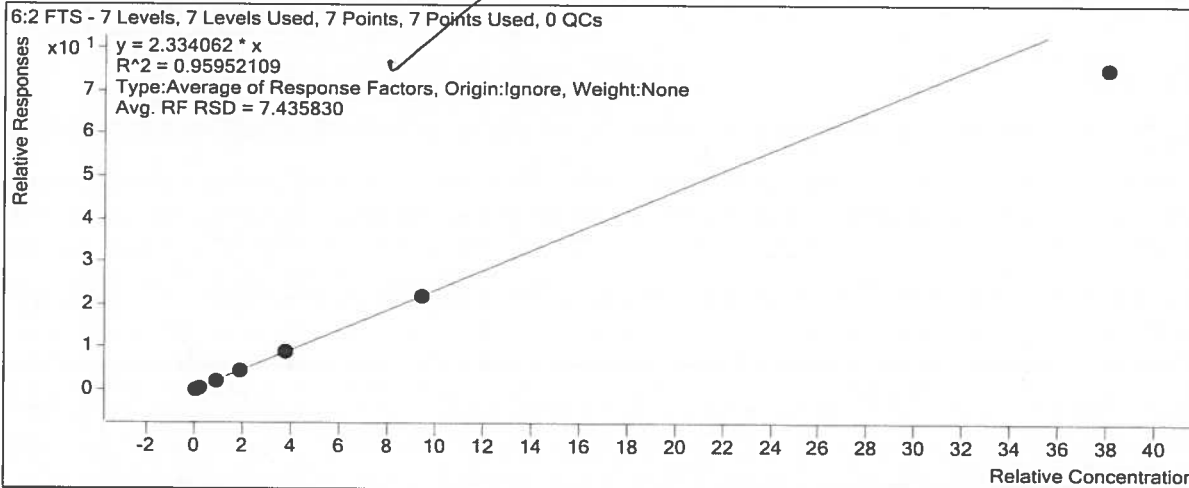
Quantitative Analysis Calibration Report

D:\MassHunter\Data\2210602CCAL\2210602C_01.d	Calibration	1	<input checked="" type="checkbox"/>	1721	5.0000	344.1096
D:\MassHunter\Data\2210602CCAL\2210602C_02.d	Calibration	2	<input checked="" type="checkbox"/>	1688	5.0000	337.6259
D:\MassHunter\Data\2210602CCAL\2210602C_03.d	Calibration	3	<input checked="" type="checkbox"/>	1974	5.0000	394.7841
D:\MassHunter\Data\2210602CCAL\2210602C_04.d	Calibration	4	<input checked="" type="checkbox"/>	1959	5.0000	391.7790
D:\MassHunter\Data\2210602CCAL\2210602C_05.d	Calibration	5	<input checked="" type="checkbox"/>	2023	5.0000	404.6825
D:\MassHunter\Data\2210602CCAL\2210602C_06.d	Calibration	6	<input checked="" type="checkbox"/>	1981	5.0000	396.2040
D:\MassHunter\Data\2210602CCAL\2210602C_07.d	Calibration	7	<input checked="" type="checkbox"/>	1881	5.0000	376.2686

Target Compound

6:2 FTS

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2210602CCAL\2210602C_01.d	Calibration	1	<input checked="" type="checkbox"/>	389	0.4755	2.3769
D:\MassHunter\Data\2210602CCAL\2210602C_02.d	Calibration	2	<input checked="" type="checkbox"/>	1011	1.1888	2.5195
D:\MassHunter\Data\2210602CCAL\2210602C_03.d	Calibration	3	<input checked="" type="checkbox"/>	4291	4.7550	2.2861
D:\MassHunter\Data\2210602CCAL\2210602C_04.d	Calibration	4	<input checked="" type="checkbox"/>	9125	9.5100	2.4491
D:\MassHunter\Data\2210602CCAL\2210602C_05.d	Calibration	5	<input checked="" type="checkbox"/>	18520	19.0200	2.4062
D:\MassHunter\Data\2210602CCAL\2210602C_06.d	Calibration	6	<input checked="" type="checkbox"/>	43671	47.5500	2.3180
D:\MassHunter\Data\2210602CCAL\2210602C_07.d	Calibration	7	<input checked="" type="checkbox"/>	141889	190.2000	1.9826



Extracted ISTD

M8PFOA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2210602CCAL\2210602C_01.d	Calibration	1	<input checked="" type="checkbox"/>	42987	5.0000	8597.4487
D:\MassHunter\Data\2210602CCAL\2210602C_02.d	Calibration	2	<input checked="" type="checkbox"/>	45774	5.0000	9154.8709
D:\MassHunter\Data\2210602CCAL\2210602C_03.d	Calibration	3	<input checked="" type="checkbox"/>	49825	5.0000	9964.9713

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ORGANICS CALIBRATION VERIFICATION

Report No:	<u>221050411</u>	Instrument ID:	<u>QQQ3</u>
Analysis Date:	<u>06/02/2021 23:20</u>	Lab File ID:	<u>2210602C_21.d</u>
Analytical Method:	<u>EPA 537 Mod Isotope Dilution</u>	Analytical Batch:	<u>712820</u>

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomersulfonic acid	ng/L	9510	9940	105 ✓	70	130	
8:2 Fluorotelomersulfonic acid	ng/L	9600	10200	106	70	130	
NEtFOSAA	ng/L	10000	10600	106	70	130	
NMeFOSAA	ng/L	10000	10200	102	70	130	
Perfluorobutanoic acid	ng/L	10000	10200	102	70	130	
Perfluorobutanesulfonic acid	ng/L	8870	8760	99	70	130	
Perfluorodecanoic acid	ng/L	10000	10300	103	70	130	
Perfluorododecanoic acid	ng/L	10000	10400	104	70	130	
Perfluoroheptanoic acid	ng/L	10000	10200	102	70	130	
Perfluorohexanoic acid	ng/L	10000	10200	102	70	130	
Perfluorohexanesulfonic acid	ng/L	9140	9390	103	70	130	
Perfluorononanoic acid	ng/L	10000	10200	102	70	130	
Perfluorooctanoic acid	ng/L	10000	10300	103	70	130	
Perfluorooctanesulfonic acid	ng/L	9280	9240	100	70	130	
Perfluoropentanoic acid	ng/L	10000	10200	102	70	130	
Perfluorotetradecanoic acid	ng/L	10000	10200	102	70	130	
Perfluorotridecanoic acid	ng/L	10000	10300	103	70	130	
Perfluoroundecanoic acid	ng/L	10000	10300	103	70	130	

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ORGANICS CALIBRATION VERIFICATION

Report No:	<u>221050411</u>	Instrument ID:	<u>QQQ3</u>
Analysis Date:	<u>06/03/2021 02:00</u>	Lab File ID:	<u>2210602C_32.d</u>
Analytical Method:	<u>EPA 537 Mod Isotope Dilution</u>	Analytical Batch:	<u>712820</u>

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomersulfonic acid	ng/L	9510	10100	106 ✓	70	130	
8:2 Fluorotelomersulfonic acid	ng/L	9600	10600	110	70	130	
NEtFOSAA	ng/L	10000	10600	106	70	130	
NMeFOSAA	ng/L	10000	9940	99	70	130	
Perfluorobutanoic acid	ng/L	10000	10200	102	70	130	
Perfluorobutanesulfonic acid	ng/L	8870	9080	102	70	130	
Perfluorodecanoic acid	ng/L	10000	10300	103	70	130	
Perfluorododecanoic acid	ng/L	10000	10100	101	70	130	
Perfluoroheptanoic acid	ng/L	10000	10200	102	70	130	
Perfluorohexanoic acid	ng/L	10000	10300	103	70	130	
Perfluorohexanesulfonic acid	ng/L	9140	9250	101	70	130	
Perfluorononanoic acid	ng/L	10000	10300	103	70	130	
Perfluorooctanoic acid	ng/L	10000	10200	102	70	130	
Perfluorooctanesulfonic acid	ng/L	9280	9070	98	70	130	
Perfluoropentanoic acid	ng/L	10000	10100	101	70	130	
Perfluorotetradecanoic acid	ng/L	10000	10200	102	70	130	
Perfluorotridecanoic acid	ng/L	10000	10100	101	70	130	
Perfluoroundecanoic acid	ng/L	10000	10100	101	70	130	

FORM 7E - ORG

ORGANICS CALIBRATION VERIFICATION

Report No:	<u>221050411</u>	Instrument ID:	<u>QQQ3</u>
Analysis Date:	<u>06/03/2021 08:20</u>	Lab File ID:	<u>2210602C_58.d</u>
Analytical Method:	<u>EPA 537 Mod Isotope Dilution</u>	Analytical Batch:	<u>712820</u>

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomersulfonic acid	ng/L	9510	10200	108 ✓	70	130	
8:2 Fluorotelomersulfonic acid	ng/L	9600	9630	100	70	130	
NEtFOSAA	ng/L	10000	10300	103	70	130	
NMeFOSAA	ng/L	10000	10200	102	70	130	
Perfluorobutanoic acid	ng/L	10000	10200	102	70	130	
Perfluorobutanesulfonic acid	ng/L	8870	9060	102	70	130	
Perfluorodecanoic acid	ng/L	10000	10300	103	70	130	
Perfluorododecanoic acid	ng/L	10000	10500	105	70	130	
Perfluoroheptanoic acid	ng/L	10000	10300	103	70	130	
Perfluorohexanoic acid	ng/L	10000	10100	101	70	130	
Perfluorohexanesulfonic acid	ng/L	9140	9290	102	70	130	
Perfluorononanoic acid	ng/L	10000	10300	103	70	130	
Perfluorooctanoic acid	ng/L	10000	10300	103	70	130	
Perfluorooctanesulfonic acid	ng/L	9280	8980	97	70	130	
Perfluoropentanoic acid	ng/L	10000	10200	102	70	130	
Perfluorotetradecanoic acid	ng/L	10000	10100	101	70	130	
Perfluorotridecanoic acid	ng/L	10000	10200	102	70	130	
Perfluoroundecanoic acid	ng/L	10000	10100	101	70	130	

ORGANICS CALIBRATION VERIFICATION

Report No:	<u>221050411</u>	Instrument ID:	<u>QQQ3</u>
Analysis Date:	<u>06/03/2021 11:15</u>	Lab File ID:	<u>2210602C_70.d</u>
Analytical Method:	<u>EPA 537 Mod Isotope Dilution</u>	Analytical Batch:	<u>712820</u>

<i>ANALYTE</i>	<i>UNITS</i>	<i>TRUE</i>	<i>FOUND</i>	<i>% REC</i>	<i>LCL</i>	<i>UCL</i>	<i>Q</i>
6:2 Fluorotelomersulfonic acid	ng/L	9510	10200	107 ✓	70	130	
8:2 Fluorotelomersulfonic acid	ng/L	9600	10300	107	70	130	
NEtFOSAA	ng/L	10000	10100	101	70	130	
NMeFOSAA	ng/L	10000	10400	104	70	130	
Perfluorobutanoic acid	ng/L	10000	10200	102	70	130	
Perfluorobutanesulfonic acid	ng/L	8870	8770	99	70	130	
Perfluorodecanoic acid	ng/L	10000	10100	101	70	130	
Perfluorododecanoic acid	ng/L	10000	10100	101	70	130	
Perfluoroheptanoic acid	ng/L	10000	10200	102	70	130	
Perfluorohexanoic acid	ng/L	10000	10000	100	70	130	
Perfluorohexanesulfonic acid	ng/L	9140	9390	103	70	130	
Perfluorononanoic acid	ng/L	10000	10100	101	70	130	
Perfluorooctanoic acid	ng/L	10000	10100	101	70	130	
Perfluorooctanesulfonic acid	ng/L	9280	9010	97	70	130	
Perfluoropentanoic acid	ng/L	10000	10200	102	70	130	
Perfluorotetradecanoic acid	ng/L	10000	10200	102	70	130	
Perfluorotridecanoic acid	ng/L	10000	10100	101	70	130	
Perfluoroundecanoic acid	ng/L	10000	10200	102	70	130	

7E
ORGANICS CALIBRATION VERIFICATION

Report No:	<u>221050411</u>	Instrument ID:	<u>QQQ3</u>
Analysis Date:	<u>06/03/2021 12:43</u>	Lab File ID:	<u>2210602C_76.d</u>
Analytical Method:	<u>EPA 537 Mod Isotope Dilution</u>	Analytical Batch:	<u>712820</u>

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomersulfonic acid	ng/L	9510	9770	103 ✓	70	130	
8:2 Fluorotelomersulfonic acid	ng/L	9600	10700	112	70	130	
NEtFOSAA	ng/L	10000	9850	99	70	130	
NMeFOSAA	ng/L	10000	10200	102	70	130	
Perfluorobutanoic acid	ng/L	10000	10200	102	70	130	
Perfluorobutanesulfonic acid	ng/L	8870	9090	102	70	130	
Perfluorodecanoic acid	ng/L	10000	10400	104	70	130	
Perfluorododecanoic acid	ng/L	10000	10300	103	70	130	
Perfluoroheptanoic acid	ng/L	10000	10100	101	70	130	
Perfluorohexanoic acid	ng/L	10000	10000	100	70	130	
Perfluorohexanesulfonic acid	ng/L	9140	9280	102	70	130	
Perfluorononanoic acid	ng/L	10000	10300	103	70	130	
Perfluorooctanoic acid	ng/L	10000	10100	101	70	130	
Perfluorooctanesulfonic acid	ng/L	9280	9030	97	70	130	
Perfluoropentanoic acid	ng/L	10000	10200	102	70	130	
Perfluorotetradecanoic acid	ng/L	10000	10100	101	70	130	
Perfluorotridecanoic acid	ng/L	10000	10200	102	70	130	
Perfluoroundecanoic acid	ng/L	10000	10300	103	70	130	

FORM 7E - ORG

INJECTION INTERNAL STANDARD AREA SUMMARY

Report No:	<u>221050411</u>	Standard ID:	<u>1205 (ICAL Midpoint)</u>
Analyst:	<u>RXJ</u>	Instrument ID:	<u>QQQ3</u>
Analysis Date:	<u>06/02/21 19:25</u>	Lab File ID:	<u>2210602C_05.d</u>
Analytical Method:	<u>PFAS Isotope Dilution QSM B15</u>	Analytical Batch:	<u>712820</u>

	M2PFDA	M2PFHxA	M2PFOA	M4PFOS
	Area	Area	Area	Area
STANDARD	288048	403517	215124	48429

CLIENT SAMPLE ID	LAB SAMP ID	✓	#	✓	#	✓	#	✓	#
WL-FRB-01RE	22105041110RE	245840		371765		191780		40427	

AREA UPPER LIMIT = +50% of internal standard area
 AREA LOWER LIMIT = -50% of internal standard area

Column used to flag values outside QC limits
 * Value outside QC limits

Instrument: QQQ3 HBN: 712509
 Batch: 2210528A
 Current ICAL Bath: 22105248CAL
 20mM Amm Acetate 5/30/2021
 Methanol 2/1/2026
 Calibration Std 11/23/2021
 ICV Std 8/2/2021
 EIS Mix 11/24/2021
 IIS Mix 11/20/2021

Name	Data File	Type	Acq. Date-Time	Comment	Dil.
1201	2210524B_01.d	Cal	5/24/2021 19:48	RX,QQQ3;ICAL	1
1202	2210524B_02.d	Cal	5/24/2021 20:03	RX,QQQ3;ICAL	1
1203	2210524B_03.d	Cal	5/24/2021 20:20	RX,QQQ3;ICAL	1
1204	2210524B_04.d	Cal	5/24/2021 20:35	RX,QQQ3;ICAL	1
1205	2210524B_05.d	Cal	5/24/2021 20:50	RX,QQQ3;ICAL	1
1206	2210524B_06.d	Cal	5/24/2021 21:04	RX,QQQ3;ICAL	1
1207	2210524B_07.d	Cal	5/24/2021 21:19	RX,QQQ3;ICAL	1
1500	2210524B_08.d	Sample	5/24/2021 21:41	RX,QQQ3;BLANK	1
1600	2210524B_09.d	Sample	5/24/2021 21:55	RX,QQQ3;	1
1450	2210524B_10.d	QC	5/24/2021 22:10	RX,QQQ3;	1
1400test	2210528A_01.d	Sample	5/28/2021 10:53	RX,QQQ3;TEST	1
1500	2210528A_02.d	Sample	5/28/2021 11:08	RX,QQQ3;BLANK	1
1450	2210528A_03.d	QC	5/28/2021 11:23	RX,QQQ3;	1
1400TEST	2210528A_04.d	QC	5/28/2021 11:47	RX,QQQ3;	1
2192459	2210528A_05.d	Sample	5/28/2021 12:15	RX,QQQ3;712221	1
2192460	2210528A_06.d	QC	5/28/2021 12:30	RX,QQQ3;712221	1
22105253601	2210528A_07.d	Sample	5/28/2021 12:45	RX,QQQ3;712221	1
22105157904	2210528A_08.d	Sample	5/28/2021 12:59	RX,QQQ3;712221	1
22105157905*MS	2210528A_09.d	QC	5/28/2021 13:14	RX,QQQ3;712221	1
22105157906*MSD	2210528A_10.d	QC	5/28/2021 13:29	RX,QQQ3;712221	1
1400	2210528A_11.d	QC	5/28/2021 13:43	RX,QQQ3;CCV	1
1400	2210528A_12.d	QC	5/28/2021 15:25	RX,QQQ3;CCV	1
2187429	2210528A_13.d	Sample	5/28/2021 15:40	RX,QQQ3;711316	1

22104280215	2210528A_14.d	Sample	5/28/2021 16:06	RX,QQQ3;711316	5
2187430	2210528A_15.d	QC	5/28/2021 16:20	RX,QQQ3;711316	1
22105086001	2210528A_16.d	Sample	5/28/2021 16:35	RX,QQQ3;711316	1
22105086002	2210528A_17.d	Sample	5/28/2021 16:50	RX,QQQ3;711316	1
22105086003	2210528A_18.d	Sample	5/28/2021 17:04	RX,QQQ3;711316	1
22105086004	2210528A_19.d	Sample	5/28/2021 17:19	RX,QQQ3;711316	1
22105086005	2210528A_20.d	Sample	5/28/2021 17:33	RX,QQQ3;711316	1
22105086006	2210528A_21.d	Sample	5/28/2021 17:48	RX,QQQ3;711316	1
22105086007	2210528A_22.d	Sample	5/28/2021 18:03	RX,QQQ3;711316	1
22105086008	2210528A_23.d	Sample	5/28/2021 18:17	RX,QQQ3;711316	1
22105086009	2210528A_24.d	Sample	5/28/2021 18:32	RX,QQQ3;711316	1
1400	2210528A_25.d	QC	5/28/2021 18:47	RX,QQQ3;CCV	1
22105086010	2210528A_26.d	Sample	5/28/2021 19:07	RX,QQQ3;711316	1
22105086011	2210528A_27.d	Sample	5/28/2021 19:22	RX,QQQ3;711316	1
22105086012	2210528A_28.d	Sample	5/28/2021 19:36	RX,QQQ3;711316	1
22105086013	2210528A_29.d	Sample	5/28/2021 19:51	RX,QQQ3;711316	1
22105086014	2210528A_30.d	Sample	5/28/2021 20:06	RX,QQQ3;711316	1
22105086017	2210528A_31.d	Sample	5/28/2021 20:20	RX,QQQ3;711316	1
22105086018	2210528A_32.d	Sample	5/28/2021 20:35	RX,QQQ3;711316	1
22105086019	2210528A_33.d	Sample	5/28/2021 20:50	RX,QQQ3;711316	1
22105086020	2210528A_34.d	Sample	5/28/2021 21:04	RX,QQQ3;711316	1
1400	2210528A_35.d	QC	5/28/2021 21:19	RX,QQQ3;CCV	1
22105086021	2210528A_36.d	Sample	5/28/2021 21:33	RX,QQQ3;711316	1
22105086022	2210528A_37.d	Sample	5/28/2021 21:48	RX,QQQ3;711316	1
2191137	2210528A_38.d	Blank	5/28/2021 22:03	RX,QQQ3;711984	1
2191138	2210528A_39.d	QC	5/28/2021 22:17	RX,QQQ3;711984	1
22105041122	2210528A_40.d	Sample	5/28/2021 22:32	RX,QQQ3;711984	1
22105041123	2210528A_41.d	Sample	5/28/2021 22:46	RX,QQQ3;711984	1
22105041124	2210528A_42.d	Sample	5/28/2021 23:01	RX,QQQ3;711984	1
22104280217	2210528A_43.d	Sample	5/28/2021 23:16	RX,QQQ3;711984	1
22104280219	2210528A_44.d	Sample	5/28/2021 23:30	RX,QQQ3;711984	1
22104300605	2210528A_45.d	Sample	5/28/2021 23:45	RX,QQQ3;711984	1
22104300612	2210528A_46.d	Sample	5/28/2021 23:59	RX,QQQ3;711984	1
22104300701	2210528A_47.d	Sample	5/29/2021 0:14	RX,QQQ3;711984	1

22104300705	2210528A_48.d	Sample	5/29/2021 0:29	RXJ,QQQ3;711984	1
22104300706	2210528A_49.d	Sample	5/29/2021 0:43	RXJ,QQQ3;711984	1
1450	2210528A_50.d	QC	5/29/2021 0:58	RXJ,QQQ3;CCV	1
22104303105	2210528A_51.d	Sample	5/29/2021 1:13	RXJ,QQQ3;711984	1
22105157814	2210528A_52.d	Sample	5/29/2021 1:27	RXJ,QQQ3;711984	1
22105157815	2210528A_53.d	Sample	5/29/2021 1:42	RXJ,QQQ3;711984	1
22105157816	2210528A_54.d	Sample	5/29/2021 1:57	RXJ,QQQ3;711984	1
22105157817	2210528A_55.d	Sample	5/29/2021 2:11	RXJ,QQQ3;711984	1
22105157818	2210528A_56.d	Sample	5/29/2021 2:26	RXJ,QQQ3;711984	1
22105157819	2210528A_57.d	Sample	5/29/2021 2:41	RXJ,QQQ3;711984	1
22105157820	2210528A_58.d	Sample	5/29/2021 2:56	RXJ,QQQ3;711984	1
22105157901	2210528A_59.d	Sample	5/29/2021 3:10	RXJ,QQQ3;711984	1
22105157902	2210528A_60.d	Sample	5/29/2021 3:25	RXJ,QQQ3;711984	1
1400	2210528A_61.d	QC	5/29/2021 3:40	RXJ,QQQ3;CCV	1
22105157907	2210528A_62.d	Sample	5/29/2021 3:54	RXJ,QQQ3;711984	1
22105157908	2210528A_63.d	Sample	5/29/2021 4:09	RXJ,QQQ3;711984	1
2191317	2210528A_64.d	Blank	5/29/2021 4:24	RXJ,QQQ3;712038	1
2191318	2210528A_65.d	QC	5/29/2021 4:39	RXJ,QQQ3;712038	1
2191319	2210528A_66.d	QC	5/29/2021 4:53	RXJ,QQQ3;712038	1
22104242914	2210528A_67.d	Sample	5/29/2021 5:08	RXJ,QQQ3;712038	10
22104242917	2210528A_68.d	Sample	5/29/2021 5:22	RXJ,QQQ3;712038	10
22105102604	2210528A_69.d	Sample	5/29/2021 5:37	RXJ,QQQ3;711253	10
22105102706	2210528A_70.d	Sample	5/29/2021 5:52	RXJ,QQQ3;711253	50
22105102707	2210528A_71.d	Sample	5/29/2021 6:06	RXJ,QQQ3;711253	1
22105102708	2210528A_72.d	Sample	5/29/2021 6:21	RXJ,QQQ3;711253	200
2195289	2210528A_73.d	Sample	5/29/2021 6:36	RXJ,QQQ3;711253	200
22105102709	2210528A_74.d	Sample	5/29/2021 6:50	RXJ,QQQ3;711253	1
1400	2210528A_75.d	Sample	5/29/2021 7:05	RXJ,QQQ3;711253	1
2195290	2210528A_76.d	Sample	5/29/2021 7:20	RXJ,QQQ3;711253	1
22105102710	2210528A_77.d	Sample	5/29/2021 7:35	RXJ,QQQ3;711253	1
22105102710	2210528A_78.d	Sample	5/29/2021 7:49	RXJ,QQQ3;711253	1
22105102711	2210528A_79.d	Sample	5/29/2021 8:04	RXJ,QQQ3;711253	10
22105102801	2210528A_80.d	Sample	5/29/2021 8:18	RXJ,QQQ3;711253	10
22105102706	2210528A_81.d	Sample	5/29/2021 8:33	RXJ,QQQ3;711253	5

22105102708	2210528A_82.d	Sample	5/29/2021 8:48	RXJ,QQQ3;711253	10
22105102709	2210528A_83.d	Sample	5/29/2021 9:02	RXJ,QQQ3;711253	50
22105102710*50	2210528A_84.d	Sample	5/29/2021 9:17	RXJ,QQQ3;711253	50
22104242917	2210528A_85a.d	Sample	5/29/2021 9:31	RXJ,QQQ3;712038	1
1400	2210528A_86.d	QC	5/29/2021 9:46	RXJ,QQQ3;CCV	1
22104242914	2210528A_87a.d	Sample	5/29/2021 10:01	RXJ,QQQ3;712038	1
reagent blank	2210528A_88a.d	Sample	5/29/2021 10:16	RXJ,QQQ3;Instrument Idle/Instrument Blank	1
1400	2210528A_89.d	QC	5/29/2021 10:30	RXJ,QQQ3;CCV	1

ORGANICS INSTRUMENT SENSITIVITY CHECK

Report No:	<u>221050411</u>	Instrument ID:	<u>QQQ3</u>
Analysis Date:	<u>05/29/2021 00:58</u>	Lab File ID:	<u>2210528A_50.d</u>
Analytical Method:	<u>EPA 537 Mod Isotope Dilution</u>	Analytical Batch:	<u>712509</u>

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomersulfonic acid	ng/L	3.81	4.03	106 ✓	70	130	
8:2 Fluorotelomersulfonic acid	ng/L	3.84	4.05	105	70	130	
NEtFOSAA	ng/L	4.00	4.03	101	70	130	
NMeFOSAA	ng/L	4.00	3.64	91	70	130	
Perfluorobutanoic acid	ng/L	4.00	4.12	103	70	130	
Perfluorobutanesulfonic acid	ng/L	3.55	3.60	101	70	130	
Perfluorodecanoic acid	ng/L	4.00	3.97	99	70	130	
Perfluorododecanoic acid	ng/L	4.00	3.98	99	70	130	
Perfluoroheptanoic acid	ng/L	4.00	4.10	102	70	130	
Perfluorohexanoic acid	ng/L	4.00	4.13	103	70	130	
Perfluorohexanesulfonic acid	ng/L	3.66	3.76	103	70	130	
Perfluorononanoic acid	ng/L	4.00	4.04	101	70	130	
Perfluorooctanoic acid	ng/L	4.00	4.05	101	70	130	
Perfluorooctanesulfonic acid	ng/L	3.71	3.77	102	70	130	
Perfluoropentanoic acid	ng/L	4.00	4.08	102	70	130	
Perfluorotetradecanoic acid	ng/L	4.00	4.08	102	70	130	
Perfluorotridecanoic acid	ng/L	4.00	3.94	98	70	130	
Perfluoroundecanoic acid	ng/L	4.00	4.00	100	70	130	

ORGANICS INSTRUMENT BLANK

Report No:	<u>221050411</u>	Instrument ID:	<u>QQQ3</u>
Analysis Date:	<u>05/24/2021 21:41</u>	Lab File ID:	<u>2210524B_08.d</u>
Analytical Method:	<u>EPA 537 Mod Isotope Dilution</u>	Analytical Batch:	<u>712388</u>

ANALYTE	UNITS	RESULT	Q	DL	LOD	LOQ	#
6:2 Fluorotelomersulfonic acid	ng/L	2.00	U	0.94	2.00	4.00	
8:2 Fluorotelomersulfonic acid	ng/L	2.00	U	0.90	2.00	4.00	
NEtFOSAA	ng/L	4.00	U	0.97	4.00	8.00	
NMeFOSAA	ng/L	4.00	U	0.90	4.00	8.00	
Perfluorobutanesulfonic acid	ng/L	2.00	U	0.62	2.00	4.00	
Perfluorobutanoic acid	ng/L	2.00	U	0.90	2.00	4.00	
Perfluorodecanoic acid	ng/L	2.00	U	0.86	2.00	4.00	
Perfluorododecanoic acid	ng/L	2.00	U	0.88	2.00	4.00	
Perfluoroheptanoic acid	ng/L	2.00	U	0.48	2.00	4.00	
Perfluorohexanesulfonic acid	ng/L	2.00	U	0.95	2.00	4.00	
Perfluorohexanoic acid	ng/L	2.00	U	0.94	2.00	4.00	
Perfluorononanoic acid	ng/L	2.00	U	0.78	2.00	4.00	
Perfluorooctanesulfonic acid	ng/L	2.00	U	0.76	2.00	4.00	
Perfluorooctanoic acid	ng/L	2.00	U	0.84	2.00	4.00	
Perfluoropentanoic acid	ng/L	2.00	U	0.85	2.00	4.00	
Perfluorotetradecanoic acid	ng/L	2.00	U	0.98	2.00	4.00	
Perfluorotridecanoic acid	ng/L	2.00	U	0.99	2.00	4.00	
Perfluoroundecanoic acid	ng/L	2.00	U	0.95	2.00	4.00	

* - Result greater than 1/2 LOQ

ORGANICS INSTRUMENT BLANK

Report No:	<u>221050411</u>	Instrument ID:	<u>QQQ3</u>
Analysis Date:	<u>05/28/2021 11:08</u>	Lab File ID:	<u>2210528A_02.d</u>
Analytical Method:	<u>EPA 537 Mod Isotope Dilution</u>	Analytical Batch:	<u>712509</u>

ANALYTE	UNITS	RESULT	Q	DL	LOD	LOQ	#
6:2 Fluorotelomersulfonic acid	ng/L	2.00	U✓	0.94	2.00	4.00	
8:2 Fluorotelomersulfonic acid	ng/L	2.00	U	0.90	2.00	4.00	
NEtFOSAA	ng/L	4.00	U	0.97	4.00	8.00	
NMeFOSAA	ng/L	4.00	U	0.90	4.00	8.00	
Perfluorobutanesulfonic acid	ng/L	2.00	U	0.62	2.00	4.00	
Perfluorobutanoic acid	ng/L	2.00	U	0.90	2.00	4.00	
Perfluorodecanoic acid	ng/L	2.00	U	0.86	2.00	4.00	
Perfluorododecanoic acid	ng/L	2.00	U	0.88	2.00	4.00	
Perfluoroheptanoic acid	ng/L	2.00	U	0.48	2.00	4.00	
Perfluorohexanesulfonic acid	ng/L	2.00	U	0.95	2.00	4.00	
Perfluorohexanoic acid	ng/L	2.00	U	0.94	2.00	4.00	
Perfluorononanoic acid	ng/L	2.00	U	0.78	2.00	4.00	
Perfluorooctanesulfonic acid	ng/L	2.00	U	0.76	2.00	4.00	
Perfluorooctanoic acid	ng/L	2.00	U	0.84	2.00	4.00	
Perfluoropentanoic acid	ng/L	2.00	U	0.85	2.00	4.00	
Perfluorotetradecanoic acid	ng/L	2.00	U	0.98	2.00	4.00	
Perfluorotridecanoic acid	ng/L	2.00	U	0.99	2.00	4.00	
Perfluoroundecanoic acid	ng/L	2.00	U	0.95	2.00	4.00	

* - Result greater than 1/2 LOQ

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ORGANICS CALIBRATION VERIFICATION

Report No: <u>221050411</u>	Instrument ID: <u>QQQ3</u>
Analysis Date: <u>05/28/2021 13:43</u>	Lab File ID: <u>2210528A_11.d</u>
Analytical Method: <u>EPA 537 Mod Isotope Dilution</u>	Analytical Batch: <u>712509</u>

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomersulfonic acid	ng/L	9510	9740	102 ✓	70	130	
8:2 Fluorotelomersulfonic acid	ng/L	9600	10200	106	70	130	
NEtFOSAA	ng/L	10000	9910	99	70	130	
NMeFOSAA	ng/L	10000	9750	97	70	130	
Perfluorobutanoic acid	ng/L	10000	10200	102	70	130	
Perfluorobutanesulfonic acid	ng/L	8870	9110	103	70	130	
Perfluorodecanoic acid	ng/L	10000	10400	104	70	130	
Perfluorododecanoic acid	ng/L	10000	10400	104	70	130	
Perfluoroheptanoic acid	ng/L	10000	10200	102	70	130	
Perfluorohexanoic acid	ng/L	10000	10200	102	70	130	
Perfluorohexanesulfonic acid	ng/L	9140	9330	102	70	130	
Perfluorononanoic acid	ng/L	10000	10200	102	70	130	
Perfluorooctanoic acid	ng/L	10000	10100	101	70	130	
Perfluorooctanesulfonic acid	ng/L	9280	9100	98	70	130	
Perfluoropentanoic acid	ng/L	10000	10200	102	70	130	
Perfluorotetradecanoic acid	ng/L	10000	10100	101	70	130	
Perfluorotridecanoic acid	ng/L	10000	10200	102	70	130	
Perfluoroundecanoic acid	ng/L	10000	10400	104	70	130	

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ORGANICS CALIBRATION VERIFICATION

Report No: <u>221050411</u>	Instrument ID: <u>QQQ3</u>
Analysis Date: <u>05/28/2021 15:25</u>	Lab File ID: <u>2210528A_12.d</u>
Analytical Method: <u>EPA 537 Mod Isotope Dilution</u>	Analytical Batch: <u>712509</u>

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomersulfonic acid	ng/L	9510	9740	102 ✓	70	130	
8:2 Fluorotelomersulfonic acid	ng/L	9600	10000	105	70	130	
NEtFOSAA	ng/L	10000	10300	103	70	130	
NMeFOSAA	ng/L	10000	10100	101	70	130	
Perfluorobutanoic acid	ng/L	10000	10200	102	70	130	
Perfluorobutanesulfonic acid	ng/L	8870	9150	103	70	130	
Perfluorodecanoic acid	ng/L	10000	10400	104	70	130	
Perfluorododecanoic acid	ng/L	10000	10300	103	70	130	
Perfluoroheptanoic acid	ng/L	10000	10300	103	70	130	
Perfluorohexanoic acid	ng/L	10000	10200	102	70	130	
Perfluorohexanesulfonic acid	ng/L	9140	9340	102	70	130	
Perfluorononanoic acid	ng/L	10000	10300	103	70	130	
Perfluorooctanoic acid	ng/L	10000	10000	100	70	130	
Perfluorooctanesulfonic acid	ng/L	9280	9140	98	70	130	
Perfluoropentanoic acid	ng/L	10000	10200	102	70	130	
Perfluorotetradecanoic acid	ng/L	10000	10100	101	70	130	
Perfluorotridecanoic acid	ng/L	10000	10300	103	70	130	
Perfluoroundecanoic acid	ng/L	10000	10400	104	70	130	

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ORGANICS CALIBRATION VERIFICATION

Report No: <u>221050411</u>	Instrument ID: <u>QQQ3</u>
Analysis Date: <u>05/28/2021 18:47</u>	Lab File ID: <u>2210528A_25.d</u>
Analytical Method: <u>EPA 537 Mod Isotope Dilution</u>	Analytical Batch: <u>712509</u>

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomersulfonic acid	ng/L	9510	9900	104 ✓	70	130	
8:2 Fluorotelomersulfonic acid	ng/L	9600	10800	112	70	130	
NEtFOSAA	ng/L	10000	9700	97	70	130	
NMeFOSAA	ng/L	10000	10800	108	70	130	
Perfluorobutanoic acid	ng/L	10000	10200	102	70	130	
Perfluorobutanesulfonic acid	ng/L	8870	9190	104	70	130	
Perfluorodecanoic acid	ng/L	10000	10100	101	70	130	
Perfluorododecanoic acid	ng/L	10000	10300	103	70	130	
Perfluoroheptanoic acid	ng/L	10000	10200	102	70	130	
Perfluorohexanoic acid	ng/L	10000	10000	100	70	130	
Perfluorohexanesulfonic acid	ng/L	9140	9320	102	70	130	
Perfluorononanoic acid	ng/L	10000	10300	103	70	130	
Perfluorooctanoic acid	ng/L	10000	9900	99	70	130	
Perfluorooctanesulfonic acid	ng/L	9280	9230	100	70	130	
Perfluoropentanoic acid	ng/L	10000	10300	103	70	130	
Perfluorotetradecanoic acid	ng/L	10000	10100	101	70	130	
Perfluorotridecanoic acid	ng/L	10000	10200	102	70	130	
Perfluoroundecanoic acid	ng/L	10000	10400	104	70	130	

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ORGANICS CALIBRATION VERIFICATION

Report No: <u>221050411</u>	Instrument ID: <u>QQQ3</u>
Analysis Date: <u>05/28/2021 21:19</u>	Lab File ID: <u>2210528A_35.d</u>
Analytical Method: <u>EPA 537 Mod Isotope Dilution</u>	Analytical Batch: <u>712509</u>

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomersulfonic acid	ng/L	9510	10200	107 ✓	70	130	
8:2 Fluorotelomersulfonic acid	ng/L	9600	10100	105	70	130	
NEtFOSAA	ng/L	10000	10200	102	70	130	
NMeFOSAA	ng/L	10000	9840	98	70	130	
Perfluorobutanoic acid	ng/L	10000	10200	102	70	130	
Perfluorobutanesulfonic acid	ng/L	8870	9110	103	70	130	
Perfluorodecanoic acid	ng/L	10000	10200	102	70	130	
Perfluorododecanoic acid	ng/L	10000	10500	105	70	130	
Perfluoroheptanoic acid	ng/L	10000	10200	102	70	130	
Perfluorohexanoic acid	ng/L	10000	9950	100	70	130	
Perfluorohexanesulfonic acid	ng/L	9140	8990	98	70	130	
Perfluorononanoic acid	ng/L	10000	10200	102	70	130	
Perfluorooctanoic acid	ng/L	10000	9950	99	70	130	
Perfluorooctanesulfonic acid	ng/L	9280	9120	98	70	130	
Perfluoropentanoic acid	ng/L	10000	10300	103	70	130	
Perfluorotetradecanoic acid	ng/L	10000	10000	100	70	130	
Perfluorotridecanoic acid	ng/L	10000	10400	104	70	130	
Perfluoroundecanoic acid	ng/L	10000	10400	104	70	130	

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ORGANICS CALIBRATION VERIFICATION

Report No: <u>221050411</u>	Instrument ID: <u>QQQ3</u>
Analysis Date: <u>05/29/2021 03:40</u>	Lab File ID: <u>2210528A_61.d</u>
Analytical Method: <u>EPA 537 Mod Isotope Dilution</u>	Analytical Batch: <u>712509</u>

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomersulfonic acid	ng/L	9510	9980	105 ✓	70	130	
8:2 Fluorotelomersulfonic acid	ng/L	9600	10100	105	70	130	
NEtFOSAA	ng/L	10000	10100	101	70	130	
NMeFOSAA	ng/L	10000	10400	104	70	130	
Perfluorobutanoic acid	ng/L	10000	10200	102	70	130	
Perfluorobutanesulfonic acid	ng/L	8870	9090	103	70	130	
Perfluorodecanoic acid	ng/L	10000	10100	101	70	130	
Perfluorododecanoic acid	ng/L	10000	10200	102	70	130	
Perfluoroheptanoic acid	ng/L	10000	10100	101	70	130	
Perfluorohexanoic acid	ng/L	10000	9990	100	70	130	
Perfluorohexanesulfonic acid	ng/L	9140	9110	100	70	130	
Perfluorononanoic acid	ng/L	10000	10200	102	70	130	
Perfluorooctanoic acid	ng/L	10000	10200	102	70	130	
Perfluorooctanesulfonic acid	ng/L	9280	9230	99	70	130	
Perfluoropentanoic acid	ng/L	10000	10300	103	70	130	
Perfluorotetradecanoic acid	ng/L	10000	10300	103	70	130	
Perfluorotridecanoic acid	ng/L	10000	10100	101	70	130	
Perfluoroundecanoic acid	ng/L	10000	10200	102	70	130	

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ORGANICS CALIBRATION VERIFICATION

Report No: <u>221050411</u>	Instrument ID: <u>QQQ3</u>
Analysis Date: <u>05/29/2021 07:05</u>	Lab File ID: <u>2210528A_75.d</u>
Analytical Method: <u>EPA 537 Mod Isotope Dilution</u>	Analytical Batch: <u>712509</u>

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomersulfonic acid	ng/L	9510	9990	105 ✓	70	130	
8:2 Fluorotelomersulfonic acid	ng/L	9600	9800	102	70	130	
NEtFOSAA	ng/L	10000	9710	97	70	130	
NMeFOSAA	ng/L	10000	9890	99	70	130	
Perfluorobutanoic acid	ng/L	10000	10200	102	70	130	
Perfluorobutanesulfonic acid	ng/L	8870	9130	103	70	130	
Perfluorodecanoic acid	ng/L	10000	10300	103	70	130	
Perfluorododecanoic acid	ng/L	10000	10200	102	70	130	
Perfluoroheptanoic acid	ng/L	10000	10200	102	70	130	
Perfluorohexanoic acid	ng/L	10000	10000	100	70	130	
Perfluorohexanesulfonic acid	ng/L	9140	9300	102	70	130	
Perfluorononanoic acid	ng/L	10000	10200	102	70	130	
Perfluorooctanoic acid	ng/L	10000	9960	100	70	130	
Perfluorooctanesulfonic acid	ng/L	9280	8920	96	70	130	
Perfluoropentanoic acid	ng/L	10000	10300	103	70	130	
Perfluorotetradecanoic acid	ng/L	10000	10200	102	70	130	
Perfluorotridecanoic acid	ng/L	10000	10100	101	70	130	
Perfluoroundecanoic acid	ng/L	10000	10200	102	70	130	

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ORGANICS CALIBRATION VERIFICATION

Report No:	221050411	Instrument ID:	QQQ3
Analysis Date:	05/29/2021 09:46	Lab File ID:	2210528A_86.d
Analytical Method:	EPA 537 Mod Isotope Dilution	Analytical Batch:	712509

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomersulfonic acid	ng/L	9510	9820	103 ✓	70	130	
8:2 Fluorotelomersulfonic acid	ng/L	9600	10300	108	70	130	
NEtFOSAA	ng/L	10000	9980	100	70	130	
NMeFOSAA	ng/L	10000	9760	98	70	130	
Perfluorobutanoic acid	ng/L	10000	10200	102	70	130	
Perfluorobutanesulfonic acid	ng/L	8870	9170	103	70	130	
Perfluorodecanoic acid	ng/L	10000	10100	101	70	130	
Perfluorododecanoic acid	ng/L	10000	10100	101	70	130	
Perfluoroheptanoic acid	ng/L	10000	10300	103	70	130	
Perfluorohexanoic acid	ng/L	10000	10100	101	70	130	
Perfluorohexanesulfonic acid	ng/L	9140	9260	101	70	130	
Perfluorononanoic acid	ng/L	10000	10300	103	70	130	
Perfluorooctanoic acid	ng/L	10000	10100	101	70	130	
Perfluorooctanesulfonic acid	ng/L	9280	9120	98	70	130	
Perfluoropentanoic acid	ng/L	10000	10300	103	70	130	
Perfluorotetradecanoic acid	ng/L	10000	10200	102	70	130	
Perfluorotridecanoic acid	ng/L	10000	10200	102	70	130	
Perfluoroundecanoic acid	ng/L	10000	10400	104	70	130	

FORM 7E - ORG

INJECTION INTERNAL STANDARD AREA SUMMARY

Report No:	<u>221050411</u>	Standard ID:	<u>1205 (ICAL Midpoint)</u>
Analyst:	<u>RXJ</u>	Instrument ID:	<u>QQQ3</u>
Analysis Date:	<u>05/24/21 20:50</u>	Lab File ID:	<u>2210524B_05.d</u>
Analytical Method:	<u>PFAS Isotope Dilution QSM B15</u>	Analytical Batch:	<u>712388</u>

	M2PFDA	M2PFHxA	M2PFOA	M4PFOS
	Area	Area	Area	Area
STANDARD	254121	348110	189779	41439

CLIENT SAMPLE ID	LAB SAMP ID	✓	#	✓	#	✓	#	✓	#
AOI01-03-GWDL	22105041140DL	229308		341592		191232		38177	
AOI01-09-GWRE	22105041147RE	200304		295830		158128		32637	

AREA UPPER LIMIT = +50% of internal standard area
 AREA LOWER LIMIT = -50% of internal standard area

Column used to flag values outside QC limits
 * Value outside QC limits

INJECTION INTERNAL STANDARD AREA SUMMARY

Report No:	<u>221050411</u>	Standard ID:	<u>1450 (ISC)</u>
Analyst:	<u>RXJ</u>	Instrument ID:	<u>QQQ3</u>
Analysis Date:	<u>05/28/21 11:23</u>	Lab File ID:	<u>2210528A_03.d</u>
Analytical Method:	<u>PFAS Isotope Dilution QSM B15</u>	Analytical Batch:	<u>712509</u>

	M2PFDA	M2PFHxA	M2PFOA	M4PFOS
	Area	Area	Area	Area
STANDARD	232263	300821	169059	38425

CLIENT SAMPLE ID	LAB SAMP ID	✓	#	✓	#	✓	#	✓	#
MB2191137	2191137	215286		325621		182474		35413	
LCS2191138	2191138	210270		320047		179239		34807	
AOI01-08-SB-00-02 (RE)	22105041158	253578		351298		203174		36544	
AOI01-08-SB-00-02 MS(RE)	22105041159	261581		370650		215919		38191	
AOI01-08-SB-00-02 MSD(RE)	22105041160	247430		346437		202949		35932	

AREA UPPER LIMIT = +50% of internal standard area
 AREA LOWER LIMIT = -50% of internal standard area

Column used to flag values outside QC limits
 * Value outside QC limits

Instrument: QQQ1 HBN: 711275
 Batch: 2210515A
 Current ICAL Bath: 2210515ACAL
 20mM Amm Acetate 016-74-1 5/17/2021
 Methanol 2130330 2/1/2026
 Calibration Std 016-71-5 11/12/2021
 ICV Std 016-21-3 8/2/2021
 EIS Mix 016-73-5 10/23/2021
 IIS Mix 016-73-7 11/14/2021

Name	Data File	Type	Acq. Date-Time	Comment	Dil.
MeOH Shot	2210515A_01.d	Blank	5/15/2021 8:33	MRA, MeOH SHOT/INSTRUMENT IDLE	1
1201	2210515A_02.d	Cal	5/15/2021 8:51	MRA, QQQ1; Cal	1
1202	2210515A_03.d	Cal	5/15/2021 9:08	MRA, QQQ1; Cal	1
1203	2210515A_04.d	Cal	5/15/2021 9:25	MRA, QQQ1; Cal	1
1204	2210515A_05.d	Cal	5/15/2021 9:42	MRA, QQQ1; Cal	1
1205	2210515A_06.d	Cal	5/15/2021 10:00	MRA, QQQ1; Cal	1
1206	2210515A_07.d	Cal	5/15/2021 10:17	MRA, QQQ1; Cal	1
MeOH Shot	2210515A_08.d	Blank	5/15/2021 10:45	MRA, MeOH SHOT/INSTRUMENT IDLE	1
1500	2210515A_09.d	Sample	5/15/2021 11:02	MRA, QQQ1	1
1600	2210515A_10.d	Sample	5/15/2021 11:20	MRA, QQQ1	1
1450	2210515A_11.d	QC	5/15/2021 11:37	MRA, QQQ1	1
1450	2210515A_12.d	QC	5/15/2021 11:54	MRA, QQQ1	1
MeOH Shot	2210515A_13.d	Blank	5/15/2021 12:53	MRA, MeOH SHOT/INSTRUMENT IDLE	1
1500	2210515A_14.d	Sample	5/15/2021 13:10	MRA, QQQ1	1
1450	2210515A_15.d	QC	5/15/2021 13:27	MRA, QQQ1	1
1450	2210515A_16.d	QC	5/15/2021 13:44	MRA, QQQ1	1
MeOH Shot	2210515A_17.d	Blank	5/15/2021 14:11	MRA, MeOH SHOT/INSTRUMENT IDLE	1
2184338	2210515A_18.d	Sample	5/15/2021 14:28	MRA, QQQ1; 710837	1
2184339	2210515A_19.d	QC	5/15/2021 14:45	MRA, QQQ1; 710837	1
22104274623	2210515A_20.d	Sample	5/15/2021 15:02	MRA, QQQ1; 710837	1
22104274604	2210515A_21.d	Sample	5/15/2021 15:20	MRA, QQQ1; 710837	1
22105041105	2210515A_22.d	Sample	5/15/2021 15:37	MRA, QQQ1; 710837	1
22105041106	2210515A_23.d	Sample	5/15/2021 15:54	MRA, QQQ1; 710837	1

22105041107	2210515A_24.d	Sample	5/15/2021 16:11	MRA,QQQ1;710837	1
22105041108	2210515A_25.d	Sample	5/15/2021 16:29	MRA,QQQ1;710837	1
22105041109	2210515A_26.d	Sample	5/15/2021 16:46	MRA,QQQ1;710837	1
22105041111	2210515A_27.d	Sample	5/15/2021 17:03	MRA,QQQ1;710837	1
22105041113	2210515A_28.d	Sample	5/15/2021 17:21	MRA,QQQ1;710837	1
22105041114	2210515A_29.d	Sample	5/15/2021 17:38	MRA,QQQ1;710837	1
1400	2210515A_30.d	QC	5/15/2021 17:55	MRA,QQQ1;CCV	1
22105041116	2210515A_31.d	Sample	5/15/2021 18:13	MRA,QQQ1;710837	1
22105041117	2210515A_32.d	Sample	5/15/2021 18:30	MRA,QQQ1;710837	1
22105041118	2210515A_33.d	Sample	5/15/2021 18:47	MRA,QQQ1;710837	1
22105041119	2210515A_34.d	Sample	5/15/2021 19:05	MRA,QQQ1;710837	1
22105041120	2210515A_35.d	Sample	5/15/2021 19:22	MRA,QQQ1;710837	1
22105041121	2210515A_36.d	Sample	5/15/2021 19:39	MRA,QQQ1;710837	1
22105041122	2210515A_37.d	Sample	5/15/2021 19:57	MRA,QQQ1;710837	1
22105041123 10x	2210515A_38.d	QC	5/15/2021 20:14	MRA,QQQ1;710837	10
22105041124 10x	2210515A_39.d	QC	5/15/2021 20:31	MRA,QQQ1;710837	10
22105041125	2210515A_40.d	Sample	5/15/2021 20:49	MRA,QQQ1;710837	1
1400	2210515A_41.d	QC	5/15/2021 21:06	MRA,QQQ1;CCV	1
22105041126	2210515A_42.d	Sample	5/15/2021 21:23	MRA,QQQ1;710837	1
22105041131	2210515A_43.d	Sample	5/15/2021 21:40	MRA,QQQ1;710837	1
22105041132	2210515A_44.d	Sample	5/15/2021 21:58	MRA,QQQ1;710837	1
2185474	2210515A_45.d	Sample	5/15/2021 22:15	MRA,QQQ1;711034	1
2185475	2210515A_46.d	QC	5/15/2021 22:32	MRA,QQQ1;711034	1
22104280201	2210515A_47.d	Sample	5/15/2021 22:50	MRA,QQQ1;711034	1
22104280202	2210515A_48.d	Sample	5/15/2021 23:07	MRA,QQQ1;711034	1
22104280204	2210515A_49.d	Sample	5/15/2021 23:24	MRA,QQQ1;711034	1
22104280207	2210515A_50.d	Sample	5/15/2021 23:42	MRA,QQQ1;711034	1
22105055701	2210515A_51.d	Sample	5/15/2021 23:59	MRA,QQQ1;711034	1
22105055702	2210515A_52.d	Sample	5/16/2021 0:16	MRA,QQQ1;711034	1
22105055703	2210515A_53.d	Sample	5/16/2021 0:34	MRA,QQQ1;711034	1
1400	2210515A_54.d	QC	5/16/2021 0:51	MRA,QQQ1;CCV	1
22105010901	2210515A_55.d	Sample	5/16/2021 1:08	MRA,QQQ1;711034	1
2185479	2210515A_56.d	QC	5/16/2021 1:26	MRA,QQQ1;711034	1
2185480	2210515A_57.d	QC	5/16/2021 1:43	MRA,QQQ1;711034	1

22105010902	2210515A_58.d	Sample	5/16/2021 2:00	MRA,QQQ1;711034	1
22105010903	2210515A_59.d	Sample	5/16/2021 2:18	MRA,QQQ1;711034	1
22105010904	2210515A_60.d	Sample	5/16/2021 2:35	MRA,QQQ1;711034	1
22105010905	2210515A_61.d	Sample	5/16/2021 2:52	MRA,QQQ1;711034	1
22105010906	2210515A_62.d	Sample	5/16/2021 3:10	MRA,QQQ1;711034	1
22105010907	2210515A_63.d	Sample	5/16/2021 3:27	MRA,QQQ1;711034	1
22105010908	2210515A_64.d	Sample	5/16/2021 3:44	MRA,QQQ1;711034	1
22105010909	2210515A_65.d	Sample	5/16/2021 4:02	MRA,QQQ1;711034	1
22105010910	2210515A_66.d	Sample	5/16/2021 4:19	MRA,QQQ1;711034	1
1450	2210515A_67.d	QC	5/16/2021 4:36	MRA,QQQ1;CCV	1
1450	2210515A_68.d	QC	5/16/2021 4:54	MRA,QQQ1;CCV	1
22105010911	2210515A_69.d	Sample	5/16/2021 5:11	MRA,QQQ1;711034	1
22105010912	2210515A_70.d	Sample	5/16/2021 5:28	MRA,QQQ1;711034	1
2184340	2210515A_71.d	Sample	5/16/2021 5:45	MRA,QQQ1;710838	1
2184341	2210515A_72.d	QC	5/16/2021 6:03	MRA,QQQ1;710838	1
22105041135	2210515A_73.d	Sample	5/16/2021 6:20	MRA,QQQ1;710838	1
22105041136	2210515A_74.d	QC	5/16/2021 6:38	MRA,QQQ1;710838	1
22105041137	2210515A_75.d	QC	5/16/2021 6:55	MRA,QQQ1;710838	1
22105011201	2210515A_76.d	Sample	5/16/2021 7:12	MRA,QQQ1;710838	1
22105011202	2210515A_77.d	Sample	5/16/2021 7:30	MRA,QQQ1;710838	1
22105011203	2210515A_78.d	Sample	5/16/2021 7:47	MRA,QQQ1;710838	1
22105011204	2210515A_79.d	QC	5/16/2021 8:04	MRA,QQQ1;710838	1
22105011205	2210515A_80.d	QC	5/16/2021 8:22	MRA,QQQ1;710838	1
1400	2210515A_81.d	QC	5/16/2021 8:39	MRA,QQQ1;CCV	1
22105011206	2210515A_82.d	Sample	5/16/2021 8:56	MRA,QQQ1;710838	1
22105011207	2210515A_83.d	Sample	5/16/2021 9:14	MRA,QQQ1;710838	1
22105011208	2210515A_84.d	Sample	5/16/2021 9:31	MRA,QQQ1;710838	1
22105011209	2210515A_85.d	Sample	5/16/2021 9:48	MRA,QQQ1;710838	1
22105011210	2210515A_86.d	Sample	5/16/2021 10:05	MRA,QQQ1;710838	1
22105011211	2210515A_87.d	Sample	5/16/2021 10:23	MRA,QQQ1;710838	1
1400	2210515A_88.d	QC	5/16/2021 10:40	MRA,QQQ1;CCV	1
22105011212	2210515A_89.d	Sample	5/16/2021 10:57	MRA,QQQ1;710838	1

ORGANICS INITIAL CALIBRATION VERIFICATION

Report No:	<u>221050411</u>	Instrument ID:	<u>QQQ1</u>
Analysis Date:	<u>05/15/2021 11:20</u>	Lab File ID:	<u>2210515A_10.d</u>
Analytical Method:	<u>EPA 537 Mod Isotope Dilution</u>	Analytical Batch:	<u>711275</u>

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomersulfonic acid	ng/L	10000	9970	100 ✓	70	130	
8:2 Fluorotelomersulfonic acid	ng/L	10100	11000	109	70	130	
NEtFOSAA	ng/L	10000	11000	110	70	130	
NMeFOSAA	ng/L	10000	9900	99	70	130	
Perfluorobutanoic acid	ng/L	10000	9740	97	70	130	
Perfluorobutanesulfonic acid	ng/L	10000	9870	99	70	130	
Perfluorodecanoic acid	ng/L	10000	11000	110	70	130	
Perfluorododecanoic acid	ng/L	10000	10300	103	70	130	
Perfluoroheptanoic acid	ng/L	10000	10200	102	70	130	
Perfluorohexanoic acid	ng/L	10100	9520	94	70	130	
Perfluorohexanesulfonic acid	ng/L	10000	10800	108	70	130	
Perfluorononanoic acid	ng/L	10000	12000	120	70	130	
Perfluorooctanoic acid	ng/L	10100	9770	97	70	130	
Perfluorooctanesulfonic acid	ng/L	10000	9060	91	70	130	
Perfluoropentanoic acid	ng/L	10100	9690	96	70	130	
Perfluorotetradecanoic acid	ng/L	10000	11800	118	70	130	
Perfluorotridecanoic acid	ng/L	10000	8890	89	70	130	
Perfluoroundecanoic acid	ng/L	10000	10600	106	70	130	

7S
ORGANICS INSTRUMENT SENSITIVITY CHECK

Report No:	221050411	Instrument ID:	QQQ1
Analysis Date:	05/15/2021 11:54	Lab File ID:	2210515A_12.d
Analytical Method:	EPA 537 Mod Isotope Dilution	Analytical Batch:	711275

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomersulfonic acid	ng/L	3.81	3.82	100 ✓	70	130	
8:2 Fluorotelomersulfonic acid	ng/L	3.84	3.50	91	70	130	
NEtFOSAA	ng/L	4.00	4.65	116	70	130	
NMeFOSAA	ng/L	4.00	3.93	98	70	130	
Perfluorobutanoic acid	ng/L	4.00	4.09	102	70	130	
Perfluorobutanesulfonic acid	ng/L	3.55	3.55	100	70	130	
Perfluorodecanoic acid	ng/L	4.00	3.82	96	70	130	
Perfluorododecanoic acid	ng/L	4.00	4.17	104	70	130	
Perfluoroheptanoic acid	ng/L	4.00	4.04	101	70	130	
Perfluorohexanoic acid	ng/L	4.00	4.04	101	70	130	
Perfluorohexanesulfonic acid	ng/L	3.66	3.47	95	70	130	
Perfluorononanoic acid	ng/L	4.00	4.31	108	70	130	
Perfluorooctanoic acid	ng/L	4.00	4.26	106	70	130	
Perfluorooctanesulfonic acid	ng/L	3.71	4.43	119	70	130	
Perfluoropentanoic acid	ng/L	4.00	4.10	102	70	130	
Perfluorotetradecanoic acid	ng/L	4.00	4.19	105	70	130	
Perfluorotridecanoic acid	ng/L	4.00	3.93	98	70	130	
Perfluoroundecanoic acid	ng/L	4.00	3.66	92	70	130	

FORM 7S - ORG

ORGANICS INSTRUMENT SENSITIVITY CHECK

Report No:	<u>221050411</u>	Instrument ID:	<u>QQQ1</u>
Analysis Date:	<u>05/15/2021 13:27</u>	Lab File ID:	<u>2210515A_15.d</u>
Analytical Method:	<u>EPA 537 Mod Isotope Dilution</u>	Analytical Batch:	<u>711275</u>

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomersulfonic acid	ng/L	9.52	9.36	99 ✓	70	130	
8:2 Fluorotelomersulfonic acid	ng/L	9.60	8.80	92	70	130	
NEtFOSAA	ng/L	10.0	11.9	119	70	130	
NMeFOSAA	ng/L	10.0	9.36	93	70	130	
Perfluorobutanoic acid	ng/L	10.0	9.60	96	70	130	
Perfluorobutanesulfonic acid	ng/L	8.88	8.80	99	70	130	
Perfluorodecanoic acid	ng/L	10.0	9.68	97	70	130	
Perfluorododecanoic acid	ng/L	10.0	9.12	91	70	130	
Perfluoroheptanoic acid	ng/L	10.0	9.44	94	70	130	
Perfluorohexanoic acid	ng/L	10.0	9.20	92	70	130	
Perfluorohexanesulfonic acid	ng/L	9.12	8.96	98	70	130	
Perfluorononanoic acid	ng/L	10.0	10.5	105	70	130	
Perfluorooctanoic acid	ng/L	10.0	9.12	91	70	130	
Perfluorooctanesulfonic acid	ng/L	9.28	9.84	106	70	130	
Perfluoropentanoic acid	ng/L	10.0	9.76	98	70	130	
Perfluorotetradecanoic acid	ng/L	10.0	9.76	98	70	130	
Perfluorotridecanoic acid	ng/L	10.0	9.84	99	70	130	
Perfluoroundecanoic acid	ng/L	10.0	8.88	89	70	130	

7S
ORGANICS INSTRUMENT SENSITIVITY CHECK

Report No:	221050411	Instrument ID:	QQQ1
Analysis Date:	05/16/2021 04:54	Lab File ID:	2210515A_68.d
Analytical Method:	EPA 537 Mod Isotope Dilution	Analytical Batch:	711275

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomersulfonic acid	ng/L	3.81	3.61	95	70	130	
8:2 Fluorotelomersulfonic acid	ng/L	3.84	3.78	99	70	130	
NEtFOSAA	ng/L	4.00	5.74	143	70	130	*
NMeFOSAA	ng/L	4.00	3.88	97	70	130	
Perfluorobutanoic acid	ng/L	4.00	4.08	102	70	130	
Perfluorobutanesulfonic acid	ng/L	3.55	3.73	105	70	130	
Perfluorodecanoic acid	ng/L	4.00	3.56	89	70	130	
Perfluorododecanoic acid	ng/L	4.00	3.79	95	70	130	
Perfluoroheptanoic acid	ng/L	4.00	3.90	97	70	130	
Perfluorohexanoic acid	ng/L	4.00	4.26	107	70	130	
Perfluorohexanesulfonic acid	ng/L	3.66	4.02	110	70	130	
Perfluorononanoic acid	ng/L	4.00	4.01	100	70	130	
Perfluorooctanoic acid	ng/L	4.00	4.08	102	70	130	
Perfluorooctanesulfonic acid	ng/L	3.71	4.79	129	70	130	
Perfluoropentanoic acid	ng/L	4.00	3.94	98	70	130	
Perfluorotetradecanoic acid	ng/L	4.00	4.02	101	70	130	
Perfluorotridecanoic acid	ng/L	4.00	4.02	101	70	130	
Perfluoroundecanoic acid	ng/L	4.00	3.78	94	70	130	

FORM 7S - ORG

ORGANICS INSTRUMENT BLANK

Report No:	221050411	Instrument ID:	QQQ1
Analysis Date:	05/15/2021 13:10	Lab File ID:	2210515A_14.d
Analytical Method:	EPA 537 Mod Isotope Dilution	Analytical Batch:	711275

ANALYTE	UNITS	RESULT	Q	DL	LOD	LOQ	#
6:2 Fluorotelomersulfonic acid	ng/L	2.00	U✓	0.94	2.00	4.00	
8:2 Fluorotelomersulfonic acid	ng/L	2.00	U	0.90	2.00	4.00	
NEtFOSAA	ng/L	4.00	U	0.97	4.00	8.00	
NMeFOSAA	ng/L	4.00	U	0.90	4.00	8.00	
Perfluorobutanesulfonic acid	ng/L	2.00	U	0.62	2.00	4.00	
Perfluorobutanoic acid	ng/L	2.00	U	0.90	2.00	4.00	
Perfluorodecanoic acid	ng/L	2.00	U	0.86	2.00	4.00	
Perfluorododecanoic acid	ng/L	2.00	U	0.88	2.00	4.00	
Perfluoroheptanoic acid	ng/L	2.00	U	0.48	2.00	4.00	
Perfluorohexanesulfonic acid	ng/L	2.00	U	0.95	2.00	4.00	
Perfluorohexanoic acid	ng/L	2.00	U	0.94	2.00	4.00	
Perfluorononanoic acid	ng/L	2.00	U	0.78	2.00	4.00	
Perfluorooctanesulfonic acid	ng/L	2.00	U	0.76	2.00	4.00	
Perfluorooctanoic acid	ng/L	2.00	U	0.84	2.00	4.00	
Perfluoropentanoic acid	ng/L	2.00	U	0.85	2.00	4.00	
Perfluorotetradecanoic acid	ng/L	2.00	U	0.98	2.00	4.00	
Perfluorotridecanoic acid	ng/L	2.00	U	0.99	2.00	4.00	
Perfluoroundecanoic acid	ng/L	2.00	U	0.95	2.00	4.00	

* - Result greater than 1/2 LOQ

7E
ORGANICS CALIBRATION VERIFICATION

Report No:	221050411	Instrument ID:	QQQ1
Analysis Date:	05/16/2021 00:51	Lab File ID:	2210515A_54.d
Analytical Method:	EPA 537 Mod Isotope Dilution	Analytical Batch:	711275

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomersulfonic acid	ng/L	9510	8750	92 ✓	70	130	
8:2 Fluorotelomersulfonic acid	ng/L	9600	8320	87	70	130	
NEtFOSAA	ng/L	10000	12600	126	70	130	
NMeFOSAA	ng/L	10000	9820	98	70	130	
Perfluorobutanoic acid	ng/L	10000	9550	95	70	130	
Perfluorobutanesulfonic acid	ng/L	8870	8450	95	70	130	
Perfluorodecanoic acid	ng/L	10000	9730	97	70	130	
Perfluorododecanoic acid	ng/L	10000	10200	102	70	130	
Perfluoroheptanoic acid	ng/L	10000	9610	96	70	130	
Perfluorohexanoic acid	ng/L	10000	9710	97	70	130	
Perfluorohexanesulfonic acid	ng/L	9140	9270	101	70	130	
Perfluorononanoic acid	ng/L	10000	10300	103	70	130	
Perfluorooctanoic acid	ng/L	10000	9840	98	70	130	
Perfluorooctanesulfonic acid	ng/L	9280	7730	83	70	130	
Perfluoropentanoic acid	ng/L	10000	9540	95	70	130	
Perfluorotetradecanoic acid	ng/L	10000	9090	91	70	130	
Perfluorotridecanoic acid	ng/L	10000	9790	98	70	130	
Perfluoroundecanoic acid	ng/L	10000	10000	100	70	130	

FORM 7E - ORG

7E
ORGANICS CALIBRATION VERIFICATION

Report No:	221050411	Instrument ID:	QQQ1
Analysis Date:	05/16/2021 08:39	Lab File ID:	2210515A_81.d
Analytical Method:	EPA 537 Mod Isotope Dilution	Analytical Batch:	711275

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomersulfonic acid	ng/L	9510	9000	95 ✓	70	130	
8:2 Fluorotelomersulfonic acid	ng/L	9600	7860	82	70	130	
NEtFOSAA	ng/L	10000	11600	116	70	130	
NMeFOSAA	ng/L	10000	9480	95	70	130	
Perfluorobutanoic acid	ng/L	10000	9480	95	70	130	
Perfluorobutanesulfonic acid	ng/L	8870	8650	97	70	130	
Perfluorodecanoic acid	ng/L	10000	9890	99	70	130	
Perfluorododecanoic acid	ng/L	10000	10100	101	70	130	
Perfluoroheptanoic acid	ng/L	10000	9680	97	70	130	
Perfluorohexanoic acid	ng/L	10000	10000	100	70	130	
Perfluorohexanesulfonic acid	ng/L	9140	9750	107	70	130	
Perfluorononanoic acid	ng/L	10000	10300	103	70	130	
Perfluorooctanoic acid	ng/L	10000	9710	97	70	130	
Perfluorooctanesulfonic acid	ng/L	9280	8320	90	70	130	
Perfluoropentanoic acid	ng/L	10000	9450	94	70	130	
Perfluorotetradecanoic acid	ng/L	10000	9720	97	70	130	
Perfluorotridecanoic acid	ng/L	10000	9300	93	70	130	
Perfluoroundecanoic acid	ng/L	10000	10200	102	70	130	

FORM 7E - ORG

7E
ORGANICS CALIBRATION VERIFICATION

Report No:	221050411	Instrument ID:	QQQ1
Analysis Date:	05/16/2021 10:40	Lab File ID:	2210515A_88.d
Analytical Method:	EPA 537 Mod Isotope Dilution	Analytical Batch:	711275

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomersulfonic acid	ng/L	9510	8950	94	70	130	
8:2 Fluorotelomersulfonic acid	ng/L	9600	7640	80	70	130	
NEtFOSAA	ng/L	10000	12200	122	70	130	
NMeFOSAA	ng/L	10000	9950	100	70	130	
Perfluorobutanoic acid	ng/L	10000	9320	93	70	130	
Perfluorobutanesulfonic acid	ng/L	8870	8570	97	70	130	
Perfluorodecanoic acid	ng/L	10000	9270	93	70	130	
Perfluorododecanoic acid	ng/L	10000	10100	101	70	130	
Perfluoroheptanoic acid	ng/L	10000	9790	98	70	130	
Perfluorohexanoic acid	ng/L	10000	10000	100	70	130	
Perfluorohexanesulfonic acid	ng/L	9140	9460	104	70	130	
Perfluorononanoic acid	ng/L	10000	10200	102	70	130	
Perfluorooctanoic acid	ng/L	10000	9670	97	70	130	
Perfluorooctanesulfonic acid	ng/L	9280	9440	102	70	130	
Perfluoropentanoic acid	ng/L	10000	9480	95	70	130	
Perfluorotetradecanoic acid	ng/L	10000	9610	96	70	130	
Perfluorotridecanoic acid	ng/L	10000	9240	92	70	130	
Perfluoroundecanoic acid	ng/L	10000	10000	100	70	130	

FORM 7E - ORG

7E
ORGANICS CALIBRATION VERIFICATION

Report No:	221050411	Instrument ID:	QQQ3
Analysis Date:	05/15/2021 14:34	Lab File ID:	2210515A_16.d
Analytical Method:	EPA 537 Mod Isotope Dilution	Analytical Batch:	711273

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomersulfonic acid	ng/L	9510	8790	92 ✓	70	130	
8:2 Fluorotelomersulfonic acid	ng/L	9600	9360	97	70	130	
NEtFOSAA	ng/L	10000	9500	95	70	130	
NMeFOSAA	ng/L	10000	9350	93	70	130	
Perfluorobutanoic acid	ng/L	10000	9340	93	70	130	
Perfluorobutanesulfonic acid	ng/L	8870	8330	94	70	130	
Perfluorodecanoic acid	ng/L	10000	9610	96	70	130	
Perfluorododecanoic acid	ng/L	10000	9690	97	70	130	
Perfluoroheptanoic acid	ng/L	10000	9570	96	70	130	
Perfluorohexanoic acid	ng/L	10000	9440	94	70	130	
Perfluorohexanesulfonic acid	ng/L	9140	8810	96	70	130	
Perfluorononanoic acid	ng/L	10000	9520	95	70	130	
Perfluorooctanoic acid	ng/L	10000	9470	95	70	130	
Perfluorooctanesulfonic acid	ng/L	9280	8510	92	70	130	
Perfluoropentanoic acid	ng/L	10000	9590	96	70	130	
Perfluorotetradecanoic acid	ng/L	10000	9700	97	70	130	
Perfluorotridecanoic acid	ng/L	10000	9660	97	70	130	
Perfluoroundecanoic acid	ng/L	10000	9520	95	70	130	

FORM 7E - ORG

INJECTION INTERNAL STANDARD AREA SUMMARY

Report No:	221050411	Standard ID:	1205 (ICAL Midpoint)
Analyst:	MRA	Instrument ID:	QQQ1
Analysis Date:	05/15/21 10:00	Lab File ID:	2210515A_06.d
Analytical Method:	PFAS Isotope Dilution QSM B15	Analytical Batch:	711275

	M2PFDA	M2PFHxA	M2PFOA	M4PFOS
	Area	Area	Area	Area
STANDARD	356820	654861	277084	42686

CLIENT SAMPLE ID	LAB SAMP ID	✓	#	✓	#	✓	#	#
MB2184338	2184338	291573		505095		227638		23741
LCS2184339	2184339	284742		512677		230552		27738
MB2184340	2184340	308084		567562		251326		26144
LCS2184341	2184341	291373		558003		243465		24735
AOI01-03-SB-00-02	22105041105	298642		512145		246004		25933
AOI01-03-SB-03-05	22105041106	301717		522229		240144		27775
AOI01-03-SB-05-07	22105041107	287138		505575		236513		22626
AOI01-04-SB-00-02	22105041108	288121		496459		229072		26743
AOI01-04-SB-03-05	22105041109	304100		524004		237936	8113	*
AOI01-05-SB-00-02	22105041111	294535		522823		250302		24588
AOI01-05-SB-02-04	22105041113	308814		526455		245077		25764
AOI01-05-SB-04-06	22105041114	294948		513985		241774		28130
AOI01-06-SB-00-02	22105041116	291464		503499		237348		25117
AOI01-07-SB-00-02	22105041118	293528		526862		249917		23461
AOI01-07-SB-00-02-D	22105041119	299464		538481		249088		24783
AOI01-07-SB-02-04	22105041120	301434		528644		237201		26031
AOI01-07-SB-04-06	22105041121	292104		508285		230869		21930
AOI01-08-SB-02-04	22105041125	302254		537515		239697		41942
AOI01-08-SB-04-06	22105041126	303595		520308		229887		24780
AOI01-10-SB-00-02	22105041131	313537		564642		265479		27256
AOI01-10-SB-00-02-D	22105041132	345808		615323		291763		31801
AOI01-10-SB-03-05	22105041135	363383		684415		309472		28029
AOI01-10-SB-03-05-MS	22105041136	303556		598724		256560		27034
AOI01-10-SB-03-05-MSD	22105041137	301412		590443		253576		26998

* for information only

AREA UPPER LIMIT = +50% of internal standard area

AREA LOWER LIMIT = -50% of internal standard area

Column used to flag values outside QC limits

* Value outside QC limits

FORM 81 - ORG

Instrument: QQQ3 HBN: 710724
Batch: 2210508A
Current ICAL Bath: 2210503ACAL
20mM Amm Acetate 016-68-4 5/9/2021
Methanol 2130147 6/30/2025
Calibration Std 016-64-4 8/24/2021
ICV Std 016-21-3 8/2/2021
EIS Mix 016-64-3 10/23/2021
IIS Mix 016-64-5 10/26/2021

Name	Data File	Type	Acq. Date-Time	Comment	Dil.
IB	2210503A_1.d	Blank	5/3/2021 17:14	RXJ,QQQ3, Instrument blank/Instrument Idle	1
1201	2210503A_2.d	Cal	5/3/2021 17:28	RXJ,QQQ3,Cal point	1
1202	2210503A_3.d	Cal	5/3/2021 17:43	RXJ,QQQ3,Cal point	1
1203	2210503A_4.d	Cal	5/3/2021 17:58	RXJ,QQQ3,Cal point	1
1204	2210503A_5.d	Cal	5/3/2021 18:12	RXJ,QQQ3,Cal point	1
1205	2210503A_6.d	Cal	5/3/2021 18:27	RXJ,QQQ3,Cal point	1
1206	2210503A_7.d	Cal	5/3/2021 18:42	RXJ,QQQ3,Cal point	1
IB	2210503A_8.d	Blank	5/3/2021 19:09	RXJ,QQQ3, Instrument blank/Instrument Idle	1
1500	2210503A_9.d	Blank	5/3/2021 19:23	RXJ,QQQ3,BLANK	1
1600	2210503A_10.d	Sample	5/3/2021 19:38	RXJ,QQQ3,ICV	1
1450	2210503A_11.d	QC	5/3/2021 19:53	RXJ,QQQ3,CCV	1
IB	2210508A_01.d	Sample	5/8/2021 19:30	RXJ,QQQ3, Instrument blank/Instrument Idle	1
1500	2210508A_02.d	Blank	5/8/2021 19:45	RXJ,QQQ3, Instrument blank/Instrument Idle	1
1450	2210508A_03.d	QC	5/8/2021 20:00	RXJ,QQQ3;CCV	1
2183390	2210508A_04.d	Blank	5/8/2021 20:14	RXJ,QQQ3;710622	1
2183391	2210508A_05.d	QC	5/8/2021 20:29	RXJ,QQQ3;710622	1
2183392	2210508A_06.d	QC	5/8/2021 20:44	RXJ,QQQ3;710622	1
2183139	2210508A_07.d	Blank	5/8/2021 20:58	RXJ,QQQ3;710580	1
2183140	2210508A_08.d	QC	5/8/2021 21:13	RXJ,QQQ3;710580	1
2183141	2210508A_09.d	QC	5/8/2021 21:27	RXJ,QQQ3;710580	1
22105077601	2210508A_10.d	Sample	5/8/2021 21:42	RXJ,QQQ3;710580	1
22105077601*10	2210508A_11.d	Sample	5/8/2021 21:57	RXJ,QQQ3;710580	10
22104273308	2210508A_12.d	Sample	5/8/2021 22:11	RXJ,QQQ3;710622	1

22104273309*MS	2210508A_13.d	Sample	5/8/2021 22:26	RXJ,QQQ3;710622	1
22104273310*MSD	2210508A_14.d	Sample	5/8/2021 22:40	RXJ,QQQ3;710622	1
22104273311	2210508A_15.d	Sample	5/8/2021 22:55	RXJ,QQQ3;710622	1
22104273312	2210508A_16.d	Sample	5/8/2021 23:10	RXJ,QQQ3;710622	1
22104273313	2210508A_17.d	Sample	5/8/2021 23:24	RXJ,QQQ3;710622	1
22104273314	2210508A_18.d	Sample	5/8/2021 23:39	RXJ,QQQ3;710622	1
22104273315	2210508A_19.d	Sample	5/8/2021 23:53	RXJ,QQQ3;710622	1
22104273316	2210508A_20.d	Sample	5/9/2021 0:08	RXJ,QQQ3;710622	1
22104273317	2210508A_21.d	Sample	5/9/2021 0:23	RXJ,QQQ3;710622	1
1400	2210508A_22.d	QC	5/9/2021 0:37	RXJ,QQQ3;CCV	1
22104273318	2210508A_23.d	Sample	5/9/2021 0:52	RXJ,QQQ3;710622	1
22104273319	2210508A_24.d	Sample	5/9/2021 1:07	RXJ,QQQ3;710622	1
22104273320	2210508A_25.d	Sample	5/9/2021 1:21	RXJ,QQQ3;710622	1
22104273321	2210508A_26.d	Sample	5/9/2021 1:36	RXJ,QQQ3;710622	1
22104282101	2210508A_27.d	Sample	5/9/2021 1:50	RXJ,QQQ3;710622	1
22104282102	2210508A_28.d	Sample	5/9/2021 2:05	RXJ,QQQ3;710622	1
22104282103	2210508A_29.d	Sample	5/9/2021 2:20	RXJ,QQQ3;710622	1
22104282104	2210508A_30.d	Sample	5/9/2021 2:34	RXJ,QQQ3;710622	1
22104282105	2210508A_31.d	Sample	5/9/2021 2:49	RXJ,QQQ3;710622	1
22104273312*5	2210508A_32.d	Sample	5/9/2021 3:03	RXJ,QQQ3;710622	5
1400	2210508A_33.d	QC	5/9/2021 3:18	RXJ,QQQ3;CCV	1
22104273313*20	2210508A_34.d	Sample	5/9/2021 3:33	RXJ,QQQ3;710622	20
2183391	2210508A_35.d	QC	5/9/2021 3:47	RXJ,QQQ3;710622	1
2183392	2210508A_36.d	QC	5/9/2021 4:02	RXJ,QQQ3;710622	1
2183140	2210508A_37.d	QC	5/9/2021 4:16	RXJ,QQQ3;710580	1
2183141	2210508A_38.d	QC	5/9/2021 4:31	RXJ,QQQ3;710580	1
22105077601	2210508A_39.d	Sample	5/9/2021 4:46	RXJ,QQQ3;710580	1
1400	2210508A_40.d	QC	5/9/2021 5:00	RXJ,QQQ3;CCV	1
2178826	2210508A_41.d	Sample	5/9/2021 5:15	RXJ,QQQ3;709858;2nd run	1
2178827	2210508A_42.d	QC	5/9/2021 5:29	RXJ,QQQ3;709858;2nd run	1
22104242801	2210508A_43.d	Sample	5/9/2021 5:44	RXJ,QQQ3;709858;2nd run	1
22104242802	2210508A_44.d	Sample	5/9/2021 5:59	RXJ,QQQ3;709858;2nd run	1
22104242803	2210508A_45.d	Sample	5/9/2021 6:13	RXJ,QQQ3;709858;2nd run	1
22104242804	2210508A_46.d	Sample	5/9/2021 6:28	RXJ,QQQ3;709858;2nd run	1

22104242805	2210508A_47.d	Sample	5/9/2021 6:42	RXJ,QQQ3;709858;2nd run	1
22104242806	2210508A_48.d	Sample	5/9/2021 6:57	RXJ,QQQ3;709858;2nd run	1
22104242907	2210508A_49.d	Sample	5/9/2021 7:12	RXJ,QQQ3;709858;2nd run	1
22104242921*5	2210508A_50.d	Sample	5/9/2021 7:26	RXJ,QQQ3;709858;2nd run	5
22104242922	2210508A_51.d	Sample	5/9/2021 7:41	RXJ,QQQ3;709858;2nd run	1
1450	2210508A_52.d	QC	5/9/2021 7:56	RXJ,QQQ3;CCV	1
22104242923	2210508A_53.d	Sample	5/9/2021 8:10	RXJ,QQQ3;709858;2nd run	1
22104242924	2210508A_54.d	Sample	5/9/2021 8:25	RXJ,QQQ3;709858;2nd run	1
22104242925	2210508A_55.d	Sample	5/9/2021 8:39	RXJ,QQQ3;709858;2nd run	1
22104242927	2210508A_56.d	Sample	5/9/2021 8:54	RXJ,QQQ3;709858;2nd run	1
22104274601*50	2210508A_57.d	Sample	5/9/2021 9:09	RXJ,QQQ3;709858;2nd run	50
22104274602*5	2210508A_58.d	Sample	5/9/2021 9:23	RXJ,QQQ3;709858;2nd run	5
2178833*50	2210508A_59.d	Sample	5/9/2021 9:38	RXJ,QQQ3;709858;2nd run	50
22104274604*50	2210508A_60.d	Sample	5/9/2021 9:53	RXJ,QQQ3;709858;2nd run	50
2178832*50	2210508A_61.d	QC	5/9/2021 10:07	RXJ,QQQ3;709858;2nd run	50
22104274603*50	2210508A_62.d	QC	5/9/2021 10:22	RXJ,QQQ3;709858;2nd run	50
1400	2210508A_63.d	QC	5/9/2021 10:36	RXJ,QQQ3;CCV	1
22104274601	2210508A_64.d	Sample	5/9/2021 10:51	RXJ,QQQ3;709858;2nd run	1
22104274602	2210508A_65.d	Sample	5/9/2021 11:06	RXJ,QQQ3;709858;2nd run	1
2178833	2210508A_66.d	Sample	5/9/2021 11:21	RXJ,QQQ3;709858;2nd run	1
22104274604	2210508A_67.d	Sample	5/9/2021 11:35	RXJ,QQQ3;709858;2nd run	1
2178832	2210508A_68.d	QC	5/9/2021 11:50	RXJ,QQQ3;709858;2nd run	1
22104274603	2210508A_69.d	QC	5/9/2021 12:05	RXJ,QQQ3;709858;2nd run	1
IB	2210508A_70.d	Sample	5/9/2021 12:19	RXJ,QQQ3, Instrument blank/Instrument idle	1
22104242913	2210508A_71.d	Sample	5/9/2021 12:34	RXJ,QQQ3;709858;2nd run	1
22104242921	2210508A_72.d	Sample	5/9/2021 12:49	RXJ,QQQ3;709858;2nd run	1
22104274614	2210508A_73.d	Sample	5/9/2021 13:03	RXJ,QQQ3;709861;2ndrun	1
22104274624	2210508A_74.d	Sample	5/9/2021 13:18	RXJ,QQQ3;709861;2ndrun	1
22104274605*5	2210508A_75.d	Sample	5/9/2021 13:32	RXJ,QQQ3;709861;2ndrun	5
22104274606*10	2210508A_76.d	Sample	5/9/2021 13:47	RXJ,QQQ3;709861;2ndrun	10
1400	2210508A_77.d	QC	5/9/2021 14:02	RXJ,QQQ3;CCV	1
22104274607*10	2210508A_78.d	Sample	5/9/2021 14:16	RXJ,QQQ3;709861;2ndrun	10
22104274608*10	2210508A_79.d	Sample	5/9/2021 14:31	RXJ,QQQ3;709861;2ndrun	10
22104274609*10	2210508A_80.d	Sample	5/9/2021 14:46	RXJ,QQQ3;709861;2ndrun	10

22104274610*5	2210508A_81.d	Sample	5/9/2021 15:01	RXJ,QQQ3;709861;2ndrun	5
22104274611*5	2210508A_82.d	Sample	5/9/2021 15:15	RXJ,QQQ3;709861;2ndrun	5
22104274612*10	2210508A_83.d	Sample	5/9/2021 15:30	RXJ,QQQ3;709861;2ndrun	10
22104274613*5	2210508A_84.d	Sample	5/9/2021 15:44	RXJ,QQQ3;709861;2ndrun	5
22104274615*10	2210508A_85.d	Sample	5/9/2021 15:59	RXJ,QQQ3;709861;2ndrun	10
22104274616*10	2210508A_86.d	Sample	5/9/2021 16:14	RXJ,QQQ3;709861;2ndrun	10
22104274617*10	2210508A_87.d	Sample	5/9/2021 16:28	RXJ,QQQ3;709861;2ndrun	10
1400	2210508A_88.d	QC	5/9/2021 16:43	RXJ,QQQ3;CCV	1
22104274618*10	2210508A_89.d	Sample	5/9/2021 16:58	RXJ,QQQ3;709861;2ndrun	10
22104274622*5	2210508A_90.d	Sample	5/9/2021 17:13	RXJ,QQQ3;709861;2ndrun	5
22104274623*5	2210508A_91.d	Sample	5/9/2021 17:27	RXJ,QQQ3;709861;2ndrun	5
1400	2210508A_92.d	Sample	5/9/2021 17:42	RXJ,QQQ3;CCV	1
IB	2210508A_93.d	Sample	5/9/2021 17:57	RXJ,QQQ3, Instrument blank/Instrument Idle	1
IB	2210508A_94.d	Sample	5/9/2021 18:11	RXJ,QQQ3, Instrument blank/Instrument Idle	1
IB	2210508A_95.d	Sample	5/9/2021 18:26	RXJ,QQQ3, Instrument blank/Instrument Idle	1

ORGANICS INITIAL CALIBRATION VERIFICATION

Report No:	<u>221050411</u>	Instrument ID:	<u>QQQ3</u>
Analysis Date:	<u>05/03/2021 17:38</u>	Lab File ID:	<u>2210503A_10.d</u>
Analytical Method:	<u>EPA 537 Mod Isotope Dilution</u>	Analytical Batch:	<u>710194</u>

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomersulfonic acid	ng/L	10000	10700	107 ✓	70	130	
8:2 Fluorotelomersulfonic acid	ng/L	10100	11600	115	70	130	
NEtFOSAA	ng/L	10000	11300	113	70	130	
NMeFOSAA	ng/L	10000	10800	108	70	130	
Perfluorobutanoic acid	ng/L	10000	10900	109	70	130	
Perfluorobutanesulfonic acid	ng/L	10000	10900	109	70	130	
Perfluorodecanoic acid	ng/L	10000	11800	118	70	130	
Perfluorododecanoic acid	ng/L	10000	10900	109	70	130	
Perfluoroheptanoic acid	ng/L	10000	11100	111	70	130	
Perfluorohexanoic acid	ng/L	10100	11000	109	70	130	
Perfluorohexanesulfonic acid	ng/L	10000	11100	111	70	130	
Perfluorononanoic acid	ng/L	10000	12600	126	70	130	
Perfluorooctanoic acid	ng/L	10100	11400	113	70	130	
Perfluorooctanesulfonic acid	ng/L	10000	9660	97	70	130	
Perfluoropentanoic acid	ng/L	10100	11000	109	70	130	
Perfluorotetradecanoic acid	ng/L	10000	12900	129	70	130	
Perfluorotridecanoic acid	ng/L	10000	9910	99	70	130	
Perfluoroundecanoic acid	ng/L	10000	10900	109	70	130	

ORGANICS INSTRUMENT SENSITIVITY CHECK

Report No:	221050411	Instrument ID:	QQQ3
Analysis Date:	05/08/2021 18:00	Lab File ID:	2210508A_03.d
Analytical Method:	EPA 537 Mod Isotope Dilution	Analytical Batch:	710724

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomersulfonic acid	ng/L	3.81	4.02	106	70	130	
8:2 Fluorotelomersulfonic acid	ng/L	3.84	3.77	98	70	130	
NEtFOSAA	ng/L	4.00	4.22	106	70	130	
NMeFOSAA	ng/L	4.00	4.34	109	70	130	
Perfluorobutanoic acid	ng/L	4.00	4.27	107	70	130	
Perfluorobutanesulfonic acid	ng/L	3.55	3.70	104	70	130	
Perfluorodecanoic acid	ng/L	4.00	4.08	102	70	130	
Perfluorododecanoic acid	ng/L	4.00	4.16	104	70	130	
Perfluoroheptanoic acid	ng/L	4.00	4.06	101	70	130	
Perfluorohexanoic acid	ng/L	4.00	4.26	107	70	130	
Perfluorohexanesulfonic acid	ng/L	3.66	3.94	108	70	130	
Perfluorononanoic acid	ng/L	4.00	4.17	104	70	130	
Perfluorooctanoic acid	ng/L	4.00	4.20	105	70	130	
Perfluorooctanesulfonic acid	ng/L	3.71	3.84	103	70	130	
Perfluoropentanoic acid	ng/L	4.00	4.25	106	70	130	
Perfluorotetradecanoic acid	ng/L	4.00	4.16	104	70	130	
Perfluorotridecanoic acid	ng/L	4.00	3.99	100	70	130	
Perfluoroundecanoic acid	ng/L	4.00	4.14	103	70	130	

ORGANICS INSTRUMENT BLANK

Report No:	221050411	Instrument ID:	QQQ3
Analysis Date:	05/08/2021 17:45	Lab File ID:	2210508A_02.d
Analytical Method:	EPA 537 Mod Isotope Dilution	Analytical Batch:	710724

ANALYTE	UNITS	RESULT	Q	DL	LOD	LOQ	#
6:2 Fluorotelomersulfonic acid	ng/L	2.00	U	0.94	2.00	4.00	
8:2 Fluorotelomersulfonic acid	ng/L	2.00	U	0.90	2.00	4.00	
NEtFOSAA	ng/L	4.00	U	0.97	4.00	8.00	
NMeFOSAA	ng/L	4.00	U	0.90	4.00	8.00	
Perfluorobutanesulfonic acid	ng/L	2.00	U	0.62	2.00	4.00	
Perfluorobutanoic acid	ng/L	1.25	J	0.90	2.00	4.00	
Perfluorodecanoic acid	ng/L	2.00	U	0.86	2.00	4.00	
Perfluorododecanoic acid	ng/L	2.00	U	0.88	2.00	4.00	
Perfluoroheptanoic acid	ng/L	2.00	U	0.48	2.00	4.00	
Perfluorohexanesulfonic acid	ng/L	2.00	U	0.95	2.00	4.00	
Perfluorohexanoic acid	ng/L	2.00	U	0.94	2.00	4.00	
Perfluorononanoic acid	ng/L	2.00	U	0.78	2.00	4.00	
Perfluorooctanesulfonic acid	ng/L	2.00	U	0.76	2.00	4.00	
Perfluorooctanoic acid	ng/L	2.00	U	0.84	2.00	4.00	
Perfluoropentanoic acid	ng/L	2.00	U	0.85	2.00	4.00	
Perfluorotetradecanoic acid	ng/L	2.00	U	0.98	2.00	4.00	
Perfluorotridecanoic acid	ng/L	2.00	U	0.99	2.00	4.00	
Perfluoroundecanoic acid	ng/L	2.00	U	0.95	2.00	4.00	

* - Result greater than 1/2 LOQ

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ORGANICS CALIBRATION VERIFICATION

Report No: <u>221050411</u>	Instrument ID: <u>QQQ3</u>
Analysis Date: <u>05/08/2021 22:37</u>	Lab File ID: <u>2210508A_22.d</u>
Analytical Method: <u>EPA 537 Mod Isotope Dilution</u>	Analytical Batch: <u>710724</u>

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomersulfonic acid	ng/L	9510	10000	105 ✓	70	130	
8:2 Fluorotelomersulfonic acid	ng/L	9600	10100	106	70	130	
NEtFOSAA	ng/L	10000	10500	105	70	130	
NMeFOSAA	ng/L	10000	11200	112	70	130	
Perfluorobutanoic acid	ng/L	10000	10500	105	70	130	
Perfluorobutanesulfonic acid	ng/L	8870	9270	105	70	130	
Perfluorodecanoic acid	ng/L	10000	10600	106	70	130	
Perfluorododecanoic acid	ng/L	10000	10600	106	70	130	
Perfluoroheptanoic acid	ng/L	10000	10600	106	70	130	
Perfluorohexanoic acid	ng/L	10000	10400	104	70	130	
Perfluorohexanesulfonic acid	ng/L	9140	9590	105	70	130	
Perfluorononanoic acid	ng/L	10000	10700	107	70	130	
Perfluorooctanoic acid	ng/L	10000	10600	106	70	130	
Perfluorooctanesulfonic acid	ng/L	9280	9780	105	70	130	
Perfluoropentanoic acid	ng/L	10000	10800	108	70	130	
Perfluorotetradecanoic acid	ng/L	10000	10800	108	70	130	
Perfluorotridecanoic acid	ng/L	10000	10600	106	70	130	
Perfluoroundecanoic acid	ng/L	10000	11000	110	70	130	

FORM 7E - ORG

7E
ORGANICS CALIBRATION VERIFICATION

Report No: <u>221050411</u>	Instrument ID: <u>QQQ3</u>
Analysis Date: <u>05/09/2021 03:00</u>	Lab File ID: <u>2210508A_40.d</u>
Analytical Method: <u>EPA 537 Mod Isotope Dilution</u>	Analytical Batch: <u>710724</u>

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomersulfonic acid	ng/L	9510	9910	104 ✓	70	130	
8:2 Fluorotelomersulfonic acid	ng/L	9600	9630	100	70	130	
NEtFOSAA	ng/L	10000	10800	108	70	130	
NMeFOSAA	ng/L	10000	11000	110	70	130	
Perfluorobutanoic acid	ng/L	10000	10500	105	70	130	
Perfluorobutanesulfonic acid	ng/L	8870	9290	105	70	130	
Perfluorodecanoic acid	ng/L	10000	10700	107	70	130	
Perfluorododecanoic acid	ng/L	10000	10800	108	70	130	
Perfluoroheptanoic acid	ng/L	10000	10700	107	70	130	
Perfluorohexanoic acid	ng/L	10000	10500	105	70	130	
Perfluorohexanesulfonic acid	ng/L	9140	9730	106	70	130	
Perfluorononanoic acid	ng/L	10000	10700	107	70	130	
Perfluorooctanoic acid	ng/L	10000	10600	106	70	130	
Perfluorooctanesulfonic acid	ng/L	9280	9770	105	70	130	
Perfluoropentanoic acid	ng/L	10000	10700	107	70	130	
Perfluorotetradecanoic acid	ng/L	10000	10700	107	70	130	
Perfluorotridecanoic acid	ng/L	10000	10500	105	70	130	
Perfluoroundecanoic acid	ng/L	10000	10500	105	70	130	

FORM 7E - ORG

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ORGANICS CALIBRATION VERIFICATION

Report No: <u>221050411</u>	Instrument ID: <u>QQQ3</u>
Analysis Date: <u>05/09/2021 08:36</u>	Lab File ID: <u>2210508A_63.d</u>
Analytical Method: <u>EPA 537 Mod Isotope Dilution</u>	Analytical Batch: <u>710724</u>

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomersulfonic acid	ng/L	9510	10100	106 ✓	70	130	
8:2 Fluorotelomersulfonic acid	ng/L	9600	9710	101	70	130	
NEtFOSAA	ng/L	10000	11200	112	70	130	
NMeFOSAA	ng/L	10000	10600	106	70	130	
Perfluorobutanoic acid	ng/L	10000	10500	105	70	130	
Perfluorobutanesulfonic acid	ng/L	8870	9560	108	70	130	
Perfluorodecanoic acid	ng/L	10000	10700	107	70	130	
Perfluorododecanoic acid	ng/L	10000	10800	108	70	130	
Perfluoroheptanoic acid	ng/L	10000	10600	106	70	130	
Perfluorohexanoic acid	ng/L	10000	10700	107	70	130	
Perfluorohexanesulfonic acid	ng/L	9140	9690	106	70	130	
Perfluorononanoic acid	ng/L	10000	10700	107	70	130	
Perfluorooctanoic acid	ng/L	10000	10600	106	70	130	
Perfluorooctanesulfonic acid	ng/L	9280	9920	107	70	130	
Perfluoropentanoic acid	ng/L	10000	10800	108	70	130	
Perfluorotetradecanoic acid	ng/L	10000	10700	107	70	130	
Perfluorotridecanoic acid	ng/L	10000	10700	107	70	130	
Perfluoroundecanoic acid	ng/L	10000	10800	108	70	130	

FORM 7E - ORG

7E
ORGANICS CALIBRATION VERIFICATION

Report No: <u>221050411</u>	Instrument ID: <u>QQQ3</u>
Analysis Date: <u>05/09/2021 12:02</u>	Lab File ID: <u>2210508A_77.d</u>
Analytical Method: <u>EPA 537 Mod Isotope Dilution</u>	Analytical Batch: <u>710724</u>

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomersulfonic acid	ng/L	9510	10200	107 ✓	70	130	
8:2 Fluorotelomersulfonic acid	ng/L	9600	10500	109	70	130	
NEtFOSAA	ng/L	10000	10700	107	70	130	
NMeFOSAA	ng/L	10000	10800	108	70	130	
Perfluorobutanoic acid	ng/L	10000	10400	104	70	130	
Perfluorobutanesulfonic acid	ng/L	8870	9530	107	70	130	
Perfluorodecanoic acid	ng/L	10000	10700	107	70	130	
Perfluorododecanoic acid	ng/L	10000	10700	107	70	130	
Perfluoroheptanoic acid	ng/L	10000	10500	105	70	130	
Perfluorohexanoic acid	ng/L	10000	10500	105	70	130	
Perfluorohexanesulfonic acid	ng/L	9140	9790	107	70	130	
Perfluorononanoic acid	ng/L	10000	10700	107	70	130	
Perfluorooctanoic acid	ng/L	10000	10700	107	70	130	
Perfluorooctanesulfonic acid	ng/L	9280	9810	106	70	130	
Perfluoropentanoic acid	ng/L	10000	10700	107	70	130	
Perfluorotetradecanoic acid	ng/L	10000	10700	107	70	130	
Perfluorotridecanoic acid	ng/L	10000	10700	107	70	130	
Perfluoroundecanoic acid	ng/L	10000	10800	108	70	130	

FORM 7E - ORG

7E
ORGANICS CALIBRATION VERIFICATION

Report No: <u>221050411</u>	Instrument ID: <u>QQQ3</u>
Analysis Date: <u>05/09/2021 14:43</u>	Lab File ID: <u>2210508A_88.d</u>
Analytical Method: <u>EPA 537 Mod Isotope Dilution</u>	Analytical Batch: <u>710724</u>

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomersulfonic acid	ng/L	9510	10400	110 ✓	70	130	
8:2 Fluorotelomersulfonic acid	ng/L	9600	9950	104	70	130	
NEtFOSAA	ng/L	10000	10300	103	70	130	
NMeFOSAA	ng/L	10000	10300	103	70	130	
Perfluorobutanoic acid	ng/L	10000	10500	105	70	130	
Perfluorobutanesulfonic acid	ng/L	8870	9480	107	70	130	
Perfluorodecanoic acid	ng/L	10000	10800	108	70	130	
Perfluorododecanoic acid	ng/L	10000	10700	107	70	130	
Perfluoroheptanoic acid	ng/L	10000	10700	107	70	130	
Perfluorohexanoic acid	ng/L	10000	10500	105	70	130	
Perfluorohexanesulfonic acid	ng/L	9140	9780	107	70	130	
Perfluorononanoic acid	ng/L	10000	10700	107	70	130	
Perfluorooctanoic acid	ng/L	10000	10600	106	70	130	
Perfluorooctanesulfonic acid	ng/L	9280	9690	104	70	130	
Perfluoropentanoic acid	ng/L	10000	10700	107	70	130	
Perfluorotetradecanoic acid	ng/L	10000	10500	105	70	130	
Perfluorotridecanoic acid	ng/L	10000	10500	105	70	130	
Perfluoroundecanoic acid	ng/L	10000	10700	107	70	130	

FORM 7E - ORG

7E
ORGANICS CALIBRATION VERIFICATION

Report No: <u>221050411</u>	Instrument ID: <u>QQQ3</u>
Analysis Date: <u>05/09/2021 15:42</u>	Lab File ID: <u>2210508A_92.d</u>
Analytical Method: <u>EPA 537 Mod Isotope Dilution</u>	Analytical Batch: <u>710724</u>

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomersulfonic acid	ng/L	9510	10200	107 ✓	70	130	
8:2 Fluorotelomersulfonic acid	ng/L	9600	10800	113	70	130	
NEtFOSAA	ng/L	10000	10800	108	70	130	
NMeFOSAA	ng/L	10000	11200	112	70	130	
Perfluorobutanoic acid	ng/L	10000	10500	105	70	130	
Perfluorobutanesulfonic acid	ng/L	8870	9390	106	70	130	
Perfluorodecanoic acid	ng/L	10000	10500	105	70	130	
Perfluorododecanoic acid	ng/L	10000	10900	109	70	130	
Perfluoroheptanoic acid	ng/L	10000	10600	106	70	130	
Perfluorohexanoic acid	ng/L	10000	10500	105	70	130	
Perfluorohexanesulfonic acid	ng/L	9140	9760	107	70	130	
Perfluorononanoic acid	ng/L	10000	10700	107	70	130	
Perfluorooctanoic acid	ng/L	10000	10600	106	70	130	
Perfluorooctanesulfonic acid	ng/L	9280	9690	104	70	130	
Perfluoropentanoic acid	ng/L	10000	10700	107	70	130	
Perfluorotetradecanoic acid	ng/L	10000	10600	106	70	130	
Perfluorotridecanoic acid	ng/L	10000	10800	108	70	130	
Perfluoroundecanoic acid	ng/L	10000	10500	105	70	130	

FORM 7E - ORG

INJECTION INTERNAL STANDARD AREA SUMMARY

Report No:	<u>221050411</u>	Standard ID:	<u>1450 (ISC)</u>
Analyst:	<u>RXJ</u>	Instrument ID:	<u>QQQ3</u>
Analysis Date:	<u>05/08/21 18:00</u>	Lab File ID:	<u>2210508A_03.d</u>
Analytical Method:	<u>PFAS Isotope Dilution QSM B15</u>	Analytical Batch:	<u>710724</u>

	M2PFDA	M2PFHxA	M2PFOA	M4PFOS
	Area	Area	Area	Area
STANDARD	215476	331360	181893	32550

CLIENT SAMPLE ID	LAB SAMP ID	✓	#	✓	#	✓	#	✓	#
MB2183139	2183139	181927		291765		148640		27295	
LCS2183140	2183140	181612		292919		148330		27688	
LCSD2183141	2183141	181326		291175		148553		27740	

AREA UPPER LIMIT = +50% of internal standard area
 AREA LOWER LIMIT = -50% of internal standard area

Column used to flag values outside QC limits
 * Value outside QC limits

INJECTION INTERNAL STANDARD AREA SUMMARY

Report No:	221050411	Standard ID:	1205 (ICAL Midpoint)
Analyst:	RXJ	Instrument ID:	QQQ3
Analysis Date:	05/03/21 16:27	Lab File ID:	2210503A_6.d
Analytical Method:	PFAS Isotope Dilution QSM B15	Analytical Batch:	710901

	M2PFDA	M2PFHxA	M2PFOA	M4PFOS
	Area	Area	Area	Area
STANDARD	199382	317435	170526	31515

CLIENT SAMPLE ID	LAB SAMP ID	✓	#	✓	#	✓	#	✓	#
MB2179328	2179328	210275		336945		173547		32108	
LCS2179329	2179329	201960		325171		164501		30674	
LCSD2179330	2179330	200233		328544		166462		30521	
AOI01-01-GW	22105041138	202594		321014		160597		30155	
AOI01-02-GW	22105041139	178616		297794		145847		27067	
AOI01-03-GW	22105041140	199965		319726		158006		29516	
AOI01-04-GW	22105041141	192993		314869		156836		28650	
AOI01-03-GW-D	22105041142	192491		311463		155244		28784	
AOI01-05-GW	22105041143	198193		329865		160903		29676	
AOI01-06-GW	22105041144	181631		301415		150192		27562	

AREA UPPER LIMIT = +50% of internal standard area

AREA LOWER LIMIT = -50% of internal standard area

Column used to flag values outside QC limits

* Value outside QC limits

Instrument: QQQ3 HBN: 710901/710850

Batch: 2210507B

Current ICAL Bath: 2210503ACAL

20mM Amm Acetate 016-68-4 5/9/2021

Methanol 2130147 6/30/2025

Calibration Std 016-64-4 8/24/2021

ICV Std 016-21-3 8/2/2021

EIS Mix 016-64-3 10/23/2021

IIS Mix 016-64-5 10/26/2021

Name	Data File	Type	Acq. Date-Time	Comment	Dil.
IB	2210503A_1.d	Blank	5/3/2021 17:14	RXJ,QQQ3, Instrument blank/Instrument Idle	1
1201	2210503A_2.d	Cal	5/3/2021 17:28	RXJ,QQQ3,Cal point	1
1202	2210503A_3.d	Cal	5/3/2021 17:43	RXJ,QQQ3,Cal point	1
1203	2210503A_4.d	Cal	5/3/2021 17:58	RXJ,QQQ3,Cal point	1
1204	2210503A_5.d	Cal	5/3/2021 18:12	RXJ,QQQ3,Cal point	1
1205	2210503A_6.d	Cal	5/3/2021 18:27	RXJ,QQQ3,Cal point	1
1206	2210503A_7.d	Cal	5/3/2021 18:42	RXJ,QQQ3,Cal point	1
IB	2210503A_8.d	Blank	5/3/2021 19:09	RXJ,QQQ3, Instrument blank/Instrument Idle	1
1500	2210503A_9.d	Blank	5/3/2021 19:23	RXJ,QQQ3,BLANK	1
1600	2210503A_10.d	Sample	5/3/2021 19:38	RXJ,QQQ3,ICV	1
1450	2210503A_11.d	QC	5/3/2021 19:53	RXJ,QQQ3,CCV	1
IB	2210507B_01.d	Sample	5/7/2021 18:16	RXJ;QQQ3; Instrument Blank	1
1204 RT TEST	2210507B_02.d	Sample	5/7/2021 18:31	RXJ;QQQ3;TEST	1
1500	2210507B_03.d	Blank	5/7/2021 19:29	RXJ;QQQ3; Instrument Blank	1
1450	2210507B_04.d	QC	5/7/2021 19:44	RXJ,QQQ3;CCV	1
22104242914	2210507B_12.d	Sample	5/7/2021 21:48	RXJ,QQQ3;709944	1
22104242915	2210507B_13.d	QC	5/7/2021 22:03	RXJ,QQQ3;709944	1
22104242916	2210507B_14.d	QC	5/7/2021 22:18	RXJ,QQQ3;709944	1
22104242917*10	2210507B_15.d	Sample	5/7/2021 22:32	RXJ,QQQ3;709778	10
2181952	2210507B_16.d	Sample	5/7/2021 22:47	RXJ,QQQ3;710427	1
2181953	2210507B_17.d	QC	5/7/2021 23:02	RXJ,QQQ3;710427	1
2181954	2210507B_18.d	QC	5/7/2021 23:16	RXJ,QQQ3;710427	1
22105053801	2210507B_19.d	Sample	5/7/2021 23:31	RXJ,QQQ3;710427	1

22104281810	TCLP	2210507B_20.d	Sample	5/7/2021 23:45	RXJ,QQQ3;710427;TCLP	1
2182016*	MS	2210507B_21.d	QC	5/8/2021 0:00	RXJ,QQQ3;710427;TCLP	1
2182017*	MSD	2210507B_22.d	QC	5/8/2021 0:15	RXJ,QQQ3;710427;TCLP	1
22104281810	SPLP	2210507B_23.d	Sample	5/8/2021 0:29	RXJ,QQQ3;710427;SPLP	1
2182234		2210507B_24.d	Sample	5/8/2021 0:44	RXJ,QQQ3;710427	1
2182235		2210507B_25.d	QC	5/8/2021 0:58	RXJ,QQQ3;710427	1
2182236		2210507B_26.d	Sample	5/8/2021 1:13	RXJ,QQQ3;710427	1
2182237		2210507B_27.d	QC	5/8/2021 1:28	RXJ,QQQ3;710427	1
1400		2210507B_28.d	Sample	5/8/2021 1:42	RXJ,QQQ3;CCV	1
2179328		2210507B_29.d	Sample	5/8/2021 1:57	RXJ,QQQ3;709960	1
2179329		2210507B_30.d	QC	5/8/2021 2:12	RXJ,QQQ3;709960	1
2179330		2210507B_31.d	QC	5/8/2021 2:26	RXJ,QQQ3;709960	1
22104292901		2210507B_32.d	Sample	5/8/2021 2:41	RXJ,QQQ3;709960	1
22104292902		2210507B_33.d	Sample	5/8/2021 2:56	RXJ,QQQ3;709960	1
22104280324		2210507B_34.d	Sample	5/8/2021 3:10	RXJ,QQQ3;709960	1
22104280356		2210507B_35.d	Sample	5/8/2021 3:25	RXJ,QQQ3;709960	1
22104300610		2210507B_36.d	Sample	5/8/2021 3:39	RXJ,QQQ3;709960	1
22104300611		2210507B_37.d	Sample	5/8/2021 3:54	RXJ,QQQ3;709960	1
22104300613		2210507B_38.d	Sample	5/8/2021 4:09	RXJ,QQQ3;709960	1
22104300702		2210507B_39.d	Sample	5/8/2021 4:24	RXJ,QQQ3;709960	1
22104300704		2210507B_40.d	Sample	5/8/2021 4:38	RXJ,QQQ3;709960	1
22104300707		2210507B_41.d	Sample	5/8/2021 4:53	RXJ,QQQ3;709960	1
1450		2210507B_42.d	QC	5/8/2021 5:07	RXJ,QQQ3;CCV	1
22104303117		2210507B_43.d	Sample	5/8/2021 5:22	RXJ,QQQ3;709960	1
22105041138		2210507B_44.d	Sample	5/8/2021 5:37	RXJ,QQQ3;709960	1
22105041139		2210507B_45.d	Sample	5/8/2021 5:52	RXJ,QQQ3;709960	1
22105041140		2210507B_46.d	Sample	5/8/2021 6:06	RXJ,QQQ3;709960	1
22105041141		2210507B_47.d	Sample	5/8/2021 6:21	RXJ,QQQ3;709960	1
22105041142		2210507B_48.d	Sample	5/8/2021 6:36	RXJ,QQQ3;709960	1
22105041143		2210507B_49.d	Sample	5/8/2021 6:50	RXJ,QQQ3;709960	1
22105041144		2210507B_50.d	Sample	5/8/2021 7:05	RXJ,QQQ3;709960	1
1400		2210507B_51.d	QC	5/8/2021 7:20	RXJ,QQQ3;709960	1

ORGANICS INSTRUMENT SENSITIVITY CHECK

Report No:	221050411	Instrument ID:	QQQ3
Analysis Date:	05/08/2021 03:07	Lab File ID:	2210507B_42.d
Analytical Method:	EPA 537 Mod Isotope Dilution	Analytical Batch:	710901

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomersulfonic acid	ng/L	3.81	3.96	104 ✓	70	130	
8:2 Fluorotelomersulfonic acid	ng/L	3.84	4.06	106	70	130	
NEtFOSAA	ng/L	4.00	4.26	107	70	130	
NMeFOSAA	ng/L	4.00	4.46	111	70	130	
Perfluorobutanoic acid	ng/L	4.00	4.33	108	70	130	
Perfluorobutanesulfonic acid	ng/L	3.55	3.72	105	70	130	
Perfluorodecanoic acid	ng/L	4.00	4.29	107	70	130	
Perfluorododecanoic acid	ng/L	4.00	3.97	99	70	130	
Perfluoroheptanoic acid	ng/L	4.00	4.19	105	70	130	
Perfluorohexanoic acid	ng/L	4.00	4.33	108	70	130	
Perfluorohexanesulfonic acid	ng/L	3.66	3.87	106	70	130	
Perfluorononanoic acid	ng/L	4.00	4.08	102	70	130	
Perfluorooctanoic acid	ng/L	4.00	4.20	105	70	130	
Perfluorooctanesulfonic acid	ng/L	3.71	3.98	107	70	130	
Perfluoropentanoic acid	ng/L	4.00	4.05	101	70	130	
Perfluorotetradecanoic acid	ng/L	4.00	4.11	103	70	130	
Perfluorotridecanoic acid	ng/L	4.00	3.97	99	70	130	
Perfluoroundecanoic acid	ng/L	4.00	4.02	101	70	130	

ORGANICS INSTRUMENT BLANK

Report No:	221050411	Instrument ID:	QQQ3
Analysis Date:	05/03/2021 17:23	Lab File ID:	2210503A_9.d
Analytical Method:	EPA 537 Mod Isotope Dilution	Analytical Batch:	710901

ANALYTE	UNITS	RESULT	Q	DL	LOD	LOQ	#
6:2 Fluorotelomersulfonic acid	ng/L	2.00	U	0.94	2.00	4.00	
8:2 Fluorotelomersulfonic acid	ng/L	2.00	U	0.90	2.00	4.00	
NEtFOSAA	ng/L	4.00	U	0.97	4.00	8.00	
NMeFOSAA	ng/L	4.00	U	0.90	4.00	8.00	
Perfluorobutanesulfonic acid	ng/L	2.00	U	0.62	2.00	4.00	
Perfluorobutanoic acid	ng/L	1.24	J	0.90	2.00	4.00	
Perfluorodecanoic acid	ng/L	2.00	U	0.86	2.00	4.00	
Perfluorododecanoic acid	ng/L	2.00	U	0.88	2.00	4.00	
Perfluoroheptanoic acid	ng/L	2.00	U	0.48	2.00	4.00	
Perfluorohexanesulfonic acid	ng/L	2.00	U	0.95	2.00	4.00	
Perfluorohexanoic acid	ng/L	2.00	U	0.94	2.00	4.00	
Perfluorononanoic acid	ng/L	2.00	U	0.78	2.00	4.00	
Perfluorooctanesulfonic acid	ng/L	2.00	U	0.76	2.00	4.00	
Perfluorooctanoic acid	ng/L	2.00	U	0.84	2.00	4.00	
Perfluoropentanoic acid	ng/L	2.00	U	0.85	2.00	4.00	
Perfluorotetradecanoic acid	ng/L	2.00	U	0.98	2.00	4.00	
Perfluorotridecanoic acid	ng/L	2.00	U	0.99	2.00	4.00	
Perfluoroundecanoic acid	ng/L	2.00	U	0.95	2.00	4.00	

* - Result greater than 1/2 LOQ

ORGANICS INSTRUMENT BLANK

Report No:	221050411	Instrument ID:	QQQ3
Analysis Date:	05/07/2021 17:29	Lab File ID:	2210507B_03.d
Analytical Method:	EPA 537 Mod Isotope Dilution	Analytical Batch:	710901

ANALYTE	UNITS	RESULT	Q	DL	LOD	LOQ	#
6:2 Fluorotelomersulfonic acid	ng/L	2.00	U	0.94	2.00	4.00	
8:2 Fluorotelomersulfonic acid	ng/L	2.00	U	0.90	2.00	4.00	
NEtFOSAA	ng/L	4.00	U	0.97	4.00	8.00	
NMeFOSAA	ng/L	4.00	U	0.90	4.00	8.00	
Perfluorobutanesulfonic acid	ng/L	2.00	U	0.62	2.00	4.00	
Perfluorobutanoic acid	ng/L	1.23	J	0.90	2.00	4.00	
Perfluorodecanoic acid	ng/L	2.00	U	0.86	2.00	4.00	
Perfluorododecanoic acid	ng/L	2.00	U	0.88	2.00	4.00	
Perfluoroheptanoic acid	ng/L	2.00	U	0.48	2.00	4.00	
Perfluorohexanesulfonic acid	ng/L	2.00	U	0.95	2.00	4.00	
Perfluorohexanoic acid	ng/L	2.00	U	0.94	2.00	4.00	
Perfluorononanoic acid	ng/L	2.00	U	0.78	2.00	4.00	
Perfluorooctanesulfonic acid	ng/L	2.00	U	0.76	2.00	4.00	
Perfluorooctanoic acid	ng/L	2.00	U	0.84	2.00	4.00	
Perfluoropentanoic acid	ng/L	2.00	U	0.85	2.00	4.00	
Perfluorotetradecanoic acid	ng/L	2.00	U	0.98	2.00	4.00	
Perfluorotridecanoic acid	ng/L	2.00	U	0.99	2.00	4.00	
Perfluoroundecanoic acid	ng/L	2.00	U	0.95	2.00	4.00	

* - Result greater than 1/2 LOQ

7E
ORGANICS CALIBRATION VERIFICATION

Report No:	221050411	Instrument ID:	QQQ3
Analysis Date:	05/07/2021 23:42	Lab File ID:	2210507B_28.d
Analytical Method:	EPA 537 Mod Isotope Dilution	Analytical Batch:	710901

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomersulfonic acid	ng/L	9510	9620	101 ✓	70	130	
8:2 Fluorotelomersulfonic acid	ng/L	9600	10400	109	70	130	
NEtFOSAA	ng/L	10000	10700	107	70	130	
NMeFOSAA	ng/L	10000	10200	102	70	130	
Perfluorobutanoic acid	ng/L	10000	10500	105	70	130	
Perfluorobutanesulfonic acid	ng/L	8870	9440	106	70	130	
Perfluorodecanoic acid	ng/L	10000	10700	107	70	130	
Perfluorododecanoic acid	ng/L	10000	10900	109	70	130	
Perfluoroheptanoic acid	ng/L	10000	10500	105	70	130	
Perfluorohexanoic acid	ng/L	10000	10500	105	70	130	
Perfluorohexanesulfonic acid	ng/L	9140	9770	107	70	130	
Perfluorononanoic acid	ng/L	10000	10800	108	70	130	
Perfluorooctanoic acid	ng/L	10000	10600	106	70	130	
Perfluorooctanesulfonic acid	ng/L	9280	9650	104	70	130	
Perfluoropentanoic acid	ng/L	10000	10700	107	70	130	
Perfluorotetradecanoic acid	ng/L	10000	10700	107	70	130	
Perfluorotridecanoic acid	ng/L	10000	10600	106	70	130	
Perfluoroundecanoic acid	ng/L	10000	10600	106	70	130	

FORM 7E - ORG

7E
ORGANICS CALIBRATION VERIFICATION

Report No: <u>221050411</u>	Instrument ID: <u>QQQ3</u>
Analysis Date: <u>05/08/2021 05:20</u>	Lab File ID: <u>2210507B_51.d</u>
Analytical Method: <u>EPA 537 Mod Isotope Dilution</u>	Analytical Batch: <u>710901</u>

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomersulfonic acid	ng/L	9510	10300	108 ✓	70	130	
8:2 Fluorotelomersulfonic acid	ng/L	9600	10000	104	70	130	
NEtFOSAA	ng/L	10000	10500	105	70	130	
NMeFOSAA	ng/L	10000	10600	106	70	130	
Perfluorobutanoic acid	ng/L	10000	10400	104	70	130	
Perfluorobutanesulfonic acid	ng/L	8870	9450	107	70	130	
Perfluorodecanoic acid	ng/L	10000	10700	107	70	130	
Perfluorododecanoic acid	ng/L	10000	10900	109	70	130	
Perfluoroheptanoic acid	ng/L	10000	10500	105	70	130	
Perfluorohexanoic acid	ng/L	10000	10500	105	70	130	
Perfluorohexanesulfonic acid	ng/L	9140	9600	105	70	130	
Perfluorononanoic acid	ng/L	10000	10800	108	70	130	
Perfluorooctanoic acid	ng/L	10000	10800	108	70	130	
Perfluorooctanesulfonic acid	ng/L	9280	9570	103	70	130	
Perfluoropentanoic acid	ng/L	10000	10600	106	70	130	
Perfluorotetradecanoic acid	ng/L	10000	10900	109	70	130	
Perfluorotridecanoic acid	ng/L	10000	10400	104	70	130	
Perfluoroundecanoic acid	ng/L	10000	10600	106	70	130	

FORM 7E - ORG

INJECTION INTERNAL STANDARD AREA SUMMARY

Report No:	<u>221050411</u>	Standard ID:	<u>1205 (ICAL Midpoint)</u>
Analyst:	<u>RXJ</u>	Instrument ID:	<u>QQQ3</u>
Analysis Date:	<u>05/03/21 16:27</u>	Lab File ID:	<u>2210503A_6.d</u>
Analytical Method:	<u>PFAS Isotope Dilution QSM B15</u>	Analytical Batch:	<u>710369</u>

	M2PFDA	M2PFHxA	M2PFOA	M4PFOS
	Area	Area	Area	Area
STANDARD	199382	317435	170526	31515

CLIENT SAMPLE ID	LAB SAMP ID	✓	#	✓	#	✓	#	✓	#
AOI01-09-GW	22105041147	184594		303667		151110		28044	

AREA UPPER LIMIT = +50% of internal standard area
 AREA LOWER LIMIT = -50% of internal standard area

Column used to flag values outside QC limits
 * Value outside QC limits

Instrument: QQQ3 HBN: 711161
 Batch: 2210513A
 Current ICAL Bath: 2210510ACAL
 20mM Amm Acetate 016-73-2 5/15/2021
 Methanol 2130147 6/30/2025
 Calibration Std 016-68-2 8/24/2021
 ICV Std 016-21-3 8/2/2021
 EIS Mix 016-69-7 10/23/2021
 IIS Mix 016-69-5 11/10/2021

Name	Data File	Type	Acq. Date-Time	Comment	Dil.
IB	2210510A_01.d	Sample	5/10/2021 14:35	RXJ,QQQ3;Instrument Blank/Instrument Idle	1
1204RT TEST	2210510A_02.d	Sample	5/10/2021 14:50	RXJ;QQQ3; RT TEST	1
1204RT TEST	2210510A_03.d	Sample	5/10/2021 15:08	RXJ;QQQ3; RT TEST	1
IB	2210510A_04.d	Sample	5/10/2021 15:31	RXJ,QQQ3;Instrument Blank/Instrument Idle	1
1201	2210510A_05.d	Cal	5/10/2021 15:45	RXJ;QQQ3; ICAL	1
1202	2210510A_06.d	Cal	5/10/2021 16:00	RXJ;QQQ3; ICAL	1
1203	2210510A_07.d	Cal	5/10/2021 16:15	RXJ;QQQ3; ICAL	1
1204	2210510A_08.d	Cal	5/10/2021 16:29	RXJ;QQQ3; ICAL	1
1205	2210510A_09.d	Cal	5/10/2021 16:44	RXJ;QQQ3; ICAL	1
1206	2210510A_10.d	Cal	5/10/2021 16:58	RXJ;QQQ3; ICAL	1
IB	2210510A_11.d	Sample	5/10/2021 17:22	RXJ,QQQ3;Instrument Blank/Instrument Idle	1
1500	2210510A_12.d	Blank	5/10/2021 17:36	RXJ;QQQ3; BLANK	1
1600	2210510A_13.d	Sample	5/10/2021 17:51	RXJ;QQQ3;ICV	1
1450	2210510A_14.d	QC	5/10/2021 18:06	RXJ,QQQ3;CCV	1
1500	2210513A_01.d	Blank	5/13/2021 16:31	RXJ,QQQ3;Instrument Blank/Instrument Idle	1
1450	2210513A_02.d	QC	5/13/2021 16:46	RXJ,QQQ3;CCV	1
2179813	2210513A_03.d	Blank	5/13/2021 17:01	RXJ,QQQ3;710040	1
2179814	2210513A_04.d	QC	5/13/2021 17:15	RXJ,QQQ3;710040,RR evaporation	1
22104178114	2210513A_05.d	Sample	5/13/2021 17:30	RXJ,QQQ3;710040	1
22104178115*20	2210513A_06.d	Sample	5/13/2021 17:45	RXJ,QQQ3;710040	20
2179810	2210513A_07.d	Blank	5/13/2021 17:59	RXJ,QQQ3;710037	1
2179811	2210513A_08.d	QC	5/13/2021 18:14	RXJ,QQQ3;710037	1
2179812	2210513A_09.d	QC	5/13/2021 18:28	RXJ,QQQ3;710037	1

22104223501*10	2210513A_10.d	Sample	5/13/2021 18:46	RXJ,QQQ3;710037	10
22104223502*10	2210513A_11.d	Sample	5/13/2021 19:01	RXJ,QQQ3;710037	10
22104223503*10	2210513A_12.d	Sample	5/13/2021 19:15	RXJ,QQQ3;710037	10
22104260613	2210513A_13.d	Sample	5/13/2021 19:30	RXJ,QQQ3;710037	1
22104260604*20	2210513A_14.d	Sample	5/13/2021 19:44	RXJ,QQQ3;709584,RR evaporation	20
22104260605*20	2210513A_15.d	Sample	5/13/2021 19:59	RXJ,QQQ3;709584	20
22104260608*20	2210513A_16.d	Sample	5/13/2021 20:18	RXJ,QQQ3;709584;RR evaporation	20
2177685	2210513A_17.d	Sample	5/13/2021 20:41	RXJ,QQQ3;709644,RR evaporation	1
2177686	2210513A_18.d	QC	5/13/2021 20:56	RXJ,QQQ3;709644	1
2177687	2210513A_19.d	QC	5/13/2021 21:10	RXJ,QQQ3;709644	1
22104231021	2210513A_20.d	Sample	5/13/2021 21:25	RXJ,QQQ3;709644,RR evaporation	1
1400	2210513A_21.d	QC	5/13/2021 21:39	RXJ,QQQ3;CCV	1
22104231022	2210513A_22.d	Sample	5/13/2021 21:54	RXJ,QQQ3;709644	1
22104241513	2210513A_23.d	Sample	5/13/2021 22:09	RXJ,QQQ3;709644	1
22104241502	2210513A_24.d	Sample	5/13/2021 22:23	RXJ,QQQ3;709720	1
22104241504	2210513A_25.d	Sample	5/13/2021 22:38	RXJ,QQQ3;709720	1
1400	2210513A_26.d	QC	5/13/2021 22:52	RXJ,QQQ3;CCV	1
IB	2210510A_01.d	Sample	5/10/2021 14:35	RXJ;QQQ3; Instrument Blank	1

ORGANICS INSTRUMENT BLANK

Report No:	<u>221050411</u>	Instrument ID:	<u>QQQ3</u>
Analysis Date:	<u>05/10/2021 15:36</u>	Lab File ID:	<u>2210510A_12.d</u>
Analytical Method:	<u>EPA 537 Mod Isotope Dilution</u>	Analytical Batch:	<u>711273</u>

ANALYTE	UNITS	RESULT	Q	DL	LOD	LOQ	#
6:2 Fluorotelomersulfonic acid	ng/L	2.00	U	0.94	2.00	4.00	
8:2 Fluorotelomersulfonic acid	ng/L	2.00	U	0.90	2.00	4.00	
NEtFOSAA	ng/L	4.00	U	0.97	4.00	8.00	
NMeFOSAA	ng/L	4.00	U	0.90	4.00	8.00	
Perfluorobutanesulfonic acid	ng/L	2.00	U	0.62	2.00	4.00	
Perfluorobutanoic acid	ng/L	1.03	J	0.90	2.00	4.00	
Perfluorodecanoic acid	ng/L	2.00	U	0.86	2.00	4.00	
Perfluorododecanoic acid	ng/L	2.00	U	0.88	2.00	4.00	
Perfluoroheptanoic acid	ng/L	2.00	U	0.48	2.00	4.00	
Perfluorohexanesulfonic acid	ng/L	2.00	U	0.95	2.00	4.00	
Perfluorohexanoic acid	ng/L	2.00	U	0.94	2.00	4.00	
Perfluorononanoic acid	ng/L	2.00	U	0.78	2.00	4.00	
Perfluorooctanesulfonic acid	ng/L	2.00	U	0.76	2.00	4.00	
Perfluorooctanoic acid	ng/L	2.00	U	0.84	2.00	4.00	
Perfluoropentanoic acid	ng/L	2.00	U	0.85	2.00	4.00	
Perfluorotetradecanoic acid	ng/L	2.00	U	0.98	2.00	4.00	
Perfluorotridecanoic acid	ng/L	2.00	U	0.99	2.00	4.00	
Perfluoroundecanoic acid	ng/L	2.00	U	0.95	2.00	4.00	

* - Result greater than 1/2 LOQ

ORGANICS INSTRUMENT BLANK

Report No:	221050411	Instrument ID:	QQQ3
Analysis Date:	05/13/2021 14:31	Lab File ID:	2210513A_01.d
Analytical Method:	EPA 537 Mod Isotope Dilution	Analytical Batch:	711161

ANALYTE	UNITS	RESULT	Q	DL	LOD	LOQ	#
6:2 Fluorotelomersulfonic acid	ng/L	2.00	U✓	0.94	2.00	4.00	
8:2 Fluorotelomersulfonic acid	ng/L	2.00	U	0.90	2.00	4.00	
NEtFOSAA	ng/L	4.00	U	0.97	4.00	8.00	
NMeFOSAA	ng/L	4.00	U	0.90	4.00	8.00	
Perfluorobutanesulfonic acid	ng/L	2.00	U	0.62	2.00	4.00	
Perfluorobutanoic acid	ng/L	2.00	U	0.90	2.00	4.00	
Perfluorodecanoic acid	ng/L	2.00	U	0.86	2.00	4.00	
Perfluorododecanoic acid	ng/L	2.00	U	0.88	2.00	4.00	
Perfluoroheptanoic acid	ng/L	2.00	U	0.48	2.00	4.00	
Perfluorohexanesulfonic acid	ng/L	2.00	U	0.95	2.00	4.00	
Perfluorohexanoic acid	ng/L	2.00	U	0.94	2.00	4.00	
Perfluorononanoic acid	ng/L	2.00	U	0.78	2.00	4.00	
Perfluorooctanesulfonic acid	ng/L	2.00	U	0.76	2.00	4.00	
Perfluorooctanoic acid	ng/L	2.00	U	0.84	2.00	4.00	
Perfluoropentanoic acid	ng/L	2.00	U	0.85	2.00	4.00	
Perfluorotetradecanoic acid	ng/L	2.00	U	0.98	2.00	4.00	
Perfluorotridecanoic acid	ng/L	2.00	U	0.99	2.00	4.00	
Perfluoroundecanoic acid	ng/L	2.00	U	0.95	2.00	4.00	

* - Result greater than 1/2 LOQ

ORGANICS INSTRUMENT BLANK

Report No:	221050411	Instrument ID:	QQQ3
Analysis Date:	05/10/2021 15:36	Lab File ID:	2210510A_12.d
Analytical Method:	EPA 537 Mod Isotope Dilution	Analytical Batch:	711722

ANALYTE	UNITS	RESULT	Q	DL	LOD	LOQ	#
6:2 Fluorotelomersulfonic acid	ng/L	2.00	U	0.94	2.00	4.00	
8:2 Fluorotelomersulfonic acid	ng/L	2.00	U	0.90	2.00	4.00	
NETFOSAA	ng/L	4.00	U	0.97	4.00	8.00	
NMeFOSAA	ng/L	4.00	U	0.90	4.00	8.00	
Perfluorobutanesulfonic acid	ng/L	2.00	U	0.62	2.00	4.00	
Perfluorobutanoic acid	ng/L	1.03	J	0.90	2.00	4.00	
Perfluorodecanoic acid	ng/L	2.00	U	0.86	2.00	4.00	
Perfluorododecanoic acid	ng/L	2.00	U	0.88	2.00	4.00	
Perfluoroheptanoic acid	ng/L	2.00	U	0.48	2.00	4.00	
Perfluorohexanesulfonic acid	ng/L	2.00	U	0.95	2.00	4.00	
Perfluorohexanoic acid	ng/L	2.00	U	0.94	2.00	4.00	
Perfluorononanoic acid	ng/L	2.00	U	0.78	2.00	4.00	
Perfluorooctanesulfonic acid	ng/L	2.00	U	0.76	2.00	4.00	
Perfluorooctanoic acid	ng/L	2.00	U	0.84	2.00	4.00	
Perfluoropentanoic acid	ng/L	2.00	U	0.85	2.00	4.00	
Perfluorotetradecanoic acid	ng/L	2.00	U	0.98	2.00	4.00	
Perfluorotridecanoic acid	ng/L	2.00	U	0.99	2.00	4.00	
Perfluoroundecanoic acid	ng/L	2.00	U	0.95	2.00	4.00	

* - Result greater than 1/2 LOQ

Quantitative Analysis Calibration Report

Batch Data Path J:\MassHunter\Data\2210510ACAL\QuantResults\2210513A.batch.bin
Analysis Time 5/14/2021 2:30 PM Analyst Name GCAL\lcms
Report Time 5/14/2021 3:55 PM Reporter Name GCAL\lcms
Last Calib Update 5/10/2021 9:47 PM Batch State Processed

Calibration Info

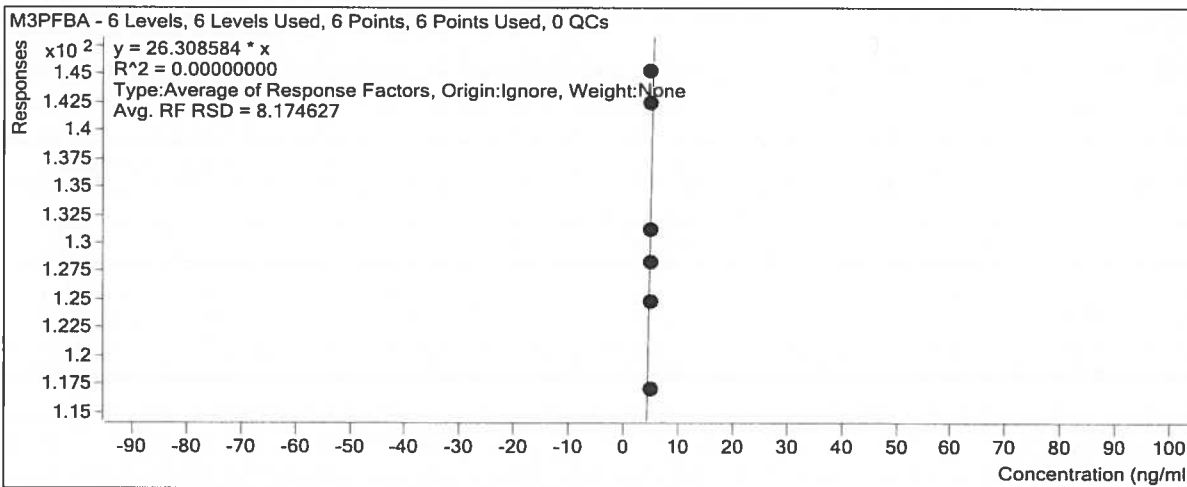
Extracted *ISTD* *MPFBA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210510ACAL\2210510A_05.d	Calibration	1	<input checked="" type="checkbox"/>	23150	5.0000	4630.0149
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K:\MassHunter\Data\2210510ACAL\2210510A_07.d	Calibration	3	<input checked="" type="checkbox"/>	23501	5.0000	4700.1394
K:\MassHunter\Data\2210510ACAL\2210510A_08.d	Calibration	4	<input checked="" type="checkbox"/>	23907	5.0000	4781.3277
K:\MassHunter\Data\2210510ACAL\2210510A_09.d	Calibration	5	<input checked="" type="checkbox"/>	24801	5.0000	4960.2055
K:\MassHunter\Data\2210510ACAL\2210510A_10.d	Calibration	6	<input checked="" type="checkbox"/>	24406	5.0000	4881.2449

Instrument *ISTD*

M3PFBA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210510ACAL\2210510A_05.d	Calibration	1	<input checked="" type="checkbox"/>	142	5.0000	28.4954
K:\MassHunter\Data\2210510ACAL\2210510A_06.d	Calibration	2	<input checked="" type="checkbox"/>	128	5.0000	25.6690
K:\MassHunter\Data\2210510ACAL\2210510A_07.d	Calibration	3	<input checked="" type="checkbox"/>	131	5.0000	26.2312
K:\MassHunter\Data\2210510ACAL\2210510A_08.d	Calibration	4	<input checked="" type="checkbox"/>	117	5.0000	23.4023
K:\MassHunter\Data\2210510ACAL\2210510A_09.d	Calibration	5	<input checked="" type="checkbox"/>	125	5.0000	24.9712
K:\MassHunter\Data\2210510ACAL\2210510A_10.d	Calibration	6	<input checked="" type="checkbox"/>	145	5.0000	29.0824

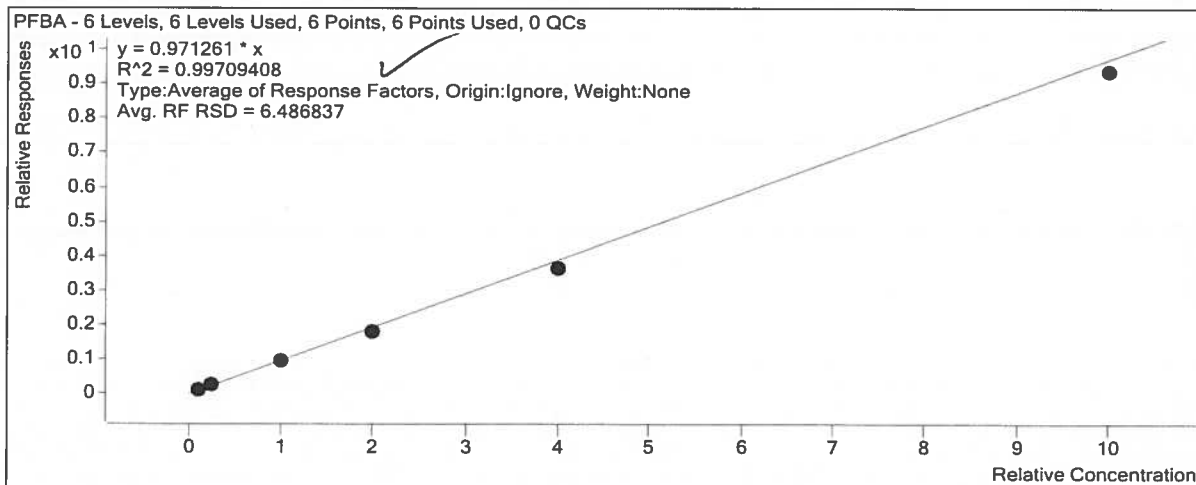


Target Compound

PFBA

Quantitative Analysis Calibration Report

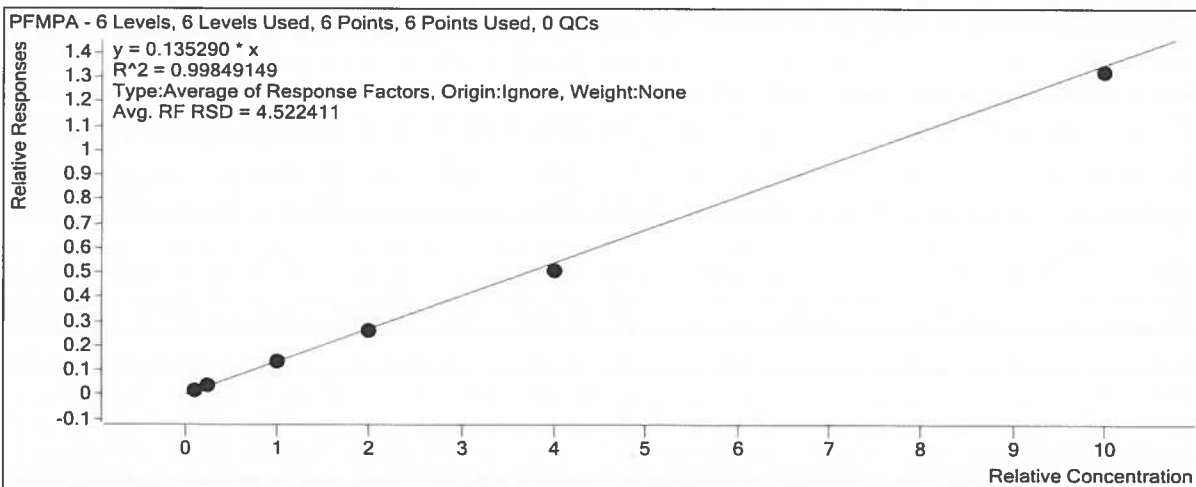
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210510ACAL\2210510A_10.d	Calibration	6	<input checked="" type="checkbox"/>	228769	50.0000	0.9373



Target Compound

PFMPA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210510ACAL\2210510A_05.d	Calibration	1	<input checked="" type="checkbox"/>	408	0.5000	0.1436
K:\MassHunter\Data\2210510ACAL\2210510A_06.d	Calibration	2	<input checked="" type="checkbox"/>	984	1.2500	0.1382
K:\MassHunter\Data\2210510ACAL\2210510A_07.d	Calibration	3	<input checked="" type="checkbox"/>	3962	5.0000	0.1394
K:\MassHunter\Data\2210510ACAL\2210510A_08.d	Calibration	4	<input checked="" type="checkbox"/>	7417	10.0000	0.1305
K:\MassHunter\Data\2210510ACAL\2210510A_09.d	Calibration	5	<input checked="" type="checkbox"/>	15155	20.0000	0.1275
K:\MassHunter\Data\2210510ACAL\2210510A_10.d	Calibration	6	<input checked="" type="checkbox"/>	38396	50.0000	0.1325

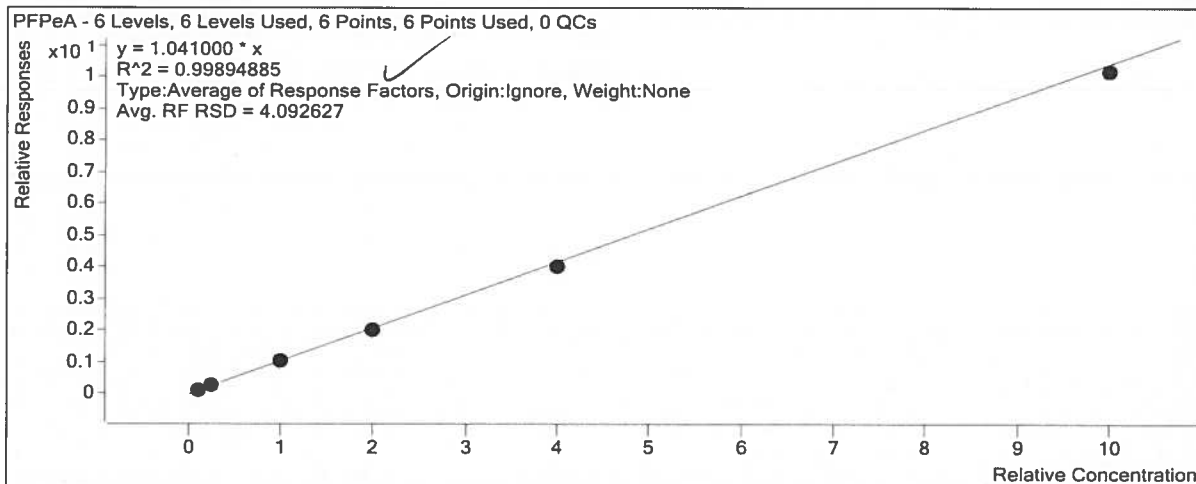


Target Compound

PFPeA

Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210510ACAL\2210510A_09.d	Calibration	5	<input checked="" type="checkbox"/>	119038	20.0000	1.0012
K:\MassHunter\Data\2210510ACAL\2210510A_10.d	Calibration	6	<input checked="" type="checkbox"/>	295433	50.0000	1.0196



Extracted ISTD

M5PFPeA

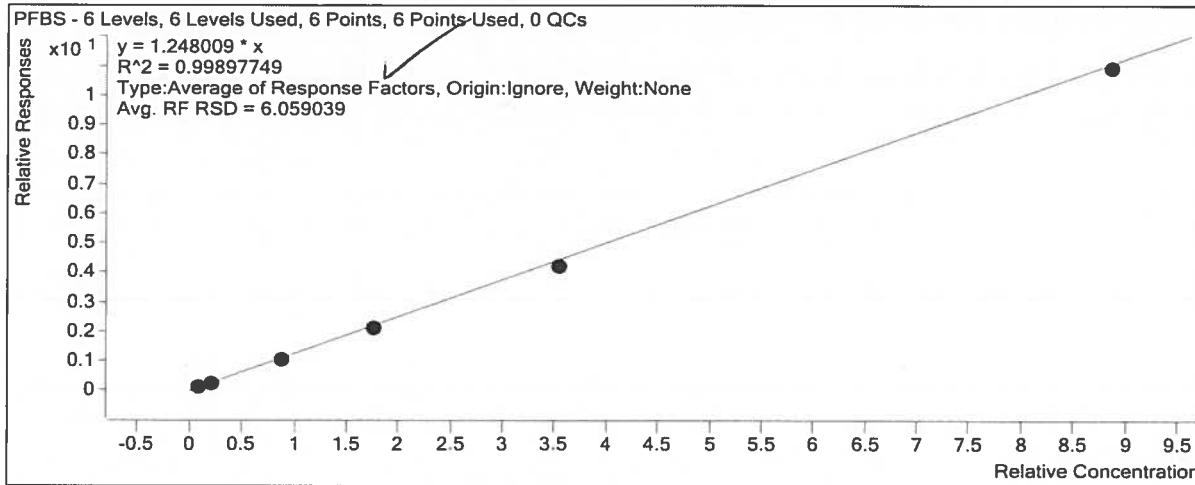
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210510ACAL\2210510A_05.d	Calibration	1	<input checked="" type="checkbox"/>	28389	5.0000	5677.8552
K:\MassHunter\Data\2210510ACAL\2210510A_06.d	Calibration	2	<input checked="" type="checkbox"/>	28487	5.0000	5697.3235
K:\MassHunter\Data\2210510ACAL\2210510A_07.d	Calibration	3	<input checked="" type="checkbox"/>	28414	5.0000	5682.8994
K:\MassHunter\Data\2210510ACAL\2210510A_08.d	Calibration	4	<input checked="" type="checkbox"/>	28414	5.0000	5682.7203
K:\MassHunter\Data\2210510ACAL\2210510A_09.d	Calibration	5	<input checked="" type="checkbox"/>	29725	5.0000	5944.9305
K:\MassHunter\Data\2210510ACAL\2210510A_10.d	Calibration	6	<input checked="" type="checkbox"/>	28976	5.0000	5795.2127

Target Compound

PFBS

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210510ACAL\2210510A_05.d	Calibration	1	<input checked="" type="checkbox"/>	1076	0.4435	1.3795
K:\MassHunter\Data\2210510ACAL\2210510A_06.d	Calibration	2	<input checked="" type="checkbox"/>	2504	1.1088	1.2883
K:\MassHunter\Data\2210510ACAL\2210510A_07.d	Calibration	3	<input checked="" type="checkbox"/>	9611	4.4350	1.2239
K:\MassHunter\Data\2210510ACAL\2210510A_08.d	Calibration	4	<input checked="" type="checkbox"/>	18629	8.8700	1.1810
K:\MassHunter\Data\2210510ACAL\2210510A_09.d	Calibration	5	<input checked="" type="checkbox"/>	38263	17.7400	1.1816
K:\MassHunter\Data\2210510ACAL\2210510A_10.d	Calibration	6	<input checked="" type="checkbox"/>	95378	44.3500	1.2337

Quantitative Analysis Calibration Report



Extracted ISTD

M3PFBS

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210510ACAL\2210510A_05.d	Calibration	1	<input checked="" type="checkbox"/>	8794	5.0000	1758.7130
K:\MassHunter\Data\2210510ACAL\2210510A_06.d	Calibration	2	<input checked="" type="checkbox"/>	8764	5.0000	1752.7379
K:\MassHunter\Data\2210510ACAL\2210510A_07.d	Calibration	3	<input checked="" type="checkbox"/>	8853	5.0000	1770.5662
K:\MassHunter\Data\2210510ACAL\2210510A_08.d	Calibration	4	<input checked="" type="checkbox"/>	8891	5.0000	1778.2700
K:\MassHunter\Data\2210510ACAL\2210510A_09.d	Calibration	5	<input checked="" type="checkbox"/>	9127	5.0000	1825.3239
K:\MassHunter\Data\2210510ACAL\2210510A_10.d	Calibration	6	<input checked="" type="checkbox"/>	8716	5.0000	1743.2513

Target Compound

PFMBA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210510ACAL\2210510A_05.d	Calibration	1	<input checked="" type="checkbox"/>	2133	0.5000	0.5993
K:\MassHunter\Data\2210510ACAL\2210510A_06.d	Calibration	2	<input checked="" type="checkbox"/>	5202	1.2500	0.5623
K:\MassHunter\Data\2210510ACAL\2210510A_07.d	Calibration	3	<input checked="" type="checkbox"/>	20959	5.0000	0.5744
K:\MassHunter\Data\2210510ACAL\2210510A_08.d	Calibration	4	<input checked="" type="checkbox"/>	39703	10.0000	0.5415
K:\MassHunter\Data\2210510ACAL\2210510A_09.d	Calibration	5	<input checked="" type="checkbox"/>	81378	20.0000	0.5414
K:\MassHunter\Data\2210510ACAL\2210510A_10.d	Calibration	6	<input checked="" type="checkbox"/>	203901	50.0000	0.5515

Quantitative Analysis Calibration Report

Extracted ISTD

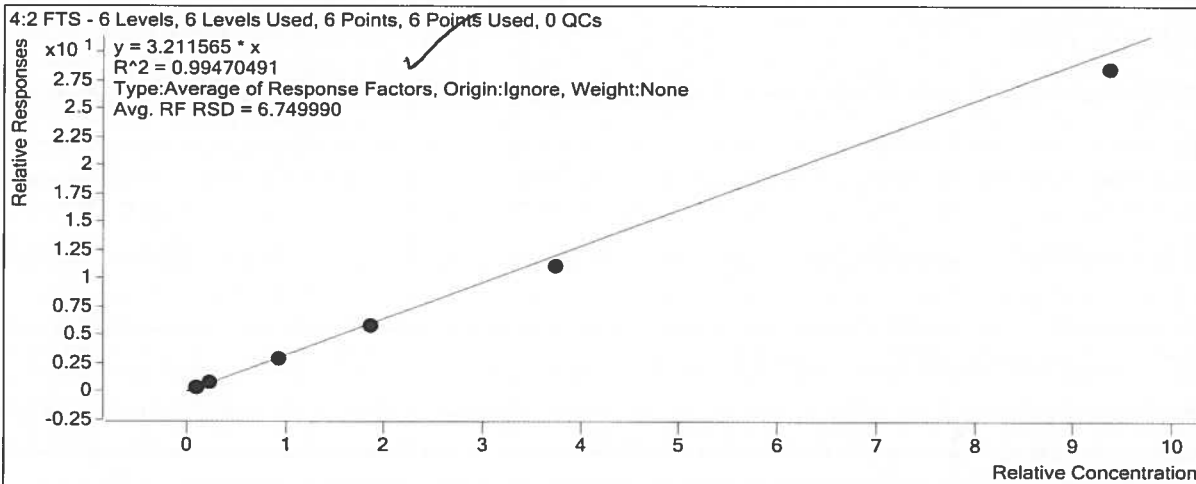
M2 4:2 FTS

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210510ACAL\2210510A_05.d	Calibration	1	<input checked="" type="checkbox"/>	2407	5.0000	481.4250
K:\MassHunter\Data\2210510ACAL\2210510A_06.d	Calibration	2	<input checked="" type="checkbox"/>	2185	5.0000	436.9816
K:\MassHunter\Data\2210510ACAL\2210510A_07.d	Calibration	3	<input checked="" type="checkbox"/>	2209	5.0000	441.7827
K:\MassHunter\Data\2210510ACAL\2210510A_08.d	Calibration	4	<input checked="" type="checkbox"/>	2161	5.0000	432.1932
K:\MassHunter\Data\2210510ACAL\2210510A_09.d	Calibration	5	<input checked="" type="checkbox"/>	2311	5.0000	462.1702
K:\MassHunter\Data\2210510ACAL\2210510A_10.d	Calibration	6	<input checked="" type="checkbox"/>	2206	5.0000	441.1289

Target Compound

4:2 FTS

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210510ACAL\2210510A_05.d	Calibration	1	<input checked="" type="checkbox"/>	773	0.4685	3.4267
K:\MassHunter\Data\2210510ACAL\2210510A_06.d	Calibration	2	<input checked="" type="checkbox"/>	1806	1.1713	3.5284
K:\MassHunter\Data\2210510ACAL\2210510A_07.d	Calibration	3	<input checked="" type="checkbox"/>	6537	4.6850	3.1586
K:\MassHunter\Data\2210510ACAL\2210510A_08.d	Calibration	4	<input checked="" type="checkbox"/>	12634	9.3700	3.1198
K:\MassHunter\Data\2210510ACAL\2210510A_09.d	Calibration	5	<input checked="" type="checkbox"/>	25859	18.7400	2.9856
K:\MassHunter\Data\2210510ACAL\2210510A_10.d	Calibration	6	<input checked="" type="checkbox"/>	63040	46.8500	3.0503



Extracted ISTD

MSPFHxA

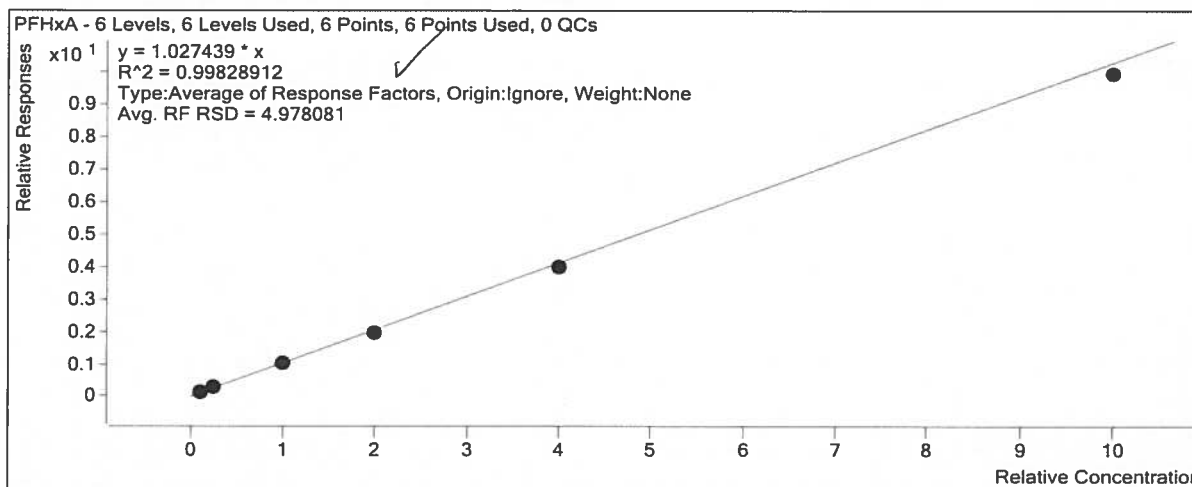
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210510ACAL\2210510A_05.d	Calibration	1	<input checked="" type="checkbox"/>	35589	5.0000	7117.8487
K:\MassHunter\Data\2210510ACAL\2210510A_06.d	Calibration	2	<input checked="" type="checkbox"/>	37009	5.0000	7401.7072

Quantitative Analysis Calibration Report

Target Compound

PFHxA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210510ACAL\2210510A_05.d	Calibration	1	<input checked="" type="checkbox"/>	3977	0.5000	1.1174
K:\MassHunter\Data\2210510ACAL\2210510A_06.d	Calibration	2	<input checked="" type="checkbox"/>	9778	1.2500	1.0568
K:\MassHunter\Data\2210510ACAL\2210510A_07.d	Calibration	3	<input checked="" type="checkbox"/>	37060	5.0000	1.0157
K:\MassHunter\Data\2210510ACAL\2210510A_08.d	Calibration	4	<input checked="" type="checkbox"/>	72037	10.0000	0.9825
K:\MassHunter\Data\2210510ACAL\2210510A_09.d	Calibration	5	<input checked="" type="checkbox"/>	149664	20.0000	0.9958
K:\MassHunter\Data\2210510ACAL\2210510A_10.d	Calibration	6	<input checked="" type="checkbox"/>	368403	50.0000	0.9965



Instrument ISTD

M2PFHxA

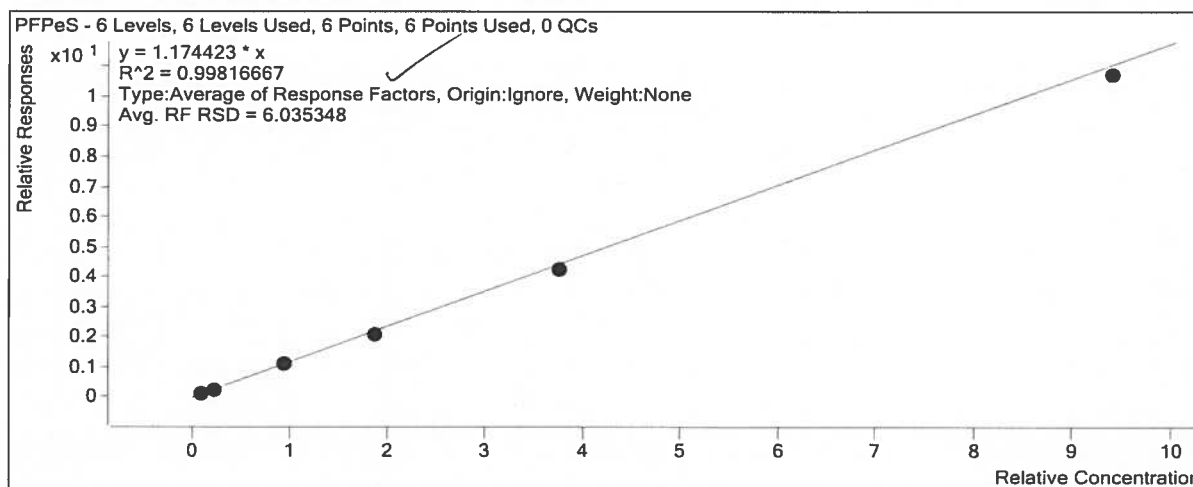
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210510ACAL\2210510A_05.d	Calibration	1	<input checked="" type="checkbox"/>	321254	40.0000	8031.3397
K:\MassHunter\Data\2210510ACAL\2210510A_06.d	Calibration	2	<input checked="" type="checkbox"/>	323245	40.0000	8081.1244
K:\MassHunter\Data\2210510ACAL\2210510A_07.d	Calibration	3	<input checked="" type="checkbox"/>	326657	40.0000	8166.4283
K:\MassHunter\Data\2210510ACAL\2210510A_08.d	Calibration	4	<input checked="" type="checkbox"/>	299067	40.0000	7476.6776
K:\MassHunter\Data\2210510ACAL\2210510A_09.d	Calibration	5	<input checked="" type="checkbox"/>	327393	40.0000	8184.8249
K:\MassHunter\Data\2210510ACAL\2210510A_10.d	Calibration	6	<input checked="" type="checkbox"/>	286834	40.0000	7170.8615

Quantitative Analysis Calibration Report

Target Compound

PFPeS

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210510ACAL\2210510A_05.d	Calibration	1	<input checked="" type="checkbox"/>	1073	0.4705	1.2961
K:\MassHunter\Data\2210510ACAL\2210510A_06.d	Calibration	2	<input checked="" type="checkbox"/>	2481	1.1763	1.2035
K:\MassHunter\Data\2210510ACAL\2210510A_07.d	Calibration	3	<input checked="" type="checkbox"/>	9856	4.7050	1.1832
K:\MassHunter\Data\2210510ACAL\2210510A_08.d	Calibration	4	<input checked="" type="checkbox"/>	18404	9.4100	1.0998
K:\MassHunter\Data\2210510ACAL\2210510A_09.d	Calibration	5	<input checked="" type="checkbox"/>	38522	18.8200	1.1214
K:\MassHunter\Data\2210510ACAL\2210510A_10.d	Calibration	6	<input checked="" type="checkbox"/>	93714	47.0500	1.1426

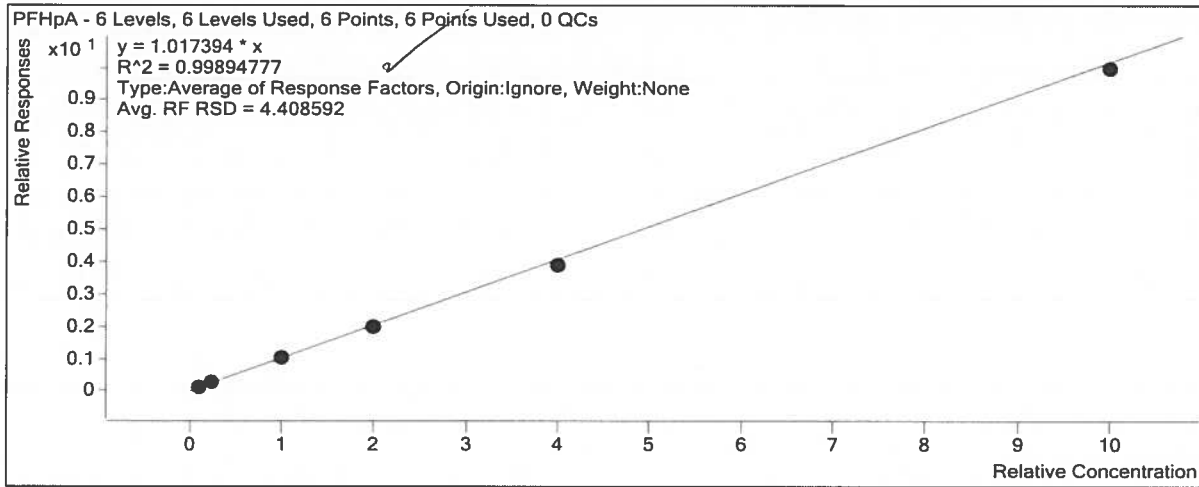


Target Compound

HFPO-DA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210510ACAL\2210510A_05.d	Calibration	1	<input checked="" type="checkbox"/>	967	1.0000	1.1527
K:\MassHunter\Data\2210510ACAL\2210510A_06.d	Calibration	2	<input checked="" type="checkbox"/>	2324	2.5000	1.1007
K:\MassHunter\Data\2210510ACAL\2210510A_07.d	Calibration	3	<input checked="" type="checkbox"/>	8430	10.0000	0.9575
K:\MassHunter\Data\2210510ACAL\2210510A_08.d	Calibration	4	<input checked="" type="checkbox"/>	17549	20.0000	1.0428
K:\MassHunter\Data\2210510ACAL\2210510A_09.d	Calibration	5	<input checked="" type="checkbox"/>	36443	40.0000	1.0129
K:\MassHunter\Data\2210510ACAL\2210510A_10.d	Calibration	6	<input checked="" type="checkbox"/>	87184	100.0000	0.9615

Quantitative Analysis Calibration Report



Quantitative Analysis Calibration Report

Extracted ISTD

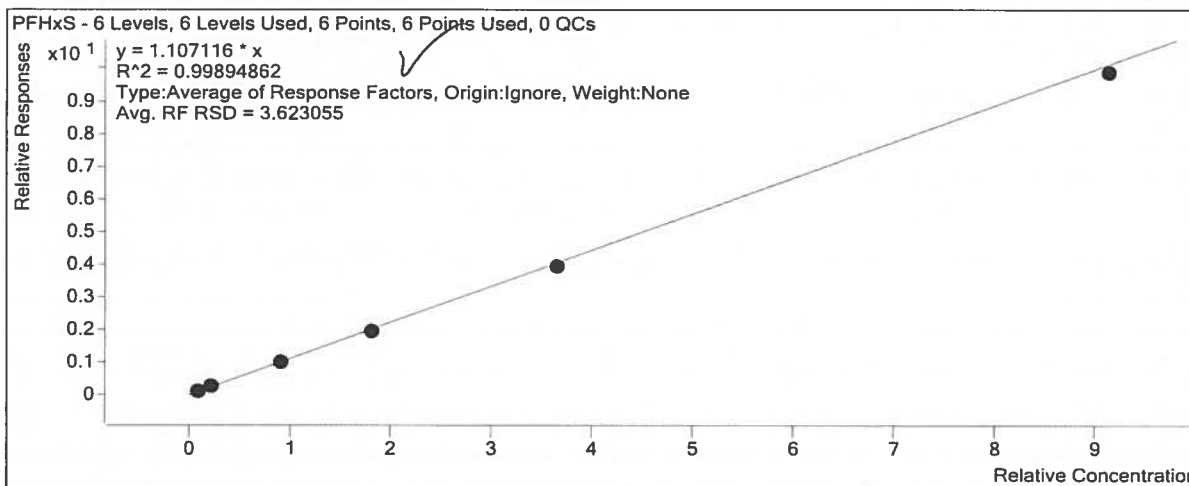
M3PFHxS

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210510ACAL\2210510A_05.d	Calibration	1	<input checked="" type="checkbox"/>	6938	5.0000	1387.5695
K:\MassHunter\Data\2210510ACAL\2210510A_06.d	Calibration	2	<input checked="" type="checkbox"/>	7057	5.0000	1411.4044
K:\MassHunter\Data\2210510ACAL\2210510A_07.d	Calibration	3	<input checked="" type="checkbox"/>	6949	5.0000	1389.7506
K:\MassHunter\Data\2210510ACAL\2210510A_08.d	Calibration	4	<input checked="" type="checkbox"/>	7071	5.0000	1414.1511
K:\MassHunter\Data\2210510ACAL\2210510A_09.d	Calibration	5	<input checked="" type="checkbox"/>	7180	5.0000	1436.0721
K:\MassHunter\Data\2210510ACAL\2210510A_10.d	Calibration	6	<input checked="" type="checkbox"/>	7148	5.0000	1429.5653

Target Compound

PFHxS

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210510ACAL\2210510A_05.d	Calibration	1	<input checked="" type="checkbox"/>	715	0.4570	1.1269
K:\MassHunter\Data\2210510ACAL\2210510A_06.d	Calibration	2	<input checked="" type="checkbox"/>	1877	1.1425	1.1643
K:\MassHunter\Data\2210510ACAL\2210510A_07.d	Calibration	3	<input checked="" type="checkbox"/>	7183	4.5700	1.1310
K:\MassHunter\Data\2210510ACAL\2210510A_08.d	Calibration	4	<input checked="" type="checkbox"/>	13658	9.1400	1.0567
K:\MassHunter\Data\2210510ACAL\2210510A_09.d	Calibration	5	<input checked="" type="checkbox"/>	28416	18.2800	1.0824
K:\MassHunter\Data\2210510ACAL\2210510A_10.d	Calibration	6	<input checked="" type="checkbox"/>	70648	45.7000	1.0814

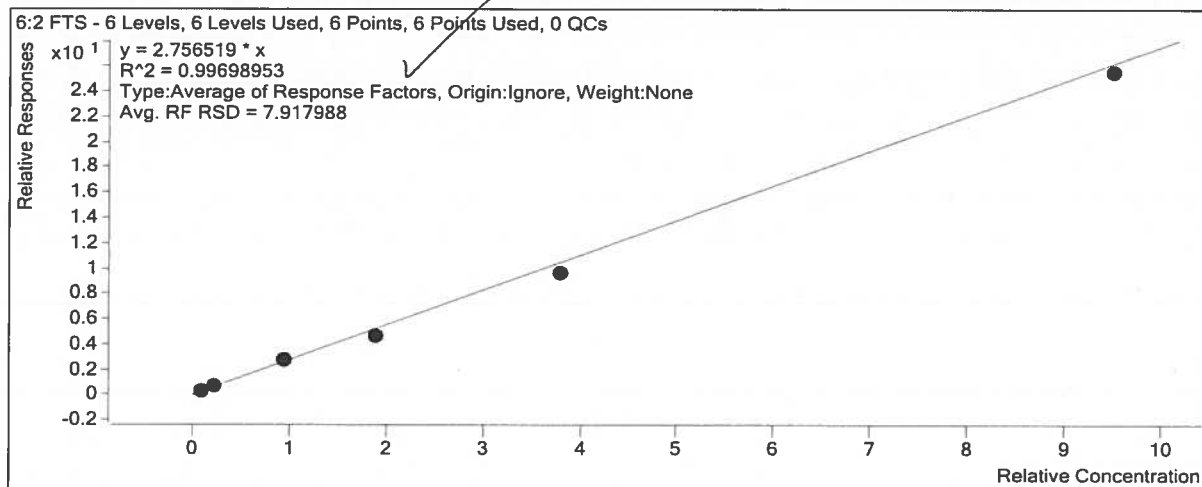


Target Compound

ADONA

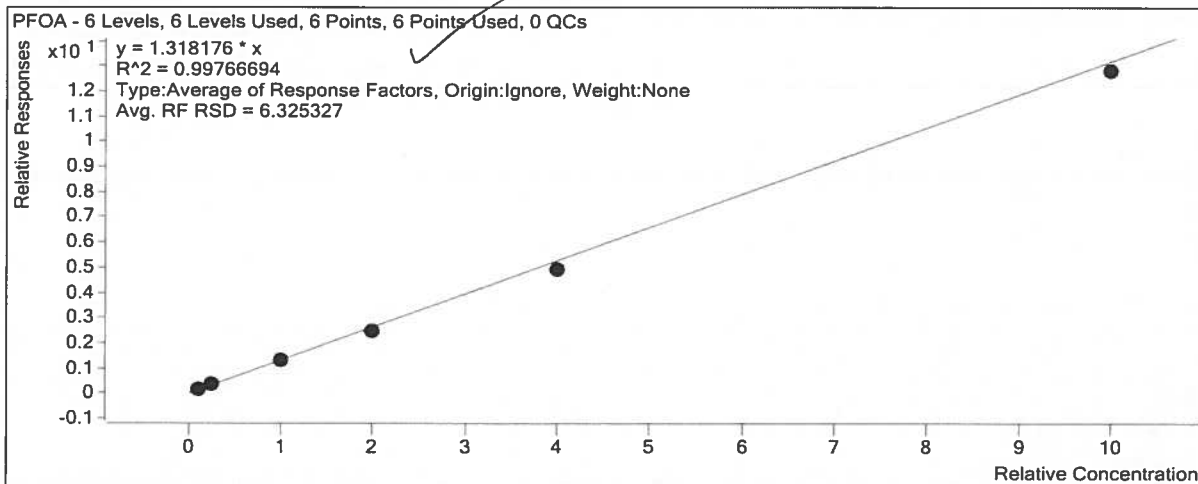
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210510ACAL\2210510A_05.d	Calibration	1	<input checked="" type="checkbox"/>	7153	0.4725	2.0669
K:\MassHunter\Data\2210510ACAL\2210510A_06.d	Calibration	2	<input checked="" type="checkbox"/>	18177	1.1813	2.0834

Quantitative Analysis Calibration Report



Quantitative Analysis Calibration Report

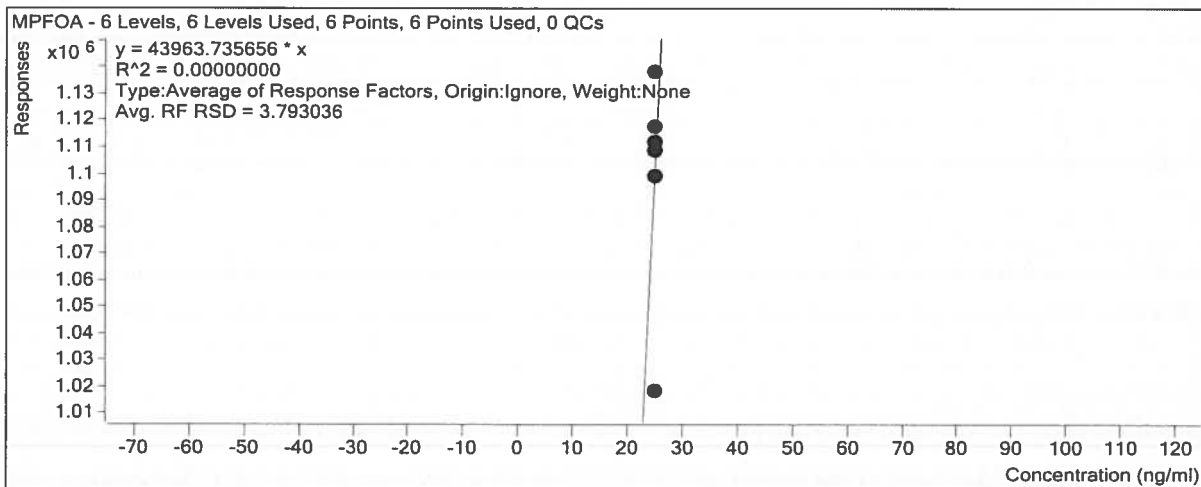
K:\MassHunter\Data\2210510ACAL\2210510A_07.d	Calibration	3	<input checked="" type="checkbox"/>	49113	5.0000	1.3246
K:\MassHunter\Data\2210510ACAL\2210510A_08.d	Calibration	4	<input checked="" type="checkbox"/>	94025	10.0000	1.2541
K:\MassHunter\Data\2210510ACAL\2210510A_09.d	Calibration	5	<input checked="" type="checkbox"/>	191208	20.0000	1.2270
K:\MassHunter\Data\2210510ACAL\2210510A_10.d	Calibration	6	<input checked="" type="checkbox"/>	478534	50.0000	1.2835



Instrument ISTD

MPFOA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210510ACAL\2210510A_05.d	Calibration	1	<input checked="" type="checkbox"/>	1112031	25.0000	44481.2490
K:\MassHunter\Data\2210510ACAL\2210510A_06.d	Calibration	2	<input checked="" type="checkbox"/>	1099345	25.0000	43973.8075
K:\MassHunter\Data\2210510ACAL\2210510A_07.d	Calibration	3	<input checked="" type="checkbox"/>	1117924	25.0000	44716.9506
K:\MassHunter\Data\2210510ACAL\2210510A_08.d	Calibration	4	<input checked="" type="checkbox"/>	1108402	25.0000	44336.0740
K:\MassHunter\Data\2210510ACAL\2210510A_09.d	Calibration	5	<input checked="" type="checkbox"/>	1138542	25.0000	45541.6895
K:\MassHunter\Data\2210510ACAL\2210510A_10.d	Calibration	6	<input checked="" type="checkbox"/>	1018316	25.0000	40732.6434

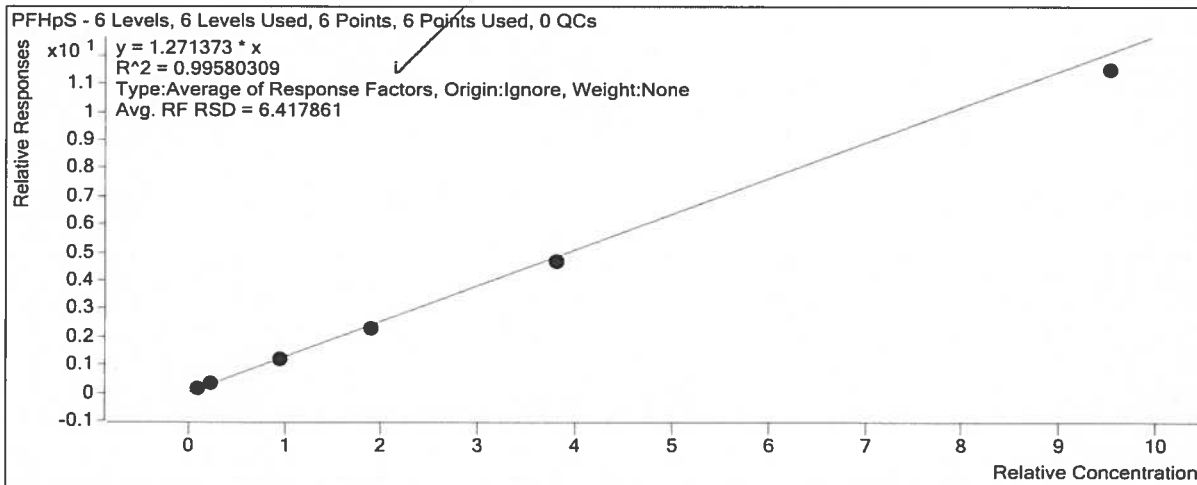


Quantitative Analysis Calibration Report

Target Compound

PFHpS

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210510ACAL\2210510A_05.d	Calibration	1	<input checked="" type="checkbox"/>	925	0.4765	1.3993
K:\MassHunter\Data\2210510ACAL\2210510A_06.d	Calibration	2	<input checked="" type="checkbox"/>	2247	1.1913	1.3366
K:\MassHunter\Data\2210510ACAL\2210510A_07.d	Calibration	3	<input checked="" type="checkbox"/>	8379	4.7650	1.2654
K:\MassHunter\Data\2210510ACAL\2210510A_08.d	Calibration	4	<input checked="" type="checkbox"/>	15993	9.5300	1.1867
K:\MassHunter\Data\2210510ACAL\2210510A_09.d	Calibration	5	<input checked="" type="checkbox"/>	33680	19.0600	1.2305
K:\MassHunter\Data\2210510ACAL\2210510A_10.d	Calibration	6	<input checked="" type="checkbox"/>	82413	47.6500	1.2098



Extracted ISTD

M9PFNA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210510ACAL\2210510A_05.d	Calibration	1	<input checked="" type="checkbox"/>	49347	5.0000	9869.3952
K:\MassHunter\Data\2210510ACAL\2210510A_06.d	Calibration	2	<input checked="" type="checkbox"/>	49750	5.0000	9950.0053
K:\MassHunter\Data\2210510ACAL\2210510A_07.d	Calibration	3	<input checked="" type="checkbox"/>	49356	5.0000	9871.2466
K:\MassHunter\Data\2210510ACAL\2210510A_08.d	Calibration	4	<input checked="" type="checkbox"/>	49515	5.0000	9902.9225
K:\MassHunter\Data\2210510ACAL\2210510A_09.d	Calibration	5	<input checked="" type="checkbox"/>	50450	5.0000	10089.9722
K:\MassHunter\Data\2210510ACAL\2210510A_10.d	Calibration	6	<input checked="" type="checkbox"/>	48688	5.0000	9737.6926

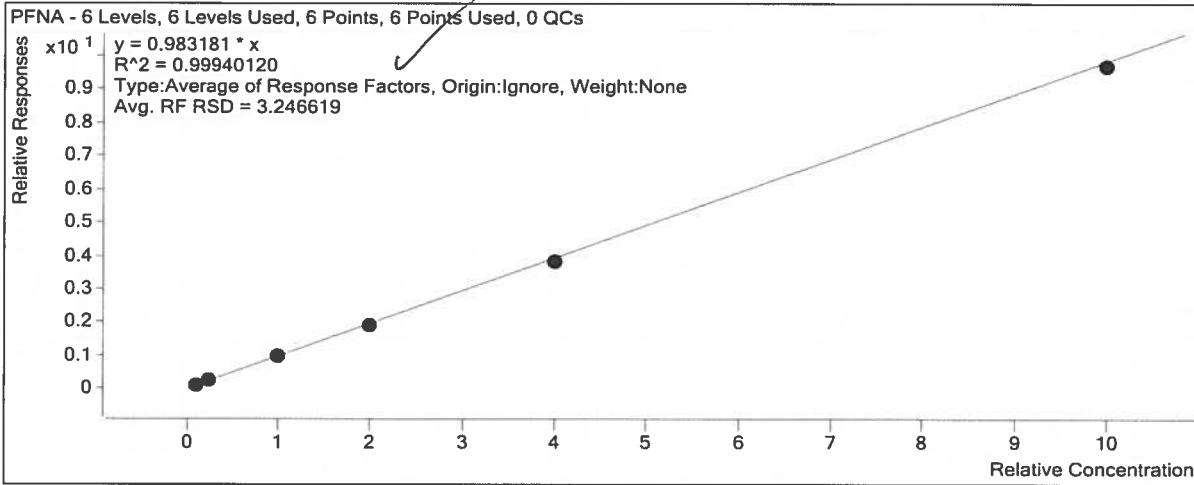
Target Compound

PFNA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210510ACAL\2210510A_05.d	Calibration	1	<input checked="" type="checkbox"/>	5087	0.5000	1.0309

Quantitative Analysis Calibration Report

K:\MassHunter\Data\2210510ACAL\2210510A_06.d	Calibration	2	<input checked="" type="checkbox"/>	12421	1.2500	0.9986
K:\MassHunter\Data\2210510ACAL\2210510A_07.d	Calibration	3	<input checked="" type="checkbox"/>	49300	5.0000	0.9989
K:\MassHunter\Data\2210510ACAL\2210510A_08.d	Calibration	4	<input checked="" type="checkbox"/>	94155	10.0000	0.9508
K:\MassHunter\Data\2210510ACAL\2210510A_09.d	Calibration	5	<input checked="" type="checkbox"/>	191703	20.0000	0.9500
K:\MassHunter\Data\2210510ACAL\2210510A_10.d	Calibration	6	<input checked="" type="checkbox"/>	472228	50.0000	0.9699

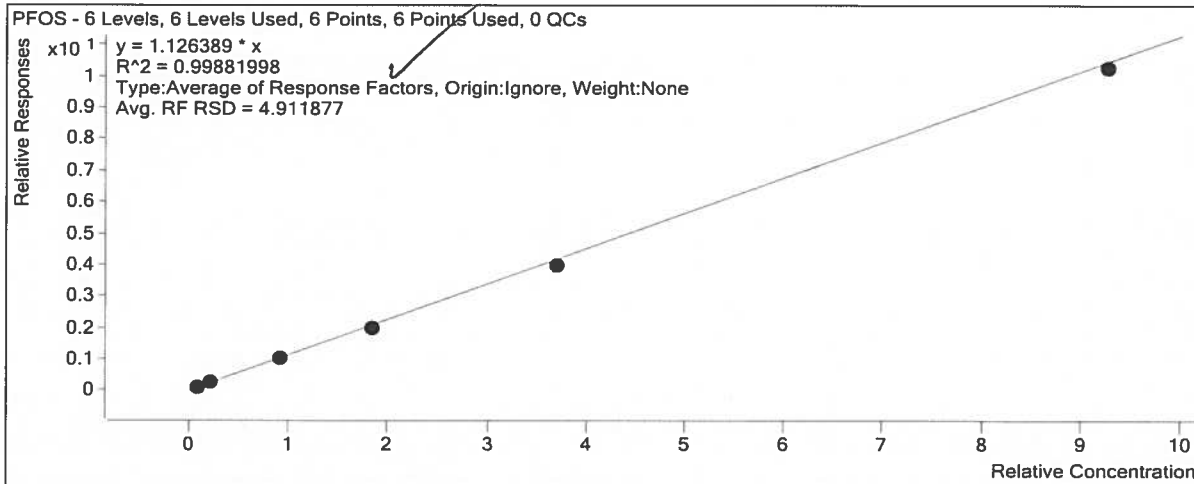


Quantitative Analysis Calibration Report

Target Compound

PFOS

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210510ACAL\2210510A_05.d	Calibration	1	<input checked="" type="checkbox"/>	828	0.4640	1.1980
K:\MassHunter\Data\2210510ACAL\2210510A_06.d	Calibration	2	<input checked="" type="checkbox"/>	2119	1.1600	1.1815
K:\MassHunter\Data\2210510ACAL\2210510A_07.d	Calibration	3	<input checked="" type="checkbox"/>	8013	4.6400	1.1346
K:\MassHunter\Data\2210510ACAL\2210510A_08.d	Calibration	4	<input checked="" type="checkbox"/>	15123	9.2800	1.0670
K:\MassHunter\Data\2210510ACAL\2210510A_09.d	Calibration	5	<input checked="" type="checkbox"/>	31242	18.5600	1.0700
K:\MassHunter\Data\2210510ACAL\2210510A_10.d	Calibration	6	<input checked="" type="checkbox"/>	76571	46.4000	1.1072



Instrument ISTD

M4PFOS

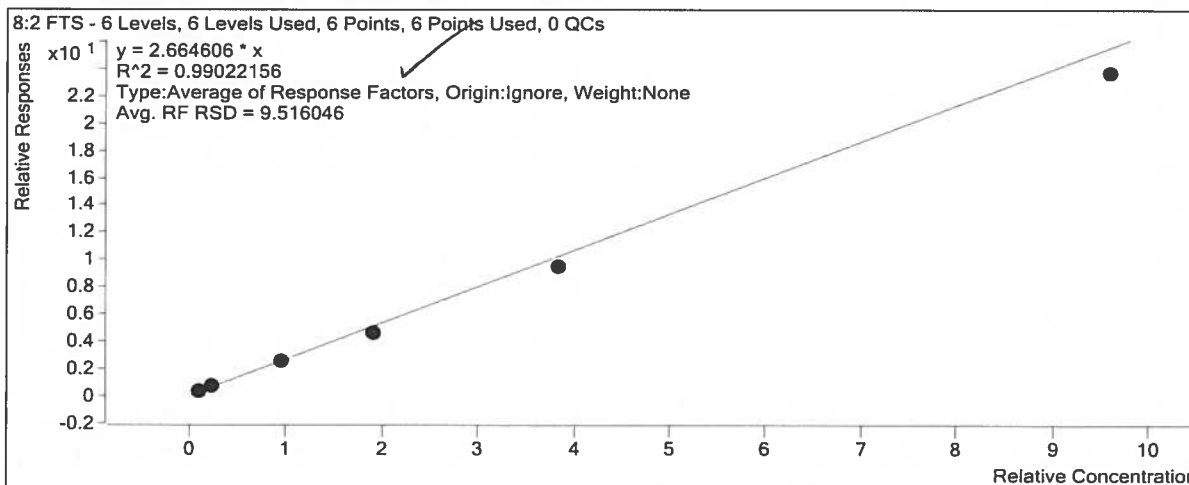
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210510ACAL\2210510A_05.d	Calibration	1	<input checked="" type="checkbox"/>	32723	20.0000	1636.1316
K:\MassHunter\Data\2210510ACAL\2210510A_06.d	Calibration	2	<input checked="" type="checkbox"/>	33053	20.0000	1652.6636
K:\MassHunter\Data\2210510ACAL\2210510A_07.d	Calibration	3	<input checked="" type="checkbox"/>	33080	20.0000	1653.9827
K:\MassHunter\Data\2210510ACAL\2210510A_08.d	Calibration	4	<input checked="" type="checkbox"/>	30461	20.0000	1523.0378
K:\MassHunter\Data\2210510ACAL\2210510A_09.d	Calibration	5	<input checked="" type="checkbox"/>	33012	20.0000	1650.6203
K:\MassHunter\Data\2210510ACAL\2210510A_10.d	Calibration	6	<input checked="" type="checkbox"/>	28402	20.0000	1420.0969

Quantitative Analysis Calibration Report

Target Compound

8:2 FTS

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210510ACAL\2210510A_05.d	Calibration	1	<input checked="" type="checkbox"/>	571	0.4800	3.0380
K:\MassHunter\Data\2210510ACAL\2210510A_06.d	Calibration	2	<input checked="" type="checkbox"/>	1438	1.2000	2.9011
K:\MassHunter\Data\2210510ACAL\2210510A_07.d	Calibration	3	<input checked="" type="checkbox"/>	4976	4.8000	2.6615
K:\MassHunter\Data\2210510ACAL\2210510A_08.d	Calibration	4	<input checked="" type="checkbox"/>	9465	9.6000	2.4156
K:\MassHunter\Data\2210510ACAL\2210510A_09.d	Calibration	5	<input checked="" type="checkbox"/>	19141	19.2000	2.4943
K:\MassHunter\Data\2210510ACAL\2210510A_10.d	Calibration	6	<input checked="" type="checkbox"/>	44271	48.0000	2.4773

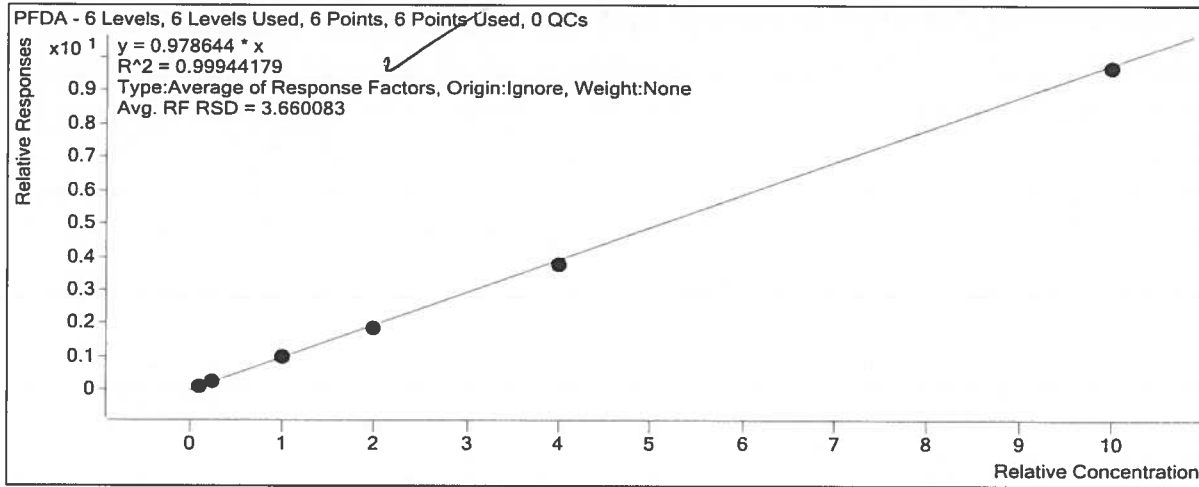


Target Compound

PFDA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210510ACAL\2210510A_05.d	Calibration	1	<input checked="" type="checkbox"/>	5108	0.5000	1.0252
K:\MassHunter\Data\2210510ACAL\2210510A_06.d	Calibration	2	<input checked="" type="checkbox"/>	12681	1.2500	1.0064
K:\MassHunter\Data\2210510ACAL\2210510A_07.d	Calibration	3	<input checked="" type="checkbox"/>	48857	5.0000	0.9924
K:\MassHunter\Data\2210510ACAL\2210510A_08.d	Calibration	4	<input checked="" type="checkbox"/>	93544	10.0000	0.9369
K:\MassHunter\Data\2210510ACAL\2210510A_09.d	Calibration	5	<input checked="" type="checkbox"/>	191448	20.0000	0.9402
K:\MassHunter\Data\2210510ACAL\2210510A_10.d	Calibration	6	<input checked="" type="checkbox"/>	467227	50.0000	0.9707

Quantitative Analysis Calibration Report

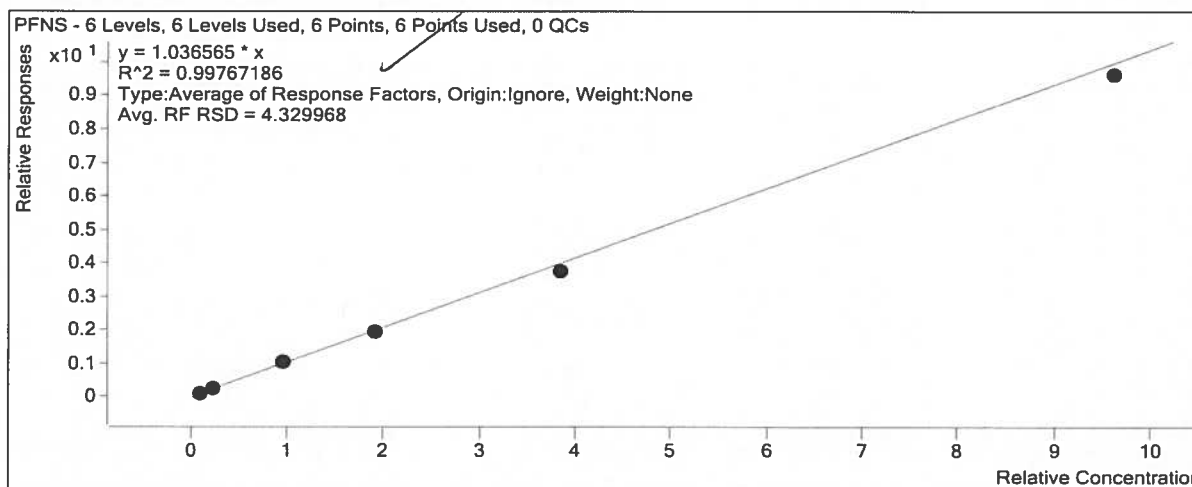


Quantitative Analysis Calibration Report

Target Compound

PFNS

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210510ACAL\2210510A_05.d	Calibration	1	<input checked="" type="checkbox"/>	776	0.4810	1.0830
K:\MassHunter\Data\2210510ACAL\2210510A_06.d	Calibration	2	<input checked="" type="checkbox"/>	2018	1.2025	1.0852
K:\MassHunter\Data\2210510ACAL\2210510A_07.d	Calibration	3	<input checked="" type="checkbox"/>	7747	4.8100	1.0582
K:\MassHunter\Data\2210510ACAL\2210510A_08.d	Calibration	4	<input checked="" type="checkbox"/>	14849	9.6200	1.0106
K:\MassHunter\Data\2210510ACAL\2210510A_09.d	Calibration	5	<input checked="" type="checkbox"/>	29626	19.2400	0.9788
K:\MassHunter\Data\2210510ACAL\2210510A_10.d	Calibration	6	<input checked="" type="checkbox"/>	71952	48.1000	1.0037



Extracted ISTD

M6PFDA

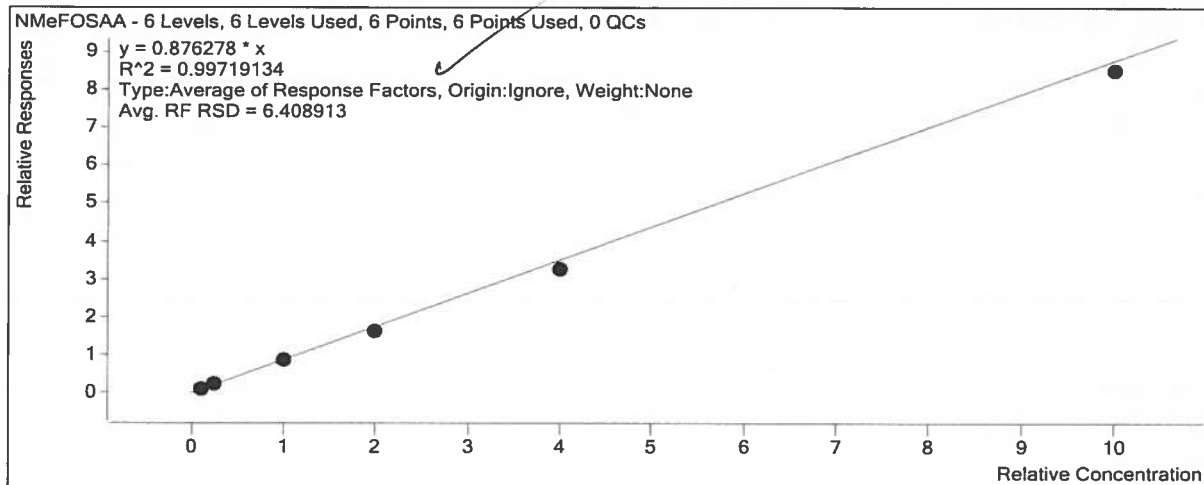
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210510ACAL\2210510A_05.d	Calibration	1	<input checked="" type="checkbox"/>	49826	5.0000	9965.2757
K:\MassHunter\Data\2210510ACAL\2210510A_06.d	Calibration	2	<input checked="" type="checkbox"/>	50401	5.0000	10080.2250
K:\MassHunter\Data\2210510ACAL\2210510A_07.d	Calibration	3	<input checked="" type="checkbox"/>	49229	5.0000	9845.8353
K:\MassHunter\Data\2210510ACAL\2210510A_08.d	Calibration	4	<input checked="" type="checkbox"/>	49925	5.0000	9984.9134
K:\MassHunter\Data\2210510ACAL\2210510A_09.d	Calibration	5	<input checked="" type="checkbox"/>	50905	5.0000	10181.0944
K:\MassHunter\Data\2210510ACAL\2210510A_10.d	Calibration	6	<input checked="" type="checkbox"/>	48131	5.0000	9626.2912

Instrument ISTD

M2PFDA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210510ACAL\2210510A_05.d	Calibration	1	<input checked="" type="checkbox"/>	208493	20.0000	10424.6606
K:\MassHunter\Data\2210510ACAL\2210510A_06.d	Calibration	2	<input checked="" type="checkbox"/>	210262	20.0000	10513.1199

Quantitative Analysis Calibration Report



Quantitative Analysis Calibration Report

Extracted ISTD

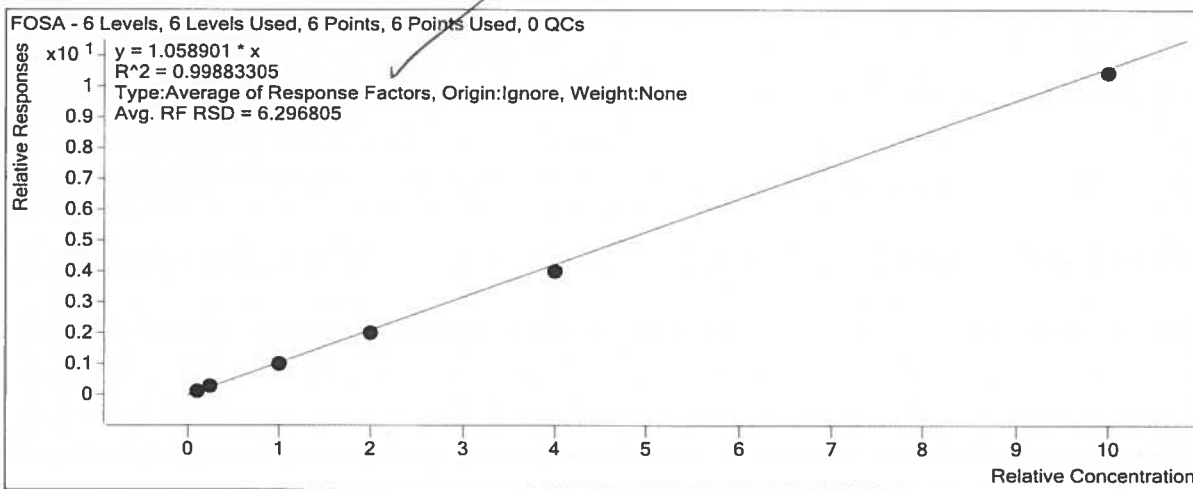
M8FOSA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210510ACAL\2210510A_05.d	Calibration	1	<input checked="" type="checkbox"/>	17437	5.0000	3487.4289
K:\MassHunter\Data\2210510ACAL\2210510A_06.d	Calibration	2	<input checked="" type="checkbox"/>	17044	5.0000	3408.7136
K:\MassHunter\Data\2210510ACAL\2210510A_07.d	Calibration	3	<input checked="" type="checkbox"/>	17757	5.0000	3551.3100
K:\MassHunter\Data\2210510ACAL\2210510A_08.d	Calibration	4	<input checked="" type="checkbox"/>	17297	5.0000	3459.4456
K:\MassHunter\Data\2210510ACAL\2210510A_09.d	Calibration	5	<input checked="" type="checkbox"/>	17921	5.0000	3584.1826
K:\MassHunter\Data\2210510ACAL\2210510A_10.d	Calibration	6	<input checked="" type="checkbox"/>	16827	5.0000	3365.3601

Target Compound

FOSA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210510ACAL\2210510A_05.d	Calibration	1	<input checked="" type="checkbox"/>	2027	0.5000	1.1623
K:\MassHunter\Data\2210510ACAL\2210510A_06.d	Calibration	2	<input checked="" type="checkbox"/>	4760	1.2500	1.1171
K:\MassHunter\Data\2210510ACAL\2210510A_07.d	Calibration	3	<input checked="" type="checkbox"/>	18282	5.0000	1.0296
K:\MassHunter\Data\2210510ACAL\2210510A_08.d	Calibration	4	<input checked="" type="checkbox"/>	34590	10.0000	0.9999
K:\MassHunter\Data\2210510ACAL\2210510A_09.d	Calibration	5	<input checked="" type="checkbox"/>	71587	20.0000	0.9987
K:\MassHunter\Data\2210510ACAL\2210510A_10.d	Calibration	6	<input checked="" type="checkbox"/>	175990	50.0000	1.0459



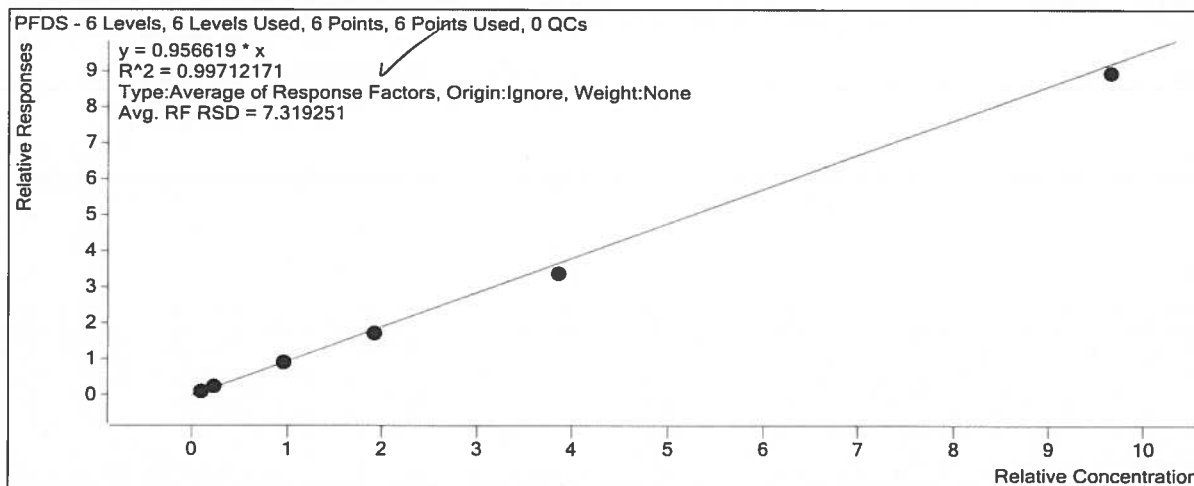
Target Compound

PFDS

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210510ACAL\2210510A_05.d	Calibration	1	<input checked="" type="checkbox"/>	766	0.4825	1.0659
K:\MassHunter\Data\2210510ACAL\2210510A_06.d	Calibration	2	<input checked="" type="checkbox"/>	1879	1.2063	1.0071

Quantitative Analysis Calibration Report

K:\MassHunter\Data\2210510ACAL\2210510A_07.d	Calibration	3	<input checked="" type="checkbox"/>	7031	4.8250	0.9574
K:\MassHunter\Data\2210510ACAL\2210510A_08.d	Calibration	4	<input checked="" type="checkbox"/>	13261	9.6500	0.8997
K:\MassHunter\Data\2210510ACAL\2210510A_09.d	Calibration	5	<input checked="" type="checkbox"/>	26666	19.3000	0.8783
K:\MassHunter\Data\2210510ACAL\2210510A_10.d	Calibration	6	<input checked="" type="checkbox"/>	66974	48.2500	0.9313



Extracted ISTD

d5-NEtFOSAA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210510ACAL\2210510A_05.d	Calibration	1	<input checked="" type="checkbox"/>	10068	5.0000	2013.6919
K:\MassHunter\Data\2210510ACAL\2210510A_06.d	Calibration	2	<input checked="" type="checkbox"/>	9903	5.0000	1980.5473
K:\MassHunter\Data\2210510ACAL\2210510A_07.d	Calibration	3	<input checked="" type="checkbox"/>	9714	5.0000	1942.8429
K:\MassHunter\Data\2210510ACAL\2210510A_08.d	Calibration	4	<input checked="" type="checkbox"/>	9655	5.0000	1930.9859
K:\MassHunter\Data\2210510ACAL\2210510A_09.d	Calibration	5	<input checked="" type="checkbox"/>	9840	5.0000	1968.0069
K:\MassHunter\Data\2210510ACAL\2210510A_10.d	Calibration	6	<input checked="" type="checkbox"/>	9106	5.0000	1821.1466

Extracted ISTD

M7PFUnA

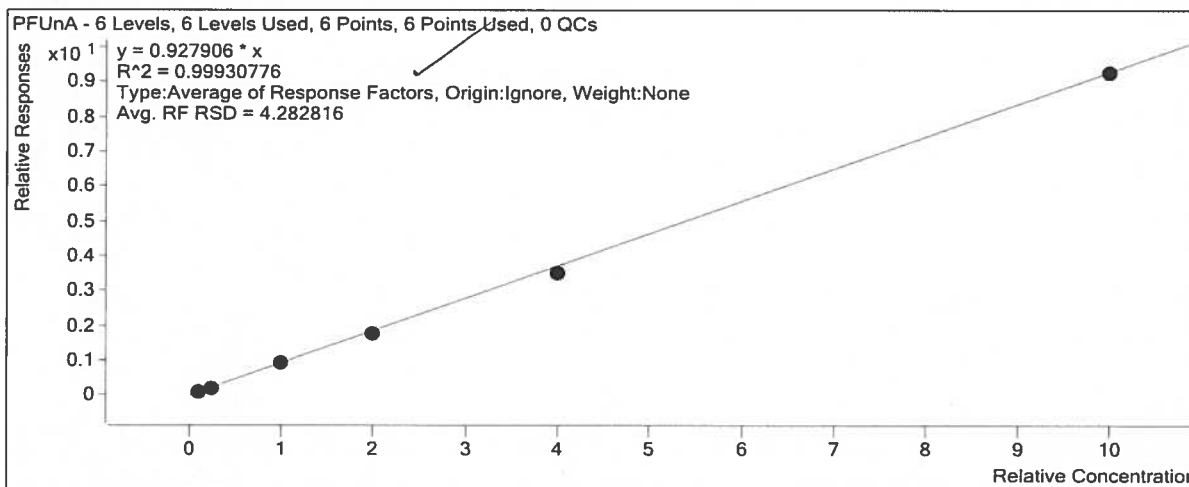
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210510ACAL\2210510A_05.d	Calibration	1	<input checked="" type="checkbox"/>	56817	5.0000	11363.4372
K:\MassHunter\Data\2210510ACAL\2210510A_06.d	Calibration	2	<input checked="" type="checkbox"/>	57684	5.0000	11536.7042
K:\MassHunter\Data\2210510ACAL\2210510A_07.d	Calibration	3	<input checked="" type="checkbox"/>	56985	5.0000	11397.0840
K:\MassHunter\Data\2210510ACAL\2210510A_08.d	Calibration	4	<input checked="" type="checkbox"/>	57121	5.0000	11424.1848
K:\MassHunter\Data\2210510ACAL\2210510A_09.d	Calibration	5	<input checked="" type="checkbox"/>	57932	5.0000	11586.4971
K:\MassHunter\Data\2210510ACAL\2210510A_10.d	Calibration	6	<input checked="" type="checkbox"/>	54855	5.0000	10970.9068

Quantitative Analysis Calibration Report

Target Compound

PFUnA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210510ACAL\2210510A_05.d	Calibration	1	<input checked="" type="checkbox"/>	5643	0.5000	0.9931
K:\MassHunter\Data\2210510ACAL\2210510A_06.d	Calibration	2	<input checked="" type="checkbox"/>	13521	1.2500	0.9376
K:\MassHunter\Data\2210510ACAL\2210510A_07.d	Calibration	3	<input checked="" type="checkbox"/>	53317	5.0000	0.9356
K:\MassHunter\Data\2210510ACAL\2210510A_08.d	Calibration	4	<input checked="" type="checkbox"/>	102116	10.0000	0.8939
K:\MassHunter\Data\2210510ACAL\2210510A_09.d	Calibration	5	<input checked="" type="checkbox"/>	203844	20.0000	0.8797
K:\MassHunter\Data\2210510ACAL\2210510A_10.d	Calibration	6	<input checked="" type="checkbox"/>	508792	50.0000	0.9275

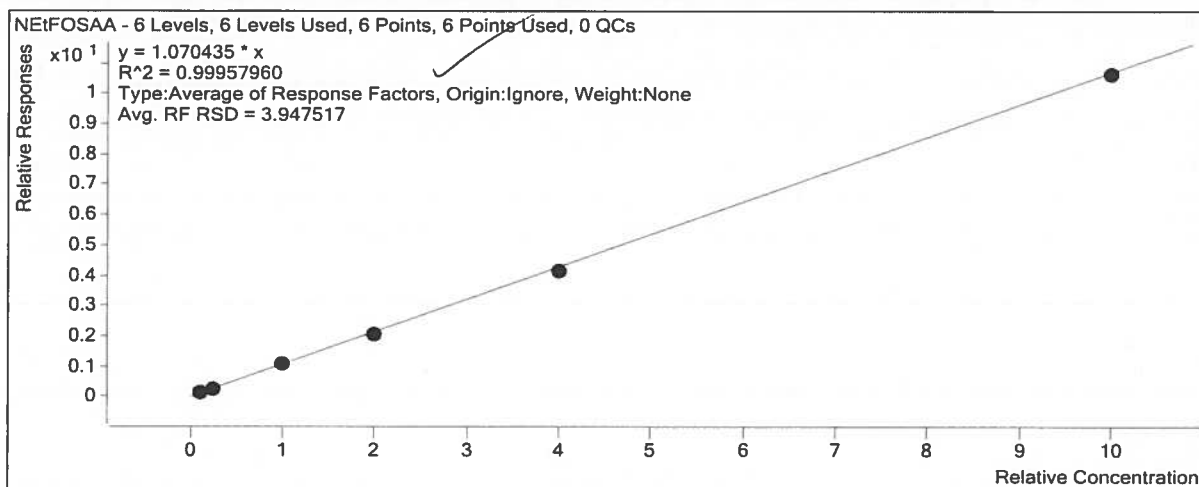


Target Compound

NETFOSAA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210510ACAL\2210510A_05.d	Calibration	1	<input checked="" type="checkbox"/>	1145	0.5000	1.1377
K:\MassHunter\Data\2210510ACAL\2210510A_06.d	Calibration	2	<input checked="" type="checkbox"/>	2709	1.2500	1.0943
K:\MassHunter\Data\2210510ACAL\2210510A_07.d	Calibration	3	<input checked="" type="checkbox"/>	10399	5.0000	1.0705
K:\MassHunter\Data\2210510ACAL\2210510A_08.d	Calibration	4	<input checked="" type="checkbox"/>	19710	10.0000	1.0207
K:\MassHunter\Data\2210510ACAL\2210510A_09.d	Calibration	5	<input checked="" type="checkbox"/>	40687	20.0000	1.0337
K:\MassHunter\Data\2210510ACAL\2210510A_10.d	Calibration	6	<input checked="" type="checkbox"/>	97042	50.0000	1.0657

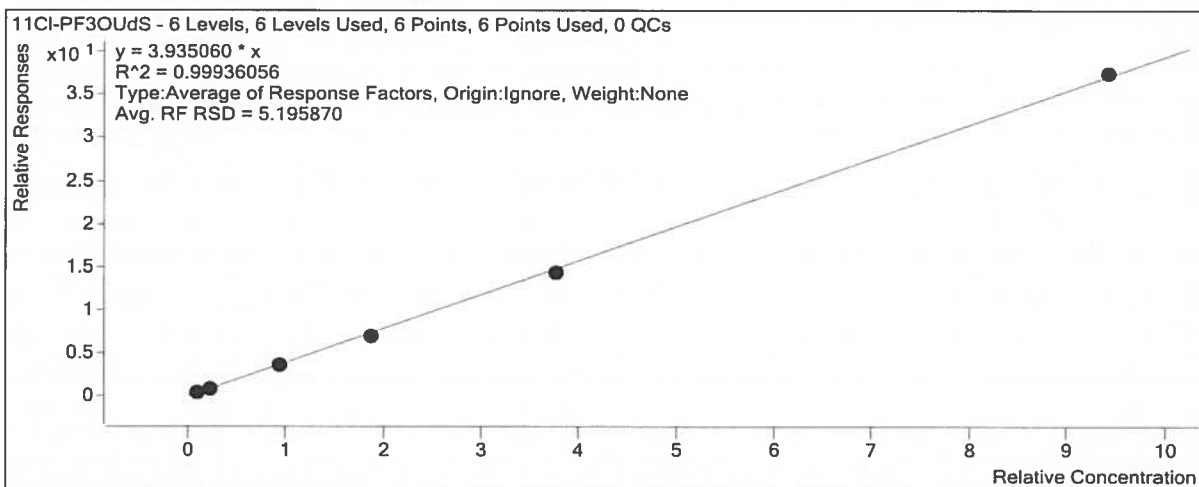
Quantitative Analysis Calibration Report



Target Compound

11CI-PF3OUdS

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210510ACAL\2210510A_05.d	Calibration	1	<input checked="" type="checkbox"/>	3015	0.4715	4.2935
K:\MassHunter\Data\2210510ACAL\2210510A_06.d	Calibration	2	<input checked="" type="checkbox"/>	7149	1.1788	3.9219
K:\MassHunter\Data\2210510ACAL\2210510A_07.d	Calibration	3	<input checked="" type="checkbox"/>	28211	4.7150	3.9309
K:\MassHunter\Data\2210510ACAL\2210510A_08.d	Calibration	4	<input checked="" type="checkbox"/>	53164	9.4300	3.6913
K:\MassHunter\Data\2210510ACAL\2210510A_09.d	Calibration	5	<input checked="" type="checkbox"/>	112644	18.8600	3.7965
K:\MassHunter\Data\2210510ACAL\2210510A_10.d	Calibration	6	<input checked="" type="checkbox"/>	279422	47.1500	3.9762



Extracted ISTD

MPFDoA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210510ACAL\2210510A_05.d	Calibration	1	<input checked="" type="checkbox"/>	61983	5.0000	12396.5861

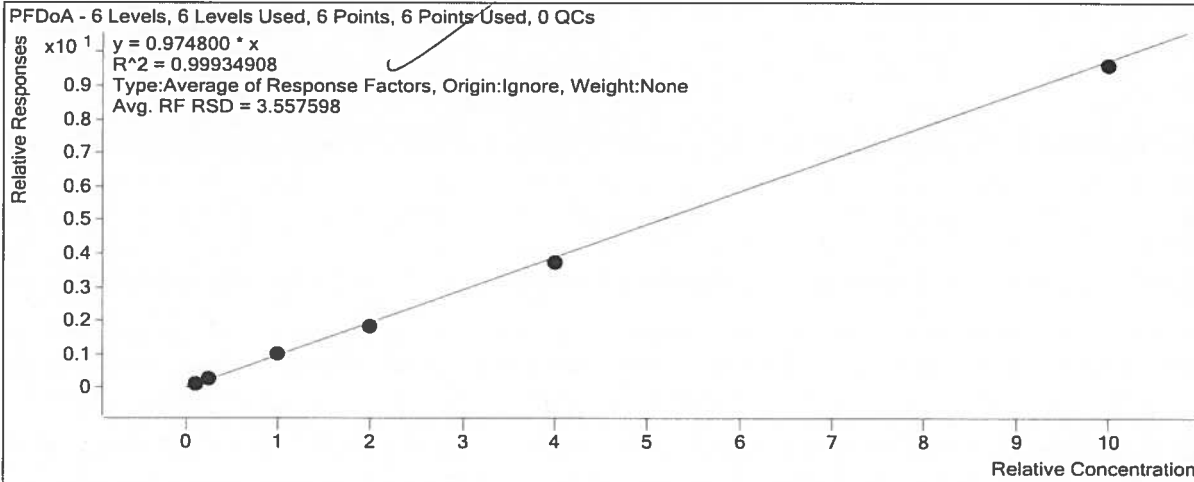
Quantitative Analysis Calibration Report

K:\MassHunter\Data\2210510ACAL\2210510A_06.d	Calibration	2	<input checked="" type="checkbox"/>	64785	5.0000	12956.9986
K:\MassHunter\Data\2210510ACAL\2210510A_07.d	Calibration	3	<input checked="" type="checkbox"/>	62942	5.0000	12588.4761
K:\MassHunter\Data\2210510ACAL\2210510A_08.d	Calibration	4	<input checked="" type="checkbox"/>	64149	5.0000	12829.7477
K:\MassHunter\Data\2210510ACAL\2210510A_09.d	Calibration	5	<input checked="" type="checkbox"/>	65807	5.0000	13161.3780
K:\MassHunter\Data\2210510ACAL\2210510A_10.d	Calibration	6	<input checked="" type="checkbox"/>	64278	5.0000	12855.5001

Target Compound

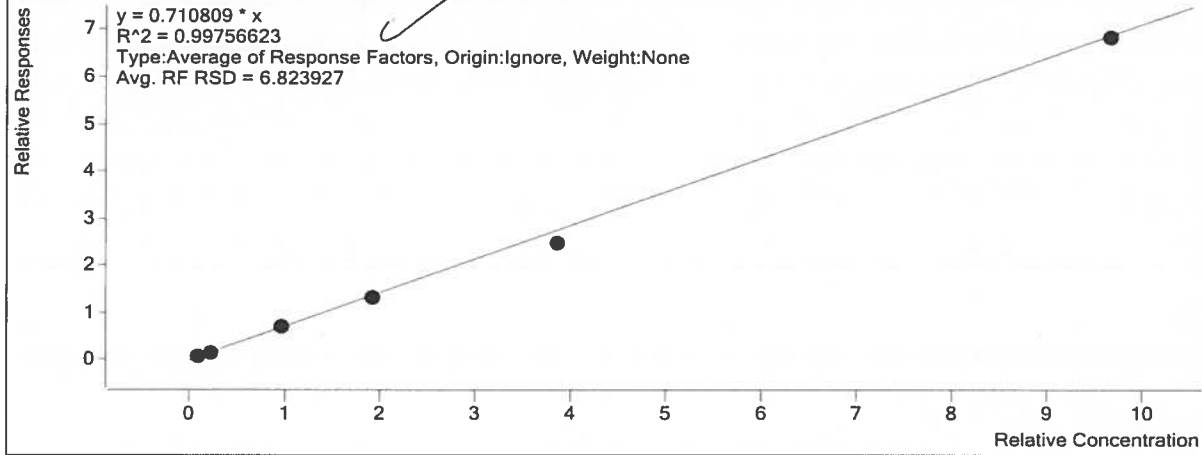
PFD_{0A}

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210510ACAL\2210510A_05.d	Calibration	1	<input checked="" type="checkbox"/>	6227	0.5000	1.0046
K:\MassHunter\Data\2210510ACAL\2210510A_06.d	Calibration	2	<input checked="" type="checkbox"/>	16119	1.2500	0.9952
K:\MassHunter\Data\2210510ACAL\2210510A_07.d	Calibration	3	<input checked="" type="checkbox"/>	63826	5.0000	1.0140
K:\MassHunter\Data\2210510ACAL\2210510A_08.d	Calibration	4	<input checked="" type="checkbox"/>	119525	10.0000	0.9316
K:\MassHunter\Data\2210510ACAL\2210510A_09.d	Calibration	5	<input checked="" type="checkbox"/>	247643	20.0000	0.9408
K:\MassHunter\Data\2210510ACAL\2210510A_10.d	Calibration	6	<input checked="" type="checkbox"/>	618699	50.0000	0.9625

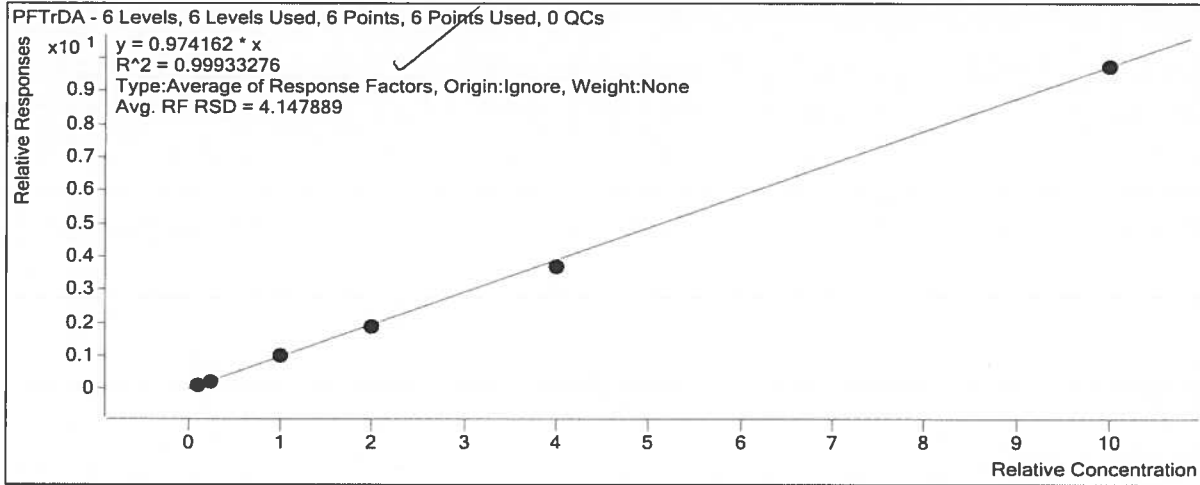


Quantitative Analysis Calibration Report

PFDoS - 6 Levels, 6 Levels Used, 6 Points, 6 Points Used, 0 QCs

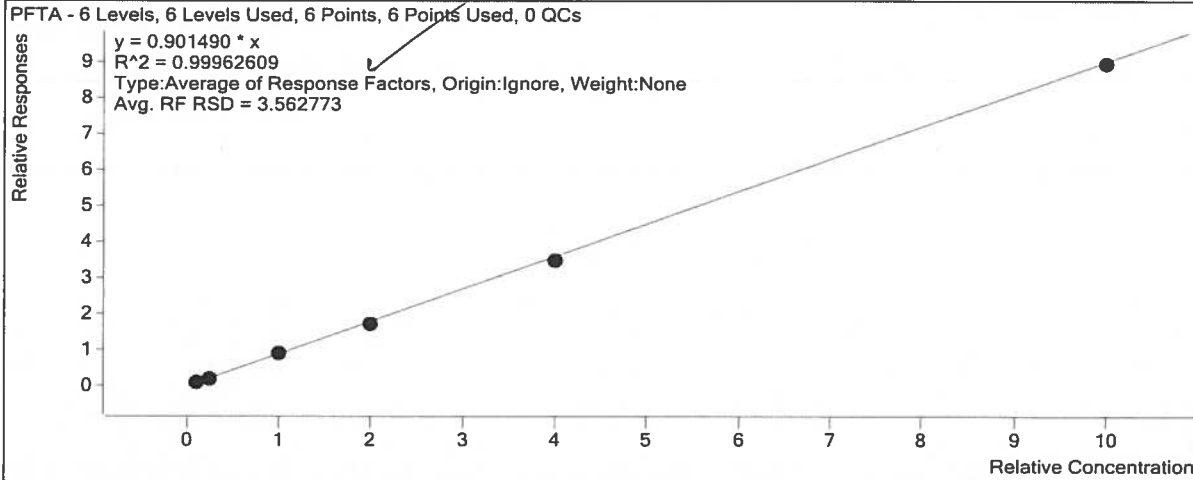


Quantitative Analysis Calibration Report



Quantitative Analysis Calibration Report

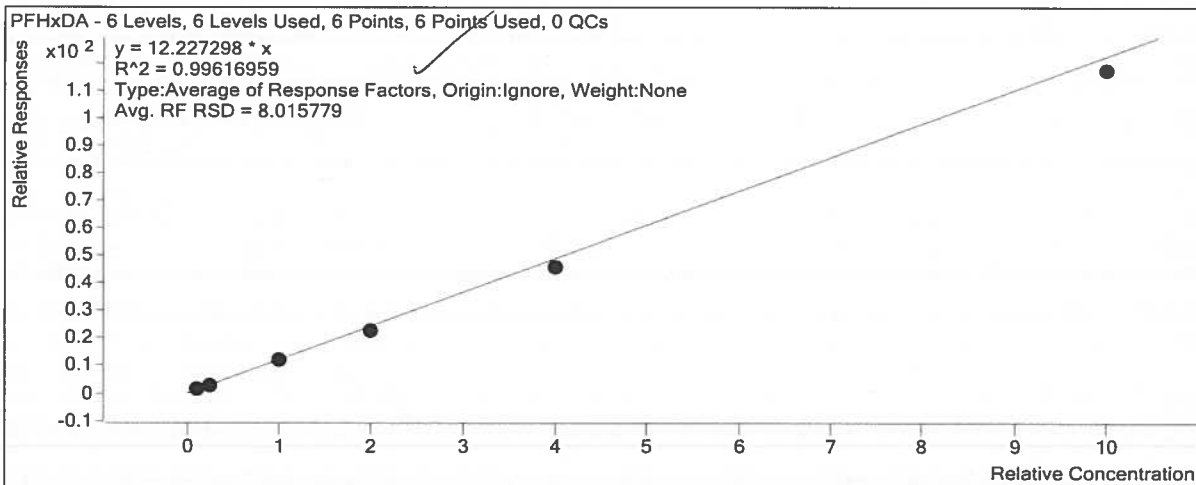
K:\MassHunter\Data\2210510ACAL\2210510A_07.d	Calibration	3	<input checked="" type="checkbox"/>	62183	5.0000	0.9295
K:\MassHunter\Data\2210510ACAL\2210510A_08.d	Calibration	4	<input checked="" type="checkbox"/>	117985	10.0000	0.8686
K:\MassHunter\Data\2210510ACAL\2210510A_09.d	Calibration	5	<input checked="" type="checkbox"/>	242920	20.0000	0.8716
K:\MassHunter\Data\2210510ACAL\2210510A_10.d	Calibration	6	<input checked="" type="checkbox"/>	616782	50.0000	0.8972



Target Compound

PFHxDA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210510ACAL\2210510A_05.d	Calibration	1	<input checked="" type="checkbox"/>	6851	0.5000	13.9652
K:\MassHunter\Data\2210510ACAL\2210510A_06.d	Calibration	2	<input checked="" type="checkbox"/>	16124	1.2500	12.6000
K:\MassHunter\Data\2210510ACAL\2210510A_07.d	Calibration	3	<input checked="" type="checkbox"/>	64333	5.0000	12.2763
K:\MassHunter\Data\2210510ACAL\2210510A_08.d	Calibration	4	<input checked="" type="checkbox"/>	121017	10.0000	11.3908
K:\MassHunter\Data\2210510ACAL\2210510A_09.d	Calibration	5	<input checked="" type="checkbox"/>	240508	20.0000	11.3836
K:\MassHunter\Data\2210510ACAL\2210510A_10.d	Calibration	6	<input checked="" type="checkbox"/>	622634	50.0000	11.7479



7E
ORGANICS CALIBRATION VERIFICATION

Report No:	221050411	Instrument ID:	QQQ3
Analysis Date:	05/13/2021 19:39	Lab File ID:	2210513A_21.d
Analytical Method:	EPA 537 Mod Isotope Dilution	Analytical Batch:	711161

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomersulfonic acid	ng/L	9510	8830	93 ✓	70	130	
8:2 Fluorotelomersulfonic acid	ng/L	9600	9480	99	70	130	
NEtFOSAA	ng/L	10000	9410	94	70	130	
NMeFOSAA	ng/L	10000	9420	94	70	130	
Perfluorobutanoic acid	ng/L	10000	9360	94	70	130	
Perfluorobutanesulfonic acid	ng/L	8870	8280	93	70	130	
Perfluorodecanoic acid	ng/L	10000	9470	95	70	130	
Perfluorododecanoic acid	ng/L	10000	9380	94	70	130	
Perfluoroheptanoic acid	ng/L	10000	9620	96	70	130	
Perfluorohexanoic acid	ng/L	10000	9410	94	70	130	
Perfluorohexanesulfonic acid	ng/L	9140	8890	97	70	130	
Perfluorononanoic acid	ng/L	10000	9300	93	70	130	
Perfluorooctanoic acid	ng/L	10000	9230	92	70	130	
Perfluorooctanesulfonic acid	ng/L	9280	8750	94	70	130	
Perfluoropentanoic acid	ng/L	10000	9460	95	70	130	
Perfluorotetradecanoic acid	ng/L	10000	9620	96	70	130	
Perfluorotridecanoic acid	ng/L	10000	9420	94	70	130	
Perfluoroundecanoic acid	ng/L	10000	9710	97	70	130	

FORM 7E - ORG

7E
ORGANICS CALIBRATION VERIFICATION

Report No:	221050411	Instrument ID:	QQQ3
Analysis Date:	05/14/2021 08:40	Lab File ID:	2210513A_73.d
Analytical Method:	EPA 537 Mod Isotope Dilution	Analytical Batch:	711161

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomersulfonic acid	ng/L	9510	8870	93 ✓	70	130	
8:2 Fluorotelomersulfonic acid	ng/L	9600	8900	93	70	130	
NEtFOSAA	ng/L	10000	9410	94	70	130	
NMeFOSAA	ng/L	10000	9320	93	70	130	
Perfluorobutanoic acid	ng/L	10000	9270	93	70	130	
Perfluorobutanesulfonic acid	ng/L	8870	8400	95	70	130	
Perfluorodecanoic acid	ng/L	10000	9650	96	70	130	
Perfluorododecanoic acid	ng/L	10000	9550	96	70	130	
Perfluoroheptanoic acid	ng/L	10000	9460	95	70	130	
Perfluorohexanoic acid	ng/L	10000	9380	94	70	130	
Perfluorohexanesulfonic acid	ng/L	9140	8910	97	70	130	
Perfluorononanoic acid	ng/L	10000	9390	94	70	130	
Perfluorooctanoic acid	ng/L	10000	9460	95	70	130	
Perfluorooctanesulfonic acid	ng/L	9280	8710	94	70	130	
Perfluoropentanoic acid	ng/L	10000	9430	94	70	130	
Perfluorotetradecanoic acid	ng/L	10000	9690	97	70	130	
Perfluorotridecanoic acid	ng/L	10000	9690	97	70	130	
Perfluoroundecanoic acid	ng/L	10000	9570	96	70	130	

FORM 7E - ORG

7E
ORGANICS CALIBRATION VERIFICATION

Report No:	221050411	Instrument ID:	QQQ3
Analysis Date:	05/14/2021 11:36	Lab File ID:	2210513A_85.d
Analytical Method:	EPA 537 Mod Isotope Dilution	Analytical Batch:	711161

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomersulfonic acid	ng/L	9510	9080	95 ✓	70	130	
8:2 Fluorotelomersulfonic acid	ng/L	9600	9870	103	70	130	
NEtFOSAA	ng/L	10000	9360	94	70	130	
NMeFOSAA	ng/L	10000	9250	92	70	130	
Perfluorobutanoic acid	ng/L	10000	9260	93	70	130	
Perfluorobutanesulfonic acid	ng/L	8870	8330	94	70	130	
Perfluorodecanoic acid	ng/L	10000	9650	97	70	130	
Perfluorododecanoic acid	ng/L	10000	9650	96	70	130	
Perfluoroheptanoic acid	ng/L	10000	9610	96	70	130	
Perfluorohexanoic acid	ng/L	10000	9360	94	70	130	
Perfluorohexanesulfonic acid	ng/L	9140	8810	96	70	130	
Perfluorononanoic acid	ng/L	10000	9450	95	70	130	
Perfluorooctanoic acid	ng/L	10000	9380	94	70	130	
Perfluorooctanesulfonic acid	ng/L	9280	8720	94	70	130	
Perfluoropentanoic acid	ng/L	10000	9440	94	70	130	
Perfluorotetradecanoic acid	ng/L	10000	9720	97	70	130	
Perfluorotridecanoic acid	ng/L	10000	9630	96	70	130	
Perfluoroundecanoic acid	ng/L	10000	9620	96	70	130	

FORM 7E - ORG

INJECTION INTERNAL STANDARD AREA SUMMARY

Report No:	221050411	Standard ID:	1205 (ICAL Midpoint)
Analyst:	RXJ	Instrument ID:	QQQ3
Analysis Date:	05/10/21 14:44	Lab File ID:	2210510A_09.d
Analytical Method:	PFAS Isotope Dilution QSM B15	Analytical Batch:	711477

	M2PFDA	M2PFHxA	M2PFOA	M4PFOS
	Area	Area	Area	Area
STANDARD	203872	327393	162813	33012

CLIENT SAMPLE ID	LAB SAMP ID	✓	#	✓	#	✓	#	✓	#
MB2183946	2183946	206505		300142		161692		32014	
LCS2183947	2183947	210424		314940		168591		32979	
LCSD2183948	2183948	209395		314656		168649		32759	
AOI01-01-SB-00-02	22105041101	208320		305490		163929		32080	
AOI01-01-SB-05-07	22105041102	217045		322138		173051		33652	
AOI01-02-SB-00-02	22105041103	223145		307739		166079		33421	
AOI01-02-SB-04-06	22105041104	197924		315264		168076		31353	
AOI01-09-SB-00-02	22105041127	222229		320637		172431		33688	
AOI01-09-SB-00-02-D	22105041128	220525		315243		169216		33426	
AOI01-09-SB-05-07	22105041129	212909		309576		167914		32663	
AOI01-09-SB-08-10	22105041130	209795		307517		166209		32140	
AOI01-04-GWDL	22105041141DL	250410		364909		197245		37900	
AOI01-03-GW-DDL	22105041142DL	211167		303298		163802		31339	

AREA UPPER LIMIT = +50% of internal standard area
 AREA LOWER LIMIT = -50% of internal standard area

Column used to flag values outside QC limits
 * Value outside QC limits

INJECTION INTERNAL STANDARD AREA SUMMARY

Report No:	221050411	Standard ID:	1205 (ICAL Midpoint)
Analyst:	RXJ	Instrument ID:	QQQ3
Analysis Date:	05/10/21 14:44	Lab File ID:	2210510A_09.d
Analytical Method:	PFAS Isotope Dilution QSM B15	Analytical Batch:	711722

	M2PFDA	M2PFHxA	M2PFOA	M4PFOS
	Area	Area	Area	Area
STANDARD	203872	327393	162813	33012

CLIENT SAMPLE ID	LAB SAMP ID	#	#	#	#
MB2184338RE	2184338RE	232078	331283	183169	34850
LCS2184339RE	2184339RE	229987	312846	175526	34568
AOI01-03-SB-00-02RE	22105041105RE	270987	360720	203900	41300
AOI01-03-SB-03-05RE	22105041106RE	216788	286302	162252	32399
AOI01-03-SB-05-07RE	22105041107RE	260756	346332	195875	38910
AOI01-04-SB-00-02RE	22105041108RE	189627	257346	144817	28675
AOI01-04-SB-03-05RE	22105041109RE	225518	303089	168073	33968
AOI01-05-SB-00-02RE	22105041111RE	251220	326792	186324	37866
AOI01-05-SB-02-04RE	22105041113RE	226876	294704	163765	33347
AOI01-05-SB-04-06RE	22105041114RE	210393	286679	160831	31871
AOI01-06-SB-00-02RE	22105041116RE	227360	301140	166759	34090
AOI01-06-SB-03-05	22105041117	208581	284685	157778	31778
AOI01-07-SB-00-02RE	22105041118RE	256237	337901	190900	38507
AOI01-07-SB-00-02-DRE	22105041119RE	271767	358633	204118	40821
AOI01-07-SB-02-04RE	22105041120RE	265522	365430	200822	40321
AOI01-07-SB-04-06RE	22105041121RE	247232	338893	187371	37517
AOI01-08-SB-00-02	22105041122	254743	314066	181122	37164
AOI01-08-SB-00-02 MS	22105041123	339327 *	421665	247398 *	49044
AOI01-08-SB-00-02 MSD	22105041124	276169	334691	202149	39521
AOI01-08-SB-02-04DL	22105041125DL	222925	343754	192470	33582
AOI01-08-SB-02-04RE	22105041125RE	275009	382319	214289	37468
AOI01-08-SB-04-06RE	22105041126RE	237093	324813	181848	35423
AOI01-10-SB-00-02-DRE	22105041132RE	252582	327769	184723	37266

* for information only

AREA UPPER LIMIT = +50% of internal standard area

AREA LOWER LIMIT = -50% of internal standard area

Column used to flag values outside QC limits

* Value outside QC limits

Instrument: QQQ3 HBN: 710369
 Batch: 2210505A
 Current ICAL Bath: 2210503ACAL
 20mM Amm Acetate 016-66-4 5/7/2021
 Methanol 2130147 6/30/2025
 Calibration Std 016-64-4 8/24/2021
 ICV Std 016-21-3 8/2/2021
 EIS Mix 016-64-3 10/23/2021
 IIS Mix 016-64-5 10/26/2021

Name	Data File	Type	Acq. Date-Time	Comment	Dil.
IB	2210503A_1.d	Blank	5/3/2021 17:14	RXJ,QQQ3, Instrument blank/Instrument Idle	1
1201	2210503A_2.d	Cal	5/3/2021 17:28	RXJ,QQQ3,Cal point	1
1202	2210503A_3.d	Cal	5/3/2021 17:43	RXJ,QQQ3,Cal point	1
1203	2210503A_4.d	Cal	5/3/2021 17:58	RXJ,QQQ3,Cal point	1
1204	2210503A_5.d	Cal	5/3/2021 18:12	RXJ,QQQ3,Cal point	1
1205	2210503A_6.d	Cal	5/3/2021 18:27	RXJ,QQQ3,Cal point	1
1206	2210503A_7.d	Cal	5/3/2021 18:42	RXJ,QQQ3,Cal point	1
IB	2210503A_8.d	Blank	5/3/2021 19:09	RXJ,QQQ3, Instrument blank/Instrument Idle	1
1500	2210503A_9.d	Blank	5/3/2021 19:23	RXJ,QQQ3,BLANK	1
1600	2210503A_10.d	Sample	5/3/2021 19:38	RXJ,QQQ3,ICV	1
1450	2210503A_11.d	QC	5/3/2021 19:53	RXJ,QQQ3,CCV	1
IB	2210505A_1.d	Sample	5/5/2021 12:21	RXJ,QQQ3, Instrument blank/Instrument Idle	1
IB	2210505A_2.d	Sample	5/5/2021 12:36	RXJ,QQQ3, Instrument blank/Instrument Idle	1
1500	2210505A_3.d	Sample	5/5/2021 12:50	RXJ,QQQ3,BLANK	1
1450	2210505A_4.d	QC	5/5/2021 13:05	MRA,QQQ3,CCV	1
1204test	2210505A_5.d	Sample	5/5/2021 13:20	MRA,QQQ3,test	1
IB	2210505A_6.d	Sample	5/5/2021 14:39	RXJ,QQQ3, Instrument blank/Instrument Idle	1
2179810	2210505A_7.d	Sample	5/5/2021 14:54	MRA,QQQ3,710037	1
2179811	2210505A_8.d	QC	5/5/2021 15:08	MRA,QQQ3,710037	1
2179812	2210505A_9.d	QC	5/5/2021 15:23	MRA,QQQ3,710037	1
22104223501 10x	2210505A_10.d	Sample	5/5/2021 15:38	MRA,QQQ3,710037	10
22104223502 10x	2210505A_11.d	QC	5/5/2021 15:52	MRA,QQQ3,710037	10
22104223503 10x	2210505A_12.d	QC	5/5/2021 16:07	MRA,QQQ3,710037	10

22104260614	2210505A_13.d	Sample	5/5/2021 16:21	MRA,QQQ3,710037	1
1400	2210505A_14.d	QC	5/5/2021 16:36	MRA,QQQ3,CCV	1
22104305901	2210505A_15.d	Sample	5/5/2021 16:51	MRA,QQQ3,710037	1
22105010801	2210505A_16.d	Sample	5/5/2021 17:05	MRA,QQQ3,710037	1
22105010802	2210505A_17.d	Sample	5/5/2021 17:20	MRA,QQQ3,710037	1
22105010803	2210505A_18.d	Sample	5/5/2021 17:34	MRA,QQQ3,710037	1
22105010804	2210505A_19.d	QC	5/5/2021 17:49	MRA,QQQ3,710037	1
22105010805	2210505A_20.d	QC	5/5/2021 18:04	MRA,QQQ3,710037	1
22105010806	2210505A_21.d	Sample	5/5/2021 18:18	MRA,QQQ3,710037	1
22104302644	2210505A_22.d	Sample	5/5/2021 18:33	MRA,QQQ3,710037	1
22104302645	2210505A_23.d	Sample	5/5/2021 18:47	MRA,QQQ3,710037	1
22105041147	2210505A_24.d	Sample	5/5/2021 19:02	MRA,QQQ3,710037	1
1400	2210505A_25.d	QC	5/5/2021 19:17	MRA,QQQ3,CCV	1
22104302647	2210505A_26.d	Sample	5/5/2021 19:31	MRA,QQQ3,710037	1
22104302648	2210505A_27.d	QC	5/5/2021 19:46	MRA,QQQ3,710037	1
22104302649	2210505A_28.d	QC	5/5/2021 20:01	MRA,QQQ3,710037	1
22104302650	2210505A_29.d	Sample	5/5/2021 20:15	MRA,QQQ3,710037	1
22104302651	2210505A_30.d	Sample	5/5/2021 20:30	MRA,QQQ3,710037	1
22104302652	2210505A_31.d	Sample	5/5/2021 20:44	MRA,QQQ3,710037	1
2180348	2210505A_32.d	Sample	5/5/2021 20:59	MRA,QQQ3,710145	1
2180349	2210505A_33.d	QC	5/5/2021 21:14	MRA,QQQ3,710145	1
2180350	2210505A_34.d	QC	5/5/2021 21:28	MRA,QQQ3,710145	1
22104260102	2210505A_35.d	Sample	5/5/2021 21:43	MRA,QQQ3,710145	1
1400	2210505A_36.d	QC	5/5/2021 21:57	MRA,QQQ3,CCV	1
22104260103	2210505A_37.d	Sample	5/5/2021 22:12	MRA,QQQ3,710145	1
22104260114	2210505A_38.d	Sample	5/5/2021 22:27	MRA,QQQ3,710145	1
22104260117	2210505A_39.d	Sample	5/5/2021 22:41	MRA,QQQ3,710145	1
22104283101	2210505A_40.d	Sample	5/5/2021 22:56	MRA,QQQ3,710145	1
22104283102	2210505A_41.d	Sample	5/5/2021 23:10	MRA,QQQ3,710145	1
22104283103	2210505A_42.d	Sample	5/5/2021 23:25	MRA,QQQ3,710145	1
22104283104	2210505A_43.d	Sample	5/5/2021 23:40	MRA,QQQ3,710145	1
22104283105	2210505A_44.d	Sample	5/5/2021 23:54	MRA,QQQ3,710145	1
22104283106	2210505A_45.d	Sample	5/6/2021 0:09	MRA,QQQ3,710145	1
22104283107	2210505A_46.d	Sample	5/6/2021 0:23	MRA,QQQ3,710145	1

1400	2210505A_47.d	QC	5/6/2021 0:38	MRA,QQQ3,CCV	1
22104283108	2210505A_48.d	Sample	5/6/2021 0:53	MRA,QQQ3,710145	1
22104283109	2210505A_49.d	Sample	5/6/2021 1:07	MRA,QQQ3,710145	1
22104283110	2210505A_50.d	Sample	5/6/2021 1:22	MRA,QQQ3,710145	1
22104273301	2210505A_51.d	Sample	5/6/2021 1:36	MRA,QQQ3,710145	1
22104273302	2210505A_52.d	Sample	5/6/2021 1:51	MRA,QQQ3,710145	1
22104273303	2210505A_53.d	Sample	5/6/2021 2:06	MRA,QQQ3,710145	1
22104273304	2210505A_54.d	Sample	5/6/2021 2:20	MRA,QQQ3,710145	1
22104273305	2210505A_55.d	Sample	5/6/2021 2:35	MRA,QQQ3,710145	1
22104273306	2210505A_56.d	Sample	5/6/2021 2:49	MRA,QQQ3,710145	1
22104273307	2210505A_57.d	Sample	5/6/2021 3:04	MRA,QQQ3,710145	1
1400	2210505A_58.d	QC	5/6/2021 3:19	MRA,QQQ3,CCV	1
1400	2210505A_60.d	QC	5/6/2021 3:34	MRA,QQQ3,CCV	1
IB	2210505A_61.d	Sample	5/6/2021 3:48	RXJ,QQQ3, Instrument blank/Instrument Idle	1
IB	2210505A_62.d	Sample	5/6/2021 4:03	RXJ,QQQ3, Instrument blank/Instrument Idle	1
IB	2210505A_63.d	Sample	5/6/2021 4:18	RXJ,QQQ3, Instrument blank/Instrument Idle	1
IB	2210505A_64.d	Sample	5/6/2021 4:32	RXJ,QQQ3, Instrument blank/Instrument Idle	1
IB	2210505A_65.d	Sample	5/6/2021 4:47	RXJ,QQQ3, Instrument blank/Instrument Idle	1
IB	2210505A_66.d	Sample	5/6/2021 5:02	RXJ,QQQ3, Instrument blank/Instrument Idle	1
IB	2210505A_67.d	Sample	5/6/2021 5:16	RXJ,QQQ3, Instrument blank/Instrument Idle	1
IB	2210505A_68.d	Sample	5/6/2021 5:31	RXJ,QQQ3, Instrument blank/Instrument Idle	1
IB	2210505A_69.d	Sample	5/6/2021 5:45	RXJ,QQQ3, Instrument blank/Instrument Idle	1
IB	2210505A_70.d	Sample	5/6/2021 6:00	RXJ,QQQ3, Instrument blank/Instrument Idle	1
IB	2210505A_71.d	Sample	5/6/2021 6:15	RXJ,QQQ3, Instrument blank/Instrument Idle	1

ORGANICS INSTRUMENT SENSITIVITY CHECK

Report No:	<u>221050411</u>	Instrument ID:	<u>QQQ3</u>
Analysis Date:	<u>05/05/2021 11:05</u>	Lab File ID:	<u>2210505A_4.d</u>
Analytical Method:	<u>EPA 537 Mod Isotope Dilution</u>	Analytical Batch:	<u>710369</u>

<i>ANALYTE</i>	<i>UNITS</i>	<i>TRUE</i>	<i>FOUND</i>	<i>% REC</i>	<i>LCL</i>	<i>UCL</i>	<i>Q</i>
6:2 Fluorotelomersulfonic acid	ng/L	3.81	3.95	104 ✓	70	130	
8:2 Fluorotelomersulfonic acid	ng/L	3.84	3.57	93	70	130	
NEtFOSAA	ng/L	4.00	3.99	100	70	130	
NMeFOSAA	ng/L	4.00	4.64	116	70	130	
Perfluorobutanoic acid	ng/L	4.00	4.23	106	70	130	
Perfluorobutanesulfonic acid	ng/L	3.55	3.58	101	70	130	
Perfluorodecanoic acid	ng/L	4.00	4.12	103	70	130	
Perfluorododecanoic acid	ng/L	4.00	3.99	100	70	130	
Perfluoroheptanoic acid	ng/L	4.00	4.05	101	70	130	
Perfluorohexanoic acid	ng/L	4.00	4.35	109	70	130	
Perfluorohexanesulfonic acid	ng/L	3.66	3.77	103	70	130	
Perfluorononanoic acid	ng/L	4.00	4.05	101	70	130	
Perfluorooctanoic acid	ng/L	4.00	4.32	108	70	130	
Perfluorooctanesulfonic acid	ng/L	3.71	4.14	112	70	130	
Perfluoropentanoic acid	ng/L	4.00	4.12	103	70	130	
Perfluorotetradecanoic acid	ng/L	4.00	4.15	104	70	130	
Perfluorotridecanoic acid	ng/L	4.00	3.94	99	70	130	
Perfluoroundecanoic acid	ng/L	4.00	4.14	103	70	130	

ORGANICS INSTRUMENT BLANK

Report No:	<u>221050411</u>	Instrument ID:	<u>QQQ3</u>
Analysis Date:	<u>05/03/2021 17:23</u>	Lab File ID:	<u>2210503A_9.d</u>
Analytical Method:	<u>EPA 537 Mod Isotope Dilution</u>	Analytical Batch:	<u>710369</u>

ANALYTE	UNITS	RESULT	Q	DL	LOD	LOQ	#
6:2 Fluorotelomersulfonic acid	ng/L	2.00	U	0.94	2.00	4.00	
8:2 Fluorotelomersulfonic acid	ng/L	2.00	U	0.90	2.00	4.00	
NEtFOSAA	ng/L	4.00	U	0.97	4.00	8.00	
NMeFOSAA	ng/L	4.00	U	0.90	4.00	8.00	
Perfluorobutanesulfonic acid	ng/L	2.00	U	0.62	2.00	4.00	
Perfluorobutanoic acid	ng/L	1.24	J	0.90	2.00	4.00	
Perfluorodecanoic acid	ng/L	2.00	U	0.86	2.00	4.00	
Perfluorododecanoic acid	ng/L	2.00	U	0.88	2.00	4.00	
Perfluoroheptanoic acid	ng/L	2.00	U	0.48	2.00	4.00	
Perfluorohexanesulfonic acid	ng/L	2.00	U	0.95	2.00	4.00	
Perfluorohexanoic acid	ng/L	2.00	U	0.94	2.00	4.00	
Perfluorononanoic acid	ng/L	2.00	U	0.78	2.00	4.00	
Perfluorooctanesulfonic acid	ng/L	2.00	U	0.76	2.00	4.00	
Perfluorooctanoic acid	ng/L	2.00	U	0.84	2.00	4.00	
Perfluoropentanoic acid	ng/L	2.00	U	0.85	2.00	4.00	
Perfluorotetradecanoic acid	ng/L	2.00	U	0.98	2.00	4.00	
Perfluorotridecanoic acid	ng/L	2.00	U	0.99	2.00	4.00	
Perfluoroundecanoic acid	ng/L	2.00	U	0.95	2.00	4.00	

* - Result greater than 1/2 LOQ

ORGANICS INSTRUMENT BLANK

Report No:	<u>221050411</u>	Instrument ID:	<u>QQQ3</u>
Analysis Date:	<u>05/05/2021 10:50</u>	Lab File ID:	<u>2210505A_3.d</u>
Analytical Method:	<u>EPA 537 Mod Isotope Dilution</u>	Analytical Batch:	<u>710369</u>

ANALYTE	UNITS	RESULT	Q	DL	LOD	LOQ	#
6:2 Fluorotelomersulfonic acid	ng/L	2.00	U	0.94	2.00	4.00	
8:2 Fluorotelomersulfonic acid	ng/L	2.00	U	0.90	2.00	4.00	
NEtFOSAA	ng/L	4.00	U	0.97	4.00	8.00	
NMeFOSAA	ng/L	4.00	U	0.90	4.00	8.00	
Perfluorobutanesulfonic acid	ng/L	2.00	U	0.62	2.00	4.00	
Perfluorobutanoic acid	ng/L	1.25	J	0.90	2.00	4.00	
Perfluorodecanoic acid	ng/L	2.00	U	0.86	2.00	4.00	
Perfluorododecanoic acid	ng/L	2.00	U	0.88	2.00	4.00	
Perfluoroheptanoic acid	ng/L	2.00	U	0.48	2.00	4.00	
Perfluorohexanesulfonic acid	ng/L	2.00	U	0.95	2.00	4.00	
Perfluorohexanoic acid	ng/L	2.00	U	0.94	2.00	4.00	
Perfluorononanoic acid	ng/L	2.00	U	0.78	2.00	4.00	
Perfluorooctanesulfonic acid	ng/L	2.00	U	0.76	2.00	4.00	
Perfluorooctanoic acid	ng/L	2.00	U	0.84	2.00	4.00	
Perfluoropentanoic acid	ng/L	2.00	U	0.85	2.00	4.00	
Perfluorotetradecanoic acid	ng/L	2.00	U	0.98	2.00	4.00	
Perfluorotridecanoic acid	ng/L	2.00	U	0.99	2.00	4.00	
Perfluoroundecanoic acid	ng/L	2.00	U	0.95	2.00	4.00	

* - Result greater than 1/2 LOQ

Quantitative Analysis Calibration Report

Batch Data Path J:\MassHunter\Data\2210503ACAL\QuantResults\2210505A.batch.bin
Analysis Time 5/6/2021 3:41 PM Analyst Name GCAL\awg
Report Time 5/7/2021 1:52 PM Reporter Name GCAL\lcms
Last Calib Update 5/4/2021 2:01 PM Batch State ResultsCleaned

Calibration Info

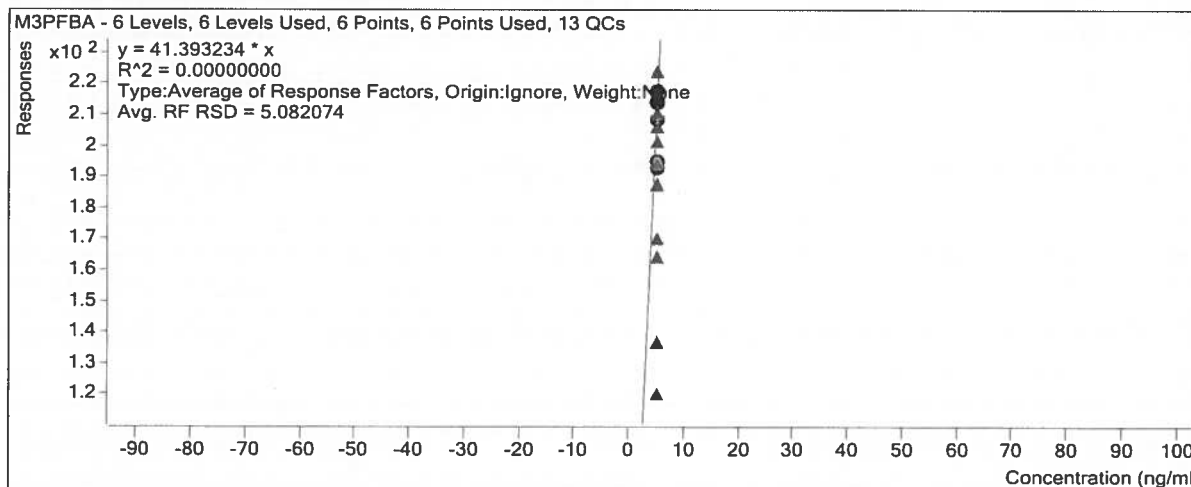
Extracted ISTD MPFBA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210503ACAL\2210503A_2.d	Calibration	1	<input checked="" type="checkbox"/>	32153	5.0000	6430.5116
K:\MassHunter\Data\2210503ACAL\2210503A_3.d	Calibration	2	<input checked="" type="checkbox"/>	32929	5.0000	6585.7570
K:\MassHunter\Data\2210503ACAL\2210503A_4.d	Calibration	3	<input checked="" type="checkbox"/>	31941	5.0000	6388.2429
K:\MassHunter\Data\2210503ACAL\2210503A_5.d	Calibration	4	<input checked="" type="checkbox"/>	31372	5.0000	6274.4029
K:\MassHunter\Data\2210503ACAL\2210503A_6.d	Calibration	5	<input checked="" type="checkbox"/>	33423	5.0000	6684.6181
K:\MassHunter\Data\2210503ACAL\2210503A_7.d	Calibration	6	<input checked="" type="checkbox"/>	32669	5.0000	6533.7348

Instrument ISTD

M3PFBA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210503ACAL\2210503A_2.d	Calibration	1	<input checked="" type="checkbox"/>	195	5.0000	38.9986
K:\MassHunter\Data\2210503ACAL\2210503A_3.d	Calibration	2	<input checked="" type="checkbox"/>	208	5.0000	41.6591
K:\MassHunter\Data\2210503ACAL\2210503A_4.d	Calibration	3	<input checked="" type="checkbox"/>	193	5.0000	38.5862
K:\MassHunter\Data\2210503ACAL\2210503A_5.d	Calibration	4	<input checked="" type="checkbox"/>	214	5.0000	42.7587
K:\MassHunter\Data\2210503ACAL\2210503A_6.d	Calibration	5	<input checked="" type="checkbox"/>	217	5.0000	43.4980
K:\MassHunter\Data\2210503ACAL\2210503A_7.d	Calibration	6	<input checked="" type="checkbox"/>	214	5.0000	42.8587

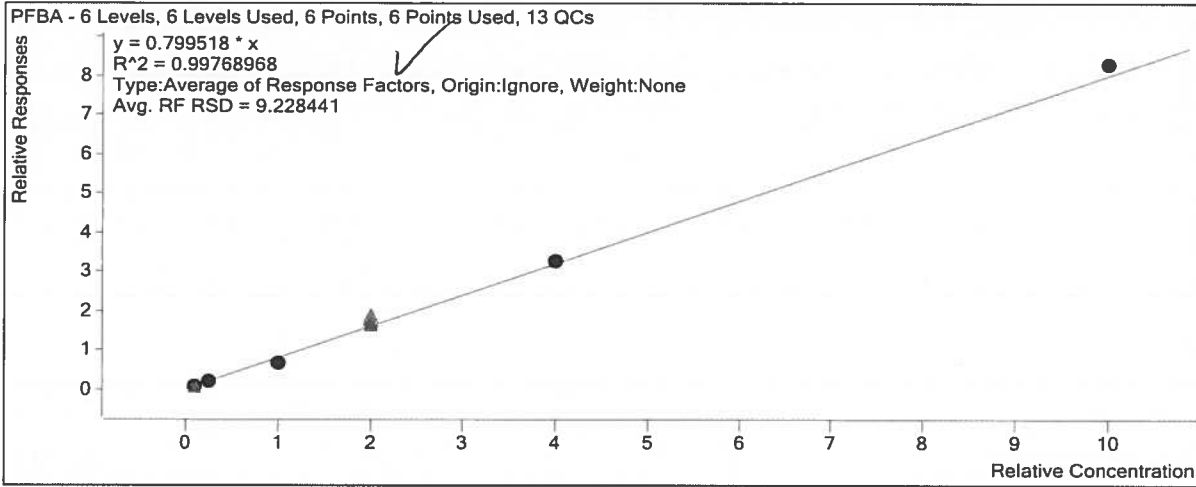


Target Compound

PFBA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210503ACAL\2210503A_2.d	Calibration	1	<input checked="" type="checkbox"/>	2720	0.5000	0.8460
K:\MassHunter\Data\2210503ACAL\2210503A_3.d	Calibration	2	<input checked="" type="checkbox"/>	6780	1.2500	0.8236
K:\MassHunter\Data\2210503ACAL\2210503A_4.d	Calibration	3	<input checked="" type="checkbox"/>	20777	5.0000	0.6505
K:\MassHunter\Data\2210503ACAL\2210503A_5.d	Calibration	4	<input checked="" type="checkbox"/>	52351	10.0000	0.8344
K:\MassHunter\Data\2210503ACAL\2210503A_6.d	Calibration	5	<input checked="" type="checkbox"/>	108883	20.0000	0.8144
K:\MassHunter\Data\2210503ACAL\2210503A_7.d	Calibration	6	<input checked="" type="checkbox"/>	270590	50.0000	0.8283

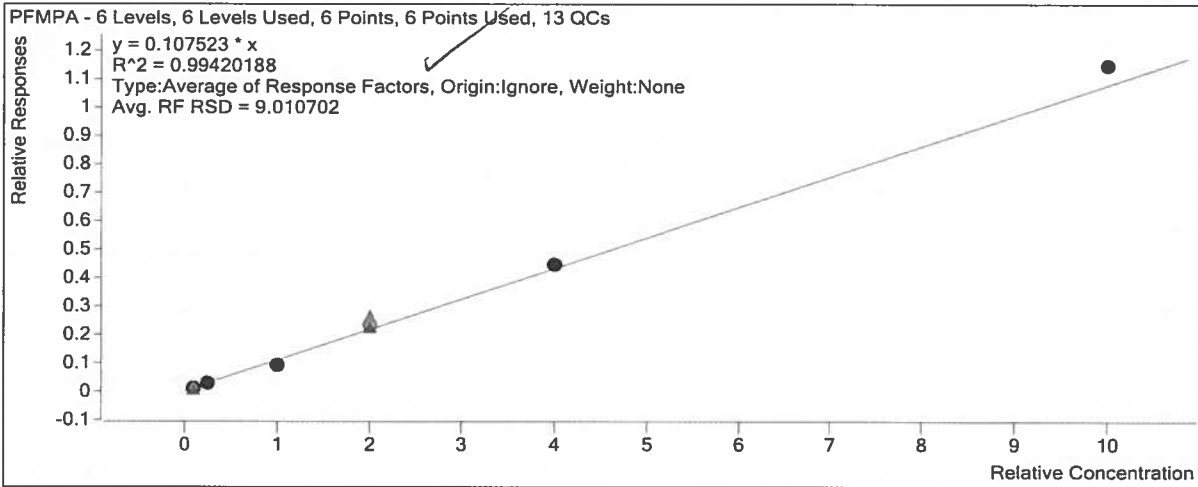
Quantitative Analysis Calibration Report



Target Compound

PFMPA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210503ACAL\2210503A_2.d	Calibration	1	<input checked="" type="checkbox"/>	411	0.5000	0.1070
K:\MassHunter\Data\2210503ACAL\2210503A_3.d	Calibration	2	<input checked="" type="checkbox"/>	1083	1.2500	0.1078
K:\MassHunter\Data\2210503ACAL\2210503A_4.d	Calibration	3	<input checked="" type="checkbox"/>	3415	5.0000	0.0890
K:\MassHunter\Data\2210503ACAL\2210503A_5.d	Calibration	4	<input checked="" type="checkbox"/>	8588	10.0000	0.1155
K:\MassHunter\Data\2210503ACAL\2210503A_6.d	Calibration	5	<input checked="" type="checkbox"/>	18041	20.0000	0.1115
K:\MassHunter\Data\2210503ACAL\2210503A_7.d	Calibration	6	<input checked="" type="checkbox"/>	44327	50.0000	0.1143

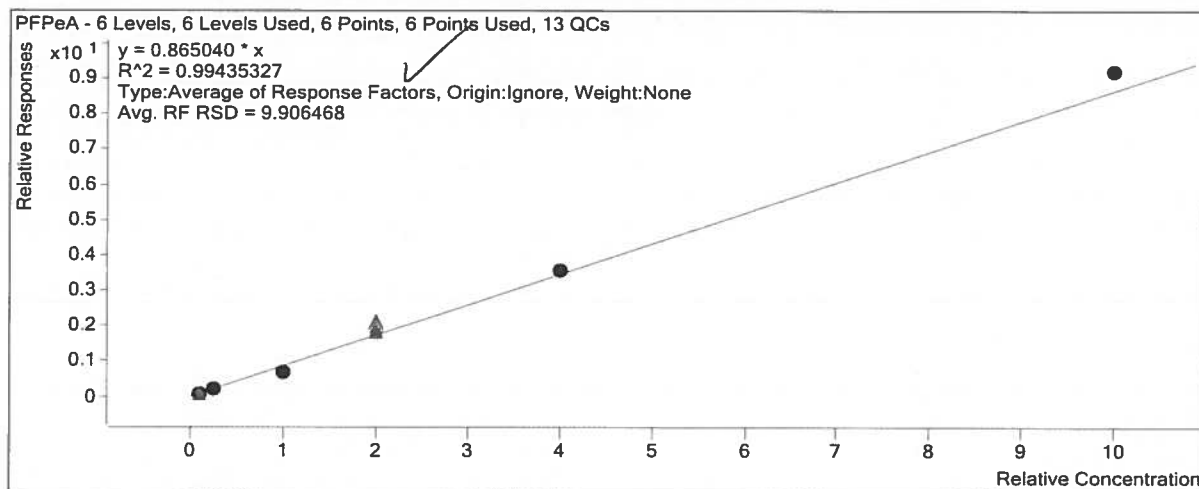


Target Compound

PFPeA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210503ACAL\2210503A_2.d	Calibration	1	<input checked="" type="checkbox"/>	3425	0.5000	0.8912
K:\MassHunter\Data\2210503ACAL\2210503A_3.d	Calibration	2	<input checked="" type="checkbox"/>	8594	1.2500	0.8556
K:\MassHunter\Data\2210503ACAL\2210503A_4.d	Calibration	3	<input checked="" type="checkbox"/>	26792	5.0000	0.6981
K:\MassHunter\Data\2210503ACAL\2210503A_5.d	Calibration	4	<input checked="" type="checkbox"/>	69186	10.0000	0.9303
K:\MassHunter\Data\2210503ACAL\2210503A_6.d	Calibration	5	<input checked="" type="checkbox"/>	145097	20.0000	0.8970
K:\MassHunter\Data\2210503ACAL\2210503A_7.d	Calibration	6	<input checked="" type="checkbox"/>	356038	50.0000	0.9179

Quantitative Analysis Calibration Report



Extracted ISTD

MSPFPeA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210503ACAL\2210503A_2.d	Calibration	1	<input checked="" type="checkbox"/>	38430	5.0000	7685.9752
K:\MassHunter\Data\2210503ACAL\2210503A_3.d	Calibration	2	<input checked="" type="checkbox"/>	40177	5.0000	8035.4661
K:\MassHunter\Data\2210503ACAL\2210503A_4.d	Calibration	3	<input checked="" type="checkbox"/>	38377	5.0000	7675.4211
K:\MassHunter\Data\2210503ACAL\2210503A_5.d	Calibration	4	<input checked="" type="checkbox"/>	37184	5.0000	7436.7246
K:\MassHunter\Data\2210503ACAL\2210503A_6.d	Calibration	5	<input checked="" type="checkbox"/>	40439	5.0000	8087.8896
K:\MassHunter\Data\2210503ACAL\2210503A_7.d	Calibration	6	<input checked="" type="checkbox"/>	38786	5.0000	7757.2399

Extracted ISTD

M3PFBS

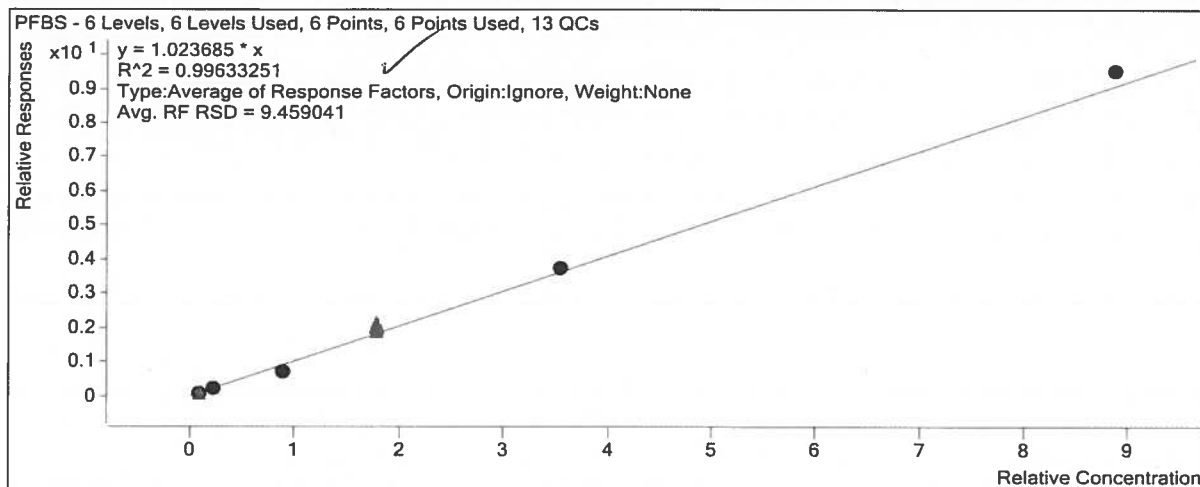
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210503ACAL\2210503A_2.d	Calibration	1	<input checked="" type="checkbox"/>	11502	5.0000	2300.4010
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K:\MassHunter\Data\2210503ACAL\2210503A_6.d	Calibration	5	<input checked="" type="checkbox"/>	11816	5.0000	2363.2274
K:\MassHunter\Data\2210503ACAL\2210503A_7.d	Calibration	6	<input checked="" type="checkbox"/>	11339	5.0000	2267.8885

Target Compound

PFBS

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210503ACAL\2210503A_2.d	Calibration	1	<input checked="" type="checkbox"/>	1082	0.4435	1.0601
K:\MassHunter\Data\2210503ACAL\2210503A_3.d	Calibration	2	<input checked="" type="checkbox"/>	2710	1.1088	1.0423
K:\MassHunter\Data\2210503ACAL\2210503A_4.d	Calibration	3	<input checked="" type="checkbox"/>	8393	4.4350	0.8276
K:\MassHunter\Data\2210503ACAL\2210503A_5.d	Calibration	4	<input checked="" type="checkbox"/>	21262	8.8700	1.0787
K:\MassHunter\Data\2210503ACAL\2210503A_6.d	Calibration	5	<input checked="" type="checkbox"/>	44524	17.7400	1.0620
K:\MassHunter\Data\2210503ACAL\2210503A_7.d	Calibration	6	<input checked="" type="checkbox"/>	107765	44.3500	1.0714

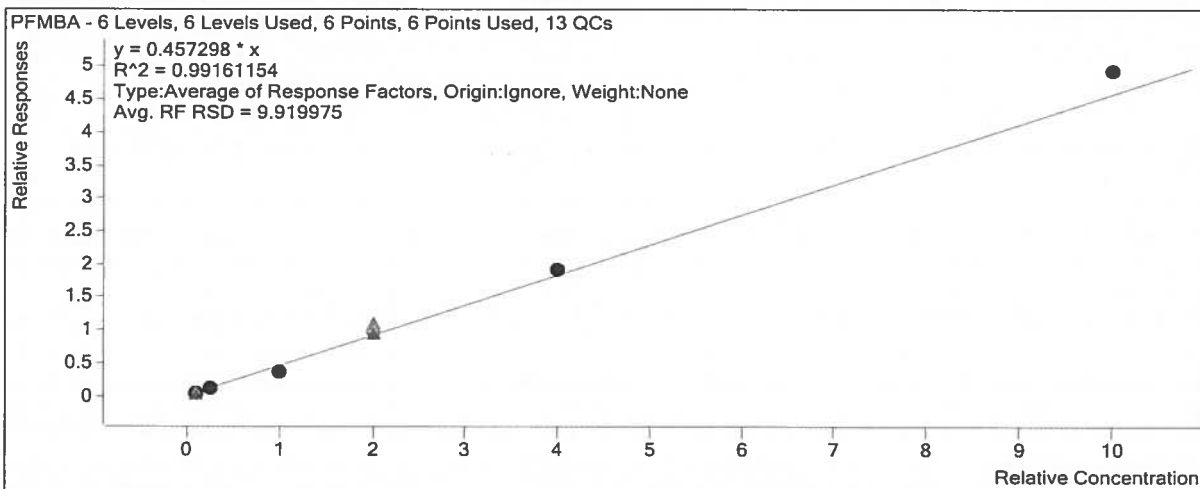
Quantitative Analysis Calibration Report



Target Compound

PFMBA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210503ACAL\2210503A_2.d	Calibration	1	<input checked="" type="checkbox"/>	2220	0.5000	0.4560
K:\MassHunter\Data\2210503ACAL\2210503A_3.d	Calibration	2	<input checked="" type="checkbox"/>	5629	1.2500	0.4497
K:\MassHunter\Data\2210503ACAL\2210503A_4.d	Calibration	3	<input checked="" type="checkbox"/>	17946	5.0000	0.3724
K:\MassHunter\Data\2210503ACAL\2210503A_5.d	Calibration	4	<input checked="" type="checkbox"/>	46345	10.0000	0.4923
K:\MassHunter\Data\2210503ACAL\2210503A_6.d	Calibration	5	<input checked="" type="checkbox"/>	96904	20.0000	0.4807
K:\MassHunter\Data\2210503ACAL\2210503A_7.d	Calibration	6	<input checked="" type="checkbox"/>	236678	50.0000	0.4927

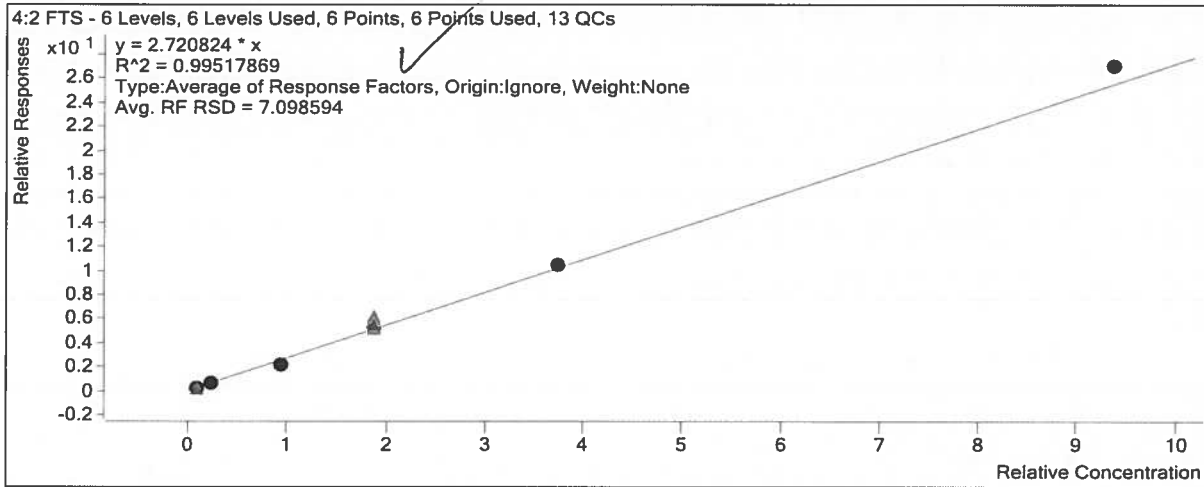


Target Compound

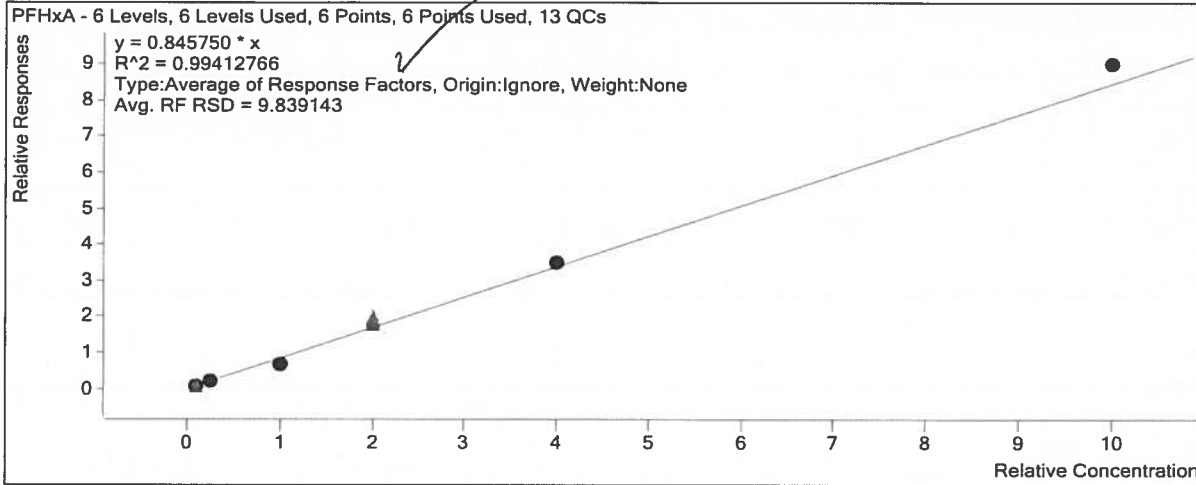
PFEESA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210503ACAL\2210503A_2.d	Calibration	1	<input checked="" type="checkbox"/>	2771	0.4450	3.4913
K:\MassHunter\Data\2210503ACAL\2210503A_3.d	Calibration	2	<input checked="" type="checkbox"/>	7176	1.1125	3.5750
K:\MassHunter\Data\2210503ACAL\2210503A_4.d	Calibration	3	<input checked="" type="checkbox"/>	22918	4.4500	2.9621
K:\MassHunter\Data\2210503ACAL\2210503A_5.d	Calibration	4	<input checked="" type="checkbox"/>	57679	8.9000	3.8509
K:\MassHunter\Data\2210503ACAL\2210503A_6.d	Calibration	5	<input checked="" type="checkbox"/>	121506	17.8000	3.8185
K:\MassHunter\Data\2210503ACAL\2210503A_7.d	Calibration	6	<input checked="" type="checkbox"/>	295890	44.5000	3.9096

Quantitative Analysis Calibration Report



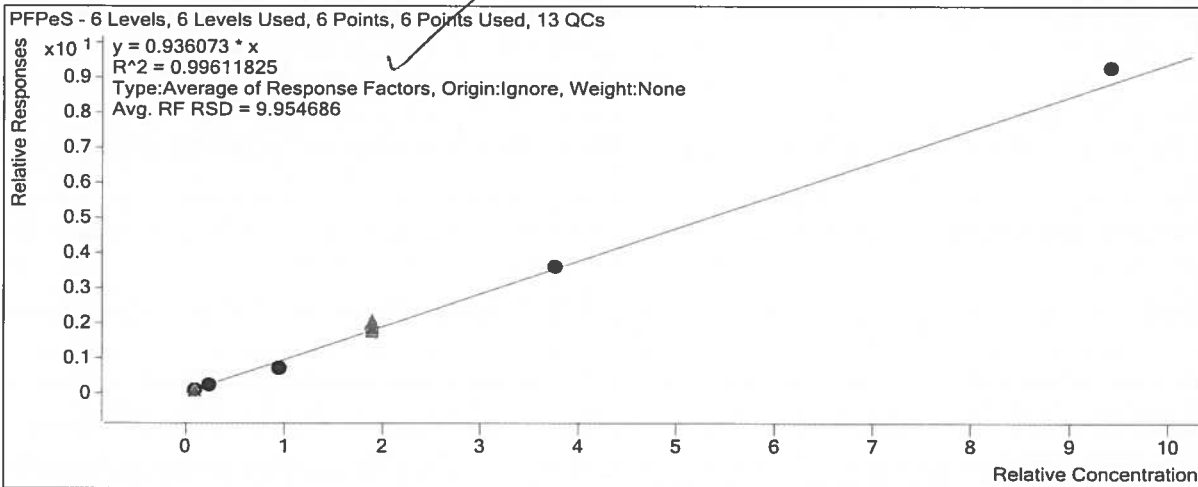
Quantitative Analysis Calibration Report



Target Compound

PFPeS

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210503ACAL\2210503A_2.d	Calibration	1	<input checked="" type="checkbox"/>	1036	0.4705	0.9572
K:\MassHunter\Data\2210503ACAL\2210503A_3.d	Calibration	2	<input checked="" type="checkbox"/>	2755	1.1763	0.9987
K:\MassHunter\Data\2210503ACAL\2210503A_4.d	Calibration	3	<input checked="" type="checkbox"/>	8056	4.7050	0.7488
K:\MassHunter\Data\2210503ACAL\2210503A_5.d	Calibration	4	<input checked="" type="checkbox"/>	20349	9.4100	0.9731
K:\MassHunter\Data\2210503ACAL\2210503A_6.d	Calibration	5	<input checked="" type="checkbox"/>	42495	18.8200	0.9555
K:\MassHunter\Data\2210503ACAL\2210503A_7.d	Calibration	6	<input checked="" type="checkbox"/>	104910	47.0500	0.9832

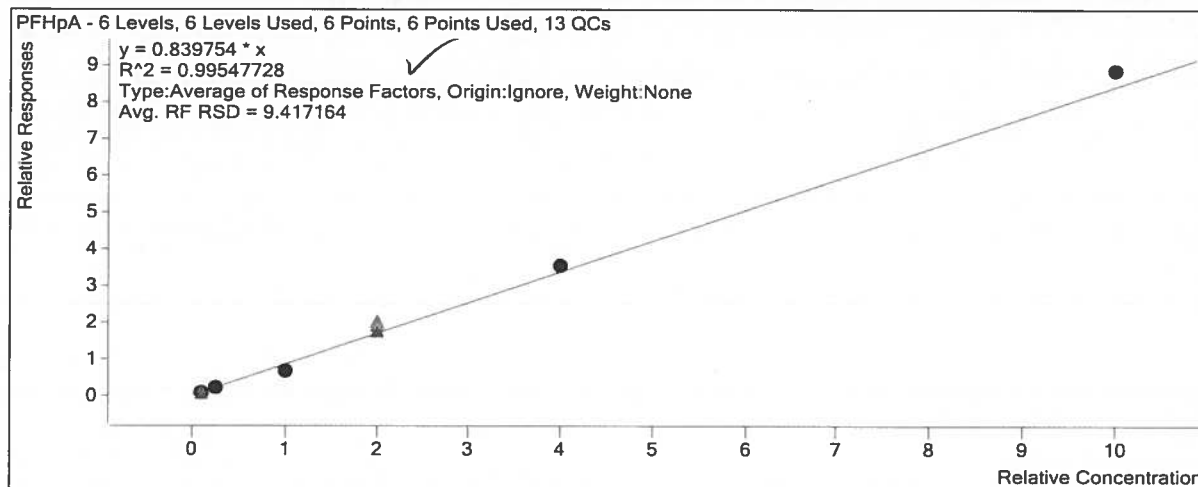


Extracted ISTD

M3HFPODA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210503ACAL\2210503A_2.d	Calibration	1	<input checked="" type="checkbox"/>	11316	10.0000	1131.5938
K:\MassHunter\Data\2210503ACAL\2210503A_3.d	Calibration	2	<input checked="" type="checkbox"/>	11749	10.0000	1174.9074
K:\MassHunter\Data\2210503ACAL\2210503A_4.d	Calibration	3	<input checked="" type="checkbox"/>	11574	10.0000	1157.4305
K:\MassHunter\Data\2210503ACAL\2210503A_5.d	Calibration	4	<input checked="" type="checkbox"/>	11670	10.0000	1166.9777
K:\MassHunter\Data\2210503ACAL\2210503A_6.d	Calibration	5	<input checked="" type="checkbox"/>	12329	10.0000	1232.9337
K:\MassHunter\Data\2210503ACAL\2210503A_7.d	Calibration	6	<input checked="" type="checkbox"/>	11188	10.0000	1118.7768

Quantitative Analysis Calibration Report



Extracted ISTD

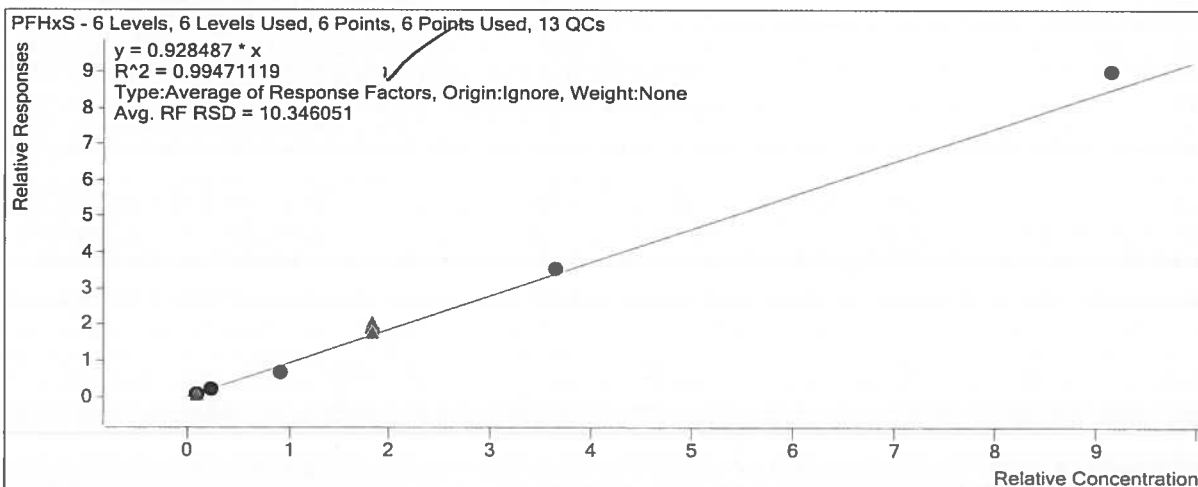
M3PFHxS

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210503ACAL\2210503A_2.d	Calibration	1	<input checked="" type="checkbox"/>	8917	5.0000	1783.4891
K:\MassHunter\Data\2210503ACAL\2210503A_3.d	Calibration	2	<input checked="" type="checkbox"/>	9021	5.0000	1804.2004
K:\MassHunter\Data\2210503ACAL\2210503A_4.d	Calibration	3	<input checked="" type="checkbox"/>	8693	5.0000	1738.6453
K:\MassHunter\Data\2210503ACAL\2210503A_5.d	Calibration	4	<input checked="" type="checkbox"/>	8415	5.0000	1682.9083
K:\MassHunter\Data\2210503ACAL\2210503A_6.d	Calibration	5	<input checked="" type="checkbox"/>	8938	5.0000	1787.6422
K:\MassHunter\Data\2210503ACAL\2210503A_7.d	Calibration	6	<input checked="" type="checkbox"/>	8504	5.0000	1700.7333

Target Compound

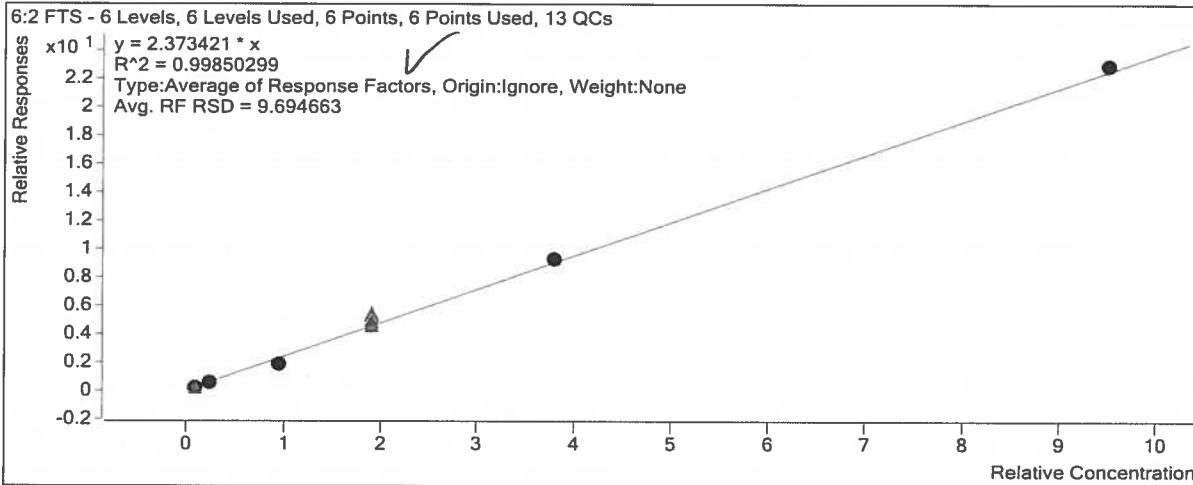
PFHxS

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210503ACAL\2210503A_2.d	Calibration	1	<input checked="" type="checkbox"/>	787	0.4570	0.9656
K:\MassHunter\Data\2210503ACAL\2210503A_3.d	Calibration	2	<input checked="" type="checkbox"/>	1938	1.1425	0.9402
K:\MassHunter\Data\2210503ACAL\2210503A_4.d	Calibration	3	<input checked="" type="checkbox"/>	5839	4.5700	0.7349
K:\MassHunter\Data\2210503ACAL\2210503A_5.d	Calibration	4	<input checked="" type="checkbox"/>	15088	9.1400	0.9809
K:\MassHunter\Data\2210503ACAL\2210503A_6.d	Calibration	5	<input checked="" type="checkbox"/>	31584	18.2800	0.9665
K:\MassHunter\Data\2210503ACAL\2210503A_7.d	Calibration	6	<input checked="" type="checkbox"/>	76389	45.7000	0.9828



Quantitative Analysis Calibration Report

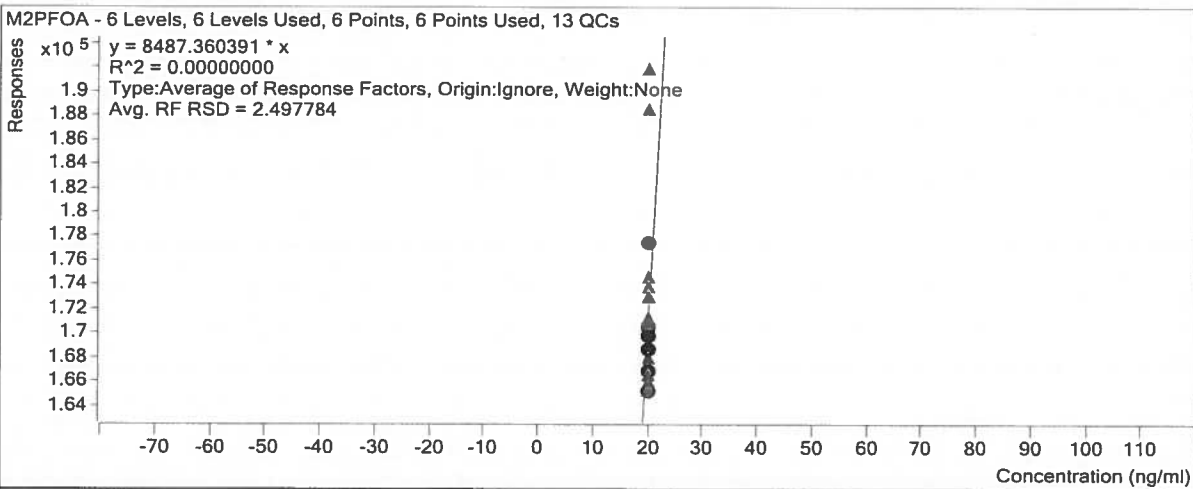
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210503ACAL\2210503A_7.d	Calibration	6	<input checked="" type="checkbox"/>	57469	47.5500	2.4139



Instrument ISTD

M2PFOA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210503ACAL\2210503A_2.d	Calibration	1	<input checked="" type="checkbox"/>	168629	20.0000	8431.4568
K:\MassHunter\Data\2210503ACAL\2210503A_3.d	Calibration	2	<input checked="" type="checkbox"/>	177444	20.0000	8872.2206
K:\MassHunter\Data\2210503ACAL\2210503A_4.d	Calibration	3	<input checked="" type="checkbox"/>	169805	20.0000	8490.2340
K:\MassHunter\Data\2210503ACAL\2210503A_5.d	Calibration	4	<input checked="" type="checkbox"/>	166841	20.0000	8342.0696
K:\MassHunter\Data\2210503ACAL\2210503A_6.d	Calibration	5	<input checked="" type="checkbox"/>	170526	20.0000	8526.2886
K:\MassHunter\Data\2210503ACAL\2210503A_7.d	Calibration	6	<input checked="" type="checkbox"/>	165238	20.0000	8261.8927



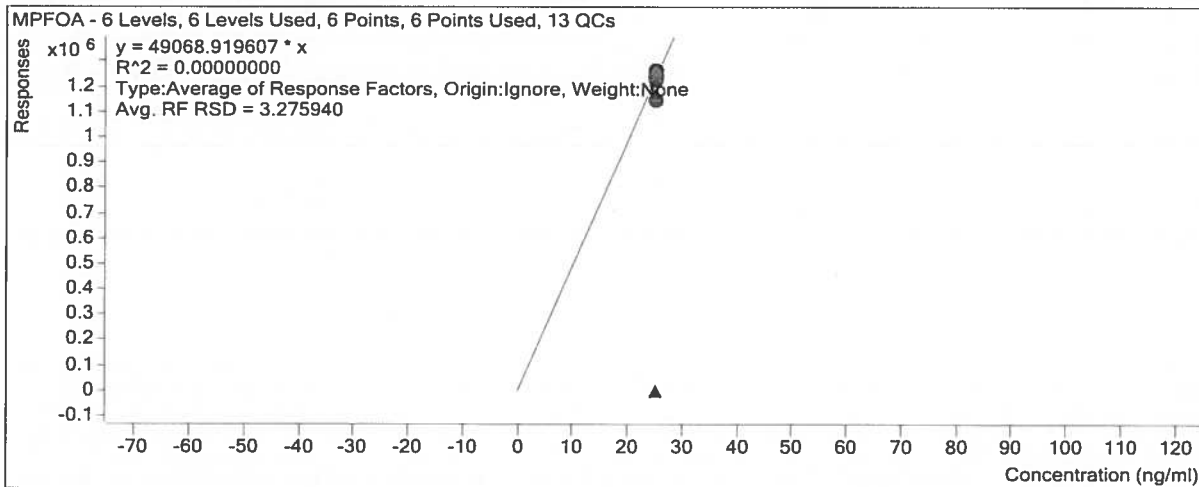
Instrument ISTD

MPFOA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210503ACAL\2210503A_2.d	Calibration	1	<input checked="" type="checkbox"/>	1147876	25.0000	45915.0561

Quantitative Analysis Calibration Report

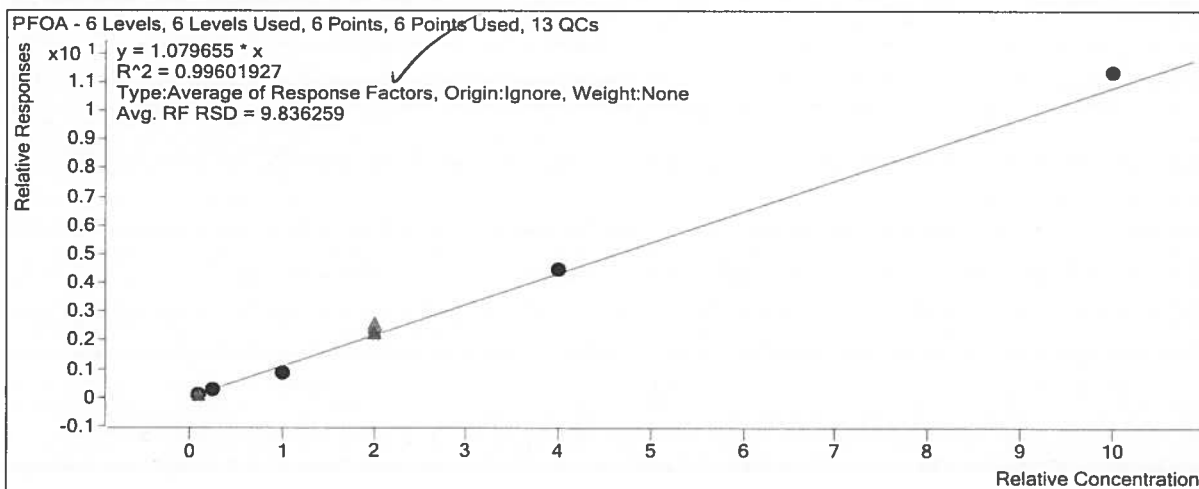
K:\MassHunter\Data\2210503ACAL\2210503A_3.d	Calibration	2	<input checked="" type="checkbox"/>	1243092	25.0000	49723.6957
K:\MassHunter\Data\2210503ACAL\2210503A_4.d	Calibration	3	<input checked="" type="checkbox"/>	1226226	25.0000	49049.0291
K:\MassHunter\Data\2210503ACAL\2210503A_5.d	Calibration	4	<input checked="" type="checkbox"/>	1237227	25.0000	49489.0937
K:\MassHunter\Data\2210503ACAL\2210503A_6.d	Calibration	5	<input checked="" type="checkbox"/>	1260133	25.0000	50405.3337
K:\MassHunter\Data\2210503ACAL\2210503A_7.d	Calibration	6	<input checked="" type="checkbox"/>	1245783	25.0000	49831.3093



Target Compound

PFOA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210503ACAL\2210503A_2.d	Calibration	1	<input checked="" type="checkbox"/>	5284	0.5000	1.1202
K:\MassHunter\Data\2210503ACAL\2210503A_3.d	Calibration	2	<input checked="" type="checkbox"/>	13270	1.2500	1.0912
K:\MassHunter\Data\2210503ACAL\2210503A_4.d	Calibration	3	<input checked="" type="checkbox"/>	40572	5.0000	0.8670
K:\MassHunter\Data\2210503ACAL\2210503A_5.d	Calibration	4	<input checked="" type="checkbox"/>	104290	10.0000	1.1533
K:\MassHunter\Data\2210503ACAL\2210503A_6.d	Calibration	5	<input checked="" type="checkbox"/>	213908	20.0000	1.1136
K:\MassHunter\Data\2210503ACAL\2210503A_7.d	Calibration	6	<input checked="" type="checkbox"/>	520429	50.0000	1.1326



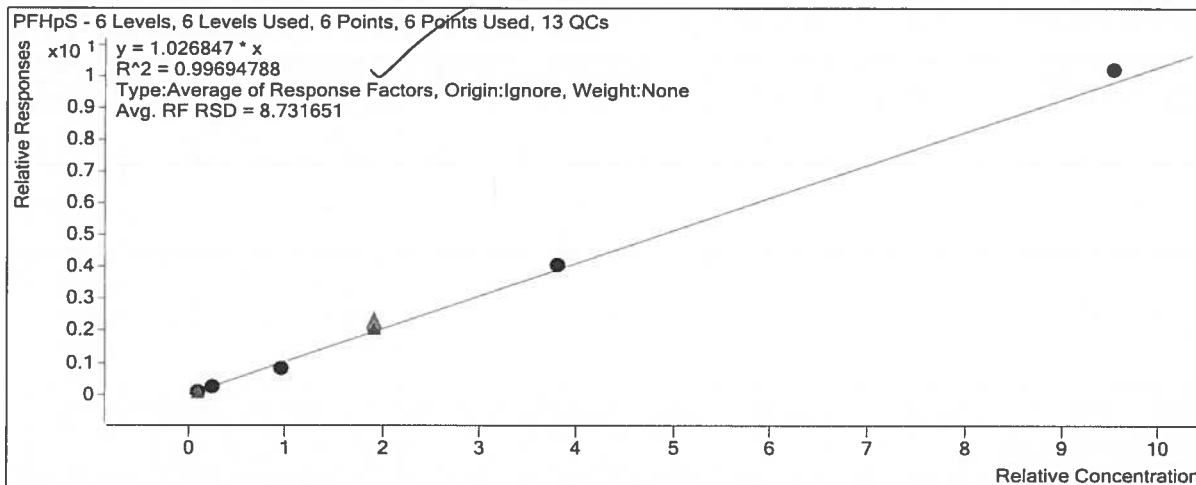
Extracted ISTD

M8PFOA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210503ACAL\2210503A_2.d	Calibration	1	<input checked="" type="checkbox"/>	47169	5.0000	9433.8768

Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210503ACAL\2210503A_7.d	Calibration	6	<input checked="" type="checkbox"/>	86607	47.6500	1.0687



Extracted ISTD

M9PFNA

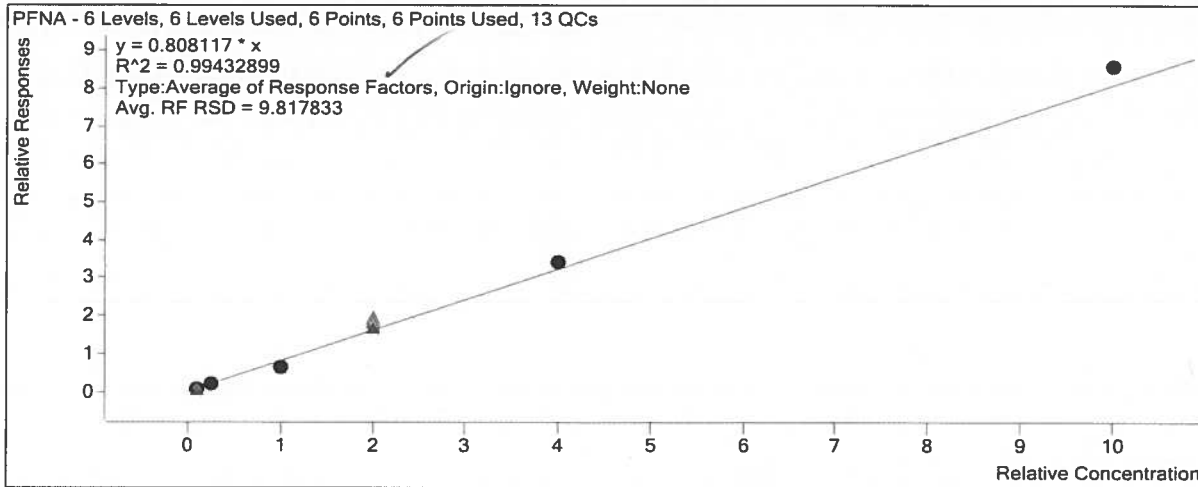
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210503ACAL\2210503A_2.d	Calibration	1	<input checked="" type="checkbox"/>	62934	5.0000	12586.8216
K:\MassHunter\Data\2210503ACAL\2210503A_3.d	Calibration	2	<input checked="" type="checkbox"/>	63379	5.0000	12675.7104
K:\MassHunter\Data\2210503ACAL\2210503A_4.d	Calibration	3	<input checked="" type="checkbox"/>	61174	5.0000	12234.8454
K:\MassHunter\Data\2210503ACAL\2210503A_5.d	Calibration	4	<input checked="" type="checkbox"/>	59452	5.0000	11890.3589
K:\MassHunter\Data\2210503ACAL\2210503A_6.d	Calibration	5	<input checked="" type="checkbox"/>	62751	5.0000	12550.2939
K:\MassHunter\Data\2210503ACAL\2210503A_7.d	Calibration	6	<input checked="" type="checkbox"/>	60508	5.0000	12101.5306

Target Compound

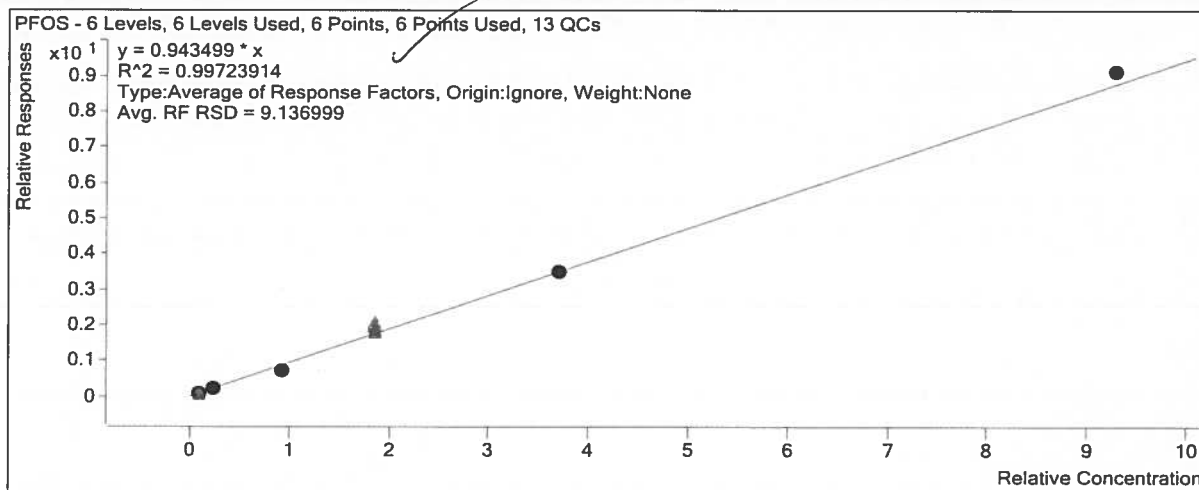
PFNA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210503ACAL\2210503A_2.d	Calibration	1	<input checked="" type="checkbox"/>	5113	0.5000	0.8125
K:\MassHunter\Data\2210503ACAL\2210503A_3.d	Calibration	2	<input checked="" type="checkbox"/>	12794	1.2500	0.8074
K:\MassHunter\Data\2210503ACAL\2210503A_4.d	Calibration	3	<input checked="" type="checkbox"/>	40003	5.0000	0.6539
K:\MassHunter\Data\2210503ACAL\2210503A_5.d	Calibration	4	<input checked="" type="checkbox"/>	103097	10.0000	0.8671
K:\MassHunter\Data\2210503ACAL\2210503A_6.d	Calibration	5	<input checked="" type="checkbox"/>	213774	20.0000	0.8517
K:\MassHunter\Data\2210503ACAL\2210503A_7.d	Calibration	6	<input checked="" type="checkbox"/>	518033	50.0000	0.8561

Quantitative Analysis Calibration Report



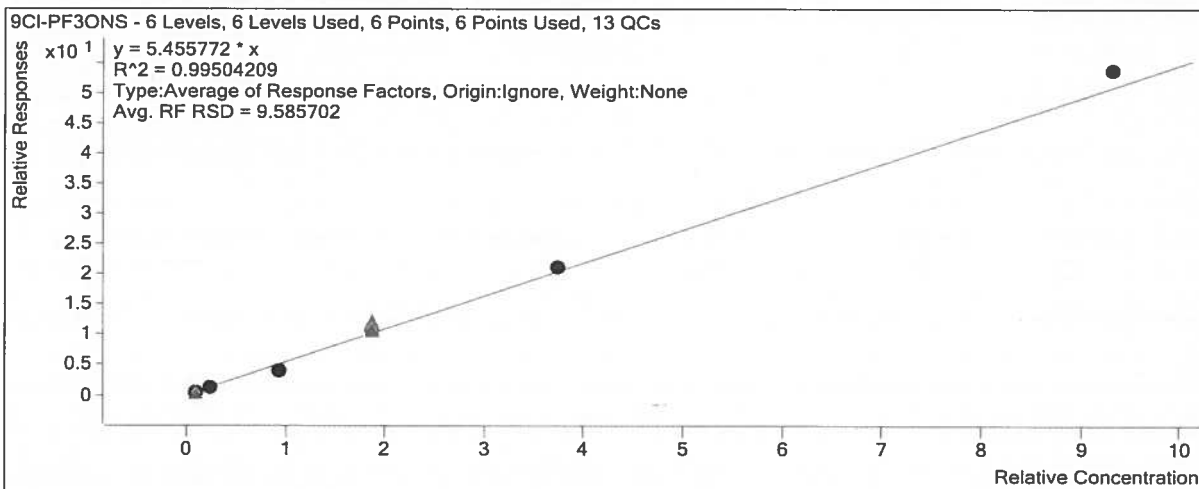
Quantitative Analysis Calibration Report



Target Compound

9CI-PF3ONS

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210503ACAL\2210503A_2.d	Calibration	1	<input checked="" type="checkbox"/>	5052	0.4665	5.6219
K:\MassHunter\Data\2210503ACAL\2210503A_3.d	Calibration	2	<input checked="" type="checkbox"/>	12562	1.1663	5.5235
K:\MassHunter\Data\2210503ACAL\2210503A_4.d	Calibration	3	<input checked="" type="checkbox"/>	38843	4.6650	4.4052
K:\MassHunter\Data\2210503ACAL\2210503A_5.d	Calibration	4	<input checked="" type="checkbox"/>	99697	9.3300	5.7665
K:\MassHunter\Data\2210503ACAL\2210503A_6.d	Calibration	5	<input checked="" type="checkbox"/>	208637	18.6600	5.6499
K:\MassHunter\Data\2210503ACAL\2210503A_7.d	Calibration	6	<input checked="" type="checkbox"/>	504083	46.5500	5.7677

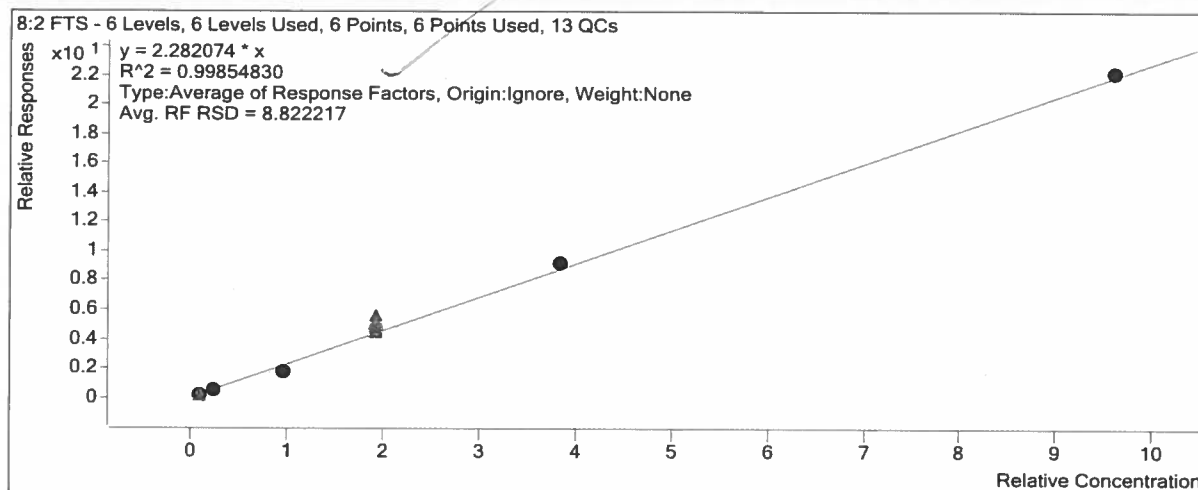


Target Compound

8:2 FTS

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210503ACAL\2210503A_2.d	Calibration	1	<input checked="" type="checkbox"/>	611	0.4800	2.2300
K:\MassHunter\Data\2210503ACAL\2210503A_3.d	Calibration	2	<input checked="" type="checkbox"/>	1515	1.2000	2.3837
K:\MassHunter\Data\2210503ACAL\2210503A_4.d	Calibration	3	<input checked="" type="checkbox"/>	4830	4.8000	1.9063
K:\MassHunter\Data\2210503ACAL\2210503A_5.d	Calibration	4	<input checked="" type="checkbox"/>	11673	9.6000	2.4699
K:\MassHunter\Data\2210503ACAL\2210503A_6.d	Calibration	5	<input checked="" type="checkbox"/>	23744	19.2000	2.3935
K:\MassHunter\Data\2210503ACAL\2210503A_7.d	Calibration	6	<input checked="" type="checkbox"/>	54478	48.0000	2.3092

Quantitative Analysis Calibration Report



Extracted ISTD

M2 8:2 FTS

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210503ACAL\2210503A_2.d	Calibration	1	<input checked="" type="checkbox"/>	2853	5.0000	570.5709
K:\MassHunter\Data\2210503ACAL\2210503A_3.d	Calibration	2	<input checked="" type="checkbox"/>	2648	5.0000	529.5691
K:\MassHunter\Data\2210503ACAL\2210503A_4.d	Calibration	3	<input checked="" type="checkbox"/>	2639	5.0000	527.8777
K:\MassHunter\Data\2210503ACAL\2210503A_5.d	Calibration	4	<input checked="" type="checkbox"/>	2461	5.0000	492.2994
K:\MassHunter\Data\2210503ACAL\2210503A_6.d	Calibration	5	<input checked="" type="checkbox"/>	2583	5.0000	516.6894

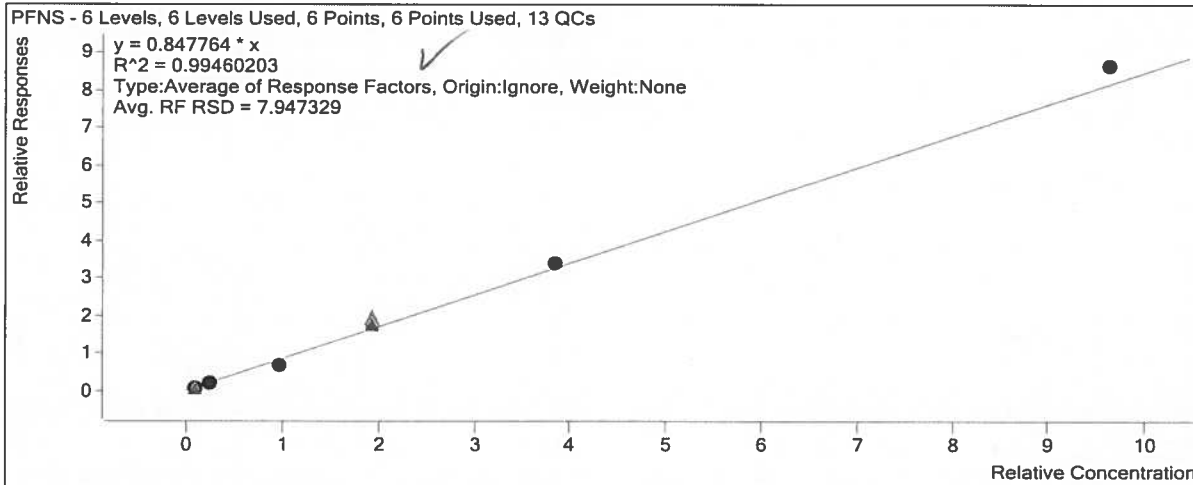
Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210503ACAL\2210503A_7.d	Calibration	6	<input checked="" type="checkbox"/>	2458	5.0000	491.5073

Target Compound

PFNS

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210503ACAL\2210503A_2.d	Calibration	1	<input checked="" type="checkbox"/>	765	0.4810	0.8252
K:\MassHunter\Data\2210503ACAL\2210503A_3.d	Calibration	2	<input checked="" type="checkbox"/>	1977	1.2025	0.8430
K:\MassHunter\Data\2210503ACAL\2210503A_4.d	Calibration	3	<input checked="" type="checkbox"/>	6614	4.8100	0.7275
K:\MassHunter\Data\2210503ACAL\2210503A_5.d	Calibration	4	<input checked="" type="checkbox"/>	16227	9.6200	0.9103
K:\MassHunter\Data\2210503ACAL\2210503A_6.d	Calibration	5	<input checked="" type="checkbox"/>	33566	19.2400	0.8816
K:\MassHunter\Data\2210503ACAL\2210503A_7.d	Calibration	6	<input checked="" type="checkbox"/>	81199	48.1000	0.8991



Extracted ISTD

M6PFDA

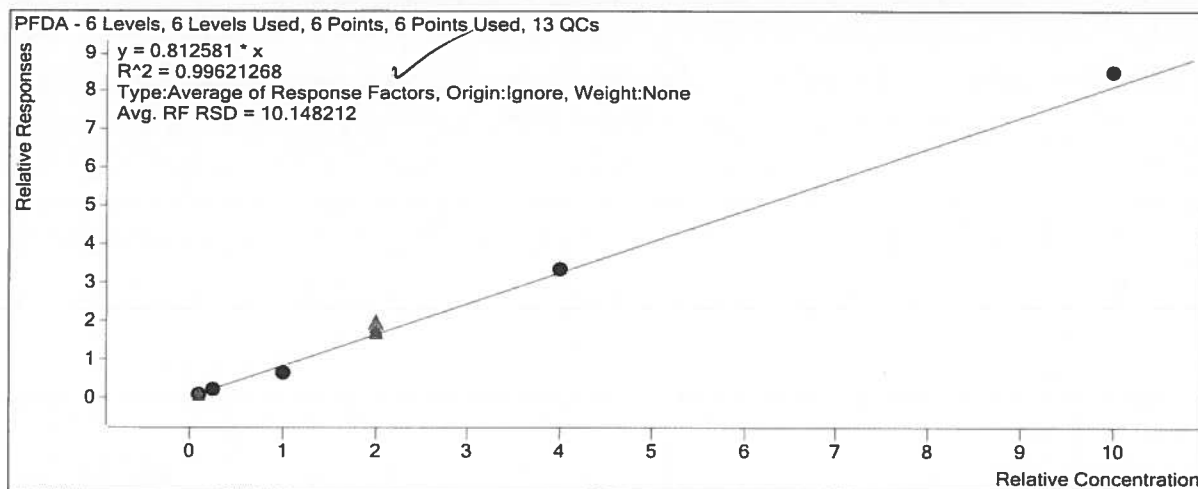
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210503ACAL\2210503A_2.d	Calibration	1	<input checked="" type="checkbox"/>	64237	5.0000	12847.4948
K:\MassHunter\Data\2210503ACAL\2210503A_3.d	Calibration	2	<input checked="" type="checkbox"/>	63938	5.0000	12787.5872
K:\MassHunter\Data\2210503ACAL\2210503A_4.d	Calibration	3	<input checked="" type="checkbox"/>	62456	5.0000	12491.1767
K:\MassHunter\Data\2210503ACAL\2210503A_5.d	Calibration	4	<input checked="" type="checkbox"/>	58624	5.0000	11724.8059
K:\MassHunter\Data\2210503ACAL\2210503A_6.d	Calibration	5	<input checked="" type="checkbox"/>	64268	5.0000	12853.6614
K:\MassHunter\Data\2210503ACAL\2210503A_7.d	Calibration	6	<input checked="" type="checkbox"/>	60381	5.0000	12076.1510

Target Compound

PFDA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210503ACAL\2210503A_2.d	Calibration	1	<input checked="" type="checkbox"/>	5215	0.5000	0.8118
K:\MassHunter\Data\2210503ACAL\2210503A_3.d	Calibration	2	<input checked="" type="checkbox"/>	13215	1.2500	0.8268
K:\MassHunter\Data\2210503ACAL\2210503A_4.d	Calibration	3	<input checked="" type="checkbox"/>	40839	5.0000	0.6539
K:\MassHunter\Data\2210503ACAL\2210503A_5.d	Calibration	4	<input checked="" type="checkbox"/>	104719	10.0000	0.8931
K:\MassHunter\Data\2210503ACAL\2210503A_6.d	Calibration	5	<input checked="" type="checkbox"/>	216217	20.0000	0.8411
K:\MassHunter\Data\2210503ACAL\2210503A_7.d	Calibration	6	<input checked="" type="checkbox"/>	512521	50.0000	0.8488

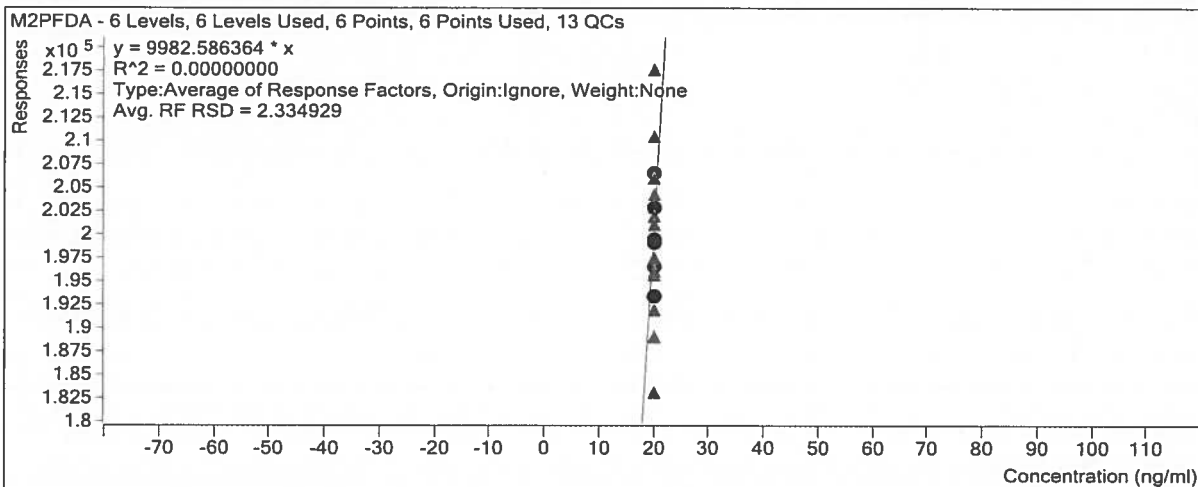
Quantitative Analysis Calibration Report



Instrument ISTD

M2PFDA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210503ACAL\2210503A_2.d	Calibration	1	<input checked="" type="checkbox"/>	202847	20.0000	10142.3441
K:\MassHunter\Data\2210503ACAL\2210503A_3.d	Calibration	2	<input checked="" type="checkbox"/>	206610	20.0000	10330.5084
K:\MassHunter\Data\2210503ACAL\2210503A_4.d	Calibration	3	<input checked="" type="checkbox"/>	199169	20.0000	9958.4434
K:\MassHunter\Data\2210503ACAL\2210503A_5.d	Calibration	4	<input checked="" type="checkbox"/>	196615	20.0000	9830.7310
K:\MassHunter\Data\2210503ACAL\2210503A_6.d	Calibration	5	<input checked="" type="checkbox"/>	199382	20.0000	9969.1015
K:\MassHunter\Data\2210503ACAL\2210503A_7.d	Calibration	6	<input checked="" type="checkbox"/>	193288	20.0000	9664.3898



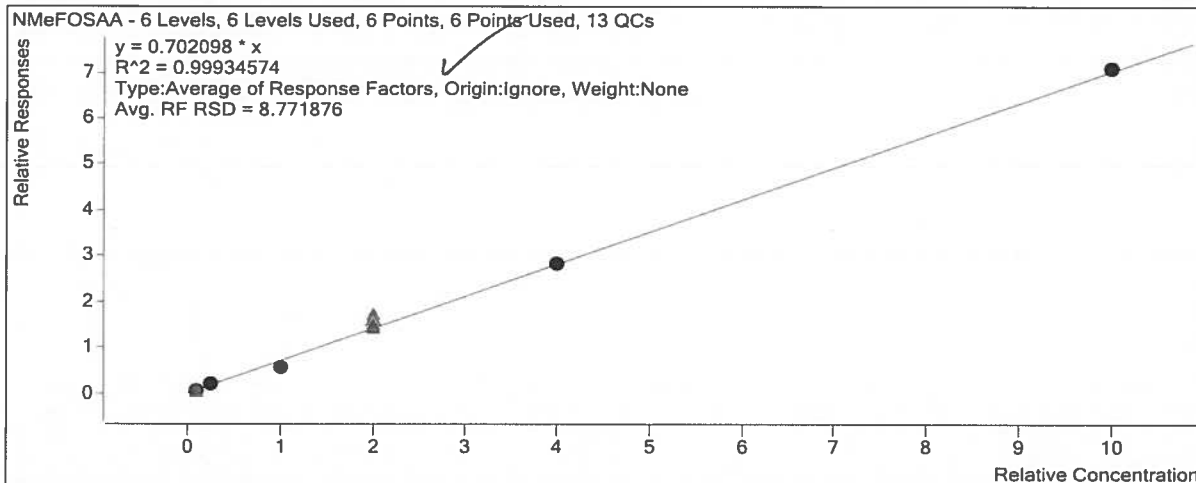
Extracted ISTD

d3-NMeFOSAA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210503ACAL\2210503A_2.d	Calibration	1	<input checked="" type="checkbox"/>	6676	5.0000	1335.2070
K:\MassHunter\Data\2210503ACAL\2210503A_3.d	Calibration	2	<input checked="" type="checkbox"/>	6665	5.0000	1333.0980
K:\MassHunter\Data\2210503ACAL\2210503A_4.d	Calibration	3	<input checked="" type="checkbox"/>	6102	5.0000	1220.4761
K:\MassHunter\Data\2210503ACAL\2210503A_5.d	Calibration	4	<input checked="" type="checkbox"/>	6318	5.0000	1263.5384
K:\MassHunter\Data\2210503ACAL\2210503A_6.d	Calibration	5	<input checked="" type="checkbox"/>	6812	5.0000	1362.3125
K:\MassHunter\Data\2210503ACAL\2210503A_7.d	Calibration	6	<input checked="" type="checkbox"/>	6699	5.0000	1339.7689

Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210503ACAL\2210503A_7.d	Calibration	6	<input checked="" type="checkbox"/>	47451	50.0000	0.7084



Extracted ISTD

M8FOSA

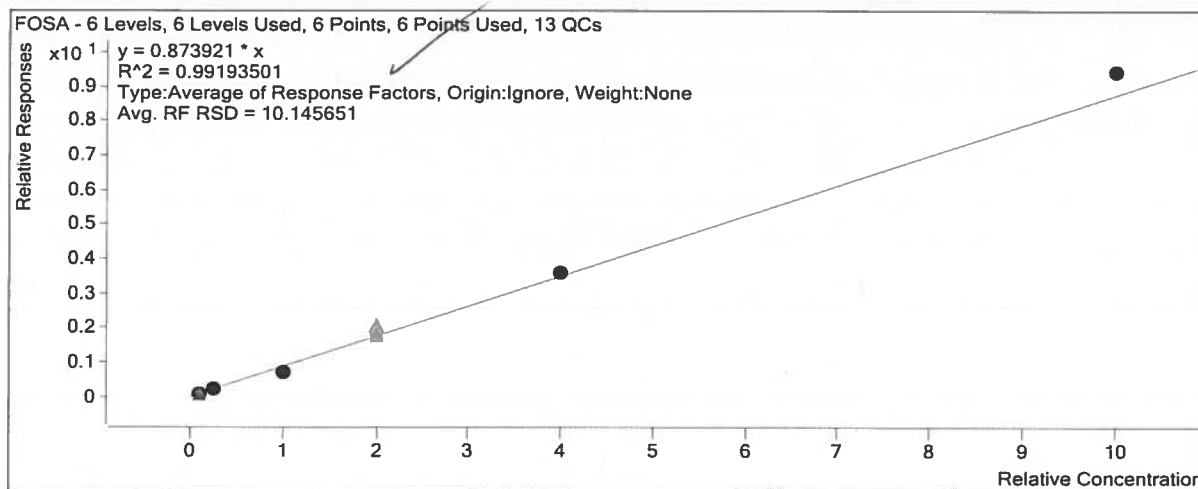
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210503ACAL\2210503A_2.d	Calibration	1	<input checked="" type="checkbox"/>	20623	5.0000	4124.5092
K:\MassHunter\Data\2210503ACAL\2210503A_3.d	Calibration	2	<input checked="" type="checkbox"/>	20986	5.0000	4197.2869
K:\MassHunter\Data\2210503ACAL\2210503A_4.d	Calibration	3	<input checked="" type="checkbox"/>	20321	5.0000	4064.1620
K:\MassHunter\Data\2210503ACAL\2210503A_5.d	Calibration	4	<input checked="" type="checkbox"/>	19385	5.0000	3876.9247
K:\MassHunter\Data\2210503ACAL\2210503A_6.d	Calibration	5	<input checked="" type="checkbox"/>	20698	5.0000	4139.5210
K:\MassHunter\Data\2210503ACAL\2210503A_7.d	Calibration	6	<input checked="" type="checkbox"/>	19426	5.0000	3885.2483

Target Compound

FOSA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210503ACAL\2210503A_2.d	Calibration	1	<input checked="" type="checkbox"/>	1824	0.5000	0.8843
K:\MassHunter\Data\2210503ACAL\2210503A_3.d	Calibration	2	<input checked="" type="checkbox"/>	4670	1.2500	0.8902
K:\MassHunter\Data\2210503ACAL\2210503A_4.d	Calibration	3	<input checked="" type="checkbox"/>	14193	5.0000	0.6984
K:\MassHunter\Data\2210503ACAL\2210503A_5.d	Calibration	4	<input checked="" type="checkbox"/>	35902	10.0000	0.9260
K:\MassHunter\Data\2210503ACAL\2210503A_6.d	Calibration	5	<input checked="" type="checkbox"/>	74763	20.0000	0.9030
K:\MassHunter\Data\2210503ACAL\2210503A_7.d	Calibration	6	<input checked="" type="checkbox"/>	182912	50.0000	0.9416

Quantitative Analysis Calibration Report

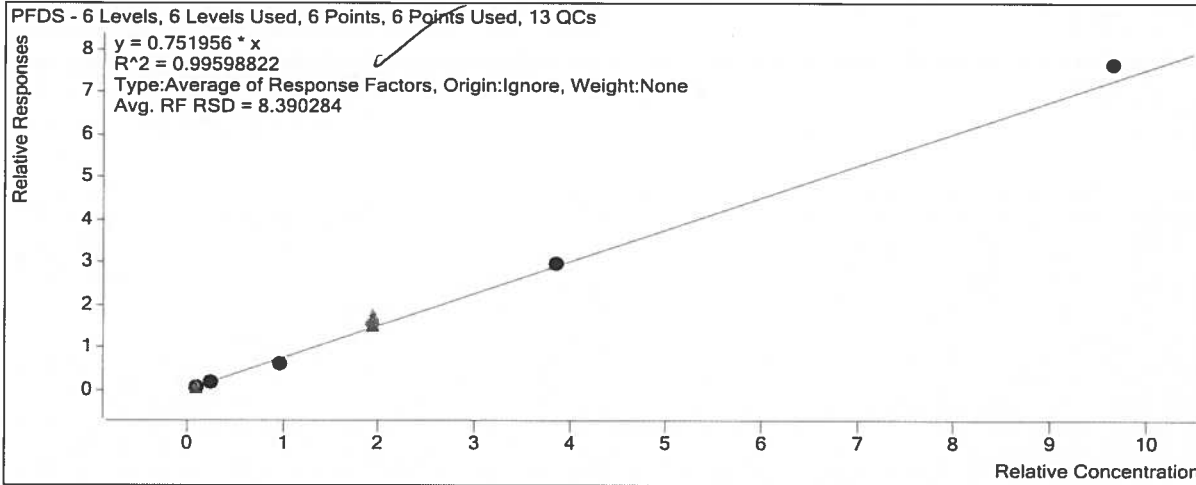


Quantitative Analysis Calibration Report

Target Compound

PFDS

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210503ACAL\2210503A_2.d	Calibration	1	<input checked="" type="checkbox"/>	704	0.4825	0.7579
K:\MassHunter\Data\2210503ACAL\2210503A_3.d	Calibration	2	<input checked="" type="checkbox"/>	1792	1.2063	0.7619
K:\MassHunter\Data\2210503ACAL\2210503A_4.d	Calibration	3	<input checked="" type="checkbox"/>	5731	4.8250	0.6284
K:\MassHunter\Data\2210503ACAL\2210503A_5.d	Calibration	4	<input checked="" type="checkbox"/>	14378	9.6500	0.8041
K:\MassHunter\Data\2210503ACAL\2210503A_6.d	Calibration	5	<input checked="" type="checkbox"/>	29371	19.3000	0.7690
K:\MassHunter\Data\2210503ACAL\2210503A_7.d	Calibration	6	<input checked="" type="checkbox"/>	71609	48.2500	0.7905



Extracted ISTD

d5-NEtFOSAA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210503ACAL\2210503A_2.d	Calibration	1	<input checked="" type="checkbox"/>	12421	5.0000	2484.1996
K:\MassHunter\Data\2210503ACAL\2210503A_3.d	Calibration	2	<input checked="" type="checkbox"/>	12167	5.0000	2433.3453
K:\MassHunter\Data\2210503ACAL\2210503A_4.d	Calibration	3	<input checked="" type="checkbox"/>	11594	5.0000	2318.7618
K:\MassHunter\Data\2210503ACAL\2210503A_5.d	Calibration	4	<input checked="" type="checkbox"/>	11503	5.0000	2300.5560
K:\MassHunter\Data\2210503ACAL\2210503A_6.d	Calibration	5	<input checked="" type="checkbox"/>	12377	5.0000	2475.3862
K:\MassHunter\Data\2210503ACAL\2210503A_7.d	Calibration	6	<input checked="" type="checkbox"/>	11625	5.0000	2325.0216

Extracted ISTD

M7PFUnA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210503ACAL\2210503A_2.d	Calibration	1	<input checked="" type="checkbox"/>	71451	5.0000	14290.1158
K:\MassHunter\Data\2210503ACAL\2210503A_3.d	Calibration	2	<input checked="" type="checkbox"/>	73480	5.0000	14696.0515
K:\MassHunter\Data\2210503ACAL\2210503A_4.d	Calibration	3	<input checked="" type="checkbox"/>	70780	5.0000	14155.9420
K:\MassHunter\Data\2210503ACAL\2210503A_5.d	Calibration	4	<input checked="" type="checkbox"/>	69500	5.0000	13899.9861
K:\MassHunter\Data\2210503ACAL\2210503A_6.d	Calibration	5	<input checked="" type="checkbox"/>	73070	5.0000	14613.9051
K:\MassHunter\Data\2210503ACAL\2210503A_7.d	Calibration	6	<input checked="" type="checkbox"/>	69360	5.0000	13871.9223

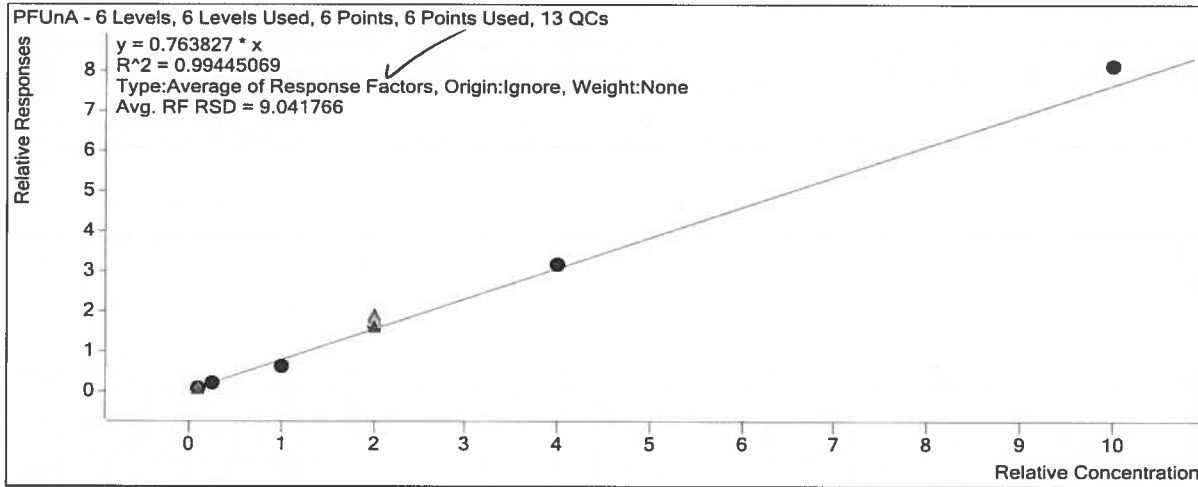
Target Compound

PFUnA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210503ACAL\2210503A_2.d	Calibration	1	<input checked="" type="checkbox"/>	5615	0.5000	0.7859

Quantitative Analysis Calibration Report

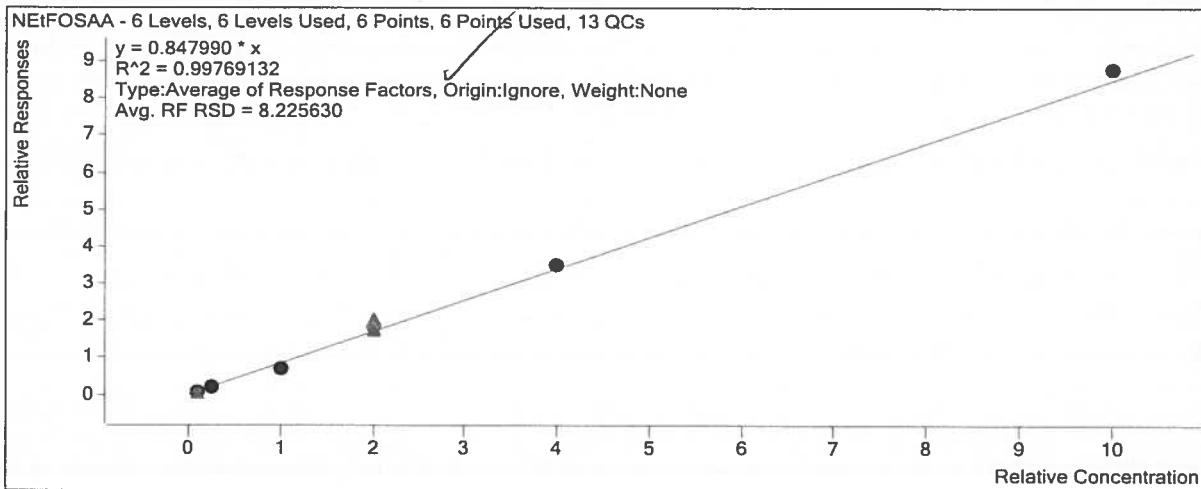
K:\MassHunter\Data\2210503ACAL\2210503A_3.d	Calibration	2	<input checked="" type="checkbox"/>	13995	1.2500	0.7618
K:\MassHunter\Data\2210503ACAL\2210503A_4.d	Calibration	3	<input checked="" type="checkbox"/>	44407	5.0000	0.6274
K:\MassHunter\Data\2210503ACAL\2210503A_5.d	Calibration	4	<input checked="" type="checkbox"/>	112046	10.0000	0.8061
K:\MassHunter\Data\2210503ACAL\2210503A_6.d	Calibration	5	<input checked="" type="checkbox"/>	231048	20.0000	0.7905
K:\MassHunter\Data\2210503ACAL\2210503A_7.d	Calibration	6	<input checked="" type="checkbox"/>	562664	50.0000	0.8112



Target Compound

NEtFOSAA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210503ACAL\2210503A_2.d	Calibration	1	<input checked="" type="checkbox"/>	1057	0.5000	0.8511
K:\MassHunter\Data\2210503ACAL\2210503A_3.d	Calibration	2	<input checked="" type="checkbox"/>	2645	1.2500	0.8694
K:\MassHunter\Data\2210503ACAL\2210503A_4.d	Calibration	3	<input checked="" type="checkbox"/>	8230	5.0000	0.7098
K:\MassHunter\Data\2210503ACAL\2210503A_5.d	Calibration	4	<input checked="" type="checkbox"/>	20784	10.0000	0.9034
K:\MassHunter\Data\2210503ACAL\2210503A_6.d	Calibration	5	<input checked="" type="checkbox"/>	43450	20.0000	0.8776
K:\MassHunter\Data\2210503ACAL\2210503A_7.d	Calibration	6	<input checked="" type="checkbox"/>	101899	50.0000	0.8765



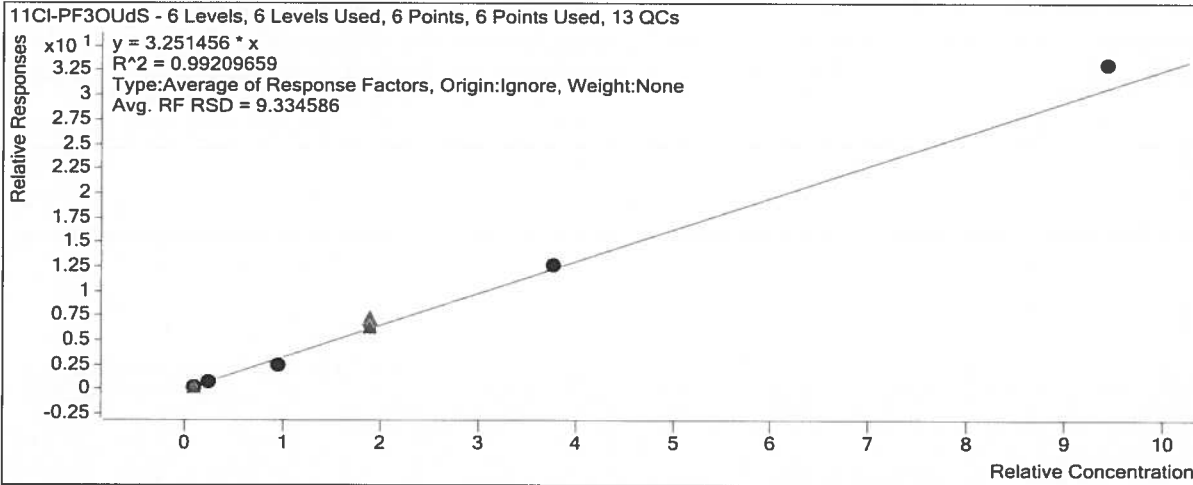
Target Compound

11CI-PF3OUds

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210503ACAL\2210503A_2.d	Calibration	1	<input checked="" type="checkbox"/>	3068	0.4715	3.3775

Quantitative Analysis Calibration Report

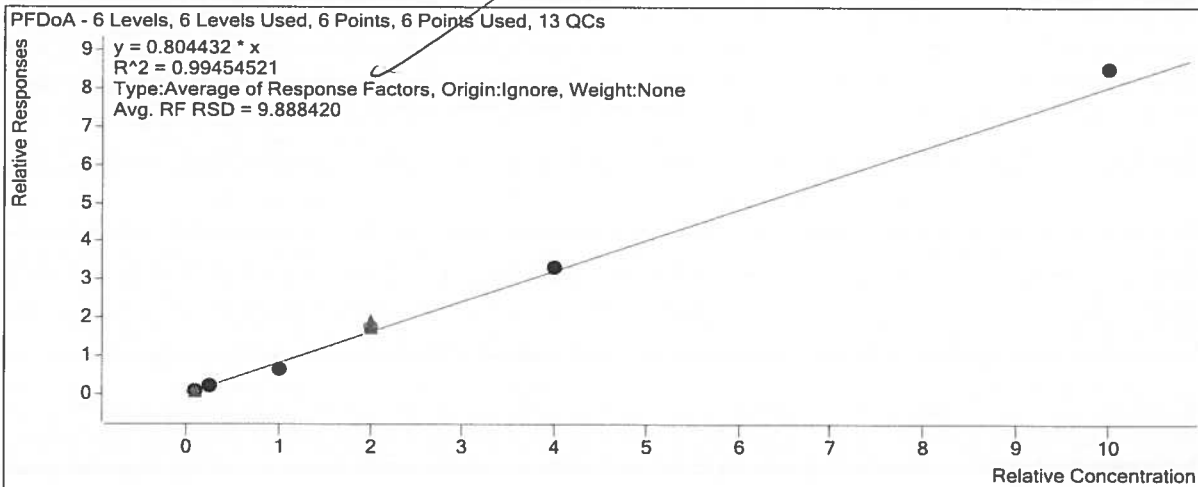
K:\MassHunter\Data\2210503ACAL\2210503A_3.d	Calibration	2	<input checked="" type="checkbox"/>	7346	1.1788	3.1958
K:\MassHunter\Data\2210503ACAL\2210503A_4.d	Calibration	3	<input checked="" type="checkbox"/>	23775	4.7150	2.6677
K:\MassHunter\Data\2210503ACAL\2210503A_5.d	Calibration	4	<input checked="" type="checkbox"/>	59793	9.4300	3.4218
K:\MassHunter\Data\2210503ACAL\2210503A_6.d	Calibration	5	<input checked="" type="checkbox"/>	124740	18.8600	3.3422
K:\MassHunter\Data\2210503ACAL\2210503A_7.d	Calibration	6	<input checked="" type="checkbox"/>	310167	47.1500	3.5037



Target Compound

PFDaA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210503ACAL\2210503A_2.d	Calibration	1	<input checked="" type="checkbox"/>	6495	0.5000	0.8186
K:\MassHunter\Data\2210503ACAL\2210503A_3.d	Calibration	2	<input checked="" type="checkbox"/>	16371	1.2500	0.8030
K:\MassHunter\Data\2210503ACAL\2210503A_4.d	Calibration	3	<input checked="" type="checkbox"/>	51492	5.0000	0.6502
K:\MassHunter\Data\2210503ACAL\2210503A_5.d	Calibration	4	<input checked="" type="checkbox"/>	131786	10.0000	0.8730
K:\MassHunter\Data\2210503ACAL\2210503A_6.d	Calibration	5	<input checked="" type="checkbox"/>	271453	20.0000	0.8292
K:\MassHunter\Data\2210503ACAL\2210503A_7.d	Calibration	6	<input checked="" type="checkbox"/>	684698	50.0000	0.8525

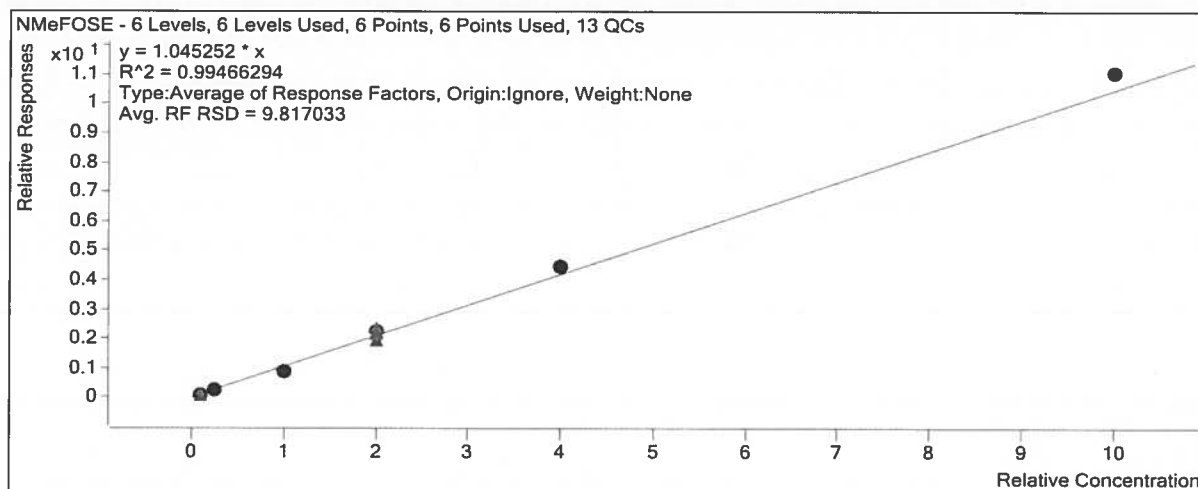


Extracted ISTD

MPFDaA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210503ACAL\2210503A_2.d	Calibration	1	<input checked="" type="checkbox"/>	79338	5.0000	15867.5311

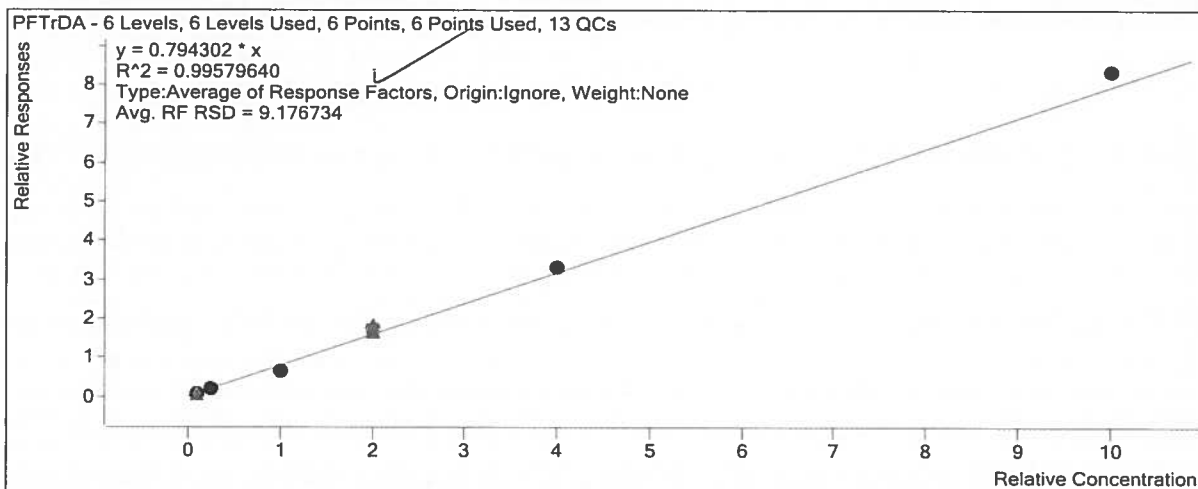
Quantitative Analysis Calibration Report



Target Compound

PFTrDA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210503ACAL\2210503A_2.d	Calibration	1	<input checked="" type="checkbox"/>	6256	0.5000	0.7885
K:\MassHunter\Data\2210503ACAL\2210503A_3.d	Calibration	2	<input checked="" type="checkbox"/>	16251	1.2500	0.7971
K:\MassHunter\Data\2210503ACAL\2210503A_4.d	Calibration	3	<input checked="" type="checkbox"/>	51933	5.0000	0.6557
K:\MassHunter\Data\2210503ACAL\2210503A_5.d	Calibration	4	<input checked="" type="checkbox"/>	130131	10.0000	0.8621
K:\MassHunter\Data\2210503ACAL\2210503A_6.d	Calibration	5	<input checked="" type="checkbox"/>	271387	20.0000	0.8290
K:\MassHunter\Data\2210503ACAL\2210503A_7.d	Calibration	6	<input checked="" type="checkbox"/>	669267	50.0000	0.8333

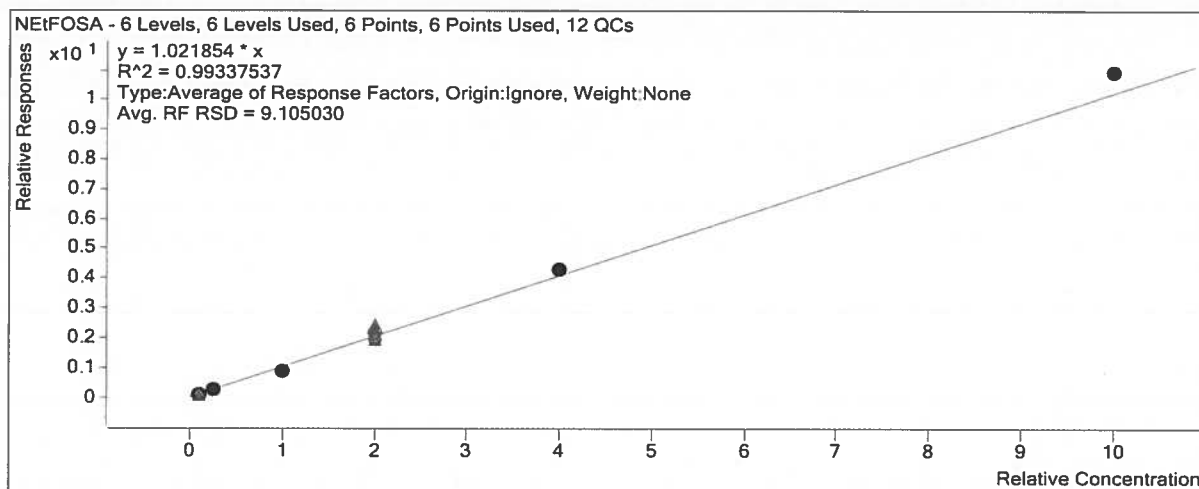


Extracted ISTD

d9-NetFOSE

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210503ACAL\2210503A_2.d	Calibration	1	<input checked="" type="checkbox"/>	4457	5.0000	891.4915
K:\MassHunter\Data\2210503ACAL\2210503A_3.d	Calibration	2	<input checked="" type="checkbox"/>	4371	5.0000	874.2662
K:\MassHunter\Data\2210503ACAL\2210503A_4.d	Calibration	3	<input checked="" type="checkbox"/>	4222	5.0000	844.3383
K:\MassHunter\Data\2210503ACAL\2210503A_5.d	Calibration	4	<input checked="" type="checkbox"/>	4130	5.0000	826.0163
K:\MassHunter\Data\2210503ACAL\2210503A_6.d	Calibration	5	<input checked="" type="checkbox"/>	4442	5.0000	888.3898
K:\MassHunter\Data\2210503ACAL\2210503A_7.d	Calibration	6	<input checked="" type="checkbox"/>	4419	5.0000	883.8215

Quantitative Analysis Calibration Report



Extracted ISTD

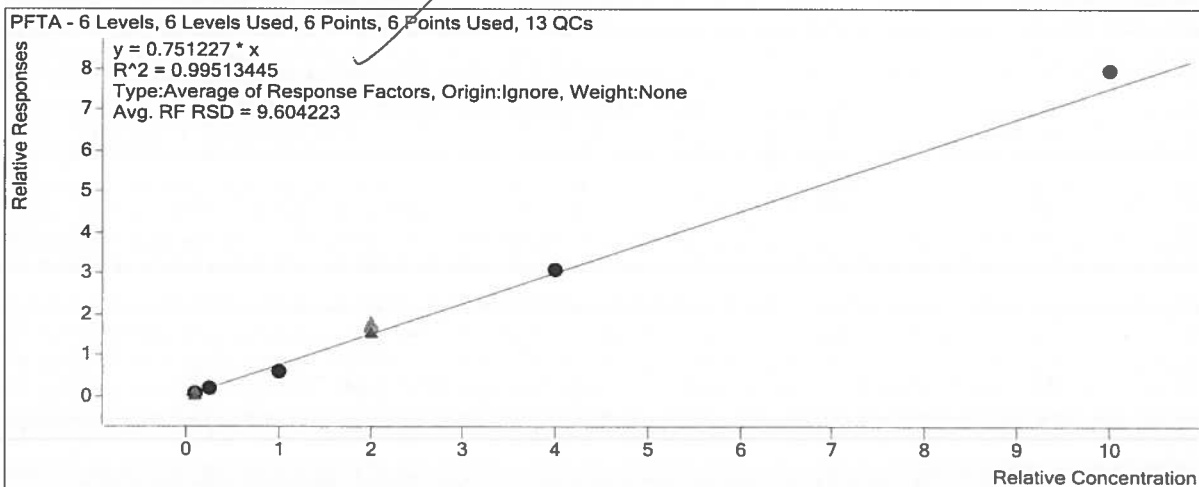
M2PFTA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210503ACAL\2210503A_2.d	Calibration	1	<input checked="" type="checkbox"/>	82422	5.0000	16484.4465
K:\MassHunter\Data\2210503ACAL\2210503A_3.d	Calibration	2	<input checked="" type="checkbox"/>	84406	5.0000	16881.1401
K:\MassHunter\Data\2210503ACAL\2210503A_4.d	Calibration	3	<input checked="" type="checkbox"/>	81386	5.0000	16277.2705
K:\MassHunter\Data\2210503ACAL\2210503A_5.d	Calibration	4	<input checked="" type="checkbox"/>	79472	5.0000	15894.3412
K:\MassHunter\Data\2210503ACAL\2210503A_6.d	Calibration	5	<input checked="" type="checkbox"/>	86061	5.0000	17212.2442
K:\MassHunter\Data\2210503ACAL\2210503A_7.d	Calibration	6	<input checked="" type="checkbox"/>	84005	5.0000	16800.9152

Target Compound

PFTA

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
K:\MassHunter\Data\2210503ACAL\2210503A_2.d	Calibration	1	<input checked="" type="checkbox"/>	6461	0.5000	0.7839
K:\MassHunter\Data\2210503ACAL\2210503A_3.d	Calibration	2	<input checked="" type="checkbox"/>	15666	1.2500	0.7424
K:\MassHunter\Data\2210503ACAL\2210503A_4.d	Calibration	3	<input checked="" type="checkbox"/>	49735	5.0000	0.6111
K:\MassHunter\Data\2210503ACAL\2210503A_5.d	Calibration	4	<input checked="" type="checkbox"/>	128252	10.0000	0.8069
K:\MassHunter\Data\2210503ACAL\2210503A_6.d	Calibration	5	<input checked="" type="checkbox"/>	264754	20.0000	0.7691
K:\MassHunter\Data\2210503ACAL\2210503A_7.d	Calibration	6	<input checked="" type="checkbox"/>	666940	50.0000	0.7939



7E
ORGANICS CALIBRATION VERIFICATION

Report No: <u>221050411</u>	Instrument ID: <u>QQQ3</u>
Analysis Date: <u>05/05/2021 14:36</u>	Lab File ID: <u>2210505A_14.d</u>
Analytical Method: <u>EPA 537 Mod Isotope Dilution</u>	Analytical Batch: <u>710369</u>

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomersulfonic acid	ng/L	9510	9930	104 ✓	70	130	
8:2 Fluorotelomersulfonic acid	ng/L	9600	10300	107	70	130	
NEtFOSAA	ng/L	10000	10500	105	70	130	
NMeFOSAA	ng/L	10000	10800	108	70	130	
Perfluorobutanoic acid	ng/L	10000	10500	105	70	130	
Perfluorobutanesulfonic acid	ng/L	8870	9330	105	70	130	
Perfluorodecanoic acid	ng/L	10000	10800	108	70	130	
Perfluorododecanoic acid	ng/L	10000	11000	110	70	130	
Perfluoroheptanoic acid	ng/L	10000	10500	105	70	130	
Perfluorohexanoic acid	ng/L	10000	10500	105	70	130	
Perfluorohexanesulfonic acid	ng/L	9140	9610	105	70	130	
Perfluorononanoic acid	ng/L	10000	10700	107	70	130	
Perfluorooctanoic acid	ng/L	10000	10600	106	70	130	
Perfluorooctanesulfonic acid	ng/L	9280	9800	106	70	130	
Perfluoropentanoic acid	ng/L	10000	10800	108	70	130	
Perfluorotetradecanoic acid	ng/L	10000	10600	106	70	130	
Perfluorotridecanoic acid	ng/L	10000	10600	106	70	130	
Perfluoroundecanoic acid	ng/L	10000	11000	110	70	130	

FORM 7E - ORG

7E
ORGANICS CALIBRATION VERIFICATION

Report No:	<u>221050411</u>	Instrument ID:	<u>QQQ3</u>
Analysis Date:	<u>05/05/2021 17:17</u>	Lab File ID:	<u>2210505A_25.d</u>
Analytical Method:	<u>EPA 537 Mod Isotope Dilution</u>	Analytical Batch:	<u>710369</u>

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomersulfonic acid	ng/L	9510	9620	101 ✓	70	130	
8:2 Fluorotelomersulfonic acid	ng/L	9600	9940	104	70	130	
NEtFOSAA	ng/L	10000	10800	108	70	130	
NMeFOSAA	ng/L	10000	10400	104	70	130	
Perfluorobutanoic acid	ng/L	10000	10500	105	70	130	
Perfluorobutanesulfonic acid	ng/L	8870	9480	107	70	130	
Perfluorodecanoic acid	ng/L	10000	10600	106	70	130	
Perfluorododecanoic acid	ng/L	10000	10800	108	70	130	
Perfluoroheptanoic acid	ng/L	10000	10600	106	70	130	
Perfluorohexanoic acid	ng/L	10000	10800	108	70	130	
Perfluorohexanesulfonic acid	ng/L	9140	9770	107	70	130	
Perfluorononanoic acid	ng/L	10000	10600	106	70	130	
Perfluorooctanoic acid	ng/L	10000	10600	106	70	130	
Perfluorooctanesulfonic acid	ng/L	9280	9720	105	70	130	
Perfluoropentanoic acid	ng/L	10000	10700	107	70	130	
Perfluorotetradecanoic acid	ng/L	10000	10700	107	70	130	
Perfluorotridecanoic acid	ng/L	10000	10600	106	70	130	
Perfluoroundecanoic acid	ng/L	10000	10700	107	70	130	

FORM 7E - ORG

7E
ORGANICS CALIBRATION VERIFICATION

Report No:	221050411	Instrument ID:	QQQ3
Analysis Date:	05/05/2021 19:57	Lab File ID:	2210505A_36.d
Analytical Method:	EPA 537 Mod Isotope Dilution	Analytical Batch:	710369

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomersulfonic acid	ng/L	9510	9490	100 ✓	70	130	
8:2 Fluorotelomersulfonic acid	ng/L	9600	10300	107	70	130	
NEtFOSAA	ng/L	10000	10500	105	70	130	
NMeFOSAA	ng/L	10000	11000	110	70	130	
Perfluorobutanoic acid	ng/L	10000	10500	105	70	130	
Perfluorobutanesulfonic acid	ng/L	8870	9480	107	70	130	
Perfluorodecanoic acid	ng/L	10000	10500	105	70	130	
Perfluorododecanoic acid	ng/L	10000	10900	109	70	130	
Perfluoroheptanoic acid	ng/L	10000	10500	105	70	130	
Perfluorohexanoic acid	ng/L	10000	10500	105	70	130	
Perfluorohexanesulfonic acid	ng/L	9140	9770	107	70	130	
Perfluorononanoic acid	ng/L	10000	10800	108	70	130	
Perfluorooctanoic acid	ng/L	10000	10500	105	70	130	
Perfluorooctanesulfonic acid	ng/L	9280	9750	105	70	130	
Perfluoropentanoic acid	ng/L	10000	10600	106	70	130	
Perfluorotetradecanoic acid	ng/L	10000	10600	106	70	130	
Perfluorotridecanoic acid	ng/L	10000	10600	106	70	130	
Perfluoroundecanoic acid	ng/L	10000	11000	110	70	130	

FORM 7E - ORG

7E
ORGANICS CALIBRATION VERIFICATION

Report No:	221050411	Instrument ID:	QQQ3
Analysis Date:	05/05/2021 22:38	Lab File ID:	2210505A_47.d
Analytical Method:	EPA 537 Mod Isotope Dilution	Analytical Batch:	710369

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomersulfonic acid	ng/L	9510	10100	106 ✓	70	130	
8:2 Fluorotelomersulfonic acid	ng/L	9600	10400	109	70	130	
NEtFOSAA	ng/L	10000	10500	105	70	130	
NMeFOSAA	ng/L	10000	10400	104	70	130	
Perfluorobutanoic acid	ng/L	10000	10500	105	70	130	
Perfluorobutanesulfonic acid	ng/L	8870	9420	106	70	130	
Perfluorodecanoic acid	ng/L	10000	10700	107	70	130	
Perfluorododecanoic acid	ng/L	10000	10600	106	70	130	
Perfluoroheptanoic acid	ng/L	10000	10600	106	70	130	
Perfluorohexanoic acid	ng/L	10000	10600	106	70	130	
Perfluorohexanesulfonic acid	ng/L	9140	9790	107	70	130	
Perfluorononanoic acid	ng/L	10000	10700	107	70	130	
Perfluorooctanoic acid	ng/L	10000	10500	105	70	130	
Perfluorooctanesulfonic acid	ng/L	9280	9900	107	70	130	
Perfluoropentanoic acid	ng/L	10000	10700	107	70	130	
Perfluorotetradecanoic acid	ng/L	10000	10700	107	70	130	
Perfluorotridecanoic acid	ng/L	10000	10500	105	70	130	
Perfluoroundecanoic acid	ng/L	10000	10700	107	70	130	

FORM 7E - ORG

7E
ORGANICS CALIBRATION VERIFICATION

Report No:	<u>221050411</u>	Instrument ID:	<u>QQQ3</u>
Analysis Date:	<u>05/06/2021 01:19</u>	Lab File ID:	<u>2210505A_58.d</u>
Analytical Method:	<u>EPA 537 Mod Isotope Dilution</u>	Analytical Batch:	<u>710369</u>

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomersulfonic acid	ng/L	9510	10100	106 ✓	70	130	
8:2 Fluorotelomersulfonic acid	ng/L	9600	9900	103	70	130	
NEtFOSAA	ng/L	10000	10700	107	70	130	
NMeFOSAA	ng/L	10000	10600	106	70	130	
Perfluorobutanoic acid	ng/L	10000	10500	105	70	130	
Perfluorobutanesulfonic acid	ng/L	8870	9420	106	70	130	
Perfluorodecanoic acid	ng/L	10000	10700	107	70	130	
Perfluorododecanoic acid	ng/L	10000	10800	108	70	130	
Perfluoroheptanoic acid	ng/L	10000	10600	106	70	130	
Perfluorohexanoic acid	ng/L	10000	10700	107	70	130	
Perfluorohexanesulfonic acid	ng/L	9140	9750	107	70	130	
Perfluorononanoic acid	ng/L	10000	10700	107	70	130	
Perfluorooctanoic acid	ng/L	10000	10500	105	70	130	
Perfluorooctanesulfonic acid	ng/L	9280	9690	104	70	130	
Perfluoropentanoic acid	ng/L	10000	10700	107	70	130	
Perfluorotetradecanoic acid	ng/L	10000	10700	107	70	130	
Perfluorotridecanoic acid	ng/L	10000	10700	107	70	130	
Perfluoroundecanoic acid	ng/L	10000	10600	106	70	130	

FORM 7E - ORG

4B
SEMIVOLATILE METHOD BLANK SUMMARY

Report No: <u>221032903</u>	Method Blank ID: <u>2162464</u>
Matrix: <u>Water</u>	Instrument ID: <u>QQQ2</u>
Sample Amt: <u>125</u> mL	Lab File ID: <u>2210405A_27.d</u>
Injection Vol.: <u>1.0</u> (µL)	GC Column: <u>ACC-C18-30M</u> ID <u>2.1</u> (mm)
Prep Final Vol.: <u>1000</u> (µL)	Dilution Factor: <u>1</u> Analyst: <u>MRA</u>
Prep Date: _____	Analysis Date: <u>04/05/21</u> Time: <u>1659</u>
Prep Batch: <u>707127</u>	Analytical Batch: <u>707851</u>
Prep Method: <u>PFAS ID QSM B15 Prep</u>	Analytical Method: <u>PFAS Isotope Dilution QSM B15</u>

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD

	CLIENT SAMPLE ID	GCAL SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
1.	LCS2162465	2162465	22100401A_43.d	04/01/21	2236
2.	WL-DECON-01	22103290301	22100401A_63.d	04/02/21	0323
3.	LCS2162465RE	2162465RE	2210405A_28.d	04/05/21	1712
4.	WL-DECON-01RE	22103290301RE	2210405A_32.d	04/05/21	1805

FORM IV SV

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No: <u>221032903</u>	Client Sample ID: <u>MB2162464RE</u>
Collect Date: <u>NA</u> Time: <u>NA</u>	GCAL Sample ID: <u>2162464RE</u>
Matrix: <u>Water</u> % Moisture: <u>NA</u>	Instrument ID: <u>QQQ2</u>
Sample Amt: <u>125</u> mL	Lab File ID: <u>2210405A_27.d</u>
Injection Vol.: <u>1.0</u> (µL)	GC Column: <u>ACC-C18-30M</u> ID <u>2.1</u> (mm)
Prep Final Vol.: <u>1000</u> (µL)	Dilution Factor: <u>1</u> Analyst: <u>MRA</u>
Prep Date: _____	Analysis Date: <u>04/05/21</u> Time: <u>1659</u>
Prep Batch: <u>707127</u>	Analytical Batch: <u>707851</u>
Prep Method: <u>PFAS ID QSM B15 Prep</u>	Analytical Method: <u>PFAS Isotope Dilution QSM B15</u>

CONCENTRATION UNITS: ng/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomersulfonic acid	2.00	U	0.940	2.00	4.00
39108-34-4	8:2 Fluorotelomersulfonic acid	2.00	U	0.900	2.00	4.00
375-73-5	Perfluorobutanesulfonic acid	2.00	U	0.810	2.00	4.00
375-22-4	Perfluorobutanoic acid	1.97	J	0.900	2.00	4.00
335-76-2	Perfluorodecanoic acid	2.00	U	0.860	2.00	4.00
307-55-1	Perfluorododecanoic acid	2.00	U	0.880	2.00	4.00
355-46-4	Perfluorohexanesulfonic acid	2.00	U	0.950	2.00	4.00
307-24-4	Perfluorohexanoic acid	2.00	U	0.990	2.00	4.00
375-95-1	Perfluorononanoic acid	2.00	U	0.780	2.00	4.00
1763-23-1	Perfluorooctanesulfonic acid	2.00	U	0.810	2.00	4.00
335-67-1	Perfluorooctanoic acid	2.00	U	0.950	2.00	4.00
2706-90-3	Perfluoropentanoic acid	2.00	U	0.850	2.00	4.00
376-06-7	Perfluorotetradecanoic acid	2.00	U	0.980	2.00	4.00
2058-94-8	Perfluoroundecanoic acid	2.00	U	0.950	2.00	4.00

FORM I SV-1

3C
WATER SEMIVOLATILE LCS/LCSD RECOVERY

Report No: 221032903

Prep Method: PFAS ID QSM B15 Prep Prep Batch: 707127

Analytical Method: PFAS Isotope Dilution QSM B15 Analytical Batch: 707851

GCAL QC ID: **2162465**

ANALYTE	UNITS	SPIKE ADDED	SAMPLE RESULT	LCS RESULT	LCS % REC	#	QC LIMITS
6:2 Fluorotelomersulfonic acid	ng/L	76.1	0	73.3	96 ✓		64 - 140
8:2 Fluorotelomersulfonic acid	ng/L	76.8	0	77.9	101		67 - 138
Perfluorobutanesulfonic acid	ng/L	71	0	68.6	97		72 - 130
Perfluorobutanoic acid	ng/L	80	0	77.2	97		73 - 129
Perfluorodecanoic acid	ng/L	80	0	80	100		71 - 129
Perfluorododecanoic acid	ng/L	80	0	84	105		72 - 134
Perfluorohexanesulfonic acid	ng/L	73.1	0	75.9	104		68 - 131
Perfluorohexanoic acid	ng/L	80	0	74.6	93		72 - 129
Perfluorononanoic acid	ng/L	80	0	81.3	102		69 - 130
Perfluorooctanesulfonic acid	ng/L	74.2	0	69.5	94		65 - 140
Perfluorooctanoic acid	ng/L	80	0	76.4	95		71 - 133
Perfluoropentanoic acid	ng/L	80	0	76.5	96		72 - 129
Perfluorotetradecanoic acid	ng/L	80	0	75.8	95		71 - 132
Perfluoroundecanoic acid	ng/L	80	0	74.6	93		69 - 133

RPD : 0 out of 0 outside limits

Column to be used to flag recovery and RPD values with an asterisk

Spike Recovery: 0 out of 14 outside limits

* Values outside of QC limits

FORM III SV-1

4B
SEMIVOLATILE METHOD BLANK SUMMARY

Report No: <u>221032903</u>	Method Blank ID: <u>2162464</u>
Matrix: <u>Water</u>	Instrument ID: <u>QQQ1</u>
Sample Amt: <u>125</u> mL	Lab File ID: <u>22100401A_42.d</u>
Injection Vol.: <u>1.0</u> (µL)	GC Column: <u>ACC-C18-30M</u> ID <u>2.1</u> (mm)
Prep Final Vol.: <u>1000</u> (µL)	Dilution Factor: <u>1</u> Analyst: <u>MRA</u>
Prep Date: _____	Analysis Date: <u>04/01/21</u> Time: <u>2222</u>
Prep Batch: <u>707127</u>	Analytical Batch: <u>707996</u>
Prep Method: <u>PFAS ID QSM B15 Prep</u>	Analytical Method: <u>PFAS Isotope Dilution QSM B15</u>

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD

	CLIENT SAMPLE ID	GCAL SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
1.	LCS2162465	2162465	22100401A_43.d	04/01/21	2236
2.	WL-DECON-01	22103290301	22100401A_63.d	04/02/21	0323
3.	LCS2162465RE	2162465RE	2210405A_28.d	04/05/21	1712
4.	WL-DECON-01RE	22103290301RE	2210405A_32.d	04/05/21	1805

FORM IV SV

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No: <u>221032903</u>	Client Sample ID: <u>MB2162464</u>
Collect Date: <u>NA</u> Time: <u>NA</u>	GCAL Sample ID: <u>2162464</u>
Matrix: <u>Water</u> % Moisture: <u>NA</u>	Instrument ID: <u>QQQ1</u>
Sample Amt: <u>125</u> mL	Lab File ID: <u>22100401A_42.d</u>
Injection Vol.: <u>1.0</u> (μ L)	GC Column: <u>ACC-C18-30M</u> ID <u>2.1</u> (mm)
Prep Final Vol.: <u>1000</u> (μ L)	Dilution Factor: <u>1</u> Analyst: <u>MRA</u>
Prep Date: _____	Analysis Date: <u>04/01/21</u> Time: <u>2222</u>
Prep Batch: <u>707127</u>	Analytical Batch: <u>707996</u>
Prep Method: <u>PFAS ID QSM B15 Prep</u>	Analytical Method: <u>PFAS Isotope Dilution QSM B15</u>

CONCENTRATION UNITS: ng/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
2991-50-6	NEtFOSAA	4.00	U✓	0.970	4.00	8.00
2355-31-9	NMeFOSAA	4.00	U	0.910	4.00	8.00
375-85-9	Perfluoroheptanoic acid	2.00	U	0.480	2.00	4.00
72629-94-8	Perfluorotridecanoic acid	2.00	U	0.990	2.00	4.00

FORM I SV-1

3C
WATER SEMIVOLATILE LCS/LCSD RECOVERY

Report No: 221032903

Prep Method: PFAS ID QSM B15 Prep Prep Batch: 707127

Analytical Method: PFAS Isotope Dilution QSM B15 Analytical Batch: 707996

GCAL QC ID: 2162465

ANALYTE	UNITS	SPIKE ADDED	SAMPLE RESULT	LCS RESULT	LCS % REC	#	QC LIMITS
NEtFOSAA	ng/L	80	0	100	125 ✓		61 - 135
NMeFOSAA	ng/L	80	0	69.7	87		65 - 136
Perfluoroheptanoic acid	ng/L	80	0	74.1	93		72 - 130
Perfluorotridecanoic acid	ng/L	80	0	65.5	82		65 - 144

RPD : 0 out of 0 outside limits

Column to be used to flag recovery and RPD values with an asterisk

Spike Recovery: 0 out of 4 outside limits

* Values outside of QC limits

FORM III SV-1

4B
SEMIVOLATILE METHOD BLANK SUMMARY

Report No: <u>221050411</u>	Method Blank ID: <u>2179328</u>
Matrix: <u>Water</u>	Instrument ID: <u>QQQ3</u>
Sample Amt: <u>125</u> mL	Lab File ID: <u>2210507B_29.d</u>
Injection Vol.: <u>1.0</u> (µL)	GC Column: <u>ACC-C18-30M</u> ID <u>2.1</u> (mm)
Prep Final Vol.: <u>1000</u> (µL)	Dilution Factor: <u>1</u> Analyst: <u>RXJ</u>
Prep Date: <u>05/04/21</u>	Analysis Date: <u>05/07/21</u> Time: <u>2357</u>
Prep Batch: <u>709960</u>	Analytical Batch: <u>710901</u>
Prep Method: <u>PFAS ID QSM B15 Prep</u>	Analytical Method: <u>PFAS Isotope Dilution QSM B15</u>

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD

	CLIENT SAMPLE ID	GCAL SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
1.	LCS2179329	2179329	2210507B_30.d	05/08/21	0012
2.	LCSD2179330	2179330	2210507B_31.d	05/08/21	0026
3.	AOI01-01-GW	22105041138	2210507B_44.d	05/08/21	0337
4.	AOI01-02-GW	22105041139	2210507B_45.d	05/08/21	0352
5.	AOI01-03-GW	22105041140	2210507B_46.d	05/08/21	0406
6.	AOI01-04-GW	22105041141	2210507B_47.d	05/08/21	0421
7.	AOI01-03-GW-D	22105041142	2210507B_48.d	05/08/21	0436
8.	AOI01-05-GW	22105041143	2210507B_49.d	05/08/21	0450
9.	AOI01-06-GW	22105041144	2210507B_50.d	05/08/21	0505
10.	AOI01-02-GWDL	22105041139DL	2210515A_15.d	05/15/21	1420
11.	AOI01-03-GWDL1	22105041140DL1	2210517A_12.d	05/17/21	1919
12.	AOI01-04-GWDL	22105041141DL	2210517A_13.d	05/17/21	1934
13.	AOI01-03-GW-DDL	22105041142DL	2210517A_14.d	05/17/21	1949
14.	AOI01-03-GWDL	22105041140DL	2210527A_31.d	05/28/21	0033

FORM IV SV

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No: <u>221050411</u>	Client Sample ID: <u>MB2179328</u>
Collect Date: <u>NA</u> Time: <u>NA</u>	GCAL Sample ID: <u>2179328</u>
Matrix: <u>Water</u> % Moisture: <u>NA</u>	Instrument ID: <u>QQQ3</u>
Sample Amt: <u>125</u> mL	Lab File ID: <u>2210507B_29.d</u>
Injection Vol.: <u>1.0</u> (µL)	GC Column: <u>ACC-C18-30M</u> ID <u>2.1</u> (mm)
Prep Final Vol.: <u>1000</u> (µL)	Dilution Factor: <u>1</u> Analyst: <u>RXJ</u>
Prep Date: <u>05/04/21</u>	Analysis Date: <u>05/07/21</u> Time: <u>2357</u>
Prep Batch: <u>709960</u>	Analytical Batch: <u>710901</u>
Prep Method: <u>PFAS ID QSM B15 Prep</u>	Analytical Method: <u>PFAS Isotope Dilution QSM B15</u>

CONCENTRATION UNITS: ng/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomersulfonic acid	3.00	U✓	1.50	3.00	4.00
39108-34-4	8:2 Fluorotelomersulfonic acid	2.00	U	0.900	2.00	4.00
2991-50-6	NEtFOSAA	4.00	U	0.970	4.00	8.00
2355-31-9	NMeFOSAA	4.00	U	0.910	4.00	8.00
375-73-5	Perfluorobutanesulfonic acid	2.00	U	0.810	2.00	4.00
375-22-4	Perfluorobutanoic acid	2.00	U	0.900	2.00	4.00
335-76-2	Perfluorodecanoic acid	2.00	U	0.860	2.00	4.00
307-55-1	Perfluorododecanoic acid	2.00	U	0.880	2.00	4.00
375-85-9	Perfluoroheptanoic acid	2.00	U	0.480	2.00	4.00
355-46-4	Perfluorohexanesulfonic acid	3.00	U	1.24	3.00	4.00
307-24-4	Perfluorohexanoic acid	2.00	U	0.990	2.00	4.00
375-95-1	Perfluorononanoic acid	2.00	U	0.780	2.00	4.00
1763-23-1	Perfluorooctanesulfonic acid	2.00	U	0.760	2.00	4.00
335-67-1	Perfluorooctanoic acid	2.00	U	0.950	2.00	4.00
2706-90-3	Perfluoropentanoic acid	2.00	U	0.850	2.00	4.00
376-06-7	Perfluorotetradecanoic acid	2.00	U	0.980	2.00	4.00
72629-94-8	Perfluorotridecanoic acid	2.00	U	0.990	2.00	4.00
2058-94-8	Perfluoroundecanoic acid	2.00	U	0.950	2.00	4.00

FORM I SV-1

3C
WATER SEMIVOLATILE LCS/LCSD RECOVERY

Report No: 221050411

Prep Method: PFAS ID QSM B15 Prep Prep Batch: 709960

Analytical Method: PFAS Isotope Dilution QSM B15 Analytical Batch: 710901

GCAL QC ID: 2179329

ANALYTE	UNITS	SPIKE ADDED	SAMPLE RESULT	LCS RESULT	LCS % REC	#	QC LIMITS
6:2 Fluorotelomersulfonic acid	ng/L	76.1	0	89.3	117		64 - 140
8:2 Fluorotelomersulfonic acid	ng/L	76.8	0	92.2	120		67 - 138
NEtFOSAA	ng/L	80	0	98.5	123		61 - 135
NMeFOSAA	ng/L	80	0	95.6	120		65 - 136
Perfluorobutanesulfonic acid	ng/L	71	0	84.8	120		72 - 130
Perfluorobutanoic acid	ng/L	80	0	96	120		73 - 129
Perfluorodecanoic acid	ng/L	80	0	97.3	122		71 - 129
Perfluorododecanoic acid	ng/L	80	0	98.1	123		72 - 134
Perfluoroheptanoic acid	ng/L	80	0	96.7	121		72 - 130
Perfluorohexanesulfonic acid	ng/L	73.1	0	89.8	123		68 - 131
Perfluorohexanoic acid	ng/L	80	0	96.5	121		72 - 129
Perfluorononanoic acid	ng/L	80	0	96.9	121		69 - 130
Perfluorooctanesulfonic acid	ng/L	74.2	0	87.6	118		65 - 140
Perfluorooctanoic acid	ng/L	80	0	94.7	118		71 - 133
Perfluoropentanoic acid	ng/L	80	0	97.1	121		72 - 129
Perfluorotetradecanoic acid	ng/L	80	0	95.3	119		71 - 132
Perfluorotridecanoic acid	ng/L	80	0	95.8	120		65 - 144
Perfluoroundecanoic acid	ng/L	80	0	99.8	125		69 - 133

RPD : 0 out of 18 outside limits

Column to be used to flag recovery and RPD values with an asterisk

Spike Recovery: 0 out of 36 outside limits

* Values outside of QC limits

FORM III SV-1

3C
WATER SEMIVOLATILE LCS/LCSD RECOVERY

Report No: 221050411

Prep Method: PFAS ID QSM B15 Prep Prep Batch: 709960

Analytical Method: PFAS Isotope Dilution QSM B15 Analytical Batch: 710901

GCAL QC ID: 2179330

ANALYTE	UNITS	SPIKE ADDED	LCSD RESULT	LCSD % REC	#	% RPD	#	QC LIMITS	
								REC	RPD
6:2 Fluorotelomersulfonic acid	ng/L	76.1	89.1	117	✓	.2	✓	64 - 140	0 - 30
8:2 Fluorotelomersulfonic acid	ng/L	76.8	91.5	119		.8		67 - 138	0 - 30
NEtFOSAA	ng/L	80	97.6	122		1		61 - 135	0 - 30
NMeFOSAA	ng/L	80	99.4	124		4		65 - 136	0 - 30
Perfluorobutanesulfonic acid	ng/L	71	85.1	120		.3		72 - 130	0 - 30
Perfluorobutanoic acid	ng/L	80	95.5	119		.5		73 - 129	0 - 30
Perfluorodecanoic acid	ng/L	80	98.4	123		1		71 - 129	0 - 30
Perfluorododecanoic acid	ng/L	80	97.7	122		.5		72 - 134	0 - 30
Perfluoroheptanoic acid	ng/L	80	96.2	120		.5		72 - 130	0 - 30
Perfluorohexanesulfonic acid	ng/L	73.1	90.2	123		.4		68 - 131	0 - 30
Perfluorohexanoic acid	ng/L	80	96.2	120		.3		72 - 129	0 - 30
Perfluorononanoic acid	ng/L	80	99	124		2		69 - 130	0 - 30
Perfluorooctanesulfonic acid	ng/L	74.2	89.9	121		3		65 - 140	0 - 30
Perfluorooctanoic acid	ng/L	80	96.1	120		1		71 - 133	0 - 30
Perfluoropentanoic acid	ng/L	80	98.2	123		1		72 - 129	0 - 30
Perfluorotetradecanoic acid	ng/L	80	97.6	122		2		71 - 132	0 - 30
Perfluorotridecanoic acid	ng/L	80	96	120		.2		65 - 144	0 - 30
Perfluoroundecanoic acid	ng/L	80	100	125		.5		69 - 133	0 - 30

RPD : 0 out of 18 outside limits

Column to be used to flag recovery and RPD values with an asterisk

Spike Recovery: 0 out of 36 outside limits

* Values outside of QC limits

FORM III SV-1

4B
SEMIVOLATILE METHOD BLANK SUMMARY

Report No: <u>221050411</u>	Method Blank ID: <u>2179810</u>
Matrix: <u>Water</u>	Instrument ID: <u>QQQ3</u>
Sample Amt: <u>125</u> mL	Lab File ID: <u>2210513A_07.d</u>
Injection Vol.: <u>1.0</u> (µL)	GC Column: <u>ACC-C18-30M</u> ID <u>2.1</u> (mm)
Prep Final Vol.: <u>1000</u> (µL)	Dilution Factor: <u>1</u> Analyst: <u>RXJ</u>
Prep Date: <u>05/03/21</u>	Analysis Date: <u>05/13/21</u> Time: <u>1559</u>
Prep Batch: <u>710037</u>	Analytical Batch: <u>711161</u>
Prep Method: <u>PFAS ID QSM B15 Prep</u>	Analytical Method: <u>PFAS Isotope Dilution QSM B15</u>

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD

	CLIENT SAMPLE ID	GCAL SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
1.	AOI01-09-GW	22105041147	2210505A_24.d	05/05/21	1702
2.	LCS2179811	2179811	2210513A_08.d	05/13/21	1614
3.	LCSD2179812	2179812	2210513A_09.d	05/13/21	1628
4.	AOI01-09-GWRE	22105041147RE	2210527A_30.d	05/28/21	0018

FORM IV SV

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No: <u>221050411</u>	Client Sample ID: <u>MB2179810</u>
Collect Date: <u>NA</u> Time: <u>NA</u>	GCAL Sample ID: <u>2179810</u>
Matrix: <u>Water</u> % Moisture: <u>NA</u>	Instrument ID: <u>QQQ3</u>
Sample Amt: <u>125</u> mL	Lab File ID: <u>2210513A_07.d</u>
Injection Vol.: <u>1.0</u> (µL)	GC Column: <u>ACC-C18-30M</u> ID <u>2.1</u> (mm)
Prep Final Vol.: <u>1000</u> (µL)	Dilution Factor: <u>1</u> Analyst: <u>RXJ</u>
Prep Date: <u>05/03/21</u>	Analysis Date: <u>05/13/21</u> Time: <u>1559</u>
Prep Batch: <u>710037</u>	Analytical Batch: <u>711161</u>
Prep Method: <u>PFAS ID QSM B15 Prep</u>	Analytical Method: <u>PFAS Isotope Dilution QSM B15</u>

CONCENTRATION UNITS: ng/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomersulfonic acid	2.00	U	0.940	2.00	4.00
39108-34-4	8:2 Fluorotelomersulfonic acid	2.00	U	0.900	2.00	4.00
2991-50-6	NEtFOSAA	4.00	U	0.970	4.00	8.00
2355-31-9	NMeFOSAA	4.00	U	0.910	4.00	8.00
375-73-5	Perfluorobutanesulfonic acid	2.00	U	0.810	2.00	4.00
375-22-4	Perfluorobutanoic acid	2.00	U	0.900	2.00	4.00
335-76-2	Perfluorodecanoic acid	2.00	U	0.860	2.00	4.00
307-55-1	Perfluorododecanoic acid	2.00	U	0.880	2.00	4.00
375-85-9	Perfluoroheptanoic acid	2.00	U	0.480	2.00	4.00
355-46-4	Perfluorohexanesulfonic acid	2.00	U	0.950	2.00	4.00
307-24-4	Perfluorohexanoic acid	2.00	U	0.990	2.00	4.00
375-95-1	Perfluorononanoic acid	2.00	U	0.780	2.00	4.00
1763-23-1	Perfluorooctanesulfonic acid	2.00	U	0.760	2.00	4.00
335-67-1	Perfluorooctanoic acid	2.00	U	0.950	2.00	4.00
2706-90-3	Perfluoropentanoic acid	2.00	U	0.850	2.00	4.00
376-06-7	Perfluorotetradecanoic acid	2.00	U	0.980	2.00	4.00
72629-94-8	Perfluorotridecanoic acid	2.00	U	0.990	2.00	4.00
2058-94-8	Perfluoroundecanoic acid	2.00	U	0.950	2.00	4.00

FORM I SV-1

3C
WATER SEMIVOLATILE LCS/LCSD RECOVERY

Report No: 221050411
Prep Method: PFAS ID QSM B15 Prep
Analytical Method: PFAS Isotope Dilution QSM B15

Prep Batch: 710037
Analytical Batch: 711161

GCAL QC ID: **2179811**

ANALYTE	UNITS	SPIKE ADDED	SAMPLE RESULT	LCS RESULT	LCS % REC	#	QC LIMITS
6:2 Fluorotelomersulfonic acid	ng/L	76.1	0	67.2	88		64 - 140
8:2 Fluorotelomersulfonic acid	ng/L	76.8	0	65.9	86		67 - 138
NEtFOSAA	ng/L	80	0	64.4	81		61 - 135
NMeFOSAA	ng/L	80	0	67.4	84		65 - 136
Perfluorobutanesulfonic acid	ng/L	71	0	56.8	80		72 - 130
Perfluorobutanoic acid	ng/L	80	0	65	81		73 - 129
Perfluorodecanoic acid	ng/L	80	0	67.2	84		71 - 129
Perfluorododecanoic acid	ng/L	80	0	67.8	85		72 - 134
Perfluoroheptanoic acid	ng/L	80	0	66.1	83		72 - 130
Perfluorohexanesulfonic acid	ng/L	73.1	0	62	85		68 - 131
Perfluorohexanoic acid	ng/L	80	0	65.1	81		72 - 129
Perfluorononanoic acid	ng/L	80	0	66.3	83		69 - 130
Perfluorooctanesulfonic acid	ng/L	74.2	0	62.2	84		65 - 140
Perfluorooctanoic acid	ng/L	80	0	64.8	81		71 - 133
Perfluoropentanoic acid	ng/L	80	0	67	84		72 - 129
Perfluorotetradecanoic acid	ng/L	80	0	68.6	86		71 - 132
Perfluorotridecanoic acid	ng/L	80	0	66.8	84		65 - 144
Perfluoroundecanoic acid	ng/L	80	0	66.7	83		69 - 133

RPD : 0 out of 18 outside limits

Column to be used to flag recovery and RPD values with an asterisk

Spike Recovery: 0 out of 36 outside limits

* Values outside of QC limits

FORM III SV-1

3C
WATER SEMIVOLATILE LCS/LCSD RECOVERY

Report No: 221050411

Prep Method: PFAS ID QSM B15 Prep Prep Batch: 710037

Analytical Method: PFAS Isotope Dilution QSM B15 Analytical Batch: 711161

GCAL QC ID: 2179812

ANALYTE	UNITS	SPIKE ADDED	LCSD RESULT	LCSD % REC	#	% RPD	#	QC LIMITS	
								REC	RPD
6:2 Fluorotelomersulfonic acid	ng/L	76.1	72.2	95 ✓		7 ✓		64 - 140	0 - 30
8:2 Fluorotelomersulfonic acid	ng/L	76.8	76	99		14		67 - 138	0 - 30
NEtFOSAA	ng/L	80	72.5	91		12		61 - 135	0 - 30
NMeFOSAA	ng/L	80	74.9	94		11		65 - 136	0 - 30
Perfluorobutanesulfonic acid	ng/L	71	64.8	91		13		72 - 130	0 - 30
Perfluorobutanoic acid	ng/L	80	72.3	90		11		73 - 129	0 - 30
Perfluorodecanoic acid	ng/L	80	74.9	94		11		71 - 129	0 - 30
Perfluorododecanoic acid	ng/L	80	74.8	94		10		72 - 134	0 - 30
Perfluoroheptanoic acid	ng/L	80	74	92		11		72 - 130	0 - 30
Perfluorohexanesulfonic acid	ng/L	73.1	68.4	94		10		68 - 131	0 - 30
Perfluorohexanoic acid	ng/L	80	74.2	93		13		72 - 129	0 - 30
Perfluorononanoic acid	ng/L	80	74	92		11		69 - 130	0 - 30
Perfluorooctanesulfonic acid	ng/L	74.2	68.1	92		9		65 - 140	0 - 30
Perfluorooctanoic acid	ng/L	80	72.5	91		11		71 - 133	0 - 30
Perfluoropentanoic acid	ng/L	80	73.9	92		10		72 - 129	0 - 30
Perfluorotetradecanoic acid	ng/L	80	74.3	93		8		71 - 132	0 - 30
Perfluorotridecanoic acid	ng/L	80	74.4	93		11		65 - 144	0 - 30
Perfluoroundecanoic acid	ng/L	80	74.3	93		11		69 - 133	0 - 30

RPD : 0 out of 18 outside limits

Column to be used to flag recovery and RPD values with an asterisk

Spike Recovery: 0 out of 36 outside limits

* Values outside of QC limits

FORM III SV-1

4B
SEMIVOLATILE METHOD BLANK SUMMARY

Report No: 221050411	Method Blank ID: 2183139
Matrix: Water	Instrument ID: QQQ3
Sample Amt: 125 mL	Lab File ID: 2210508A_07.d
Injection Vol.: 1.0 (µL)	GC Column: ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.: 1000 (µL)	Dilution Factor: 1 Analyst: RXJ
Prep Date: 05/07/21	Analysis Date: 05/08/21 Time: 1858
Prep Batch: 710580	Analytical Batch: 710724
Prep Method: PFAS ID QSM B15 Prep	Analytical Method: PFAS Isotope Dilution QSM B15

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD

	CLIENT SAMPLE ID	GCAL SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
1.	LCS2183140	2183140	2210508A_08.d	05/08/21	1913
2.	LCSD2183141	2183141	2210508A_09.d	05/08/21	1927
3.	LCS2183140RE	2183140RE	2210525A_57.d	05/26/21	0602
4.	LCSD2183141RE	2183141RE	2210525A_58.d	05/26/21	0617
5.	WL-FRB-01	22105041110	2210525A_59.d	05/26/21	0632
6.	AOI01-07-GW	22105041145	2210525A_60.d	05/26/21	0646
7.	AOI01-08-GW	22105041146	2210525A_61.d	05/26/21	0701
8.	AOI01-10-GW	22105041148	2210525A_62.d	05/26/21	0715
9.	AOI01-10-GW-MS	22105041149	2210525A_63.d	05/26/21	0730
10.	AOI01-10-GW-MSD	22105041150	2210525A_64.d	05/26/21	0745
11.	WL-ERB-02	22105041151	2210525A_65.d	05/26/21	0759
12.	WL-ERB-03	22105041152	2210525A_66.d	05/26/21	0814
13.	WL-ERB-04	22105041153	2210525A_67.d	05/26/21	0829
14.	WL-ERB-01	22105041154	2210525A_69.d	05/26/21	0858
15.	WL-FRB-01RE	22105041110RE	2210602C_40.d	06/03/21	0357

FORM IV SV

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No: <u>221050411</u>	Client Sample ID: <u>MB2183139</u>
Collect Date: <u>NA</u> Time: <u>NA</u>	GCAL Sample ID: <u>2183139</u>
Matrix: <u>Water</u> % Moisture: <u>NA</u>	Instrument ID: <u>QQQ3</u>
Sample Amt: <u>125</u> mL	Lab File ID: <u>2210508A_07.d</u>
Injection Vol.: <u>1.0</u> (µL)	GC Column: <u>ACC-C18-30M</u> ID <u>2.1</u> (mm)
Prep Final Vol.: <u>1000</u> (µL)	Dilution Factor: <u>1</u> Analyst: <u>RXJ</u>
Prep Date: <u>05/07/21</u>	Analysis Date: <u>05/08/21</u> Time: <u>1858</u>
Prep Batch: <u>710580</u>	Analytical Batch: <u>710724</u>
Prep Method: <u>PFAS ID QSM B15 Prep</u>	Analytical Method: <u>PFAS Isotope Dilution QSM B15</u>

CONCENTRATION UNITS: ng/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomersulfonic acid	3.00	U	1.50	3.00	4.00
39108-34-4	8:2 Fluorotelomersulfonic acid	3.00	U	1.06	3.00	4.00
2991-50-6	NEtFOSAA	4.00	U	1.58	4.00	8.00
2355-31-9	NMeFOSAA	4.00	U	0.900	4.00	8.00
375-73-5	Perfluorobutanesulfonic acid	2.00	U	0.620	2.00	4.00
375-22-4	Perfluorobutanoic acid	3.50	U	1.52	3.50	4.00
335-76-2	Perfluorodecanoic acid	3.00	U	1.44	3.00	4.00
307-55-1	Perfluorododecanoic acid	3.00	U	1.30	3.00	4.00
375-85-9	Perfluoroheptanoic acid	3.00	U	1.16	3.00	4.00
355-46-4	Perfluorohexanesulfonic acid	3.00	U	1.24	3.00	4.00
307-24-4	Perfluorohexanoic acid	2.00	U	0.940	2.00	4.00
1763-23-1	Perfluorooctanesulfonic acid	0.830	J	0.760	2.00	4.00
335-67-1	Perfluorooctanoic acid	2.00	U	0.840	2.00	4.00
2706-90-3	Perfluoropentanoic acid	2.00	U	0.880	2.00	4.00
376-06-7	Perfluorotetradecanoic acid	3.00	U	1.14	3.00	4.00
72629-94-8	Perfluorotridecanoic acid	3.00	U	1.23	3.00	4.00
2058-94-8	Perfluoroundecanoic acid	3.00	U	1.24	3.00	4.00

FORM I SV-1

3C
WATER SEMIVOLATILE LCS/LCSD RECOVERY

Report No: 221050411
Prep Method: PFAS ID QSM B15 Prep
Analytical Method: PFAS Isotope Dilution QSM B15

Prep Batch: 710580
Analytical Batch: 710724

GCAL QC ID: 2183140

ANALYTE	UNITS	SPIKE ADDED	SAMPLE RESULT	LCS RESULT	LCS % REC	#	QC LIMITS
6:2 Fluorotelomersulfonic acid	ng/L	76.1	0	95.2	125		64 - 140
8:2 Fluorotelomersulfonic acid	ng/L	76.8	0	102	132		67 - 138
NEtFOSAA	ng/L	80	0	103	128		61 - 135
NMeFOSAA	ng/L	80	0	106	133		65 - 136
Perfluorobutanesulfonic acid	ng/L	71	0	90.5	128		72 - 130
Perfluorobutanoic acid	ng/L	80	0	99.7	125		73 - 129
Perfluorodecanoic acid	ng/L	80	0	101	127		71 - 129
Perfluorododecanoic acid	ng/L	80	0	105	131		72 - 134
Perfluoroheptanoic acid	ng/L	80	0	102	127		72 - 130
Perfluorohexanesulfonic acid	ng/L	73.1	0	92.9	127		68 - 131
Perfluorohexanoic acid	ng/L	80	0	103	129		72 - 129
Perfluorooctanesulfonic acid	ng/L	74.2	0	95.7	129		65 - 140
Perfluorooctanoic acid	ng/L	80	0	102	127		71 - 133
Perfluoropentanoic acid	ng/L	80	0	102	128		72 - 129
Perfluorotetradecanoic acid	ng/L	80	0	103	129		71 - 132
Perfluorotridecanoic acid	ng/L	80	0	106	133		65 - 144
Perfluoroundecanoic acid	ng/L	80	0	105	131		69 - 133

RPD : 0 out of 17 outside limits

Column to be used to flag recovery and RPD values with an asterisk

Spike Recovery: 0 out of 34 outside limits

* Values outside of QC limits

FORM III SV-1

3C
WATER SEMIVOLATILE LCS/LCSD RECOVERY

Report No: 221050411
Prep Method: PFAS ID QSM B15 Prep
Analytical Method: PFAS Isotope Dilution QSM B15

Prep Batch: 710580
Analytical Batch: 710724

GCAL QC ID: 2183141

ANALYTE	UNITS	SPIKE ADDED	LCSD RESULT	LCSD % REC	#	% RPD	#	QC LIMITS	
								REC	RPD
6:2 Fluorotelomersulfonic acid	ng/L	76.1	97	127	✓	2	✓	64 - 140	0 - 30
8:2 Fluorotelomersulfonic acid	ng/L	76.8	98.1	128		4		67 - 138	0 - 30
NEtFOSAA	ng/L	80	104	130		1		61 - 135	0 - 30
NMeFOSAA	ng/L	80	106	132		.3		65 - 136	0 - 30
Perfluorobutanesulfonic acid	ng/L	71	90	127		.6		72 - 130	0 - 30
Perfluorobutanoic acid	ng/L	80	101	126		.8		73 - 129	0 - 30
Perfluorodecanoic acid	ng/L	80	102	127		.4		71 - 129	0 - 30
Perfluorododecanoic acid	ng/L	80	104	130		.8		72 - 134	0 - 30
Perfluoroheptanoic acid	ng/L	80	104	129		2		72 - 130	0 - 30
Perfluorohexanesulfonic acid	ng/L	73.1	93.1	127		.3		68 - 131	0 - 30
Perfluorohexanoic acid	ng/L	80	103	129		.2		72 - 129	0 - 30
Perfluorooctanesulfonic acid	ng/L	74.2	94.7	128		1		65 - 140	0 - 30
Perfluorooctanoic acid	ng/L	80	104	129		2		71 - 133	0 - 30
Perfluoropentanoic acid	ng/L	80	103	129		1		72 - 129	0 - 30
Perfluorotetradecanoic acid	ng/L	80	105	131		1		71 - 132	0 - 30
Perfluorotridecanoic acid	ng/L	80	107	134		1		65 - 144	0 - 30
Perfluoroundecanoic acid	ng/L	80	107	133		2		69 - 133	0 - 30

RPD : 0 out of 17 outside limits

Column to be used to flag recovery and RPD values with an asterisk

Spike Recovery: 0 out of 34 outside limits

* Values outside of QC limits

FORM III SV-1

4B
SEMIVOLATILE METHOD BLANK SUMMARY

Report No: <u>221050411</u>	Method Blank ID: <u>2184338</u>
Matrix: <u>Solid</u>	Instrument ID: <u>QQQ1</u>
Sample Amt: <u>5</u> g	Lab File ID: <u>2210515A_18.d</u>
Injection Vol.: <u>1.0</u> (µL)	GC Column: <u>ACC-C18-30M</u> ID <u>2.1</u> (mm)
Prep Final Vol.: <u>1000</u> (µL)	Dilution Factor: <u>1</u> Analyst: <u>MRA</u>
Prep Date: <u>05/11/21</u>	Analysis Date: <u>05/15/21</u> Time: <u>1428</u>
Prep Batch: <u>710837</u>	Analytical Batch: <u>711275</u>
Prep Method: <u>PFAS ID QSM B15 Prep</u>	Analytical Method: <u>PFAS Isotope Dilution QSM B15</u>

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD

	CLIENT SAMPLE ID	GCAL SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
1.	LCS2184339	2184339	2210515A_19.d	05/15/21	1445
2.	AOI01-03-SB-00-02	22105041105	2210515A_22.d	05/15/21	1537
3.	AOI01-03-SB-03-05	22105041106	2210515A_23.d	05/15/21	1554
4.	AOI01-03-SB-05-07	22105041107	2210515A_24.d	05/15/21	1611
5.	AOI01-04-SB-00-02	22105041108	2210515A_25.d	05/15/21	1629
6.	AOI01-04-SB-03-05	22105041109	2210515A_26.d	05/15/21	1646
7.	AOI01-05-SB-00-02	22105041111	2210515A_27.d	05/15/21	1703
8.	AOI01-05-SB-02-04	22105041113	2210515A_28.d	05/15/21	1721
9.	AOI01-05-SB-04-06	22105041114	2210515A_29.d	05/15/21	1738
10.	AOI01-06-SB-00-02	22105041116	2210515A_31.d	05/15/21	1813
11.	AOI01-07-SB-00-02	22105041118	2210515A_33.d	05/15/21	1847
12.	AOI01-07-SB-00-02-D	22105041119	2210515A_34.d	05/15/21	1905
13.	AOI01-07-SB-02-04	22105041120	2210515A_35.d	05/15/21	1922
14.	AOI01-07-SB-04-06	22105041121	2210515A_36.d	05/15/21	1939
15.	AOI01-08-SB-02-04	22105041125	2210515A_40.d	05/15/21	2049
16.	AOI01-08-SB-04-06	22105041126	2210515A_42.d	05/15/21	2123
17.	AOI01-10-SB-00-02	22105041131	2210515A_43.d	05/15/21	2140
18.	AOI01-10-SB-00-02-D	22105041132	2210515A_44.d	05/15/21	2158
19.	LCS2184339RE	2184339RE	2210520A_44.d	05/21/21	0421
20.	AOI01-03-SB-00-02RE	22105041105RE	2210520A_46.d	05/21/21	0451
21.	AOI01-03-SB-03-05RE	22105041106RE	2210520A_47.d	05/21/21	0505
22.	AOI01-03-SB-05-07RE	22105041107RE	2210520A_48.d	05/21/21	0520
23.	AOI01-04-SB-00-02RE	22105041108RE	2210520A_49.d	05/21/21	0534
24.	AOI01-04-SB-03-05RE	22105041109RE	2210520A_50.d	05/21/21	0549
25.	AOI01-05-SB-00-02RE	22105041111RE	2210520A_52.d	05/21/21	0619
26.	AOI01-05-SB-02-04RE	22105041113RE	2210520A_53.d	05/21/21	0633
27.	AOI01-05-SB-04-06RE	22105041114RE	2210520A_54.d	05/21/21	0648
28.	AOI01-06-SB-00-02RE	22105041116RE	2210520A_55.d	05/21/21	0703
29.	AOI01-06-SB-03-05	22105041117	2210520A_56.d	05/21/21	0717
30.	AOI01-07-SB-00-02RE	22105041118RE	2210520A_57.d	05/21/21	0732
31.	AOI01-07-SB-00-02-DRE	22105041119RE	2210520A_58.d	05/21/21	0747

FORM IV SV

4B
SEMIVOLATILE METHOD BLANK SUMMARY

Report No: 221050411	Method Blank ID: 2184338
Matrix: Solid	Instrument ID: QQQ1
Sample Amt: 5 g	Lab File ID: 2210515A_18.d
Injection Vol.: 1.0 (µL)	GC Column: ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.: 1000 (µL)	Dilution Factor: 1 Analyst: MRA
Prep Date: 05/11/21	Analysis Date: 05/15/21 Time: 1428
Prep Batch: 710837	Analytical Batch: 711275
Prep Method: PFAS ID QSM B15 Prep	Analytical Method: PFAS Isotope Dilution QSM B15

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD

	CLIENT SAMPLE ID	GCAL SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
32.	AOI01-07-SB-02-04RE	22105041120RE	2210520A_59.d	05/21/21	0801
33.	AOI01-07-SB-04-06RE	22105041121RE	2210520A_60.d	05/21/21	0816
34.	AOI01-08-SB-00-02	22105041122	2210520A_61.d	05/21/21	0831
35.	AOI01-08-SB-00-02 MS	22105041123	2210520A_62.d	05/21/21	0845
36.	AOI01-08-SB-00-02 MSD	22105041124	2210520A_63.d	05/21/21	0900
37.	AOI01-08-SB-02-04RE	22105041125RE	2210520A_66.d	05/21/21	0944
38.	AOI01-08-SB-04-06RE	22105041126RE	2210520A_67.d	05/21/21	0958
39.	AOI01-10-SB-00-02-DRE	22105041132RE	2210520A_69.d	05/21/21	1028
40.	AOI01-08-SB-02-04DL	22105041125DL	2210520A_80.d	05/21/21	1308

FORM IV SV

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No: <u>221050411</u>	Client Sample ID: <u>MB2184338</u>
Collect Date: <u>NA</u> Time: <u>NA</u>	GCAL Sample ID: <u>2184338</u>
Matrix: <u>Solid</u> % Moisture: <u>NA</u>	Instrument ID: <u>QQQ1</u>
Sample Amt: <u>5</u> g	Lab File ID: <u>2210515A_18.d</u>
Injection Vol.: <u>1.0</u> (µL)	GC Column: <u>ACC-C18-30M</u> ID <u>2.1</u> (mm)
Prep Final Vol.: <u>1000</u> (µL)	Dilution Factor: <u>1</u> Analyst: <u>MRA</u>
Prep Date: <u>05/11/21</u>	Analysis Date: <u>05/15/21</u> Time: <u>1428</u>
Prep Batch: <u>710837</u>	Analytical Batch: <u>711275</u>
Prep Method: <u>PFAS ID QSM B15 Prep</u>	Analytical Method: <u>PFAS Isotope Dilution QSM B15</u>

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomersulfonic acid	0.200	U	0.060	0.200	1.00
39108-34-4	8:2 Fluorotelomersulfonic acid	0.100	U	0.030	0.100	1.00
2991-50-6	NEtFOSAA	0.100	U	0.030	0.100	1.00
2355-31-9	NMeFOSAA	0.050	U	0.020	0.050	1.00
375-73-5	Perfluorobutanesulfonic acid	0.041	J	0.020	0.050	1.00
375-22-4	Perfluorobutanoic acid	0.100	U	0.040	0.100	1.00
335-76-2	Perfluorodecanoic acid	0.100	U	0.040	0.100	1.00
307-55-1	Perfluorododecanoic acid	0.050	U	0.020	0.050	1.00
375-85-9	Perfluoroheptanoic acid	0.050	U	0.020	0.050	1.00
307-24-4	Perfluorohexanoic acid	0.050	U	0.020	0.050	1.00
375-95-1	Perfluorononanoic acid	0.050	U	0.020	0.050	1.00
1763-23-1	Perfluorooctanesulfonic acid	0.200	U	0.050	0.200	1.00
335-67-1	Perfluorooctanoic acid	0.200	U	0.080	0.200	1.00
2706-90-3	Perfluoropentanoic acid	0.050	U	0.020	0.050	1.00
376-06-7	Perfluorotetradecanoic acid	0.050	U	0.020	0.050	1.00
72629-94-8	Perfluorotridecanoic acid	0.100	U	0.030	0.100	1.00
2058-94-8	Perfluoroundecanoic acid	0.050	U	0.020	0.050	1.00

FORM I SV-1

3D
SOIL SEMIVOLATILE LCS/LCSD RECOVERY

Report No: 221050411
Prep Method: PFAS ID QSM B15 Prep
Analytical Method: PFAS Isotope Dilution QSM B15

Prep Batch: 710837
Analytical Batch: 711275

GCAL QC ID: 2184339

ANALYTE	UNITS	SPIKE ADDED	SAMPLE RESULT	LCS RESULT	LCS % REC	#	QC LIMITS
6:2 Fluorotelomersulfonic acid	ug/kg	1.9	0	1.88	99	✓	64 - 140
8:2 Fluorotelomersulfonic acid	ug/kg	1.92	0	1.73	90		65 - 137
NEtFOSAA	ug/kg	2	0	2.54	127		61 - 139
NMeFOSAA	ug/kg	2	0	2.08	104		63 - 144
Perfluorobutanesulfonic acid	ug/kg	1.77	0	1.82	102		72 - 128
Perfluorobutanoic acid	ug/kg	2	0	2.01	101		71 - 135
Perfluorodecanoic acid	ug/kg	2	0	2	100		69 - 133
Perfluorododecanoic acid	ug/kg	2	0	2.14	107		69 - 135
Perfluoroheptanoic acid	ug/kg	2	0	2.01	100		71 - 131
Perfluorohexanesulfonic acid	ug/kg	1.83	0	1.89	104		67 - 130
Perfluorohexanoic acid	ug/kg	2	0	1.96	98		70 - 132
Perfluorononanoic acid	ug/kg	2	0	2.16	108		72 - 129
Perfluorooctanesulfonic acid	ug/kg	1.86	0	1.69	91		68 - 136
Perfluorooctanoic acid	ug/kg	2	0	1.91	96		69 - 133
Perfluoropentanoic acid	ug/kg	2	0	1.94	97		69 - 132
Perfluorotetradecanoic acid	ug/kg	2	0	2.04	102		69 - 133
Perfluorotridecanoic acid	ug/kg	2	0	1.94	97		66 - 139
Perfluoroundecanoic acid	ug/kg	2	0	2.08	104		64 - 136

RPD : 0 out of 0 outside limits

Column to be used to flag recovery and RPD values with an asterisk

Spike Recovery: 0 out of 18 outside limits

* Values outside of QC limits

FORM III SV-2

3D
SOIL SEMIVOLATILE LCS/LCSD RECOVERY

Report No: 221050411

Prep Method: PFAS ID QSM B15 Prep Prep Batch: 710838

Analytical Method: PFAS Isotope Dilution QSM B15 Analytical Batch: 711275

GCAL QC ID: 2184341

ANALYTE	UNITS	SPIKE ADDED	SAMPLE RESULT	LCS RESULT	LCS % REC	#	QC LIMITS
6:2 Fluorotelomersulfonic acid	ug/kg	1.9	0	1.83	96		64 - 140
8:2 Fluorotelomersulfonic acid	ug/kg	1.92	0	1.69	88		65 - 137
NEtFOSAA	ug/kg	2	0	2.64	132		61 - 139
NMeFOSAA	ug/kg	2	0	1.82	91		63 - 144
Perfluorobutanesulfonic acid	ug/kg	1.77	0	1.82	102		72 - 128
Perfluorobutanoic acid	ug/kg	2	0	2.01	100		71 - 135
Perfluorodecanoic acid	ug/kg	2	0	2.01	100		69 - 133
Perfluorododecanoic acid	ug/kg	2	0	2.09	104		69 - 135
Perfluoroheptanoic acid	ug/kg	2	0	2	100		71 - 131
Perfluorohexanesulfonic acid	ug/kg	1.83	0	2.02	111		67 - 130
Perfluorohexanoic acid	ug/kg	2	0	2.05	102		70 - 132
Perfluorononanoic acid	ug/kg	2	0	2.11	105		72 - 129
Perfluorooctanesulfonic acid	ug/kg	1.86	0	1.75	94		68 - 136
Perfluorooctanoic acid	ug/kg	2	0	2.03	102		69 - 133
Perfluoropentanoic acid	ug/kg	2	0	1.97	99		69 - 132
Perfluorotetradecanoic acid	ug/kg	2	0	2	100		69 - 133
Perfluorotridecanoic acid	ug/kg	2	0	1.94	97		66 - 139
Perfluoroundecanoic acid	ug/kg	2	0	2.07	104		64 - 136

RPD : 0 out of 0 outside limits

Column to be used to flag recovery and RPD values with an asterisk

Spike Recovery: 0 out of 18 outside limits

* Values outside of QC limits

FORM III SV-2

4B
SEMIVOLATILE METHOD BLANK SUMMARY

Report No: <u>221050411</u>	Method Blank ID: <u>2184340</u>
Matrix: <u>Solid</u>	Instrument ID: <u>QQQ1</u>
Sample Amt: <u>5</u> g	Lab File ID: <u>2210515A_71.d</u>
Injection Vol.: <u>1.0</u> (µL)	GC Column: <u>ACC-C18-30M</u> ID <u>2.1</u> (mm)
Prep Final Vol.: <u>1000</u> (µL)	Dilution Factor: <u>1</u> Analyst: <u>MRA</u>
Prep Date: <u>05/12/21</u>	Analysis Date: <u>05/16/21</u> Time: <u>0545</u>
Prep Batch: <u>710838</u>	Analytical Batch: <u>711275</u>
Prep Method: <u>PFAS ID QSM B15 Prep</u>	Analytical Method: <u>PFAS Isotope Dilution QSM B15</u>

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD

	CLIENT SAMPLE ID	GCAL SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
1.	LCS2184341	2184341	2210515A_72.d	05/16/21	0603
2.	AOI01-10-SB-03-05	22105041135	2210515A_73.d	05/16/21	0620
3.	AOI01-10-SB-03-05-MS	22105041136	2210515A_74.d	05/16/21	0638
4.	AOI01-10-SB-03-05-MSD	22105041137	2210515A_75.d	05/16/21	0655
5.	LCS2184341RE	2184341RE	2210521A_73.d	05/22/21	0413

FORM IV SV

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No: <u>221050411</u>	Client Sample ID: <u>MB2184340</u>
Collect Date: <u>NA</u> Time: <u>NA</u>	GCAL Sample ID: <u>2184340</u>
Matrix: <u>Solid</u> % Moisture: <u>NA</u>	Instrument ID: <u>QQQ1</u>
Sample Amt: <u>5</u> g	Lab File ID: <u>2210515A_71.d</u>
Injection Vol.: <u>1.0</u> (µL)	GC Column: <u>ACC-C18-30M</u> ID <u>2.1</u> (mm)
Prep Final Vol.: <u>1000</u> (µL)	Dilution Factor: <u>1</u> Analyst: <u>MRA</u>
Prep Date: <u>05/12/21</u>	Analysis Date: <u>05/16/21</u> Time: <u>0545</u>
Prep Batch: <u>710838</u>	Analytical Batch: <u>711275</u>
Prep Method: <u>PFAS ID QSM B15 Prep</u>	Analytical Method: <u>PFAS Isotope Dilution QSM B15</u>

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomersulfonic acid	0.200	U	0.060	0.200	1.00
39108-34-4	8:2 Fluorotelomersulfonic acid	0.100	U	0.030	0.100	1.00
2991-50-6	NEtFOSAA	0.100	U	0.030	0.100	1.00
2355-31-9	NMeFOSAA	0.050	U	0.020	0.050	1.00
375-73-5	Perfluorobutanesulfonic acid	0.035	J	0.020	0.050	1.00
375-22-4	Perfluorobutanoic acid	0.100	U	0.040	0.100	1.00
335-76-2	Perfluorodecanoic acid	0.100	U	0.040	0.100	1.00
307-55-1	Perfluorododecanoic acid	0.050	U	0.020	0.050	1.00
375-85-9	Perfluoroheptanoic acid	0.050	U	0.020	0.050	1.00
355-46-4	Perfluorohexanesulfonic acid	0.100	U	0.030	0.100	1.00
307-24-4	Perfluorohexanoic acid	0.023	J	0.020	0.050	1.00
375-95-1	Perfluorononanoic acid	0.050	U	0.020	0.050	1.00
1763-23-1	Perfluorooctanesulfonic acid	0.200	U	0.050	0.200	1.00
335-67-1	Perfluorooctanoic acid	0.200	U	0.080	0.200	1.00
2706-90-3	Perfluoropentanoic acid	0.050	U	0.020	0.050	1.00
376-06-7	Perfluorotetradecanoic acid	0.050	U	0.020	0.050	1.00
72629-94-8	Perfluorotridecanoic acid	0.100	U	0.030	0.100	1.00
2058-94-8	Perfluoroundecanoic acid	0.050	U	0.020	0.050	1.00

FORM I SV-1

3D
SOIL SEMIVOLATILE MS/MSD RECOVERY

Report No: <u>221050411</u>	Parent Sample ID: <u>AOI01-10-SB-03-05</u>
Prep Method: <u>PFAS ID QSM B15 Prep</u>	Prep Batch: <u>710838</u>
Analytical Method: <u>PFAS Isotope Dilution QSM B15</u>	Analytical Batch: <u>711275</u>

GCAL QC ID: 22105041136

ANALYTE	UNITS	SPIKE ADDED	SAMPLE RESULT	MS RESULT	MS % REC	#	QC LIMITS
6:2 Fluorotelomersulfonic acid	ug/kg	2.35	.011	2.27	96		64 - 140
8:2 Fluorotelomersulfonic acid	ug/kg	2.37	.000805	1.68	71		65 - 137
NEtFOSAA	ug/kg	2.47	.00284	3.11	126		61 - 139
NMeFOSAA	ug/kg	2.47	.0000761	2.3	93		63 - 144
Perfluorobutanesulfonic acid	ug/kg	2.19	.012	2.27	103		72 - 128
Perfluorobutanoic acid	ug/kg	2.47	.067	2.43	96		71 - 135
Perfluorodecanoic acid	ug/kg	2.47	.036	2.32	93		69 - 133
Perfluorododecanoic acid	ug/kg	2.47	.00263	2.63	107		69 - 135
Perfluoroheptanoic acid	ug/kg	2.47	.033	2.56	102		71 - 131
Perfluorohexanesulfonic acid	ug/kg	2.26	.297	11.2	484	*	67 - 130
Perfluorohexanoic acid	ug/kg	2.47	.089	2.71	106		70 - 132
Perfluorononanoic acid	ug/kg	2.47	.141	2.6	99		72 - 129
Perfluorooctanesulfonic acid	ug/kg	2.3	.795	2.52	75		68 - 136
Perfluorooctanoic acid	ug/kg	2.47	.105	16.2	651	*	69 - 133
Perfluoropentanoic acid	ug/kg	2.47	.043	2.51	100		69 - 132
Perfluorotetradecanoic acid	ug/kg	2.47	.01	2.5	101		69 - 133
Perfluorotridecanoic acid	ug/kg	2.47	.015	2.34	94		66 - 139
Perfluoroundecanoic acid	ug/kg	2.47	.012	2.5	101		64 - 136

RPD : 0 out of 18 outside limits

Column to be used to flag recovery and RPD values with an asterisk

Spike Recovery: 4 out of 36 outside limits

* Values outside of QC limits

FORM III SV-2

3D
SOIL SEMIVOLATILE MS/MSD RECOVERY

Report No:	<u>221050411</u>	Parent Sample ID:	<u>AOI01-10-SB-03-05</u>
Prep Method:	<u>PFAS ID QSM B15 Prep</u>	Prep Batch:	<u>710838</u>
Analytical Method:	<u>PFAS Isotope Dilution QSM B15</u>	Analytical Batch:	<u>711275</u>

GCAL QC ID: 22105041137

ANALYTE	UNITS	SPIKE ADDED	MSD RESULT	MSD % REC	#	% RPD	#	QC LIMITS	
								REC	RPD
6:2 Fluorotelomersulfonic acid	ug/kg	2.27	2.21	97		2	✓	64 - 140	0 - 30
8:2 Fluorotelomersulfonic acid	ug/kg	2.3	1.92	83		13		65 - 137	0 - 30
NEtFOSAA	ug/kg	2.4	2.79	116		11		61 - 139	0 - 30
NMeFOSAA	ug/kg	2.4	2.3	96		.07		63 - 144	0 - 30
Perfluorobutanesulfonic acid	ug/kg	2.13	2.16	101		5		72 - 128	0 - 30
Perfluorobutanoic acid	ug/kg	2.4	2.41	98		1		71 - 135	0 - 30
Perfluorodecanoic acid	ug/kg	2.4	2.27	94		2		69 - 133	0 - 30
Perfluorododecanoic acid	ug/kg	2.4	2.4	100		9		69 - 135	0 - 30
Perfluoroheptanoic acid	ug/kg	2.4	2.51	103		2		71 - 131	0 - 30
Perfluorohexanesulfonic acid	ug/kg	2.19	13.5	600	*	18		67 - 130	0 - 30
Perfluorohexanoic acid	ug/kg	2.4	2.51	101		7		70 - 132	0 - 30
Perfluorononanoic acid	ug/kg	2.4	2.58	102		.4		72 - 129	0 - 30
Perfluorooctanesulfonic acid	ug/kg	2.22	2.53	78		.6		68 - 136	0 - 30
Perfluorooctanoic acid	ug/kg	2.4	18.8	778	*	14		69 - 133	0 - 30
Perfluoropentanoic acid	ug/kg	2.4	2.41	99		4		69 - 132	0 - 30
Perfluorotetradecanoic acid	ug/kg	2.4	2.4	100		4		69 - 133	0 - 30
Perfluorotridecanoic acid	ug/kg	2.4	2.15	89		9		66 - 139	0 - 30
Perfluoroundecanoic acid	ug/kg	2.4	2.46	102		2		64 - 136	0 - 30

RPD : 0 out of 18 outside limits

Column to be used to flag recovery and RPD values with an asterisk

Spike Recovery: 4 out of 36 outside limits

* Values outside of QC limits

FORM III SV-2

4B
SEMIVOLATILE METHOD BLANK SUMMARY

Report No: <u>221050411</u>	Method Blank ID: <u>2183946</u>
Matrix: <u>Solid</u>	Instrument ID: <u>QQQ3</u>
Sample Amt: <u>5</u> g	Lab File ID: <u>2210517A_16.d</u>
Injection Vol.: <u>1.0</u> (µL)	GC Column: <u>ACC-C18-30M</u> ID <u>2.1</u> (mm)
Prep Final Vol.: <u>1000</u> (µL)	Dilution Factor: <u>1</u> Analyst: <u>RXJ</u>
Prep Date: <u>05/10/21</u>	Analysis Date: <u>05/17/21</u> Time: <u>2024</u>
Prep Batch: <u>710742</u>	Analytical Batch: <u>711477</u>
Prep Method: <u>PFAS ID QSM B15 Prep</u>	Analytical Method: <u>PFAS Isotope Dilution QSM B15</u>

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD

	CLIENT SAMPLE ID	GCAL SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
1.	LCS2183947	2183947	2210517A_17.d	05/17/21	2038
2.	LCSD2183948	2183948	2210517A_18.d	05/17/21	2053
3.	AOI01-01-SB-00-02	22105041101	2210517A_45a.d	05/18/21	0329
4.	AOI01-01-SB-05-07	22105041102	2210517A_46.d	05/18/21	0344
5.	AOI01-02-SB-00-02	22105041103	2210517A_47.d	05/18/21	0359
6.	AOI01-02-SB-04-06	22105041104	2210517A_48.d	05/18/21	0413
7.	AOI01-09-SB-00-02	22105041127	2210517A_49.d	05/18/21	0428
8.	AOI01-09-SB-00-02-D	22105041128	2210517A_50.d	05/18/21	0443
9.	AOI01-09-SB-05-07	22105041129	2210517A_51.d	05/18/21	0457
10.	AOI01-09-SB-08-10	22105041130	2210517A_52.d	05/18/21	0512

FORM IV SV

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No: <u>221050411</u>	Client Sample ID: <u>MB2183946</u>
Collect Date: <u>NA</u> Time: <u>NA</u>	GCAL Sample ID: <u>2183946</u>
Matrix: <u>Solid</u> % Moisture: <u>NA</u>	Instrument ID: <u>QQQ3</u>
Sample Amt: <u>5</u> g	Lab File ID: <u>2210517A_16.d</u>
Injection Vol.: <u>1.0</u> (µL)	GC Column: <u>ACC-C18-30M</u> ID <u>2.1</u> (mm)
Prep Final Vol.: <u>1000</u> (µL)	Dilution Factor: <u>1</u> Analyst: <u>RXJ</u>
Prep Date: <u>05/10/21</u>	Analysis Date: <u>05/17/21</u> Time: <u>2024</u>
Prep Batch: <u>710742</u>	Analytical Batch: <u>711477</u>
Prep Method: <u>PFAS ID QSM B15 Prep</u>	Analytical Method: <u>PFAS Isotope Dilution QSM B15</u>

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomersulfonic acid	0.200	U	0.060	0.200	1.00
39108-34-4	8:2 Fluorotelomersulfonic acid	0.100	U	0.030	0.100	1.00
2991-50-6	NEtFOSAA	0.100	U	0.030	0.100	1.00
2355-31-9	NMeFOSAA	0.050	U	0.020	0.050	1.00
375-73-5	Perfluorobutanesulfonic acid	0.230	J	0.020	0.050	1.00
375-22-4	Perfluorobutanoic acid	0.100	U	0.040	0.100	1.00
335-76-2	Perfluorodecanoic acid	0.100	U	0.040	0.100	1.00
307-55-1	Perfluorododecanoic acid	0.050	U	0.020	0.050	1.00
375-85-9	Perfluoroheptanoic acid	0.050	U	0.020	0.050	1.00
355-46-4	Perfluorohexanesulfonic acid	0.100	U	0.030	0.100	1.00
307-24-4	Perfluorohexanoic acid	0.050	U	0.020	0.050	1.00
375-95-1	Perfluorononanoic acid	0.050	U	0.020	0.050	1.00
1763-23-1	Perfluorooctanesulfonic acid	0.071	J	0.050	0.200	1.00
335-67-1	Perfluorooctanoic acid	0.200	U	0.080	0.200	1.00
2706-90-3	Perfluoropentanoic acid	0.050	U	0.020	0.050	1.00
376-06-7	Perfluorotetradecanoic acid	0.050	U	0.020	0.050	1.00
72629-94-8	Perfluorotridecanoic acid	0.100	U	0.030	0.100	1.00
2058-94-8	Perfluoroundecanoic acid	0.050	U	0.020	0.050	1.00

FORM I SV-1

3D
SOIL SEMIVOLATILE LCS/LCSD RECOVERY

Report No: 221050411

Prep Method: PFAS ID QSM B15 Prep

Analytical Method: PFAS Isotope Dilution QSM B15

Prep Batch: 710742

Analytical Batch: 711477

GCAL QC ID: 2183947

ANALYTE	UNITS	SPIKE ADDED	SAMPLE RESULT	LCS RESULT	LCS % REC	#	QC LIMITS
6:2 Fluorotelomersulfonic acid	ug/kg	1.9	0	1.84	97	✓	64 - 140
8:2 Fluorotelomersulfonic acid	ug/kg	1.92	0	1.93	101		65 - 137
NEtFOSAA	ug/kg	2	0	1.96	98		61 - 139
NMeFOSAA	ug/kg	2	0	1.97	99		63 - 144
Perfluorobutanesulfonic acid	ug/kg	1.77	0	1.82	102		72 - 128
Perfluorobutanoic acid	ug/kg	2	0	1.96	98		71 - 135
Perfluorodecanoic acid	ug/kg	2	0	1.95	97		69 - 133
Perfluorododecanoic acid	ug/kg	2	0	2.03	102		69 - 135
Perfluoroheptanoic acid	ug/kg	2	0	1.98	99		71 - 131
Perfluorohexanesulfonic acid	ug/kg	1.83	0	1.85	101		67 - 130
Perfluorohexanoic acid	ug/kg	2	0	1.94	97		70 - 132
Perfluorononanoic acid	ug/kg	2	0	1.99	99		72 - 129
Perfluorooctanesulfonic acid	ug/kg	1.86	0	1.98	107		68 - 136
Perfluorooctanoic acid	ug/kg	2	0	1.92	96		69 - 133
Perfluoropentanoic acid	ug/kg	2	0	2	100		69 - 132
Perfluorotetradecanoic acid	ug/kg	2	0	2.03	102		69 - 133
Perfluorotridecanoic acid	ug/kg	2	0	2.03	102		66 - 139
Perfluoroundecanoic acid	ug/kg	2	0	2.01	100		64 - 136

RPD : 0 out of 18 outside limits

Spike Recovery: 0 out of 36 outside limits

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

FORM III SV-2

3D
SOIL SEMIVOLATILE LCS/LCSD RECOVERY

Report No: 221050411
Prep Method: PFAS ID QSM B15 Prep
Analytical Method: PFAS Isotope Dilution QSM B15

Prep Batch: 710742
Analytical Batch: 711477

GCAL QC ID: **2183948**

ANALYTE	UNITS	SPIKE ADDED	LCSD RESULT	LCSD % REC	#	% RPD	#	QC LIMITS	
								REC	RPD
6:2 Fluorotelomersulfonic acid	ug/kg	1.9	2.09	110	✓	12	✓	64 - 140	0 - 30
8:2 Fluorotelomersulfonic acid	ug/kg	1.92	2.13	111		10		65 - 137	0 - 30
NEtFOSAA	ug/kg	2	2.08	104		6		61 - 139	0 - 30
NMeFOSAA	ug/kg	2	2.12	106		7		63 - 144	0 - 30
Perfluorobutanesulfonic acid	ug/kg	1.77	2.02	114		10		72 - 128	0 - 30
Perfluorobutanoic acid	ug/kg	2	2.18	109		11		71 - 135	0 - 30
Perfluorodecanoic acid	ug/kg	2	2.14	107		9		69 - 133	0 - 30
Perfluorododecanoic acid	ug/kg	2	2.14	107		5		69 - 135	0 - 30
Perfluoroheptanoic acid	ug/kg	2	2.12	106		7		71 - 131	0 - 30
Perfluorohexanesulfonic acid	ug/kg	1.83	1.96	107		6		67 - 130	0 - 30
Perfluorohexanoic acid	ug/kg	2	2.11	105		8		70 - 132	0 - 30
Perfluorononanoic acid	ug/kg	2	2.1	105		6		72 - 129	0 - 30
Perfluorooctanesulfonic acid	ug/kg	1.86	2.01	108		1		68 - 136	0 - 30
Perfluorooctanoic acid	ug/kg	2	2.1	105		9		69 - 133	0 - 30
Perfluoropentanoic acid	ug/kg	2	2.16	108		8		69 - 132	0 - 30
Perfluorotetradecanoic acid	ug/kg	2	2.18	109		7		69 - 133	0 - 30
Perfluorotridecanoic acid	ug/kg	2	2.13	107		5		66 - 139	0 - 30
Perfluoroundecanoic acid	ug/kg	2	2.17	108		8		64 - 136	0 - 30

RPD : 0 out of 18 outside limits

Column to be used to flag recovery and RPD values with an asterisk

Spike Recovery: 0 out of 36 outside limits

* Values outside of QC limits

FORM III SV-2

4B
SEMIVOLATILE METHOD BLANK SUMMARY

Report No: <u>221050411</u>	Method Blank ID: <u>2184338</u>
Matrix: <u>Solid</u>	Instrument ID: <u>QQQ3</u>
Sample Amt: <u>5</u> g	Lab File ID: <u>2210520A_74.d</u>
Injection Vol.: <u>1.0</u> (µL)	GC Column: <u>ACC-C18-30M</u> ID <u>2.1</u> (mm)
Prep Final Vol.: <u>1000</u> (µL)	Dilution Factor: <u>1</u> Analyst: <u>RXJ</u>
Prep Date: <u>05/11/21</u>	Analysis Date: <u>05/21/21</u> Time: <u>1141</u>
Prep Batch: <u>710837</u>	Analytical Batch: <u>711722</u>
Prep Method: <u>PFAS ID QSM B15 Prep</u>	Analytical Method: <u>PFAS Isotope Dilution QSM B15</u>

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD

	CLIENT SAMPLE ID	GCAL SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
1.	LCS2184339	2184339	2210515A_19.d	05/15/21	1445
2.	AOI01-03-SB-00-02	22105041105	2210515A_22.d	05/15/21	1537
3.	AOI01-03-SB-03-05	22105041106	2210515A_23.d	05/15/21	1554
4.	AOI01-03-SB-05-07	22105041107	2210515A_24.d	05/15/21	1611
5.	AOI01-04-SB-00-02	22105041108	2210515A_25.d	05/15/21	1629
6.	AOI01-04-SB-03-05	22105041109	2210515A_26.d	05/15/21	1646
7.	AOI01-05-SB-00-02	22105041111	2210515A_27.d	05/15/21	1703
8.	AOI01-05-SB-02-04	22105041113	2210515A_28.d	05/15/21	1721
9.	AOI01-05-SB-04-06	22105041114	2210515A_29.d	05/15/21	1738
10.	AOI01-06-SB-00-02	22105041116	2210515A_31.d	05/15/21	1813
11.	AOI01-07-SB-00-02	22105041118	2210515A_33.d	05/15/21	1847
12.	AOI01-07-SB-00-02-D	22105041119	2210515A_34.d	05/15/21	1905
13.	AOI01-07-SB-02-04	22105041120	2210515A_35.d	05/15/21	1922
14.	AOI01-07-SB-04-06	22105041121	2210515A_36.d	05/15/21	1939
15.	AOI01-08-SB-02-04	22105041125	2210515A_40.d	05/15/21	2049
16.	AOI01-08-SB-04-06	22105041126	2210515A_42.d	05/15/21	2123
17.	AOI01-10-SB-00-02	22105041131	2210515A_43.d	05/15/21	2140
18.	AOI01-10-SB-00-02-D	22105041132	2210515A_44.d	05/15/21	2158
19.	LCS2184339RE	2184339RE	2210520A_44.d	05/21/21	0421
20.	AOI01-03-SB-00-02RE	22105041105RE	2210520A_46.d	05/21/21	0451
21.	AOI01-03-SB-03-05RE	22105041106RE	2210520A_47.d	05/21/21	0505
22.	AOI01-03-SB-05-07RE	22105041107RE	2210520A_48.d	05/21/21	0520
23.	AOI01-04-SB-00-02RE	22105041108RE	2210520A_49.d	05/21/21	0534
24.	AOI01-04-SB-03-05RE	22105041109RE	2210520A_50.d	05/21/21	0549
25.	AOI01-05-SB-00-02RE	22105041111RE	2210520A_52.d	05/21/21	0619
26.	AOI01-05-SB-02-04RE	22105041113RE	2210520A_53.d	05/21/21	0633
27.	AOI01-05-SB-04-06RE	22105041114RE	2210520A_54.d	05/21/21	0648
28.	AOI01-06-SB-00-02RE	22105041116RE	2210520A_55.d	05/21/21	0703
29.	AOI01-06-SB-03-05	22105041117	2210520A_56.d	05/21/21	0717
30.	AOI01-07-SB-00-02RE	22105041118RE	2210520A_57.d	05/21/21	0732
31.	AOI01-07-SB-00-02-DRE	22105041119RE	2210520A_58.d	05/21/21	0747

FORM IV SV

SEMIVOLATILE METHOD BLANK SUMMARY

Report No:	<u>221050411</u>	Method Blank ID:	<u>2184338</u>
Matrix:	<u>Solid</u>	Instrument ID:	<u>QQQ3</u>
Sample Amt:	<u>5</u> g	Lab File ID:	<u>2210520A_74.d</u>
Injection Vol.:	<u>1.0</u> (µL)	GC Column:	<u>ACC-C18-30M</u> ID <u>2.1</u> (mm)
Prep Final Vol.:	<u>1000</u> (µL)	Dilution Factor:	<u>1</u> Analyst: <u>RXJ</u>
Prep Date:	<u>05/11/21</u>	Analysis Date:	<u>05/21/21</u> Time: <u>1141</u>
Prep Batch:	<u>710837</u>	Analytical Batch:	<u>711722</u>
Prep Method:	<u>PFAS ID QSM B15 Prep</u>	Analytical Method:	<u>PFAS Isotope Dilution QSM B15</u>

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD

	CLIENT SAMPLE ID	GCAL SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
32.	AOI01-07-SB-02-04RE	22105041120RE	2210520A_59.d	05/21/21	0801
33.	AOI01-07-SB-04-06RE	22105041121RE	2210520A_60.d	05/21/21	0816
34.	AOI01-08-SB-00-02	22105041122	2210520A_61.d	05/21/21	0831
35.	AOI01-08-SB-00-02 MS	22105041123	2210520A_62.d	05/21/21	0845
36.	AOI01-08-SB-00-02 MSD	22105041124	2210520A_63.d	05/21/21	0900
37.	AOI01-08-SB-02-04RE	22105041125RE	2210520A_66.d	05/21/21	0944
38.	AOI01-08-SB-04-06RE	22105041126RE	2210520A_67.d	05/21/21	0958
39.	AOI01-10-SB-00-02-DRE	22105041132RE	2210520A_69.d	05/21/21	1028
40.	AOI01-08-SB-02-04DL	22105041125DL	2210520A_80.d	05/21/21	1308

FORM IV SV

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No: <u>221050411</u>	Client Sample ID: <u>MB2184338RE</u>
Collect Date: <u>NA</u> Time: <u>NA</u>	GCAL Sample ID: <u>2184338RE</u>
Matrix: <u>Solid</u> % Moisture: <u>NA</u>	Instrument ID: <u>QQQ3</u>
Sample Amt: <u>5</u> g	Lab File ID: <u>2210520A_74.d</u>
Injection Vol.: <u>1.0</u> (µL)	GC Column: <u>ACC-C18-30M</u> ID <u>2.1</u> (mm)
Prep Final Vol.: <u>1000</u> (µL)	Dilution Factor: <u>1</u> Analyst: <u>RXJ</u>
Prep Date: <u>05/11/21</u>	Analysis Date: <u>05/21/21</u> Time: <u>1141</u>
Prep Batch: <u>710837</u>	Analytical Batch: <u>711722</u>
Prep Method: <u>PFAS ID QSM B15 Prep</u>	Analytical Method: <u>PFAS Isotope Dilution QSM B15</u>

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
355-46-4	Perfluorohexanesulfonic acid	0.100	UV	0.030	0.100	1.00

3D
SOIL SEMIVOLATILE LCS/LCSD RECOVERY

Report No: 221050411

Prep Method: PFAS ID QSM B15 Prep Prep Batch: 710837

Analytical Method: PFAS Isotope Dilution QSM B15 Analytical Batch: 711722

GCAL QC ID: 2184339

ANALYTE	UNITS	SPIKE ADDED	SAMPLE RESULT	LCS RESULT	LCS % REC	#	QC LIMITS
Perfluorohexanesulfonic acid	ug/kg	1.83	0	1.8	99		67 - 130

RPD : 0 out of 0 outside limits

Spike Recovery: 0 out of 1 outside limits

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

FORM III SV-2

3D
SOIL SEMIVOLATILE MS/MSD RECOVERY

Report No: <u>221050411</u>	Parent Sample ID: <u>AOI01-08-SB-00-02</u>
Prep Method: <u>PFAS ID QSM B15 Prep</u>	Prep Batch: <u>710837</u>
Analytical Method: <u>PFAS Isotope Dilution QSM B15</u>	Analytical Batch: <u>711722</u>

GCAL QC ID: 22105041123

ANALYTE	UNITS	SPIKE ADDED	SAMPLE RESULT	MS RESULT	MS % REC	#	QC LIMITS
6:2 Fluorotelomersulfonic acid	ug/kg	2.03	.035	2.02	98		64 - 140
8:2 Fluorotelomersulfonic acid	ug/kg	2.06	.01	2.06	99		65 - 137
NEtFOSAA	ug/kg	2.14	.00704	2.06	96		61 - 139
NMeFOSAA	ug/kg	2.14	.00975	2.02	94		63 - 144
Perfluorobutanesulfonic acid	ug/kg	1.89	.015	1.87	98		72 - 128
Perfluorobutanoic acid	ug/kg	2.14	.109	2.19	97		71 - 135
Perfluorodecanoic acid	ug/kg	2.14	.081	2.24	101		69 - 133
Perfluorododecanoic acid	ug/kg	2.14	.046	2.16	99		69 - 135
Perfluoroheptanoic acid	ug/kg	2.14	.049	2.15	98		71 - 131
Perfluorohexanesulfonic acid	ug/kg	1.96	.217	2.25	104		67 - 130
Perfluorohexanoic acid	ug/kg	2.14	.087	2.17	98		70 - 132
Perfluorononanoic acid	ug/kg	2.14	.039	2.16	99		72 - 129
Perfluorooctanesulfonic acid	ug/kg	1.99	4.28	7.42	158	*	68 - 136
Perfluorooctanoic acid	ug/kg	2.14	.155	2.22	96		69 - 133
Perfluoropentanoic acid	ug/kg	2.14	.097	2.25	101		69 - 132
Perfluorotetradecanoic acid	ug/kg	2.14	.016	2.14	99		69 - 133
Perfluorotridecanoic acid	ug/kg	2.14	.067	2.23	101		66 - 139
Perfluoroundecanoic acid	ug/kg	2.14	.283	2.49	103		64 - 136

RPD : 0 out of 18 outside limits

Column to be used to flag recovery and RPD values with an asterisk

Spike Recovery: 2 out of 36 outside limits

* Values outside of QC limits

FORM III SV-2

3D
SOIL SEMIVOLATILE MS/MSD RECOVERY

Report No:	<u>221050411</u>	Parent Sample ID:	<u>AOI01-08-SB-00-02</u>
Prep Method:	<u>PFAS ID QSM B15 Prep</u>	Prep Batch:	<u>710837</u>
Analytical Method:	<u>PFAS Isotope Dilution QSM B15</u>	Analytical Batch:	<u>711722</u>

GCAL QC ID: 22105041124

ANALYTE	UNITS	SPIKE ADDED	MSD RESULT	MSD % REC	#	% RPD	#	QC LIMITS	
								REC	RPD
6:2 Fluorotelomersulfonic acid	ug/kg	2.03	2.02	98		.05 ✓		64 - 140	0 - 30
8:2 Fluorotelomersulfonic acid	ug/kg	2.06	2.13	103		4		65 - 137	0 - 30
NEtFOSAA	ug/kg	2.14	2.04	95		.6		61 - 139	0 - 30
NMeFOSAA	ug/kg	2.14	2	93		1		63 - 144	0 - 30
Perfluorobutanesulfonic acid	ug/kg	1.89	1.89	99		1		72 - 128	0 - 30
Perfluorobutanoic acid	ug/kg	2.14	2.22	99		1		71 - 135	0 - 30
Perfluorodecanoic acid	ug/kg	2.14	2.25	101		.2		69 - 133	0 - 30
Perfluorododecanoic acid	ug/kg	2.14	2.21	101		2		69 - 135	0 - 30
Perfluoroheptanoic acid	ug/kg	2.14	2.14	98		.3		71 - 131	0 - 30
Perfluorohexanesulfonic acid	ug/kg	1.95	2.3	107		3		67 - 130	0 - 30
Perfluorohexanoic acid	ug/kg	2.14	2.21	99		1		70 - 132	0 - 30
Perfluorononanoic acid	ug/kg	2.14	2.17	100		.8		72 - 129	0 - 30
Perfluorooctanesulfonic acid	ug/kg	1.98	8.62	219	*	15		68 - 136	0 - 30
Perfluorooctanoic acid	ug/kg	2.14	2.23	97		.3		69 - 133	0 - 30
Perfluoropentanoic acid	ug/kg	2.14	2.29	103		2		69 - 132	0 - 30
Perfluorotetradecanoic acid	ug/kg	2.14	2.19	102		3		69 - 133	0 - 30
Perfluorotridecanoic acid	ug/kg	2.14	2.28	104		3		66 - 139	0 - 30
Perfluoroundecanoic acid	ug/kg	2.14	2.6	108		4		64 - 136	0 - 30

RPD : 0 out of 18 outside limits

Column to be used to flag recovery and RPD values with an asterisk

Spike Recovery: 2 out of 36 outside limits

* Values outside of QC limits

FORM III SV-2

SEMIVOLATILE METHOD BLANK SUMMARY

Report No:	<u>221050411</u>	Method Blank ID:	<u>2188447</u>
Matrix:	<u>Solid</u>	Instrument ID:	<u>QQQ1</u>
Sample Amt:	<u>5</u> g	Lab File ID:	<u>2210521A_22.d</u>
Injection Vol.:	<u>1.0</u> (µL)	GC Column:	<u>ACC-C18-30M</u> ID <u>2.1</u> (mm)
Prep Final Vol.:	<u>1000</u> (µL)	Dilution Factor:	<u>1</u> Analyst: <u>MRA</u>
Prep Date:	<u>05/19/20</u>	Analysis Date:	<u>05/21/21</u> Time: <u>1819</u>
Prep Batch:	<u>711505</u>	Analytical Batch:	<u>711941</u>
Prep Method:	<u>PFAS ID QSM B15 Prep</u>	Analytical Method:	<u>PFAS Isotope Dilution QSM B15</u>

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD

	CLIENT SAMPLE ID	GCAL SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
1.	LCS2188448	2188448	2210521A_23.d	05/21/21	1836
2.	AOI01-10-SB-03-05 (RE)	22105041155	2210521A_26.d	05/21/21	1928
3.	AOI01-10-SB-03-05-MS (RE)	22105041156	2210521A_27.d	05/21/21	1945
4.	AOI01-10-SB-03-05-MSD (RE)	22105041157	2210521A_28.d	05/21/21	2003
5.	LCS2188448RE	2188448RE	2210524A_36.d	05/24/21	2038

FORM IV SV

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No: <u>221050411</u>	Client Sample ID: <u>MB2188447</u>
Collect Date: <u>NA</u> Time: <u>NA</u>	GCAL Sample ID: <u>2188447</u>
Matrix: <u>Solid</u> % Moisture: <u>NA</u>	Instrument ID: <u>QQQ1</u>
Sample Amt: <u>5</u> g	Lab File ID: <u>2210521A_22.d</u>
Injection Vol.: <u>1.0</u> (µL)	GC Column: <u>ACC-C18-30M</u> ID <u>2.1</u> (mm)
Prep Final Vol.: <u>1000</u> (µL)	Dilution Factor: <u>1</u> Analyst: <u>MRA</u>
Prep Date: <u>05/19/20</u>	Analysis Date: <u>05/21/21</u> Time: <u>1819</u>
Prep Batch: <u>711505</u>	Analytical Batch: <u>711941</u>
Prep Method: <u>PFAS ID QSM B15 Prep</u>	Analytical Method: <u>PFAS Isotope Dilution QSM B15</u>

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
355-46-4	Perfluorohexanesulfonic acid	0.100	U ✓	0.030	0.100	1.00
335-67-1	Perfluorooctanoic acid	0.200	U	0.080	0.200	1.00

FORM I SV-1

3D
SOIL SEMIVOLATILE MS/MSD RECOVERY

Report No: <u>221050411</u>	Parent Sample ID: <u>AOI01-10-SB-03-05 (RE)</u>
Prep Method: <u>PFAS ID QSM B15 Prep</u>	Prep Batch: <u>711505</u>
Analytical Method: <u>PFAS Isotope Dilution QSM B15</u>	Analytical Batch: <u>711941</u>

GCAL QC ID: 22105041156

ANALYTE	UNITS	SPIKE ADDED	SAMPLE RESULT	MS RESULT	MS % REC	#	QC LIMITS
Perfluorohexanesulfonic acid	ug/kg	2.26	.261	2.9	117	✓	67 - 130
Perfluorooctanoic acid	ug/kg	2.47	.094	2.79	109		69 - 133

GCAL QC ID: 22105041157

ANALYTE	UNITS	SPIKE ADDED	MSD RESULT	MSD % REC	#	% RPD	#	QC LIMITS REC	RPD
Perfluorohexanesulfonic acid	ug/kg	2.26	3.06	124	✓	5	✓	67 - 130	0 - 30
Perfluorooctanoic acid	ug/kg	2.47	2.85	112		2		69 - 133	0 - 30

RPD : 0 out of 2 outside limits

Column to be used to flag recovery and RPD values with an asterisk

Spike Recovery: 0 out of 4 outside limits

* Values outside of QC limits

FORM III SV-2

3D
SOIL SEMIVOLATILE LCS/LCSD RECOVERY

Report No: 221050411

Prep Method: PFAS ID QSM B15 Prep Prep Batch: 711505

Analytical Method: PFAS Isotope Dilution QSM B15 Analytical Batch: 711941

GCAL QC ID: **2188448**

ANALYTE	UNITS	SPIKE ADDED	SAMPLE RESULT	LCS RESULT	LCS % REC	#	QC LIMITS
Perfluorohexanesulfonic acid	ug/kg	1.83	0	1.9	104		67 - 130
Perfluorooctanoic acid	ug/kg	2	0	2.16	108		69 - 133

RPD : 0 out of 0 outside limits

Spike Recovery: 0 out of 2 outside limits

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

FORM III SV-2

SEMIVOLATILE METHOD BLANK SUMMARY

Report No:	<u>221050411</u>	Method Blank ID:	<u>2183139</u>
Matrix:	<u>Water</u>	Instrument ID:	<u>QQQ3</u>
Sample Amt:	<u>125</u> mL	Lab File ID:	<u>2210525A_56.d</u>
Injection Vol.:	<u>1.0</u> (µL)	GC Column:	<u>ACC-C18-30M</u> ID <u>2.1</u> (mm)
Prep Final Vol.:	<u>1000</u> (µL)	Dilution Factor:	<u>1</u> Analyst: <u>RXJ</u>
Prep Date:	<u>05/07/21</u>	Analysis Date:	<u>05/26/21</u> Time: <u>0548</u>
Prep Batch:	<u>710580</u>	Analytical Batch:	<u>712118</u>
Prep Method:	<u>PFAS ID QSM B15 Prep</u>	Analytical Method:	<u>PFAS Isotope Dilution QSM B15</u>

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD

	CLIENT SAMPLE ID	GCAL SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
1.	LCS2183140	2183140	2210508A_08.d	05/08/21	1913
2.	LCSD2183141	2183141	2210508A_09.d	05/08/21	1927
3.	LCS2183140RE	2183140RE	2210525A_57.d	05/26/21	0602
4.	LCSD2183141RE	2183141RE	2210525A_58.d	05/26/21	0617
5.	WL-FRB-01	22105041110	2210525A_59.d	05/26/21	0632
6.	AOI01-07-GW	22105041145	2210525A_60.d	05/26/21	0646
7.	AOI01-08-GW	22105041146	2210525A_61.d	05/26/21	0701
8.	AOI01-10-GW	22105041148	2210525A_62.d	05/26/21	0715
9.	AOI01-10-GW-MS	22105041149	2210525A_63.d	05/26/21	0730
10.	AOI01-10-GW-MSD	22105041150	2210525A_64.d	05/26/21	0745
11.	WL-ERB-02	22105041151	2210525A_65.d	05/26/21	0759
12.	WL-ERB-03	22105041152	2210525A_66.d	05/26/21	0814
13.	WL-ERB-04	22105041153	2210525A_67.d	05/26/21	0829
14.	WL-ERB-01	22105041154	2210525A_69.d	05/26/21	0858
15.	WL-FRB-01RE	22105041110RE	2210602C_40.d	06/03/21	0357

FORM IV SV

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	<u>221050411</u>	Client Sample ID:	<u>MB2183139RE</u>
Collect Date:	<u>NA</u>	Time:	<u>NA</u>
Matrix:	<u>Water</u>	% Moisture:	<u>NA</u>
Sample Amt:	<u>125</u>	mL	
Injection Vol.:	<u>1.0</u>	(μ L)	
Prep Final Vol.:	<u>1000</u>	(μ L)	
Prep Date:	<u>05/07/21</u>	Analysis Date:	<u>05/26/21</u>
Prep Batch:	<u>710580</u>	Analytical Batch:	<u>712118</u>
Prep Method:	<u>PFAS ID QSM B15 Prep</u>	Analytical Method:	<u>PFAS Isotope Dilution QSM B15</u>

CONCENTRATION UNITS: ng/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
375-95-1	Perfluorononanoic acid	2.00	U ✓	0.980	2.00	4.00

3C
WATER SEMIVOLATILE LCS/LCSD RECOVERY

Report No: 221050411
 Prep Method: PFAS ID QSM B15 Prep Prep Batch: 710580
 Analytical Method: PFAS Isotope Dilution QSM B15 Analytical Batch: 712118

GCAL QC ID: **2183140**

ANALYTE	UNITS	SPIKE ADDED	SAMPLE RESULT	LCS RESULT	LCS % REC	#	QC LIMITS
Perfluorononanoic acid	ng/L	80	0	95.3	119		69 - 130

GCAL QC ID: **2183141**

ANALYTE	UNITS	SPIKE ADDED	LCSD RESULT	LCSD % REC	#	% RPD	#	QC LIMITS REC	RPD
Perfluorononanoic acid	ng/L	80	95.3	119		.08		69 - 130	0 - 30

RPD : 0 out of 1 outside limits

Column to be used to flag recovery and RPD values with an asterisk

Spike Recovery: 0 out of 2 outside limits

* Values outside of QC limits

FORM III SV-1

3C
WATER SEMIVOLATILE MS/MSD RECOVERY

Report No: 221050411
Prep Method: PFAS ID QSM B15 Prep
Analytical Method: PFAS Isotope Dilution QSM B15

Parent Sample ID: AOI01-10-GW
Prep Batch: 710580
Analytical Batch: 712118

GCAL QC ID: 22105041149

ANALYTE	UNITS	SPIKE ADDED	SAMPLE RESULT	MS RESULT	MS % REC	#	QC LIMITS
6:2 Fluorotelomersulfonic acid	ng/L	76.1	.568	97.5	127	✓	64 - 140
8:2 Fluorotelomersulfonic acid	ng/L	76.8	.431	94.3	122		67 - 138
NEtFOSAA	ng/L	80	.277	89.7	112		61 - 135
NMeFOSAA	ng/L	80	.217	92.8	116		65 - 136
Perfluorobutanesulfonic acid	ng/L	71	3.21	88.8	121		72 - 130
Perfluorobutanoic acid	ng/L	80	2.56	98.2	120		73 - 129
Perfluorodecanoic acid	ng/L	80	.423	95	118		71 - 129
Perfluorododecanoic acid	ng/L	80	.308	97.8	122		72 - 134
Perfluoroheptanoic acid	ng/L	80	3.42	97.4	117		72 - 130
Perfluorohexanesulfonic acid	ng/L	73.1	60.6	141	110		68 - 131
Perfluorohexanoic acid	ng/L	80	8.28	103	119		72 - 129
Perfluorononanoic acid	ng/L	80	.734	96.9	120		69 - 130
Perfluorooctanesulfonic acid	ng/L	74.2	9.88	95.3	115		65 - 140
Perfluorooctanoic acid	ng/L	80	11.5	106	118		71 - 133
Perfluoropentanoic acid	ng/L	80	3.37	101	122		72 - 129
Perfluorotetradecanoic acid	ng/L	80	.305	94.9	118		71 - 132
Perfluorotridecanoic acid	ng/L	80	.328	97.5	121		65 - 144
Perfluoroundecanoic acid	ng/L	80	.514	99.5	124		69 - 133

RPD: 0 out of 18 outside limits

Column to be used to flag recovery and RPD values with an asterisk

Spike Recovery: 0 out of 36 outside limits

* Values outside of QC limits

FORM III SV-1

3C
WATER SEMIVOLATILE MS/MSD RECOVERY

Report No: 221050411
Prep Method: PFAS ID QSM B15 Prep
Analytical Method: PFAS Isotope Dilution QSM B15

Parent Sample ID: AOI01-10-GW
Prep Batch: 710580
Analytical Batch: 712118

GCAL QC ID: 22105041150

ANALYTE	UNITS	SPIKE ADDED	MSD RESULT	MSD % REC	#	% RPD	#	QC LIMITS	
								REC	RPD
6:2 Fluorotelomersulfonic acid	ng/L	76.1	94.7	124	✓	3	✓	64 - 140	0 - 30
8:2 Fluorotelomersulfonic acid	ng/L	76.8	103	133		9		67 - 138	0 - 30
NEtFOSAA	ng/L	80	92.5	115		3		61 - 135	0 - 30
NMeFOSAA	ng/L	80	94.7	118		2		65 - 136	0 - 30
Perfluorobutanesulfonic acid	ng/L	71	88.6	120		.2		72 - 130	0 - 30
Perfluorobutanoic acid	ng/L	80	99.2	121		1		73 - 129	0 - 30
Perfluorodecanoic acid	ng/L	80	97.9	122		3		71 - 129	0 - 30
Perfluorododecanoic acid	ng/L	80	96.3	120		2		72 - 134	0 - 30
Perfluoroheptanoic acid	ng/L	80	99.4	120		2		72 - 130	0 - 30
Perfluorohexanesulfonic acid	ng/L	73.1	149	122		6		68 - 131	0 - 30
Perfluorohexanoic acid	ng/L	80	103	118		.6		72 - 129	0 - 30
Perfluorononanoic acid	ng/L	80	96.7	120		.1		69 - 130	0 - 30
Perfluorooctanesulfonic acid	ng/L	74.2	95.3	115		.001		65 - 140	0 - 30
Perfluorooctanoic acid	ng/L	80	106	118		.09		71 - 133	0 - 30
Perfluoropentanoic acid	ng/L	80	99.8	121		.9		72 - 129	0 - 30
Perfluorotetradecanoic acid	ng/L	80	95.2	119		.3		71 - 132	0 - 30
Perfluorotridecanoic acid	ng/L	80	99.3	124		2		65 - 144	0 - 30
Perfluoroundecanoic acid	ng/L	80	98.2	122		1		69 - 133	0 - 30

RPD : 0 out of 18 outside limits

Column to be used to flag recovery and RPD values with an asterisk

Spike Recovery: 0 out of 36 outside limits

* Values outside of QC limits

FORM III SV-1

4B
SEMIVOLATILE METHOD BLANK SUMMARY

Report No: 221050411	Method Blank ID: 2191137
Matrix: Solid	Instrument ID: QQQ3
Sample Amt: 5 g	Lab File ID: 2210528A_38.d
Injection Vol.: 1.0 (µL)	GC Column: ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.: 1000 (µL)	Dilution Factor: 1 Analyst: RXJ
Prep Date: 05/26/21	Analysis Date: 05/28/21 Time: 2203
Prep Batch: 711984	Analytical Batch: 712509
Prep Method: PFAS ID QSM B15 Prep	Analytical Method: PFAS Isotope Dilution QSM B15

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD

	CLIENT SAMPLE ID	GCAL SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
1.	LCS2191138	2191138	2210528A_39.d	05/28/21	2217
2.	AOI01-08-SB-00-02 (RE)	22105041158	2210528A_40.d	05/28/21	2232
3.	AOI01-08-SB-00-02 MS(RE)	22105041159	2210528A_41.d	05/28/21	2246
4.	AOI01-08-SB-00-02 MSD(RE)	22105041160	2210528A_42.d	05/28/21	2301

FORM IV SV

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No: 221050411 Client Sample ID: MB2191137
 Collect Date: NA Time: NA GCAL Sample ID: 2191137
 Matrix: Solid % Moisture: NA Instrument ID: QQQ3
 Sample Amt: 5 g Lab File ID: 2210528A_38.d
 Injection Vol.: 1.0 (µL) GC Column: ACC-C18-30M ID 2.1 (mm)
 Prep Final Vol.: 1000 (µL) Dilution Factor: 1 Analyst: RXJ
 Prep Date: 05/26/21 Analysis Date: 05/28/21 Time: 2203
 Prep Batch: 711984 Analytical Batch: 712509
 Prep Method: PFAS ID QSM B15 Prep Analytical Method: PFAS Isotope Dilution QSM B15

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
375-73-5	Perfluorobutanesulfonic acid	0.050	U	0.020	0.050	1.00
335-76-2	Perfluorodecanoic acid	0.100	U	0.040	0.100	1.00
307-55-1	Perfluorododecanoic acid	0.050	U	0.020	0.050	1.00
355-46-4	Perfluorohexanesulfonic acid	0.100	U	0.030	0.100	1.00
375-95-1	Perfluorononanoic acid	0.050	U	0.020	0.050	1.00
1763-23-1	Perfluorooctanesulfonic acid	0.200	U	0.050	0.200	1.00
335-67-1	Perfluorooctanoic acid	0.200	U	0.080	0.200	1.00
376-06-7	Perfluorotetradecanoic acid	0.050	U	0.020	0.050	1.00
72629-94-8	Perfluorotridecanoic acid	0.100	U	0.030	0.100	1.00
2058-94-8	Perfluoroundecanoic acid	0.050	U	0.020	0.050	1.00

3D
SOIL SEMIVOLATILE LCS/LCSD RECOVERY

Report No: 221050411
Prep Method: PFAS ID QSM B15 Prep
Analytical Method: PFAS Isotope Dilution QSM B15

Prep Batch: 711984
Analytical Batch: 712509

GCAL QC ID: 2191138

ANALYTE	UNITS	SPIKE ADDED	SAMPLE RESULT	LCS RESULT	LCS % REC	#	QC LIMITS
Perfluorobutanesulfonic acid	ug/kg	1.77	0	1.82	103	✓	72 - 128
Perfluorodecanoic acid	ug/kg	2	0	2.16	108		69 - 133
Perfluorododecanoic acid	ug/kg	2	0	2.21	111		69 - 135
Perfluorohexanesulfonic acid	ug/kg	1.83	0	2	109		67 - 130
Perfluorononanoic acid	ug/kg	2	0	2.19	110		72 - 129
Perfluorooctanesulfonic acid	ug/kg	1.86	0	1.96	106		68 - 136
Perfluorooctanoic acid	ug/kg	2	0	2.12	106		69 - 133
Perfluorotetradecanoic acid	ug/kg	2	0	2.17	109		69 - 133
Perfluorotridecanoic acid	ug/kg	2	0	2.22	111		66 - 139
Perfluoroundecanoic acid	ug/kg	2	0	2.21	111		64 - 136

RPD : 0 out of 0 outside limits

Column to be used to flag recovery and RPD values with an asterisk

Spike Recovery: 0 out of 10 outside limits

* Values outside of QC limits

FORM III SV-2

3D
SOIL SEMIVOLATILE MS/MSD RECOVERY

Report No: <u>221050411</u>	Parent Sample ID: <u>AOI01-08-SB-00-02 (RE)</u>
Prep Method: <u>PFAS ID QSM B15 Prep</u>	Prep Batch: <u>711984</u>
Analytical Method: <u>PFAS Isotope Dilution QSM B15</u>	Analytical Batch: <u>712509</u>

GCAL QC ID: 22105041159

ANALYTE	UNITS	SPIKE ADDED	SAMPLE RESULT	MS RESULT	MS % REC	#	QC LIMITS
Perfluorobutanesulfonic acid	ug/kg	1.89	.054	2.03	104	✓	72 - 128
Perfluorodecanoic acid	ug/kg	2.14	.151	2.49	109		69 - 133
Perfluorododecanoic acid	ug/kg	2.14	.125	2.54	113		69 - 135
Perfluorohexanesulfonic acid	ug/kg	1.96	.591	2.79	113		67 - 130
Perfluorononanoic acid	ug/kg	2.14	.079	2.45	111		72 - 129
Perfluorooctanesulfonic acid	ug/kg	1.99	9.14	11.2	106		68 - 136
Perfluorooctanoic acid	ug/kg	2.14	.256	2.52	106		69 - 133
Perfluorotetradecanoic acid	ug/kg	2.14	.037	2.4	110		69 - 133
Perfluorotridecanoic acid	ug/kg	2.14	.171	2.59	113		66 - 139
Perfluoroundecanoic acid	ug/kg	2.14	.647	2.98	109		64 - 136

GCAL QC ID: 22105041160

ANALYTE	UNITS	SPIKE ADDED	MSD RESULT	MSD % REC	#	% RPD	#	QC LIMITS REC	RPD
Perfluorobutanesulfonic acid	ug/kg	1.89	2.02	104		.3	✓	72 - 128	0 - 30
Perfluorodecanoic acid	ug/kg	2.14	2.54	111		2		69 - 133	0 - 30
Perfluorododecanoic acid	ug/kg	2.14	2.5	111		1		69 - 135	0 - 30
Perfluorohexanesulfonic acid	ug/kg	1.96	2.75	110		2		67 - 130	0 - 30
Perfluorononanoic acid	ug/kg	2.14	2.47	112		.7		72 - 129	0 - 30
Perfluorooctanesulfonic acid	ug/kg	1.99	12.1	148	*	7		68 - 136	0 - 30
Perfluorooctanoic acid	ug/kg	2.14	2.43	102		3		69 - 133	0 - 30
Perfluorotetradecanoic acid	ug/kg	2.14	2.43	112		1		69 - 133	0 - 30
Perfluorotridecanoic acid	ug/kg	2.14	2.62	114		1		66 - 139	0 - 30
Perfluoroundecanoic acid	ug/kg	2.14	3.04	112		2		64 - 136	0 - 30

RPD: 0 out of 10 outside limits

Column to be used to flag recovery and RPD values with an asterisk

Spike Recovery: 1 out of 20 outside limits

* Values outside of QC limits

FORM III SV-2

EXTRACTED INTERNAL STANDARD RECOVERY

Report No: 221032903

Recovery Limits: 50 - 150

Client Sample ID	LAB SampleID	✓ EIS1 #		✓ EIS2 #		✓ EIS3 #		✓ EIS4 #		✓ EIS5 #		✓ EIS6 #		✓ EIS7 #	
WL-DECON-01RE	22103290301	95		105		86		68		87		83			
WL-DECON-01	22103290301													79	
MB2162464RE	2162464			108		99		78		83		82		92	
MB2162464	2162464	86												80	
LCS2162465RE	2162465			121		99		96		97		93		105	
LCS2162465	2162465	80												80	

Client Sample ID	LAB SampleID	✓ EIS8 #		✓ EIS9 #		✓ EIS10 #		✓ EIS11 #		✓ EIS12 #		✓ EIS13 #		✓ EIS14 #	
WL-DECON-01RE	22103290301	92		92		89		88		79		97		80	
WL-DECON-01	22103290301														
MB2162464RE	2162464	93		93		91		93		80		95		83	
MB2162464	2162464														
LCS2162465RE	2162465	109		109		103		103		91		116		100	
LCS2162465	2162465														

Client Sample ID	LAB SampleID	✓ EIS15 #		✓ EIS16 #		✓ EIS17 #		✓ EIS18 #		✓ EIS19 #	
WL-DECON-01RE	22103290301	91		86		85					
WL-DECON-01	22103290301					74		83		64	
MB2162464RE	2162464	90		90		87					
MB2162464	2162464					81		78		61	
LCS2162465RE	2162465	102		104		96					
LCS2162465	2162465					85		83		64	

EIS1: M2 4:2 FTS

EIS2: M2 6:2 FTS

EIS3: M2 8:2 FTS

EIS4: M2PFTA

EIS5: M3PFBS

EIS6: M3PFHxS

EIS7: M4PFHpA

EIS8: M5PFHxA

EIS9: M5PFPeA

EIS10: M6PFDA

EIS11: M7PFUnA

EIS12: M8FOSA

EIS13: M8PFOA

EIS14: M8PFOS

EIS15: M9PFNA

EIS16: MPFBA

EIS17: MPFDaA

EIS18: d3-NMeFOSAA

EIS19: d5-NEtFOSAA

EXTRACTED INTERNAL STANDARD RECOVERY

Report No: 221050411

Recovery Limits: 50 - 150

Client Sample ID	LAB SampleID	EIS1 #	EIS2 #	EIS3 #	EIS4 #	EIS5 #	EIS6 #	EIS7 #
AOI01-01-SB-00-02	22105041101	86	80	98	90	93	82	82
AOI01-01-SB-05-07	22105041102	84	81	92	92	94	93	94
AOI01-02-SB-00-02	22105041103	112	107	113	93	97	90	92
AOI01-02-SB-04-06	22105041104	83	79	44 *	94	97	96	100
AOI01-03-SB-00-02	22105041105	103	117	97	88	63	88	84
AOI01-03-SB-00-02RE	22105041105					129		
AOI01-03-SB-03-05	22105041106	105	115	98	94	83	84	77
AOI01-03-SB-03-05RE	22105041106					106		
AOI01-03-SB-05-07	22105041107	102	99	98	91	82	90	85
AOI01-03-SB-05-07RE	22105041107					127		

Client Sample ID	LAB SampleID	EIS8 #	EIS9 #	EIS10 #	EIS11 #	EIS12 #	EIS13 #	EIS14 #
AOI01-01-SB-00-02	22105041101	80	91	92	91	92	87	82
AOI01-01-SB-05-07	22105041102	92	97	91	100	94	95	95
AOI01-02-SB-00-02	22105041103	91	101	103	98	95	94	90
AOI01-02-SB-04-06	22105041104	96	91	82	100	92	93	99
AOI01-03-SB-00-02	22105041105	83	88	95	88	69	78	82
AOI01-03-SB-00-02RE	22105041105							
AOI01-03-SB-03-05	22105041106	72	94	97	86	71	76	71
AOI01-03-SB-03-05RE	22105041106							
AOI01-03-SB-05-07	22105041107	84	91	96	88	56	81	83
AOI01-03-SB-05-07RE	22105041107							

Client Sample ID	LAB SampleID	EIS15 #	EIS16 #	EIS17 #
AOI01-01-SB-00-02	22105041101	91	76	81
AOI01-01-SB-05-07	22105041102	92	78	83
AOI01-02-SB-00-02	22105041103	104	84	92
AOI01-02-SB-04-06	22105041104	70	77	77
AOI01-03-SB-00-02	22105041105	101	94	48 *
AOI01-03-SB-00-02RE	22105041105			138
AOI01-03-SB-03-05	22105041106	98	95	76
AOI01-03-SB-03-05RE	22105041106			
AOI01-03-SB-05-07	22105041107	103	86	65
AOI01-03-SB-05-07RE	22105041107			

EIS1: M2 6:2 FTS

EIS2: M2 8:2 FTS

EIS3: M2PFTA

EIS4: M3PFBS

EIS5: M3PFHxS

EIS6: M4PFHxPa

EIS7: M5PFHxA

EIS8: M5PFPeA

EIS9: M6PFDA

EIS10: M7PFUnA

EIS11: M8PFOA

EIS12: M8PFOS

EIS13: M9PFNA

EIS14: MPFBA

EIS15: MPFDaA

EIS16: d3-NMeFOSAA

EIS17: d5-NEtFOSAA

FORM 8E - ORG

EXTRACTED INTERNAL STANDARD RECOVERY

Report No: 221050411

Recovery Limits: 50 - 150

Client Sample ID	LAB SampleID	EIS1 #	EIS2 #	EIS3 #	EIS4 #	EIS5 #	EIS6 #	EIS7 #
AOI01-04-SB-00-02	22105041108	95	71	88	90	80	83	79
AOI01-04-SB-00-02RE	22105041108					94		
AOI01-04-SB-03-05	22105041109	101	87	88	94	87	95	94
AOI01-04-SB-03-05RE	22105041109					109		
WL-FRB-01	22105041110		122	105	109	110	105	108
WL-FRB-01RE	22105041110	84						
AOI01-05-SB-00-02	22105041111	115	97	103	97	54	96	91
AOI01-05-SB-00-02RE	22105041111					123		
AOI01-05-SB-02-04	22105041113	102	93	99	87	80	87	82
AOI01-05-SB-02-04RE	22105041113					103		

Client Sample ID	LAB SampleID	EIS8 #	EIS9 #	EIS10 #	EIS11 #	EIS12 #	EIS13 #	EIS14 #
AOI01-04-SB-00-02	22105041108	77	87	89	83	71	78	79
AOI01-04-SB-00-02RE	22105041108							
AOI01-04-SB-03-05	22105041109	92	92	86	99	22 *	63	93
AOI01-04-SB-03-05RE	22105041109					112		
WL-FRB-01	22105041110	110	112	110	111	107	108	109
WL-FRB-01RE	22105041110							
AOI01-05-SB-00-02	22105041111	89	98	97	91	58	82	87
AOI01-05-SB-00-02RE	22105041111							
AOI01-05-SB-02-04	22105041113	80	88	100	90	61	77	79
AOI01-05-SB-02-04RE	22105041113							

Client Sample ID	LAB SampleID	EIS15 #	EIS16 #	EIS17 #
AOI01-04-SB-00-02	22105041108	89	87	73
AOI01-04-SB-00-02RE	22105041108			
AOI01-04-SB-03-05	22105041109	91	94	70
AOI01-04-SB-03-05RE	22105041109			
WL-FRB-01	22105041110	106	106	106
WL-FRB-01RE	22105041110			
AOI01-05-SB-00-02	22105041111	107	86	71
AOI01-05-SB-00-02RE	22105041111			
AOI01-05-SB-02-04	22105041113	102	89	73
AOI01-05-SB-02-04RE	22105041113			

EIS1: M2 6:2 FTS

EIS2: M2 8:2 FTS

EIS3: M2PFTA

EIS4: M3PFBS

EIS5: M3PFHxS

EIS6: M4PFHpA

EIS7: M5PFHxA

EIS8: M5PFPeA

EIS9: M6PFDA

EIS10: M7PFUnA

EIS11: M8PFOA

EIS12: M8PFOS

EIS13: M9PFNA

EIS14: MPFBA

EIS15: MPFDaA

EIS16: d3-NMeFOSAA

EIS17: d5-NEtFOSAA

FORM 8E - ORG

EXTRACTED INTERNAL STANDARD RECOVERY

Report No: 221050411

Recovery Limits: 50 - 150

Client Sample ID	LAB SampleID	EIS1 #	EIS2 #	EIS3 #	EIS4 #	EIS5 #	EIS6 #	EIS7 #
AOI01-05-SB-04-06	22105041114	94	82	84	92	86	91	87
AOI01-05-SB-04-06RE	22105041114					106		
AOI01-06-SB-00-02	22105041116	111	107	99	92	76	78	81
AOI01-06-SB-00-02RE	22105041116					113		
AOI01-06-SB-03-05	22105041117	96	90	97	103	101	101	103
AOI01-07-SB-00-02	22105041118	105	102	97	91	73	91	81
AOI01-07-SB-00-02RE	22105041118					122		
AOI01-07-SB-00-02-D	22105041119	104	95	96	94	78	88	79
AOI01-07-SB-00-02-DRE	22105041119					134		
AOI01-07-SB-02-04	22105041120	99	91	88	93	83	92	91

Client Sample ID	LAB SampleID	EIS8 #	EIS9 #	EIS10 #	EIS11 #	EIS12 #	EIS13 #	EIS14 #
AOI01-05-SB-04-06	22105041114	89	89	93	92	80	81	90
AOI01-05-SB-04-06RE	22105041114							
AOI01-06-SB-00-02	22105041116	79	90	97	85	70	76	78
AOI01-06-SB-00-02RE	22105041116							
AOI01-06-SB-03-05	22105041117	102	107	103	110	105	105	106
AOI01-07-SB-00-02	22105041118	79	96	97	86	64	79	81
AOI01-07-SB-00-02RE	22105041118							
AOI01-07-SB-00-02-D	22105041119	76	91	76	88	52	79	76
AOI01-07-SB-00-02-DRE	22105041119							
AOI01-07-SB-02-04	22105041120	90	91	98	95	64	80	91

Client Sample ID	LAB SampleID	EIS15 #	EIS16 #	EIS17 #
AOI01-05-SB-04-06	22105041114	90	88	77
AOI01-05-SB-04-06RE	22105041114			
AOI01-06-SB-00-02	22105041116	93	95	69
AOI01-06-SB-00-02RE	22105041116			
AOI01-06-SB-03-05	22105041117	98	88	92
AOI01-07-SB-00-02	22105041118	106	84	65
AOI01-07-SB-00-02RE	22105041118			
AOI01-07-SB-00-02-D	22105041119	99	93	50
AOI01-07-SB-00-02-DRE	22105041119			
AOI01-07-SB-02-04	22105041120	91	84	73

EIS1: M2 6:2 FTS

EIS2: M2 8:2 FTS

EIS3: M2PFTA

EIS4: M3PFBS

EIS5: M3PFHxS

EIS6: M4PFHpA

EIS7: M5PFHxA

EIS8: M5PFPeA

EIS9: M6PFDA

EIS10: M7PFUnA

EIS11: M8PFOA

EIS12: M8PFOS

EIS13: M9PFNA

EIS14: MPFBA

EIS15: MPFDoA

EIS16: d3-NMeFOSAA

EIS17: d5-NEtFOSAA

FORM 8E - ORG

8E

EXTRACTED INTERNAL STANDARD RECOVERY

Report No: 221050411

Recovery Limits: 50 - 150

Client Sample ID	LAB SampleID														
		EIS1 #	EIS2 #	EIS3 #	EIS4 #	EIS5 #	EIS6 #	EIS7 #							
AOI01-07-SB-02-04RE	22105041120					132									
AOI01-07-SB-04-06	22105041121	97	75	85	91	81	91	89							
AOI01-07-SB-04-06RE	22105041121					123									
AOI01-08-SB-00-02	22105041122	130	152	146	121	118	110	112							
AOI01-08-SB-00-02 MS	22105041123	255	426	192	159	158	141	141							
AOI01-08-SB-00-02 MSD	22105041124	202	325	154	129	127	113	111							
AOI01-08-SB-02-04	22105041125	106	80	90	97	88	98	100							
AOI01-08-SB-02-04RE	22105041125					141									
AOI01-08-SB-02-04DL	22105041125														
AOI01-08-SB-04-06	22105041126	102	80	81	92	82	94	95							

Client Sample ID	LAB SampleID														
		EIS8 #	EIS9 #	EIS10 #	EIS11 #	EIS12 #	EIS13 #	EIS14 #							
AOI01-07-SB-02-04RE	22105041120														
AOI01-07-SB-04-06	22105041121	90	92	94	96	64	82	91							
AOI01-07-SB-04-06RE	22105041121														
AOI01-08-SB-00-02	22105041122	109	131	136	127	124	122	109							
AOI01-08-SB-00-02 MS	22105041123	133	175	183	168	166	161	131							
AOI01-08-SB-00-02 MSD	22105041124	103	140	148	137	133	129	101							
AOI01-08-SB-02-04	22105041125	97	99	98	104		84	99							
AOI01-08-SB-02-04RE	22105041125														
AOI01-08-SB-02-04DL	22105041125					136									
AOI01-08-SB-04-06	22105041126	93	90	91	97	71	80	95							

Client Sample ID	LAB SampleID														
		EIS15 #	EIS16 #	EIS17 #											
AOI01-07-SB-02-04RE	22105041120														
AOI01-07-SB-04-06	22105041121	91	82	69											
AOI01-07-SB-04-06RE	22105041121														
AOI01-08-SB-00-02	22105041122	138	120	135											
AOI01-08-SB-00-02 MS	22105041123	187	240	253											
AOI01-08-SB-00-02 MSD	22105041124	151	182	196											
AOI01-08-SB-02-04	22105041125	94	89	76											
AOI01-08-SB-02-04RE	22105041125														
AOI01-08-SB-02-04DL	22105041125														
AOI01-08-SB-04-06	22105041126	84	79	63											

EIS1: M2 6:2 FTS

EIS2: M2 8:2 FTS

EIS3: M2PFTA

EIS4: M3PFBS

EIS5: M3PFHxS

EIS6: M4PFHpA

EIS7: M5PFHxA

EIS8: M5PFPeA

EIS9: M6PFDA

EIS10: M7PFUnA

EIS11: M8PFOA

EIS12: M8PFOS

EIS13: M9PFNA

EIS14: MPFBA

EIS15: MPFDaA

EIS16: d3-NMeFOSAA

EIS17: d5-NEtFOSAA

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EXTRACTED INTERNAL STANDARD RECOVERY

Report No: 221050411

Recovery Limits: 50 - 150

Client Sample ID	LAB SampleID	EIS1 #	EIS2 #	EIS3 #	EIS4 #	EIS5 #	EIS6 #	EIS7 #
AOI01-08-SB-04-06RE	22105041126					118		
AOI01-09-SB-00-02	22105041127	105	108	118	96	97	92	93
AOI01-09-SB-00-02-D	22105041128	103	110	125	105	106	100	102
AOI01-09-SB-05-07	22105041129	89	87	93	99	100	99	100
AOI01-09-SB-08-10	22105041130	98	91	104	108	110	110	111
AOI01-10-SB-00-02	22105041131	117	114	109	99	79	89	84
AOI01-10-SB-00-02-D	22105041132	125	126	123	112	87	99	92
AOI01-10-SB-00-02-DRE	22105041132					122		
AOI01-10-SB-03-05	22105041135	104	79	87	99	85	102	99
AOI01-10-SB-03-05-MS	22105041136	94	90	83	92	86	94	92

Client Sample ID	LAB SampleID	EIS8 #	EIS9 #	EIS10 #	EIS11 #	EIS12 #	EIS13 #	EIS14 #
AOI01-08-SB-04-06RE	22105041126							
AOI01-09-SB-00-02	22105041127	93	102	107	100	98	95	92
AOI01-09-SB-00-02-D	22105041128	101	108	112	111	105	104	100
AOI01-09-SB-05-07	22105041129	100	104	98	106	98	101	102
AOI01-09-SB-08-10	22105041130	110	112	107	118	109	112	113
AOI01-10-SB-00-02	22105041131	84	98	100	86	66	86	83
AOI01-10-SB-00-02-D	22105041132	90	104	113	95	77	88	88
AOI01-10-SB-00-02-DRE	22105041132							
AOI01-10-SB-03-05	22105041135	100	101	101	105	76	83	102
AOI01-10-SB-03-05-MS	22105041136	94	92	93	93	70	81	95

Client Sample ID	LAB SampleID	EIS15 #	EIS16 #	EIS17 #
AOI01-08-SB-04-06RE	22105041126			
AOI01-09-SB-00-02	22105041127	107	85	95
AOI01-09-SB-00-02-D	22105041128	113	94	103
AOI01-09-SB-05-07	22105041129	94	84	86
AOI01-09-SB-08-10	22105041130	104	92	97
AOI01-10-SB-00-02	22105041131	110	91	74
AOI01-10-SB-00-02-D	22105041132	123	100	81
AOI01-10-SB-00-02-DRE	22105041132			
AOI01-10-SB-03-05	22105041135	92	92	67
AOI01-10-SB-03-05-MS	22105041136	84	75	61

EIS1: M2 6:2 FTS

EIS2: M2 8:2 FTS

EIS3: M2PFTA

EIS4: M3PFBS

EIS5: M3PFHxS

EIS6: M4PFHpA

EIS7: M5PFHxA

EIS8: M5PFPeA

EIS9: M6PFDA

EIS10: M7PFUnA

EIS11: M8PFOA

EIS12: M8PFOS

EIS13: M9PFNA

EIS14: MPFBA

EIS15: MPFDoA

EIS16: d3-NMeFOSAA

EIS17: d5-NEtFOSAA

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EXTRACTED INTERNAL STANDARD RECOVERY

Report No: 221050411

Recovery Limits: 50 - 150

Client Sample ID	LAB SampleID	EIS1 #	EIS2 #	EIS3 #	EIS4 #	EIS5 #	EIS6 #	EIS7 #
AOI01-10-SB-03-05-MSD	22105041137	92	74	82	94	81	93	92
AOI01-01-GW	22105041138	77	69	67	70	68	70	69
AOI01-02-GW	22105041139		63	66	72	70	73	72
AOI01-02-GWDL	22105041139	105						
AOI01-03-GW	22105041140	82	68	69	74		74	75
AOI01-03-GWDL	22105041140					78		
AOI01-04-GW	22105041141	80	71	70	77	74	77	76
AOI01-04-GWDL	22105041141							
AOI01-03-GW-D	22105041142	82	73	69	75		75	75
AOI01-03-GW-DDL	22105041142					51		

Client Sample ID	LAB SampleID	EIS8 #	EIS9 #	EIS10 #	EIS11 #	EIS12 #	EIS13 #	EIS14 #
AOI01-10-SB-03-05-MSD	22105041137	94	90	92	92	66	80	94
AOI01-01-GW	22105041138	69	72	67	74	68	70	68
AOI01-02-GW	22105041139	72	71	70	76	68	71	70
AOI01-02-GWDL	22105041139							
AOI01-03-GW	22105041140	73	76	72	79	74	74	69
AOI01-03-GWDL	22105041140							
AOI01-04-GW	22105041141	75	74	74	79		74	72
AOI01-04-GWDL	22105041141					92		
AOI01-03-GW-D	22105041142	73	75	74	79	73	75	70
AOI01-03-GW-DDL	22105041142							

Client Sample ID	LAB SampleID	EIS15 #	EIS16 #	EIS17 #
AOI01-10-SB-03-05-MSD	22105041137	87	71	59
AOI01-01-GW	22105041138	67	67	66
AOI01-02-GW	22105041139	69	70	69
AOI01-02-GWDL	22105041139			
AOI01-03-GW	22105041140	71	70	74
AOI01-03-GWDL	22105041140			
AOI01-04-GW	22105041141	70	71	71
AOI01-04-GWDL	22105041141			
AOI01-03-GW-D	22105041142	73	72	72
AOI01-03-GW-DDL	22105041142			

EIS1: M2 6:2 FTS

EIS2: M2 8:2 FTS

EIS3: M2PFTA

EIS4: M3PFBS

EIS5: M3PFHxS

EIS6: M4PFHpA

EIS7: M5PFHxA

EIS8: M5PFPeA

EIS9: M6PFDA

EIS10: M7PFUnA

EIS11: M8PFOA

EIS12: M8PFOS

EIS13: M9PFNA

EIS14: MPFBA

EIS15: MPFDoA

EIS16: d3-NMeFOSAA

EIS17: d5-NEtFOSAA

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Report No: 221050411

Recovery Limits: 50 - 150

Client Sample ID	LAB SampleID	✓ EIS1 #	✓ EIS2 #	✓ EIS3 #	✓ EIS4 #	✓ EIS5 #	✓ EIS6 #	✓ EIS7 #
AOI01-05-GW	22105041143	87	75	63	77	72	77	77
AOI01-06-GW	22105041144	80	70	68	75	74	75	75
AOI01-07-GW	22105041145	118	108	87	93	93	77	80
AOI01-08-GW	22105041146	118	109	92	94	94	92	95
AOI01-09-GW	22105041147	103	81	67	80	77	81	79
AOI01-09-GWRE	22105041147							
AOI01-10-GW	22105041148	118	107	89	93	94	85	88
AOI01-10-GW-MS	22105041149	114	106	93	98	101	92	95
AOI01-10-GW-MSD	22105041150	117	99	93	99	98	87	90
WL-ERB-02	22105041151	123	102	88	90	92	91	94

Client Sample ID	LAB SampleID	✓ EIS8 #	✓ EIS9 #	✓ EIS10 #	✓ EIS11 #	✓ EIS12 #	✓ EIS13 #	✓ EIS14 #
AOI01-05-GW	22105041143	74	74	70	77	71	72	70
AOI01-06-GW	22105041144	74	75	73	80	72	75	74
AOI01-07-GW	22105041145	81	87	88	82	91	83	79
AOI01-08-GW	22105041146	96	95	96	95	89	93	96
AOI01-09-GW	22105041147	79	78	74	83		78	76
AOI01-09-GWRE	22105041147					95		
AOI01-10-GW	22105041148	89	91	93	88	93	87	88
AOI01-10-GW-MS	22105041149	95	95	94	94	97	92	94
AOI01-10-GW-MSD	22105041150	92	92	93	91	98	90	90
WL-ERB-02	22105041151	93	94	91	95	91	92	92

Client Sample ID	LAB SampleID	✓ EIS15 #	✓ EIS16 #	✓ EIS17 #
AOI01-05-GW	22105041143	70	70	69
AOI01-06-GW	22105041144	71	69	71
AOI01-07-GW	22105041145	84	83	87
AOI01-08-GW	22105041146	91	93	98
AOI01-09-GW	22105041147	73	73	73
AOI01-09-GWRE	22105041147			
AOI01-10-GW	22105041148	89	85	90
AOI01-10-GW-MS	22105041149	94	89	95
AOI01-10-GW-MSD	22105041150	94	86	92
WL-ERB-02	22105041151	84	88	90

EIS1: M2 6:2 FTS

EIS2: M2 8:2 FTS

EIS3: M2PFTA

EIS4: M3PFBS

EIS5: M3PFHxS

EIS6: M4PFHpA

EIS7: M5PFHxA

EIS8: M5PFPeA

EIS9: M6PFDA

EIS10: M7PFUnA

EIS11: M8PFOA

EIS12: M8PFOS

EIS13: M9PFNA

EIS14: MPFBA

EIS15: MPFDaA

EIS16: d3-NMeFOSAA

EIS17: d5-NEtFOSAA

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EXTRACTED INTERNAL STANDARD RECOVERY

Report No: 221050411

Recovery Limits: 50 - 150

Client Sample ID	LAB SampleID	✓ EIS1 #	✓ EIS2 #	✓ EIS3 #	✓ EIS4 #	✓ EIS5 #	✓ EIS6 #	✓ EIS7 #
WL-ERB-03	22105041152	106	100	88	94	97	82	87
WL-ERB-04	22105041153	128	108	93	95	97	90	93
WL-ERB-01	22105041154	126	110	88	96	94	85	87
AOI01-10-SB-03-05 (RE)	22105041155					83		
AOI01-10-SB-03-05-MS (RE)	22105041156					81		
AOI01-10-SB-03-05-MSD (RE)	22105041157					79		
AOI01-08-SB-00-02 (RE)	22105041158			107	97	93		
AOI01-08-SB-00-02 MS(RE)	22105041159			120	112	103		
AOI01-08-SB-00-02 MSD(RE)	22105041160			107	97	90		
MB2179328	2179328	84	70	74	77	77	75	74

Client Sample ID	LAB SampleID	✓ EIS8 #	✓ EIS9 #	✓ EIS10 #	✓ EIS11 #	✓ EIS12 #	✓ EIS13 #	✓ EIS14 #
WL-ERB-03	22105041152	87	86	85	88	93	85	88
WL-ERB-04	22105041153	94	95	96	95	96	95	93
WL-ERB-01	22105041154	88	90	90	89	94	88	86
AOI01-10-SB-03-05 (RE)	22105041155				95			
AOI01-10-SB-03-05-MS (RE)	22105041156				89			
AOI01-10-SB-03-05-MSD (RE)	22105041157				90			
AOI01-08-SB-00-02 (RE)	22105041158		105	109	104	94	98	
AOI01-08-SB-00-02 MS(RE)	22105041159		119	125	117	106	110	
AOI01-08-SB-00-02 MSD(RE)	22105041160		104	109	103	92	96	
MB2179328	2179328	73	77	77	81	76	76	75

Client Sample ID	LAB SampleID	✓ EIS15 #	✓ EIS16 #	✓ EIS17 #
WL-ERB-03	22105041152	84	80	84
WL-ERB-04	22105041153	92	90	94
WL-ERB-01	22105041154	88	84	90
AOI01-10-SB-03-05 (RE)	22105041155			
AOI01-10-SB-03-05-MS (RE)	22105041156			
AOI01-10-SB-03-05-MSD (RE)	22105041157			
AOI01-08-SB-00-02 (RE)	22105041158	109		
AOI01-08-SB-00-02 MS(RE)	22105041159	123		
AOI01-08-SB-00-02 MSD(RE)	22105041160	109		
MB2179328	2179328	75	76	74

EIS1: M2 6:2 FTS

EIS2: M2 8:2 FTS

EIS3: M2PFTA

EIS4: M3PFBS

EIS5: M3PFHxS

EIS6: M4PFHpA

EIS7: M5PFHxA

EIS8: M5PFPeA

EIS9: M6PFDA

EIS10: M7PFUnA

EIS11: M8PFOA

EIS12: M8PFOS

EIS13: M9PFNA

EIS14: MPFBA

EIS15: MPFDoA

EIS16: d3-NMeFOSAA

EIS17: d5-NEtFOSAA

EXTRACTED INTERNAL STANDARD RECOVERY

Report No: 221050411

Recovery Limits: 50 - 150

<i>Client Sample ID</i>	<i>LAB SampleID</i>	<i>EIS1 #</i>	<i>EIS2 #</i>	<i>EIS3 #</i>	<i>EIS4 #</i>	<i>EIS5 #</i>	<i>EIS6 #</i>	<i>EIS7 #</i>
LCS2179329	2179329	76	71	74	72	71	75	72
LCSD2179330	2179330	80	70	71	75	72	76	75
MB2179810	2179810	119	105	107	122	118	122	126
LCS2179811	2179811	105	93	95	113	106	112	115
LCSD2179812	2179812	120	100	108	120	118	119	121
MB2183139	2183139	67	60	64	65	66	64	62
MB2183139RE	2183139							
LCS2183140	2183140	65	59	65	67	69	59	55
LCS2183140RE	2183140							
LCSD2183141	2183141	69	61	65	68	69	57	55

<i>Client Sample ID</i>	<i>LAB SampleID</i>	<i>EIS8 #</i>	<i>EIS9 #</i>	<i>EIS10 #</i>	<i>EIS11 #</i>	<i>EIS12 #</i>	<i>EIS13 #</i>	<i>EIS14 #</i>
LCS2179329	2179329	72	75	73	80	72	75	73
LCSD2179330	2179330	74	75	72	80	71	75	75
MB2179810	2179810	128	118	112	129	115	121	127
LCS2179811	2179811	117	110	105	118	104	110	118
LCSD2179812	2179812	127	117	114	127	114	119	124
MB2183139	2183139	61	65	65	68	64		62
MB2183139RE	2183139						88	
LCS2183140	2183140	55	60	59	61	67		56
LCS2183140RE	2183140						79	
LCSD2183141	2183141	54	58	57	60	67		55

<i>Client Sample ID</i>	<i>LAB SampleID</i>	<i>EIS15 #</i>	<i>EIS16 #</i>	<i>EIS17 #</i>
LCS2179329	2179329	73	74	73
LCSD2179330	2179330	73	75	74
MB2179810	2179810	106	105	104
LCS2179811	2179811	98	98	100
LCSD2179812	2179812	108	104	104
MB2183139	2183139	64	64	62
MB2183139RE	2183139			
LCS2183140	2183140	60	56	55
LCS2183140RE	2183140			
LCSD2183141	2183141	61	56	56

EIS1: M2 6:2 FTS

EIS2: M2 8:2 FTS

EIS3: M2PFTA

EIS4: M3PFBS

EIS5: M3PFHxS

EIS6: M4PFHpA

EIS7: M5PFHxA

EIS8: M5PFPeA

EIS9: M6PFDA

EIS10: M7PFUnA

EIS11: M8PFOA

EIS12: M8PFOS

EIS13: M9PFNA

EIS14: MPFBA

EIS15: MPFDaA

EIS16: d3-NMeFOSAA

EIS17: d5-NEtFOSAA

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EXTRACTED INTERNAL STANDARD RECOVERY

Report No: 221050411

Recovery Limits: 50 - 150

Client Sample ID	LAB SampleID	EIS1 #	EIS2 #	EIS3 #	EIS4 #	EIS5 #	EIS6 #	EIS7 #
LCSD2183141RE	2183141							
MB2183946	2183946	88	79	85	87	87	82	81
LCS2183947	2183947	92	84	93	94	95	90	89
LCSD2183948	2183948	82	74	86	87	88	83	82
MB2184338	2184338	89	75	79	81	45*	71	68
MB2184338RE	2184338					109		
LCS2184339	2184339	87	81	80	82	75	72	70
LCS2184339RE	2184339					116		
MB2184340	2184340	102	86	79	92	80	78	73
LCS2184341	2184341	89	69	78	89	72	77	73

Client Sample ID	LAB SampleID	EIS8 #	EIS9 #	EIS10 #	EIS11 #	EIS12 #	EIS13 #	EIS14 #
LCSD2183141RE	2183141						75	
MB2183946	2183946	80	87	84	89	89	85	85
LCS2183947	2183947	87	96	92	99	96	93	90
LCSD2183948	2183948	79	87	84	90	88	87	81
MB2184338	2184338	65	83	82	75	63	74	65
MB2184338RE	2184338					107		
LCS2184339	2184339	66	77	80	79	75	71	63
LCS2184339RE	2184339					113		
MB2184340	2184340	72	85	88	83	65	79	72
LCS2184341	2184341	70	79	85	79	67	72	70

Client Sample ID	LAB SampleID	EIS15 #	EIS16 #	EIS17 #
LCSD2183141RE	2183141			
MB2183946	2183946	84	75	77
LCS2183947	2183947	91	82	83
LCSD2183948	2183948	86	74	76
MB2184338	2184338	80	75	65
MB2184338RE	2184338			
LCS2184339	2184339	81	69	61
LCS2184339RE	2184339			
MB2184340	2184340	84	76	63
LCS2184341	2184341	79	74	54

EIS1: M2 6:2 FTS

EIS2: M2 8:2 FTS

EIS3: M2PFTA

EIS4: M3PFBS

EIS5: M3PFHxS

EIS6: M4PFHpA

EIS7: M5PFHxA

EIS8: M5PFPeA

EIS9: M6PFDA

EIS10: M7PFUnA

EIS11: M8PFOA

EIS12: M8PFOS

EIS13: M9PFNA

EIS14: MPFBA

EIS15: MPFDaA

EIS16: d3-NMeFOSAA

EIS17: d5-NEtFOSAA

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EXTRACTED INTERNAL STANDARD RECOVERY

Report No: 221050411

Recovery Limits: 50 - 150

<i>Client Sample ID</i>	<i>LAB SampleID</i>	<i>EIS1 #</i>	<i>EIS2 #</i>	<i>EIS3 #</i>	<i>EIS4 #</i>	<i>EIS5 #</i>	<i>EIS6 #</i>	<i>EIS7 #</i>
MB2188447	2188447					85		
LCS2188448	2188448					84		
MB2191137	2191137			94	100	97		
LCS2191138	2191138			92	97	92		

<i>Client Sample ID</i>	<i>LAB SampleID</i>	<i>EIS8 #</i>	<i>EIS9 #</i>	<i>EIS10 #</i>	<i>EIS11 #</i>	<i>EIS12 #</i>	<i>EIS13 #</i>	<i>EIS14 #</i>
MB2188447	2188447				85			
LCS2188448	2188448				85			
MB2191137	2191137		91	94	91	95	87	
LCS2191138	2191138		89	91	86	94	85	

<i>Client Sample ID</i>	<i>LAB SampleID</i>	<i>EIS15 #</i>	<i>EIS16 #</i>	<i>EIS17 #</i>
MB2188447	2188447			
LCS2188448	2188448			
MB2191137	2191137	91		
LCS2191138	2191138	90		

EIS1: M2 6:2 FTS

EIS2: M2 8:2 FTS

EIS3: M2PFTA

EIS4: M3PFBS

EIS5: M3PFHxS

EIS6: M4PFHpA

EIS7: M5PFHxA

EIS8: M5PFPeA

EIS9: M6PFDA

EIS10: M7PFUnA

EIS11: M8PFOA

EIS12: M8PFOS

EIS13: M9PFNA

EIS14: MPFBA

EIS15: MPFDaA

EIS16: d3-NMeFOSAA

EIS17: d5-NEtFOSAA

FORM 8E - ORG

XIV
ANALYSIS RUN LOG

Report No: 221050411 Analytical Batch: 710425 Start Date: 05/06/21
Instrument ID: PH METER WATERS Analytical Method: EPA 9045D End Date: 05/06/21

CLIENT SAMPLE ID	LAB		ANALYTES	
	SAMPLE ID	DILUTION	TIME	pH
ICV	1600	1	1345	X
AOI01-05-SB-00-02	22105041111	1	1350	X
AOI01-05-SB-00-02-D	22105041112	1	1352	X
AOI01-10-SB-00-02	22105041131	1	1354	X
CCV	1800	1	1403	X

FORM XIV - GENCHEM

II
CONTINUING CALIBRATION VERIFICATION

Report No:	<u>221050411</u>	Instrument ID:	<u>TOC6</u>
Analysis Date:	<u>05/12/21 1214</u>	Lab File ID:	<u>8958</u>
Analytical Method:	<u>EPA 9060A</u>	Analytical Batch:	<u>710972</u>

<i>ANALYTE</i>	<i>UNITS</i>	<i>TRUE</i>	<i>FOUND</i>	<i>% REC</i>	<i>LCL</i>	<i>UCL</i>	<i>Q</i>
Total Organic Carbon	mg/kg	10000	10900	109	90	110	

FORM II - GENCHEM

II
CONTINUING CALIBRATION VERIFICATION

Report No:	<u>221050411</u>	Instrument ID:	<u>TOC6</u>
Analysis Date:	<u>05/12/21 1504</u>	Lab File ID:	<u>8958</u>
Analytical Method:	<u>EPA 9060A</u>	Analytical Batch:	<u>710972</u>

<i>ANALYTE</i>	<i>UNITS</i>	<i>TRUE</i>	<i>FOUND</i>	<i>% REC</i>	<i>LCL</i>	<i>UCL</i>	<i>Q</i>
Total Organic Carbon	mg/kg	10000	10200	102	90	110	

FORM II - GENCHEM

II
CONTINUING CALIBRATION VERIFICATION

Report No:	221050411	Instrument ID:	TOC6
Analysis Date:	05/12/21 1636	Lab File ID:	8958
Analytical Method:	EPA 9060A	Analytical Batch:	710972

<i>ANALYTE</i>	<i>UNITS</i>	<i>TRUE</i>	<i>FOUND</i>	<i>% REC</i>	<i>LCL</i>	<i>UCL</i>	<i>Q</i>
Total Organic Carbon	mg/kg	10000	10800	108	90	110	

FORM II - GENCHEM

III
METHOD BLANK

Report No:	221050411	Blank ID:	MB2185125
Matrix:	Solid	Instrument ID:	TOC6
Analysis Date:	05/12/21 1226	Lab File ID:	8958
Analytical Method:	EPA 9060A	Analytical Batch:	710972

<i>ANALYTE</i>	<i>RESULT</i>	<i>UNITS</i>	<i>Q</i>	<i>DL</i>	<i>LOD</i>	<i>LOQ</i>
Total Organic Carbon	200	mg/kg	U	153	200	250

FORM III - GENCHEM

III
CONTINUING CALIBRATION BLANK

Report No:	221050411	Blank ID:	CCB for HBN 710972
Matrix:	Solid	Instrument ID:	TOC6
Analysis Date:	05/12/21 1514	Lab File ID:	8958
Analytical Method:	EPA 9060A	Analytical Batch:	710972

<i>ANALYTE</i>	<i>RESULT</i>	<i>UNITS</i>	<i>Q</i>	<i>DL</i>	<i>LOD</i>	<i>LOQ</i>
Total Organic Carbon	200	mg/kg	U	153	200	250

III
CONTINUING CALIBRATION BLANK

Report No:	221050411	Blank ID:	CCB for HBN 710972
Matrix:	Solid	Instrument ID:	TOC6
Analysis Date:	05/12/21 1650	Lab File ID:	8958
Analytical Method:	EPA 9060A	Analytical Batch:	710972

<i>ANALYTE</i>	<i>RESULT</i>	<i>UNITS</i>	<i>Q</i>	<i>DL</i>	<i>LOD</i>	<i>LOQ</i>
Total Organic Carbon	200	mg/kg	U	153	200	250

V
MS/MSD RECOVERY

Report No:	221050411	Parent Sample ID:	AOI01-10-SB-00-02
Prep Date:	NA	Parent LAB ID:	22105041131
Prep Batch:	NA	Analytical Batch:	710972
Prep Method:	NA	Analytical Method:	EPA 9060A

LAB QC ID:	22105041133 MS	Instrument ID:	TOC6
Analyst:	JGD	Lab File ID:	8958
Analysis Date:	05/12/21 1605	Dilution:	1

ANALYTE	UNITS	SPIKE ADDED	SAMPLE RESULT	MS RESULT	MS % REC	#	QC LIMITS
Total Organic Carbon	mg/kg	21800	10500	26600	85	✓	69 - 128

LAB QC ID:	22105041134 MSD	Instrument ID:	TOC6
Analyst:	JGD	Lab File ID:	8958
Analysis Date:	05/12/21 1624	Dilution:	1

ANALYTE	UNITS	SPIKE ADDED	MSD RESULT	MSD % REC	#	% RPD	#	%REC LIMITS	RPD LIMITS
Total Organic Carbon	mg/kg	21800	28200	93	✓	6	✓	69 - 128	0 - 20

FORM V - GENCHEM

VI
DUPLICATES

Report No:	221050411	Parent Sample ID:	AOI01-05-SB-00-02
Prep Method:	NA	Parent LAB ID:	22105041111
Prep Date:	NA	Prep Batch:	NA
Analytical Method:	EPA 9060A	Analytical Batch:	710972

LAB QC ID:	2185127 DUP	Instrument ID:	TOC6
Analyst:	JGD	Lab File ID:	NA
Analysis Date:	05/12/21 1416	Dilution:	1

ANALYTE	UNITS	SAMPLE RESULT	Q	DUP RESULT	Q	RPD	#	RPD LIMITS
Total Organic Carbon	mg/kg	11700		11100		5	✓	0 - 25

FORM VI - GENCHEM

VI
DUPLICATES

Report No:	<u>221050411</u>	Parent Sample ID:	<u>AOI01-05-SB-00-02</u>
Prep Method:	<u>NA</u>	Parent LAB ID:	<u>22105041111</u>
Prep Date:	<u>NA</u>	Prep Batch:	<u>NA</u>
Analytical Method:	<u>EPA 9060A</u>	Analytical Batch:	<u>710972</u>

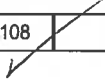
LAB QC ID:	2185129 DUP	Instrument ID:	TOC6
Analyst:	JGD	Lab File ID:	NA
Analysis Date:	05/12/21 1451	Dilution:	1

ANALYTE	UNITS	SAMPLE RESULT	Q	DUP RESULT	Q	RPD	#	RPD LIMITS
Total Organic Carbon	mg/kg	11700		11200		4		0 - 25

FORM VI - GENCHEM

VII
LABORATORY CONTROL SPIKE

Report No:	221050411	LAB ID:	LCS2185126
Matrix:	Solid	Instrument ID:	TOC6
Analyst:	JGD	Lab File ID:	8958
Prep Date:	NA	Analysis Date:	05/12/21 1236
Prep Batch:	NA	Analytical Batch:	710972
Prep Method:	NA	Analytical Method:	EPA 9060A

<i>ANALYTE</i>	<i>UNITS</i>	<i>TRUE</i>	<i>FOUND</i>	<i>%REC</i>	<i>Q</i>	<i>% REC LIMITS</i>
Total Organic Carbon	mg/kg	2000	2160	108		69 - 128

FORM VII - GENCHEM

XIV
ANALYSIS RUN LOG

Report No: 221050411 Analytical Batch: 710972 Start Date: 05/12/21
Instrument ID: TOC6 Analytical Method: EPA 9060A End Date: 05/12/21

CLIENT SAMPLE ID	LAB		ANALYTES	
	SAMPLE ID	DILUTION	TIME	TOC
CCV	1800	1	1214	X
MB2185125	2185125	1	1226	X
LCS2185126	2185126	1	1236	X
AOI01-05-SB-00-02	22105041111	1	1401	X
AOI01-05-SB-00-02DUP	2185127	1	1416	X
AOI01-05-SB-00-02DUP	2185129	1	1451	X
CCV	1800	1	1504	X
CCB	1900	1	1514	X
AOI01-05-SB-00-02-D	22105041112	1	1529	X
AOI01-10-SB-00-02	22105041131	1	1545	X
AOI01-10-SB-00-02-MS	22105041133	1	1605	X
AOI01-10-SB-00-02-MSD	22105041134	1	1624	X
CCV	1800	1	1636	X
CCB	1900	1	1650	X

FORM XIV - GENCHEM

Cal. Curve

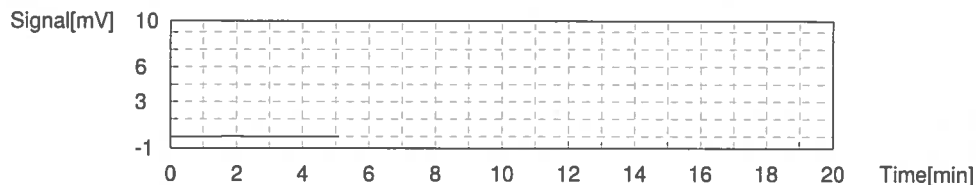
Sample Name: SSM ICAL
 Sample ID: PLH/JGD ICAL
 Cal. Curve: SSM ICAL05-08-19.2021_03_24_10_50_27.cal
 Status: Completed

Type	Anal.
Standard	SSM-TC

AbsC: 0.000ug

No.	Area	CNV	Abs C	Weight	Rem.	Ex.	Date / Time
1	0.000	0.000	0.000ug	1000mg	*****		3/24/2021 10:57:20 AM

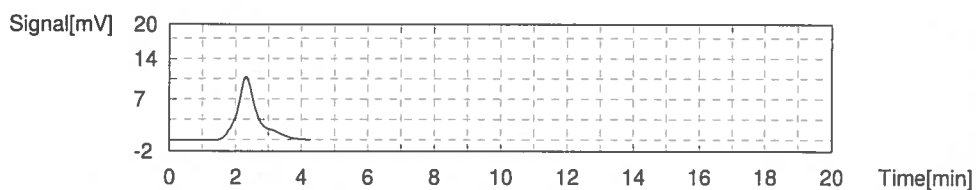
Mean Area 0.000
 Mean CNV 0.000



AbsC: 200.0ug

No.	Area	CNV	Abs C	Weight	Rem.	Ex.	Date / Time
1	45.45	45.45	200.0ug	1000mg	*****		3/24/2021 11:07:06 AM

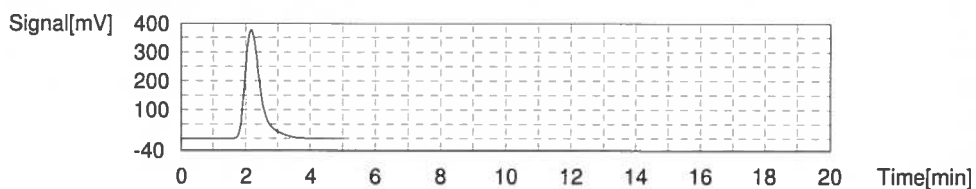
Mean Area 45.45
 Mean CNV 45.45



AbsC: 10000ug

No.	Area	CNV	Abs C	Weight	Rem.	Ex.	Date / Time
1	1259	1259	10000ug	1000mg	*****		3/24/2021 11:17:56 AM

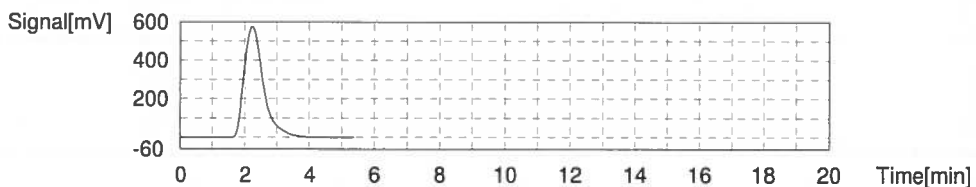
Mean Area 1259
 Mean CNV 1259



AbsC: 20000ug

No.	Area	CNV	Abs C	Weight	Rem.	Ex.	Date / Time
1	2387	2387	20000ug	1000mg	*****		3/24/2021 11:31:24 AM

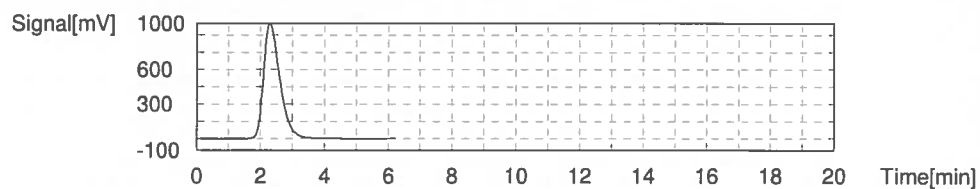
Mean Area 2387
 Mean CNV 2387



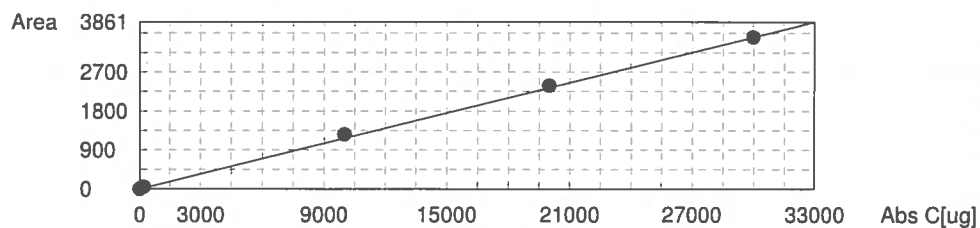
AbsC: 30000ug

No.	Area	CNV	Abs C	Weight	Rem.	Ex.	Date / Time
1	3510	3510	30000ug	1000mg	*H*****		3/24/2021 11:43:44 AM

Mean Area 3510
Mean CNV 3510



Slope: 0.1169
Intercept 0.000
 r^2 0.9994
 r 0.9997
Zero Shift Yes



Sample

Sample Name: ICB
 Sample ID: PLH/JGD ICAL
 Origin: SSM ICAL05-08-19.2021_03_24_10_50_27.cal
 Status: Completed
 Chk. Result:

Type	Anal.	Manual Dilution	Density	Result
Unknown	SSM-TC	1.000	1.000mg/uL	SSM-TC:0.000ppm

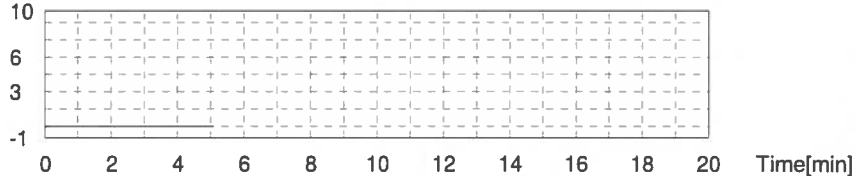
1. Det

Anal.: SSM-TC

No.	Area	CNV	Abs C	Conc.	Weight	Volume	Ex.	Cal. Curve	Date / Time
1	0.000	0.000	0.000ug	0.000ppm	1000mg	1000uL		SSM ICAL05-08-19.2021_03_24_10_50_27.cal	3/24/2021 12:06:48 PM

Mean Area 0.000
 Mean CNV 0.000
 Mean Conc. 0.000ppm

Signal[mV] 10



Sample

Sample Name: CS1 200
Sample ID: PLH/JGD ICAL
Origin: SSM ICAL05-08-19.2021_03_24_10_50_27.cal
Status: Completed
Chk. Result:

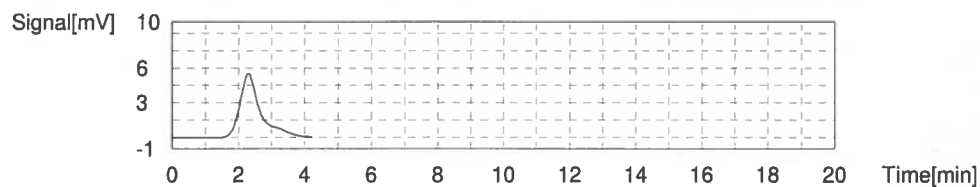
Type	Anal.	Manual Dilution	Density	Result
Unknown	SSM-TC	1.000	1.000mg/uL	SSM-TC:199.7ppm

1. Det

Anal.: SSM-TC

No.	Area	CNV	Abs C	Conc.	Weight	Volume	Ex.	Cal. Curve	Date / Time
1	23.34	23.34	199.7ug	199.7ppm	1000mg	1000uL		SSM ICAL05-08-19.2021_03_24_10_50_27.cal	3/24/2021 12:37:50 PM

Mean Area 23.34
Mean CNV 23.34
Mean Conc. 199.7ppm



Sample

Sample Name: ICV 10,000
Sample ID: PLH/JGD ICAL
Origin: SSM ICAL05-08-19.2021_03_24_10_50_27.cal
Status: Completed
Chk. Result:

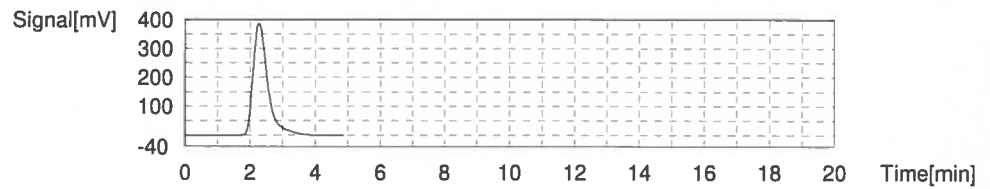
Type	Anal.	Manual Dilution	Density	Result
Unknown	SSM-TC	1.000	1.000mg/uL	SSM-TC:10231ppm

1. Det

Anal.: SSM-TC

No.	Area	CNV	Abs C	Conc.	Weight	Volume	Ex.	Cal. Curve	Date / Time
1	1196	1196	10231ug	10231ppm	1000mg	1000uL		SSM ICAL05-08-19.2021_03_24_10_50_27.cal	3/24/2021 12:46:13 PM

Mean Area 1196
Mean CNV 1196
Mean Conc. 10231ppm



Sample

Sample Name: ICV 20,000
Sample ID: PLH/JGD ICAL
Origin: SSM ICAL05-08-19.2021_03_24_10_50_27.cal
Status: Completed
Chk. Result:

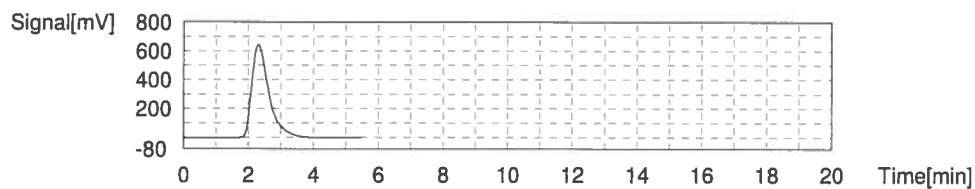
Type	Anal.	Manual Dilution	Density	Result
Unknown	SSM-TC	1.000	1.000mg/uL	SSM-TC:19889ppm

1. Det

Anal.: SSM-TC

No.	Area	CNV	Abs C	Conc.	Weight	Volume	Ex.	Cal. Curve	Date / Time
1	2325	2325	19889ug	19889ppm	1000mg	1000uL		SSM ICAL05-08-19.2021_03_24_10_50_27.cal	3/24/2021 12:56:36 PM

Mean Area 2325
Mean CNV 2325
Mean Conc. 19889ppm



Sample Summary

LAB ID	Client ID	Matrix	Collect Date	Receive Date
22103290301	WL-DECON-01	Water	03/26/2021 08:35	03/27/2021 12:30

Sample Summary

Lab ID	Client ID	Matrix	Collect Date	Receive Date
22105041101	AOI01-01-SB-00-02	Solid	4/27/21 12:45	4/30/21 10:02
22105041102	AOI01-01-SB-05-07	Solid	4/27/21 12:50	4/30/21 10:02
22105041103	AOI01-02-SB-00-02	Solid	4/27/21 10:35	4/30/21 10:02
22105041104	AOI01-02-SB-04-06	Solid	4/27/21 11:00	4/30/21 10:02
22105041105	AOI01-03-SB-00-02	Solid	4/29/21 08:00	4/30/21 10:02
22105041106	AOI01-03-SB-03-05	Solid	4/29/21 08:05	4/30/21 10:02
22105041107	AOI01-03-SB-05-07	Solid	4/29/21 08:10	4/30/21 10:02
22105041108	AOI01-04-SB-00-02	Solid	4/29/21 08:55	4/30/21 10:02
22105041109	AOI01-04-SB-03-05	Solid	4/29/21 09:00	4/30/21 10:02
22105041110	WL-FRB-01	Water	4/29/21 07:50	4/30/21 10:02
22105041111	AOI01-05-SB-00-02	Solid	4/28/21 12:20	4/30/21 10:02
22105041112	AOI01-05-SB-00-02-D	Solid	4/28/21 12:20	4/30/21 10:02
22105041113	AOI01-05-SB-02-04	Solid	4/28/21 12:23	4/30/21 10:02
22105041114	AOI01-05-SB-04-06	Solid	4/28/21 12:25	4/30/21 10:02
22105041116	AOI01-06-SB-00-02	Solid	4/28/21 09:40	4/30/21 10:02
22105041117	AOI01-06-SB-03-05	Solid	4/28/21 10:00	4/30/21 10:02
22105041118	AOI01-07-SB-00-02	Solid	4/28/21 08:45	4/30/21 10:02
22105041119	AOI01-07-SB-00-02-D	Solid	4/28/21 08:45	4/30/21 10:02
22105041120	AOI01-07-SB-02-04	Solid	4/28/21 08:50	4/30/21 10:02
22105041121	AOI01-07-SB-04-06	Solid	4/28/21 08:55	4/30/21 10:02
22105041122	AOI01-08-SB-00-02	Solid	4/28/21 07:50	4/30/21 10:02
22105041123	AOI01-08-SB-00-02 MS	Solid	4/28/21 07:50	4/30/21 10:02
22105041124	AOI01-08-SB-00-02 MSD	Solid	4/28/21 07:50	4/30/21 10:02
22105041125	AOI01-08-SB-02-04	Solid	4/28/21 07:55	4/30/21 10:02
22105041126	AOI01-08-SB-04-06	Solid	4/28/21 08:00	4/30/21 10:02
22105041127	AOI01-09-SB-00-02	Solid	4/27/21 14:00	4/30/21 10:02
22105041128	AOI01-09-SB-00-02-D	Solid	4/27/21 14:00	4/30/21 10:02
22105041129	AOI01-09-SB-05-07	Solid	4/27/21 14:10	4/30/21 10:02
22105041130	AOI01-09-SB-08-10	Solid	4/27/21 14:11	4/30/21 10:02
22105041131	AOI01-10-SB-00-02	Solid	4/28/21 14:05	4/30/21 10:02
22105041132	AOI01-10-SB-00-02-D	Solid	4/28/21 14:05	4/30/21 10:02
22105041133	AOI01-10-SB-00-02-MS	Solid	4/28/21 14:05	4/30/21 10:02
22105041134	AOI01-10-SB-00-02-MSD	Solid	4/28/21 14:05	4/30/21 10:02
22105041135	AOI01-10-SB-03-05	Solid	4/28/21 14:10	4/30/21 10:02
22105041136	AOI01-10-SB-03-05-MS	Solid	4/28/21 14:10	4/30/21 10:02
22105041137	AOI01-10-SB-03-05-MSD	Solid	4/28/21 14:10	4/30/21 10:02
22105041138	AOI01-01-GW	Water	4/27/21 15:25	4/30/21 10:02
22105041139	AOI01-02-GW	Water	4/28/21 08:50	4/30/21 10:02
22105041140	AOI01-03-GW	Water	4/29/21 10:05	4/30/21 10:02
22105041141	AOI01-04-GW	Water	4/29/21 11:30	4/30/21 10:02
22105041142	AOI01-03-GW-D	Water	4/29/21 10:05	4/30/21 10:02
22105041143	AOI01-05-GW	Water	4/28/21 14:35	4/30/21 10:02

Sample Summary (Continued)

Lab ID	Client ID	Matrix	Collect Date	Receive Date
22105041144	AOI01-06-GW	Water	4/28/21 12:45	4/30/21 10:02
22105041145	AOI01-07-GW	Water	4/28/21 11:40	4/30/21 10:02
22105041146	AOI01-08-GW	Water	4/28/21 10:10	4/30/21 10:02
22105041147	AOI01-09-GW	Water	4/27/21 16:20	4/30/21 10:02
22105041148	AOI01-10-GW	Water	4/29/21 08:20	4/30/21 10:02
22105041149	AOI01-10-GW-MS	Water	4/29/21 08:20	4/30/21 10:02
22105041150	AOI01-10-GW-MSD	Water	4/29/21 08:20	4/30/21 10:02
22105041151	WL-ERB-02	Water	4/28/21 14:30	4/30/21 10:02
22105041152	WL-ERB-03	Water	4/29/21 09:00	4/30/21 10:02
22105041153	WL-ERB-04	Water	4/29/21 10:00	4/30/21 10:02
22105041154	WL-ERB-01	Water	4/28/21 13:25	4/30/21 10:02
22105041155	AOI01-10-SB-03-05 (RE)	Solid	4/28/21 14:10	4/30/21 10:02
22105041156	AOI01-10-SB-03-05-MS (RE)	Solid	4/28/21 14:10	4/30/21 10:02
22105041157	AOI01-10-SB-03-05-MSD (RE)	Solid	4/28/21 14:10	4/30/21 10:02
22105041158	AOI01-08-SB-00-02 (RE)	Solid	4/28/21 07:50	4/30/21 10:02
22105041159	AOI01-08-SB-00-02 MS(RE)	Solid	4/28/21 07:50	4/30/21 10:02
22105041160	AOI01-08-SB-00-02 MSD(RE)	Solid	4/28/21 07:50	4/30/21 10:02

Case Narrative

Client: AECOM Report: 221032903

Pace Analytical Gulf Coast received and analyzed the sample(s) listed on the Report Sample Summary page of this report. Receipt of the sample(s) is documented by the attached chain of custody. This applies only to the sample(s) listed in this report. No sample integrity or quality control exceptions were identified unless noted below.

This report was completed in accordance with DOD QSM 5.3 as specified in the contract.

No anomalies were found in the analyzed sample(s).

MISCELLANEOUS

PFAS Abbreviations

<u>Abbreviation</u>	<u>Analyte Name</u>	<u>Abbreviation</u>	<u>Analyte Name</u>
PFBA	Perfluorobutanoic acid	11Cl-PF3OUdS	11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid
PFBS	Perfluorobutanesulfonic acid	4:2 FTS	4:2 Fluorotelomer sulfonic acid
PFDA	Perfluorodecanoic acid	6:2 FTS	6:2 Fluorotelomer sulfonic acid
PFDS	Perfluorodecane sulfonic acid	8:2 FTS	8:2 Fluorotelomer sulfonic acid
PFDoA	Perfluorododecanoic acid	9Cl-PF3ONS	9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid
PFEESA	Perfluoro(2-ethoxyethane)sulfonic acid	ADONA	Dodecafluoro-3H-4,8-dioxananoic acid
PFHpA	Perfluoroheptanoic acid	FOSA	Perfluorooctane Sulfonamide
PFHpS	Perfluoro-1-heptanesulfonic acid	HFPO-DA	Perfluoro-2-proxypropanoic acid
PFHxA	Perfluorohexanoic acid	NEtFOSAA	N-ethylperfluorooctanesulfonamidoacetic acid
PFHxS	Perfluorohexanesulfonic acid	NFDHA	Nonafluoro-3,6-dioxaheptanoic acid
PFMBA	Perfluoro-4-methoxybutanoic acid	NMeFOSAA	N-methylperfluorooctanesulfonamidoacetic acid
PFMPA	Perfluoro-3-methoxypropanoic acid		
PFNA	Perfluorononanoic acid		
PFNS	Perfluorononanesulfonic acid		
PFOA	Perfluorooctanoic acid		
PFOS	Perfluorooctanesulfonic acid		
PFPeA	Perfluoropentanoic acid		
PFPeS	Perfluoropentanesulfonic acid		
PFTA	Perfluorotetradecanoic acid		
PFTeDA	Perfluorotetradecanoic acid		
PFTTrDA	Perfluorotridecanoic acid		
PFUnA	Perfluoroundecanoic acid		

Case Narrative

Client: AECOM Report: 221050411

Pace Analytical Gulf Coast received and analyzed the sample(s) listed on the Report Sample Summary page of this report. Receipt of the sample(s) is documented by the attached chain of custody. This applies only to the sample(s) listed in this report. No sample integrity or quality control exceptions were identified unless noted below.

This report was completed in accordance with DOD QSM 5.3 as specified in the contract.

SEMI-VOLATILES MASS SPECTROMETRY

* In the PFAS Isotope Dilution QSM B15 analysis, samples 22105041135 (AOI01-10-SB-03-05), 22105041136 (AOI01-10-SB-03-05-MS), and 22105041137 (AOI01-10-SB-03-05-MSD) were re-extracted outside holding time for high recoveries for PFHxS and PFOA. Sample results between both extractions were similar but the MS/MSD recovery for PFHxS and PFOA were within control limits in the second extraction. Both data sets are being reported to the client.

* In the PFAS Isotope Dilution QSM B15 analysis, samples 22105041122 (AOI01-08-SB-00-02), 22105041123 (AOI01-08-SB-00-02 MS), and 22105041124 (AOI01-08-SB-00-02 MSD) were re-extracted outside holding time for extracted internal standard failure. The re-extracted samples are within control limits; therefore, both sets of results are being reported.

In the PFAS Isotope Dilution QSM B15 analysis, the recovery for the extracted internal standard M2 8:2 FTS is outside the control limits for sample 22105041122 (AOI01-08-SB-00-02).

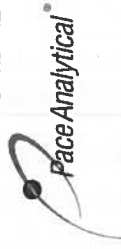
In the PFAS Isotope Dilution QSM B15 analysis, the recovery for the extracted internal standard d3-NMeFOSAA, d5-NEtFOSAA, M2 6:2 FTS, M2 8:2 FTS, M2PFTA, M3PFBS, M3PFHxS, M6PFDA, M7PFUnA, M8PFOA, M8PFOS, M9PFNA, and MPFDoA is outside the control limits for sample 22105041123 (AOI01-08-SB-00-02 MS).

In the PFAS Isotope Dilution QSM B15 analysis, the recovery for the extracted internal standard d3-NMeFOSAA, d5-NEtFOSAA, M2 6:2 FTS, M2 8:2 FTS, M2PFTA, and MPFDoA is outside the control limits for sample 22105041124 (AOI01-08-SB-00-02 MSD).

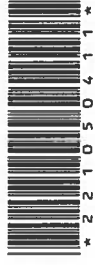
In the PFAS Isotope Dilution QSM B15 analysis for prep batch 710837, 710838, and 711984, the MS/MSD exhibited recovery failures. All LCS recoveries were acceptable.

In the PFAS Isotope Dilution QSM B15 analysis, the recoveries for extracted internal standards are outside control limits for sample 22105041104 (AOI01-02-SB-04-06). The sample was re-extracted and analyzed with similar recoveries for these EIS.

[illegible]



SAMPLE RECEIVING CHECKLIST



SAMPLE DELIVERY GROUP 221050411		CHECKLIST	YES	NO
Client 4838 - AECOM	PM AEC FEDEX	Samples received with proper thermal preservation?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Profile Number 290377	Received By Jenkins, Mark A.	Radioactivity is <1600 cpm? If no, record cpm value in notes section.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Line Item(s) 1 - Soil - 18 compounds 2 - GW - 18 compounds	Receive Date(s) 04/30/21	COC relinquished and complete (including sampleIDs, collect times, and sampler)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
		All containers received in good condition and within hold time?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
		All sample labels and containers received match the chain of custody?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
		Preservative added to any containers?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
		If received, was headspace for VOC water containers < 6mm?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
		Samples collected in containers provided by Pace Gulf Coast?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
		LAB PRESERVATIONS		
COOLERS		DISCREPANCIES		
Airbill 991 2612 3212	Thermometer ID: E38 Temp °C 0.9 ✓	22105041115 - AO01-05-SB-08-10: Missing sample		
NOTES				

CHAIN-OF-CUSTODY Analytical Request Document

Pace Analytical

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevant fields

Company:	AECOM		
Address:	12420 Milestone Center Dr. Germantown, MD 20876 Clayton, Mitchell @aecom.com		
Report To:	Germantown, MD 20876		
Copy To:	Naom Tavan Tris		
Customer Project Name/Number:	WINDYLOCK AARF/60552172		
Phone:	Site/Facility ID #:	Purchase Order #:	Quote #:
Email:	Collected By (print):	Turnaround Date Required:	
Collected By (signature):			
Sample Disposal:	Rush:		
() Dispose as appropriate () Return	() Same Day () Next Day		
() Archive:	() 12 Day () 3 Day () 4 Day () 5 Day		
() Hold:	(Expedite Charges Apply)		

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start)		Composite End	Res CI	# of Cms
			Date	Time	Date		
AOI01-01-JB-00-02	SO	G	4-27-21	1245			1
AOI01-01-SB-05-07	SO	G	4-27-21	1250			1
AOI01-02-JB-00-02	SO	G	4-27-21	1035			1
AOI01-02-SB-24-06	SO	G	4-27-21	1100			1
AOI01-03-JB-00-02	SO	G	4-29-21	0800			1
AOI01-03-SB-03-05	SO	G	4-29-21	0805			1
AOI01-03-SB-05-07	SO	G	4-29-21	0810			1
AOI01-04-SB-00-02	SO	G	4-29-21	0855			1
AOI01-04-SB-03-05	SO	G	4-29-21	0900			1
WL-FRB-01	WQ	G	4-29-21	0750			1

Customer Remarks / Special Conditions / Possible Hazards:

Type of Ice Used: Wet Blue Dry None

Packing Material Used: Wet 2611143

Radchem sample(s) screened (<500 cpm): Y N NA

Date/Time: 5/4/21 Received by/Company: (Signature)

Date/Time: 4-30-21 Received by/Company: (Signature)

Date/Time: 4-30-21 Received by/Company: (Signature)

LAB USE ONLY- Affix Wa

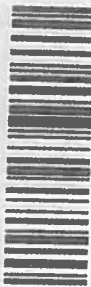
Client ID: 4838 - AECOM

SDG: 221050411

PM: AEC

ALL SHAI

Container Preservative T



** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other

Analyses		Lab Profile/Line:	
PFA5 (LC/MS/MS QSM S.3 table B-15)		Lab Sample Receipt Checklist:	
TOC + pH (EPA 9060A/90450)		Custody Seals Present/Intact	Y N NA
GAMVISE (ASTM D422/CA-551)		Custody Signatures Present	Y N NA
		Collector Signatures Present	Y N NA
		Bottles Intact	Y N NA
		Correct Bottles	Y N NA
		Sufficient Volume	Y N NA
		Samples Received on Ice	Y N NA
		VOA - Headspace Acceptable	Y N NA
		USDA Regulated Soils	Y N NA
		Samples in Holding Time	Y N NA
		Residual Chlorine Present	Y N NA
		Cl Strips:	Y N NA
		Sample pH Acceptable	Y N NA
		pH Strips:	Y N NA
		Sulfide Present	Y N NA
		Lead Acetate Strips:	Y N NA
		LAB USE ONLY:	
		Lab Sample # / Comments:	

Lab Sample Temperature Info:

Temp Blank Received: Y N NA

Therm ID#:

Cooler 1 Temp Upon Receipt: 0C

Cooler 1 Therm Corr. Factor: 0C

Cooler 1 Corrected Temp: 0C

Comments:

00000 340pm

Trip Blank Received: Y N NA

HCL MeOH TSP Other

Non Conformance(s): YES / NO

Page: 6 of: 6



CHAIN-OF-CUSTODY Analytical Request Document

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevant fields

Company:	AECOM		
Address:	12420 Mulsone Center Dr. Germantown, MD 20876 Clair, Mitchell & AECOM.com		
Report To:	Germantown, MD 20876		
Copy To:	NADOM Tawantzi		
Customer Project Name/Number:	WINDSOR LOCKS AASF/GOS 52172		
Phone:	Site/Facility ID #:	Purchase Order #:	Quote #:
Email:	Collected By (print):	Turnaround Date Required:	Flush:
Collected By (signature):	Collected By (signature):	Turnaround Date Required:	Flush:
Sample Disposal:	Collected By (signature):	Turnaround Date Required:	Flush:
Disposal as appropriate () Return	Collected By (signature):	Turnaround Date Required:	Flush:
Hold: ()	Collected By (signature):	Turnaround Date Required:	Flush:

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start)		Composite End	Res CI	# of Cins
			Date	Time			
AD201-07-1B-04-06	SO	G	4/28/21	0855	—	—	1
AD201-08-1B-00-02	SO	G	4/28/21	0850	—	—	1
AD201-08-1B-00-02MS	SO	G	4/28/21	0750	—	—	1
AD201-08-1B-00-02MSD	SO	G	4/28/21	0750	—	—	1
AD201-08-1B-02-04	SO	G	4/28/21	0755	—	—	1
AD201-08-1B-04-06	SO	G	4/28/21	0800	—	—	1
AD201-09-1B-00-02	SO	G	4/27/21	1400	—	—	1
AD201-09-1B-00-02-0	SO	G	4/27/21	1400	—	—	1
AD201-09-1B-05-07	SO	G	4/27/21	1410	—	—	1
AD201-09-1B-08-10	SO	G	4/27/21	1411	—	—	1

Customer Remarks / Special Conditions / Possible Hazards:

Packing Material Used:	Type of Ice Used:	Wet	Blue	Dry	None
Radchem sample(s) screened (<500 cpm):	Received by/Company: (Signature)	Received by/Company: (Signature)	Received by/Company: (Signature)	Received by/Company: (Signature)	Received by/Company: (Signature)
Date/Time: 4/29/21 1400	Date/Time: 4/30/21 1002	Date/Time: 4/30/21 1002	Date/Time: 4/30/21 1002	Date/Time: 4/30/21 1002	Date/Time: 4/30/21 1002

LAB USE ONLY - Affix W:

Client ID: 4838 - AECOM

SDG: 221050411

PM: AEC

ALL SHA

Container Preservative



** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium bisulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other

Analyses

Lab Sample Receipt Checklist:

Custody Seals Present/Intact	Y	N	NA
Custody Signatures Present	Y	N	NA
Collector Signatures Present	Y	N	NA
Bottles Intact	Y	N	NA
Correct Bottles	Y	N	NA
Sufficient Volume	Y	N	NA
Samples Received on Ice	Y	N	NA
VOA - Headpace Acceptable	Y	N	NA
USDA Regulated Soils	Y	N	NA
Samples in Holding Time	Y	N	NA
Residual Chlorine Present	Y	N	NA
Cl Strips:	Y	N	NA
Sample pH Acceptable	Y	N	NA
pH Strips:	Y	N	NA
Sulfide Present	Y	N	NA
Lead Acetate Strips:	Y	N	NA
LAB USE ONLY:			
Lab Sample # / Comments:			

Analyses

Lab Sample Receipt Checklist:

Custody Seals Present/Intact	Y	N	NA
Custody Signatures Present	Y	N	NA
Collector Signatures Present	Y	N	NA
Bottles Intact	Y	N	NA
Correct Bottles	Y	N	NA
Sufficient Volume	Y	N	NA
Samples Received on Ice	Y	N	NA
VOA - Headpace Acceptable	Y	N	NA
USDA Regulated Soils	Y	N	NA
Samples in Holding Time	Y	N	NA
Residual Chlorine Present	Y	N	NA
Cl Strips:	Y	N	NA
Sample pH Acceptable	Y	N	NA
pH Strips:	Y	N	NA
Sulfide Present	Y	N	NA
Lead Acetate Strips:	Y	N	NA
LAB USE ONLY:			
Lab Sample # / Comments:			

Analyses

Lab Sample Receipt Checklist:

Custody Seals Present/Intact	Y	N	NA
Custody Signatures Present	Y	N	NA
Collector Signatures Present	Y	N	NA
Bottles Intact	Y	N	NA
Correct Bottles	Y	N	NA
Sufficient Volume	Y	N	NA
Samples Received on Ice	Y	N	NA
VOA - Headpace Acceptable	Y	N	NA
USDA Regulated Soils	Y	N	NA
Samples in Holding Time	Y	N	NA
Residual Chlorine Present	Y	N	NA
Cl Strips:	Y	N	NA
Sample pH Acceptable	Y	N	NA
pH Strips:	Y	N	NA
Sulfide Present	Y	N	NA
Lead Acetate Strips:	Y	N	NA
LAB USE ONLY:			
Lab Sample # / Comments:			

Analyses

Lab Sample Receipt Checklist:

Custody Seals Present/Intact	Y	N	NA
Custody Signatures Present	Y	N	NA
Collector Signatures Present	Y	N	NA
Bottles Intact	Y	N	NA
Correct Bottles	Y	N	NA
Sufficient Volume	Y	N	NA
Samples Received on Ice	Y	N	NA
VOA - Headpace Acceptable	Y	N	NA
USDA Regulated Soils	Y	N	NA
Samples in Holding Time	Y	N	NA
Residual Chlorine Present	Y	N	NA
Cl Strips:	Y	N	NA
Sample pH Acceptable	Y	N	NA
pH Strips:	Y	N	NA
Sulfide Present	Y	N	NA
Lead Acetate Strips:	Y	N	NA
LAB USE ONLY:			
Lab Sample # / Comments:			

Analyses

Lab Sample Receipt Checklist:

Custody Seals Present/Intact	Y	N	NA
Custody Signatures Present	Y	N	NA
Collector Signatures Present	Y	N	NA
Bottles Intact	Y	N	NA
Correct Bottles	Y	N	NA
Sufficient Volume	Y	N	NA
Samples Received on Ice	Y	N	NA
VOA - Headpace Acceptable	Y	N	NA
USDA Regulated Soils	Y	N	NA
Samples in Holding Time	Y	N	NA
Residual Chlorine Present	Y	N	NA
Cl Strips:	Y	N	NA
Sample pH Acceptable	Y	N	NA
pH Strips:	Y	N	NA
Sulfide Present	Y	N	NA
Lead Acetate Strips:	Y	N	NA
LAB USE ONLY:			
Lab Sample # / Comments:			

Analyses

Lab Sample Receipt Checklist:

Custody Seals Present/Intact	Y	N	NA
Custody Signatures Present	Y	N	NA
Collector Signatures Present	Y	N	NA
Bottles Intact	Y	N	NA
Correct Bottles	Y	N	NA
Sufficient Volume	Y	N	NA
Samples Received on Ice	Y	N	NA
VOA - Headpace Acceptable	Y	N	NA
USDA Regulated Soils	Y	N	NA
Samples in Holding Time	Y	N	NA
Residual Chlorine Present	Y	N	NA
Cl Strips:	Y	N	NA
Sample pH Acceptable	Y	N	NA
pH Strips:	Y	N	NA
Sulfide Present	Y	N	NA
Lead Acetate Strips:	Y	N	NA
LAB USE ONLY:			
Lab Sample # / Comments:			

Analyses

Lab Sample Receipt Checklist:

Custody Seals Present/Intact	Y	N	NA
Custody Signatures Present	Y	N	NA
Collector Signatures Present	Y	N	NA
Bottles Intact	Y	N	NA
Correct Bottles	Y	N	NA
Sufficient Volume	Y	N	NA
Samples Received on Ice	Y	N	NA
VOA - Headpace Acceptable	Y	N	NA
USDA Regulated Soils	Y	N	NA
Samples in Holding Time	Y	N	NA
Residual Chlorine Present	Y	N	NA
Cl Strips:	Y	N	NA
Sample pH Acceptable	Y	N	NA
pH Strips:	Y	N	NA
Sulfide Present	Y	N	NA
Lead Acetate Strips:	Y	N	NA
LAB USE ONLY:			
Lab Sample # / Comments:			

Analyses

Lab Sample Receipt Checklist:

Custody Seals Present/Intact	Y	N	NA
Custody Signatures Present	Y	N	NA
Collector Signatures Present	Y	N	NA
Bottles Intact	Y	N	NA
Correct Bottles	Y	N	NA
Sufficient Volume	Y	N	NA
Samples Received on Ice	Y	N	NA
VOA - Headpace Acceptable	Y	N	NA
USDA Regulated Soils	Y	N	NA
Samples in Holding Time	Y	N	NA
Residual Chlorine Present	Y	N	NA
Cl Strips:	Y	N	NA
Sample pH Acceptable	Y	N	NA
pH Strips:	Y	N	NA
Sulfide Present	Y	N	NA
Lead Acetate Strips:	Y	N	NA
LAB USE ONLY:			
Lab Sample # / Comments:			

Analyses

Lab Sample Receipt Checklist:

Custody Seals Present/Intact	Y	N	NA
Custody Signatures Present	Y	N	NA
Collector Signatures Present	Y	N	NA
Bottles Intact	Y	N	NA
Correct Bottles	Y	N	NA
Sufficient Volume	Y	N	NA
Samples Received on Ice	Y	N	NA
VOA - Headpace Acceptable	Y	N	NA
USDA Regulated Soils	Y	N	NA
Samples in Holding Time	Y	N	NA
Residual Chlorine Present	Y	N	NA
Cl Strips:	Y	N	NA
Sample pH Acceptable	Y	N	NA
pH Strips:	Y	N	NA
Sulfide Present	Y	N	NA
Lead Acetate Strips:	Y	N	NA
LAB USE ONLY:			
Lab Sample # / Comments:			

Analyses

Lab Sample Receipt Checklist:

Custody Seals Present/Intact	Y	N	NA
Custody Signatures Present	Y	N	NA
Collector Signatures Present	Y	N	NA
Bottles Intact	Y	N	NA
Correct Bottles	Y	N	NA
Sufficient Volume	Y	N	NA
Samples Received on Ice	Y	N	NA
VOA - Headpace Acceptable	Y	N	NA
USDA Regulated Soils	Y	N	NA
Samples in Holding Time	Y	N	NA
Residual Chlorine Present	Y	N	NA
Cl Strips:	Y	N	NA
Sample pH Acceptable	Y	N	NA
pH Strips:	Y	N	NA
Sulfide Present	Y	N	NA
Lead Acetate Strips:	Y	N	NA
LAB USE ONLY:			
Lab Sample # / Comments:			

Analyses

Lab Sample Receipt Checklist:

Custody Seals Present/Intact	Y	N	NA
Custody Signatures Present	Y	N	NA
Collector Signatures Present	Y	N	NA
Bottles Intact	Y	N	NA
Correct Bottles	Y	N	NA
Sufficient Volume	Y	N	NA
Samples Received on Ice	Y	N	NA
VOA - Headpace Acceptable	Y	N	NA
USDA Regulated Soils	Y	N	NA
Samples in Holding Time	Y	N	NA
Residual Chlorine Present	Y	N	NA
Cl Strips:	Y	N	NA
Sample pH Acceptable	Y	N	NA
pH Strips:	Y	N	NA
Sulfide Present	Y	N	NA
Lead Acetate Strips:	Y	N	NA
LAB USE ONLY:			
Lab Sample # / Comments:			

Analyses

Lab Sample Receipt Checklist:

Custody Seals Present/Intact	Y	N	NA
Custody Signatures Present	Y	N	NA
Collector Signatures Present	Y	N	NA
Bottles Intact	Y	N	NA
Correct Bottles	Y	N	NA
Sufficient Volume	Y	N	NA
Samples Received on Ice	Y	N	NA
VOA - Headpace Acceptable	Y	N	NA
USDA Regulated Soils	Y	N	NA
Samples in Holding Time	Y	N	NA
Residual Chlorine Present	Y	N	NA
Cl Strips:	Y	N	NA
Sample pH Acceptable	Y	N	NA
pH Strips:	Y	N	NA
Sulfide Present	Y	N	NA
Lead Acetate Strips:	Y	N	NA
LAB USE ONLY:			
Lab Sample # / Comments:			

Analyses

Lab Sample Receipt Checklist:

Custody Seals Present/Intact	Y	N	NA
Custody Signatures Present	Y	N	NA
Collector Signatures Present	Y	N	NA
Bottles Intact	Y	N	NA
Correct Bottles	Y	N	NA
Sufficient Volume	Y	N	NA
Samples Received on Ice	Y	N	NA
VOA - Headpace Acceptable	Y	N	NA
USDA Regulated Soils	Y	N	NA
Samples in Holding Time	Y	N	NA
Residual Chlorine Present	Y	N	NA
Cl Strips:	Y	N	NA
Sample pH Acceptable	Y	N	NA
pH Strips:	Y	N	NA
Sulfide Present	Y	N	NA
Lead Acetate Strips:	Y	N	NA
LAB USE ONLY:			
Lab Sample # / Comments:			

Analyses

Lab Sample Receipt Checklist:

Custody Seals Present/Intact	Y	N	NA
Custody Signatures Present	Y	N	NA
Collector Signatures Present	Y	N	NA
Bottles Intact	Y	N	NA
Correct Bottles	Y	N	NA
Sufficient Volume	Y	N	NA
Samples Received on Ice	Y	N	NA
VOA - Headpace Acceptable	Y	N	NA
USDA Regulated Soils	Y	N	NA
Samples in Holding Time	Y	N	NA
Residual Chlorine Present	Y	N	NA
Cl Strips:	Y	N	NA
Sample pH Acceptable	Y	N	NA
pH Strips:	Y	N	NA
Sulfide Present	Y	N	NA
Lead Acetate Strips:	Y	N	NA
LAB USE ONLY:			
Lab Sample # / Comments:			

Analyses

Lab Sample Receipt Checklist:

Custody Seals Present/Intact	Y	N	NA
Custody Signatures Present	Y	N	NA
Collector Signatures Present	Y	N	NA
Bottles Intact	Y	N	NA
Correct Bottles	Y	N	NA
Sufficient Volume	Y	N	NA
Samples Received on Ice	Y	N	NA
VOA - Headpace Acceptable	Y	N	NA
USDA Regulated Soils	Y	N	NA
Samples in Holding Time	Y	N	NA
Residual Chlorine Present	Y	N	NA
Cl Strips:	Y	N	NA
Sample pH Acceptable	Y	N	NA
pH Strips:	Y	N	NA
Sulfide Present	Y	N	NA
Lead Acetate Strips:	Y	N	NA
LAB USE ONLY:			
Lab Sample # / Comments:			

Analyses

Lab Sample Receipt Checklist:

Custody Seals Present/Intact	Y	N	NA
Custody Signatures Present	Y	N	NA
Collector Signatures Present	Y	N	NA
Bottles Intact	Y	N	NA
Correct Bottles	Y	N	NA
Sufficient Volume	Y	N	NA
Samples Received on Ice	Y	N	NA
VOA - Headpace Acceptable	Y	N	NA
USDA Regulated Soils	Y	N	

Pace Analytical **CHAIN-OF-CUSTODY Analytical Request Document**

Chain-of Custody is a LEGAL DOCUMENT - Complete all relevant fields

Company: ACECOM
Address: 12420 Miesston Center Drive
Georgetown, MO 64607
Report To: Georgetown, MO 64607
Georgetown, MO 64607
Copy To: Georgetown, MO 64607
Georgetown, MO 64607
Customer Project Name/Number: Winkler Locks #457/60552172
Phone: 605-521-7172
Email: Winkler Locks #457/60552172
Collected By (print): Winkler Locks #457/60552172
Quote #: Winkler Locks #457/60552172
Collected By (signature): Winkler Locks #457/60552172
Sample Disposal: Winkler Locks #457/60552172
☐ Dispose as appropriate ☐ Return ☐ Hold: Winkler Locks #457/60552172
*** Matrix Codes (Insert in Matrix box below):** Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start)		Composite End	Res CI	# of Cns
			Date	Time	Date		
A0201-04-GW	WG	G	4-29-21	11:30	—	—	2
A0201-03-GW-P	WG	G	4-29-21	10:05	—	—	2
A0201-05-GW	WG	G	4-29-21	14:35	—	—	2
A0201-06-GW	WG	G	4-29-21	12:45	—	—	2
A0201-07-GW	WG	G	4-29-21	11:40	—	—	2
A0201-08-GW	WG	G	4-29-21	10:10	—	—	2
A0201-09-GW	WG	G	4-29-21	16:10	—	—	2
A0201-10-GW	WG	G	4-29-21	08:20	—	—	2
A0201-10-GW-MJ	WG	G	4-29-21	08:20	—	—	2
A0201-10-GW-MJD	WG	G	4-29-21	08:20	—	—	2

Customer Remarks / Special Conditions / Possible Hazards:

Type of Ice Used: Wet Blue Dry None

Packing Material Used: 991121023212

Radchem sample(s) screened (<500 cpm): Y N NA

Received by/Company: (Signature) Winkler Locks #457/60552172

Date/Time: 4-30-21

Received by/Company: (Signature) Winkler Locks #457/60552172

Date/Time: 4-30-21

Received by/Company: (Signature) Winkler Locks #457/60552172

Date/Time: 4-30-21

Received by/Company: (Signature) Winkler Locks #457/60552172

Date/Time: 4-30-21

Received by/Company: (Signature) Winkler Locks #457/60552172

Date/Time: 4-30-21

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Date/Time: 4-30-21

Received by/Company: (Signature) Winkler Locks #457/60552172

Date/Time: 4-30-21

Received by/Company: (Signature) Winkler Locks #457/60552172

Date/Time: 4-30-21

Received by/Company: (Signature) Winkler Locks #457/60552172

Date/Time: 4-30-21

LAB USE ONLY - Affix Wc

Client ID: 4838 - AECOM

SDS: 221050411

ALL SHA

PM: AEC

Container Preservative 1



**** Preservative Types:** (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other

Analyses		Lab Profile/Line:	
TOL/PH (CPA 90C04/90450)	60.0 (ASTM A122/CA-551)	Custody Seals Present/Intact	Y N NA
PFAS (LC/MS/MS) QSM 5.3 Table B-15		Custody Signatures Present	Y N NA
		Collector Signatures Present	Y N NA
		Bottles Intact	Y N NA
		Correct Bottles	Y N NA
		Sufficient Volume	Y N NA
		Samples Received on Ice	Y N NA
		VOA - Headspace Acceptable	Y N NA
		USDA Regulated Soils	Y N NA
		Samples in Holding Time	Y N NA
		Residual Chlorine Present	Y N NA
		CL Strips:	Y N NA
		Sample pH Acceptable	Y N NA
		pH Strips:	Y N NA
		Sulfide Present	Y N NA
		Lead Acetate Strips:	Y N NA
		LAB USE ONLY:	
		Lab Sample # / Comments:	

Lab Sample Temperature Info:
 Temp Blank Received: Y N NA
 Therm ID#: 09E38
 Cooler 1 Temp Upon Receipt: 34.0pm
 Cooler 1 Therm Corr. Factor: 0C
 Cooler 1 Corrected Temp: 0C
 Comments: 09E38 34.0pm
 Trip Blank Received: Y N NA
 HCL MeOH TSP Other
 Non Conformance(s): 2
 YES / NO of: 2

Data Qualifying Codes

Two types of data qualifying codes or flags are applied in the course of the data review. The data validation flags indicate data that are not usable for decision-making, more than normally biased and/or variable, or not representative of field conditions. These codes and their definitions are presented below in the hierarchy stipulated in the USEPA Contract Laboratory Program National Functional Guidelines for Organic (August 2014) Data Review and the USEPA Region III Guidelines for Organic (September 1994) for blank qualifications only.

Data Validation Flags

Flag	Interpretation
R	The sample results are unusable due to the quality of the data generated because certain criteria were not met. The analyte may or may not be present in the sample.
B	The analyte was analyzed for, but not detected at a level greater than or equal to the level of the adjusted Detection Limit (DL) for sample and method.
J+	Reported value may not be accurate or precise, but the result may be biased high.
J-	Reported value may not be accurate or precise, but the result may be biased low.
J	The analyte was positively identified and the associated numerical value is the approximate concentration of the analyte in the sample (due either to the quality of the data generated because certain quality control criteria were not met, or the concentration of the analyte was below the Limit of Detection (LOD)).
NJ	The analysis indicates the presence of an analyte that has been “tentatively identified” and the associated numerical value represents its approximate concentration.
UJ	The analyte was not detected at a level greater than or equal to the adjusted DL. However, the reported adjusted DL is approximate and may be inaccurate or imprecise.
C	This qualifier applies to pesticide and Aroclor results when the identification has been confirmed by gas Chromatograph/Mass Spectrometer (GC/MS)
X	This qualifier applies to pesticide and Aroclor results when GC/MS analysis was attempted but was unsuccessful.

The other type of code used by AECOM is a “Reason Code”. The reason code indicates the type of quality control failure that led to the application of the data validation flag.

Reason Codes

Code	Description	Code	Description
a	Tracer recovery (radiochemical data only)	ld	Laboratory duplicate RPDs (matrix duplicate, MSD, LCSD)
be	Equipment blank contamination	lp	Laboratory control sample/laboratory control sample duplicate RPDs
bf	Field blank contamination	m	Matrix spike recovery
bi	Bias indeterminate	md	Matrix spike/matrix spike duplicate RPD
bl	Laboratory blank contamination	nb	Negative laboratory blank contamination
bm	Missing Blank Information	p	Chemical preservation issue
bt	Trip Blank	pe	Post Extraction Spike
c	Calibration issue	ps	Performance Evaluation Sample
cl	Clean-up standard recovery	q	Quantitation issue
cp	Insufficient in growth (radiochemical data only)	r	Dual column RPD
cr	Chromatographic resolution	rp	Re-extraction precision issue [PAHs only]
d	Reporting limit raised due to chromatographic interference	rt	SIM ions not within + 2 seconds
dt	Dissolved result > total over limit	s	Surrogate recovery
e	Ether interference	sc	Sample collection issues
fd	Field duplicate RPDs	sp	Sample preparation issue
h	Holding times	su	Evidence of ion suppression
hs	Sample headspace did not meet receiving requirements	t	Temperature Preservation Issue
i	Internal standard areas	u	High combined sample result uncertainty (radiochemical data only)
ii	Injection internal standard area or retention time exceedance	v	Compound identification issue
k	Estimated Maximum Possible Concentrations	x	Low % solids
l	LCS recoveries	y	Serial dilution results
lc	Labeled compound recovery	z	ICS results

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Appendix B

Field Documentation

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Appendix B1

Logs of Daily Notice of Field Activities

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**Log of Daily Notice of Field Activity
ARNG PFAS, Site Inspection
Windsor Locks AASF, Connecticut**

Date	AECOM Personnel	Weather	Summary Daily Activities	Issues	Progress to Date	Subcontractor(s)/ Visitors
4/29/2021	- John Shannon (SSHO) - Max Meadows - Don Phillips - Devon Hughes	Rain showers early, steady rain in the afternoon, High 64°F, Low 50°F	<ul style="list-style-type: none"> - AECOM and CTS participated in a Tailgate SH&E meeting, reviewed the day's activities, SH&E documents and AHAs, daily PFAS sampling checklist, and AASF operation protocols. - AECOM surveyors mobilized to the site and surveyed all ten monitoring well locations, both horizontal and vertical points. - CTS completed drilling (DPT) and temporary monitoring well installation in AOI01-03 and AOI01-04. - AECOM completed soil sampling at AOI01-03 and AOI01-04 and groundwater sampling at AOI01-03, AOI01-04, and AOI01-10. - CTS abandoned all 10 temporary monitoring wells by removing the PVC and backfilling the borehole with bentonite chips. AASF personnel accompanied the team during monitoring well abandonment. - CTS decontaminated their drilling equipment as required between boring locations. - Two ERBs and one FRB were collected. - Soil and groundwater samples were shipped via FedEx to the analytical laboratory under standard chain of custody procedures. - The SI field work was completed. AECOM and CTS demobilized from the site. 	- None	<ul style="list-style-type: none"> - Soil Borings: 10/10 - Soil Samples: 25/25*** - Temporary Wells: 10/10 - Groundwater Samples: 10/10 - Surveying: 10/10 <p>*** Groundwater was encountered at approximately 5 feet bgs at AOI01-04, so only two soil samples were collected at this location in accordance with the SI QAPP Addendum</p>	<ul style="list-style-type: none"> - Blake Prusky, CTS - Jeff Vizoyan, CTS
4/28/2021	- John Shannon (SSHO) - Max Meadows	Cloudy, High 78°F, Low 48°F	<ul style="list-style-type: none"> - AECOM and CTS participated in a Tailgate SH&E meeting, reviewed the day's activities, SH&E documents and AHAs, daily PFAS sampling checklist, and AASF operation protocols. - CTS completed drilling (DPT) and temporary monitoring well installation in AOI01-05, AOI01-06, AOI01-07, AOI01-08, and AOI01-10. - AECOM completed soil sampling at AOI01-05, AOI01-06, AOI01-07, AOI01-08, and AOI01-10 and groundwater sampling at AOI01-02, AOI01-05, AOI01-07, and AOI01-08. - AASF personnel accompanied the team during activities at AOI01-08 and AOI01-07, as those locations were along the edge of the tarmac. - CTS decontaminated their drilling equipment as required between boring locations. - Two ERBs were collected. 	- None	<ul style="list-style-type: none"> - Soil Borings: 8/10 - Soil Samples: 20/26** - Temporary Wells: 8/10 - Groundwater Samples: 7/10 - Surveying: 0/10 <p>** Groundwater was encountered at approximately 6 feet bgs at AOI01-06 & AOI01-10, so only two soil samples were collected at each location in accordance with the SI QAPP Addendum</p>	<ul style="list-style-type: none"> - Blake Prusky, CTS - Jeff Vizoyan, CTS
4/27/2021	- John Shannon (SSHO) - Max Meadows	Cloudy in morning, partly cloudy in afternoon, High 70°F, Low 41°F	<ul style="list-style-type: none"> - Underground Surveying mobilized to the site. - AECOM, CTS, Underground Surveying, and CTARNG participated in a Tailgate SH&E meeting, reviewed the day's activities, SH&E documents and AHAs, daily PFAS sampling checklist, and AASF operation protocols. - Underground Surveying completed utility clearance at all boring locations. AOI01-02 was adjusted ~19 feet east of original location due to water line, sewer line, and anomalies. AOI01-01 was adjusted ~6 feet east of the original location due to utilities. Minor adjustments were made at other borings (none in excess of 50 feet). J. Martin (CTARNG) accompanied utility clearance. - AECOM completed utility clearance checklist in accordance with safety protocols. - CTS completed drilling (DPT) and temporary monitoring well installation in AOI01-01, AOI01-02, and AOI01-09. - AECOM completed soil sampling at AOI01-01, AOI01-02, and AOI01-09 and groundwater sampling at AOI01-01 and AOI01-09. - CTS decontaminated their drilling equipment as required between boring locations. - Underground Surveying demobilized from the site. 	- None	<ul style="list-style-type: none"> - Soil Borings: 3/10 - Soil Samples: 7/28* - Temporary Wells: 2/10 - Groundwater Samples: 2/10 - Surveying: 0/10 <p>* Groundwater was encountered at approximately 6 feet bgs at AOI01-01 & AOI01-02, so only two soil samples were collected at each location in accordance with the SI QAPP Addendum</p>	<ul style="list-style-type: none"> - Jordan Martin, CTARNG - Blake Prusky, CTS - Jeff Vizoyan, CTS - Johnnie Pereira, Underground Surveying

Log of Daily Notice of Field Activity
ARNG PFAS, Site Inspection
Windsor Locks AASF, Connecticut

Date	AECOM Personnel	Weather	Summary Daily Activities	Issues	Progress to Date	Subcontractor(s)/ Visitors
4/26/2021	- John Shannon (SSHO) - Max Meadows	Mostly cloudy, High 58°F, Low 39°F	- AECOM and CTS mobilized to Windsor Locks AASF for SI field work. - AECOM held a combined kick-off meeting and Tailgate SH&E meeting with CTS. Reviewed scope of work, SH&E documents and AHAs, daily PFAS sampling checklist, and AASF operation protocols. - AECOM checked the planned boring locations to confirm the utility clearance was complete (see "Issues" column for additional details) and escorted public locators for gas, electric, and water. - CTS set up a staging area and decontamination pad at the location designated by CTARNG.	- Upon assessing site conditions, the SSHO identified that the utility location and marking had not been completed by the Connecticut 811 (CBYD) public locator (ticket placed 10 days prior on 4/16/21). The SSHO contacted the utilities identified by CBYD and requested they mark utilities as soon as possible. - CBYD public locators for gas, electric, and water arrived onsite to mark utilities; however, the team observed that they did not mark utilities for the full facility. Therefore, AECOM contacted a private utility locator to complete the utility clearance (scheduled for 4/27/21).	- Soil Borings: 0/10 - Soil Samples: 0/30 - Temporary Wells: 0/10 - Groundwater Samples: 0/10 - Surveying: 0/10	- Jordan Martin, CTARNG - Blake Prusky, CTS - Jeff Vizoyan, CTS

Notes
AASF = Army Aviation Support Facility
AECOM = AECOM Technical Services, Inc.
AHA = activity hazard analysis
AOI = area of interest
ARNG = Army National Guard
bgs = below ground surface
CBYD = Call Before You Dig
CTARNG = Connecticut Army National Guard
CTS = Cascade Technical Services
DPT = direct push technology
ERB = equipment rinsate blank
FRB = field reagent blank
PFAS = per- and polyfluoroalkyl substances
PVC = poly-vinyl chloride
SH&E = Safety, Health, and Environment
SSHO = Site Safety and Health Officer

Appendix B2

Sampling Forms

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Monitoring Well Sample Collection Form

LOCATION	Site: Windsor Locks AASF, Windsor Locks, CT		LocID: A0101-01		Date: 4/27/21	
	Project Name: ARNG PFAS SI, Windsor Locks, CT		Project Number: 60552172		Recorded By: M. Meadows Checked By:	
EQUIPMENT	Sampling Equipment - Pump: Geotech Series 1 Dose Peristaltic Pump			Controller: N/A		Compressor: N/A
	Water Level Indicator Type/ID#: Heron Dipper T-2		Water Quality Meter Type: In-Situ		Sonde ID: 455687	Handset ID: R52JTHGXM7A
	PID Type/ID#:		Equipment Decon:			
WELL & SAMPLING INFO	Description: 1" PVC		Screen Interval (BTOC): 9.65' - 14.65'		Initial Depth to Water (BTOC): 9.69'	
	Historic Pump Settings: 100 mL/min		Pump Inlet Depth (BTOC): 12.00'		Ambient PID (ppm):	
	Condition of Well/Comments: Installed 4/27/21		Height of stick-up (ft): 3 ft			
	NOTE: HDPE & silicone tubing used. Stick up ~ 3 ft above grade. Foam test: negative					

Date (MM/DD/YY)	Time (24 hr)	Depth to Water (BTOC)	Volume Removed (gallons)	Pumping Rate (Lpm)	Temp (°C)	Specific Conductivity (µS/cm)	DO (mg/L)	pH	ORP (mV)	Turbidity (NTU)	Pump Refill/ Discharge (seconds)	Pump Pressure (PSI)	Comment
4/27/21	14:35	9.69'		0.1	22.37	294	9.50	7.18	140.4	10.7			
	14:40	9.69'		0.1	12.18	289.45	7.40	6.70	139.7	81.6			
	14:45	9.69'		0.1	12.04	313.48	7.35	6.69	115.0	57.9			
	14:50	9.69'		0.1	11.55	345.51	7.27	6.78	90.6	32.5			
	14:55	9.69'		0.1	11.24	369.67	7.30	6.80	82.3	20.8			
	15:00	9.69'		0.1	11.14	392.87	7.38	6.81	76.7	17.4			
	15:05	9.69'		0.1	11.03	412.07	7.49	6.80	73.6	11.1			
	15:10	9.69'		0.1	11.32	416.55	7.54	6.81	67.7	3.01			
	15:15	9.69'		0.1	11.41	424.08	7.56	6.84	56.9	1.19			
	15:20	9.69'	2.5	0.1	11.27	428.85	7.60	6.84	48.7	0.47			

Pumping Rate: $\leq 0.5\text{L/min}$; **Measurements:** every 3 - 5 minutes; **Stabilization is defined as the following for three consecutive readings:** + 3% Temp; + 3% Conductivity; + 10% DO; + 0.1 pH; + 10mV ORP; 10% Turb

[illegible]



LOCATION	Site: Windsor Locks AASF, Windsor Locks, CT		LocID: A0101-03		Date: 4/29/21	
	Project Name: ARNG PFAS SI, Windsor Locks, CT		Project Number: 60552172		Recorded By: M. Marlow Checked By:	
EQUIPMENT	Sampling Equipment - Pump: Geotech Series 1 Drive Resistaltic Pump			Controller: -		Compressor: -
	Water Level Indicator Type/ID#: Heron Dipper T-2		Water Quality Meter Type: Sonde ID: 455687		Handset ID: 4525716XMTA	
	PID Type/ID#: -		Equipment Decon: Alconox + DI water (ASTM Type II)			
WELL & SAMPLING INFO	Description: Low - Flow		Screen Interval (BTOC): 6.3' - 11.3'		Initial Depth to Water (BTOC): 5.72'	
	Historic Pump Settings: 100 mL/min		Pump Inlet Depth (BTOC): 8.8'		Ambient PID (ppm): -	
	Condition of Well/Comments: Installed 4/29/21		Height of stick-up (ft): 0.5'			
	NOTE: HOPE + S.I. core Tubing used. Foam Test:					

Date (MM/DD/YY)	Time (24 hr)	Depth to Water (BTOC)	Volume Removed (gallons)	Pumping Rate (Lpm)	Temp (°C)	Specific Conductivity (mS/cm)	DO (mg/L)	pH	ORP (mV)	Turbidity (NTU)	Pump Refill/ Discharge (seconds)	Pump Pressure (PSI)	Comment
4/29/24	09:15	5.85		0.1	14.79	2.63	10.84	6.06	161.1	485			
	09:20	5.86		0.1	11.40	1499.0	0.25	6.27	-152.0	411			
	09:25	5.88		0.1	11.31	1477.3	0.12	6.81	-181.8	352			
	09:30	5.87		0.1	11.23	1416.6	0.09	6.83	-199.4	237			
	09:35	5.88		0.1	11.43	1406.1	0.07	6.85	-189.6	186			
	09:40	5.90		0.1	11.09	1389.2	0.06	6.86	-188.3	112			
	09:45	5.91		0.1	11.09	1329.2	0.16	6.86	-206.2	86.3			
	09:50	5.92		0.1	11.10	1301.5	0.06	6.87	-212.4	41.7			
	09:55	5.93		0.1	11.07	1254.1	0.06	6.87	-219.8	25.5			
	10:00	5.93	1.75	0.1	11.06	1227.4	0.04	6.87	-225.0	18.2			

Pumping Rate: ≤ 0.5L/min; **Measurements:** every 3 - 5 minutes; **Stabilization is defined as the following for three consecutive readings:** + 3% Temp, + 3% Conductivity; + 10% DO; + 0.1 pH; + 10mV ORP; 10% Turb

[illegible]

LOCATION	Site: Windsor Locks AASF, Windsor Locks, CT	LocID: A0101-04	Date: 4/29/21
	Project Name: ARNG PFAS SI, Windsor Locks, CT	Project Number: 60552172	Recorded By: M. Meadows Checked By:
EQUIPMENT	Sampling Equipment - Pump: Geotech Series 1 Drive Peristaltic Pump		Controller: - Compressor: -
	Water Level Indicator Type/ID#: Heron Dipper T-2	Water Quality Meter Type: Sonde ID: 455687	Handset ID: R525H6X474
	PID Type/ID#: -	Equipment Decon: Alconox + DI water (ASTM Type II)	
WELL & SAMPLING INFO	Description: Low Flow	Screen Interval (BTOC): 4.5' - 9.5'	Initial Depth to Water (BTOC): 4.29
	Historic Pump Settings: 100 mL/min		Pump Inlet Depth (BTOC): 7.0'
	Condition of Well/Comments: Installed 4/29/21		Height of stick-up (ft): 0.5'
	NOTE: HDPE & Silicone Tubing used. Foam test:		

Date (MM/DD/YY)	Time (24 hr)	Depth to Water (BTOC)	Volume Removed (gallons)	Pumping Rate (Lpm)	Temp (°C)	Specific Conductivity (mS/cm)	DO (mg/L)	pH	ORP (mV)	Turbidity (NTU)	Pump Refill/ Discharge (seconds)	Pump Pressure (PSI)	Comment
4/29/21	10:25	4.31		0.1	14.42	1.36	10.83	7.30	-16.1	389			
	10:30	4.33		0.1	12.77	1444.5	0.27	7.19	-232.5	324			
	10:38	4.37		0.1	12.61	1485.2	0.20	7.19	-242.5	251			
	10:40	4.39		0.1	12.50	1486.8	0.13	7.20	-249.1	170			
	10:45	4.39		0.1	12.49	1471.7	0.26	7.21	-257.9	203			
	10:50	4.39		0.1	12.54	1432.8	0.24	7.21	-268.5	311			
	10:55	4.39		0.1	12.45	1406.6	0.11	7.20	-267.1	406			
	11:00	4.39		0.1	12.49	1366.8	0.06	7.20	-270.1	483			
	11:05	4.39		0.1	12.49	1334.6	0.05	7.20	-271.8	452			
	11:10	4.39		0.1	12.49	1303.8	0.05	7.18	-272.4	523			
	11:15	4.39		0.1	12.26	1278.3	0.07	7.17	-273.8	214			

Pumping Rate: $\leq 0.5\text{L/min}$; **Measurements:** every 3 - 5 minutes; **Stabilization is defined as the following for three consecutive readings:** + 3% Temp; + 3% Conductivity; + 10% DO; + 0.1 pH; + 10mV ORP; 10% Turb

[illegible]

Monitoring Well Sample Collection Form

LOCATION	Site: Windsor Locks AASF, Windsor Locks, CT	LocID: AOTJ1-05	Date: 4/28/21
	Project Name: ARNG PFAS SI, Windsor Locks, CT	Project Number: 60552172	Recorded By: M. Meadows Checked By:
EQUIPMENT	Sampling Equipment - Pump: Geotech Series 1 Drive Resistive Pump		Controller: -
	Water Level Indicator Type/ID#: Hiron Dipper T-2	Water Quality Meter Type: In-Situ Sonde ID: 455687	Compressor: -
	PID Type/ID#: -	Equipment Decon: Alconex + DI water (ASTM Type II)	
WELL & SAMPLING INFO	Description: Low-Flow	Screen Interval (BTOC): 5'8" - 10'8"	Initial Depth to Water (BTOC): 4.73'
	Historic Pump Settings: 100 ml/min		Ambient PID (ppm): -
	Condition of Well/Comments: Installed 4/28/21	Pump Inlet Depth (BTOC): 7.5'	Well Head PID (ppm): -
	NOTE: HDPE + Silicone Tubing used. Foam Test: Negative		Height of stick-up (ft): 0.5'

[illegible]

Pumping Rate: $\leq 0.5\text{L/min}$; **Measurements:** every 3 - 5 minutes; **Stabilization** is defined as the following for three consecutive readings: + 3% Temp, + 3% Conductivity; + 10% DO; + 0.1 pH; + 10mV ORP; 10% Turb

[illegible]





Date (MM/DD/YY)	Time (24 hr)	Depth to Water (BTOC)	Volume Removed (gallons)	Pumping Rate (Lpm)	Temp (°C)	Specific Conductivity (mS/cm)	DO (mg/L)	pH	ORP (mV)	Turbidity (NTU)	Pump Refill/ Discharge (seconds)	Pump Pressure (PSI)	Comment
4/28/21	10:35	10.46		0.1	15.91	0.07	10.72	6.41	-10.4	475			
	10:40	10.44		0.1	12.22	34.78	9.85	6.00	10.5	367			
	10:45	10.46		0.1	11.64	20.39	10.31	5.87	15.0	221			
	10:50	10.46		0.1	11.94	13.94	10.79	5.84	28.9	172			
	10:55	10.46		0.1	11.87	7.67	10.91	5.87	34.7	119			
	11:00	10.46		0.1	12.13	1.42	10.86	5.91	35.8	86.8			
	11:05	10.46		0.1	12.18	0.07	10.98	5.81	44.7	69.0			
	11:10	10.46		0.1	12.21	0.07	10.81	5.82	46.7	58.2			
	11:15	10.46		0.1	12.67	0.07	10.82	5.80	48.4	47.6			
	11:20	10.44		0.1	13.05	0.07	10.75	5.83	47.4	36.5			
	11:25	10.46		0.1	12.30	12.29	11.04	5.86	46.1	31.2			

Pumping Rate: $\leq 0.5\text{L/min}$; **Measurements:** every 3 - 5 minutes; **Stabilization** is defined as the following for three consecutive readings: $\pm 3\%$ Temp, $\pm 3\%$ Conductivity, $\pm 10\%$ DO, ± 0.1 pH, $\pm 10\text{mV}$ ORP, 10% Turb

[illegible]

Monitoring Well Sample Collection Form

LOCATION	Site: Windsor Locks AASF, Windsor Locks, CT	LocID: A0I01-08	Date: 4/28/21
	Project Name: ARNG PFAS SI, Windsor Locks, CT	Project Number: 60552172	Recorded By: M. Meadors Checked By:
EQUIPMENT	Sampling Equipment - Pump: Geotech Series I Drive Peristaltic Pump		Controller: - Compressor: -
	Water Level Indicator Type/ID#: Heon Dipper T-2	Water Quality Meter Type: In-Situ Sonde ID: 455687	Handset ID: RS25716XM7A
	PID Type/ID#: -	Equipment Decon: Alconox + DI Water (ASTM Type II)	
WELL & SAMPLING INFO	Description: Low-Flow	Screen Interval (BTOC): 9.80' - 14.80'	Initial Depth to Water (BTOC): 10.34'
	Historic Pump Settings: 100 mL/min		Pump Inlet Depth (BTOC): 12.3'
	Condition of Well/Comments: Installed 4/28/21		Height of stick-up (ft): 4.4'
	NOTE: HDPE + Silicone Tubing used. Foam Test: Negative		

[illegible]

Pumping Rate: $\leq 0.5\text{L/min}$; **Measurements:** every 3 - 5 minutes; **Stabilization is defined as the following for three consecutive readings:** + 3% Temp; + 3% Conductivity; + 10% DO; + 0.1 pH; + 10mV ORP; 10% Turb

[illegible]

Monitoring Well Sample Collection Form

LOCATION	Site: Windsor Locks AASF, Windsor Locks, CT	LocID: A0101-09	Date: 4/27/21
	Project Name: ARNG PFAS SI, Windsor Locks, CT	Project Number: 60552172	Recorded By: M. Mendonsa Checked By:
EQUIPMENT	Sampling Equipment - Pump: Geotech Series 1 Drive Peristaltic Pump		Controller: N/A
	Water Level Indicator Type/ID#: Heron Dipper T-2	Water Quality Meter Type: In-Situ	Sonde ID: 455687
	PID Type/ID#:	Equipment Decon:	Handset ID: R52J71GXM7A
WELL & SAMPLING INFO	Description: 1" PVC	Screen Interval (BTOC): 10' - 15'	Initial Depth to Water (BTOC): 10.34'
	Historic Pump Settings: 100 mL/min		Pump Inlet Depth (BTOC): 12.5'
	Condition of Well/Comments: Installed 4/27/21		Height of stick-up (ft): 2 ft
	NOTE: HDPE & silicone tubing used. Stick up ~2' above grade. Foam test: negative		

[illegible]

Pumping Rate: < 0.5L/min; **Measurements:** every 3 - 5 minutes; **Stabilization** is defined as the following for three consecutive readings: + 3% Temp. + 3% Conductivity: + 10% DO: + 0.1 pH: + 10mV ORP: 10% Turb

[illegible]

Appendix B3

Nonconformance and Corrective Action Reports

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Date: 11 May 2021

AECOM Technical Services Inc.
Nonconformance and Corrective Action Report

Report Number: NCR001 **Location:** Windsor Locks AASF, Connecticut
Project Title: ARNG PFAS **Contract Number:** W912DR-12-D-0014
DO: W912DR17F0192

<i>Description of Nonconformance and Cause:</i>	Upon review of field documentation, it was discovered that an equipment rinsate blank (ERB) was not collected from the hand auger used to collect the surface soil samples (0 to 2 feet below ground surface) during the Site Inspection at Windsor Locks AASF.
<i>Proposed Disposition:</i>	The omission will be documented in the SI Report. The data validation will take a conservative approach when considering the hand auger samples by assuming all results are true positives. In the future, the field team will be reminded on pre-mobilization field kickoff calls that ERBs must be collected from hand auger used for soil sampling.

Submitted by: Amanda Martin **Date:** 11 May 2021

Approved by
(Project Manager): Claire Mitchell

<i>Actual Disposition approved by Project Manager:</i>	The omission will be documented in the SI Report. The data validation will take a conservative approach when considering the hand auger samples by assuming all results are true positives. In the future, the field team will be reminded on pre-mobilization field kickoff calls that ERBs must be collected from hand auger used for soil sampling.
<i>Implementation of Disposition assigned to:</i>	Amanda Martin (SI Task Manager) and Naoum Tavantzis (Project Chemist)

Completed by: Amanda Martin/
Naoum Tavantzis **Date:** 11 May 2021

Verified by
(SI Task Manager): Amanda Martin **Date:** 11 May 2021

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Appendix B4 Survey Data

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DESC.	NORTH	EAST	T.O.C. EL.	GROUND EL.	LAT.	LONG.	SURVEYED
AOI 01-01	904500.9860'	1020340.0010'	161.21'	158.06'	N41° 56' 36.36"	W72° 40' 30.86"	4/29/2021
AOI 01-02	904738.7040'	1020720.5340'	157.95'	153.72'	N41° 56' 38.70"	W72° 40' 35.82"	4/29/2021
AOI 01-03	904961.3620'	1021212.5800'	153.58'	152.95'	N41° 56' 40.90"	W72° 40' 19.30"	4/29/2021
AOI 01-04	904923.8270'	1021015.6430'	153.60'	153.11'	N41° 56' 40.53"	W72° 40' 21.91"	4/29/2021
AOI 01-05	905219.2860'	1021036.6260'	152.80'	152.20'	N41° 56' 43.45"	W72° 40' 21.63"	4/29/2021
AOI 01-06	905684.6810'	1021143.4370'	152.55'	152.05'	N41° 56' 48.04"	W72° 40' 20.21"	4/29/2021
AOI 01-07	905134.5820'	1020321.9720'	160.71'	156.20'	N41° 56' 42.62"	W72° 40' 31.09"	4/29/2021
AOI 01-08	904853.3930'	1020124.9260'	161.85'	157.32'	N41° 56' 39.84"	W72° 40' 33.70"	4/29/2021
AOI 01-09	904040.2110'	1020380.1680'	171.38'	169.15'	N41° 56' 31.81"	W72° 40' 30.33"	4/29/2021
AOI 01-10	905295.2540'	1021399.1850'	155.55'	155.05'	N41° 56' 44.20"	W72° 40' 16.83"	4/29/2021

- NOTES**
1. Survey performed by AECOM - Newark, Delaware.
 2. All coordinates and elevations relate to Connecticut state plane datum (NAD83/NAVD88-12B).
 3. Coordinates and elevations established by: Trimble R8 - VRS RTK GPS system operating on the KEYNET VRS System.
 4. All coordinates and elevations are in U.S. survey feet.
 5. T.O.C. = Top of PVC (No outer casing present).

SURVEYING & MAPPING NOTES

1. THIS PLAN REPRESENTS A PHYSICAL SURVEY OF THE SOIL BORING/GROUNDWATER LOCATIONS LOCATED AT THE WINDSOR LOCKS AASF IN WINDSOR LOCKS, CONNECTICUT.
2. THE CONDITIONS SHOWN ON THIS PLAN ARE BASED ON FIELD WORK PERFORMED BY AECOM, NEWARK, DE ON 4/29/2021.
3. BACKGROUND IMAGERY TAKEN FROM GOOGLE MAPS.
4. THIS PLAN IS DRAWN TO SCALE. HOWEVER STRETCHING MAY OCCUR DURING REPRODUCTION. IT IS THEREFOR NOT RECOMMENDED TO SCALE FROM THIS PLAN.
5. THIS PLAN IS NOT INTENDED FOR CONSTRUCTION PURPOSES.
6. STATE PLANE COORDINATES ESTABLISHED BY AECOM USING TRIMBLE GPS EQUIPMENT OPERATING ON THE KEYNET GPS NETWORK.
7. SYMBOLS ARE FOR ILLUSTRATING PURPOSES ONLY. THEY ARE NOT NECESSARILY OF THE SAME TYPE AND /OR SIZE OF THE OBJECT WHICH THEY REPRESENT.
8. HORIZONTAL DATUM: CONNECTICUT STATE PLANE (NAD 83)
VERTICAL DATUM: NORTH AMERICAN VERTICAL DATUM (NAVD88-12B)



PROJECT

Windsor Locks AASF, CT
Monitoring Wells

85-152 Light Lane
Windsor Locks, CT

CLIENT

ARNG

CONSULTANT

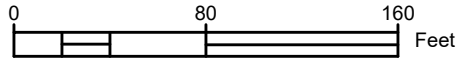
AECOM
4051 Ogletown Road, Suite 300
Newark, Delaware, 19713
302.781.5900 tel 302.781.5901 fax
www.aecom.com

LOCATION MAP



Google Earth Not To Scale

SCALE



EXISTING CONDITIONS LEGEND

- ◆ SITE BENCHMARK
- ⊕ BORING

ISSUE/REVISION

1	2021-04-30	Issued
I/R	DATE	DESCRIPTION

KEY PLAN

PROJECT NUMBER

60552172

SHEET TITLE

V-01

Mon. Wells

SHEET NUMBER

1 of 1

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Boring Locations

Connecticut State Plane Coordinates (NAD83/NAVD88-12B)

<u>DESC.</u>	<u>NORTH</u>	<u>EAST</u>	<u>T.O.C. EL.</u>	<u>GROUND EL.</u>	<u>LAT.</u>	<u>LONG.</u>	<u>SURVEYED</u>
AOI 01-01	904500.9860'	1020340.0010'	161.21'	158.06'	N41° 56' 36.36"	W72° 40' 30.86"	4/29/2021
AOI 01-02	904738.7040'	1020720.5340'	157.95'	153.72'	N41° 56' 38.70"	W72° 40' 25.82"	4/29/2021
AOI 01-03	904961.3620'	1021212.5800'	153.58'	152.95'	N41° 56' 40.90"	W72° 40' 19.30"	4/29/2021
AOI 01-04	904923.8270'	1021015.6430'	153.60'	153.11'	N41° 56' 40.53"	W72° 40' 21.91"	4/29/2021
AOI 01-05	905219.2860'	1021036.6260'	152.80'	152.20'	N41° 56' 43.45"	W72° 40' 21.63"	4/29/2021
AOI 01-06	905684.6810'	1021143.4370'	152.55'	152.05'	N41° 56' 48.04"	W72° 40' 20.21"	4/29/2021
AOI 01-07	905134.5820'	1020321.9720'	160.71'	156.20'	N41° 56' 42.62"	W72° 40' 31.09"	4/29/2021
AOI 01-08	904853.3930'	1020124.9260'	161.85'	157.32'	N41° 56' 39.84"	W72° 40' 33.70"	4/29/2021
AOI 01-09	904040.2110'	1020380.1680'	171.38'	169.15'	N41° 56' 31.81"	W72° 40' 30.33"	4/29/2021
AOI 01-10	905295.2540'	1021399.1850'	155.55'	155.05'	N41° 56' 44.20"	W72° 40' 16.83"	4/29/2021

NOTES

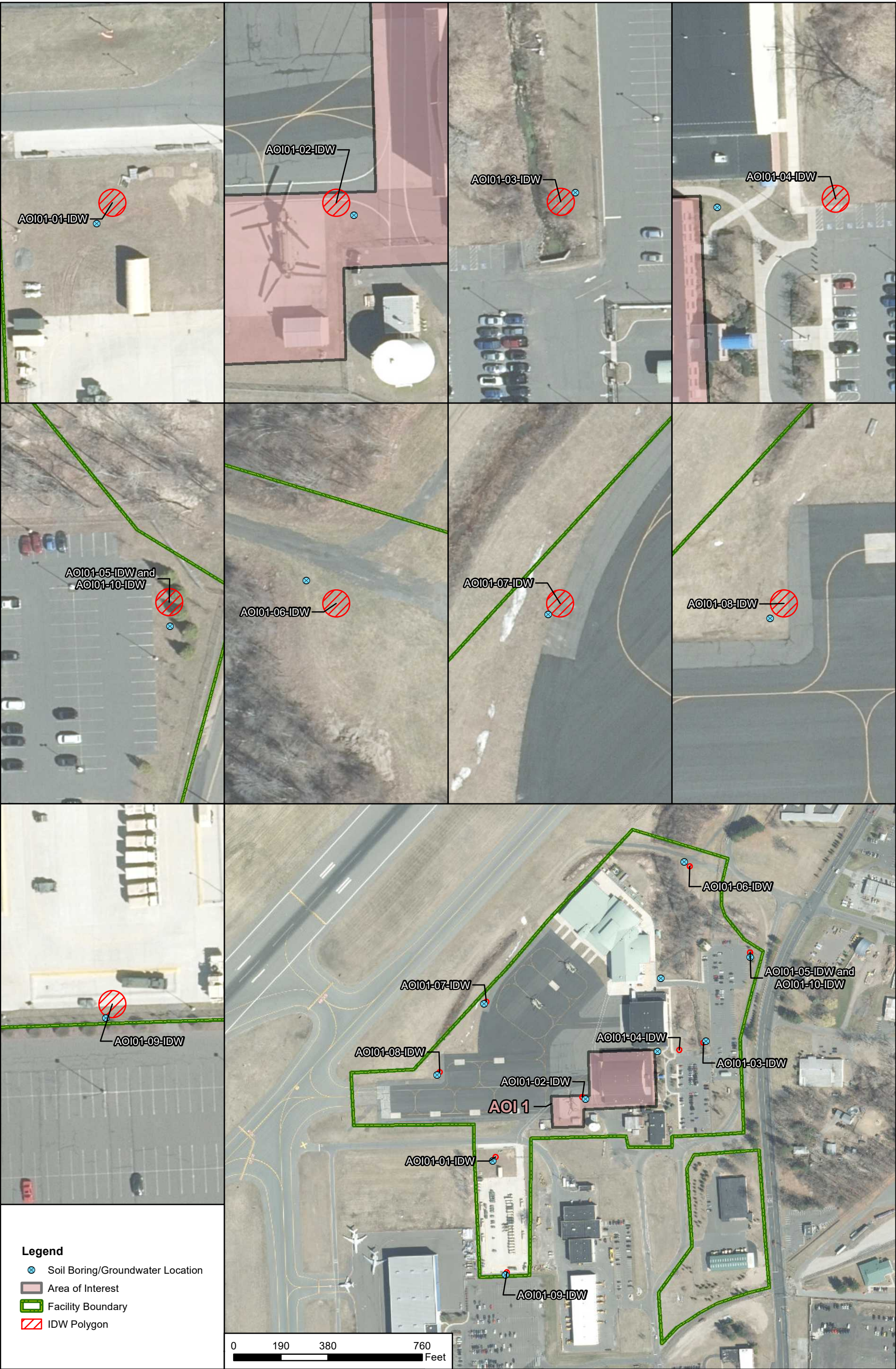
1. Survey performed by AECOM - Newark, Delaware.
2. All coordinates and elevations relate to Connecticut state plane datum (NAD83/NAVD88-12B).
3. Coordinates and elevations established by: Trimble R8 - VRS RTK GPS system operating on the KEYNET VRS System.
4. All coordinates and elevations are in U.S. survey feet.
5. T.O.C. = Top of PVC (No outer casing present).

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Appendix B5


Investigation-Derived Waste Polygons

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CLIENT		ARNG			
PROJECT		Site Inspection for PFAS at Windsor Locks AASF, CT			
REVISED	12/13/2021	GIS BY	MS	12/13/2021	
SCALE	1:840	CHK BY	JW	12/13/2021	
Base Map: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community		PM	CM	12/13/2021	



IDW Polygons		
	12420 Milestone Center Drive Germantown, MD 20876	Figure

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Appendix C

Photographic Log

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APPENDIX C – Photographic Log

Site Inspection for PFAS

Windsor Locks AASF

Windsor Locks, Connecticut

Photograph No. 1

Date: 04-15-2021

Time: 0925

Description:

AOI01-01

Proposed location
marked during site walk

Orientation:

WNW



Photograph No. 2

Date: 04-15-2021

Time: 0915

Description:

AOI01-02

Proposed location
marked during site walk

Orientation:

West



APPENDIX C – Photographic Log – Site Photos

Site Inspection for PFAS

Windsor Locks AASF

Windsor Locks, Connecticut

Photograph No. 3

Date: 04-15-2021

Time: 0945

Description:

AOI01-03

Proposed location
marked during site walk

Orientation:

SSW



Photograph No. 4

Date: 04-15-2021

Time: 0950

Description:

AOI01-04

Proposed location
marked during site walk

Orientation:

West



APPENDIX C – Photographic Log

Site Inspection for PFAS

Windsor Locks AASF

Windsor Locks, Connecticut

Photograph No. 5

Date: 04-15-2021

Time: 1000

Description:

AOI01-05

Proposed location
marked during site walk

Orientation:

NNW



Photograph No. 6

Date: 04-15-2021

Time: 1025

Description:

AOI01-05

Proposed location
marked during site walk

Orientation:

North



APPENDIX C – Photographic Log

Site Inspection for PFAS

Windsor Locks AASF

Windsor Locks, Connecticut

Photograph No. 7

Date: 04-15-2021

Time: 1040

Description:

AOI01-06

Proposed location
marked during site walk

Orientation:

Northwest



Photograph No. 8

Date: 04-15-2021

Time: 0910

Description:

AOI01-07

Proposed location
marked during site walk

Orientation:

South



APPENDIX C – Photographic Log

Site Inspection for PFAS

Windsor Locks AASF

Windsor Locks, Connecticut

Photograph No. 9

Date: 04-15-2021

Time: 0855

Description:

AOI01-09

Proposed location
marked during site walk

Orientation:

South



Photograph No. 10

Date: 04-15-2021

Time: 1010

Description:

AOI01-10

Proposed location
marked during site walk

Orientation:

East



APPENDIX C – Photographic Log

Site Inspection for PFAS

Windsor Locks AASF

Windsor Locks, Connecticut

Photograph No. 11

Date: 04-27-2021

Time: 1200

Description:

AOI01-09

Groundwater sampling

Orientation:

South



Photograph No. 12

Date: 04-29-2021

Time: 1030

Description:

AOI01-03

AECOM site survey team

Orientation:

West



APPENDIX C – Photographic Log

Site Inspection for PFAS

Windsor Locks AASF

Windsor Locks, Connecticut

Photograph No. 13

Date: 04-29-2021

Time: 1100

Description:

AECOM site survey team

Orientation:

Northwest



Photograph No. 14

Date: 04-29-2021

Time: 0855

Description:

AOI01-02

Adding bentonite for
monitoring well
abandonment

Orientation:

South



APPENDIX C – Photographic Log

Site Inspection for PFAS

Windsor Locks AASF

Windsor Locks, Connecticut

Photograph No. 15

Date: 04-29-2021

Time: 1140

Description:

AOI01-07

Removal of monitoring
 well for abandonment

Orientation:

Northeast



Photograph No. 16

Date: 04-27-2021

Time: 1040

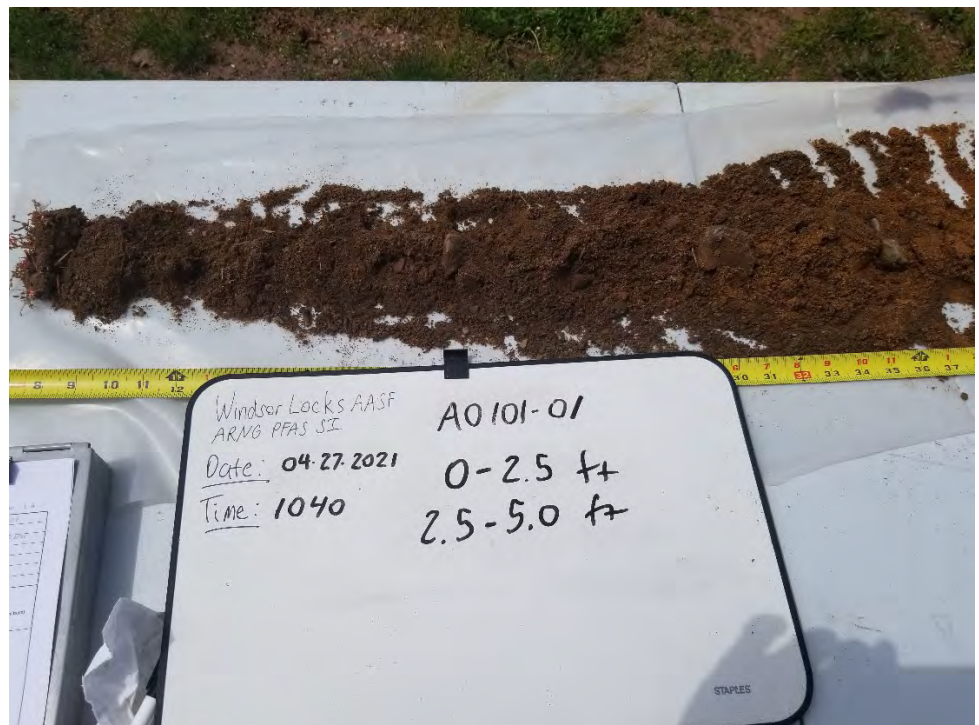
Description:

AOI01-01

0.0-2.5ft

Orientation:

NA



APPENDIX C – Photographic Log

Site Inspection for PFAS

Windsor Locks AASF

Windsor Locks, Connecticut

Photograph No. 17

Date: 04-27-2021

Time: 1040

Description:

AOI01-01

2.5-5.0 feet bgs

Orientation:

NA



Photograph No. 18

Date: 04-27-2021

Time: 1040

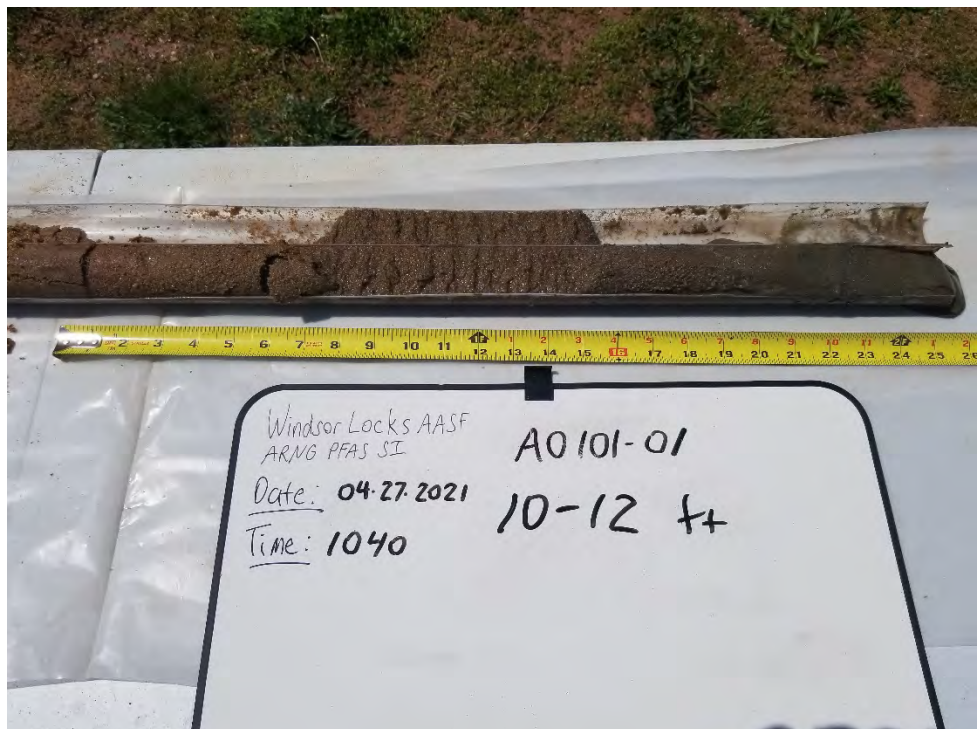
Description:

AOI01-01

10-12 feet bgs

Orientation:

NA



APPENDIX C – Photographic Log

Site Inspection for PFAS

Windsor Locks AASF

Windsor Locks, Connecticut

Photograph No. 19

Date: 04-27-2021

Time: 1040

Description:

AOI01-02

0.0-2.0 feet bgs

Orientation:

NA



Photograph No. 20

Date: 04-27-2021

Time: 1040

Description:

AOI01-02

2-5 feet bgs

Orientation:

NA



APPENDIX C – Photographic Log

Site Inspection for PFAS

Windsor Locks AASF

Windsor Locks, Connecticut

Photograph No. 21

Date: 04-27-2021

Time: 1040

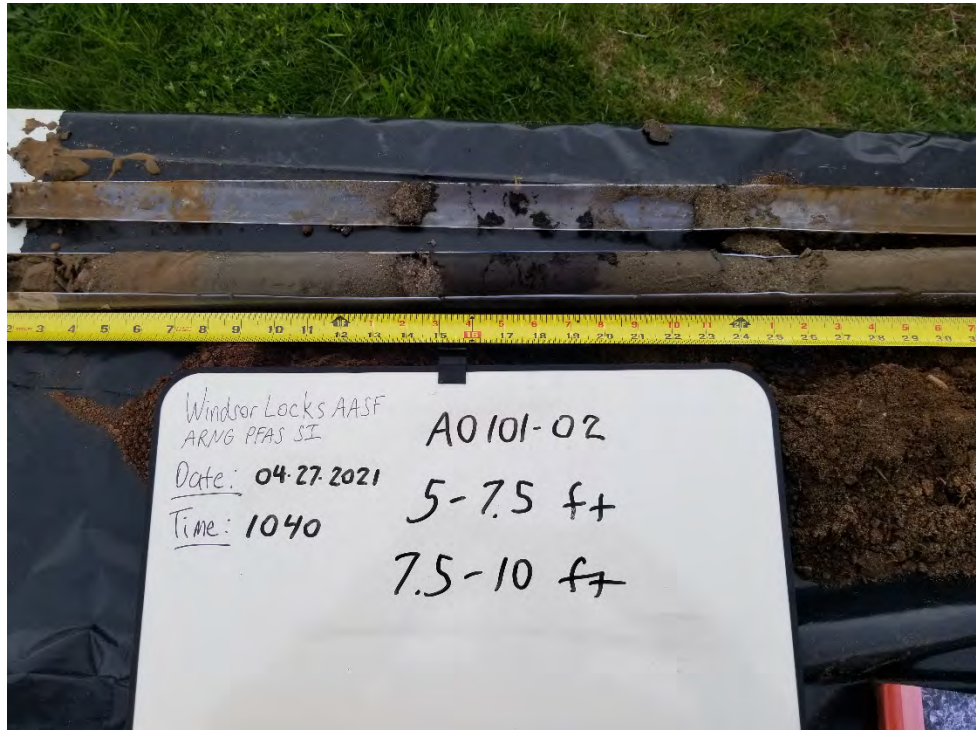
Description:

AOI01-02

5.0-7.5 feet bgs

Orientation:

NA



Photograph No. 22

Date: 04-27-2021

Time: 1040

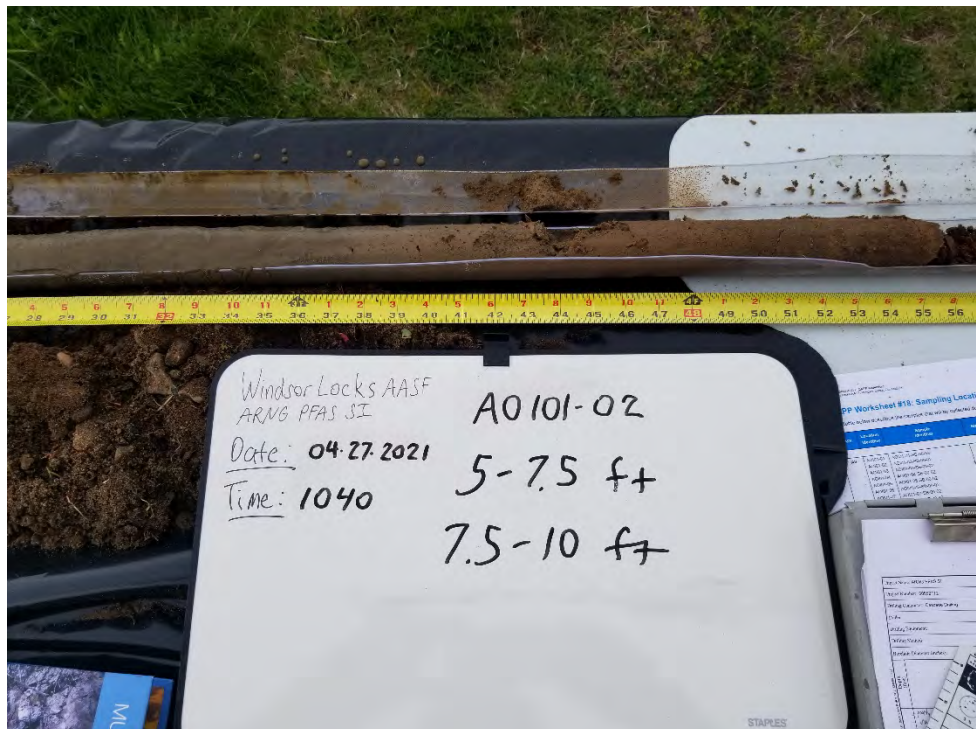
Description:

AOI01-02

7.5-10.0 feet bgs

Orientation:

NA



APPENDIX C – Photographic Log

Site Inspection for PFAS

Windsor Locks AASF

Windsor Locks, Connecticut

Photograph No. 23

Date: 04-27-2021

Time: 1040

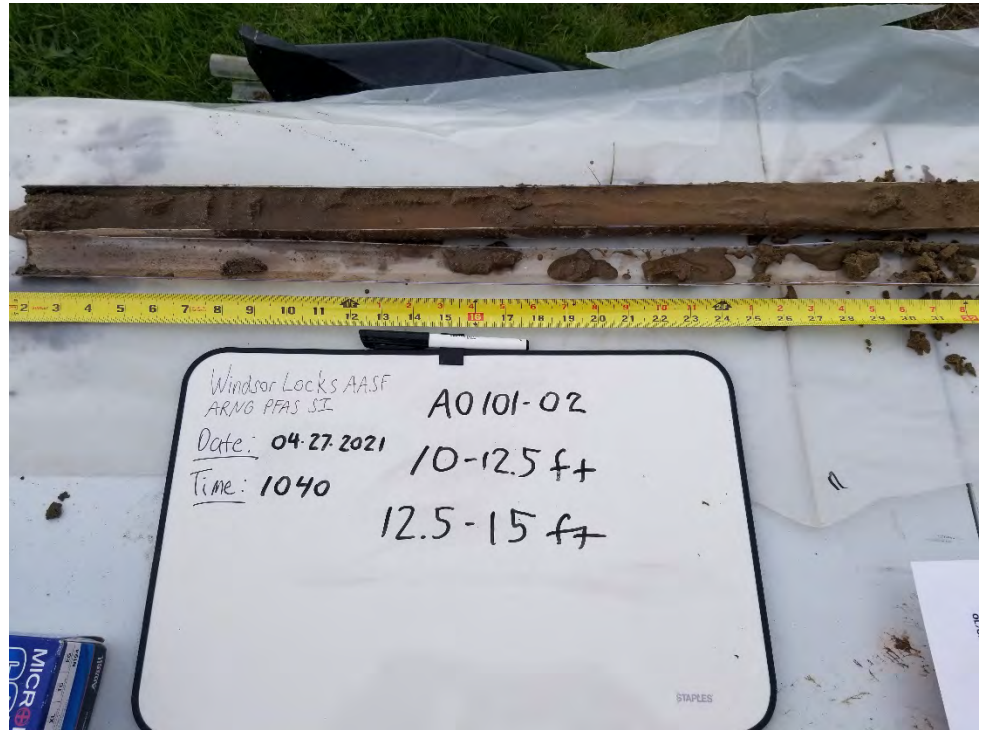
Description:

AOI01-02

10.0-12.5 feet bgs

Orientation:

NA



Photograph No. 24

Date: 04-27-2021

Time: 1040

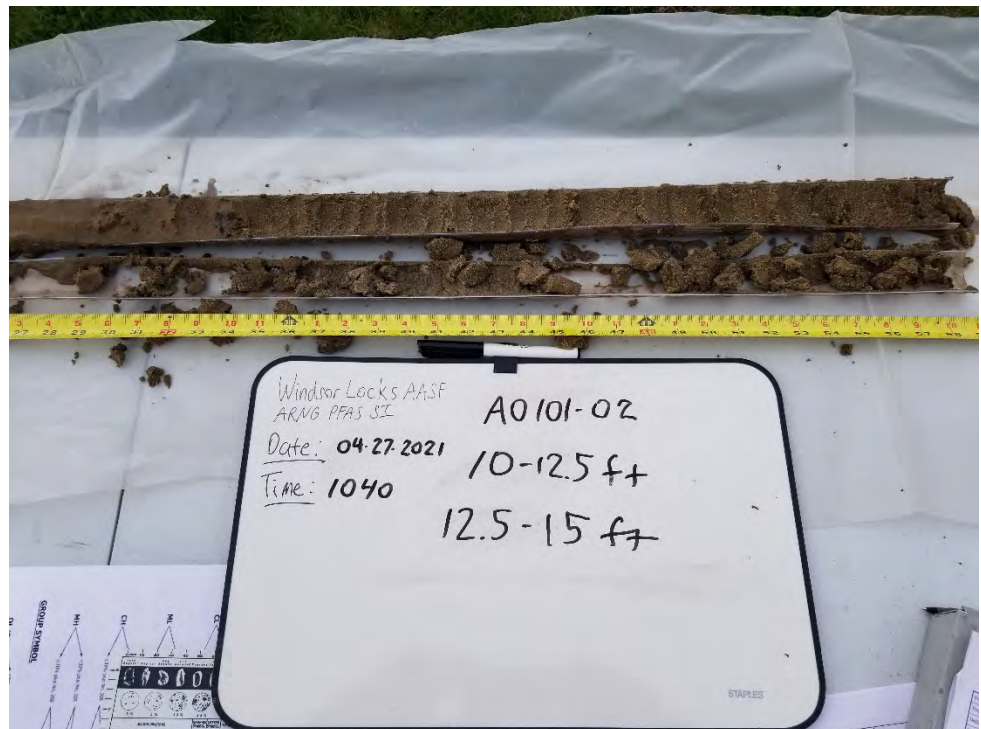
Description:

AOI01-02

12.5-5.0 feet bgs

Orientation:

NA



APPENDIX C – Photographic Log

Site Inspection for PFAS

Windsor Locks AASF

Windsor Locks, Connecticut

Photograph No. 25

Date: 04-29-2021

Time: 0800

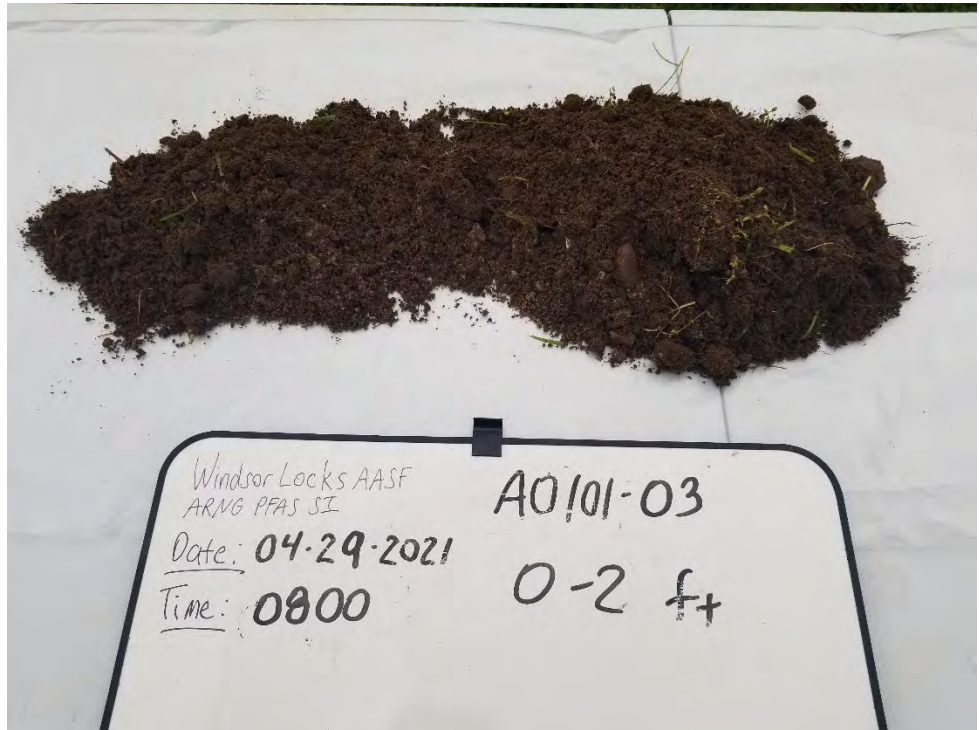
Description:

AOI01-03

0.0-2.0 feet bgs

Orientation:

NA



Photograph No. 26

Date: 04-29-2021

Time: 0800

Description:

AOI01-03

2.0-5.0 feet bgs

Orientation:

NA



APPENDIX C – Photographic Log

Site Inspection for PFAS

Windsor Locks AASF

Windsor Locks, Connecticut

Photograph No. 27

Date: 04-29-2021

Time: 0810

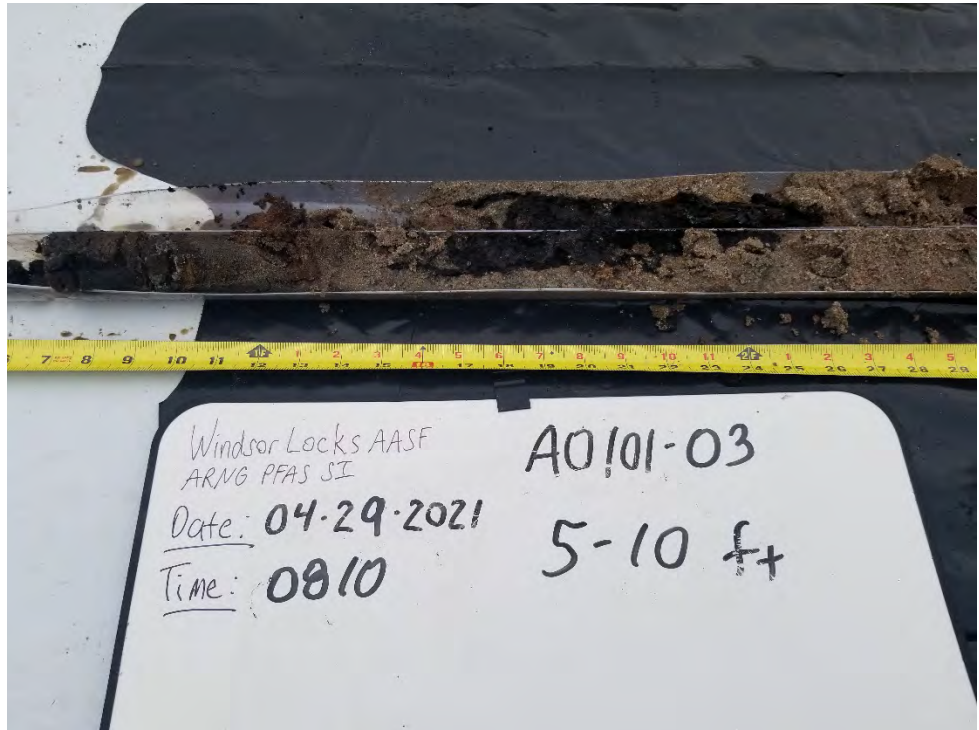
Description:

AOI01-03

5.0-7.5 ft of 5-10 foot
interval

Orientation:

NA



Photograph No. 28

Date: 04-29-2021

Time: 0810

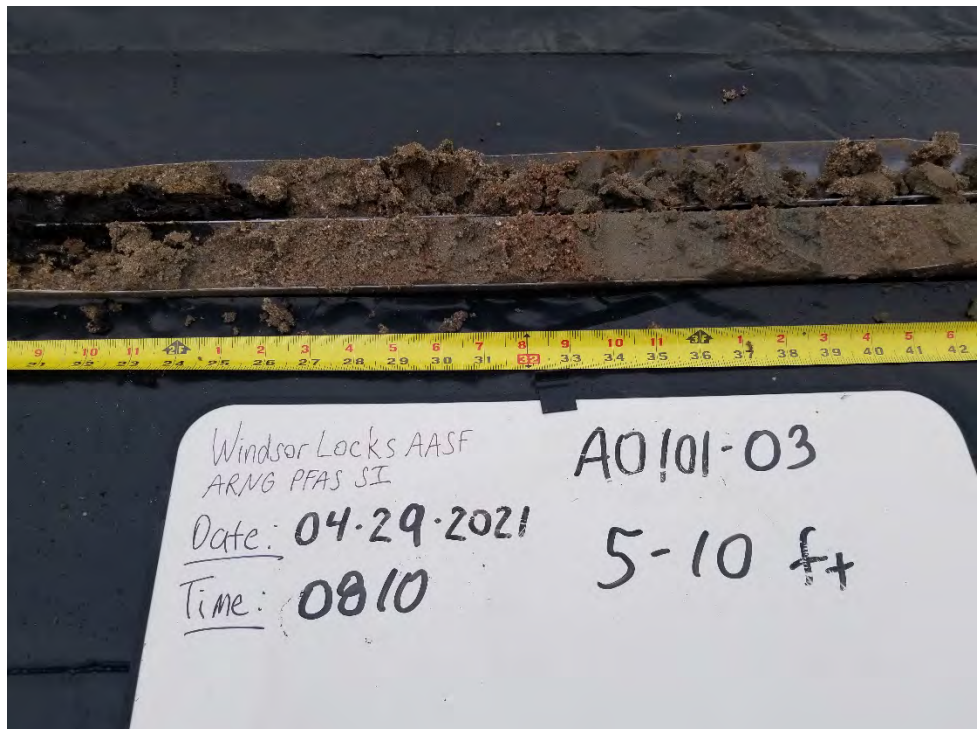
Description:

AOI01-03

7.5-8.5 ft of 5-10 foot
interval

Orientation:

NA



APPENDIX C – Photographic Log

Site Inspection for PFAS

Windsor Locks AASF

Windsor Locks, Connecticut

Photograph No. 29

Date: 04-29-2021

Time: 0810

Description:

AOI01-03

8-10 ft of 5-10 foot
interval

Orientation:

NA



Photograph No. 30

Date: 04-29-2021

Time: 0815

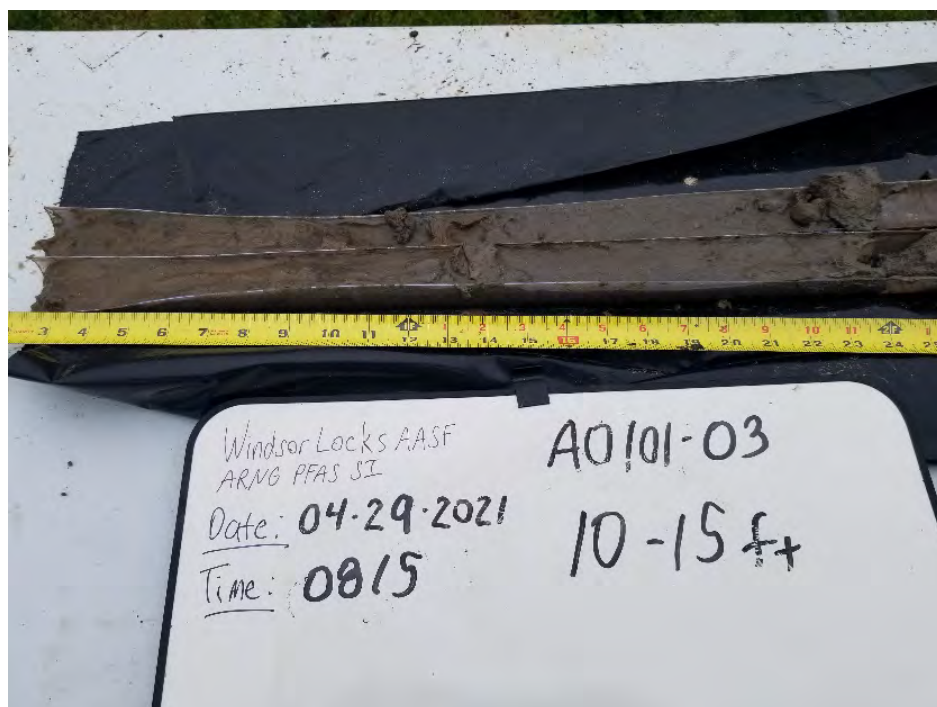
Description:

AOI01-03

10.0-12.0 ft of 10-15 foot
interval

Orientation:

NA



APPENDIX C – Photographic Log

Site Inspection for PFAS

Windsor Locks AASF

Windsor Locks, Connecticut

Photograph No. 31

Date: 04-29-2021

Time: 0815

Description:

AOI01-03

12.0-13.0 ft of 10-15 foot
interval

Orientation:

NA



Photograph No. 32

Date: 04-29-2021

Time: 0815

Description:

AOI01-03

13.0-15.0 ft of 10-15 foot
interval

Orientation:

NA



APPENDIX C – Photographic Log

Site Inspection for PFAS

Windsor Locks AASF

Windsor Locks, Connecticut

Photograph No. 33

Date: 04-29-2021

Time: 0855

Description:

AOI01-04

0-2.0 ft of 0-2 foot
interval

Orientation:

NA



Photograph No. 34

Date: 04-29-2021

Time: 0855

Description:

AOI01-04

2.0-5.0 ft of 2-5 foot
interval

Orientation:

NA



APPENDIX C – Photographic Log

Site Inspection for PFAS

Windsor Locks AASF

Windsor Locks, Connecticut

Photograph No. 35

Date: 04-29-2021

Time: 0905

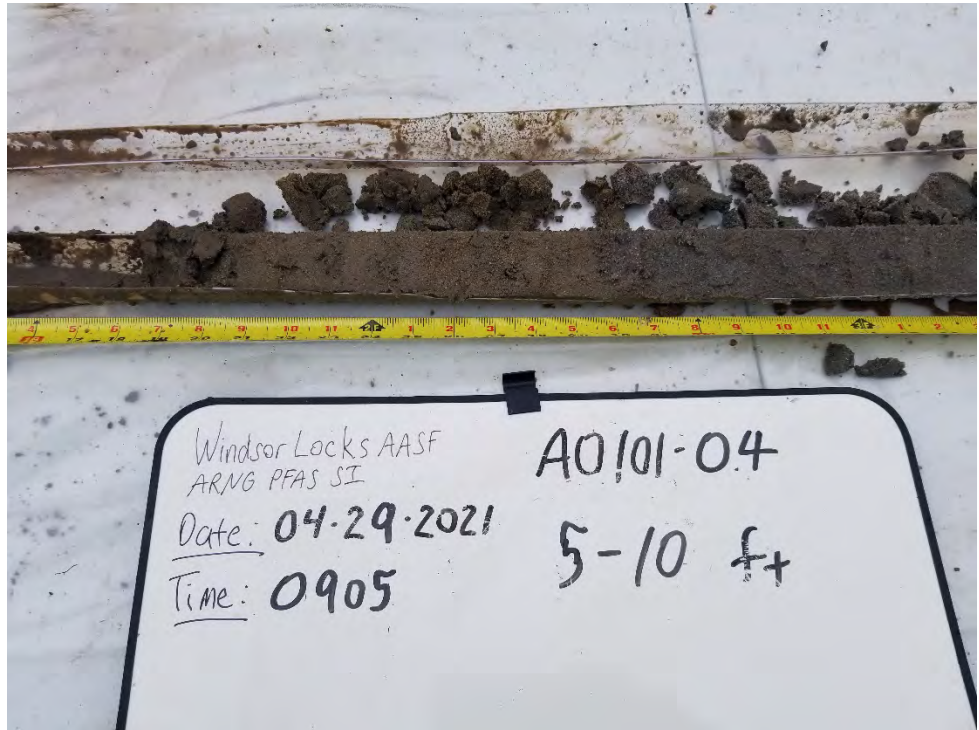
Description:

AOI01-04

5.0-7.5 ft of 5-10 foot interval

Orientation:

NA



Photograph No. 36

Date: 04-29-2021

Time: 0905

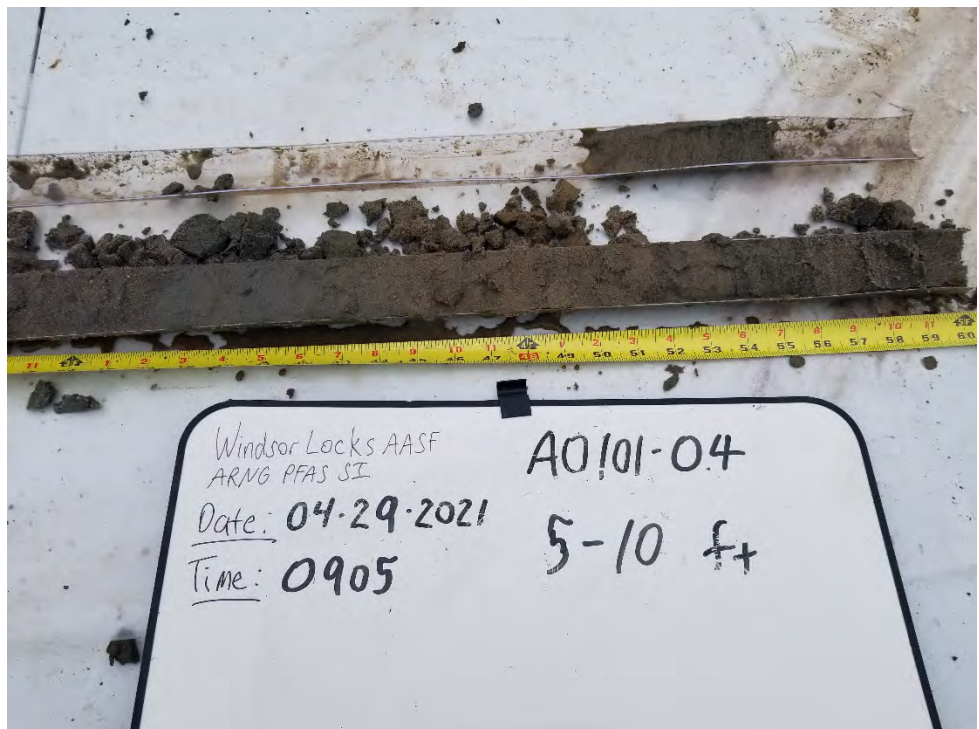
Description:

AOI01-04

7.5-10.0 ft of 5-10 foot interval

Orientation:

NA



APPENDIX C – Photographic Log

Site Inspection for PFAS

Windsor Locks AASF

Windsor Locks, Connecticut

Photograph No. 37

Date: 04-28-2021

Time: 1220

Description:

AOI01-05

0.0-2.0 ft of 0-2 foot
interval

Orientation:

NA



Photograph No. 38

Date: 04-28-2021

Time: 1225

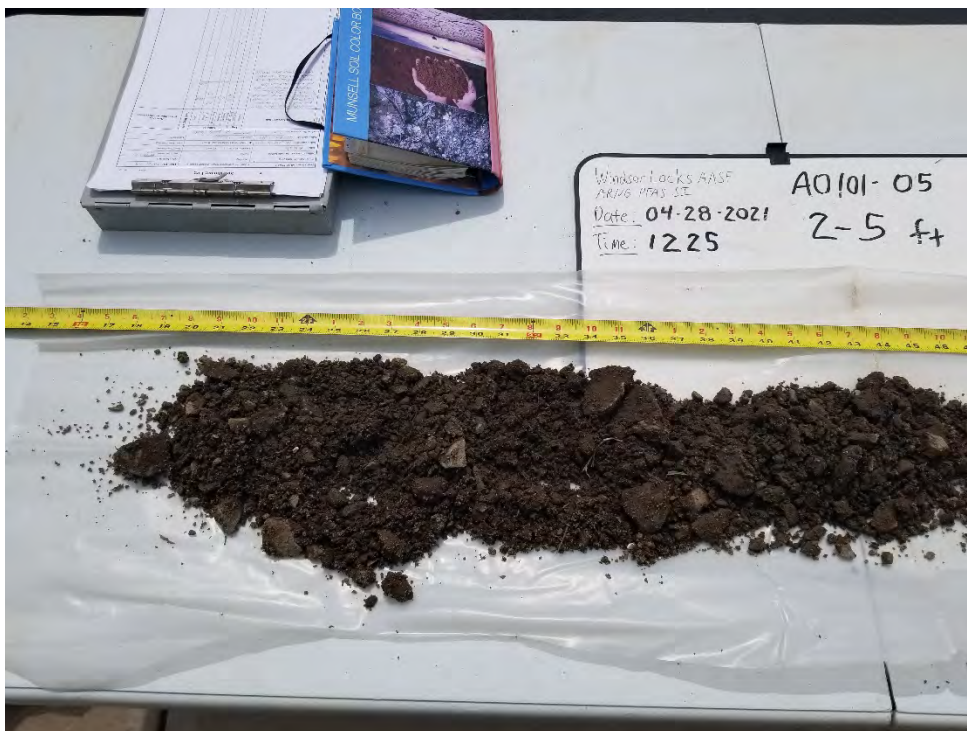
Description:

AOI01-05

2.0-5.0 ft of 2-5 foot
interval

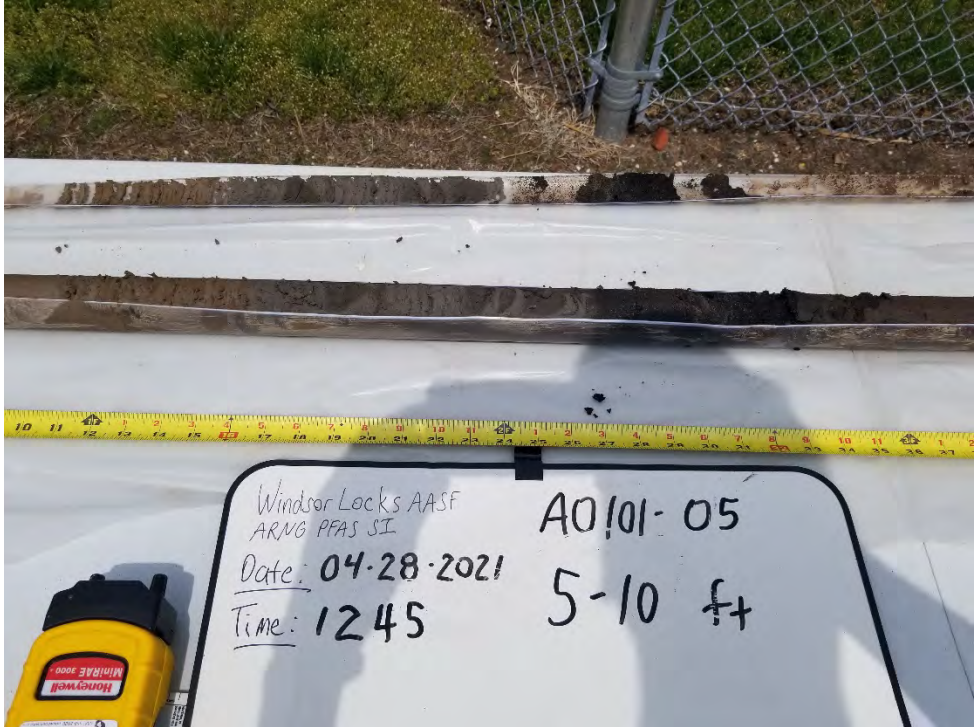
Orientation:

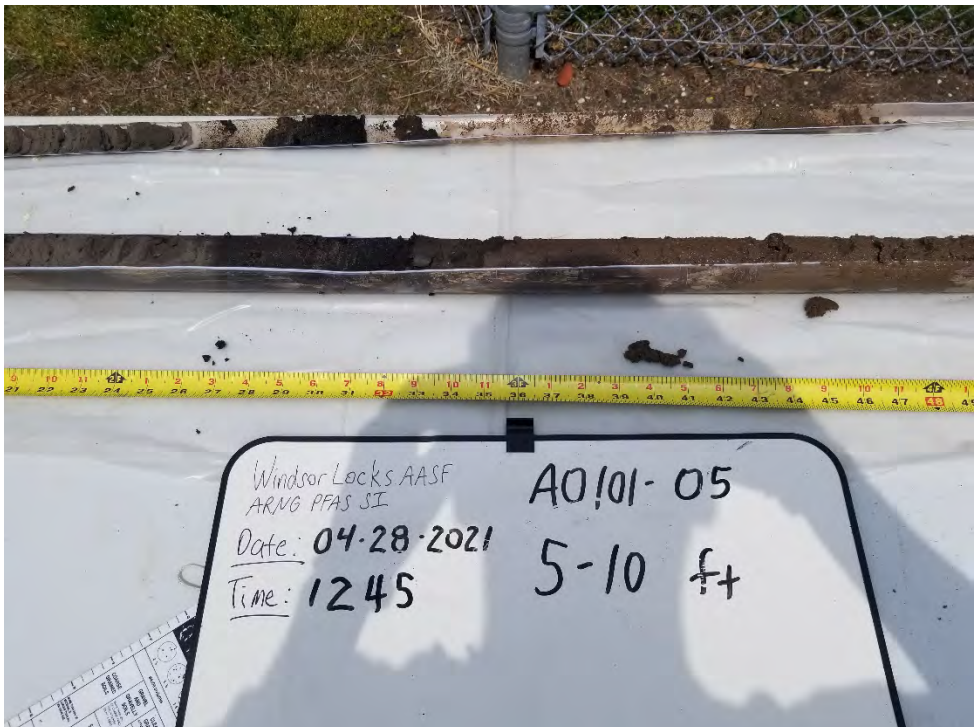
NA



APPENDIX C – Photographic Log

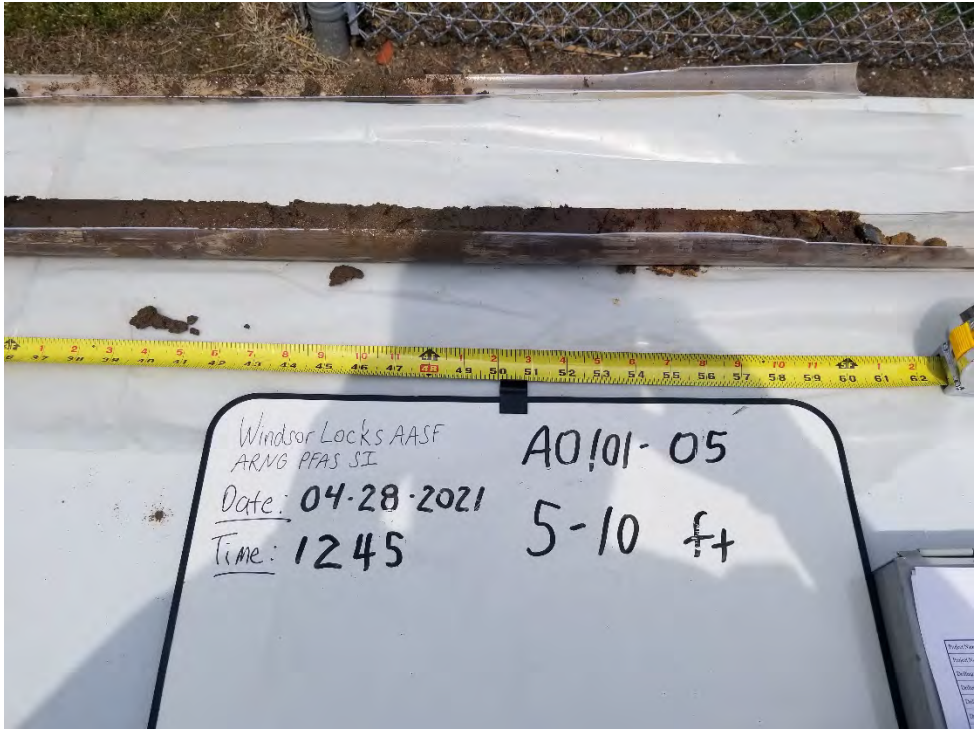
Site Inspection for PFAS	Windsor Locks AASF	Windsor Locks, Connecticut
--------------------------	--------------------	----------------------------


Photograph No. 39	
Date: 04-28-2021 Time: 1245	
Description: AOI01-05 5.0-7.5 ft of 5-10 foot interval	
Orientation: NA	

Photograph No. 40	
Date: 04-28-2021 Time: 1245	
Description: AOI01-05 7.5-8.5 ft of 5-10 foot interval	
Orientation: NA	

APPENDIX C – Photographic Log

Site Inspection for PFAS	Windsor Locks AASF	Windsor Locks, Connecticut
--------------------------	--------------------	----------------------------

Photograph No. 41	
Date: 04-28-2021 Time: 1245	
Description: AOI01-05 8.0-10.0 ft of 5-10 foot interval	
Orientation: NA	

Photograph No. 42	
Date: 04-28-2021 Time: 1255	
Description: AOI01-05 10-12.5 ft of 10-15 foot interval	
Orientation: NA	

APPENDIX C – Photographic Log

Site Inspection for PFAS

Windsor Locks AASF

Windsor Locks, Connecticut

Photograph No. 43

Date: 04-28-2021

Time: 1255

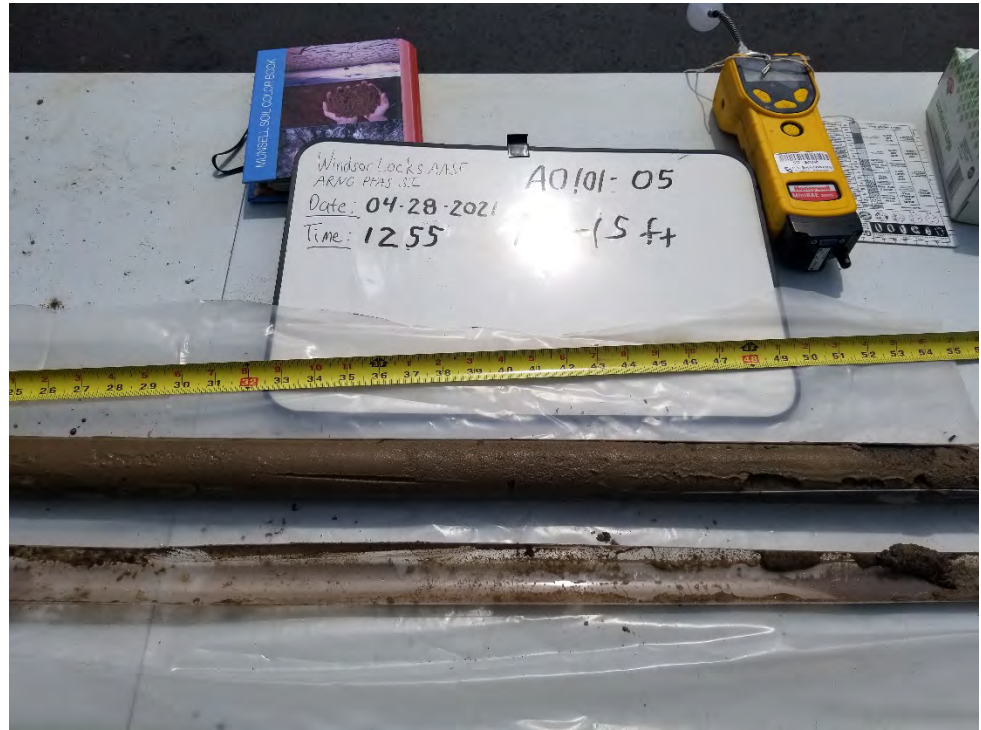
Description:

AOI01-05

12.5-15.0 ft of 10-15 foot interval

Orientation:

NA



Photograph No. 44

Date: 04-28-2021

Time: 0940

Description:

AOI01-06

0.0-2.0 ft of 0-2 foot interval

Orientation:

NA



APPENDIX C – Photographic Log

Site Inspection for PFAS

Windsor Locks AASF

Windsor Locks, Connecticut

Photograph No. 45

Date: 04-28-2021

Time: 1010

Description:

AOI01-06

5.0-10.0 ft of 5-10 ft
interval

Orientation:

NA



Photograph No. 46

Date: 04-28-2021

Time: 0845

Description:

AOI01-07

0.0-2.0 ft of 0-2 foot
interval

Orientation:

NA



APPENDIX C – Photographic Log

Site Inspection for PFAS

Windsor Locks AASF

Windsor Locks, Connecticut

Photograph No.47

Date: 04-28-2021

Time: 0850

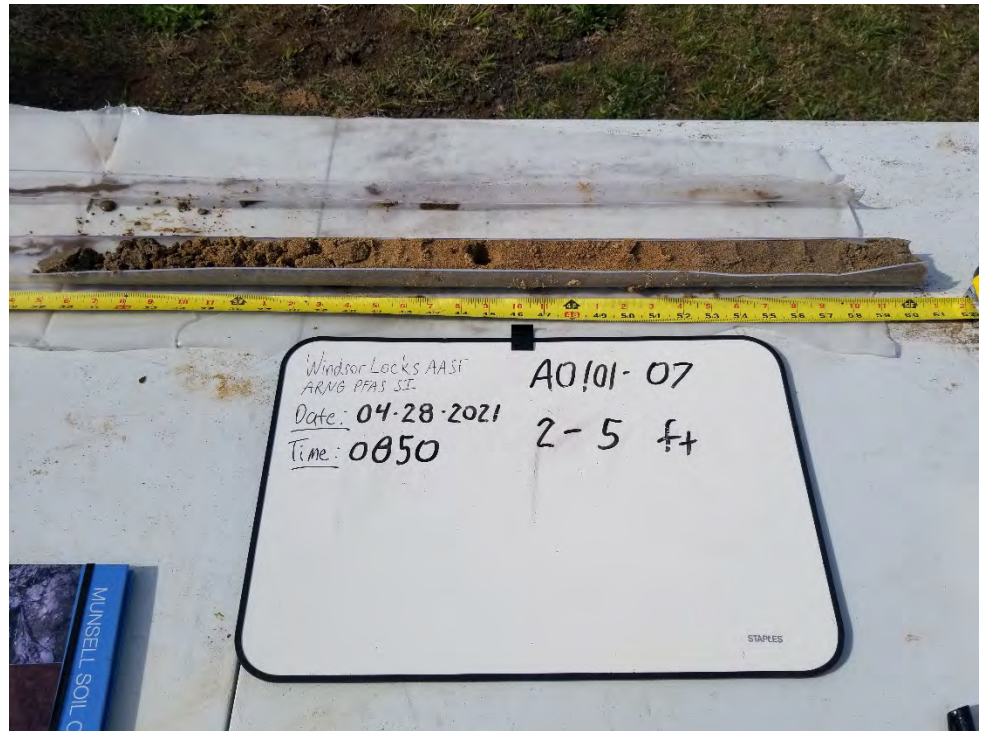
Description:

AOI01-07

2.0-5.0 ft of 2-5 foot interval

Orientation:

NA



Photograph No. 48

Date: 04-28-2021

Time: 0855

Description:

AOI01-07

5.0-7.5 ft of 5-10 foot interval

Orientation:

NA



APPENDIX C – Photographic Log

Site Inspection for PFAS

Windsor Locks AASF

Windsor Locks, Connecticut

Photograph No. 49

Date: 04-28-2021

Time: 0855

Description:

AOI01-07

7.5-10.0 ft of 5-10 foot
interval

Orientation:

NA



Photograph No. 50

Date: 04-28-2021

Time: 0910

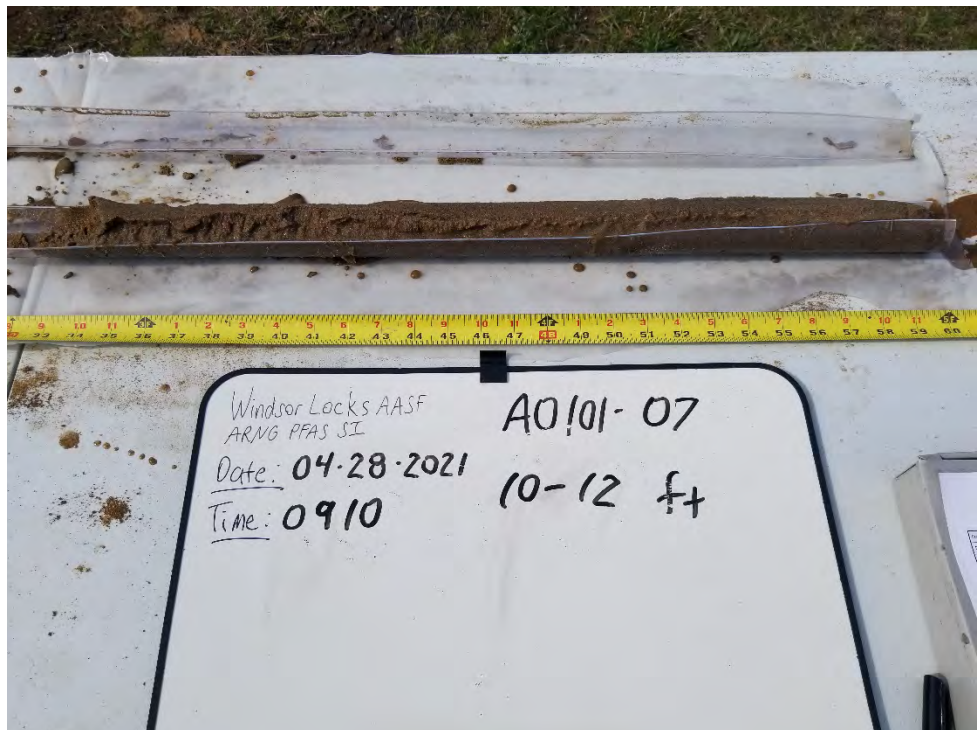
Description:

AOI01-07

10-12.0 ft of 10-12 foot
interval

Orientation:

NA



APPENDIX C – Photographic Log

Site Inspection for PFAS

Windsor Locks AASF

Windsor Locks, Connecticut

Photograph No. 351

Date: 04-28-2021

Time: 0750

Description:

AOI01-08

0.0-2.0 ft of 0-2 foot
interval

Orientation:

NA



Photograph No. 52

Date: 04-28-2021

Time: 0750

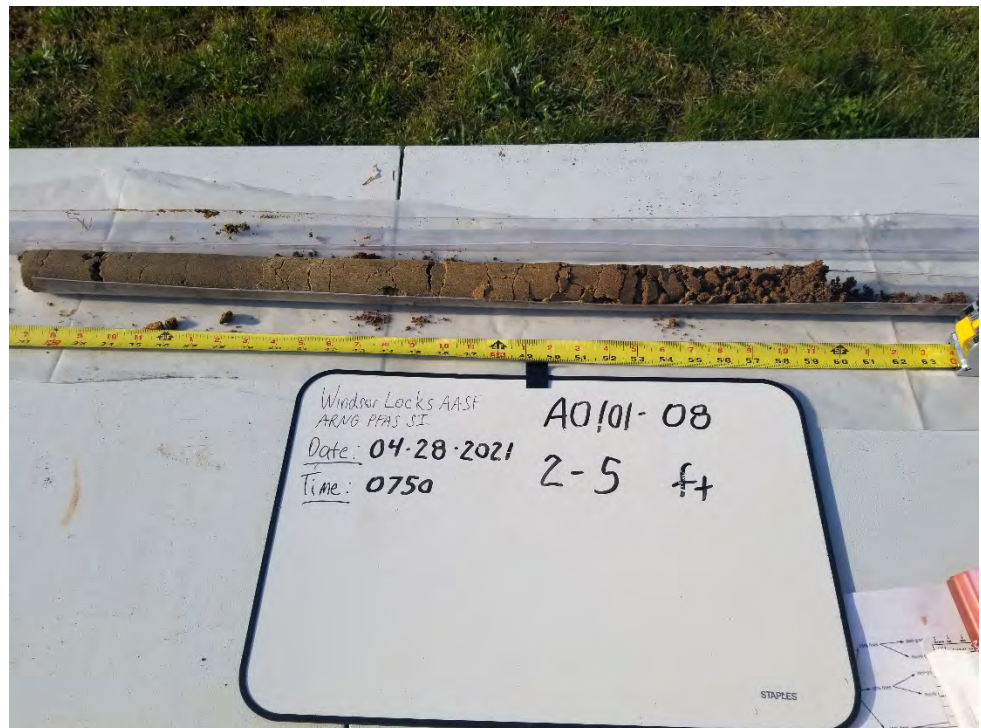
Description:

AOI01-08

2.0-5.0 ft of 2-5 foot
interval

Orientation:

NA



APPENDIX C – Photographic Log

Site Inspection for PFAS

Windsor Locks AASF

Windsor Locks, Connecticut

Photograph No. 53

Date: 04-28-2021

Time: 0800

Description:

AOI01-08

5.0-7.5 ft of 5-10 foot
interval

Orientation:

NA



Photograph No. 54

Date: 04-28-2021

Time: 0800

Description:

AOI01-08

7.5-10.0 ft of 5-10 foot
interval

Orientation:

NA



APPENDIX C – Photographic Log

Site Inspection for PFAS

Windsor Locks AASF

Windsor Locks, Connecticut

Photograph No. 55

Date: 04-27-2021

Time: 1405

Description:

AOI01-09

0.0-5.0 ft of 0-5 foot interval

Orientation:

NA



Photograph No. 56

Date: 04-27-2021

Time: 1410

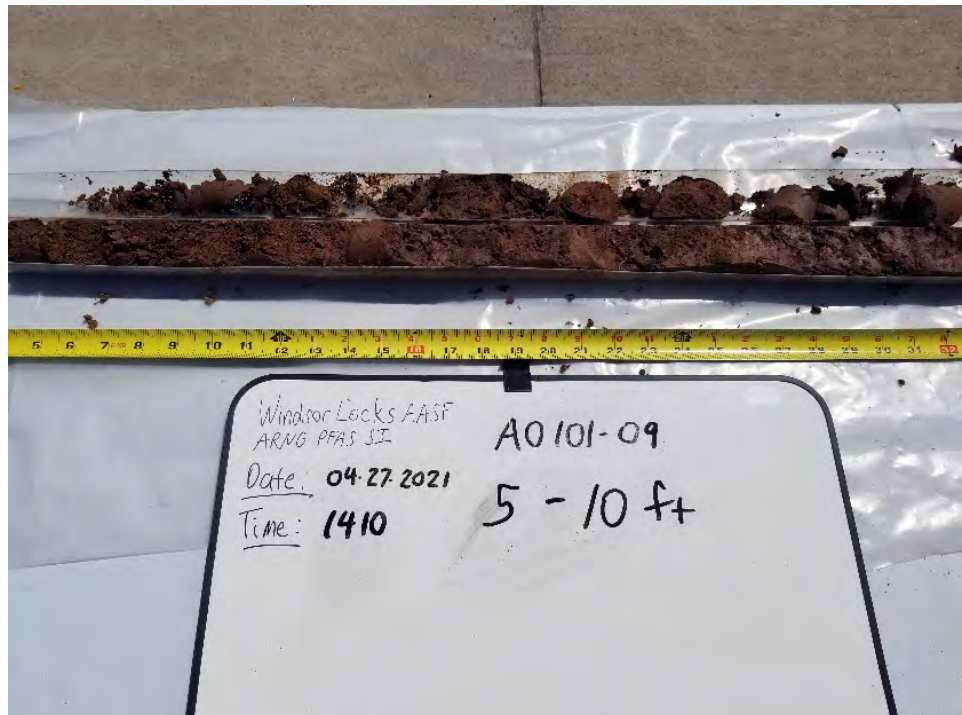
Description:

AOI01-09

5.0-7.5 ft of 5-10 foot interval

Orientation:

NA



APPENDIX C – Photographic Log

Site Inspection for PFAS

Windsor Locks AASF

Windsor Locks, Connecticut

Photograph No. 57

Date: 04-27-2021

Time: 1410

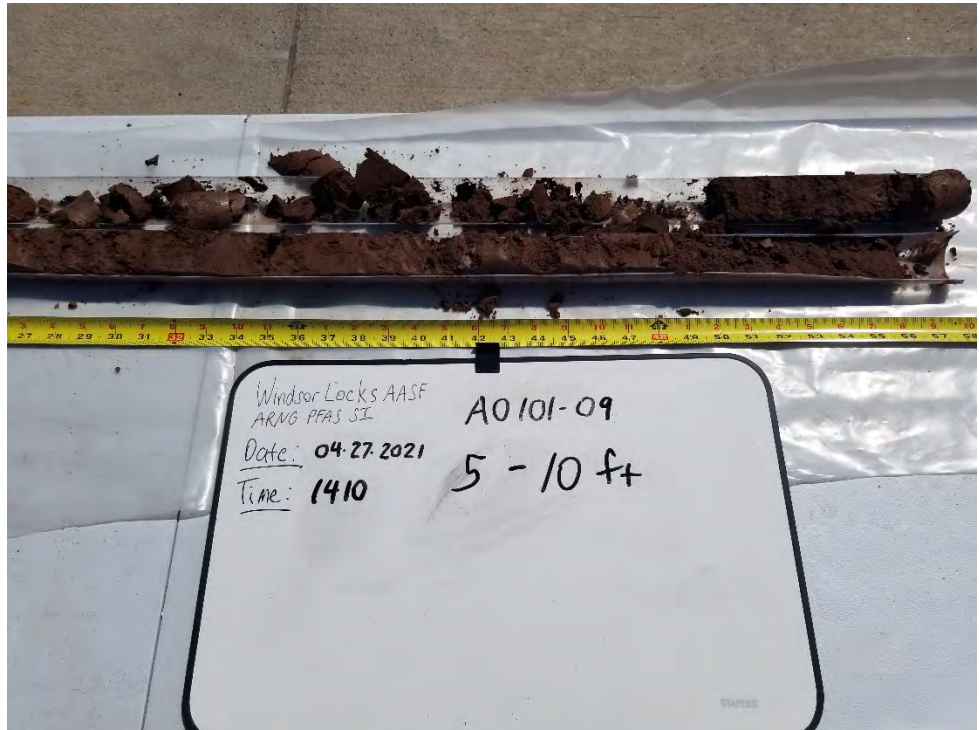
Description:

AOI01-09

7.5-10.0 ft of 5-10 foot interval

Orientation:

NA



Photograph No. 58

Date: 04-27-2021

Time: 1420

Description:

AOI01-09

10.0-12.5 ft of 10-15 foot interval

Orientation:

NA



APPENDIX C – Photographic Log

Site Inspection for PFAS

Windsor Locks AASF

Windsor Locks, Connecticut

Photograph No. 59

Date: 04-27-2021

Time: 1420

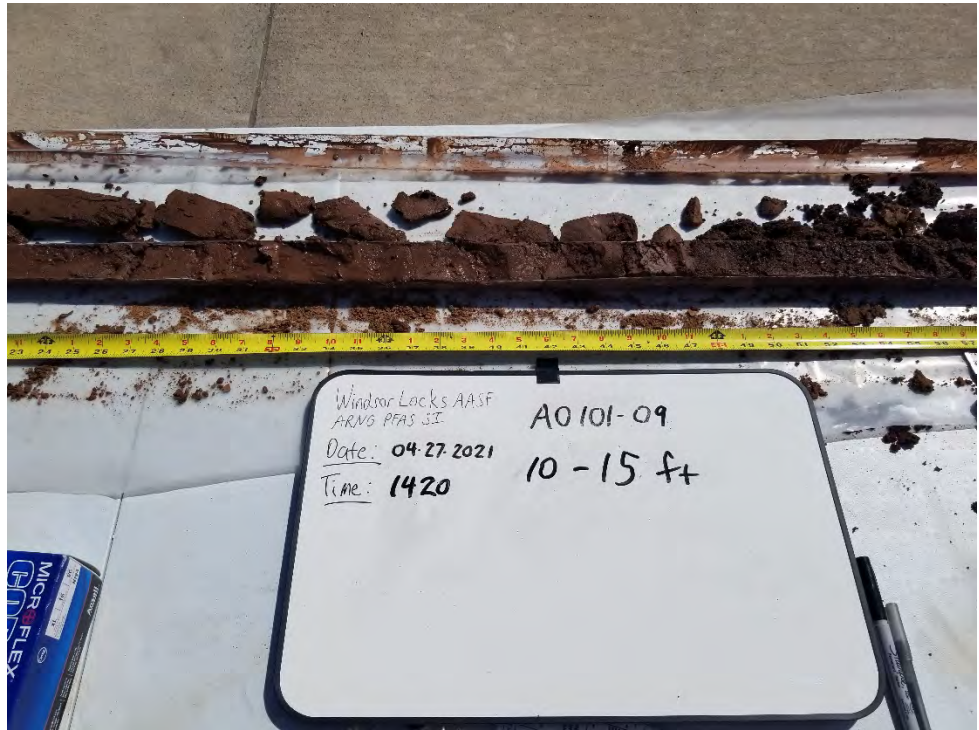
Description:

AOI01-09

12.5-15.0 ft of 10-15 foot interval

Orientation:

NA



Photograph No. 60

Date: 04-28-2021

Time: 1405

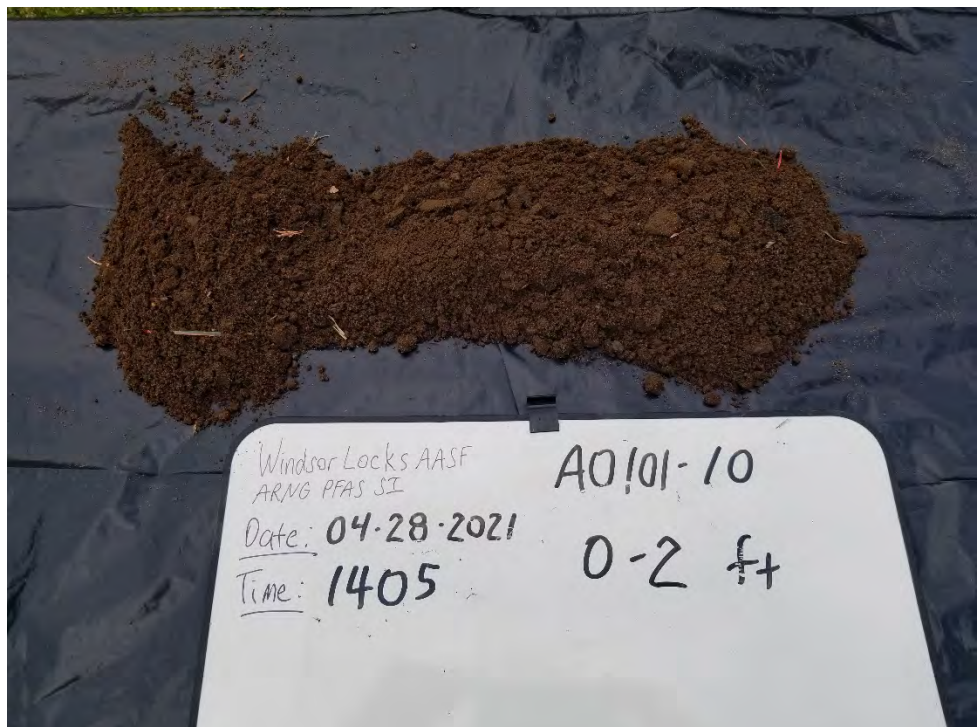
Description:

AOI01-10

0.0-2.0 ft of 0-2 foot interval

Orientation:

NA



APPENDIX C – Photographic Log

Site Inspection for PFAS

Windsor Locks AASF

Windsor Locks, Connecticut

Photograph No. 61

Date: 04-28-2021

Time: 1410

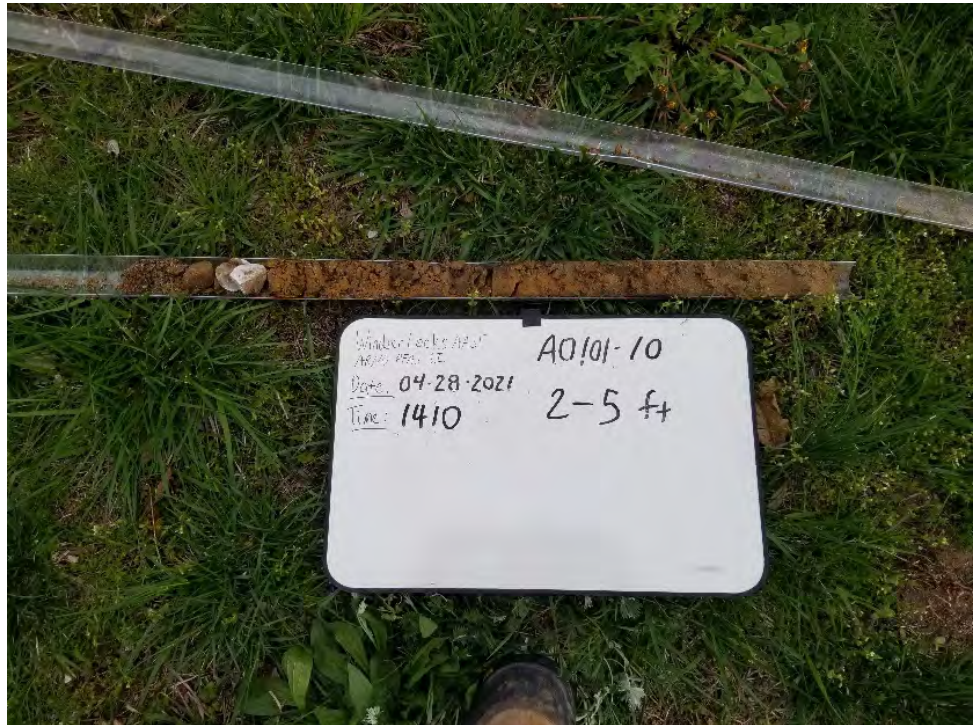
Description:

AOI01-10

2.0-5.0 ft of 2-5 foot
interval

Orientation:

NA



Photograph No. 62

Date: 04-28-2021

Time: 1420

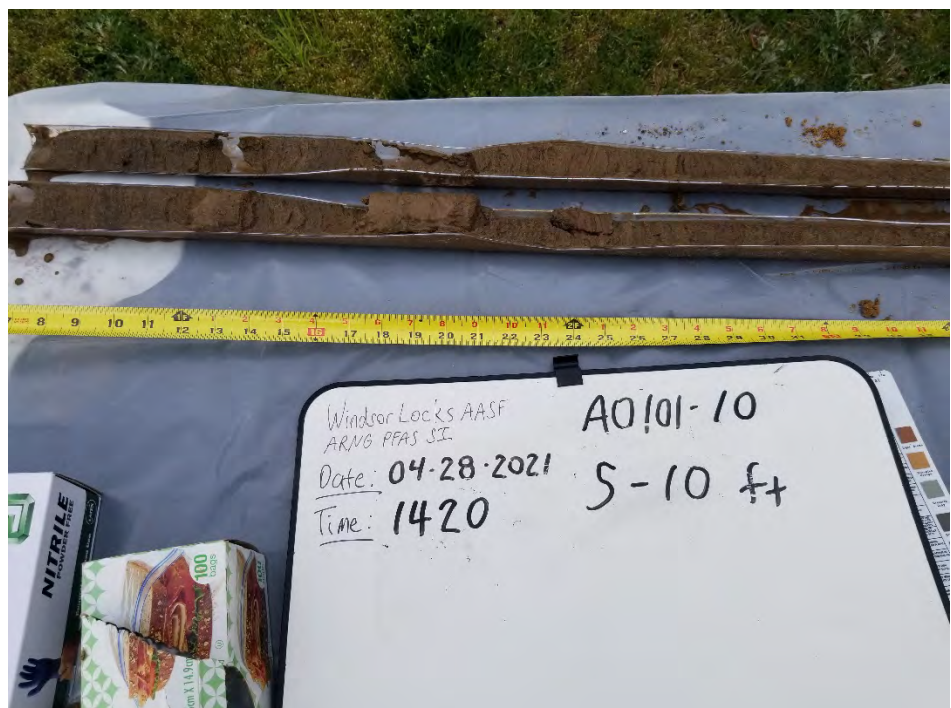
Description:

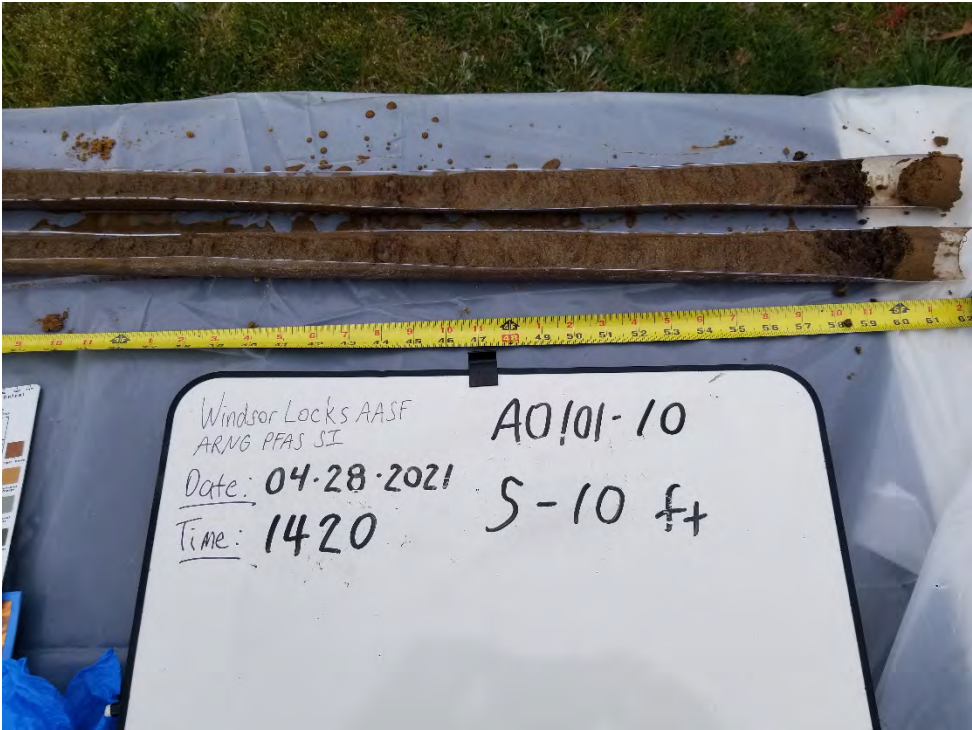
AOI01-10

5.0-7.5 ft of 5-10 foot
interval

Orientation:

NA



Photograph No. 63	 A photograph showing two long, horizontal soil samples resting on a white plastic sheet. A yellow measuring tape is placed below the samples, indicating their length. In the foreground, a white label with handwritten text is visible. The text on the label includes 'Windsor Locks AASF', 'ARNG PFAS SI', 'Date: 04-28-2021', 'Time: 1420', 'AOI01-10', and '5-10 ft'. The background shows green grass.
Date: 04-28-2021 Time: 1420	
Description: AOI01-10 7.5-10.0 ft of 5-10 foot interval	
Orientation: NA	

Appendix D

TPP Meeting Minutes

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Meeting Minutes
Windsor Locks Army Aviation Support Facility – Site Inspection (SI)
Technical Project Planning (TPP) – Meeting 3
Preliminary Assessments and Site Inspections (PA/SIs) for Perfluorooctanesulfonic Acid (PFOS)
and Perfluorooctanoic Acid (PFOA) Impacted Sites
Contract No. W912DR-12-D-0014, DO W912DR17F0192
Tuesday, 4 January 2022
1330-1440 EST

Participants			
Name	Affiliation*	Phone	E-Mail
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Kim Berg	USACE	410-962-3656	Kimberly.A.Berg@usace.army.mil
Jordan Martin	CTARNG	860-493-2727	jordan.e.martin4.nfg@army.mil
Jade Barber	CTDEEP	-	Jade.Barber@ct.gov
Shannon Pociu	CTDEEP	860-424-3546	Shannon.Pociu@ct.gov
Naomi Ouellette	AECOM	508-562-0913	naomi.ouellette@aecom.com
Joe Witte	AECOM	301-300-9873	joe.witte@aecom.com

*ARNG G9 – Army National Guard G9; USACE – United States Army Corps of Engineers; CTARNG – Connecticut Army National Guard; CTDEEP – Connecticut Department of Energy and Environmental Protection

Mr. Joe Witte (AECOM) welcomed participants and reviewed the purpose of the meeting, outlined the agenda, and led a roundtable of introductions for everyone on the virtual Technical Project Planning (TPP) 3 meeting. The meeting purpose was to discuss the Army National Guard (ARNG) Per- and Polyfluoroalkyl Substance (PFAS) Preliminary Assessment (PA)/Site Inspection (SI) program and the results of the SI for PFAS at the Windsor Locks Army Aviation Support Facility (AASF) in Connecticut (CT).

Briefing slides are included as **Attachment A**. Key points discussed during the presentation are provided below. Additionally, a safety moment that discussed safe tips for driving during Winter was shared with the participants.

Programmatic Discussion (Slides 5-7):

- The meeting goals for the TPP meetings included in the ARNG PFAS program were presented.
 - o The combined TPP 1 and 2 provided an overview of the ARNG PA/SI program, reviewed the PA findings, and discussed the approach of the SI at Windsor Locks AASF.
 - o TPP 3 presented the SI results, resolved comments/concerns to gain concurrence on the SI Report, and discussed future actions at the Site.
- The program follows the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) progress. The CERCLA process was reviewed, and a CERCLA status overview of the site was provided:
 - o The Final PA Report for Windsor Locks AASF was issued in February 2020.
 - o The SI fieldwork was completed in April 2021.
 - o The Draft Final SI Report was transmitted to the Connecticut Department of Energy and Environmental Protection in October 2021 and concurrence was received in November 2021.

PA Summary of Findings (Slides 8-10):

- A brief overview of the PA findings were presented. During the PA, two potential source areas were identified and grouped into one Area of Interest (AOI). The identified release areas included:
 - o Wash Rack
 - o Building 152 (South Hangar)
- The potential PFAS release areas were attributed to firefighting training and aqueous film forming foam (AFFF) storage in the hangar fire suppression system.
- The PA also identified offsite potential PFAS release areas within 4 miles of the Site, which included the Bradley International Airport terminal, runways, and fire department; private commercial

hangars located around the airport, the Connecticut Fire Academy, and the Connecticut Air National Guard Bradley Base.

- The identified offsite, adjacent, potential PFAS release areas are considered generally upgradient of AOI 1 and were not investigated as part of the SI.

SI Data Quality Objectives and Screening Levels (Slides 11-12):

- The primary data quality objectives (DQOs) established for the SI included confirming the presence or absence of a release at the potential PFAS release areas, as well as gathering data to refine the CSM.
 - o Enhanced DQOs for the SI included determining the presence/absence of PFAS at the facility boundary, checking for alternate sources, and measuring PFAS at/near receptors, if warranted.
- The Department of Defense (DoD) has adopted a policy to retain facilities in the CERCLA process based on risk-based screening levels (SLs) for soil and groundwater. Programmatically, the SLs used were established in a memorandum from the Office of the Secretary of Defense (OSD), dated 15 September 2021, and apply to three compounds: PFOA, PFOS, and perfluorobutane sulfonic acid (PFBS). The SLs were calculated using the USEPA Office of Superfund Sites On-Line Calculator, which was updated on 8 April 2021 based on the release of the final Human Health Toxicity Values for PFBS (USEPA, 2021).
 - o If the maximum concentration for sampled media were to exceed the SLs established in the OSD memorandum, the AOI would proceed to the next phase under CERCLA, which is the Remedial Investigation (RI).

Conceptual Site Model (Slides 13-14):

- Mr. Witte provided a brief summary of the conceptual site model (CSM), including geology, hydrogeology, and hydrology of the Site.
 - o The AASF is located within the Stoney Brook Watershed and is drained by Spencer Brook, which is located about 300 feet northwest of the site. Spencer brook subsequently flows into Stoney Brook, which then continues on to the Connecticut River about 5.3 miles further downstream. There is also a drainage swale near the eastern boundary of the facility that flows north off the facility.
 - o Groundwater was encountered between 3 and 8 feet below ground surface (bgs) during the SI.
 - o In general, groundwater at the facility flows northeast towards the drainage swale; however, groundwater east of the swale appears to flow west towards the swale. So, it is presumed that the swale acts as a local convergence for shallow groundwater before flowing north.

SI Summary of Approach (Slides 15-16):

- Fieldwork included the installation of temporary monitoring wells using direct push technology (DPT) for the collection grab groundwater samples.
- Soil samples were collected from each boring location at the surface, above the water table, and at the mid-point between except at locations where groundwater was encountered at or above 6 feet bgs.
- In total, 26 soil samples were collected from 10 locations, and 10 grab groundwater samples were collected from 10 temporary wells.

SI Summary of Findings (Slides 17-28):

- Groundwater elevation data collected from the 10 temporary wells demonstrated a convergence of groundwater flow around the drainage swale on the eastern half of the facility. Groundwater across the majority of the facility, west of the drainage swale, flows to the northeast. East of the swale, groundwater flows west towards it. It is presumed that the groundwater at the point of the swale follows surface water flow and topography and flows north.
- In the groundwater samples, PFOA and PFOS were detected above their respective SLs at AOI 1, and upgradient and downgradient facility boundary locations. The highest concentrations were found in samples east of the drainage swale (upgradient of known source areas) and west of the

facility tarmac (upgradient of known source areas). PFBS concentrations did not exceed its SL in groundwater samples.

- The PFAS concentrations detected at upgradient facility boundary locations are unlikely attributable to ARNG activities due to the observed groundwater flow direction.
 - Figures showing the locations of detected PFAS concentrations in groundwater samples were presented.
- In soil, PFOA, PFOS and PFBS were detected; however, the detections were all below the SLs. The maximum concentrations of PFOA, PFOS and PFBS were 0.491 micrograms per kilogram (µg/kg), 41.5 µg/kg, and 0.177 µg/kg, respectively.
 - The maximum detected concentrations of PFAS in soil were not encountered at AOI 1; however, PFOS and PFBS were detected in shallow surface soil downgradient of the Wash Rack and Building 152. These detections indicate a likely release of PFAS-containing materials at the AOI attributable to ARNG activities.
 - Figures showing the locations of detected PFAS concentrations in soil samples were presented.
- Dr. Bonnie Packer (ARNG G9) discussed the Relative Risk Scoring Evaluation (RRSE) ranking process for all ARNG facilities moving forward to the Remedial Investigation (RI) stage, which heavily weighs the potential for drinking water receptors to be impacted, and invited CTDEEP to provide any materials or rationale that may inform the ranking of the Windsor Locks AASF.
 - Shannon Pociu (CTDEEP) asserted that CTDEEP will look into providing Geographic Information System (GIS) data that may be useful in identifying private wells in the vicinity of the facility and Spencer Brook. It is understood that the residential areas in the vicinity of the facility are serviced by public water, but it is possible that unlisted private wells exist.
 - Jordan Martin (CTARNG) stated that CTARNG will look into prior use of the facility property by the Air National Guard to help understand SI PFAS concentration data on the eastern side of the facility. CTDEEP may also assist in providing historical documents, if any can be identified, to this end. There is the potential for prior uses by ANG to have extended beyond the current ARNG facility boundaries.
 - Agricultural land has been identified north/northwest of the facility. ARNG stated that notifying downgradient agricultural properties within one mile of the property may be required moving forward.
- The group discussed the presence of high PFAS concentrations in AOI01-03, which is east of the drainage swale on facility and considered to be upgradient of the known AOI source areas.
 - A building formerly occupied by the CTARNG's Civil Support Team, which responds to biohazard and chemical emergencies, exists south of this sample location and in-line with a concrete culvert that discharges near the sample location. CTARNG will provide relevant historical information, if available, on the building's use.
- Dr. Bonnie Packer clarified that although groundwater concentration data shows exceedances of PFAS SLs at the facility boundary locations in an upgradient direction, the presence of PFAS in surface soil at the known release locations indicates a release occurred at the AOI that is likely attributable to ARNG activities. This facilitated the decision to move this facility forward to an RI.
- The revised CSM figure was presented for AOI 1. The sources of the releases at AOI 1 are the use of AFFF during firefighting training and the storage of AFFF in the Building 152 fire suppression system, which may have resulted in PFAS releases to surface or subsurface soil, and surface water. Through human activities, precipitation and runoff, or leaching and infiltration, the exposure pathways may be potentially complete for the following:
 - The inhalation of dust by site workers, construction workers, off-facility residents, and trespassers or downgradient recreational users.
 - Ingestion of surface soil by site workers, construction workers, and trespassers or downgradient recreational users.
 - The ingestion of surface water or sediment by site workers, construction workers, off-facility residents, and trespassers or downgradient recreational users.
 - The ingestion of subsurface soil by construction workers.
 - The potential ingestion of shallow impacted groundwater by construction workers, off-facility residents, and trespassers or downgradient recreational users.

FINAL

Next Steps (Slide 29):

- The group reviewed the next steps and schedule to finalize the SI Report. Because CTDEEP concurrence was already received at the time of the TPP3, finalization of the SI Report was expected shortly.
- Based on the results of the SI, a Remedial Investigation (RI) is recommended at Windsor Locks AASF.

Open Discussion (Slide 30):

- ARNG will host a follow-up meeting with CTDEEP after the SI Report is final to discuss the relative risk ranking of the Windsor Locks AASF RI based on human drinking water receptors. This meeting is estimated to occur early in 2022.

FINAL

Attachment A – TPP 3 Briefing Slides



Windsor Locks Army Aviation Support Facility Site Inspection Connecticut Army National Guard

Technical Project Planning (TPP) Meeting 3

Preliminary Assessments and Site Inspections (PA/SI) for Perfluorooctanesulfonic Acid (PFOS) and Perfluorooctanoic Acid (PFOA) Impacted Sites

4 January 2022



Agenda

- Introductions
- Safety Moment
- TPP Meeting Goals
- Army National Guard (ARNG) Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Process Overview
- PA Overview
- SI Results
- Next Steps
- Questions and Open Discussion



Introductions

ARNG G9

- Dave Connolly, PFAS Program Manager
- Bonnie Packer, Nationwide Project Manager

United States Army Corps of Engineers (USACE)

- Tim Peck, Nationwide Program Manager
- Kim Berg, Baltimore District

Connecticut Army National Guard (CTARNG)

- Jordan Martin, Program Manager
- Robert Dollak, Environmental Manager

Connecticut Department of Energy and Environmental Protection (CTDEEP)

- Shannon Pociu, Environmental Analyst
- Jade Barber, Environmental Analyst

AECOM Technical Services, Inc.

- Naomi Ouellette, SI Senior Lead
- Joe Witte, SI Task Manager



Safety Moment

Winter Driving



- Don't brake on leaves
- Avoid sun glare
- Use your rain smarts
- Be careful on bridges
- Adjust your eyes
- Watch out for deer, turkey, etc.

"Safety for Life"

Thanks for making safety a personal priority. Let's make this our safest year ever!

Brought to you by the Safety Leadership Team, Germantown, Maryland

AECOM



Meeting Goals

TPP 1/2 Review

- Provide an overview of ARNG PA/SI Program
- Define objectives for SI data collection
- Encourage stakeholder involvement
- Review project schedule
- Capture action items
- Discuss proposed SI approach

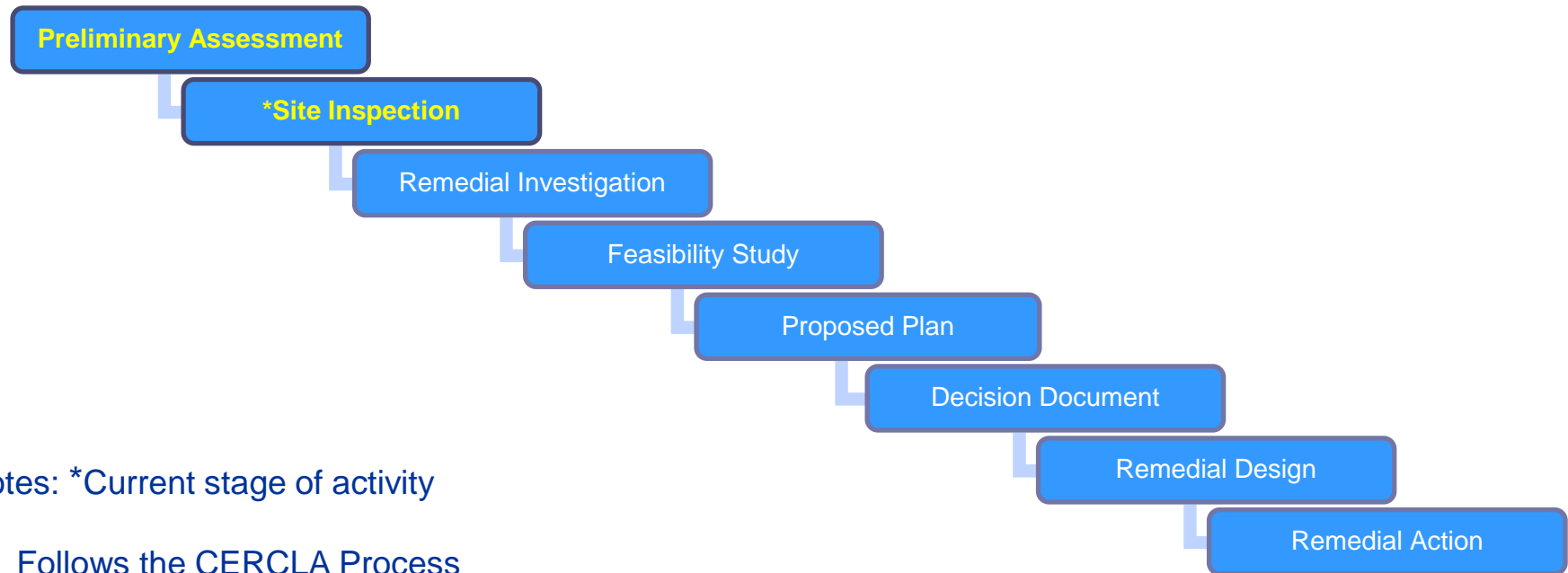
TPP 3

- ARNG CERCLA program overview
- Revisit the PA findings
- Present SI Results and revised conceptual site model (CSM)
- Resolve comments/concerns and gain concurrence on presentation of findings in Draft Final SI Report
- Discuss future actions at the site



ARNG PA/SI Overview

Work Phases



Notes: *Current stage of activity

- Follows the CERCLA Process
- An interim removal action can be conducted, or a No Further Action determination can be made at any phase



ARNG CERCLA Status Overview

- PA for Windsor Locks AASF completed by ARNG in February 2020
- SI fieldwork completed in April 2021
- Draft Final SI Report provided to CTDEEP in October 2021; results presented today
 - CTDEEP concurrence received in November 2021



PA – Summary of Findings

- Potential Source Areas: 2 identified during the PA and grouped into 1 Area of Interest (AOI)
- PFAS releases attributed to firefighting training and aqueous film forming foam (AFFF) storage

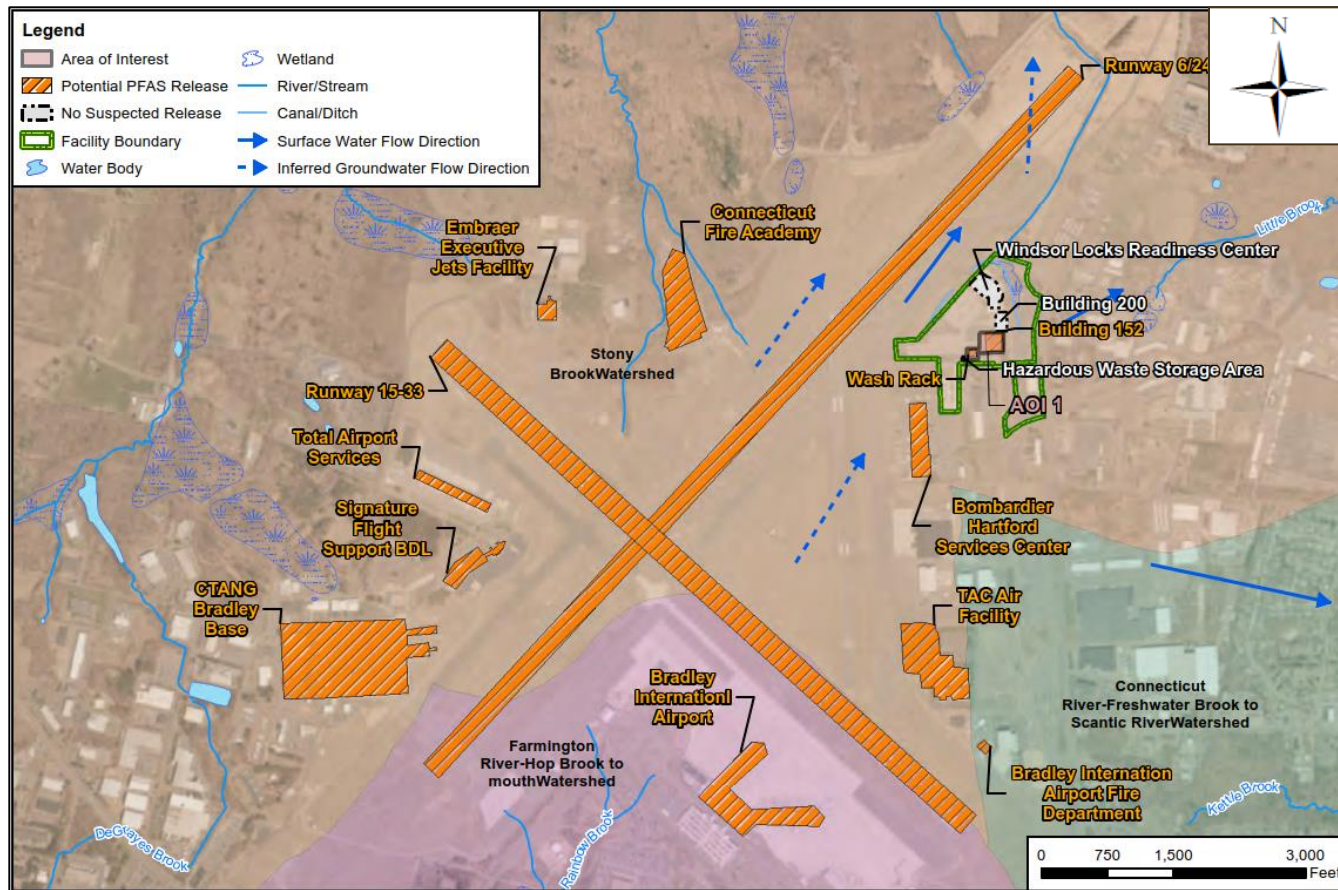


PA – Summary of Findings

- AOI1 – Wash Rack and Building 152 (South Hangar)
 - Wash Rack
 - Fire training events using AFFF occurred approximately once per year between 2003-2015, and once between 2015-2020.
 - Building 152 (South Hangar)
 - Equipped with a fire suppression system that uses National Foam Aer-o-lite 3% AFFF.
 - Mobile fire extinguishers containing AFFF may have been discharged to the floor drains between 2003 and 2015.



PA – Summary of Findings



- Two potential PFAS release areas grouped into one AOI



SI – Data Quality Objectives

- Primary SI Data Quality Objectives (DQOs)
 - Confirm the presence/absence of a release at a potential source area
 - Gather data for refinement of CSM:
 - Source-Pathway-Receptor relationships
- Enhanced SI DQOs
 - Determine the presence/absence at facility boundary
 - Check for alternate sources
 - Measure PFAS at/near receptor, if warranted



SI – Screening Levels

- Results compared to Office of the Secretary of Defense (OSD) Screening Levels (SLs) for soil and groundwater
 - Memorandum from the OSD dated 15 September 2021
 - SLs for groundwater based on direct ingestion
 - SLs for soil based on incidental ingestion; 0-2 feet (ft) compared to Residential SL, 2-15 ft compared to Industrial SL, >15 ft not compared to either SL
- AOIs exceeding OSD SLs will proceed to the next phase under CERCLA (i.e., Remedial Investigation)

Analyte	Residential (Soil) (µg/kg) ^a 0-2 feet bgs	Industrial/ Commercial Composite Worker (Soil) (µg/kg) ^a 2-15 feet bgs	Tap Water (Groundwater) (ng/L) ^a
PFOA	130	1,600	40
PFOS	130	1,600	40
PFBS	1,900	25,000	600

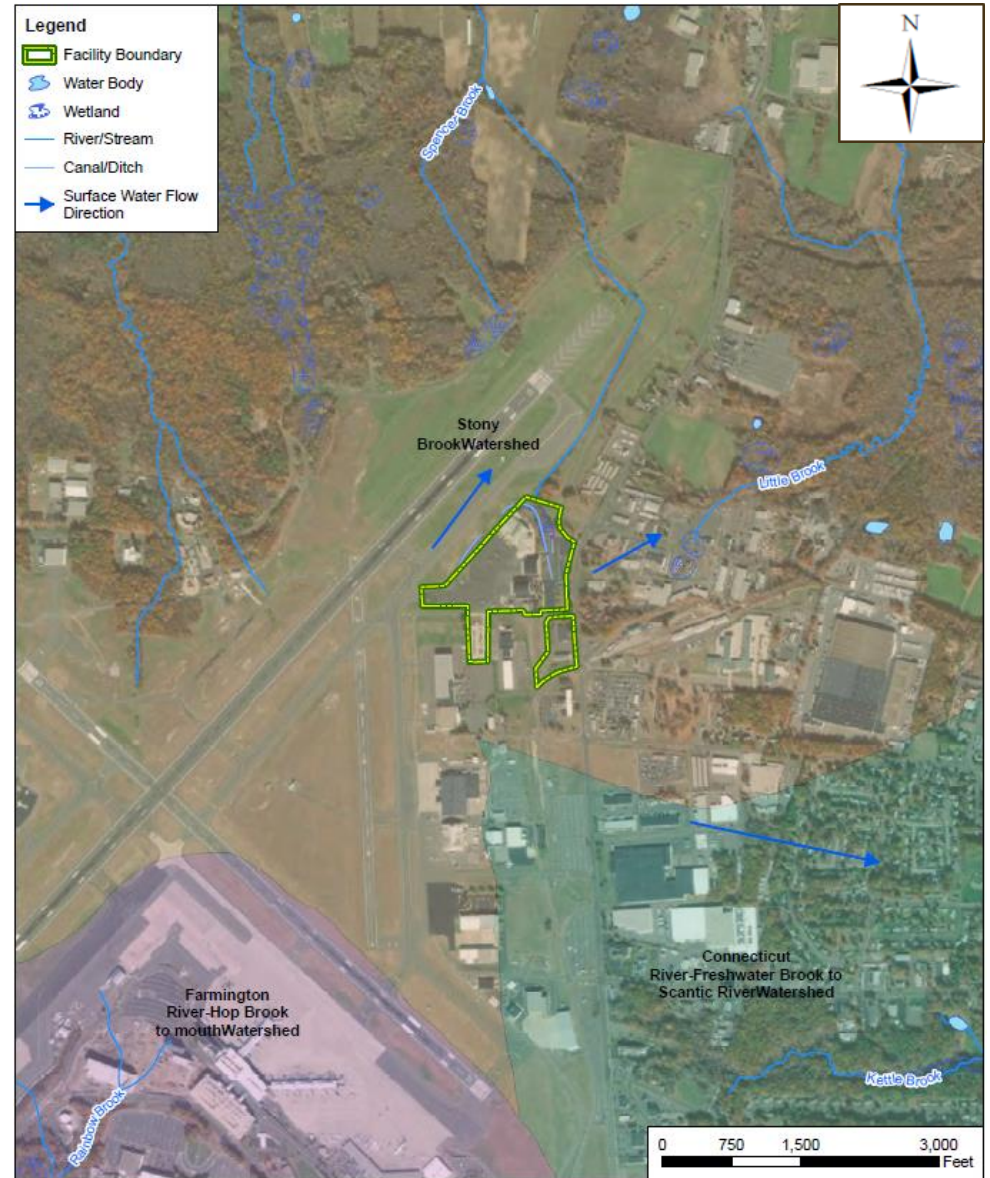
Notes:

a.) Assistant Secretary of Defense, 2021. Risk Based Screening Levels Calculated for PFOS, PFOA, PFBS in Groundwater and Soil using United States Environmental Protection Agency's (USEPA's) Regional Screening Level Calculator. Hazard Quotient (HQ) = 0.1. 15 September 2021.



CSM – Surface Water Features

The drainage swale near the eastern boundary of the facility flows north off the facility.





CSM – Groundwater Features





SI – Summary of Approach

- Approach
 - Soil samples from each location: at source (0 to 2 ft), above water table (3 to 10 ft), and at mid-point, where practicable
 - Temporary monitoring wells for grab groundwater samples (ranging from 10 to 15 ft below ground surface)
- Total Samples
 - 26 soil samples from 10 boring locations
 - 10 GW grab samples from 10 temporary well locations

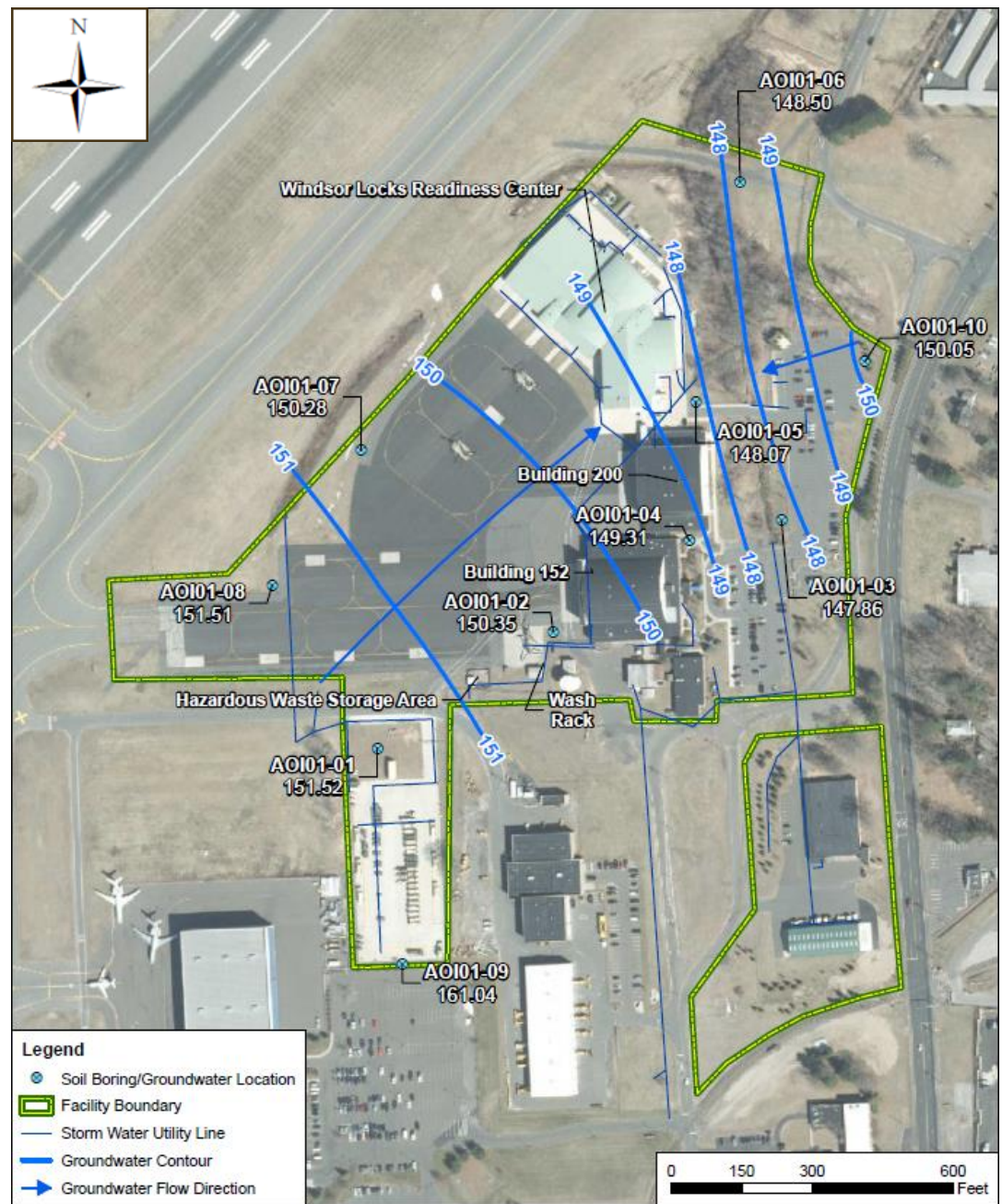


SI – Summary of Approach SI Investigation Locations





SI – Summary of Findings Groundwater Contours





SI – Summary of Findings

- PFOA and PFOS in groundwater confirmed at both source areas (AOI1) and facility boundary locations (upgradient and downgradient) exceeding their respective OSD SLs (40 nanograms per liter [ng/L])
 - Maximum concentrations of PFOA (298 ng/L) at location AOI01-03; east of the drainage swale
 - Maximum concentration of PFOS (581 ng/L) at location AOI01-08; west of the facility tarmac
 - PFBS was detected in GW at concentrations ranging from 1.33 to 51.3 ng/L, but did not exceed its respective SL (600 ng/L)
- PFAS coming onto facility at concentrations exceeding OSD GW SLs on eastern and southwestern boundaries
 - Unlikely attributable to ARNG activities at these locations, due to inferred groundwater flow direction



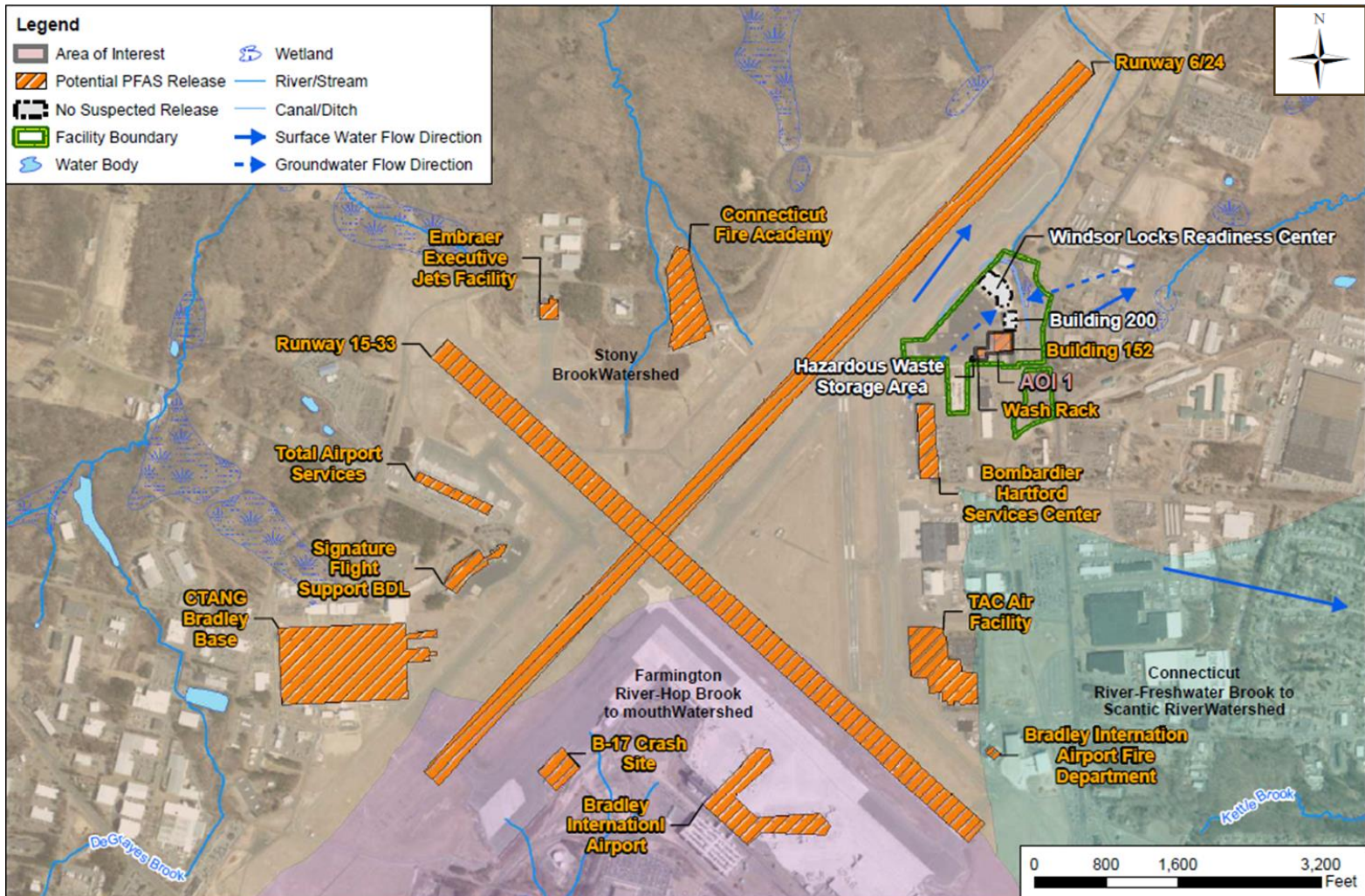
SI – Summary of Findings

- PFOA, PFOS and PFBS detected in soil, but at concentrations several orders of magnitude below the OSD SLs
 - Maximum concentration of PFOA (0.491 micrograms per kilogram [µg/kg]) east of drainage swale
 - Maximum concentration of PFOS (41.5 µg/kg) west of facility tarmac
 - Maximum concentration of PFBS (0.177 µg/kg) south and upgradient of potential release areas
- PFOS and PFBS detections in surface and shallow subsurface soil downgradient of the Wash Rack and Building 152
 - These detections indicate a likely release of PFAS-containing materials at both the Wash Rack and Building 152



SI – Summary of Findings

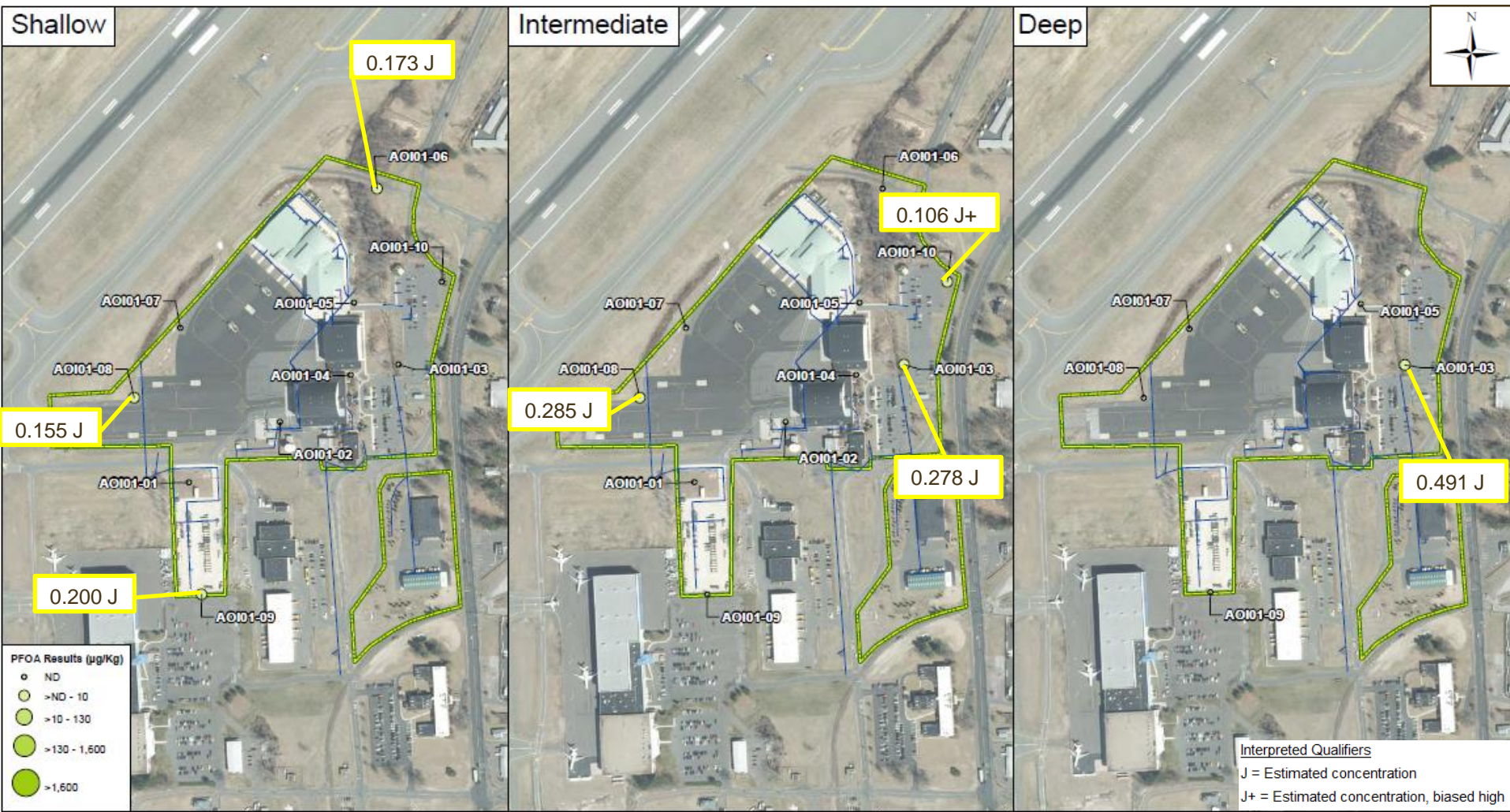
AOIs and Adjacent Sources





SI – Summary of Findings

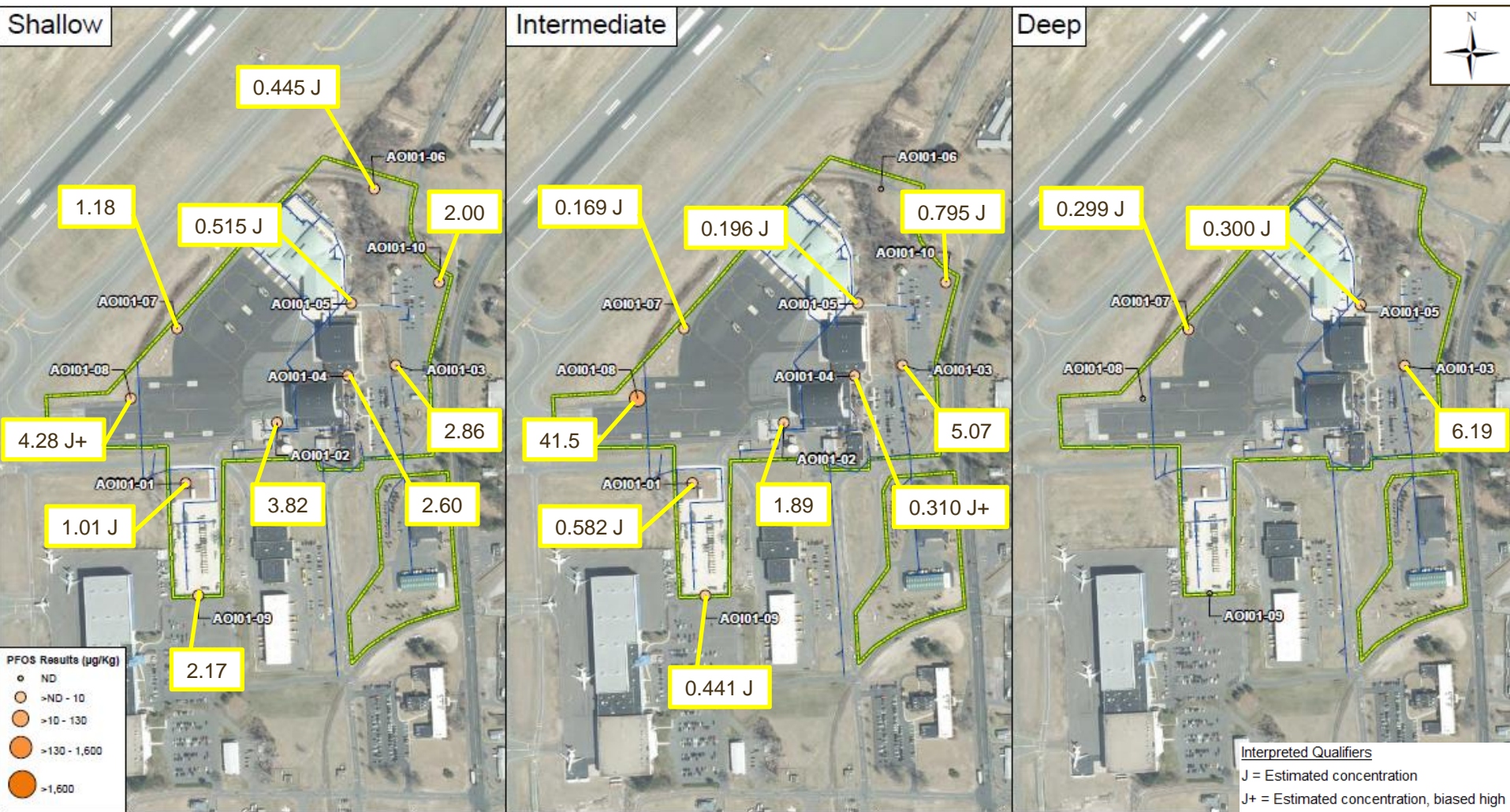
PFOA in Soil





SI – Summary of Findings

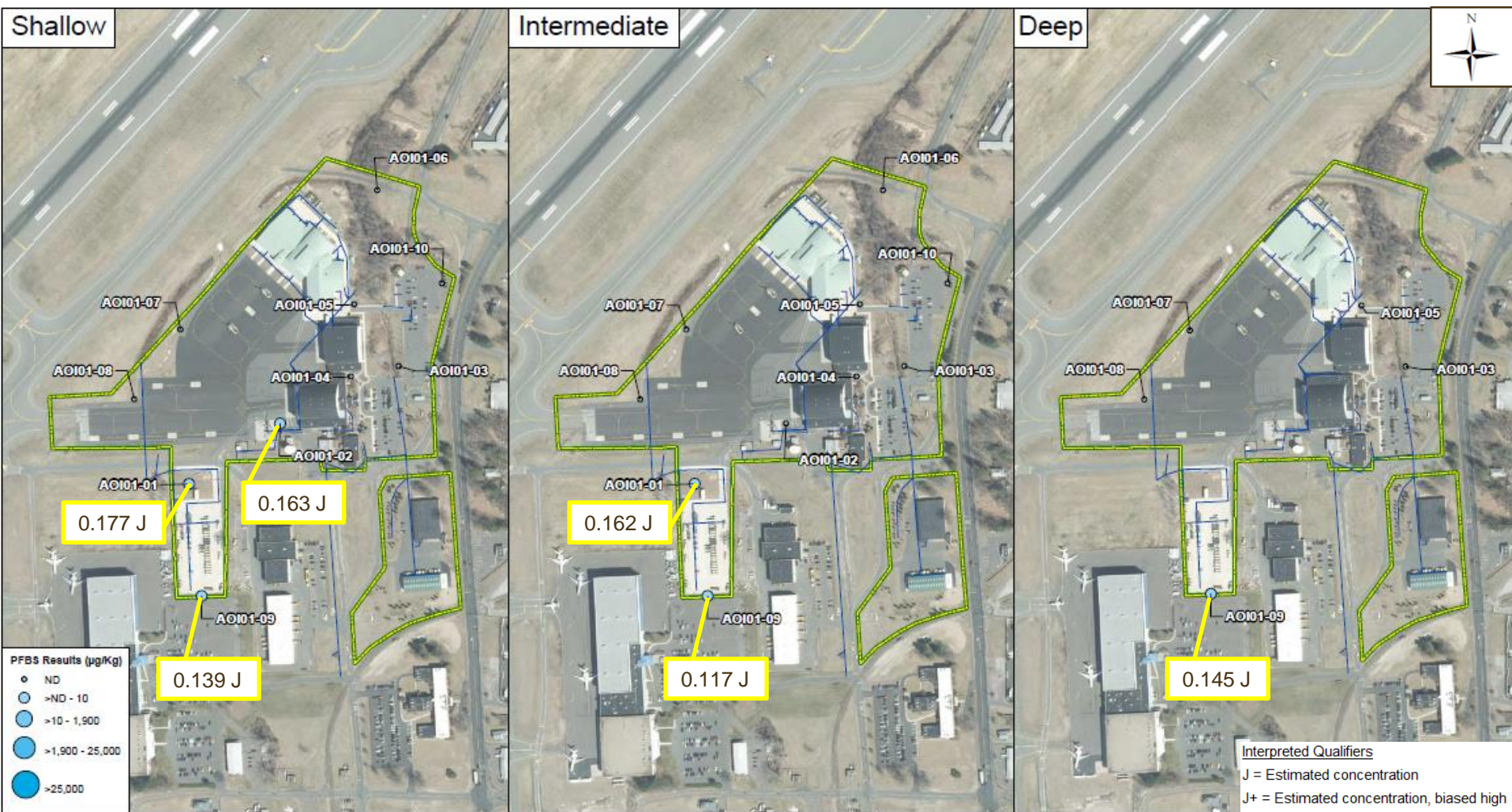
PFOS in Soil





SI – Summary of Findings

PFBS in Soil





SI – Summary of Findings PFOA in Groundwater

Bold Font = Detected concentration exceeded USEPA HA SL





SI – Summary of Findings PFOS in Groundwater

Bold Font = Detected concentration exceeded USEPA HA SL



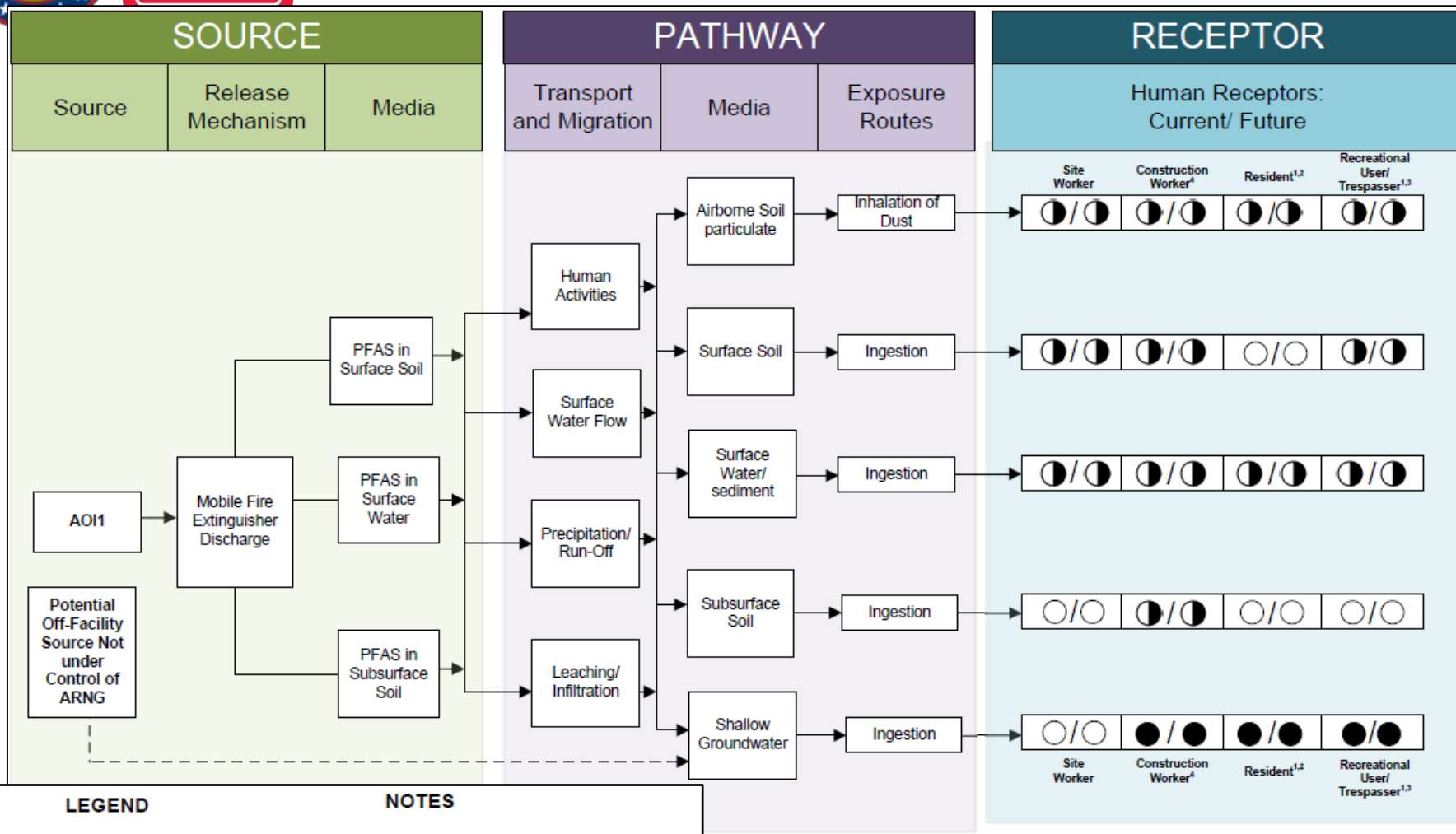


SI – Summary of Findings PFBS in Groundwater





SI – Summary of Findings





SI – Summary of Findings

AOI	Potential PFAS Release Area	Soil – Source Area	Groundwater – Source Area	Groundwater – Facility Boundary
1	Wash Rack			
1	Building 152			

Legend:

N/A = Not applicable



= detected; exceedance of the screening levels



= detected; no exceedance of the screening levels



= not detected

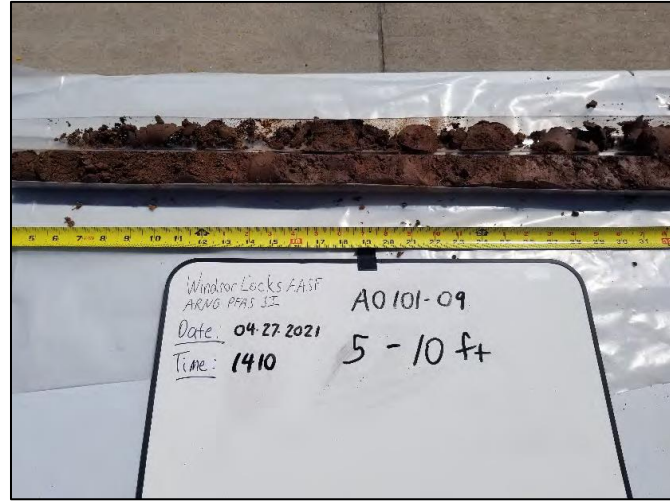


Next Steps

- Finalize SI Report
 - CTDEEP concurrence received November 2021
 - Schedule
- Initiate next step in CERCLA process: Remedial Investigation



Open Discussion





Acronyms

- $\mu\text{g/kg}$ – micrograms per kilogram
- AASF – Army Aviation Support Facility
- AFFF – aqueous film forming foam
- AOI – area of interest
- ARNG – Army National Guard
- CERCLA – Comprehensive Environmental Response, Compensation, and Liability Act
- CSM – conceptual site model
- CTDEEP – Connecticut Department of Energy and Environmental Protection
- DQO – data quality objective
- ft – feet
- GW – groundwater
- OSD – Office of the Secretary of Defense
- NA – not applicable
- ng/L – nanograms per liter
- PA – Preliminary Assessment
- PFAS – per- and polyfluoroalkyl substances
- PFBS – perfluorobutanesulfonic acid
- PFOA – perfluorooctanoic acid
- PFOS – perfluorooctanesulfonic acid
- SI – Site Inspection
- SL – screening level
- TPP – Technical Project Planning
- $\mu\text{g/kg}$ – micrograms per kilogram
- US – United States
- USACE – U.S. Army Corp of Engineers

Appendix E Boring Logs

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CLIENT ARNG, USACE Baltimore District

PROJECT NAME Windsor Locks AASF - ARNG PFAS

PROJECT NUMBER 60552172

SITE NAME AOI 1

DATE STARTED 4/27/21

COMPLETED 4/27/21

EASTING 1020340.001

NORTHING 904500.986

DRILLING CONTRACTOR Cascade

GROUND ELEVATION 158.06 ft

HOLE SIZE 2 inches

DRILLING EQUIPMENT Geoprobe

GROUND WATER LEVELS:

DRILLING METHOD Direct Push

▽ AT TIME OF DRILLING 7.00 ft / Elev 151.06 ft

LOGGED BY J. Shannon

CHECKED BY J. Hollingsworth

▼ AT TIME OF SAMPLING 6.54 ft / Elev 151.52 ft

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	ENVIRONMENTAL DATA	WELL DIAGRAM
0							
		100	SP		0.0 POORLY GRADED SAND, dry, dark yellowish brown (10YR 4/6), loose, mostly fine- to medium-grained (trace coarse grains) with trace fines. 158.1	AOI01-01-SB-00-02	
					2.5 Changes to contain angular gravel pieces ranging up to 50 mm in size. 155.6		
					3.0 Changes to yellowish brown (10YR 5/8). No gravel present. 155.1		
5							
		85			5.0 Changes to brownish yellow (10YR 6/6), medium- to coarse-grained (trace fine grains) with trace fine gravel. 153.1	AOI01-01-SB-05-07	
					7.0 ▽ Changes to wet. 151.1		
10					9.0 Changes to pale brown (10YR 6/3), loose to moderately dense, mostly fine- to medium-grained sand (trace coarse-grains). 149.1	AOI01-01-GW	
		100			11.5 Changes to dark grayish brown (10YR 4/2), mostly fine-grained. 146.6		
Bottom of borehole at 12.0 feet.							

Notes:

1. Headspace screening values represent total volatile organic vapors (referenced to an isobutylene standard) measured with a Photoionization Detector (PID) with 10.6 eV lamp.
2. Coordinates and elevation data in NAVD88-12B for vertical datum and NAD83 for horizontal datum in Connecticut State Plane.

CLIENT ARNG, USACE Baltimore District

PROJECT NAME Windsor Locks AASF - ARNG PFAS

PROJECT NUMBER 60552172

SITE NAME AOI 1

DATE STARTED 4/27/21

COMPLETED 4/27/21

EASTING 1020720.534

NORTHING 904738.704

DRILLING CONTRACTOR Cascade

GROUND ELEVATION 153.72 ft

HOLE SIZE 2 inches

DRILLING EQUIPMENT Geoprobe

GROUND WATER LEVELS:

DRILLING METHOD Direct Push

▽ AT TIME OF DRILLING 6.50 ft / Elev 147.22 ft

LOGGED BY J. Shannon

CHECKED BY J. Hollingsworth

▼ AT TIME OF SAMPLING 3.37 ft / Elev 150.35 ft

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	ENVIRONMENTAL DATA	WELL DIAGRAM
0							
		100	SP-SM		0.0 POORLY GRADED SAND WITH SILT, dry, dark brown (10YR 3/3), fine-grained (trace medium to coarse grains), loose with 10% silt and 5% gravel. 153.7	AOI01-02-SB-00-02	<p>Well Casing Type: Schedule 40 PVC Diameter: 1 in Top: 0 ft bgs Bottom: 6.5 ft bgs</p> <p>Well Screen Type: Schedule 40 PVC Top: 6.5 ft bgs Bottom: 11.5 ft bgs</p>
					2.0 Changes to dark reddish brown (2.5YR 3/3), mostly fine- to medium-grained (5% coarse grains). 151.7		
5			SP		5.0 POORLY GRADED SAND, dry, dark yellowish brown (10YR 4/4), mostly fine-grained (trace medium and coarse grains), loose with trace fines. 148.7	AOI01-02-SB-04-06	
		97			6.5 ▽ Changes to wet. 147.2	AOI01-02-GW	
			ML		7.5 Medium- and coarse-grained sand fraction increases to 5%. 146.2		
			SP		8.0 CLAYEY SILT, wet, very dark brown to black (10YR 2/1), soft with trace fine-grained sand. 145.7		
					8.5 POORLY GRADED SAND, wet, grayish brown (10YR 5/2) to yellowish brown (10YR 5/4), mostly fine-grained sand (trace medium grains), moderately dense. 145.2		
10					10.0 Changes to dark grayish brown (10YR 4/2). Medium-grained sand fraction increases to 10% (trace coarse grains) and trace fines. Gravel (20 x 40 mm) at 12.5 ft bgs. 143.7		
		97			12.5 Changes to yellowish brown (10YR 5/4), mostly fine- to medium-grained (trace coarse grains). 141.2		
15							

Bottom of borehole at 15.0 feet.

Notes:

1. Headspace screening values represent total volatile organic vapors (referenced to an isobutylene standard) measured with a Photoionization Detector (PID) with 10.6 eV lamp.
2. Coordinates and elevation data in NAVD88-12B for vertical datum and NAD83 for horizontal datum in Connecticut State Plane.

WELL NUMBER AOI01-03

TOTAL DEPTH 15 FT BGS
PAGE 1 OF 1

AECOM AECOM

CLIENT	ARNG, USACE Baltimore District	PROJECT NAME	Windsor Locks AASF - ARNG PFAS
PROJECT NUMBER	60552172	SITE NAME	AOI 1
DATE STARTED	4/29/21	COMPLETED	4/29/21
DRILLING CONTRACTOR	Cascade	EASTING	1021212.58
DRILLING EQUIPMENT	Geoprobe	NORTHING	904961.362
DRILLING METHOD	Direct Push	GROUND ELEVATION	152.95 ft
LOGGED BY	J. Shannon	HOLE SIZE	2 inches
CHECKED BY	J. Hollingsworth	GROUND WATER LEVELS:	
		▽ AT TIME OF DRILLING 7.00 ft / Elev 145.95 ft	
		▼ AT TIME OF SAMPLING 5.09 ft / Elev 147.86 ft	

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	ENVIRONMENTAL DATA	WELL DIAGRAM
0							
		100	SP		0.0 POORLY GRADED SAND, dry, brown (7.5YR 5/4), loose, mostly fine- to medium-grained (10% coarse-grained) with 10% gravel and 5% fines. Roots and spongy texture at top 8". 153.0	AOI01-03-SB-00-02	<div>Well Casing Type: Schedule 40 PVC Diameter: 1 in Top: 0 ft bgs Bottom: 7 ft bgs</div> <div>Well Screen Type: Schedule 40 PVC Top: 7 ft bgs Bottom: 12 ft bgs</div>
			SW-SM		2.0 WELL-GRADED SAND WITH SILT AND GRAVEL, dry, dark brown (10YR 3/3), loose, mostly fine- to medium-grained with 15% fine gravel and 10% fines. 151.0		
			SM		3.0 SILTY SAND, moist, black (10YR 2/1), moderately dense, fine-grained with 40% fines. 150.0		
			SW		4.0 WELL-GRADED SAND WITH GRAVEL, moist, brown (10YR 5/3) to reddish brown (5YR 4/3), loose, mostly fine- to medium-grained (15% coarse grains), 20% gravel, and trace fines. 149.0	AOI01-03-SB-03-05	
5						AOI01-03-SB-05-07	
		95	SP		6.5 ▽ POORLY GRADED SAND, wet, mostly fine- to medium-grained (5% coarse-grained). Vertical piece of wood with organic silt inbedded from 6.25 to 7.0 ft bgs. 146.5		
10						AOI01-03-GW	
					9.0 Changes to grayish brown (10YR 5/2), mostly fine-grained (trace medium and coarse grains), dense with trace fines. 144.0		
		100	CL		12.0 LEAN CLAY, wet, moderate plasticity, dense, laminated with thin (1 to 5 mm-thick), light olive gray (5Y 6/2) and yellow (10YR 6/8) laminations with 10% silt. 141.0		
15							

Bottom of borehole at 15.0 feet.

Notes:
1. Headspace screening values represent total volatile organic vapors (referenced to an isobutylene standard) measured with a Photoionization Detector (PID) with 10.6 eV lamp.
2. Coordinates and elevation data in NAVD88-12B for vertical datum and NAD83 for horizontal datum in Connecticut State Plane.

ARNG SMART LOG 8.5X11_V2 - - 6/17/21 12:45 - C:\USERS\JACK.HOLLINGSWORTH\DOCUMENTS\GINT\ARNG\WINDSOR LOCKS\WINDSOR LOCKS.GPJ

CLIENT ARNG, USACE Baltimore District

PROJECT NAME Windsor Locks AASF - ARNG PFAS

PROJECT NUMBER 60552172

SITE NAME AOI 1

DATE STARTED 4/29/21

COMPLETED 4/29/21

EASTING 1021015.643

NORTHING 904923.827

DRILLING CONTRACTOR Cascade

GROUND ELEVATION 153.11 ft

HOLE SIZE 2 inches

DRILLING EQUIPMENT Geoprobe

GROUND WATER LEVELS:




DRILLING METHOD Direct Push

▽ **AT TIME OF DRILLING** 5.00 ft / Elev 148.11 ft

LOGGED BY J. Shannon

CHECKED BY J. Hollingsworth

▼ AT TIME OF SAMPLING 3.80 ft / Elev 149.31 ft

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	ENVIRONMENTAL DATA	WELL DIAGRAM
0							
		100	SW		0.0 WELL-GRADED SAND WITH GRAVEL, dry, brown (10YR 4/3), loose, mostly fine- to medium-grained (15% coarse-grained) with 25% angular to subangular gravel ranging up to 25 mm in size, 5% fines, and 5% roots. 153.1 2.5 Changes to reddish brown (5YR 4/4). 150.6 4.0 Changes to dark grayish brown (10YR 4/2). 149.1	AOI01-04-SB-00-02 AOI01-04-SB-03-05	<div style="border: 1px solid black; padding: 5px;"> Well Casing Type: Schedule 40 PVC Diameter: 1 in Top: 0 ft bgs Bottom: 5 ft bgs </div>
5							
		72	SP		5.0  POORLY GRADED SAND, wet, brown (10YR 4/3), moderately dense, mostly fine- to medium-grained with trace coarse grains. 148.1 7.5 Changes to grayish brown (10YR 5/2). 145.6 8.0 Changes to light brownish gray (10YR 6/2), fine-grained with trace medium-grained sand and fines. 145.1 9.0 Laminations (1 to 4 mm-thick) of fine- to medium-grained sand, gray (2.5Y 6/1) to brownish gray (10YR 6/2). 144.1	AOI01-04-GW	<div style="border: 1px solid black; padding: 5px;"> Well Screen Type: Schedule 40 PVC Top: 5 ft bgs Bottom: 10 ft bgs </div>
10							

Bottom of borehole at 10.0 feet.

Notes:

- Notes:
1. Headspace screening values represent total volatile organic vapors (referenced to an isobutylene standard) measured with a Photoionization Detector (PID) with 10.6 eV lamp.
 2. Coordinates and elevation data in NAVD88-12B for vertical datum and NAD83 for horizontal datum in Connecticut State Plane.

CLIENT ARNG, USACE Baltimore District	PROJECT NAME Windsor Locks AASF - ARNG PFAS
PROJECT NUMBER 60552172	SITE NAME AOI 1
DATE STARTED 4/28/21 COMPLETED 4/28/21	EASTING 1021036.626 NORTHING 905219.286
DRILLING CONTRACTOR Cascade	GROUND ELEVATION 152.2 ft HOLE SIZE 2 inches
DRILLING EQUIPMENT Geoprobe	GROUND WATER LEVELS:
DRILLING METHOD Direct Push	▽ AT TIME OF DRILLING 6.50 ft / Elev 145.70 ft
LOGGED BY J. Shannon CHECKED BY J. Hollingsworth	▼ AT TIME OF SAMPLING 4.13 ft / Elev 148.07 ft

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	ENVIRONMENTAL DATA	WELL DIAGRAM
0							
		100	SW		0.0 WELL-GRADED SAND, moist, very dark grayish brown (10YR 3/2), loose, mostly fine- to medium-grained sand with 10% angular to subrounded, fine (up to 30 mm in size) gravel and 10% fines. 152.2	AOI01-05-SB-00-02	Well Casing Type: Schedule 40 PVC Diameter: 1 in Top: 0 ft bgs Bottom: 6 ft bgs
					2.0 WELL-GRADED SAND WITH GRAVEL, moist, very dark grayish brown (10YR 3/2), mostly medium to coarse-grained sand with 25% angular to subrounded gravel ranging up to 50 mm in size and 10% fines. 150.2		
5						AOI01-05-SB-04-06	
		92	SP		6.0 POORLY GRADED SAND, moist to wet, brown (7.5YR 5/4), moderately dense, mostly fine- to medium-grained with trace fines. Changes to wet. 146.2 6.5 145.7	AOI01-05-GW	
					7.5 Changes to contain 10% fines and 10% roots. Texture becomes spongy. 144.7		
			CL		8.5 LEAN CLAY, dark gray (5Y 4/1), dense, thin (<1mm) laminations of fine-grained sand and silt. 143.7	AOI01-05-SB-08-10	Well Screen Type: Schedule 40 PVC Top: 6 ft bgs Bottom: 11 ft bgs
10							
		70	SP		12.0 POORLY GRADED SAND, wet, brown (7.5YR 5/3), moderately dense, mostly fine- to medium-grained, with trace fines. 140.2		
15							

Bottom of borehole at 15.0 feet.

Notes:

1. Headspace screening values represent total volatile organic vapors (referenced to an isobutylene standard) measured with a Photoionization Detector (PID) with 10.6 eV lamp.
2. Coordinates and elevation data in NAVD88-12B for vertical datum and NAD83 for horizontal datum in Connecticut State Plane.

WELL NUMBER AOI01-06

TOTAL DEPTH 10 FT BGS
PAGE 1 OF 1

AECOM AECOM

CLIENT	ARNG, USACE Baltimore District	PROJECT NAME	Windsor Locks AASF - ARNG PFAS
PROJECT NUMBER	60552172	SITE NAME	AOI 1
DATE STARTED	4/28/21	COMPLETED	4/28/21
DRILLING CONTRACTOR	Cascade	EASTING	1021143.437
DRILLING EQUIPMENT	Geoprobe	NORTHING	905684.681
DRILLING METHOD	Direct Push	GROUND ELEVATION	152.05 ft
LOGGED BY	J. Shannon	HOLE SIZE	2 inches
CHECKED BY	J. Hollingsworth	GROUND WATER LEVELS:	
		▽ AT TIME OF DRILLING 5.00 ft / Elev 147.05 ft	
		▼ AT TIME OF SAMPLING 3.55 ft / Elev 148.50 ft	

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	ENVIRONMENTAL DATA	WELL DIAGRAM
0							
		100	SP-SM		0.0 POORLY GRADED SAND WITH SILT, dry, brown (7.5YR 4/4), loose, mostly fine-grained (trace medium and coarse grains) with 10% fines and 5% subrounded to angular gravel pieces up to 30 mm in diameter. Roots throughout. 152.1 0.5 151.6	AOI01-06-SB-00-02	<div>Well Casing Type: Schedule 40 PVC Diameter: 1 in Top: 0 ft bgs Bottom: 5 ft bgs</div>
		100	SP		2.0 Changes to reddish brown (5YR 5/4). Gravel and roots become trace amounts. 150.1 POORLY GRADED SAND, moist, brown (7.5YR 5/4), moderately dense, mostly fine-grained with trace fines.	AOI01-06-SB-03-05	
5		75			4.5 Thin, brown to reddish brown laminations (1 to 3 mm-thick) present from 4.5 to 5 ft bgs 147.6 5.0 Changes to wet. 147.1	AOI01-06-GW	
10							

Bottom of borehole at 10.0 feet.

- Notes:**
- Headspace screening values represent total volatile organic vapors (referenced to an isobutylene standard) measured with a Photoionization Detector (PID) with 10.6 eV lamp.
 - Coordinates and elevation data in NAVD88-12B for vertical datum and NAD83 for horizontal datum in Connecticut State Plane.

ARNG SMART LOG 8.5X11_V2 - - 6/17/21 12:45 - C:\USERS\JACK.HOLLINGSWORTH\DOCUMENTS\GINT\ARNG\WINDSOR LOCKS\WINDSOR LOCKS.GPJ

CLIENT ARNG, USACE Baltimore District

PROJECT NAME Windsor Locks AASF - ARNG PFAS

PROJECT NUMBER 60552172

SITE NAME AOI 1

DATE STARTED 4/28/21

COMPLETED 4/28/21

EASTING 1020321.972

NORTHING 905134.582

DRILLING CONTRACTOR Cascade

GROUND ELEVATION 156.2 ft

HOLE SIZE 2 inches

DRILLING EQUIPMENT Geoprobe

GROUND WATER LEVELS:

DRILLING METHOD Direct Push

▽ AT TIME OF DRILLING 6.50 ft / Elev 149.70 ft

LOGGED BY J. Shannon

CHECKED BY J. Hollingsworth

▼ AT TIME OF SAMPLING 5.92 ft / Elev 150.28 ft



DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	ENVIRONMENTAL DATA	WELL DIAGRAM
0							
		90	SP-SM		0.0 POORLY GRADED SAND WITH SILT, dry, brown (10YR 4/3), loose, mostly fine-grained (trace medium to coarse grains) with 10% fines and trace amounts of gravel. Roots present to 0.5 ft bgs. Changes to yellowish brown (10YR 5/6).	156.2	Well Casing Type: Schedule 40 PVC Diameter: 1 in Top: 0 ft bgs Bottom: 6 ft bgs
					1.0	155.2	
			SP		2.0 POORLY GRADED SAND, dry, light brown (7.5YR 6/4), loose, mostly fine- to medium-grained.	154.2	
5							Well Screen Type: Schedule 40 PVC Top: 6 ft bgs Bottom: 11 ft bgs
		90			6.5 ▽ Changes to wet, reddish brown (5YR 4/3). 1 to 5 mm-thick laminations present at 6.5 to 7.5 ft bgs	149.7	
					7.5 Changes to dark grayish brown (10YR 4/2), loose to moderately dense, mostly medium-grained. 10 mm clay seam present at 7.5 ft bgs.	148.7	
10							
		100					

Bottom of borehole at 12.0 feet.

Notes:

- Headspace screening values represent total volatile organic vapors (referenced to an isobutylene standard) measured with a Photoionization Detector (PID) with 10.6 eV lamp.
- Coordinates and elevation data in NAVD88-12B for vertical datum and NAD83 for horizontal datum in Connecticut State Plane.

CLIENT ARNG, USACE Baltimore District	PROJECT NAME Windsor Locks AASF - ARNG PFAS
PROJECT NUMBER 60552172	SITE NAME AOI 1
DATE STARTED 4/28/21 COMPLETED 4/28/21	EASTING 1020124.926 NORTHING 904853.393
DRILLING CONTRACTOR Cascade	GROUND ELEVATION 157.32 ft HOLE SIZE 2 inches
DRILLING EQUIPMENT Geoprobe	GROUND WATER LEVELS:
DRILLING METHOD Direct Push	▽ AT TIME OF DRILLING 6.50 ft / Elev 150.82 ft
LOGGED BY J. Shannon CHECKED BY J. Hollingsworth	▼ AT TIME OF SAMPLING 5.81 ft / Elev 151.51 ft

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	ENVIRONMENTAL DATA	WELL DIAGRAM
0							
		90	SW		0.0 WELL-GRADED SAND WITH GRAVEL, dry, yellowish red (5YR 4/6), loose, mostly fine-grained sand (15% coarse and 10% medium grains) with 15% fine (up to 40 mm), angular gravel. Roots present in top 6". 157.3	AOI01-08-SB-00-02	<div>Well Casing</div> <div>Type: Schedule 40 PVC</div> <div>Diameter: 1 in</div> <div>Top: 0 ft bgs</div> <div>Bottom: 6 ft bgs</div>
			SP		2.0 POORLY GRADED SAND, dry, light grayish brown (10YR 6/2), loose, mostly fine- to medium-grained (trace coarse grains). 155.3	AOI01-08-SB-02-04	
5						AOI01-08-SB-04-06	
		95			6.5 ▽ Changes to wet. 150.8		<div>Well Screen</div> <div>Type: Schedule 40 PVC</div> <div>Top: 6 ft bgs</div> <div>Bottom: 11 ft bgs</div>
10						AOI01-08-GW	
		93			12.0 Coarsens with depth and changes to mostly medium-grained sand. 145.3		
15							

Bottom of borehole at 15.0 feet.

Notes:

1. Headspace screening values represent total volatile organic vapors (referenced to an isobutylene standard) measured with a Photoionization Detector (PID) with 10.6 eV lamp.
2. Coordinates and elevation data in NAVD88-12B for vertical datum and NAD83 for horizontal datum in Connecticut State Plane.

CLIENT ARNG, USACE Baltimore District

PROJECT NAME Windsor Locks AASF - ARNG PFAS

PROJECT NUMBER 60552172

SITE NAME AOI 1

DATE STARTED 4/27/21

COMPLETED 4/27/21

EASTING 1020380.168

NORTHING 904040.211

DRILLING CONTRACTOR Cascade

GROUND ELEVATION 169.15 ft

HOLE SIZE 2 inches

DRILLING EQUIPMENT Geoprobe

GROUND WATER LEVELS:

DRILLING METHOD Direct Push

▽ AT TIME OF DRILLING 10.00 ft / Elev 159.15 ft

LOGGED BY J. Shannon

CHECKED BY J. Hollingsworth

▼ AT TIME OF SAMPLING 8.11 ft / Elev 161.04 ft

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	ENVIRONMENTAL DATA	WELL DIAGRAM
0							
		92	SP		0.0 POORLY GRADED SAND, dry, light brown (7.5YR 6/3) to brown (7.5YR 4/2), loose, mostly fine- to medium-grained (trace coarse grains) with trace fines and trace gravel. Roots and plant material in first 8".	169.2	
5							
					5.0 Changes to brown (7.5YR 4/2), loose to moderately dense.	164.2	
		95	SM		6.5 SILTY SAND, dry, yellowish red (5YR 4/6), dense, mostly fine-grained with 25% silt.	162.7	
					8.0 Subangular, 35 x 20 mm gravel piece present.	161.2	
10							
					10.0 ▽ Changes to wet.	159.2	
		92					
			SP		14.0 POORLY GRADED SAND, wet, very dark grayish brown (10YR 3/2), loose to moderately dense, mostly medium- to coarse-grained (trace fine grains) with trace gravel.	155.2	
15							
Bottom of borehole at 15.0 feet.							

Well Casing
Type: Schedule 40
PVC
Diameter: 1 in
Top: 0 ft bgs
Bottom: 10 ft bgs

Well Screen
Type: Schedule 40
PVC
Top: 10 ft bgs
Bottom: 15 ft bgs

Notes:

1. Headspace screening values represent total volatile organic vapors (referenced to an isobutylene standard) measured with a Photoionization Detector (PID) with 10.6 eV lamp.
2. Coordinates and elevation data in NAVD88-12B for vertical datum and NAD83 for horizontal datum in Connecticut State Plane.

CLIENT ARNG, USACE Baltimore District	PROJECT NAME Windsor Locks AASF - ARNG PFAS
PROJECT NUMBER 60552172	SITE NAME AOI 1
DATE STARTED 4/28/21 COMPLETED 4/28/21	EASTING 1021399.185 NORTHING 905295.254
DRILLING CONTRACTOR Cascade	GROUND ELEVATION 155.05 ft HOLE SIZE 2 inches
DRILLING EQUIPMENT Geoprobe	GROUND WATER LEVELS:
DRILLING METHOD Direct Push	▽ AT TIME OF DRILLING 5.00 ft / Elev 150.05 ft
LOGGED BY J. Shannon CHECKED BY J. Hollingsworth	▼ AT TIME OF SAMPLING 5.00 ft / Elev 150.05 ft

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	ENVIRONMENTAL DATA	WELL DIAGRAM
0							
		100	SP		0.0 POORLY GRADED SAND, dry, very dark gray (10YR 3/1), loose, mostly fine-grained (10% medium and 10% coarse grains) with 10% gravel and 5% fines. Roots present at top 6 to 8". 155.1	AOI01-10-SB-00-02	Well Casing Type: Schedule 40 PVC Diameter: 1 in Top: 0 ft bgs Bottom: 5 ft bgs
		92			2.0 Changes to brownish yellow, fine- to medium-grained (trace coarse grains). Weathered, subrounded quartzite 30 mm in diameter present at 2 ft bgs. 153.1	AOI01-10-SB-03-05	
5					5.0 ▽ Changes to wet. 150.1		
		95			5.5 Organic soil sampled as POORLY GRADED SAND. 149.6 5.6 Wet, very dark grayish brown (10YR 3/2), fine-grained (trace medium grains) with trace fines and roots. Texture is spongy. 149.5 POORLY GRADED SAND, wet, dark yellowish brown (10YR 4/4), loose to moderately dense, mostly fine- to medium-grained with trace fines.	AOI01-10-GW	
10					9.5 Changes to dark grayish brown (10YR 4/2), moderately dense, mostly fine-grained (trace medium to coarse grains). 145.6 Bottom of borehole at 10.0 feet.		Well Screen Type: Schedule 40 PVC Top: 5 ft bgs Bottom: 10 ft bgs

Notes:

- Headspace screening values represent total volatile organic vapors (referenced to an isobutylene standard) measured with a Photoionization Detector (PID) with 10.6 eV lamp.
- Coordinates and elevation data in NAVD88-12B for vertical datum and NAD83 for horizontal datum in Connecticut State Plane.

Appendix F

Analytical Results

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**Appendix F Laboratory Data
Groundwater
Site Inspection Report, Windsor Locks AASF, Connecticut**

Area of Interest			AOI01																												
			Sample ID				AOI01-01-GW				AOI01-02-GW				AOI01-03-GW				AOI01-03-GW-D				AOI01-04-GW				AOI01-05-GW				AOI01-06-GW
Sample Date			04/27/2021				04/28/2021				04/29/2021				04/29/2021				04/29/2021				04/28/2021				04/28/2021				
Analyte	OSD Screening Level a,b	USEPA HA ^c	Result	LOD	LOQ	Qual	Result	LOD	LOQ	Qual	Result	LOD	LOQ	Qual	Result	LOD	LOQ	Qual	Result	LOD	LOQ	Qual	Result	LOD	LOQ	Qual	Result	LOD	LOQ	Qual	
Water, PFAS by LCMSMS compliant with QSM 5.3 Table B-15 (ng/L)																															
6:2 FTS	-	-	9.38	2.00	4.00		534	15.0	20.0		6.77	2.00	4.00		6.06	2.00	4.00		64.4	2.00	4.00		4.46	2.00	4.00		<	2.00	4.00	U	
8:2 FTS	-	-	10.4	2.00	4.00		16.9	2.00	4.00		12.6	2.00	4.00		10.7	2.00	4.00		48.2	2.00	4.00		<	2.00	4.00	U	<	2.00	4.00	U	
NEtFOSAA	-	-	<	4.00	8.00	U	<	4.00	8.00	U	<	4.00	8.00	U	<	4.00	8.00	U	<	4.00	8.00	U	<	4.00	8.00	U	<	4.00	8.00	U	
NMeFOSAA	-	-	<	4.00	8.00	U	<	4.00	8.00	U	2.69	4.00	8.00	J	2.17	4.00	8.00	J	1.000	4.00	8.00	J	<	4.00	8.00	U	<	4.00	8.00	U	
PFBA	-	-	29.6	2.00	4.00		58.1	2.00	4.00		21.9	2.00	4.00		22.0	2.00	4.00		24.6	2.00	4.00		<	10.6	4.00	U	<	2.00	4.00	U	
PFBS	600	-	8.75	2.00	4.00		4.15	2.00	4.00		51.3	2.00	4.00		46.5	2.00	4.00		19.4	2.00	4.00		15.4	2.00	4.00		1.65	2.00	4.00	J	
PFDA	-	-	7.66	2.00	4.00		1.78	2.00	4.00	J	3.81	2.00	4.00	J	3.26	2.00	4.00	J	3.42	2.00	4.00	J	1.12	2.00	4.00	J	<	2.00	4.00	U	
PFDaA	-	-	<	2.00	4.00	U	<	2.00	4.00	U	<	2.00	4.00	U	<	2.00	4.00	U	<	2.00	4.00	U	<	2.00	4.00	U	<	2.00	4.00	U	
PFHpA	-	-	55.4	2.00	4.00		57.0	2.00	4.00		16.3	2.00	4.00		15.0	2.00	4.00		35.9	2.00	4.00		9.78	2.00	4.00		4.74	2.00	4.00		
PFHxA	-	-	92.3	2.00	4.00		169	2.00	4.00		345	2.00	4.00		320	2.00	4.00		95.2	2.00	4.00		70.9	2.00	4.00		7.58	2.00	4.00		
PFHxS	-	-	252	2.00	4.00		127	2.00	4.00		1830	15.0	20.0		1350	30.0	40.0		306	2.00	4.00		169	2.00	4.00		13.1	2.00	4.00		
PFNA	-	-	290	2.00	4.00		32.3	2.00	4.00		49.7	2.00	4.00		45.1	2.00	4.00		97.5	2.00	4.00		14.7	2.00	4.00		2.03	2.00	4.00	J	
PFOA	40	70	57.3	2.00	4.00		40.5	2.00	4.00		298	2.00	4.00		275	2.00	4.00		71.8	2.00	4.00		87.2	2.00	4.00		7.85	2.00	4.00		
PFOS	40	70	138	2.00	4.00		94.2	2.00	4.00		125	2.00	4.00		115	2.00	4.00		408	10.0	20.0		<	2.00	4.00	U	8.93	2.00	4.00		
PFPeA	-	-	88.5	2.00	4.00		263	2.00	4.00		45.0	2.00	4.00		41.8	2.00	4.00		82.6	2.00	4.00		23.0	2.00	4.00		4.72	2.00	4.00		
PFTeDA	-	-	<	2.00	4.00	U	<	2.00	4.00	U	<	2.00	4.00	U	<	2.00	4.00	U	<	2.00	4.00	U	<	2.00	4.00	U	<	2.00	4.00	U	
PFTrDA	-	-	<	2.00	4.00	U	<	2.00	4.00	U	<	2.00	4.00	U	<	2.00	4.00	U	<	2.00	4.00	U	<	2.00	4.00	U	<	2.00	4.00	U	
PFUnDA	-	-	223	2.00	4.00		<	2.00	4.00	U	52.3	2.00	4.00		44.7	2.00	4.00		9.74	2.00	4.00		<	2.00	4.00	U	<	2.00	4.00	U	
Total PFOA+PFOS	-	70	195.3	2			134.7	2			423	2			390	2			479.8	10			87.2	2			16.78	2			

Grey Fill	Detected concentration exceeded OSD Screening Levels
Bold Font	Detected concentration exceeded USEPA HA Screening Levels

References

- a. Assistant Secretary of Defense, 2019. Risk Based Screening Levels Calculated for PFOS and PFOA in Groundwater or Soil using USEPA's Regional Screening Level Calculator. HQ=0.1. 15 October 2019. Groundwater screening levels based on residential scenario for direct ingestion of groundwater.
- b. USEPA, 2021. Risk Based Screening Levels Calculated for PFBS in Groundwater and Soil using USEPA's Regional Screening Level Calculator. HQ=0.1. 8 April 2021.
- c. USEPA, 2016. Drinking Water Health Advisory for PFOA. Office of Water (4304T). Health and Ecological Criteria Division, Washington, DC 20460. EPA Document Number: 822-R-16-005. May 2016. / EPA, 2016. Drinking Water Health Advisory for PFOS. Office of Water (4304T). Health and Ecological Criteria Division, Washington, DC 20460. EPA Document Number: 822-R-16-004. May 2016.

Interpreted Qualifiers

- J = Estimated concentration
- U = The analyte was not detected at a level greater than or equal to the adjusted detection limit (DL)

Chemical Abbreviations

6:2 FTS	6:2 fluorotelomer sulfonate
8:2 FTS	8:2 fluorotelomer sulfonate
NEtFOSAA	N-ethyl perfluorooctane- sulfonamidoacetic acid
NMeFOSAA	N-methyl perfluorooctanesulfonamidoacetic acid
PFBA	perfluorobutanoic acid
PFBS	perfluorobutanesulfonic acid
PFDA	perfluorodecanoic acid
PFDaA	perfluorodecanoic acid
PFHpA	perfluoroheptanoic acid
PFHxA	perfluorohexanoic acid
PFHxS	perfluorohexanesulfonic acid
PFNA	perfluorononanoic acid
PFOA	perfluorooctanoic acid
PFOS	perfluorooctanesulfonic acid
PFPeA	perfluoropentanoic acid
PFTeDA	perfluorotetradecanoic acid
PFTrDA	perfluorotridecanoic acid
PFUnDA	perfluoro-n-undecanoic acid

Acronyms and Abbreviations

AASF	Army Aviation Support Facility
AOI	Area of Interest
D	duplicate
GW	groundwater
HA	health advisory
HQ	hazard quotient
LCMSMS	liquid chromatography with tandem mass spectrometry
LOD	limit of detection
LOQ	limit of quantitation
OSD	Office of the Secretary of Defense
QSM	Quality Systems Manual
Qual	interpreted qualifier
USEPA	United States Environmental Protection Agency
ng/L	nanogram per liter
-	not applicable
<	analyte not detected above the LOD

**Appendix F Laboratory Data
Groundwater
Site Inspection Report, Windsor Locks AASF, Connecticut**

Area of Interest			AOI01															
Sample ID			AOI01-07-GW				AOI01-08-GW				AOI01-09-GW				AOI01-10-GW			
Sample Date			04/28/2021				04/28/2021				04/27/2021				04/29/2021			
Analyte	OSD Screening Level ^{a,b}	USEPA HA ^c	Result	LOD	LOQ	Qual	Result	LOD	LOQ	Qual	Result	LOD	LOQ	Qual	Result	LOD	LOQ	Qual
Water, PFAS by LCMSMS compliant with QSM 5.3 Table B-15 (ng/L)																		
6:2 FTS	-	-	<	3.00	4.00	U	<	3.00	4.00	U	<	2.00	4.00	U	<	3.00	4.00	U
8:2 FTS	-	-	<	3.00	4.00	U	<	3.00	4.00	U	<	2.00	4.00	U	<	3.00	4.00	U
NEtFOSAA	-	-	<	4.00	8.00	U	<	4.00	8.00	U	<	4.00	8.00	U	<	4.00	8.00	U
NMeFOSAA	-	-	<	4.00	8.00	U	<	4.00	8.00	U	<	4.00	8.00	U	<	4.00	8.00	U
PFBA	-	-	<	3.50	4.00	U	<	5.02	4.00	U	15.9	2.00	4.00		<	3.50	4.00	U
PFBS	600	-	<	2.00	4.00	U	1.33	2.00	4.00	J	5.16	2.00	4.00		3.21	2.00	4.00	J
PFDA	-	-	<	3.00	4.00	U	<	3.00	4.00	U	<	2.00	4.00	U	<	3.00	4.00	U
PFDaA	-	-	<	3.00	4.00	U	<	3.00	4.00	U	<	2.00	4.00	U	<	3.00	4.00	U
PFHpA	-	-	2.65	3.00	4.00	J	5.64	3.00	4.00		10.5	2.00	4.00		3.42	3.00	4.00	J
PFHxA	-	-	3.09	2.00	4.00		12.9	2.00	4.00		39.5	2.00	4.00		8.28	2.00	4.00	
PFHxS	-	-	7.07	3.00	4.00		66.8	3.00	4.00		161	2.00	4.00		60.6	3.00	4.00	
PFNA	-	-	3.61	2.00	4.00	J	4.42	2.00	4.00		4.25	2.00	4.00		<	2.00	4.00	U
PFOA	40	70	5.45	2.00	4.00		10.8	2.00	4.00		24.6	2.00	4.00		11.5	2.00	4.00	
PFOS	40	70	52.6	2.00	4.00		581	2.00	4.00		399	2.00	4.00		9.88	2.00	4.00	
PFPeA	-	-	2.52	2.00	4.00	J	9.87	2.00	4.00		11.2	2.00	4.00		3.37	2.00	4.00	J
PFTeDA	-	-	<	3.00	4.00	U	<	3.00	4.00	U	<	2.00	4.00	U	<	3.00	4.00	U
PFTrDA	-	-	<	3.00	4.00	U	<	3.00	4.00	U	<	2.00	4.00	U	<	3.00	4.00	U
PFUnDA	-	-	<	3.00	4.00	U	<	3.00	4.00	U	<	2.00	4.00	U	<	3.00	4.00	U
Total PFOA+PFOS	-	70	58.05	2			591.8	2			423.6	2			21.38	2		
Grey Fill	Detected concentration exceeded OSD Screening Levels																	
Bold Font	Detected concentration exceeded USEPA HA Screening Levels																	

References

- a. Assistant Secretary of Defense, 2019. Risk Based Screening Levels Calculated for PFOS and PFOA in Groundwater or Soil using USEPA's Regional Screening Level Calculator. HQ=0.1. 15 October 2019. Groundwater screening levels based on residential scenario for direct ingestion of groundwater.
- b. USEPA. 2021. Risk Based Screening Levels Calculated for PFBS in Groundwater and Soil using USEPA's Regional Screening Level Calculator. HQ=0.1. 8 April 2021.
- c. USEPA. 2016. Drinking Water Health Advisory for PFOA. Office of Water (4304T). Health and Ecological Criteria Division, Washington, DC 20460. EPA Document Number: 822-R-16-005. May 2016. / EPA. 2016. Drinking Water Health Advisory for PFOS. Office of Water (4304T). Health and Ecological Criteria Division, Washington, DC 20460. EPA Document Number: 822-R-16-004. May 2016.

Interpreted Qualifiers

- J = Estimated concentration
- U = The analyte was not detected at a level greater than or equal to the adjusted detection limit (DL)

Chemical Abbreviations

6:2 FTS	6:2 fluorotelomer sulfonate
8:2 FTS	8:2 fluorotelomer sulfonate
NEtFOSAA	N-ethyl perfluorooctane- sulfonamidoacetic acid
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PFBS	perfluorobutanesulfonic acid
PFDA	perfluorodecanoic acid
PFDaA	perfluorodecanoic acid
PFHpA	perfluoroheptanoic acid
PFHxA	perfluorohexanoic acid
PFHxS	perfluorohexanesulfonic acid
PFNA	perfluorononanoic acid
PFOA	perfluorooctanoic acid
PFOS	perfluorooctanesulfonic acid
PFPeA	perfluoropentanoic acid
PFTeDA	perfluorotetradecanoic acid
PFTrDA	perfluorotridecanoic acid
PFUnDA	perfluoro-n-undecanoic acid

Acronyms and Abbreviations

AASF	Army Aviation Support Facility
AOI	Area of Interest
D	duplicate
GW	groundwater
HA	health advisory
HQ	hazard quotient
LCMSMS	liquid chromatography with tandem mass spectrometry
LOD	limit of detection
LOQ	limit of quantitation
OSD	Office of the Secretary of Defense
QSM	Quality Systems Manual
Qual	interpreted qualifier
USEPA	United States Environmental Protection Agency
ng/L	nanogram per liter
-	not applicable
<	analyte not detected above the LOD

Appendix F Laboratory Data
Surface Soil
Site Inspection Report, Windsor Locks AASF, Connecticut

Area of Interest		AOI01																											
		AOI01-01-SB-00-02				AOI01-02-SB-00-02				AOI01-03-SB-00-02				AOI01-04-SB-00-02				AOI01-05-SB-00-02				AOI01-06-SB-00-02				AOI01-07-SB-00-02			
		Sample ID				Sample Date				Sample Date				Sample Date				Sample Date				Sample Date				Sample Date			
		Depth				Depth				Depth				Depth				Depth				Depth				Depth			
Analyte	OSD Screening Level ^{a,b}	Result	LOD	LOQ	Qual	Result	LOD	LOQ	Qual	Result	LOD	LOQ	Qual	Result	LOD	LOQ	Qual	Result	LOD	LOQ	Qual	Result	LOD	LOQ	Qual	Result	LOD	LOQ	Qual
Soil, PFAS by LCMSMS compliant with QSM 5.3 Table B-15 (µg/kg)																													
6:2 FTS	-	<	0.213	1.06	U	0.149	0.254	1.27	J	<	0.221	1.11	U	<	0.211	1.06	U	<	0.234	1.17	U	<	0.223	1.11	U	<	0.219	1.09	U
8:2 FTS	-	<	0.106	1.06	U	0.197	0.127	1.27	J	<	0.111	1.11	U	<	0.106	1.06	U	<	0.117	1.17	U	<	0.111	1.11	U	<	0.109	1.09	U
NEtFOSAA	-	<	0.106	1.06	U	<	0.127	1.27	U	0.039	0.111	1.11	J+	<	0.106	1.06	U	<	0.117	1.17	U	<	0.111	1.11	U	<	0.109	1.09	U
NMeFOSAA	-	<	0.053	1.06	U	<	0.064	1.27	U	<	0.055	1.11	U	<	0.053	1.06	U	<	0.059	1.17	U	<	0.056	1.11	U	<	0.055	1.09	U
PFBA	-	0.054	0.106	1.06	J	0.089	0.127	1.27	J	0.093	0.111	1.11	J	0.048	0.106	1.06	J	<	0.117	1.17	U	0.235	0.111	1.11	J	0.096	0.109	1.09	J
PFBS	1900	0.177	0.053	1.06	J	0.163	0.064	1.27	J	<	0.055	1.11	U	<	0.053	1.06	U	<	0.059	1.17	U	<	0.056	1.11	U	<	0.055	1.09	U
PFDA	-	<	0.106	1.06	U	0.432	0.127	1.27	J	0.366	0.111	1.11	J	0.076	0.106	1.06	J	<	0.117	1.17	U	0.116	0.111	1.11	J	0.183	0.109	1.09	J
PFDoA	-	<	0.053	1.06	U	0.561	0.064	1.27	J	0.134	0.055	1.11	J	0.029	0.053	1.06	J	0.092	0.059	1.17	J	0.023	0.056	1.11	J	0.023	0.055	1.09	J
PFHpA	-	<	0.053	1.06	U	0.045	0.064	1.27	J	0.031	0.055	1.11	J	<	0.053	1.06	U	<	0.059	1.17	U	0.100	0.056	1.11	J	0.026	0.055	1.09	J
PFHxA	-	0.026	0.053	1.06	J	0.096	0.064	1.27	J	0.127	0.055	1.11	J	<	0.083	1.06	U	<	0.059	1.17	U	0.121	0.056	1.11	J	<	0.055	1.09	U
PFHxS	-	0.127	0.106	1.06	J	0.576	0.127	1.27	J	0.856	0.111	1.11	J	0.412	0.106	1.06	J	0.110	0.117	1.17	J	<	0.111	1.11	U	0.068	0.109	1.09	J
PFNA	-	<	0.053	1.06	U	0.145	0.064	1.27	J	0.135	0.055	1.11	J	0.043	0.053	1.06	J	<	0.059	1.17	U	0.120	0.056	1.11	J	0.114	0.055	1.09	J
PFOA	130	<	0.213	1.06	U	<	0.254	1.27	U	<	0.221	1.11	U	<	0.211	1.06	U	<	0.234	1.17	U	0.173	0.223	1.11	J	<	0.219	1.09	U
PFOS	130	1.01	0.213	1.06	J	3.82	0.254	1.27	J	2.86	0.221	1.11	J	2.60	0.211	1.06	J	0.515	0.234	1.17	J	0.445	0.223	1.11	J	0.970	0.219	1.09	J
PFPeA	-	<	0.053	1.06	U	0.124	0.064	1.27	J	0.087	0.055	1.11	J	0.047	0.053	1.06	J	<	0.059	1.17	U	0.189	0.056	1.11	J	0.031	0.055	1.09	J
PFTeDA	-	<	0.053	1.06	U	0.211	0.064	1.27	J	0.054	0.055	1.11	J	<	0.053	1.06	U	0.063	0.059	1.17	J	<	0.056	1.11	U	<	0.055	1.09	U
PFTriDA	-	<	0.106	1.06	U	3.16	0.127	1.27	J	1.56	0.111	1.11	J	<	0.106	1.06	U	0.313	0.117	1.17	J	0.082	0.111	1.11	J	0.035	0.109	1.09	J
PFUnDA	-	0.032	0.053	1.06	J	5.05	0.064	1.27	J	1.51	0.055	1.11	J	0.053	0.053	1.06	J	0.451	0.059	1.17	J	0.051	0.056	1.11	J	0.076	0.055	1.09	J

Grey Fill Detected concentration exceeded OSD Screening Levels

References

- a. Assistant Secretary of Defense, 2019. Risk Based Screening Levels Calculated for PFOS and PFOA in Groundwater or Soil using USEPA's Regional Screening Level Calculator. HQ=0.1. 15 October 2019. Soil screening levels based on residential scenario for direct ingestion of contaminated soil.
- b. USEPA, 2021. Risk Based Screening Levels Calculated for PFBS in Groundwater and Soil using USEPA's Regional Screening Level Calculator. HQ=0.1. 8 April 2021.

Interpreted Qualifiers

- J = Estimated concentration
- J+ = Estimated concentration, biased high
- U = The analyte was not detected at a level greater than or equal to the adjusted detection limit (DL)
- UU = The analyte was not detected at a level greater than or equal to the adjusted detection limit (DL). However, the reported adjusted DL is approximate and may be inaccurate or imprecise.

Chemical Abbreviations

6:2 FTS	6:2 fluorotelomer sulfonate
8:2 FTS	8:2 fluorotelomer sulfonate
NEtFOSAA	N-ethyl perfluorooctane- sulfonamidoacetic acid
NMeFOSAA	N-methyl perfluorooctanesulfonamidoacetic acid
PFBA	perfluorobutanoic acid
PFBS	perfluorobutanesulfonic acid
PFDA	perfluorodecanoic acid
PFDoA	perfluorododecanoic acid
PFHpA	perfluoroheptanoic acid
PFHxA	perfluorohexanoic acid
PFHxS	perfluorohexanesulfonic acid
PFNA	perfluorononanoic acid
PFOA	perfluorooctanoic acid
PFOS	perfluorooctanesulfonic acid
PFPeA	perfluoropentanoic acid
PFTeDA	perfluorotetradecanoic acid
PFTriDA	perfluorotridecanoic acid
PFUnDA	perfluoro-n-undecanoic acid

Acronyms and Abbreviations

AASF	Army Aviation Support Facility
AOI	Area of Interest
D	duplicate
ft	feet
HQ	hazard quotient
LCMSMS	liquid chromatography with tandem mass spectrometry
LOD	limit of detection
LOQ	limit of quantitation
OSD	Office of the Secretary of Defense
QSM	Quality Systems Manual
Qual	interpreted qualifier
SB	soil boring
USEPA	United States Environmental Protection Agency
µg/kg	micrograms per kilogram
-	not applicable
<	analyte not detected above the LOD

Appendix F Laboratory Data
Surface Soil
Site Inspection Report, Windsor Locks AASF, Connecticut

Area of Interest Sample ID Sample Date Depth		AOI01																							
		AOI01-07-SB-00-02-D				AOI01-08-SB-00-02				AOI01-09-SB-00-02				AOI01-09-SB-00-02-D				AOI01-10-SB-00-02				AOI01-10-SB-00-02-D			
		04/28/2021				04/28/2021				04/27/2021				04/27/2021				04/28/2021				04/28/2021			
		0 - 2 ft				0 - 2 ft				0 - 2 ft				0 - 2 ft				0 - 2 ft				0 - 2 ft			
Analyte	OSD Screening Level ^{a,b}	Result	LOD	LOQ	Qual	Result	LOD	LOQ	Qual	Result	LOD	LOQ	Qual	Result	LOD	LOQ	Qual	Result	LOD	LOQ	Qual	Result	LOD	LOQ	Qual
Soil, PFAS by LCMSMS compliant with QSM 5.3 Table B-15 (µg/kg)																									
6:2 FTS	-	<	0.218	1.09	U	<	0.214	1.07	U	<	0.229	1.14	U	<	0.226	1.13	U	<	0.217	1.08	U	<	0.218	1.09	U
8:2 FTS	-	<	0.109	1.09	U	<	0.107	1.07	U	<	0.114	1.14	U	<	0.113	1.13	U	<	0.108	1.08	U	<	0.109	1.09	U
NEtFOSAA	-	<	0.109	1.09	U	<	0.107	1.07	U	<	0.114	1.14	U	<	0.113	1.13	U	<	0.108	1.08	U	<	0.109	1.09	U
NMeFOSAA	-	<	0.054	1.09	U	<	0.054	1.07	U	<	0.057	1.14	U	<	0.057	1.13	U	<	0.054	1.08	U	<	0.054	1.09	U
PFBA	-	0.069	0.109	1.09	J	0.109	0.107	1.07	J	0.258	0.114	1.14	J	0.149	0.113	1.13	J	0.065	0.108	1.08	J	0.058	0.109	1.09	J
PFBS	1900	<	0.054	1.09	U	<	0.054	1.07	U	0.139	0.057	1.14	J	0.137	0.057	1.13	J	<	0.054	1.08	U	<	0.054	1.09	U
PFDA	-	0.116	0.109	1.09	J	0.082	0.107	1.07	J	0.098	0.114	1.14	J	0.070	0.113	1.13	J	0.324	0.108	1.08	J	0.290	0.109	1.09	J
PFDoA	-	0.022	0.054	1.09	J	0.046	0.054	1.07	J	0.038	0.057	1.14	J	0.027	0.057	1.13	J	0.099	0.054	1.08	J	0.102	0.054	1.09	J
PFHpA	-	0.026	0.054	1.09	J	0.049	0.054	1.07	J	0.086	0.057	1.14	J	0.056	0.057	1.13	J	0.023	0.054	1.08	J	<	0.054	1.09	UJ
PFHxA	-	<	0.054	1.09	U	0.087	0.054	1.07	J	0.183	0.057	1.14	J	0.108	0.057	1.13	J	0.080	0.054	1.08	J	0.068	0.054	1.09	J
PFHxS	-	0.059	0.109	1.09	J	0.217	0.107	1.07	J	0.318	0.114	1.14	J	0.261	0.113	1.13	J	0.377	0.108	1.08	J	0.311	0.109	1.09	J
PFNA	-	0.070	0.054	1.09	J	0.039	0.054	1.07	J	0.161	0.057	1.14	J	0.111	0.057	1.13	J	<	0.054	1.08	UJ	0.053	0.054	1.09	J
PFOA	130	<	0.218	1.09	U	0.155	0.214	1.07	J	0.200	0.229	1.14	J	0.139	0.226	1.13	J	<	0.217	1.08	U	<	0.218	1.09	U
PFOS	130	1.18	0.218	1.09		4.28	0.214	1.07	J+	2.17	0.229	1.14		1.77	0.226	1.13		2.00	0.217	1.08		1.79	0.218	1.09	
PFPeA	-	0.031	0.054	1.09	J	0.098	0.054	1.07	J	0.180	0.057	1.14	J	0.107	0.057	1.13	J	0.044	0.054	1.08	J	0.035	0.054	1.09	J
PFTeDA	-	<	0.054	1.09	U	<	0.054	1.07	U	<	0.057	1.14	U	<	0.057	1.13	U	0.039	0.054	1.08	J	0.032	0.054	1.09	J
PFTrDA	-	0.035	0.109	1.09	J	0.067	0.107	1.07	J	0.147	0.114	1.14	J	0.124	0.113	1.13	J	0.475	0.108	1.08	J	0.509	0.109	1.09	J
PFUnDA	-	0.055	0.054	1.09	J	0.282	0.054	1.07	J	0.170	0.057	1.14	J	0.120	0.057	1.13	J	1.27	0.054	1.08		1.30	0.054	1.09	

Grey Fill Detected concentration exceeded OSD Screening Levels

References

- a. Assistant Secretary of Defense, 2019. Risk Based Screening Levels Calculated for PFOS and PFOA in Groundwater or Soil using USEPA's Regional Screening Level Calculator. HQ=0.1. 15 October 2019. Soil screening levels based on residential scenario for direct ingestion of contaminated soil.
- b. USEPA, 2021. Risk Based Screening Levels Calculated for PFBS in Groundwater and Soil using USEPA's Regional Screening Level Calculator. HQ=0.1. 8 April 2021.

Interpreted Qualifiers

- J = Estimated concentration
- J+ = Estimated concentration, biased high
- U = The analyte was not detected at a level greater than or equal to the adjusted detection limit (DL)
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Chemical Abbreviations

6:2 FTS	6:2 fluorotelomer sulfonate
8:2 FTS	8:2 fluorotelomer sulfonate
NEtFOSAA	N-ethyl perfluorooctane- sulfonamidoacetic acid
NMeFOSAA	N-methyl perfluorooctanesulfonamidoacetic acid
PFBA	perfluorobutanoic acid
PFBS	perfluorobutanesulfonic acid
PFDA	perfluorodecanoic acid
PFDoA	perfluorododecanoic acid
PFHpA	perfluoroheptanoic acid
PFHxA	perfluorohexanoic acid
PFHxS	perfluorohexanesulfonic acid
PFNA	perfluorononanoic acid
PFOA	perfluorooctanoic acid
PFOS	perfluorooctanesulfonic acid
PFPeA	perfluoropentanoic acid
PFTeDA	perfluorotetradecanoic acid
PFTrDA	perfluorotridecanoic acid
PFUnDA	perfluoro-n-undecanoic acid

Acronyms and Abbreviations

AASF	Army Aviation Support Facility
AOI	Area of Interest
D	duplicate
ft	feet
HQ	hazard quotient
LCMSMS	liquid chromatography with tandem mass spectrometry
LOD	limit of detection
LOQ	limit of quantitation
OSD	Office of the Secretary of Defense
QSM	Quality Systems Manual
Qual	interpreted qualifier
SB	soil boring
USEPA	United States Environmental Protection Agency
µg/kg	micrograms per kilogram
-	not applicable
<	analyte not detected above the LOD

Appendix F Laboratory Data
Shallow Subsurface Soil
Site Inspection Report, Windsor Locks AASF, Connecticut

Area of Interest		AOI01																											
		AOI01-01-SB-05-07				AOI01-02-SB-04-06				AOI01-03-SB-03-05				AOI01-03-SB-05-07				AOI01-04-SB-03-05				AOI01-05-SB-02-04				AOI01-05-SB-04-06			
		Sample ID				Sample Date				Sample Date				Sample Date				Sample Date				Sample Date				Sample Date			
		Depth				Depth				Depth				Depth				Depth				Depth				Depth			
Analyte	OSD Screening Level ^{a,b}	Result	LOD	LOQ	Qual	Result	LOD	LOQ	Qual	Result	LOD	LOQ	Qual	Result	LOD	LOQ	Qual	Result	LOD	LOQ	Qual	Result	LOD	LOQ	Qual	Result	LOD	LOQ	Qual
Soil, PFAS by LCMSMS compliant with QSM 5.3 Table B-15 (µg/kg)																													
6:2 FTS	-	<	0.212	1.06	U	<	0.258	1.29	U	<	0.223	1.12	U	<	0.261	1.30	U	<	0.229	1.14	U	<	0.216	1.08	U	<	0.236	1.18	U
8:2 FTS	-	<	0.106	1.06	U	0.070	0.129	1.29	J	<	0.112	1.12	U	<	0.130	1.30	U	<	0.114	1.14	U	<	0.108	1.08	U	<	0.118	1.18	U
NEtFOSAA	-	<	0.106	1.06	U	<	0.129	1.29	U	<	0.112	1.12	U	<	0.130	1.30	U	<	0.114	1.14	U	<	0.108	1.08	U	<	0.118	1.18	U
NMeFOSAA	-	<	0.053	1.06	U	<	0.064	1.29	U	<	0.056	1.12	U	<	0.065	1.30	U	<	0.057	1.14	U	<	0.054	1.08	U	<	0.059	1.18	U
PFBA	-	0.045	0.106	1.06	J	0.061	0.129	1.29	J	0.055	0.112	1.12	J	0.141	0.130	1.30	J	<	0.114	1.14	U	<	0.108	1.08	U	<	0.118	1.18	U
PFBS	25000	0.162	0.053	1.06	J	<	0.091	1.29	U	<	0.056	1.12	U	<	0.065	1.30	U	<	0.057	1.14	U	<	0.054	1.08	U	<	0.059	1.18	U
PFDA	-	<	0.106	1.06	U	0.675	0.129	1.29	J	0.346	0.112	1.12	J	0.230	0.130	1.30	J	<	0.114	1.14	U	<	0.108	1.08	U	<	0.118	1.18	U
PFDoA	-	<	0.053	1.06	U	<	0.064	1.29	U	0.115	0.056	1.12	J	0.047	0.065	1.30	J	<	0.057	1.14	U	0.032	0.054	1.08	J	<	0.059	1.18	U
PFHpA	-	<	0.053	1.06	U	0.064	0.064	1.29	J	0.181	0.056	1.12	J	0.093	0.065	1.30	J	<	0.057	1.14	U	<	0.054	1.08	U	<	0.059	1.18	U
PFHxA	-	<	0.053	1.06	U	0.077	0.064	1.29	J	0.316	0.056	1.12	J	0.530	0.065	1.30	J	<	0.057	1.14	U	<	0.054	1.08	U	<	0.059	1.18	U
PFHxS	-	<	0.106	1.06	U	0.148	0.129	1.29	J	4.86	0.112	1.12		7.56	0.130	1.30		0.129	0.114	1.14	J	0.058	0.108	1.08	J	<	0.118	1.18	U
PFNA	-	<	0.053	1.06	U	0.150	0.064	1.29	J	0.169	0.056	1.12	J	0.170	0.065	1.30	J	<	0.057	1.14	U	0.023	0.054	1.08	J	<	0.059	1.18	U
PFOA	1600	<	0.212	1.06	U	<	0.258	1.29	U	0.278	0.223	1.12	J	0.491	0.261	1.30	J	<	0.229	1.14	U	<	0.216	1.08	U	<	0.236	1.18	U
PFOS	1600	0.582	0.212	1.06	J	1.89	0.258	1.29		5.07	0.223	1.12		6.19	0.261	1.30		0.310	0.229	1.14	J+	0.196	0.216	1.08	J	0.300	0.236	1.18	J
PFPeA	-	<	0.053	1.06	U	0.066	0.064	1.29	J	0.055	0.056	1.12	J	0.096	0.065	1.30	J	<	0.057	1.14	U	0.023	0.054	1.08	J	<	0.059	1.18	U
PFTeDA	-	<	0.053	1.06	U	<	0.064	1.29	UJ	0.034	0.056	1.12	J	<	0.065	1.30	U	<	0.057	1.14	U	0.022	0.054	1.08	J	<	0.059	1.18	U
PFTrDA	-	<	0.106	1.06	U	<	0.129	1.29	UJ	1.42	0.112	1.12		0.539	0.130	1.30	J	<	0.114	1.14	U	0.098	0.108	1.08	J	<	0.118	1.18	U
PFUnDA	-	<	0.053	1.06	U	1.35	0.064	1.29		8.02	0.056	1.12		3.31	0.065	1.30		<	0.057	1.14	U	0.162	0.054	1.08	J	<	0.059	1.18	U

Grey Fill Detected concentration exceeded OSD Screening Levels

References

- a. Assistant Secretary of Defense, 2019. Risk Based Screening Levels Calculated for PFOS and PFOA in Groundwater or Soil using USEPA's Regional Screening Level Calculator. HQ=0.1. 15 October 2019. Soil screening levels based on industrial/commercial composite worker scenario for incidental ingestion of contaminated soil.
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PFOA	perfluorooctanoic acid
PFOS	perfluorooctanesulfonic acid
PFPeA	perfluoropentanoic acid
PFTeDA	perfluorotetradecanoic acid
PFTrDA	perfluorotridecanoic acid
PFUnDA	perfluoro-n-undecanoic acid

Acronyms and Abbreviations

AASF	Army Aviation Support Facility
AOI	Area of Interest
ft	feet
HQ	hazard quotient
LCMSMS	liquid chromatography with tandem mass spectrometry
LOD	limit of detection
LOQ	limit of quantitation
OSD	Office of the Secretary of Defense
QSM	Quality Systems Manual
Qual	interpreted qualifier
SB	soil boring
USEPA	United States Environmental Protection Agency
µg/kg	micrograms per kilogram
-	not applicable
<	analyte not detected above the LOD

Appendix F Laboratory Data
Shallow Subsurface Soil
Site Inspection Report, Windsor Locks AASF, Connecticut

Area of Interest		AOI01																											
		AOI01-06-SB-03-05				AOI01-07-SB-02-04				AOI01-07-SB-04-06				AOI01-08-SB-02-04				AOI01-08-SB-04-06				AOI01-09-SB-05-07				AOI01-09-SB-08-10			
		04/28/2021				04/28/2021				04/28/2021				04/28/2021				04/28/2021				04/27/2021				04/27/2021			
		Depth				3 - 5 ft				2 - 4 ft				4 - 6 ft				2 - 4 ft				4 - 6 ft				5 - 7 ft			
Analyte	OSD Screening Level ^{a,b}	Result	LOD	LOQ	Qual	Result	LOD	LOQ	Qual	Result	LOD	LOQ	Qual	Result	LOD	LOQ	Qual	Result	LOD	LOQ	Qual	Result	LOD	LOQ	Qual	Result	LOD	LOQ	Qual
Soil, PFAS by LCMSMS compliant with QSM 5.3 Table B-15 (µg/kg)																													
6:2 FTS	-	<	0.280	1.40	U	<	0.215	1.07	U	<	0.232	1.16	U	<	0.236	1.18	U	0.214	0.260	1.30	J	<	0.232	1.16	U	<	0.230	1.15	U
8:2 FTS	-	<	0.140	1.40	U	<	0.107	1.07	U	<	0.116	1.16	U	<	0.118	1.18	U	<	0.130	1.30	U	<	0.116	1.16	U	<	0.115	1.15	U
NEtFOSAA	-	<	0.140	1.40	U	<	0.107	1.07	U	<	0.116	1.16	U	<	0.118	1.18	U	<	0.130	1.30	U	<	0.116	1.16	U	<	0.115	1.15	U
NMeFOSAA	-	<	0.070	1.40	U	<	0.054	1.07	U	<	0.058	1.16	U	<	0.059	1.18	U	<	0.065	1.30	U	<	0.058	1.16	U	<	0.058	1.15	U
PFBA	-	<	0.140	1.40	U	<	0.107	1.07	U	<	0.116	1.16	U	<	0.118	1.18	U	<	0.130	1.30	U	<	0.116	1.16	U	<	0.115	1.15	U
PFBS	25000	<	0.070	1.40	U	<	0.054	1.07	U	<	0.058	1.16	U	<	0.059	1.18	U	<	0.065	1.30	U	0.117	0.058	1.16	J	0.145	0.058	1.15	J
PFDA	-	<	0.140	1.40	U	<	0.107	1.07	U	<	0.116	1.16	U	0.057	0.118	1.18	J	<	0.130	1.30	U	<	0.116	1.16	U	<	0.115	1.15	U
PFDoA	-	<	0.070	1.40	U	<	0.054	1.07	U	<	0.058	1.16	U	<	0.059	1.18	U	<	0.065	1.30	U	<	0.058	1.16	U	<	0.058	1.15	U
PFHpA	-	<	0.070	1.40	U	<	0.054	1.07	U	<	0.058	1.16	U	0.030	0.059	1.18	J	<	0.065	1.30	U	<	0.058	1.16	U	<	0.058	1.15	U
PFHxA	-	0.039	0.070	1.40	J	<	0.054	1.07	U	<	0.058	1.16	U	<	0.059	1.18	U	0.119	0.065	1.30	J	0.035	0.058	1.16	J	<	0.058	1.15	U
PFHxS	-	<	0.140	1.40	U	<	0.107	1.07	U	<	0.116	1.16	U	0.061	0.118	1.18	J	<	0.130	1.30	U	0.039	0.116	1.16	J	0.081	0.115	1.15	J
PFNA	-	<	0.070	1.40	U	<	0.054	1.07	U	<	0.058	1.16	U	0.164	0.059	1.18	J	<	0.065	1.30	U	0.026	0.058	1.16	J	<	0.058	1.15	U
PFOA	1600	<	0.280	1.40	U	<	0.215	1.07	U	<	0.232	1.16	U	0.285	0.236	1.18	J	<	0.260	1.30	U	<	0.232	1.16	U	<	0.230	1.15	U
PFOS	1600	<	0.280	1.40	U	0.169	0.215	1.07	J	0.299	0.232	1.16	J	41.5	2.36	11.8		<	0.260	1.30	U	0.441	0.232	1.16	J	<	0.230	1.15	U
PFPeA	-	<	0.070	1.40	U	<	0.054	1.07	U	<	0.058	1.16	U	0.027	0.059	1.18	J	<	0.065	1.30	U	<	0.058	1.16	U	<	0.058	1.15	U
PFTeDA	-	<	0.070	1.40	U	<	0.054	1.07	U	<	0.058	1.16	U	<	0.059	1.18	U	<	0.065	1.30	U	<	0.058	1.16	U	<	0.058	1.15	U
PFTrDA	-	<	0.140	1.40	U	<	0.107	1.07	U	<	0.116	1.16	U	<	0.118	1.18	U	<	0.130	1.30	U	<	0.116	1.16	U	<	0.115	1.15	U
PFUnDA	-	<	0.070	1.40	U	<	0.054	1.07	U	<	0.058	1.16	U	<	0.059	1.18	U	<	0.065	1.30	U	<	0.058	1.16	U	<	0.058	1.15	U

Grey Fill Detected concentration exceeded OSD Screening Levels

References

- a. Assistant Secretary of Defense, 2019. Risk Based Screening Levels Calculated for PFOS and PFOA in Groundwater or Soil using USEPA's Regional Screening Level Calculator. HQ=0.1. 15 October 2019. Soil screening levels based on industrial/commercial composite worker scenario for incidental ingestion of contaminated soil.
- b. USEPA, 2021. Risk Based Screening Levels Calculated for PFBS in Groundwater and Soil using USEPA's Regional Screening Level Calculator. HQ=0.1. 8 April 2021.

Interpreted Qualifiers

J = Estimated concentration
J+ = Estimated concentration, biased high
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Chemical Abbreviations

6:2 FTS	6:2 fluorotelomer sulfonate
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PFBA	perfluorobutanoic acid
PFBS	perfluorobutanesulfonic acid
PFDA	perfluorodecanoic acid
PFDoA	perfluorododecanoic acid
PFHpA	perfluoroheptanoic acid
PFHxA	perfluorohexanoic acid
PFHxS	perfluorohexanesulfonic acid
PFNA	perfluorononanoic acid
PFOA	perfluorooctanoic acid
PFOS	perfluorooctanesulfonic acid
PFPeA	perfluoropentanoic acid
PFTeDA	perfluorotetradecanoic acid
PFTrDA	perfluorotridecanoic acid
PFUnDA	perfluoro-n-undecanoic acid

Acronyms and Abbreviations

AASF	Army Aviation Support Facility
AOI	Area of Interest
ft	feet
HQ	hazard quotient
LCMSMS	liquid chromatography with tandem mass spectrometry
LOD	limit of detection
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OSD	Office of the Secretary of Defense
QSM	Quality Systems Manual
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USEPA	United States Environmental Protection Agency
ug/Kg	micrograms per kilogram
-	not applicable
<	analyte not detected above the LOD

Appendix F Laboratory Data
Shallow Subsurface Soil
Site Inspection Report, Windsor Locks AASF, Connecticut

Area of Interest		AOI01			
Sample ID		AOI01-10-SB-03-05			
Sample Date		04/28/2021			
Depth		3 - 5 ft			
Analyte	OSD Screening Level ^{a,b}	Result	LOD	LOQ	Qual
Soil, PFAS by LCMSMS compliant with QSM 5.3 Table B-15 (µg/kg)					
6:2 FTS	-	<	0.247	1.24	U
8:2 FTS	-	<	0.124	1.24	U
NEtFOSAA	-	<	0.124	1.24	U
NMeFOSAA	-	<	0.062	1.24	U
PFBA	-	0.066	0.124	1.24	J
PFBS	25000	<	0.062	1.24	U
PFDA	-	<	0.124	1.24	U
PFDoA	-	<	0.062	1.24	U
PFHpA	-	0.033	0.062	1.24	J
PFHxA	-	0.089	0.062	1.24	J
PFHxS	-	0.297	0.124	1.24	J+
PFNA	-	0.141	0.062	1.24	J
PFOA	1600	0.106	0.247	1.24	J+
PFOS	1600	0.795	0.247	1.24	J
PFPeA	-	0.043	0.062	1.24	J
PFTeDA	-	<	0.062	1.24	U
PFTrDA	-	<	0.124	1.24	U
PFUnDA	-	<	0.062	1.24	U

Grey Fill	Detected concentration exceeded OSD Screening Levels
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References

- a. Assistant Secretary of Defense, 2019. Risk Based Screening Levels Calculated for PFOS and PFOA in Groundwater or Soil using USEPA's Regional Screening Level Calculator. HQ=0.1. 15 October 2019. Soil screening levels based on industrial/commercial composite worker scenario for incidental ingestion of contaminated soil.
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J+ = Estimated concentration, biased high

U = The analyte was not detected at a level greater than or equal to the adjusted detection limit (DL)

UU = The analyte was not detected at a level greater than or equal to the adjusted DL. However, the reported adjusted DL is approximate and may be inaccurate or imprecise.

Chemical Abbreviations

6:2 FTS	6:2 fluorotelomer sulfonate
8:2 FTS	8:2 fluorotelomer sulfonate
NEtFOSAA	N-ethyl perfluorooctane- sulfonamidoacetic acid
NMeFOSAA	N-methyl perfluorooctanesulfonamidoacetic acid
PFBA	perfluorobutanoic acid
PFBS	perfluorobutanesulfonic acid
PFDA	perfluorodecanoic acid
PFDoA	perfluorododecanoic acid
PFHpA	perfluoroheptanoic acid
PFHxA	perfluorohexanoic acid
PFHxS	perfluorohexanesulfonic acid
PFNA	perfluorononanoic acid
PFOA	perfluorooctanoic acid
PFOS	perfluorooctanesulfonic acid
PFPeA	perfluoropentanoic acid
PFTeDA	perfluorotetradecanoic acid
PFTrDA	perfluorotridecanoic acid
PFUnDA	perfluoro-n-undecanoic acid

Acronyms and Abbreviations

AASF	Army Aviation Support Facility
AOI	Area of Interest
ft	feet
HQ	hazard quotient
LCMSMS	liquid chromatography with tandem mass spectrometry
LOD	limit of detection
LOQ	limit of quantitation
OSD	Office of the Secretary of Defense
QSM	Quality Systems Manual
Qual	interpreted qualifier
SB	soil boring
USEPA	United States Environmental Protection Agency
ug/Kg	micrograms per kilogram
-	not applicable
<	analyte not detected above the LOD

Appendix F Laboratory Data
Decontamination Water and Quality Control Samples
Site Inspection Report, Windsor Locks AASF, Connecticut

Area of Interest Sample ID Sample Date	DECON				QC																			
	WL-DECON-01				WL-ERB-01				WL-ERB-02				WL-ERB-03				WL-ERB-04				WL-FRB-01			
	03/26/2021				04/28/2021				04/28/2021				04/29/2021				04/29/2021				04/29/2021			
Analyte	Result	LOD	LOQ	Qual	Result	LOD	LOQ	Qual	Result	LOD	LOQ	Qual	Result	LOD	LOQ	Qual	Result	LOD	LOQ	Qual	Result	LOD	LOQ	Qual
Water, PFAS by LCMSMS compliant with QSM 5.3 Table B-15 (ng/L)																								
6:2 FTS	<	2.00	4.00	U	<	3.00	4.00	U	<	3.00	4.00	U	<	3.00	4.00	U	<	3.00	4.00	U	<	3.00	4.00	U
8:2 FTS	<	2.00	4.00	U	<	3.00	4.00	U	<	3.00	4.00	U	<	3.00	4.00	U	<	3.00	4.00	U	<	3.00	4.00	U
NEtFOSAA	<	4.00	8.00	U	<	4.00	8.00	U	<	4.00	8.00	U	<	4.00	8.00	U	<	4.00	8.00	U	<	4.00	8.00	U
NMeFOSAA	<	4.00	8.00	U	<	4.00	8.00	U	<	4.00	8.00	U	<	4.00	8.00	U	<	4.00	8.00	U	<	4.00	8.00	U
PFBA	2.80	2.00	4.00	J	<	3.50	4.00	U	<	3.50	4.00	U	<	3.50	4.00	U	<	3.50	4.00	U	<	3.50	4.00	U
PFBS	<	2.00	4.00	U	<	2.00	4.00	U	<	2.00	4.00	U	<	2.00	4.00	U	<	2.00	4.00	U	<	2.00	4.00	U
PFDA	<	2.00	4.00	U	<	3.00	4.00	U	<	3.00	4.00	U	<	3.00	4.00	U	<	3.00	4.00	U	<	3.00	4.00	U
PFDoA	<	2.00	4.00	U	<	3.00	4.00	U	<	3.00	4.00	U	<	3.00	4.00	U	<	3.00	4.00	U	<	3.00	4.00	U
PFHpA	<	2.00	4.00	U	<	3.00	4.00	U	<	3.00	4.00	U	<	3.00	4.00	U	<	3.00	4.00	U	<	3.00	4.00	U
PFHxA	1.61	2.00	4.00	J	<	2.00	4.00	U	<	2.00	4.00	U	<	2.00	4.00	U	<	2.00	4.00	U	<	2.00	4.00	U
PFHxS	<	2.00	4.00	U	<	3.00	4.00	U	<	3.00	4.00	U	<	3.00	4.00	U	<	3.00	4.00	U	<	3.00	4.00	U
PFNA	<	2.00	4.00	U	<	2.00	4.00	U	<	2.00	4.00	U	<	2.00	4.00	U	<	2.00	4.00	U	<	2.00	4.00	U
PFOA	1.13	2.00	4.00	J	<	2.00	4.00	U	<	2.00	4.00	U	<	2.00	4.00	U	<	2.00	4.00	U	<	2.00	4.00	U
PFOS	0.875	2.00	4.00	J	20.7	2.00	4.00		13.6	2.00	4.00		<	2.00	4.00	U	<	2.00	4.00	U	<	2.00	4.00	U
PFPeA	<	2.00	4.00	U	<	2.00	4.00	U	<	2.00	4.00	U	<	2.00	4.00	U	<	2.00	4.00	U	<	2.00	4.00	U
PFTeDA	<	2.00	4.00	U	<	3.00	4.00	U	<	3.00	4.00	U	<	3.00	4.00	U	<	3.00	4.00	U	<	3.00	4.00	U
PFTrDA	<	2.00	4.00	U	<	3.00	4.00	U	<	3.00	4.00	U	<	3.00	4.00	U	<	3.00	4.00	U	<	3.00	4.00	U
PFUnDA	<	2.00	4.00	U	<	3.00	4.00	U	<	3.00	4.00	U	<	3.00	4.00	U	<	3.00	4.00	U	<	3.00	4.00	U

Interpreted Qualifiers

J = Estimated concentration

U = The analyte was not detected at a level greater than or equal to the adjusted detection limit (DL)

Chemical Abbreviations

6:2 FTS	6:2 fluorotelomer sulfonate
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PFOA	perfluorooctanoic acid
PFOS	perfluorooctanesulfonic acid
PFPeA	perfluoropentanoic acid
PFTeDA	perfluorotetradecanoic acid
PFTrDA	perfluorotridecanoic acid
PFUnDA	perfluoro-n-undecanoic acid

Acronyms and Abbreviations

AASF	Army Aviation Support Facility
ERB	equipment rinse blank
FRB	field reagent blank
LCMSMS	liquid chromatography with tandem mass spectrometry
LOD	limit of detection
LOQ	limit of quantitation
QC	quality control
QSM	Quality Systems Manual
Qual	interpreted qualifier
WL	Windsor Locks
ng/L	nanogram per liter
<	analyte not detected above the LOD

Appendix F Laboratory Data
TOC and pH
Site Inspection Report, Windsor Locks AASF, Connecticut

Area of Interest Sample ID Sample Date Depth	AOI01											
	AOI01-05-SB-00-02				AOI01-05-SB-00-02-D				AOI01-10-SB-00-02			
	04/28/2021				04/28/2021				04/28/2021			
	0 - 2 ft				0 - 2 ft				0 - 2 ft			
Analyte	Result	LOD	LOQ	Qual	Result	LOD	LOQ	Qual	Result	LOD	LOQ	Qual
pH	7.88	1.00	1.00	J	7.94	1.00	1.00	J	7.30	1.00	1.00	J
Total Organic Carbon (mg/kg)	11700	200	250		10300	200	250		9660	200	250	

Acronyms and Abbreviations

AASF Army Aviation Support Facility
AOI Area of Interest
D duplicate
ft ft
LOD limit of detection
LOQ limit of quantitation
Qual interpreted qualifier
mg/kg milligram per kilogram
SB soil boring

Interpreted Qualifiers

J = Estimated concentration

Appendix G

Laboratory Reports

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Due to file size, laboratory reports are provided electronically (CD) or can be requested.

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