Final
Site Inspection Report
Joint Forces Training Base
Los Alamitos, CA

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

August 2021

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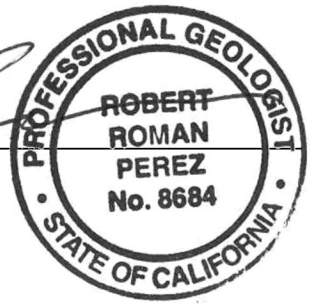

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Acronyms and Abbreviations

°C	degrees Celsius
°F	degrees Fahrenheit
µg/kg	micrograms per kilogram
6:2 FTS	6:2 Fluorotelomer sulfonate
8:2 FTS	8:2 Fluorotelomer sulfonate
AECOM	AECOM Technical Services, Inc.
AFFF	aqueous film forming foam
AFRC	Armed Forces Reserve Center
amsl	above mean sea level
AOI	area of interest
ARNG	Army National Guard
AST	aboveground storage tank
bgs	below ground surface
btoc	below top of casing
CAARNG	California Army National Guard
CDFA	California Department of Food and Agriculture
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Crash Fire Rescue
CoC	chain of custody
CSM	conceptual site model
DA	Department of the Army
DO	dissolved oxygen
DoD	Department of Defense
DPT	direct-push technology
DPVE	dual-phase vacuum extraction
DQI	data quality indicator
DQO	data quality objective
DTSC	Department of Toxic Substance Control
DUA	data usability assessment
DVR	data validation report
DWR	Department of Water Resources
EIS	Extraction internal standards
ELAP	Environmental Laboratory Accreditation Program
EM	Engineers Manual
ERB	equipment rinsate blank
FD	Fire Department
FedEx	Federal Express
FFO	Fuel Farm Office
FRB	field reagent blank
FTA	Fire Training Area
gpm	gallons per minute
gpm/sqft	gallons per minute per square foot

HA	Health Advisory
HDPE	high-density polyethylene
IDW	investigation-derived waste
ITRC	Interstate Technology Regulatory Council
JFTB LA	Joint Forces Training Base Los Alamitos
JP-4	Jet Propellant-4
LAACOC	Los Alamitos Area Chamber of Commerce
LC/MS/MS	liquid chromatography tandem mass spectrometry
LCS	laboratory control sample
LCSD	laboratory control sample duplicate
LOQ	limit of quantitation
MDL	method detection limit
MS	matrix spike
MSD	matrix spike duplicate
N	North
NAS	Naval Air Station
NELAP	National Environmental Laboratory Accreditation Program
NEtFOSAA	N-ethyl perfluorooctanesulfonamidoacetic acid
ng/L	nanograms per liter
NMeFOSAA	N-methyl perfluorooctanesulfonamidoacetic acid
OCB	Orange County Groundwater Basin
OCWD	Orange County Water District
ORP	oxidation-reduction potential
OSD	Office of the Secretary of Defense
PA	Preliminary Assessment
PFAS	per- and polyfluoroalkyl substances
PFBA	perfluorobutyrate
PFBS	perfluorobutanesulfonic acid
PFCs	perfluorinated compounds
PFDA	perfluorodecanoic acid
PFDoA	perfluoroheptanoic 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
PFUdA	perfluoroundecanoic acid
PID	photoionization detector
PPE	Personal Protective Equipment
PQAPP	Programmatic UFP-QAPP

PVC	poly-vinyl chloride
QAPP	Quality Assurance Project Plan
QC	quality control
QSM	Quality Systems Manual
RI	Remedial Investigation
RPD	relative percent differences
RSC	Rossmoor Storm Channel
RSL	Regional Screening Level
RWQCB	Regional Water Quality Control Board
SCEDC	Southern California Earthquake Data Center
SI	Site Inspection
SL	screening level
SOP	Standard Operating Procedure
sqft	square foot
SSS	SubSurface Surveys & Associates, Inc
SWRCB	California State Water Resources Control Board
TFA	Tank Farm Area
TFFT	tactical firefighting truck
TOC	total organic carbon
TPP	Technical Project Planning
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
UST	underground storage tank
W	West
WCC	Winner’s Circle Court
WDD	Western Drainage Ditch
WEF	West End of the Flightline

Executive Summary

The Army National Guard (ARNG) 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). This SI was performed by the ARNG at the Joint Forces Training Base Los Alamitos (JFTB LA) in Los Alamitos, California. JFTB LA will be referred to as the "facility" throughout this document.

The JFTB LA is located in northwestern Orange County, California, within the southeastern corner of the city of Los Alamitos, approximately 20 miles to the southeast of the city of Los Angeles. The JFTB LA is largely developed with buildings, roads, and an airfield and occupies approximately 1,319 acres of near-level terrain. The most prominent feature of the JFTB LA is its airfield, which occupies approximately 465 acres and has two runways that are served by a fully staffed Army Air Traffic Control Tower, crash rescue and fire department (FD), jet fuel farm for aviation refueling, and an Army Aviation Weather Office. The JFTB LA is operated by California ARNG (CAARNG) and serves multiple tenant entities representing military services, federal, state, municipal, public, private, and nonprofit organizations.

The PA Report (AECOM, 2019a) for JFTB LA identified eight potential PFAS release areas, including three Fire Training Areas, Hangar 1, JFTB LA Fire Station, Building 80, Emergency Response Site on Alpha Hammer-Head taxiway, and the Western Drainage Ditch. Two additional potential PFAS release areas, Ramp Area in front of Hangar 1 and 3 and Groundwater Remediation System, were discovered after completion of PA. The potential release areas were grouped into eight different Areas of Interest (AOIs), which were investigated during the SI. The SI field activities were conducted during 21 to 29 October 2019 and included the collection of soil, groundwater, and surface water samples.

To fulfill the project Data Quality Objectives (DQOs) set forth in the approved SI Quality Assurance Project Plan (QAPP) Addendum (AECOM, 2018a), samples were collected and analyzed for a subset of 18 PFAS via liquid chromatography with tandem mass spectrometry (LC/MS/MS) Compliant with Quality Systems Manual (QSM) 5.1 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 October 2019 (Assistant Secretary of Defense, 2019). The ARNG PFAS SIs follow this DoD policy and, when the maximum site concentration for sampled media exceed the SLs, the site will proceed to a Remedial Investigation (RI), the next phase under CERCLA. The SLs apply to three compounds, PFOA, PFOS, and PFBS, for both soil and groundwater, as presented in **Table ES-1**. All other results presented in this report are considered informational in nature and serve as an indication as to whether soil, groundwater, sediment, and surface water do or do not contain the 18 PFAS analyzed within the boundaries of the Site.

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

- PFOS and PFOA in soil at AOI 3: West End of the Flightline exceeded the individual SLs of 130 µg/Kg with maximum concentrations of 1570 µg/Kg (AOI3-2) and 219 µg/Kg (AOI 3-12), respectively. Based on the results of the SI, further evaluation of AOI 3 is warranted in the RI.

- PFOA and PFOS in soil at AOI 5: Building 34 exceeded the individual SLs of 130 µg/Kg with concentrations of 134 µg/Kg and 352 µg/Kg, respectively. Based on the results of the SI, further evaluation of AOI 5 is warranted in the RI.

- PFOA in groundwater at AOI 1: Old CFR Training Pits exceeded the SL of 40 nanograms per liter (ng/L), with a maximum concentration of 166,000 ng/L at location AOI 1-5. Additionally, PFOS in groundwater at AOI 1 exceeded the SL of 40 ng/L, with a maximum concentration of 11,100 J- ng/L at location AOI 1-2. Based on the results of the SI, further evaluation of AOI 1 is warranted in the RI.

- PFOA and PFOS in groundwater at AOI 2: New CFR Training Pit exceeded the individual SLs of 40 ng/L, with concentrations of 62,900 ng/L and 1,620 ng/L, respectively, at location AOI 2-5. Based on the results of the SI, further evaluation of AOI 2 is warranted in the RI.

- PFOA and PFOS in groundwater at AOI 3: West End of the Flightline exceeded the individual SLs of 40 ng/L, with maximum concentrations of 6,380 ng/L and 16,600 J- ng/L, respectively, at location AOI 3-11. Based on the results of the SI, further evaluation of AOI 3 is warranted in the RI.

- PFOA and PFOS in groundwater at AOI 4: Hangar 1 exceeded the individual SLs of 40 ng/L, with concentrations of 245 ng/L and 401 ng/L, respectively, at location AOI 4-1. Based on the results of the SI, further evaluation of AOI 4 is warranted in the RI.

- PFOA and PFOS in groundwater at AOI 5: Building 34 (JFTB LA Fire Station) exceeded the individual SLs of 40 ng/L, with maximum concentrations of 31,300 ng/L and 16,800 J ng/L, respectively, at location AOI 5-1. Based on the results of the SI, further evaluation of AOI 5 is warranted in the RI.

- PFOA and PFOS in groundwater at AOI 8: Western Drainage Ditch exceeded the individual SLs of 40 ng/L, with concentrations of 3,740 ng/L and 4,880 ng/L, respectively, at location AOI 8-X3. Based on the results of the SI, further evaluation of AOI 8 is warranted in the RI.

- The detected concentrations of PFOA, PFOS, and PFBS in soil samples from all AOIs were below the 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 a potentially complete exposure pathway to residential drinking water receptors caused by DoD activities at or adjacent to the facility.

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: Old CFR Training Pits, AOI 2: New CFR Training Pit, AOI 3: West End of Flightline, AOI 4: Hangar 1, AOI 5: Building 34, and AOI 8: Western Drainage Ditch.

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]
PFOA	130	1,600	40
PFOS	130	1,600	40
PFBS	130,000	1,600,000	40,000

Notes:

a.) Assistant Secretary of Defense, 2019. Risk Based Screening Levels Calculated for PFOS, PFOA, PFBS in Groundwater and Soil using USEPA's Regional Screening Level (RSL) Calculator. HQ=0.1. 15 October 2019.

b.) If only one PFAS is present, a Hazard Quotient (HQ) of 1 applies and the values presented would increase by a factor of x10.

Table ES- 2 Summary of Site Inspection Findings

AOI	Potential PFAS Release Area	Soil – Source Area	Groundwater – Source Area	Groundwater – Facility Boundary
1	Old CFR Training Pits	◐	●	NA
2	New CFR Training Pit	◐	●	NA
3	West End of the Flightline	●	●	NA
4	Hangar 1	◐	●	NA
5	Building 34 (JFTB LA Fire Station)	●	●	NA
6	AFFF Release in Vicinity of Building 80	◐	◐	NA
7	Emergency Response	◐	◐	NA
8	Western Drainage Ditch	NA	NA	●

Legend:

AFFF = Aqueous Film Forming Foam
CFR = Crash Fire Rescue
JFTB LA = Joint Force Training Base Los Alamitos
NA = 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	Old CFR Training Pits	Exceedances of SLs in groundwater at source area. No exceedances of SLs in soil.	Proceed to RI
2	New CFR Training Pit	Exceedances of SLs in groundwater at source area. No exceedances of SLs in soil.	Proceed to RI
3	West End of the Flightline	Exceedances of SLs in groundwater at source area. Exceedances of SLs in soil at source area.	Proceed to RI
4	Hangar 1	Exceedances of SLs in groundwater at source area. No exceedances of SLs in soil.	Proceed to RI
5	Building 34 (JFTB LA Fire Station)	Exceedances of SLs in groundwater at source area. Exceedances of SLs in soil at source area.	Proceed to RI
6	AFFF Release in Vicinity of Building 80	Detections in groundwater but no exceedance of SLs. No exceedances of SLs in soil.	No further action
7	Emergency Response	Detections in groundwater but no exceedance of SLs. No exceedances of SLs in soil.	No further action
8	Western Drainage Ditch	Exceedances of SLs in groundwater at the facility boundary. No soil samples collected.	Proceed to RI

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1.0 Introduction

1.1 Project Authorization

The Army National Guard (ARNG) G9 is the lead agency in performing Preliminary Assessments (PAs) and Site Inspections (SIs) at per- and polyfluoroalkyl substances (PFAS)-impacted sites at ARNG facilities 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 Joint Forces Training Base Los Alamitos (JFTB LA) in Los Alamitos, California. JFTB LA will be referred to as the "facility" throughout this document.

The SI project elements were performed in accordance with 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 Army 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 PFAS. The term PFAS will be 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 JFTB LA (AECOM, 2019a) that identified eight potential PFAS release areas, which were grouped into eight Areas of Interest (AOIs). 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

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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2.0 Facility Background

2.1 Facility Location and Description

The JFTB LA is located in northwestern Orange County, California, within the southeastern corner of the city of Los Alamitos, approximately 20 miles to the southeast of the city of Los Angeles, and approximately 7 miles north of Seal Beach National Wildlife Refuge and the waters of the Pacific Ocean (**Figure 2-1**).

The JFTB LA is bounded to the north by Farquhar Avenue, residential developments, and commercial-business complexes; to the south by Lampson Avenue, residential developments, and the Old Ranch Golf Course; to the east by commercial properties and residential developments; and to the west by Seal Beach Boulevard, residential developments, a school, and a park. The communities of Cypress, Seal Beach, Garden Grove, and Rossmoor are situated to the north, south, east, and west of the JFTB LA, respectively.

The JFTB LA is largely developed with buildings, roads, and an airfield and occupies approximately 1,319 acres of near-level terrain. The reference point and surface elevation at the geographic center of the airfield is 33° 47' 24" North (N) latitude and 118° 03' 04" West (W) longitude at 21.16 feet above mean sea level (amsl), respectively.

According to the Los Alamitos Area Chamber of Commerce (LAACOC), the JFTB LA serves multiple tenant entities representing military services, federal, state, municipal, public, private and nonprofit organizations.

The land area currently occupied by the JFTB LA was used primarily for agricultural purposes in the 1920s and 1930s (PlaceWorks, 2015). In 1941, the Navy purchased the land, and by 1942, it had constructed a fully operating facility, the Naval Reserve Air Base Los Alamitos. The Base was complete with barracks, a sick bay, and several hangars and functioned during this time as a location for fighter pilot training during World War II. On 15 August 1943, the facility was re-designated as the Naval Air Station (NAS) Los Alamitos and was considered to be one of the Navy's most important US West Coast air defense facilities. Approximately 130 buildings, including housing for 2,200 naval personnel, were built during the early 1940s. Other structures included hangars, equipment and maintenance shops, a laundry, warehouses, mess halls, headquarter buildings, a gymnasium, chapel, and a small hospital (Marshall and Denger, 2016).

By the end of 1945, NAS Los Alamitos facilities included ordnance storage facilities, a rifle range, motor repair shops, gasoline and oil stations, aviation fuel dispensing facilities, wash racks and grease racks, a laundry, and a fire station. The air station was equipped with both storm and sanitary sewer systems and a wastewater treatment plant that performed secondary water treatment, including a sludge lagoon. The wastewater treatment plant and the sludge lagoon were closed in the late 1960s. A landfill trench area also operated at the facility from the mid-1950s through 1988. During the 1940s, the airfield had a cumulative aviation fuel capacity of 160,000 gallons that were stored in approximately 17 underground storage tanks (USTs) (Marshall and Denger, 2016).

In November 1972, NAS Los Alamitos was re-designated as an Armed Forces Reserve Center (AFRC), and in July 1977, operational control of the AFRC Los Alamitos was officially transferred from the Department of the Navy to the Department of the Army (DA) by the House Armed Services Committee. In March 1979, AFRC Los Alamitos was licensed to the state of California by the DA, and the California ARNG (CAARNG) was directed to serve as host of the facility. As a result, CAARNG was assigned operational control of the installation. In July 2000, AFRC Los Alamitos's status as a reserve center was changed to JFTB LA (Marshall and Denger, 2016).

2.2 Facility Environmental Setting

The JFTB LA is situated in Orange County, California, within the southeastern portion of the City of Los Alamitos. The JFTB LA covers about 50 percent of the city's land surface.

The most prominent feature of the JFTB LA is its airfield, which occupies approximately 465 acres and has two runways that are served by a fully staffed Army Air Traffic Control Tower, crash rescue and FD, jet fuel farm for aviation refueling, and an Air Force Weather Office. Airfield operations and support areas encompass approximately 240 acres. Approximately 220 acres of the airfield are designated as cantonment and include administrative and training facilities, assembly areas, and dining facilities. Approximately 220 acres of the airfield are recreational/open space used for training activities, athletic fields, a dog park, and the Navy Golf Course. The Navy Golf Course has operated, and continues to operate, under the Navy's purview since its inception. The lands associated with the golf course were permitted to the Navy by the Army for an indefinite period of time. Approximately 190 acres of the airfield, mostly in the south and southeastern portions of the JFTB LA, were leased to and managed by Agromin Oc, LLC.; they conducted a soil amendment process in which pre-processed green waste was integrated into the soil in leased land areas to boost nutrient levels.

The surface topography of JFTB LA is generally flat, with an average elevation of 35 feet amsl. The majority of the JFTB LA is developed with buildings, concrete, or asphalt features. There are no naturally occurring surface waterways located on JFTB LA; however, artificially-made channels and a drainage ditch, herein referred to as the Western Drainage Ditch (WDD), exist either within or adjacent to most of the properties' boundaries. There are several artificial ponds located within the Navy Golf Course in the southeastern portion of the JFTB LA.

2.2.1 Geology

The JFTB LA is situated within the Los Angeles Coastal Plain and Basin in the Peninsular Ranges, a region characterized by northwest trending hills and ranges with intervening valleys. The southern portion of the Plain is an alluvial plain that gently slopes southwest from the Santa Monica Mountains to the San Joaquin Hills (Saucedo et al., 2016) (**Figure 2-2**).

The JFTB LA is underlain by a northwest-trending syncline that is approximately 20 miles wide and contains up to 2,000 feet of a succession of unconsolidated Quaternary and Tertiary sediments and sedimentary rock. These sediments were deposited in marine, lagoonal, and fluvial environments resting unconformably on Cretaceous and Jurassic granitic and/or metavolcanic basement rocks (Yerkes, R.F., 1972).

Surface lithology at the JFTB LA comprises Holocene and Upper Pleistocene (Quaternary) alluvial flood plain deposits (Saucedo et al., 2016). These surface deposits are underlain by a succession of Upper Pleistocene, Middle Pleistocene, and Lower Pleistocene sediments, cumulatively up to 2,000 feet thick. Upper Pleistocene sediments include the Lakewood Formation, a bluish-gray silt and fine sandy silt with sand lenses. Middle and Lower Pleistocene sediments include the San Pedro Formation, which can be further sub-divided into upper, middle, and lower units. Sand and gravel units within the Upper San Pedro Formation are the major water- bearing zones of the middle aquifer system in the Orange County Groundwater Basin (OCB) (California Department of Water Resources [DWR], 2014).

The entire Southern California region is seismically active. Faults in the Orange County-Los Angeles County region that are capable of generating destructive earthquakes and surface rupture in Los Alamitos include the El Modena, Elysian Park, Newport-Inglewood-Rose Canyon, Norwalk, and Whittier-Elsinore fault zones. Located approximately 3 miles southeast of the JFTB LA, the Newport-Inglewood-Rose Canyon Fault Zone is the closest active fault (Holocene) to the facility. The 7-mile long concealed Los Alamitos Fault is located at the southwestern corner of

JFTB LA. According to the Southern California Earthquake Data Center (SCEDC), the most recent surface rupture occurred sometime in the Late Quaternary (between 700,000 years ago and present day) (SCEDC, 2013). The northwest/southeast-oriented fault is characterized as indistinct and may be part of the larger Newport-Inglewood-Rose Canyon fault zone.

2.2.2 Hydrogeology

The JFTB LA is located within the Central Basin of the Los Angeles Coastal Basin, within which is the OCB. In the vicinity of the JFTB LA, the OCB underlies the lower Santa Ana River watershed. Potable water at the JFTB LA is supplied to the facility by the Southern California Water Company.

The majority of fresh and easily recoverable water in the OCB resides at a depth of about 2,000 feet in interbedded marine and continental sand, silt, and clay deposits situated within a deep structural depression. Upper, middle, and lower aquifer systems within the OCB have yields ranging from 500 to 4,500 gallons per minute (gpm) (DWR, 2014). Recharge to the OCB is from percolation of Santa Ana River flow, infiltration of precipitation, and injection into wells. Groundwater flow within the OCB is generally to the southwest, towards the Pacific Ocean. The Orange County Water District (OCWD) manages groundwater within the OCB. There are OCWD wells downgradient from the site that are currently used to provide drinking water.

Excessive groundwater pumping in an area to the southwest of the JFTB LA has caused water levels to drop below sea level inland of the Newport-Inglewood-Rose Canyon fault zone, where a trough-shaped depression allows sea water to migrate inland, thereby contaminating the groundwater supply. To protect the OCB from seawater intrusion, a line of wells placed in the Alamitos and Talbert Gaps inject imported and reclaimed water to create a mound of water seaward of the pumping trough (OCWD, 2015b). A portion of the well string related to the Alamitos Barrier project efforts is located approximately 1.75 miles southwest of the JFTB LA. According to the OCWD, the principle aquifer groundwater elevations beneath the JFTB LA in 2015 were between -40 feet and -50 feet amsl (OCWD, 2015a).

Initial groundwater beneath the JFTB LA is in unconsolidated sediments, at depths of less than 20 feet below ground surface (bgs). The second groundwater bearing zone, referred to as Aquifer 1, resides within sediments comprised of silty clay to clayey silt, with occasional relatively thin sand lenses (Clayton, 1996a). Groundwater residing in these sediments can be found at depths between 90 and 100 feet bgs. Aquifer 1 is underlain by a silt/clay aquitard that is 20 to 30 feet thick. The aquitard is underlain by Aquifer 2, which holds groundwater in gravelly sands. Groundwater in Aquifer 2 can be found at a depth of approximately 200 feet bgs. Aquifer 2 is underlain by Lakewood Formation clays.

2.2.3 Hydrology

The JFTB LA is within the Westminster watershed, which covers approximately 74 square miles in Orange County. The watershed lies within flat coastal plain and includes a drainage area that is mostly urbanized with residential and commercial development (USACE, 2002). Regional watersheds and surface drainage features that do not originate on the JFTB LA but drain its surface water and waters from the cities of Los Alamitos, Cypress, Stanton, Garden Grove, and other Orange County cities are presented in **Figure 2-3**. Surface water features at the JFTB LA are presented in **Figure 2-4**.

Regional Surface Waters

Three surface water bodies are located in close proximity of the JFTB LA. These water bodies include the southwesterly flowing Coyote Creek Channel and the southerly flowing San Gabriel River. The two waterways converge approximately 1.25 miles west of the western JFTB LA property boundary. A third natural water body, the Carbon Creek Channel, is located

approximately 1 mile north of the northern boundary of the JFTB LA. This westerly-flowing channel converges with the Coyote Creek Channel at a point 1 mile north/northeast of the northern perimeter of the JFTB LA. The Coyote and Carbon Creek Channels flow ephemerally throughout the year. The San Gabriel River flows year-round in the lower end.

Off-facility channels in the vicinity of JFTB LA include the following:

- The Rossmoor Storm Channel

  The Rossmoor Storm Channel (RSC) is situated along the northern JFTB LA property boundary. The portion of the RSC that flows from east to west between the intersections of Farquhar Avenue and Lexington Drive and Farquhar Avenue and Bloomfield Street is trapezoidal in shape, with channel slopes and bottom concrete in construction (USACE, 2014). The remaining portion of the RSC that borders the northern JFTB LA property boundary, adjacent to Howard Avenue, is trapezoidal in shape, with channel slopes and bottom earthen in construction. Where the RSC turns south, northwest of the JFTB LA, the channel is trapezoidal with slopes and channel bottom concrete in construction. Water in the RSC eventually flows to the Los Alamitos Retention Basin, followed by the San Gabriel River and Pacific Ocean.

- The Bolsa Chica Flood Control Channel

  The Bolsa Chica Flood Control Channel is situated along most of the Navy Golf Course's western boundary. This channel, with its principal tributaries including the Anaheim-Barber City Channel and Westminster Channel, drains to Huntington Harbour. The Harbour is approximately 4.5 miles to the south of the JFTB LA. The Channel drains the urbanized commercial, residential, and industrial areas in the cities of Anaheim, Stanton, Garden Grove, Westminster, and Seal Beach. The channel and its tributaries vary in construction from earthen and riprap-trapezoidal-channels to vertical walled concrete-lined channels. The portion of the channel that is adjacent to the golf course is trapezoidal with slopes and channel bottom earthen in construction (USACE, 2014).

Regional surface water flow in the Los Alamitos area is to the southwest, towards the Alamitos Gap, which is a low-lying area between Long Beach and Seal Beach and contains the San Gabriel River channel. The Alamitos Bay, Huntington Harbour, and the Pacific Ocean are the only downstream surface-water bodies in the regional drainage pattern. Alamitos Bay is classified as coastal surface water, which are waters subject to tidal action and waters in the coastal sloughs.

Facility Surface Waters

There are no naturally occurring surface water features at the JFTB LA (**Figure 2-4**). Surface water features within JFTB LA boundaries include the following:

- The WDD, which parallels most of the JFTB LAs western property boundary;
- A storm water detention basin located in the northwest corner of the JFTB LA; and
- Several small artificial ponds associated with the Navy Golf Course, in the eastern portion of the JFTB LA. The Bolsa Chica Flood Control Channel runs through the course and drains into the Anaheim Bay-Huntington Harbor complex.

Additionally, the US Fish and Wildlife Service (USFWS), National Wetlands Inventory, identifies a small freshwater emergent wetland area located in the northeast corner of the airfield, adjacent to the Alpha Hammerhead taxiway (USFWS, 2018).

2.2.4 Climate

The JFTB LA is located in the South Coast Air Basin, within Climate Zone 8, which includes a 6,600 square-mile coastal plain area bounded by the Pacific Ocean on the southwest, and the San Gabriel, San Bernardino, and San Jacinto mountains on the north and east. The South Coast Air Basin includes all of Orange County. Climate Zone 8 is designated as a semi-arid climate with Mediterranean characteristics. Summers are cool, winters are mild, and marine-influenced breezes maintain moderate humidity with infrequent rainfall. Air temperature highs in July and lows in January average 78 degrees Fahrenheit (°F) and 47°F, respectively.

Rainfall data indicate that the area within which the JFTB LA is located averages approximately 12 inches of rain per year. The rainy season is typically from November through April. Strong, hot winds from the northeast that are referred to as the "Santa Ana" winds are common for short periods of time during the fall and winter months.

2.2.5 Current and Future Land Use

The JFTB LA is an operating flight facility, and most areas are not accessible to the general public.

The mission of the JFTB LA is to "operate a military installation and airfield that meets Army standards and provides support and training facilities for military units and other National, State, and local organizations, to include emergency operations (California Military Department, 2016)." The facility has 160 buildings and encompasses about 1,319 acres of space.

Based on the City of Los Alamitos General Plan (City of Los Alamitos, 2015), the overall future land use is anticipated to continue to facilitate the mission of JFTB LA.

2.2.6 Critical Habitat and Threatened/Endangered Species

Although ecological receptors are not specifically addressed in this SI document, the presence of critical habitat and threatened/endangered species were evaluated as part of the environmental setting. The following species in **Table 2-1** are listed as federally endangered, threatened, proposed, and/or candidate species in Orange County, California (USFWS, 2018):

Table 2-1 Federally-Listed Species in Orange County, California

Common Name	Scientific Name	Federal Status
BIRDS		
California least tern	*Sterna antillarum browni*	Endangered
Light-footed clapper rail	*Rallus longirostris levipes*	Endangered
Least Bell's vireo	*Vireo bellii pusillus*	Endangered
Western snowy plover	*Charadrius nivosus nivosus*	Threatened
Coastal California gnatcatcher	*Polioptila californica californica*	Threatened
Southwestern willow flycatcher	*Empidonax traillii extimus*	Endangered
FISHES		
Tidewater goby	*Eucyclogobius newberryi*	Endangered
Santa Ana sucker	*Catostomus santaanae*	Threatened
MAMMALS		
Stephens' kangaroo rat	*Dipodomys stephensi (incl. D. cascus)*	Endangered

Common Name	Scientific Name	Federal Status
Pacific pocket mouse	*Perognathus longimembris pacificus*	Endangered
REPTILES		
Leatherback sea turtle	*Dermochelys coriacea*	Endangered
Olive ridley sea turtle	*Lepidochelys olivacea*	Threatened
CRUSTACEANS		
Riverside fairy shrimp	*Streptocephalus woottoni*	Endangered
San Diego fairy shrimp	*Branchinecta sandiegonensis*	Endangered
AMPHIBIANS		
Arroyo (arroyo southwestern) toad	*Anaxyrus californicus*	Endangered
INSECTS		
Quino checkerspot butterfly	*Euphydryas editha quino (E. e. wrighti)*	Endangered
Delhi Sands flower-loving fly	*Rhaphiomidas terminatus abdominalis*	Endangered
PLANTS		
Braunton's milk-vetch	*Astragalus brauntonii*	Endangered
Ventura Marsh Milk-vetch	*Astragalus pycnostachyus var. lanosissimus*	Endangered
Thread-leaved brodiaea	*Brodiaea filifolia*	Threatened
Laguna Beach liveforever	*Dudleya stolonifera*	Threatened
Salt marsh bird's-beak	*Cordylanthus maritimus ssp. maritimus*	Endangered
Salt marsh bird's-beak	*Cordylanthus maritimus ssp. maritimus*	Endangered
San Diego button-celery	*Eryngium aristulatum var. parishii*	Endangered
Slender-horned spineflower	*Dodecahema leptoceras*	Endangered
Munz's onion	*Allium munzii*	Endangered
Santa Monica Mountains dudleyea	*Dudleya cymosa ssp. ovatifolia*	Threatened
Big-leaved crownbeard	*Verbesina dissita*	Threatened

2.3 History of PFAS Use

As descried above, JFTB LA is mainly occupied by airfields that include two runways, crash rescue and FDs, jet fuel farm for aviation fueling, and an Army Aviation Weather Office. The Old Crash Fire Rescue (CFR) Training Pits, the New CFR Training Pit, and the West End of the Flightline (WEF) Fire Training Area (FTA), were identified as potential PFAS release areas during PA. PFAS-containing aqueous film forming foam (AFFF) was used to extinguish fires ignited with fuels during routine fire training activities conducted at above FTAs. PFAS were also released to the environment during regular AFFF equipment nozzle testing activities from at least 2000 until at least 2017 in the southwest corner of the WEF.

In addition, five non-FTAs associated with AFFF usage were identified during PA. Approximately 100 gallons of 3% AFFF were reported to have been released into the Hangar 1, located to the north of the center of the flightline, during fire suppression system testing in 2012. Based on interviews conducted with the FD staff during PA site visit, 3% AFFF is occasionally spilled, and leaks have occurred in the driveway area of the JFTB LA Fire Station, where firetrucks are filled.

AFFF was reported to be used on one occasion for insect abatement purpose, resulting in the release of approximately 70 to 80 gallons of 3% AFFF in the vicinity of Building 80. In one emergency response event, approximately 70 to 100 gallons of AFFF were used to extinguish an aircraft wheel-brake fire that occurred on the Alpha Hammer-Head taxiway, situated in the northeastern corner of the JFTB LA. The WDD, which parallels most of the JFTB LA's western property boundary, is also considered an AOI because it receives surface water and runoff from various potential AFFF release sites on the facility.

A pump and treat groundwater remediation system was previously in operation at the western boundary of the former Jet Propellant-4 (JP-4) Tank Farm site. Treated groundwater from the system was initially used to irrigate the poplar trees that make up the phytoremediation barrier along the WDD. Later, the treated effluent of this system was used for dust control on roads at various locations around the facility, making it a potential source if PFAS were found to be present in the treated effluent. However, the groundwater remediation system was not in operation during SI sampling; therefore, no groundwater sample was collected from the system.

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SCALE	1:316,800	CHK BY	HH	4/1/2020
Base Map: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI,		PM	RG	4/1/2020

Joint Forces Training Base Los Alamitos Facility Location

AECOM
12420 Milestone Center Drive
Germantown, MD 20876

Figure 2-1

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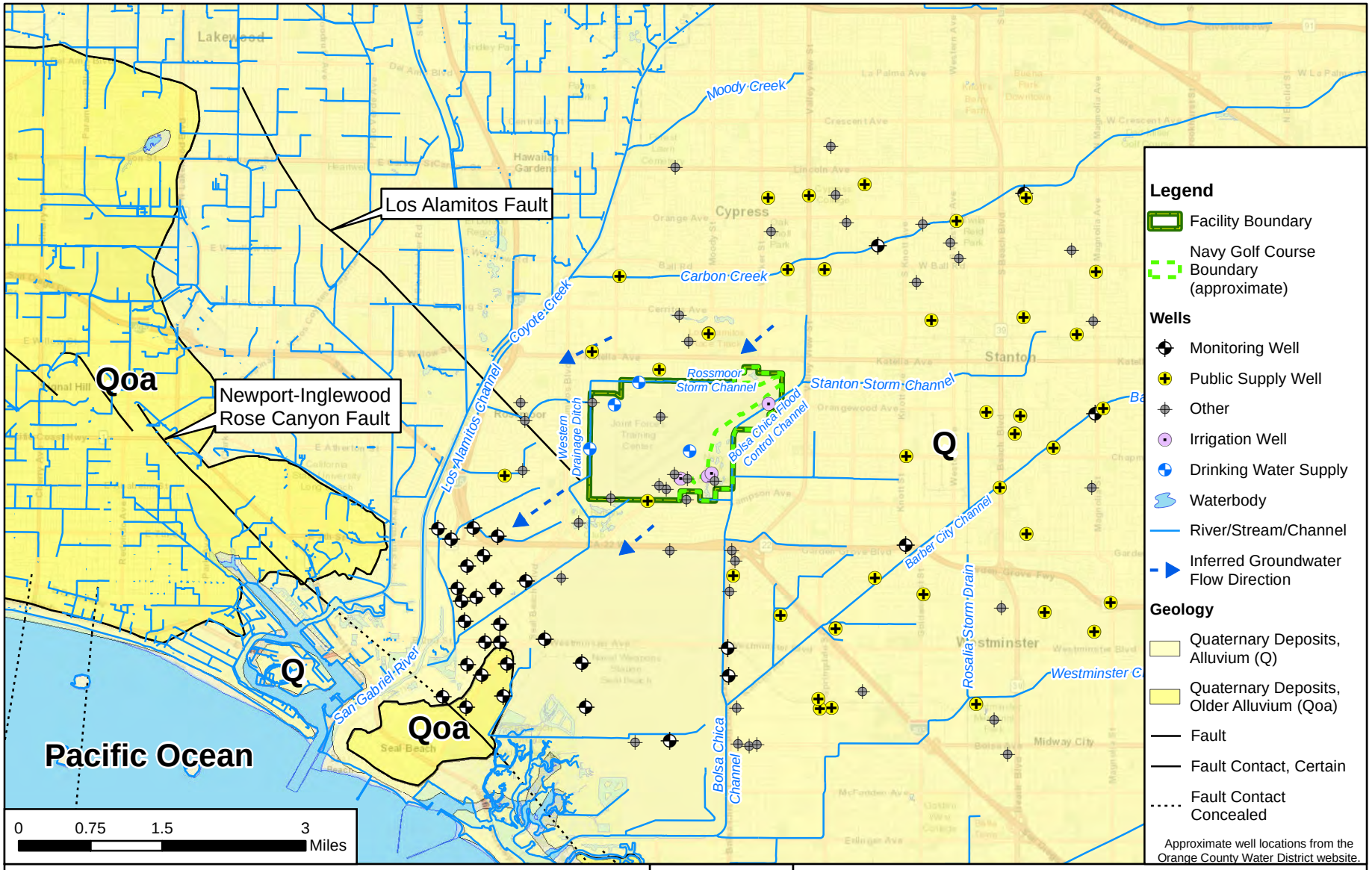

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SCALE	1:95,040	CHK BY	HH	4/1/2020
Base Map Source: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC,		PM	RG	4/1/2020

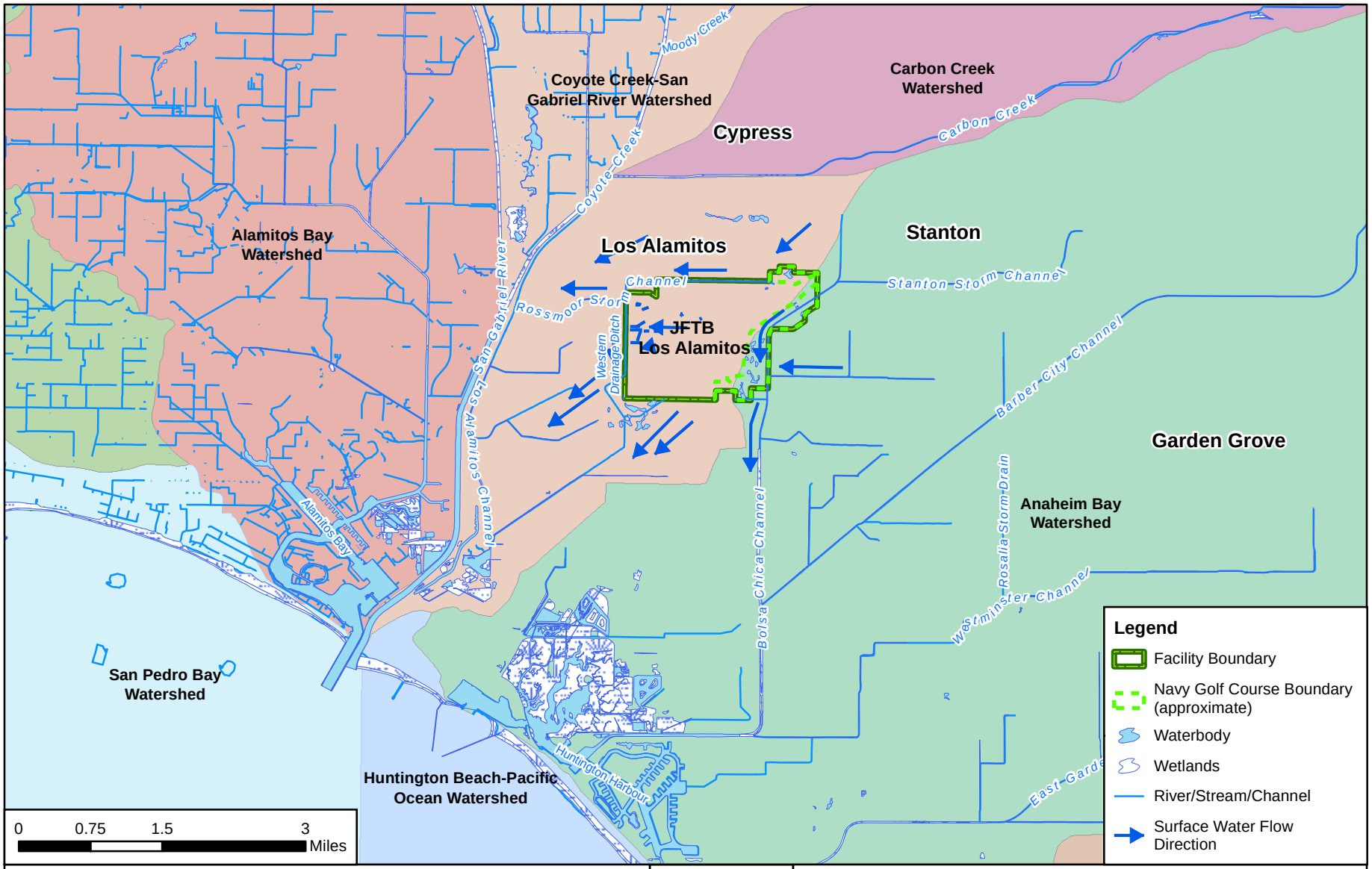
N

Regional Geology and Well Locations

AECOM
12420 Milestone Center Drive
Germantown, MD 20876

Figure 2-2

Q:\Projects\ENV\GEARS\GEO\MAES 2012 Unrestricted\Fort Meade\E. Data Management\GIS\MXDs\Chisholm_6th\March2017\ Fig_2-2_Los_Alamitos_Geology_and_Wells.mxd



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REVISED	4/1/2020	GIS BY	MS	4/1/2020
SCALE	1:95,040	CHK BY	HH	4/1/2020
		PM	RG	4/1/2020

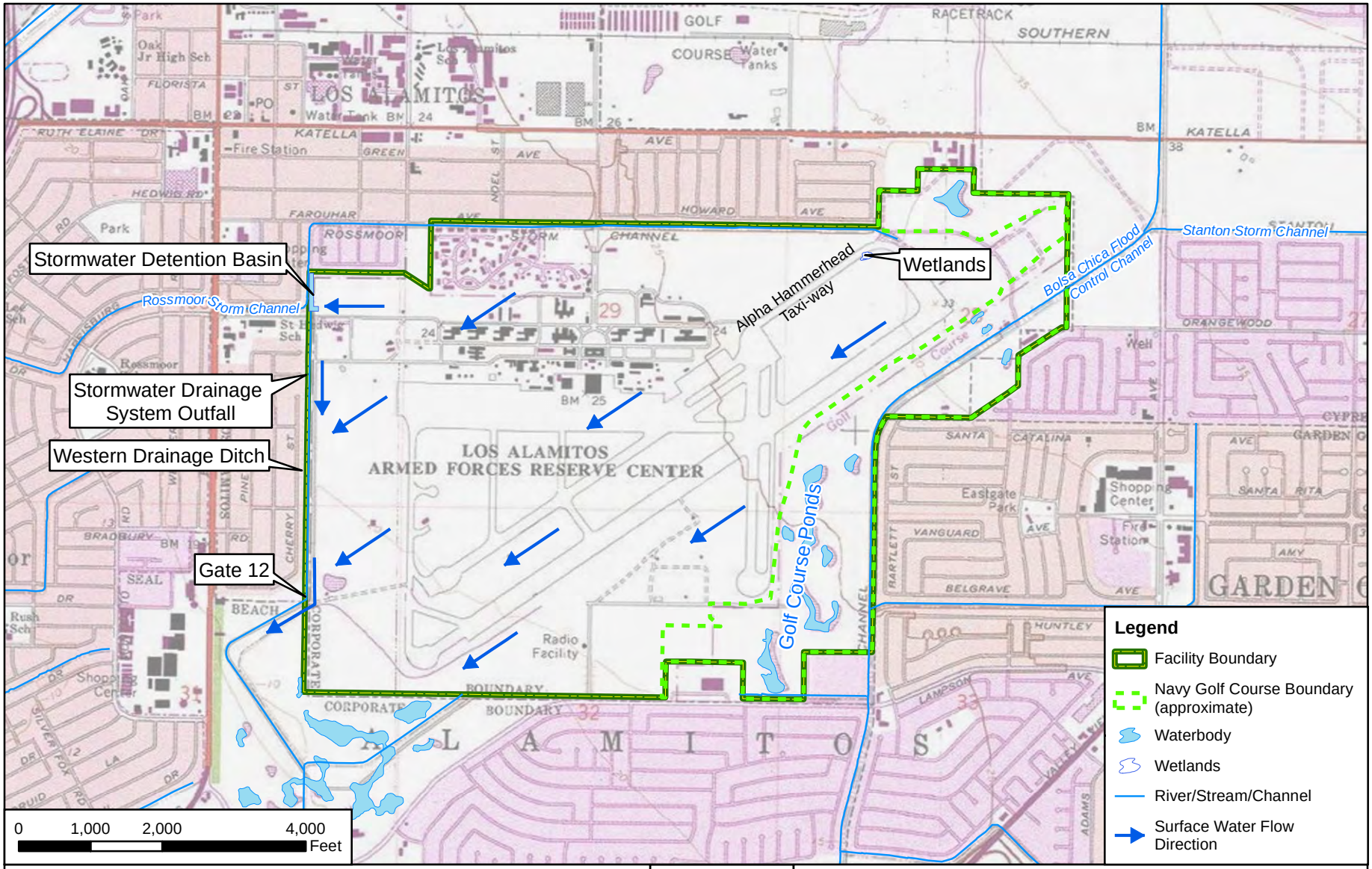
N

Regional Surface Water Features and Watersheds

AECOM 12420 Milestone Center Drive Germantown, MD 20876

Figure 2-3

Q:\Projects\ENV\GEARS\GEO\MAES 2012 Unrestricted\Fort Meade\E. Data Management\GIS\MXDs\Chisholm_6th\March2017\ Fig_2-3_Los_Alamitos_Regional_Surface_Water.mxd



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SCALE	1:24,000	CHK BY	HH	4/1/2020
Base Map: Copyright:© 2013 National Geographic Society, i-cubed		PM	RG	4/1/2020

Joint Forces Training Base Los Alamitos
Surface Water Features

AECOM
12420 Milestone Center Drive
Germantown, MD 20876

Figure 2-4

Q:\Projects\ENV\GEARS\GEO\MAES 2012 Unrestricted\Fort Meade\E. Data Management\GIS\MXDs\Chisholm_6th\March2017\ Fig_2-4_Los_Alamitos_Facility_Surface_Water.mxd

3.0 Summary of Areas of Interest

Based on the PA findings, eight AOIs were identified within JFTB LA (**Figure 3-1**). A summary of these AOIs is presented below.

3.1 AOI 1 – Old Crash Fire Rescue Training Pits

AOI 1 includes one potential source areas, the Old CFR Training Pits. Fire training activities involving AFFF usage occurred at these locations.

3.1.1 Old Crash Fire Rescue Training Pits

Two Old CFR Training Pits (IRP number: LAAFRC – 003) were located in close proximity to each other in the northwest portion of the JFTB LA. One training pit is located south of Building 272, Buildings 275 D through G, and Saratoga Avenue; east of the JFTB LA JP-4 Tank Farm Area (TFC); and north/northeast of the Fuel Farm Office (FFO) and former “Seabee Compound” areas and Building 74. The other training pit is located west of Building 279 and a parking area.

The older of the two pits was initially used by the Navy and then by the JFTB LA until approximately 1983. The year in which the Navy constructed and initially began to use this pit is unknown.

The second pit was constructed approximately 400 feet to the southwest of the older pit. The pit was in use from 1977 to 1979.The two Old CFR Training Pits were each reported to be 60 feet in diameter. To allow for liquids to be introduced into the pits without escaping, berms were constructed around the pits to a height of approximately 1 foot. During fire training exercises, the pits were flooded with water, and JP-4 fuel or other combustibles were introduced to the ponded water’s surface. The fuels were ignited and then extinguished using AFFF. After the fire was extinguished, the fuel residue was burned off, and the remaining liquids were allowed to percolate into the ground, often without additional burning; the pits were unlined. Fuels introduced to the pits were stored in nearby above ground storage tanks (ASTs).

The quantity of fuel used during each fire training session is reported to be between approximately 500 to 1,000 gallons, and exercises were conducted six to eight times per week over the period that the pits were used. The amount and percentage of AFFF used are not known.

3.2 AOI 2 – New Crash Fire Rescue Training Pit

AOI 2 represents one potential source area, the New CFR Training Pit, where fire training activities occurred.

3.2.1 New Crash Fire Rescue Training Pit

The New CFR Training Pit (IRP number: LAAFRC – 003) is located in the western portion of the JFTB LA facility, among the couple of remaining JFTB LA revetments. The New CFR Training Pit area is bounded to the north by the former JP-4 TFA and Medfly Compound, to the west by the WDD and residential development, to the south by the WCC, and to the east by the WEF FTA.

The New CFR Training Pit was used by JFTB LA for training from 1983 until September 1987, at which time, outside burning was discontinued by an Air Quality Management District mandate. During these years, training exercises consisted of flooding the pit with water and then introducing JP-4 or other flammable liquids over the surface of the ponded water. The fuel was ignited, and the fire was extinguished using AFFF. The percent concentrate of AFFF used during this time is not known. At the conclusion of training sessions and after the fire was extinguished, remaining fuel residue was burned off. Residues that were not burned off were permitted to percolate into

the ground (Clayton, 1996a). Previous remediation efforts for fuels and solvents in this area include dual-phase vacuum extraction (DPVE) remediation system.

Approximately 500 to 1,000 gallons of fuel were introduced into the pit during each training session. Fire training exercises were conducted six and possibly up to eight times per week over the approximate 5-year period the pit was used (Clayton, 2007).

The New CFR Training Pit was approximately 3 to 5 feet deep, 60 feet in diameter, and surrounded by a 1- to 1.5-foot high earthen berm. The bottom of the pit was constructed with 4 feet of imported sand and gravel placed in alternating layers (Clayton, 1996a). In addition, an underground pipe out-letting at the center of the pit was installed and used to convey fuels to the pit during fire training exercises. A fuel feeder pipe was attached to a 4,000-gallon fuel tanker located approximately 100 feet south of the pit. Revetment 118, situated to the south of the New CFR training pit area, was used to store the fuel tanker that conveyed fuels to the pit (Clayton, 2007).

3.3 AOI 3 – West End of the Flightline

AOI 3 represents one potential source area, WEF FTA and AFFF Nozzle Testing area, where fire training activities and testing of AFFF equipment were performed.

3.3.1 West End of the Flightline Fire Training Area and AFFF Equipment Nozzle Testing Area

The WEF FTA (IRP number: LAAFRC – 003) is located at the northwest edge of the paved runway area, south of Enterprise Avenue near Nosedock 61 and east of the New CFR Training Pit FTA (**Figure 3-1**). The area is accessible to base personnel only.

From the mid-1960s to early 1970, the WEF FTA was used for the staging of fuel bladders. Aircraft maintenance and cleaning were also conducted in this area during the 1950s and 1960s. At the time of the PA visual site inspection, several fuel tanker trucks were observed to be parked in the area. A portion of this area is used by Medfly, a program operated jointly by California Department of Food and Agriculture (CDFA) and the US Department of Agriculture, for aircraft parking purposes.

According to JFTB LA FD staff interviewed, fire training exercises were conducted in the WEF area within the last 20 years. The training was simulated, where trainees set up a target, such as cardboard, on the concrete portion of the tarmac and sprayed 3% AFFF on the target to learn how to apply the foam. There was no actual fire involved, as the Air Quality Management District banned open fires in 1987. The AFFF applied was pushed or sprayed off the concrete with water into the grass- and soil-covered areas west of the concrete tarmac.

In addition to the fire training activities and according to JFTB FD staff interviewed, AFFF equipment nozzle testing was conducted regularly until at least 2017 on a once monthly basis in the southwest corner of the WEF. In early 2018, all AFFF nozzle testing activities ceased per the US Army Office of the Assistant Chief of Staff for Installation Management directive prohibiting non-emergency use of AFFF. During the tests, 3% AFFF was sprayed through equipment nozzles for a period of approximately 10 seconds. The stream of spray was directed to the grassy area west of the WEF's concrete surface, where it ponded in surface depressions and evaporated or percolated into the ground. Equipment nozzle tests were conducted in this area since at least 2000, the year of initial employment of the FD staff interviewed. It is not known when the practice of nozzle tests began in this area or if any other equipment testing areas were used at JFTB LA.

3.4 AOI 4 – Hangar 1

AOI 4 represents one potential source area, Hangar 1, including the nearby wash rack, where AFFF was discharged to the ground from the fire suppression system in the hangar.

3.4.1 Hangar 1

The JFTB LA Hangar 1 (IRP number: LAAFRC – 010) is located to the north of the approximate center of the flightline and west of the wash rack and Building 914. The area is accessible only to JFTB LA base personnel.

The JFTB LA Hangar 1 has been in continuous use since 1943 and is used for aircraft maintenance purposes.

On 8 October 2012, the fire suppression system discharged foam when a contractor pressurized the system for testing purposes during final project inspection. Approximately 100 gallons of 3% AFFF were reported to have been released into the hangar during the event. The approximate extent of area affected was reported to be a 50-foot by 100-foot area.

Based on interviews conducted during the PA site visit and a hazardous materials/waste incident report, the release was from only one of the six overhead agitators associated with the automatic fire suppression system. Located in the northeast corner of the hangar, the agitator released foam onto a helicopter that was being serviced. After the release, the helicopter was pushed out of the hangar and into the wash rack area, where it was hosed off with water. AFFF in the hangar was squeegeed out of the west side of the hangar, and the foam was pushed out to the concrete driveway area between the hangar and wash rack. The incident report noted that the JFTB LA FD responded and contained the spill with absorbent materials to protect the storm drain and wash rack drop inlets. Two nearby catch basins, one located in the driveway area between the hangar and the wash rack, and the other in the center (floor) of the wash rack structure, were observed during the PA site visit. The report indicated that liquids and used absorbent materials were placed into 50-gallon drums that were taken to the facility's hazardous materials storage area. All hazardous waste was sent to a licensed hazardous waste disposal facility.

During the PA site visit, an aboveground storage tank (AST) associated with the hangar fire suppression system containing 3% AFFF was observed outdoors, in the northeast corner of the hangar. The AST is supported by steel cradles that are bolted to a raised concrete pad. As such, the AST is not in contact with the ground surface and was observed to be in good condition. The AST was observed to be aluminum in construction, with an estimated 750-gallon capacity. Pipes associated with the AST pass through the hangars outside wall and connect to a hydraulically-operated automatic fire suppression system located in the main hangar area. According to a manufacturer's tag that was affixed to the system, the two-zone system was installed in November 2010 by Cosco Fire Protection. The designed density and area of discharge is 0.20 gpm per square foot (gpm/sqft) and 5,000 sqft, respectively. The design sprinkler water flow rate and foam flow rate are approximately 1,300 gpm and 1,400 gpm, respectively. A total of six bell-shaped agitators were observed hanging from the ceiling of the structure.

3.5 AOI 5 – Building 34 (JFTB LA Fire Station)

AOI 5 includes one potential source area, Building 34 (JFTB LA Fire Station), where firetrucks are loaded, and AFFF is stored.

3.5.1 Building 34 (JFTB LA Fire Station)

The JFTB LA Building 34 (Fire Station) (IRP number: LAAFRC – 008) is located south of Constitution Avenue, east of Building 35.

The FD operates and maintains four firefighting trucks, three of which are specially equipped tactical firefighting trucks (TFFTs) that are capable of carrying either Class A or Class B firefighting agents. One truck is a structure truck that does not carry foam. The TFFTs are equipped with nozzles capable of expelling AFFF. The trucks are filled with 3% AFFF in a concrete driveway area on the west side of the building. AFFF is stored in the southwestern portion of Building 34, adjacent to the driveway area where the trucks are filled. During the PA site visit, the AFFF storage area was observed to contain various brands of AFFF in approximately 48 55-gallon plastic drums and 38 5-gallon plastic containers. About half of the 55-gallon drums observed were National Foam; Aer-O-Water 3%, made by 3EM. The other half of the drums was Ansulite 3%, manufactured by Ansul. The 5-gallon plastic containers all contained AFFF manufactured by Chemguard 3%. The package dates printed on the side of the drums were between January 2002 and April 2004, and all of the containers were situated atop secondary containment devices.

Based on interviews conducted with FD staff during the PA site visit, 3% AFFF is occasionally spilled, and leaks have and do occur in the driveway area where the TFFTs are filled; these leaks were reported to be occasional and on the order of a few drops to a few gallons.

3.6 AOI 6 – AFFF Release in the Vicinity of Building 80

AOI 6 includes one potential source area, a release of AFFF in the vicinity of Building 80 (IRP number: LAAFRC – 008) through insect abatement activity.

3.6.1 AFFF Release in the Vicinity of Building 80

According to JFTB LA FD staff, 3% AFFF was used on one occasion for insect abatement purposes. Approximately 70 to 80 gallons of 3% AFFF were expelled from a TFFT into an abandoned structure that had become infested with bees and wasps. The nozzle of the TFFT was pushed through the door of the structure, and the entire structure was filled with foam. The structure was subsequently demolished and removed at an unknown time. The structure, which was approximately 10 feet by 10 feet in dimension, was located approximately 50 feet to the south of existing Building 80. No further details were recalled by individuals interviewed regarding the release, and the area was not observed during the PA site visit.

3.7 AOI 7 – Emergency Response

AOI 7 represents one potential source area, the location of an emergency response area, where AFFF was used by the JFTB LA FD to extinguish a wheel-brake fire.

3.7.1 Emergency Response

According to JFTB LA FD staff, 3% AFFF was used on one occasion, when a Lockheed Martin C-130 Hercules tanker version aircraft sustained a wheel-brake fire during landing. The aircraft taxied to the approximate mid-point of the Alpha Hammer-Head taxiway, where the fire was reported to have been extinguished using 3% AFFF. The taxiway is the northern-most airfield runway situated in the northeastern corner of the JFTB LA. It was estimated by the FD individual interviewed that approximately 70 to 100 gallons of 3% AFFF were used. No further information was available about the fire, and no other emergency response incidents were recalled during the staff's tenure at JFTB LA. The area in which AFFF was released was not observed during the PA site visit.

3.8 AOI 8 – Western Drainage Ditch

AOI 8 represents one potential source area, the WDD, into which runoff from several of the other AOIs flows.

3.8.1 Western Drainage Ditch

The mostly unlined and open WDD parallels most of the JFTB LAs western property boundary. The ditch is situated onsite to a point approximately 200 feet north of the facility's southwestern property corner, near Gate 12, where it leaves the facility in a direction to the southwest, crosses under the I-405 Freeway, and discharges into the Los Alamitos Retarding Basin, the San Gabriel River, and eventually the Pacific Ocean. The trapezoid-shaped ditch is approximately 18 feet wide south of where it passes beneath the intersection of Saratoga and Orangewood Avenues. The ditch becomes approximately 40 feet wide at its southern terminus, where an approximate 275-feet long portion of the ditch is concrete-lined in the area where it turns and leaves the facility.

Surface water entering storm drains at the flight line, main roadways, and other areas within the operational cantonment areas of the JFTB LA flows to an outfall structure located in the WDD, south of the JP-4 containment system. Surface water entering all other catch basins at the facility, with the exception of water entering catch basins associated with the various wash rack facilities, drains to the WDD. In addition, a majority of surface water runoff from the cantonment areas of the facility and from areas generally in the western third of the facility likely flows to and is captured by the WDD. Significant volumes of groundwater extracted historically by various remediation systems were passed through granular activated carbon vessels subsequent to which the effluent was ultimately discharged to the WDD in accordance with a National Pollution Discharge Elimination System permit. The facility currently does not hold this permit.

The WDD is considered an AOI, as surface water potentially impacted from various AFFF release sites, including the New CFR Training Pit, WEF FTA and AFFF equipment nozzle testing area, and the Old CFR Training Pits, may have migrated to the WDD. Furthermore, water in the WDD may be marginally influent to the shallow groundwater zone during the rainy season based on the channel's elevation with respect to groundwater gauging data obtained historically from wells in the vicinity (Clayton, 1993).

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PROJECT	Site Inspection for PFAS at Los Alamitos, CA			
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SCALE	1:9,960	CHK BY	HH	4/1/2020
Base Map: National Agriculture Imagery Program 2016		PM	RG	4/1/2020

- Area of Interest (AOI)
- PFAS Release Area
- Facility Boundary
- Navy Golf Course Boundary (approximate)
- Water Body
- Wetlands
- River/Stream
- Surface Water Flow Direction
- Inferred Groundwater Flow Direction
- Irrigation Well
- Drinking Water Supply
- Active Large System Well
- Other Well

N

Joint Forces Training Base Los Alamitos Areas of Interest

AECOM
12420 Milestone Center Drive
Germantown, MD 20876

Figure 3-1

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4.0 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 the 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 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 site 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 are presented in **Section 6.1** of this Report.

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

- "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 fire training areas, 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 (PFCs) 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 Health Advisory (HA) levels" (USEPA, 2016a; USEPA, 2016b).

4.2 Goals of the Study

The goals of SI include the following:

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 removal action.

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

5. Identify within 4 miles of the installation other potential PFAS sources (fire stations, major manufacturers, other DoD facilities) and receptors, including both groundwater and surface water receptors, to determine whether the ARNG is the likely source of PFAS or whether there is an off-facility source of PFAS responsible for installation detections of PFAS (USEPA, 2005).

6. Determine whether a 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 for the SI included:

- The PA for JFTB LA (AECOM, 2019a);
- Analytical data from groundwater, soil, and surface water samples collected as part of this SI in accordance with the site-specific Uniform Federal Policy (UFP)-Quality Assurance Project Plan (QAPP) Addendum (AECOM, 2019b); 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 is horizontally bounded by the property limits of JFTB LA (**Figure 2-1**). The scope of the SI is vertically bounded by the shallow groundwater zone (up to 30 feet bgs). 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, 2019b). Decision rules were developed for groundwater and soil, and they applied to all data collected. These rules governed response actions based on the results of the SI sampling effort.

The decision rules described in the **Worksheet #11** of the 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 constituents in deep soil (i.e., capillary fringe)?
- What does the CSM suggest in terms of source, pathway, and receptor?

Soil, groundwater, and/or surface water samples were collected from the potential PFAS release areas within AOI 1 through AOI 8. Depth to groundwater was observed to range from 6.71 feet to 21.68 feet below top of casing (btoc) in October 2019.

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 installation-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.

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 (DVR) (**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, laboratory control sample (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 field samples displayed EIS area counts less than the quality control (QC) limit of 50%. The positive field sample results associated with EIS area counts less than the QC limit but greater than 20%, were qualified “J+”, while non-detects were qualified “UJ”. The field sample results associated with area counts less than 20% were qualified “X”. The qualified field sample results associated with EIS area counts less than 20% but greater than 10% are recommended for use as estimated values with a positive bias. During data review, the project chemist noted that field sample AOI8-6-SW-102919-MS displayed a 0.8% recovery for one compound (M_2PFTeDA) but the sample was still able to have positive results reported. The matrix spike had a recovery for perfluorotetradecanoic acid (PFTeDA) within control limits and a perfluorotridecanoic acid (PFTrDA) recovery of 478%, showing that at near 0% recovery of the extracted internal standard, the laboratory is still able to identify the presence of native compounds. A similar anomaly of a 17% recovery of M_2PFTeDA in LCS1975551 corresponded to native compound recoveries within control limits. Conservatively, the project team still decided to exclude non-detect data associated

with EIS recoveries less than 10%.Additionally, the positive field sample results associated with EIS area counts less than 10% are recommended for use as estimated values with a positive bias and are reported with interpreted qualifiers of “J+”. The project team determined these qualified results were usable for project purposes. The non-detect field sample results associated with the remaining EIS area counts less than 10% were qualified “X”. The data points flagged “X” were non-detect results for PFTeDA and PFTrDA; no site decisions were made based on the presence or absence of these two compounds.

Calibration verifications were performed routinely to ensure that instrument responses for all calibrated analytes were within established QC criteria. All calibration verifications were within the project established precision limits presented in the QAPP Addendum (AECOM, 2019b).

Laboratory control spike/laboratory control spike duplicate (LCS/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. All LCS/LCSD samples were within the project established precision limits presented in the QAPP Addendum (AECOM, 2019b).

Matrix spike/matrix spike duplicate (MS/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. MS/MSD samples were submitted to the laboratory for analysis at a rate of 5%. All MS/MSD samples were within the project established precision limits presented in the QAPP Addendum (AECOM, 2019b).

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 pairs performed on parent samples AOI1-5-SB-4.5-5-102319 and AOI2-2-SB-4.5-5-102319 displayed RPDs greater than the upper QC limit of 50% for perfluoropentanoic acid (PFPeA) at 61.4% and perfluorohexanesulfonic acid (PFHxS) at 65.5%, respectively. The positive associated field sample and field duplicate results were qualified J. All other field duplicate samples were within the project established precision limits presented in the QAPP Addendum (AECOM, 2019b).

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, with one exception. Several preparation batches displayed percent recoveries greater than the upper QC limit of 130%. The LCS/LCSD prepared in batch 669969 displayed a detection for N-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA) greater than the upper QC limit at 135% in the LCS. The LCS/LCSD prepared in batch 669972 displayed several LCSD percent recoveries greater than the upper QC limit: 8:2 fluorotelomer sulfonate (8:2 FTS) (134%), NMeFOSAA (134%), PFOS (146%), and PFTrDA (150%). The LCS/LCSD prepared in batch 670959 displayed a detection for N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA) at 135% in the LCSD. Preparation batch 670389 displayed percent recoveries for PFTrFA at 134% in the LCS and 167% in the LCSD. The LCS/LCSD prepared in batch 671184 displayed a percent recovery for PFTrDA at 178% in the LCSD. All associated field sample results were non-detect; no data-qualifying action was required.

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 a limited number of exceptions. Several MS/MSD displayed percent recoveries outside the QC limits of 70-130%. The MS/MSD performed on parent sample AOI-8-5-SW-102919 displayed a percent recovery for 6:2 fluorotelomer sulfonate (6:2 FTS) less than the lower QC limit at 20% in the MSD and displayed a percent recovery for PFOS greater than the upper QC limit at 142% in the MS. The MS/MSD performed on parent sample AOI-7-6-SW-102919 displayed a MSD percent recovery for 6:2 FTS less than the lower QC limit at 56% and displayed MS percent recoveries for PFOS and PFTrDA greater than the upper QC limit at 131% and 478%, respectively. The MS/MSD performed on parent sample AOI6-2-SB-1.5-2-102219 displayed a percent recovery for perfluoroheptanoic acid PFHpA at 155% in the MSD and displayed percent recoveries for PFOA greater than the upper QC limit at 145% in the MS and 146% in the MSD. The MS/MSD performed on parent sample AOI6-3-SB-1.5-2-102219 displayed a percent recovery for PFTrDA greater than the upper QC limit at 204% in the MSD. The positive parent sample results associated with the positive biases were qualified J+. The parent sample results associated with the negative biases were positive and were qualified J-, while non-detects were qualified UJ. The initial results were recommended for data use.

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 tandem mass spectrometry (LC/MS/MS) Compliant with Quality Systems Manual (QSM) 5.1 Table B-15, including the specific preparation requirements (i.e. ENVI-Carb or equivalent used), mass calibration, spectra, and all the ion transitions identified in Table B-15 were monitored, standards that contained both branched and linear isomers when available were used, 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, 2019b) for all analyses.

Instrument blanks and method blanks were prepared by the laboratory in each batch as a negative control. Three PFAS method blanks displayed detections greater than the detection limit for multiple target analyte. All associated field sample results were greater than five times the associated blank detections; no data qualifying action was required.

One field reagent blank (FRB) was collected during the event. Equipment rinsate blanks (ERBs) were also collected for groundwater and soil samples. Several ERBs and the FRB displayed detections for multiple target analytes. The positive associated field sample results less than five times the concentration found in the blanks were qualified as U, and where appropriate, lab limits were elevated to detected concentrations. The results are usable as qualified but should be considered a false positive and treated as non-detect.

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 that met 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:

- PFAS in groundwater by LC/MS/MS Compliant with QSM 5.1 Table B-15 at 100%;
- PFAS in soil by LC/MS/MS Compliant with QSM 5.1 Table B-15 at 100%;
- PFAS in surface water by LC/MS/MS Compliant with QSM 5.1 Table B-15 at 100%;
- pH in soil by USEPA Method 9045D at 100%; and
- Total organic carbon (TOC) by USEPA Method 9060 at 100%.

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, 2019b). 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, 2019b), 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.

5.0 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 was implemented in accordance with the following approved documents:

- *Final Preliminary Assessment Report, Joint Forces Training Base Los Alamitos, California* dated September 2019 (AECOM, 2019a);
- *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, Joint Forces Training Base Los Alamitos, California* dated October 2019 (AECOM, 2019b);
- *Final Programmatic Accident Prevention Plan* dated July 2018 (AECOM, 2018b); and
- *Final Site Safety and Health Plan, Joint Forces Training Base Los Alamitos, California* dated July 2019 (AECOM, 2019c).

The SI field activities were conducted from 21 to 29 October 2019 and consisted of direct push boring and soil sample collection, temporary monitoring well installation, grab groundwater sample collection, low-flow groundwater sampling, and surface water collection. Field activities were conducted in accordance with the QAPP Addendum (AECOM, 2019b), except as noted in **Section 5.9**.

The following samples were collected during the SI and analyzed for a subset of 18 PFAS via LC/MS/MS compliant with QSM 5.1 Table B-15 to fulfill the project DQOs:

- 76 soil samples from 40 locations (soil borings or hand auger locations);
- 19 grab groundwater samples from temporary well locations;
- Two (2) low-flow groundwater samples from existing monitoring wells; and
- Five (5) surface water samples.

Sample locations for all media across the facility are presented in **Figure 5-1** through **Figure 5-4**. **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**. A Nonconformance and Corrective Action Report is provided in **Appendix B2**, and sampling forms are provided in **Appendix B3**. 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 of these activities are presented below.

5.1.1 Technical Project Planning

The USACE TPP Process, Engineers Manual (EM) 200-1-2 (DA, 2016a) 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 AOIs identified in the PA.

A combined TPP Meeting 1 and 2 was held on 28 February 2019, prior to SI field activities. Meeting minutes are provided in **Appendix D**. The combined TPP Meeting 1 and 2 was conducted in general accordance with EM 200-1-2.

The stakeholders for this SI include ARNG, CAARNG, USACE, Santa Ana Regional Water Quality Control Board (RWQCB), and California Department of Toxic Substance Control (DTSC) 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, 2019b). Future TPP meetings will provide an opportunity to discuss the results and findings, and future actions, where warranted.

5.1.2 Utility Clearance

AECOM contacted the "DigAlert®" one-call utility clearance contractor to notify them of intrusive work at JFTB LA. However, because JFTB LA is a government facility, DigAlert® contractors do not always enter the facility. Therefore, AECOM contracted SubSurface Surveys & Associates, Inc (SSS), a private utility location service, to perform utility clearance at the facility. SSS performed utility clearance of the proposed boring locations on 16 October 2019 with input from the AECOM field team and JFTB LA 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 usable prior to the start of field activities. A sample from the potable water source identified onsite was collected on 17 September 2019, prior to mobilization, and analyzed for PFAS by LC/MS/MS Compliant with QSM 5.1 Table B-15. The results of the potable well 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 Programmatic UFP-QAPP (PQAPP) (AECOM, 2018a). 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 QAPP Addendum (AECOM, 2019b). 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 five feet of the boring to be compliant with utility clearance procedures.

Three discrete soil samples were collected for chemical analysis from each soil boring, with the exception of locations AOI1-4 and AOI3-10, which had only two soil samples collected due to multiple shallow saturated zones observed. Refer to **Section 5.7** for additional details on deviations from the QAPP Addendum. Based on conversations with JFTB LA staff, the number of borings at AOI 4 were reduced from three points to one before mobilization due to access

concerns. AOI4-2 and AOI4-3 were not attempted, and the change was approved via the Nonconformance and Corrective Action Report process (**Section 5.7**).

Additionally, two surface soil locations at the WDD (AOI8-1 and AOI8-2) were completed to 0.5 feet bgs using a hand trowel, as no surface water was observed in these locations. The soil boring and sample depths are provided in **Table 5-1**. The soil boring locations were selected based on the AOI information as agreed on through TPP and QAPP Addendum review.

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 B3**) 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**.

Three distinct saturated zones were observed in soil borings AOI5-1 and AOI1-5. The saturated intervals occurred where silt and clay interbeds form low permeability strata that act as a barrier to the downward movement of water. The shallower, low permeability layers are described as dark yellowish brown to brown to dark grayish brown silts and sandy silts with low to medium plasticity, containing 10 to 40% of fine- to medium-grained sand disseminated throughout the fine-grained interval. The deeper low permeability layer is described as brown to gray clay, with medium to high plasticity and containing trace fine grained sand. Beds of poorly-graded sand and silty sands are observed between the low permeability intervals and provide the matrix for the saturated zones observed.

Each 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 by LC/MS/MS Compliant with QSM 5.1 Table B-15, TOC (USEPA Method 9060A), and pH (USEPA Method 9045D) in accordance with the QAPP Addendum (AECOM, 2019b).

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. A temperature blank was placed in each cooler to ensure that samples were preserved at or below 4 degrees Celsius (°C) during shipment.

DPT borings were converted to temporary wells, which were subsequently abandoned in accordance with the QAPP Addendum (AECOM, 2019b) using bentonite chips at completion of sampling activities. Borings were advanced in dirt areas to avoid disturbing concrete or asphalt surfaces, except at AOI4-1 and AOI5-1, where concrete coring or cutting through asphalt was required.

5.3 Temporary Well Installation and Groundwater Grab Sampling

Temporary wells were installed using a GeoProbe® 7822DT dual-tube sampling system. Temporary wells were installed at nineteen of the twenty proposed boring locations, excluding AOI4-2 and AOI4-3, which were removed from the program and documented in NCR-01. An additional temporary well (AOI1-5A) was installed at location AOI1-5, as multiple shallow saturated zones were observed. During advancement of the first soil boring (AOI7-10), a low permeability lithology was observed in the prescribed screen zone from 25 to 30 feet bgs. After installation of a temporary well at this depth and difficulty collecting a groundwater sample, all

borings were advanced to 15 to 25 feet bgs. (Refer to **Section 5.7** for additional details on deviations from the QAPP Addendum). Once each borehole was advanced to the desired depth, a temporary well was constructed of a 5-foot section of 0.75-inch Schedule 40 poly-vinyl chloride (PVC) screen with sufficient casing to reach ground surface. The screen intervals for the temporary wells are provided on **Table 5-2**. New PVC pipe and screen were used at each location to avoid cross contamination. The temporary wells were sampled immediately after installation.

Groundwater samples were collected from temporary wells 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 B3**) after each grab sample was collected.

Additional groundwater samples were collected from two existing monitoring wells (N19-3 and X3-1) at JFTB LA via low-flow sampling methods using a QED™ Sample Pro® bladder pump (or equivalent) with disposable tubing. The pump tubing was PFAS-free and placed at the center of the well screen or at the mid-point of the water column. Water quality readings collected during low-flow sampling were recorded on the field sampling form (**Appendix B3**).

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 5.1 Table B-15 in accordance with the QAPP Addendum (AECOM, 2019b).

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 4°C during shipment.

Temporary wells were abandoned in accordance with the QAPP Addendum (AECOM, 2019b) by removing the PVC and backfilling the hole with bentonite chips. Temporary wells were installed in dirt areas to avoid disturbing concrete or asphalt surfaces, except at AOI4-1 and AOI5-1 in which the concrete was resurfaced after all samples were collected.

5.4 Surface Water and Surface Soil Sampling

Surface water and surface soil samples were collected from the WDD, located approximately 200 feet north of the facility's southwestern property corner. The WDD is considered an AOI (AOI 8), as surface water and surface soil were potentially impacted from various AFFF release sites including the New CFR Training Pit, WEF, FTA, and AFFF equipment nozzle testing area; and the Old CFR Training Pits may have migrated to the WDD. Surface soil samples were collected from AOI8-1 and AOI8-2, as no surface water was present in these locations. Surface water samples were collected from locations AOI8-3 through AOI8-7.

Surface water samples were collected from a single point in the waterbody at each sample location using a disposable HDPE dipper and decanting the sample into the laboratory-supplied bottle. Additionally, a subsample of each surface water sample was collected in a separate container and a shaker test was completed to identify if there was any foaming. No foaming was noted on any of the surface water 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 for analysis of PFAS (USEPA Method 537 Compliant with QSM 5.1 Table B-15). Surface soil samples were also analyzed for TOC (USEPA Method 9060A) and pH (USEPA Method 9045D), in accordance with the QAPP Addendum (AECOM, 2019b).

Field duplicate samples were collected at a rate of 10 percent (%) 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, ERB samples were collected at a rate of 5% and analyzed for the same parameters as the soil samples. A temperature blank was placed in each cooler to ensure that samples were preserved at or below 4 degrees °C during shipment.

5.5 Investigation-Derived Waste

As of the date of this report, the disposal of PFAS investigation-derived waste (IDW) is not regulated federally. PFAS IDW generated during the SI is considered non-hazardous waste and was managed in accordance with the QAPP Addendum (AECOM, 2019b).

Soil IDW (i.e., soil cuttings) generated during the SI activities were containerized in labeled 55-gallon drums. Liquid IDW generated during SI activities (i.e. purge water, development water, and decontamination fluids) was also containerized in labeled 55-gallon drums. IDW was staged near AOI 1 on secondary containment, as agreed upon by JFTB LA.

Other solids such as spent personal protective equipment (PPE), 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.

5.6 Laboratory Analytical Methods

Samples were analyzed for a subset of 18 PFAS by LC/MS/MS compliant with QSM 5.1 Table B-15 at Pace Analytical Gulf Coast (formerly Gulf Coast Analytical Laboratory) in Baton Rouge, Louisiana, a DoD ELAP and NELAP-certified laboratory. The 18 PFAS compounds analyzed as part of the ARNG SI program include the following:

- 6:2 fluorotelomer sulfonate (6:2 FTS)
- 8:2 fluorotelomer sulfonate (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.

5.7 Deviations from QAPP Addendum

Deviations from the QAPP Addendum occurred based on field conditions and discussion between AECOM, ARNG, JFTB LA, and USACE. Three deviations from the QAPP Addendum are noted below and are documented in the Nonconformance and Corrective Action Report (**Appendix B2**):

- Based on conversations with the Base and access issues, the number of borings at AOI 4 (Hangar 1) was reduced from three to one point located closest to the hangar and the wash rack; the suspected location of the western Old CFR Training Pit in AOI 1 was shifted due to recent information from the CAARNG; and a sample was not collected from the JP-4 treatment system because the system was taken offline before the start of field work.
- The QAPP Addendum specifies that groundwater samples will be collected from temporary wells screened between 25 and 30 feet bgs; however, the first boring (AOI7-10) encountered lithology with low permeability in this interval, resulting in difficulty collecting groundwater samples. After discussion with the ARNG Project Manager and based on similar lithology observed in two other sampling points, borings were terminated at 25 feet bgs and temporary wells screened from 20 to 25 feet bgs.
- At boring location AOI1-5, three saturated zones were observed when advanced to 25 feet bgs. After discussion with the ARNG Project Manager and the JFTB LA contact, a step-out location (AOI1-5A) was drilled, and a well screen was set from 10 to 15 feet bgs to see if this layer would produce enough groundwater to collect a sample. Water samples were successfully collected from both AOI1-5 and AOI1-5A and, based on observed lithology, temporary well screens at boring locations AOI1-6, AOI1-4, and AOI1-2 were also set from 10 to 15 feet bgs.

CLIENT	ARNG			
Site Inspection for PFAS at Los Alamitos, CA				
REVISED	4/1/2020	GIS BY	MS	4/1/2020
SCALE	1:1,800	CHK BY	SL	4/1/2020
Base Map: National Agricultural Imagery Program, 2016		PM	RG	4/1/2020

Legend

Area of Interest (AOI)

Facility Boundary

Borehole/Groundwater Sample

N

Site Inspection Sample Locations, AOI 1

AECOM

12420 Milestone Center Drive
Germantown, MD 20876

Figure 5-1

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Area of Interest (AOI)
Facility Boundary
Borehole/Groundwater Sample
Existing Monitoring Well
Soil Sample
Surface Soil Sample
Surface Water/Sediment Sample

0 125 250 500 Feet

Site Inspection Sample Locations, AOI 2. AOI 3. AOI 8

CLIENT	ARNG			
PROJECT	Site Inspection for PFAS at Los Alamitos, CA			
REVISED	4/1/2020	GIS BY	MS	4/1/2020
SCALE	1:3,000	CHK BY	SL	4/1/2020
Base Map: National Agricultural Imagery Program, 2016		PM	RG	4/1/2020

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Figure 5-2

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CLIENT	ARNG			
Site Inspection for PFAS at Los Alamitos, CA				
REVISED	4/1/2020	GIS BY	MS	4/1/2020
SCALE	1:2,400	CHK BY	SL	4/1/2020
Base Map: National Agricultural Imagery Program, 2016		PM	RG	4/1/2020

Legend

- Area of Interest (AOI)
- Facility Boundary
- Borehole/Groundwater Sample
- Existing Monitoring Well

N

Site Inspection Sample Locations, AOI 4, AOI 5, AOI 6

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Figure 5-3

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CLIENT	ARNG			
Site Inspection for PFAS at Los Alamitos, CA				
REVISED	4/1/2020	GIS BY	MS	4/1/2020
SCALE	1:2,400	CHK BY	SL	4/1/2020
Base Map: National Agricultural Imagery Program, 2016		PM	RG	4/1/2020

Legend

- Area of Interest (AOI)
- Facility Boundary
- Borehole/Groundwater Sample
- Surface Soil Sample

Site Inspection Sample Locations, AOI 7

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Figure 5-4

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Table 5-1
Samples by Medium
Site Inspection Report
Joint Force Training Base, Los Alamitos, California

Sample Identification	Sample Collection Date/Time	Sample Depth (feet bgs) [1]	PFAS (USEPA Method 537 Modified)	TOC (USEPA Method 9060A)	pH (USEPA Method 9045D)	Comments
Soil Samples						
AOI1-1-SB-10-10.5-102219	10/22/2019	10 - 10.5	x	x	x	
AOI1-1-SB-17-17.5-102219	10/22/2019	17 - 17.5	x	x	x	
AOI1-1-SB-4.5-5-102219	10/22/2019	4.5 - 5	x	x	x	
AOI1-2-SB-12.5-13-102319	10/23/2019	12.5 - 13	x	x	x	
AOI1-2-SB-4.5-5-102319	10/23/2019	4.5 - 5	x	x	x	
AOI1-2-SB-9.5-10-102319	10/23/2019	9.5 - 10	x	x	x	
AOI1-3-SB-16-16.5-102219	10/22/2019	16 - 16.5	x	x	x	
AOI1-3-SB-4.5-5-102219	10/22/2019	4.5 - 5	x	x	x	
AOI1-3-SB-9.5-10-102219	10/22/2019	9.5 - 10	x	x	x	
AOI1-4-SB-4.5-5-102319	10/23/2019	4.5 - 5	x	x	x	
AOI1-4-SB-4.5-5-102319-D	10/23/2019	4.5 - 5	x	x	x	FD
AOI1-4-SB-9.5-10-102319	10/23/2019	9.5 - 10	x	x	x	
AOI1-5-SB-17.5-18-102319	10/23/2019	17.5 - 18	x	x	x	
AOI1-5-SB-4.5-5-102319	10/23/2019	4.5 - 5	x	x	x	
AOI1-5-SB-4.5-5-102319-D	10/23/2019	4.5 - 5	x	x	x	FD
AOI1-5-SB-7-7.5-102319	10/23/2019	7 - 7.5	x	x	x	
AOI1-6-SB-12.5-13-102319	10/23/2019	12.5 - 13	x	x	x	
AOI1-6-SB-4.5-5-102319	10/23/2019	4.5 - 5	x	x	x	
AOI1-6-SB-9-9.5-102319	10/23/2019	9 - 9.5	x	x	x	
AOI2-1-SB-4.5-5-102519	10/25/2019	4.5 - 5	x	x	x	
AOI2-2-SB-4.5-5-102319	10/23/2019	4.5 - 5	x	x	x	
AOI2-2-SB-4.5-5-102319-D	10/23/2019	4.5 - 5	x	x	x	FD
AOI2-3-SB-4.5-5-102319	10/23/2019	4.5 - 5	x	x	x	
AOI2-3-SB-4.5-5-102319-D	10/23/2019	4.5 - 5	x	x	x	FD
AOI2-4-SB-4.5-5-102519	10/25/2019	4.5 - 5	x	x	x	
AOI2-5-SB-13-13.5-102519	10/25/2019	13 - 13.5	x	x	x	
AOI2-5-SB-4.5-5-102519	10/25/2019	4.5 - 5	x	x	x	
AOI2-5-SB-9.5-10-102519	10/25/2019	9.5 - 10	x	x	x	
AOI3-1-SB-1.5-2-102519	10/25/2019	1.5 - 2	x	x	x	
AOI3-2-SB-1.5-2-102519	10/25/2019	1.5 - 2	x	x	x	
AOI3-2-SB-1.5-2-102519-D	10/25/2019	1.5 - 2	x	x	x	FD
AOI3-3-SB-1.5-2-102519	10/25/2019	1.5 - 2	x	x	x	
AOI3-4-SB-1.5-2-102519	10/25/2019	1.5 - 2	x	x	x	
AOI3-4-SB-1.5-2-102519-D	10/25/2019	1.5 - 2	x	x	x	FD
AOI3-5-SB-1.5-2-102519	10/25/2019	1.5 - 2	x	x	x	
AOI3-6-SB-1.5-2-102519	10/25/2019	1.5 - 2	x	x	x	
AOI3-7-SB-1.5-2-102519	10/25/2019	1.5 - 2	x	x	x	
AOI3-7-SB-1.5-2-102519-D	10/25/2019	1.5 - 2	x	x	x	FD
AOI3-8-SB-1.5-2-102419	10/24/2019	1.5 - 2	x	x	x	
AOI3-8-SB-1.5-2-102419-D	10/25/2019	1.5 - 2	x	x	x	FD
AOI3-8-SB-13-13.5-102419	10/24/2019	13 - 13.5	x	x	x	
AOI3-8-SB-9-9.5-102419	10/24/2019	9 - 9.5	x	x	x	
AOI3-9-SB-1.5-2-102419	10/24/2019	1.5 - 2	x	x	x	
AOI3-9-SB-14-14.5-102419	10/24/2019	14 - 14.5	x	x	x	
AOI3-9-SB-8.5-9-102419	10/24/2019	8.5 - 9	x	x	x	
AOI3-10-SB-1.5-2-102419	10/24/2019	1.5 - 2	x	x	x	
AOI3-10-SB-10.5-11-102419	10/24/2019	10.5 - 11	x	x	x	
AOI3-11-SB-1.5-2-102419	10/24/2019	1.5 - 2	x	x	x	
AOI3-11-SB-11-11.5-102419	10/24/2019	11 - 11.5	x	x	x	
AOI3-11-SB-8.5-9-102419	10/24/2019	8.5 - 9	x	x	x	
AOI3-12-SB-1.5-2-102419	10/24/2019	1.5 - 2	x	x	x	
AOI3-12-SB-19-19.5-102419	10/24/2019	19 - 19.5	x	x	x	
AOI3-12-SB-7-7.5-102419	10/24/2019	7 - 7.5	x	x	x	
AOI4-1-SB-0-0.5-102519	10/25/2019	0 - 0.5	x	x	x	
AOI4-1-SB-5.5-6-102519	10/25/2019	5.5 - 6	x	x	x	
AOI4-1-SB-9.5-10-102519	10/25/2019	9.5 - 10	x	x	x	
AOI5-1-SB-1.5-2-102219	10/22/2019	1.5 - 2	x	x	x	

Table 5-1
Samples by Medium
Site Inspection Report
Joint Force Training Base, Los Alamitos, California

Sample Identification	Sample Collection Date/Time	Sample Depth (feet bgs) [1]	PFAS (USEPA Method 537 Modified)	TOC (USEPA Method 9060A)	pH (USEPA Method 9045D)	Comments
AOI5-1-SB-1.5-2-102219-D	10/22/2019	1.5 - 2	x	x	x	FD
AOI5-1-SB-19-19.5-102219	10/22/2019	19 - 19.5	x	x	x	
AOI5-1-SB-8-8.5-102219	10/22/2019	8 - 8.5	x	x	x	
AOI6-1-SB-1.5-2-102219	10/22/2019	1.5 - 2	x	x	x	
AOI6-1-SB-1.5-2-102219-MS	10/22/2019	1.5 - 2	x	x	x	MS
AOI6-1-SB-1.5-2-102219-MSD	10/22/2019	1.5 - 2	x	x	x	MSD
AOI6-1-SB-18.5-19-102219	10/22/2019	18.5 - 19	x	x	x	
AOI6-1-SB-7-7.5-102219	10/22/2019	7 - 7.5	x	x	x	
AOI6-2-SB-1.5-2-102219	10/22/2019	1.5 - 2	x	x	x	
AOI6-2-SB-1.5-2-102219-MS	10/22/2019	1.5 - 2	x	x	x	MS
AOI6-2-SB-1.5-2-102219-MSD	10/22/2019	1.5 - 2	x	x	x	MSD
AOI6-3-SB-1.5-2-102219	10/22/2019	1.5 - 2	x	x	x	
AOI6-3-SB-1.5-2-102219-MS	10/22/2019	1.5 - 2	x	x	x	MS
AOI6-3-SB-1.5-2-102219-MSD	10/22/2019	1.5 - 2	x	x	x	MSD
AOI6-4-SB-1.5-2-102219	10/22/2019	1.5 - 2	x	x	x	
AOI6-4-SB-1.5-2-102219-MS	10/22/2019	1.5 - 2	x	x	x	MS
AOI6-4-SB-1.5-2-102219-MSD	10/22/2019	1.5 - 2	x	x	x	MSD
AOI7-1-SB-1.5-2-102119	10/21/2019	1.5 - 2	x	x	x	
AOI7-2-SB-1.5-2-102119	10/21/2019	1.5 - 2	x	x	x	
AOI7-3-SB-1.5-2-102119	10/21/2019	1.5 - 2	x	x	x	
AOI7-4-SB-1.5-2-102119	10/21/2019	1.5 - 2	x	x	x	
AOI7-5-SB-1.5-2-102119	10/21/2019	1.5 - 2	x	x	x	
AOI7-6-SB-1.5-2-102119	10/21/2019	1.5 - 2	x	x	x	
AOI7-7-SB-1.5-2-102119	10/21/2019	1.5 - 2	x	x	x	
AOI7-8-SB-1.5-2-102119	10/21/2019	1.5 - 2	x	x	x	
AOI7-9-SB-1.5-2-102119	10/21/2019	1.5 - 2	x	x	x	
AOI7-9-SB-17-17.5-102119	10/21/2019	17 - 17.5	x	x	x	
AOI7-9-SB-7.5-8-102119	10/21/2019	7.5 - 8	x	x	x	
AOI7-10-SB-1.5-2-102119	10/21/2019	1.5 - 2	x	x	x	
AOI7-10-SB-17-17.5-102119	10/21/2019	17 - 17.5	x	x	x	
AOI7-10-SB-7.5-8-102119	10/21/2019	7.5 - 8	x	x	x	
AOI7-11-SB-1.5-2-102119	10/21/2019	1.5 - 2	x	x	x	
AOI7-11-SB-18-18.5-102119	10/21/2019	18 - 18.5	x	x	x	
AOI7-11-SB-7.5-8-102119	10/21/2019	7.5 - 8	x	x	x	
AOI8-1-SB-0-0.5-102919	10/29/2019	0 - 0.5	x	x	x	
AOI8-2-SB-0-0.5-102919	10/29/2019	0 - 0.5	x	x	x	
Groundwater Samples						
AOI1-1-GW-102219	10/22/2019	20 - 25	x			
AOI1-2-GW-102319	10/23/2019	10 - 15	x			
AOI1-3-GW-102219	10/22/2019	20 - 25	x			
AOI1-4-GW-102319	10/23/2019	10 - 15	x			
AOI1-5A-GW-102319	10/23/2019	10 - 15	x			
AOI1-5-GW-102319	10/23/2019	20 - 25	x			
AOI1-6-GW-102319	10/23/2019	10 - 15	x			
AOI2-5-GW-102519	10/25/2019	15 - 20	x			
AOI3-8-GW-102419	10/24/2019	10 - 15	x			
AOI3-9-GW-102419	10/24/2019	15 - 20	x			
AOI3-10-GW-102419	10/24/2019	15 - 20	x			
AOI3-11-GW-102419	10/24/2019	10 - 15	x			
AOI3-12-GW-102419	10/24/2019	20 - 25	x			
AOI4-1-GW-102519	10/25/2019	10 - 15	x			
AOI5-1-GW-102219	10/22/2019	20 - 25	x			
AOI5-N19-3-102919	10/29/2019	9 - 10	x			
AOI5-N19-3-102919-D	10/29/2019	9 - 10	x			FD
AOI6-1-GW-102219	10/22/2019	20 - 25	x			
AOI7-9-GW-102119	10/21/2019	20 - 25	x			
AOI7-10-GW-102119	10/21/2019	25 - 30	x			
AOI7-11-GW-102119	10/21/2019	20 - 25	x			

Table 5-1
Samples by Medium
Site Inspection Report
Joint Force Training Base, Los Alamitos, California

Sample Identification	Sample Collection Date/Time	Sample Depth (feet bgs) [1]	PFAS (USEPA Method 537 Modified)	TOC (USEPA Method 9060A)	pH (USEPA Method 9045D)	Comments
AOI8-X3-1-102919	10/29/2019	11 - 13	x			
AOI8-X3-1-102919-D	10/29/2019	11 - 13	x			FD
Surface Water Samples						
AOI 8-3-SW-102919	10/29/2019	NA	x			
AOI 8-4-SW-102919	10/29/2019	NA	x			
AOI 8-5-SW-102919	10/29/2019	NA	x			
AOI 8-5-SW-102919-MS	10/29/2019	NA	x			MS
AOI 8-5-SW-102919-MSD	10/29/2019	NA	x			MSD
AOI 8-6-SW-102919	10/29/2019	NA	x			
AOI 8-6-SW-102919-MS	10/29/2019	NA	x			MS
AOI 8-6-SW-102919-MSD	10/29/2019	NA	x			MSD
AOI 8-7-SW-102919	10/29/2019	NA	x			
AOI 8-7-SW-102919-D	10/29/2019	NA	x			FD
Quality Control Samples						
JFTBLA-DECON-091719	9/17/2019	NA	x			ERB on decontamination water
JFTBLA-DW-FIELDBLANK-091719	9/17/2019	NA	x			FRB on decontamination water
JFTBLA-EB-102919	10/29/2019	NA	x			ERB on the pump
JFTBLA-EB-B-102319	10/23/2019	NA	x			ERB on stainless steel bowl
JFTBLA-EB-HA-102319	10/23/2019	NA	x			ERB on hand auger
JFTBLA-EB-HA-102119	10/21/2019	NA	x			ERB on hand auger
JFTBLA-EB-HA-102519	10/25/2019	NA	x			ERB on hand auger
JFTBLA-EB-PW-102219	10/22/2019	NA	x			ERB on pressure washer
JFTBLA-EB-WM-102319	10/23/2019	NA	x			ERB on water meter
JFTBLA-FRB-102119	10/21/2019	NA	x			FRB

Notes:
[1] Sample depths for surface water samples are inches (in) below water surface

Acronyms and Abbreviations:
bgs = below ground surface
ERB = equipment rinsate blank
FD = field duplicate
FRB = field reagent blank
ft = feet
in = inches
MS/MSD = matrix spike/ matrix spike duplicate
NA = not applicable
PFAS = per- and polyfluoroalkyl substances
TOC = total organic carbon
USEPA = United States Environmental Protection Agency

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Table 5-2
Soil Boring Depths and Temporary Well Screen Intervals
Site Inspection Report
Joint Force Training Base, Los Alamitos, California

Area of Interest	Location ID	Soil Boring Depth (feet bgs)	Temporary Well Screen Interval (feet bgs)
1	AOI1-1	25	20 - 25
	AOI1-2	15	10 - 15
	AOI1-3	25	20 - 25
	AOI1-4	15	10 - 15
	AOI1-5	25	20 - 25
	AOI1-5A	15	10 - 15
	AOI1-6	15	10 - 15
2	AOI2-5	20	15 - 20
3	AOI3-8	15	10 - 15
	AOI3-9	20	15 - 20
	AOI3-10	20	15 - 20
	AOI3-11	15	10 - 15
	AOI3-12	25	20 - 25
4	AOI4-1	15	10 - 15
5	AOI5-1	25	20 - 25
6	AOI6-1	25	20 - 25
7	AOI7-9	25	20 - 25
	AOI7-10	30	25 - 30
	AOI7-11	25	20 - 25

Acronyms and Abbreviations:
bgs = below ground surface

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6.0 Site Inspection Results

This section presents the analytical results of the SI for each AOI. The analytical results are reported and evaluated in the subsequent sections.

The SLs used in this evaluation are presented in **Section 6.1**. A discussion of the results is provided in **Section 6.3** through **Section 6.10**. **Tables 6-2** through **6-6** present PFAS results for samples with detections in soil, groundwater, and surface water; 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 site will proceed to an RI, the next phase under CERCLA. The SLs apply to three compounds, PFOA, PFOS, and PFBS, for both soil and groundwater, as presented in **Table 6-1**.

All other results presented in this report are considered informational in nature and serve as an indication as to whether soil, groundwater, sediment, and surface water contain or do not contain PFAS within the boundaries of the Site.

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]	Tap Water (Groundwater) (ng/L)[a,b]
PFOA	130	1,600	40
PFOS	130	1,600	40
PFBS	130,000	1,600,000	40,000

Notes:

a.) 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. HQ=0.1. 15 October 2019.

b.) If only one PFAS is present, a Hazard Quotient (HQ) of 1 applies and the values presented would increase by a factor of x10.

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 (ITRC, 2018). 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 – Old Crash Fire Rescue Training Pits

This section presents the analytical results for soil and groundwater for AOI 1, which includes two potential PFAS release areas: The Old CFR Training Pit (West) and the Old CFT Training Pit (East). PFAS detections are summarized in **Table 6-2** through **Table 6-6** and on **Figure 6-1**, **Figure 6-5**, and **Figure 6-9**.

6.3.1 AOI 1 Soil Analytical Results

PFOA, PFOS, and PFBS did not exceed the SLs in soil at the potential PFAS release area: the Old CFR Training Pits. **Figure 6-1** and **Figure 6-5** present detections in soil for PFOS and PFOA. PFAS detections in soil are summarized on **Table 6-2** through **Table 6-4**.

At the Old CFR Training Pits, surface interval (0 to 2 feet bgs) samples were not collected due to the known presence of fill from 0 to 5 feet bgs. Soil was sampled from the shallow interval (4.5 to 13 feet bgs) from boring locations AOI1-1 through AOI1-6. Soil was also sampled at the deep interval (16 to 18 feet bgs) from boring locations AOI1-1, AOI1 through3, and AOI1-5. Sampling depths presented on **Table 5-1** were determined based on lithology observed during the advancement of each boring. In the shallow interval, PFOA was detected in all samples with concentrations ranging from 3.25 micrograms per kilogram (µg/Kg) to 1,040 µg/Kg. PFOS was detected in all shallow samples except AOI1-1 (4.5 to 5 feet bgs) and AOI 1-6 (9 to 9.5 feet bgs) with concentrations ranging from 0.262 J µg/Kg to 31.8 µg/Kg. PFBS was detected in all shallow samples except AOI1-2 (12.5 to 13 feet bgs), AOI1-3 (4.5 to 5 feet bgs), AOI1-4 (9.5 to 10 feet bgs), and AOI1-6 (4.5 to 13 feet bgs) with concentrations ranging from 0.169 J µg/Kg to 1.66 µg/Kg.

In the deep interval, PFOA was detected at all locations sampled, at concentrations ranging from 1.49 µg/Kg to 21.5 µg/Kg. PFOS was detected at all locations sampled, at concentrations ranging from 0.293 J µg/Kg to 4.34 µg/Kg. PFBS was detected only at location AOI1-3, at a concentration of 0.258 J µg/Kg.

6.3.2 AOI 1 Groundwater Analytical Results

PFOA and PFOS in groundwater exceeded the SLs at the potential PFAS release area: the Old CFR Training Pits. PFBS did not exceed the SL at this potential PFAS release area. **Figure 6-9** presents the ranges of detections for PFOS and PFOA. PFAS detections from the investigation are summarized in **Table 6-5**.

Within AOI 1, groundwater was sampled from temporary monitoring well locations AOI1-1 through AOI1-6. Based on the lithology/hydrogeology observed in the field, a step-out location (AOI1-5A) was advanced at AOI1-5, and an additional groundwater sample was collected from a shallower zone. The SLs of 40 ng/L for PFOA and PFOS were exceeded at all locations at maximum concentrations of 166,000 ng/L and 11,100 ng/L, respectively. PFBS was detected below the SL of 40,000 ng/L at all well locations with concentrations ranging from 22.7 ng/L to 759 ng/L, with the maximum concentration occurring at AOI1-3.

6.3.3 AOI 1 Conclusions

Based on the results of the SI, PFOA, PFOS, and PFBS were detected in soil at AOI 1; however, the detected concentrations did not exceed the soil SLs. At all locations sampled in the potential PFAS release area, PFOS and PFOA were detected in groundwater at concentrations exceeding the individual SLs of 40 ng/L. PFBS was detected in groundwater at concentrations below the SL. Based on the exceedances of the SLs for PFOA and PFOS in groundwater, further evaluation at AOI 1 is warranted.

6.4 AOI 2 – New Crash Fire Rescue Training Pit

This section presents the analytical results for soil and groundwater in comparison to SLs for AOI 2, which includes one potential PFAS release area: the New CFR Training Pit. PFAS detections are summarized in **Table 6-2** through **Table 6-6** and on **Figure 6-2**, **Figure 6-6**, and **Figure 6-10**.

6.4.1 AOI 2 Soil Analytical Results

PFOA, PFOS, and PFBS did not exceed the SLs in soil at the potential PFAS release area: the New CFR Training Pit. **Figure 6-2**, and **Figure 6-6** present detections in soil for PFOS and PFOA. The detected compounds in soil are summarized on **Table 6-2** through **Table 6-4**.

At the New CFR Training Pit, surface interval (0 to 2 feet bgs) samples were not collected due to the known presence of fill from 0 to 5 feet bgs. Soil was sampled from the shallow interval (4.5 to 13.5 feet bgs) from boring locations AOI2-1 through AOI2-5. Sampling depths presented on **Table 5-1** were determined based on lithology observed during the advancement of each boring. In the shallow interval, PFOA was detected in all samples, with concentrations ranging from 2.02 µg/Kg to 25.9 µg/Kg. PFOS was detected in all samples, with concentrations ranging from 0.650 J µg/Kg to 1120 µg/Kg. PFBS was detected in all samples except AOI2-5 (13 to 13.5 feet bgs), with concentrations ranging from 3.47 µg/Kg to 50 µg/Kg.

6.4.2 AOI 2 Groundwater Analytical Results

PFOA and PFOS in groundwater exceeded the SLs at the potential PFAS release area: the New CFR Training Pit. PFBS did not exceed the SL at this potential PFAS release area. **Figure 6-10** presents the ranges of detections for PFOS and PFOA. The detected compounds from the investigation are summarized in **Table 6-5**.

Within AOI 2, groundwater was sampled from temporary monitoring well location AOI2-5. The SLs of 40 ng/L for PFOA and PFOS were exceeded at AOI2-5, at concentrations of 62,900 ng/L and 1,620 ng/L, respectively. PFBS was detected below the SL of 40,000 ng/L, at a concentration of 1,600 ng/L.

6.4.3 AOI 2 Conclusions

Based on the results of the SI, PFOA, PFOS, and PFBS were detected in soil at AOI 2; however, the detected concentrations did not exceed the soil SLs. At the location sampled in the potential PFAS release area, PFOS and PFOA were detected in groundwater at concentrations exceeding the individual SLs of 40 ng/L. PFBS was detected in groundwater at concentrations below the SL. Based on the exceedances of the SLs for PFOA and PFOS in groundwater, further evaluation at AOI 2 is warranted.

6.5 AOI 3 – West End of the Flightline

This section presents the analytical results for soil and groundwater in comparison to SLs for AOI 3, which includes one potential PFAS release area: the WEF FTA and AFFF Equipment Nozzle Testing Area. PFAS detections are summarized in **Table 6-2** through **Table 6-6** and on **Figure 6-2**, **Figure 6-6**, and **Figure 6-10**.

6.5.1 AOI 3 Soil Analytical Results

PFOA, and PFOS exceeded the SLs in soil at the potential PFAS release area: the WEF FTA and AFFF Equipment Nozzle Testing Area. PFBS did not exceed the SLs at the potential PFAS release area. **Figure 6-2** and **Figure 6-6** present detections in soil for PFOS and PFOA. PFAS detections in soil are summarized on **Table 6-2** through **Table 6-4**.

At the WEF FTA and AFFF Equipment Nozzle Testing Area, soil was sampled from the surface interval (1.5 to 2 feet bgs) from boring locations AOI3-1 through AOI3-12. Soil was also sampled at the shallow interval (7 to 14.5 feet bgs) from boring locations AOI3-8 through AOI3-12, and at the deep interval (19 to 19.5 feet bgs) from boring location AOI3-12. Sampling depths presented on **Table 5-1** were determined based on lithology observed during the advancement of each boring. In the surface interval, PFOA was detected in all samples except AOI3-8 and AOI3-10, with concentrations ranging from 0.922 J µg/Kg to 219 µg/Kg, with exceedances in AOI3-3 (145 µg/Kg) and AOI3-12 (219 µg/Kg). PFOS was detected at all samples in the surface interval, with exceedances in AOI3-1, AOI3-2, AOI3-4, AOI3-5, AOI3-6, AOI3-7, AOI3-11, and AOI3-12 with concentrations of 381 µg/Kg, 1570 µg/Kg, 508 µg/Kg, 396 µg/Kg, 1120 µg/Kg, 198 µg/Kg, 643 µg/Kg, and 739 µg/Kg, respectively. In the surface interval, PFBS was detected at all locations except AOI3-8 and AOI3-10, with concentrations ranging from 0.203 J µg/Kg to 65.4 µg/Kg.

At the shallow interval, PFOA was detected in all samples, with concentrations ranging from 0.456 J µg/Kg to 50.2 µg/Kg. PFOS was detected in all samples except AOI3-8 (13 to 13.5 feet bgs), with concentrations ranging from 0.245 J µg/Kg to 599 µg/Kg. PFBS was detected in all samples except AOI3-9 (14 to 14.5 feet bgs), with concentrations ranging from 0.778 J µg/Kg to 19 µg/Kg.

In the deep interval, PFOA and PFOS were detected at AOI3-12, at concentrations of 0.176 J µg/Kg and 2.88 µg/Kg, respectively. PFBS was not detected in the deep interval.

6.5.2 AOI 3 Groundwater Analytical Results

PFOA and PFOS in groundwater exceeded the SLs at the potential PFAS release area: WEF FTA and AFFF Equipment Nozzle Testing Area. PFBS did not exceed the SL at this potential PFAS release area. **Figure 6-10** presents the ranges of detections for PFOS and PFOA. PFAS detections from the investigation are summarized in **Table 6-5**.

Within AOI 3, groundwater was sampled from temporary monitoring well locations AOI3-8 through AOI3-12. The SLs of 40 ng/L for PFOA and PFOS were exceeded at all locations except AOI3-9 in which PFOS was not detected. Maximum concentrations of PFOA and PFOS were 5,800 ng/L and 16,600 ng/L, respectively. PFBS was detected below the SL of 40,000 ng/L at all well locations, with concentrations ranging from 150 ng/L to 6,310 ng/L, with the maximum concentration occurring at AOI3-11.

6.5.3 AOI 3 Conclusions

Based on the results of the SI, PFOA, PFOS, and PFBS were detected in soil at AOI 3; however, only detected concentrations of PFOA and PFOS exceeded the soil SLs. At the locations sampled in the potential PFAS release area, PFOS and PFOA were detected in groundwater, at concentrations exceeding the individual SLs of 40 ng/L. PFBS was detected in groundwater, at

concentrations below the SL. Based on the exceedances of the SLs for PFOA and PFOS in soil and groundwater, further evaluation at AOI 3 is warranted.

6.6 AOI 4 – Hangar 1

This section presents the analytical results for soil and groundwater in comparison to SLs for AOI 4, which includes one potential PFAS release area: Hangar 1, including the nearby wash rack. PFAS detections are summarized in **Table 6-2** through **Table 6-6** and on **Figure 6-3**, **Figure 6-7**, and **Figure 6-11**.

6.6.1 AOI 4 Soil Analytical Results

PFOA and PFOS did not exceed the SLs in soil at the potential PFAS release area: Hangar 1, including the nearby wash rack. PFBS was not detected in soil in AOI 4. **Figure 6-3** and **Figure 6-7** present detections in soil for PFOS and PFOA. PFAS detections in soil are summarized on **Table 6-2** through **Table 6-4**.

At Hangar 1, soil was sampled from the surface (0.5 to 1 feet bgs) and shallow (5.5 to 10 feet bgs) intervals from boring location AOI4-1. Sampling depths presented on **Table 5-1** were determined based on lithology observed during the advancement of the boring. Where present, PFOA and PFOS were detected in soil, at concentrations several orders of magnitude lower than SLs. In the surface interval, PFOA and PFBS were not detected, and PFOS was detected at a concentration of 0.440 J µg/Kg. At the shallow interval, PFOA was detected in samples at a maximum concentration of 1.59 µg/Kg. PFOS was detected in one sample in the shallow interval at a maximum concentration of 0.967 J µg/Kg. PFBS was not detected at the shallow interval.

6.6.2 AOI 4 Groundwater Analytical Results

PFOA and PFOS in groundwater exceeded the SLs at the potential PFAS release area: Hangar 1, including the nearby wash rack. PFBS did not exceed the SL at this potential PFAS release area. **Figure 6-11** presents the ranges of detections for PFOS and PFOA. PFAS detections from the investigation are summarized in **Table 6-5**.

Within AOI 4, groundwater was sampled from one temporary monitoring well location AOI4-1. The SLs of 40 ng/L for PFOA and PFOS were exceeded. Maximum concentrations of PFOA and PFOS were 245 ng/L and 401 ng/L, respectively. PFBS was detected below the SL of 40,000 ng/L with a concentration of 55.9 ng/L.

6.6.3 AOI 4 Conclusions

Based on the results of the SI, PFOA and PFOS were detected in soil at AOI 4; however, the detected concentrations did not exceed the soil SLs. At the location sampled in the potential PFAS release area, PFOS and PFOA were detected in groundwater at concentrations exceeding the individual SLs of 40 ng/L. PFBS was detected in groundwater at concentrations below the SL. Based on the exceedances of the SLs for PFOA and PFOS in groundwater, further evaluation at AOI 4 is warranted.

6.7 AOI 5 – Building 34 (JFTB LA Fire Station)

This section presents the analytical results for soil and groundwater in comparison to SLs for AOI 5, which includes one potential PFAS release area: Building 34, the JFTB LA Fire Station. PFAS detections are summarized in **Table 6-2** through **Table 6-6** and on **Figure 6-3**, **Figure 6-7**, and **Figure 6-11**.

6.7.1 AOI 5 Soil Analytical Results

PFOA and PFOS exceeded the SLs in soil at the potential PFAS release area: Building 34, the JFTB LA Fire Station. PFBS did not exceed the SLs in soil at the potential release area. **Figure 6-3** and **Figure 6-7** present detections in soil for PFOS and PFOA. PFAS detections in soil are summarized on **Table 6-2** through **Table 6-4**.

At Building 34, soil was sampled from the surface (1.5 to 2 feet bgs), shallow (8 to 8.5 feet bgs), and deep (19 to 19.5 feet bgs) intervals from boring location AOI5-1. Sampling depths presented on **Table 5-1** were determined based on lithology observed during the advancement of the boring. In the surface interval, PFOA and PFOS exceeded SLs at concentrations of 134 µg/Kg and 352 µg/Kg, respectively. In the surface interval, PFBS was detected at a concentration of 0.550 J µg/Kg. At the shallow interval, PFOA, PFOS and PFBS were detected at concentrations of 23.4 µg/Kg, 1.67 µg/Kg, and 38.3 µg/Kg, respectively.

In the deep interval, PFOA, PFOS and PFBS were detected at concentrations of 15.7 µg/Kg, 29.4 µg/Kg, and 2.61 µg/Kg, respectively.

6.7.2 AOI 5 Groundwater Analytical Results

PFOA and PFOS in groundwater exceeded the SLs at the potential PFAS release area: Building 34, the JFTB LA Fire Station. PFBS did not exceed the SL at this potential PFAS release area. **Figure 6-11** presents the ranges of detections for PFOS and PFOA. PFAS detections from the investigation are summarized in **Table 6-5**.

Within AOI 5, groundwater was sampled from one temporary monitoring well location, AOI5-1, and one existing monitoring well, N19-3, located at the east corner of Building 34. The SLs of 40 ng/L for PFOA and PFOS were exceeded at both locations. Maximum concentrations of PFOA and PFOS were observed in AOI5-1, at 31,300 ng/L and 16,800 ng/L, respectively. PFBS was detected below the SL of 40,000 ng/L, with a maximum concentration of 7,870 ng/L.

6.7.3 AOI 5 Conclusions

Based on the results of the SI, PFOA, PFOS, and PFBS were detected in soil at AOI 5; however, only detected concentrations of PFOA and PFOS exceeded the soil SLs. At the location sampled in the potential PFAS release area, PFOS and PFOA were detected in groundwater at concentrations exceeding the individual SLs of 40 ng/L. PFBS was detected in groundwater at concentrations below the SL. Based on the exceedances of the SLs for PFOA and PFOS in soil and groundwater, further evaluation at AOI 5 is warranted.

6.8 AOI 6 – AFFF Release in the vicinity of Building 80

This section presents the analytical results for soil and groundwater in comparison to SLs for AOI 6, which includes one potential PFAS release area: a release of AFFF in the vicinity of Building 80. PFAS detections are summarized in **Table 6-2** through **Table 6-6** and on **Figure 6-3**, **Figure 6-7**, and **Figure 6-11**.

6.8.1 AOI 6 Soil Analytical Results

PFOA and PFOS did not exceed the SLs in soil at the potential PFAS release area: a release of AFFF in the vicinity of Building 80. PFBS was not detected in soil in AOI 6. **Figure 6-3** and **Figure 6-7** present detections in soil for PFOS and PFOA. PFAS detections in soil are summarized on **Table 6-2** through **Table 6-4**.

At Building 80, soil was sampled from the surface (1.5 to 2 feet bgs), shallow (7 to 7.5 feet bgs), and deep (18.5 to 19 feet bgs) intervals from boring location AOI6-1. Soil was also sampled at the surface (1.5 to 2 feet bgs) interval for locations AOI6-2 through AOI6-4. Sampling depths presented on **Table 5-1** were determined based on lithology observed during the advancement of the boring. Where present, PFOA and PFOS were detected in soil at concentrations several orders of magnitude lower than SLs. In the surface interval, PFOA was detected at all four locations, with concentrations ranging from 0.213 J µg/Kg to 6.24 µg/Kg. PFOS was detected at locations AOI6-2 and AOI6-3, at concentrations ranging from 1.06 J µg/Kg to 1.37 µg/Kg. PFBS was not detected in the surface soil.

In the shallow and deep intervals, PFOA, PFOS and PFBS were not detected.

6.8.2 AOI 6 Groundwater Analytical Results

PFOA and PFOS were not detected in groundwater at the potential PFAS release area: a release of AFFF in the vicinity of Building 80. PFBS did not exceed the SL at this potential PFAS release area. **Figure 6-11** presents the ranges of detections for PFOS and PFOA. PFAS detections from the investigation are summarized in **Table 6-5**.

Within AOI 6, groundwater was sampled from one temporary monitoring well location AOI6-1. PFBS was detected below the SL of 40,000 ng/L, with a maximum concentration of 21.7 ng/L. PFOA and PFOS were not detected in groundwater at AOI 6.

6.8.3 AOI 6 Conclusions

Based on the results of the SI, PFOA and PFOS were detected in soil at AOI 6; however, the detected concentrations did not exceed the soil SLs. At the location sampled in the potential PFAS release area, PFBS was detected in groundwater at a concentration below the individual SL of 40,000 ng/L. PFOA and PFOS were not detected in groundwater. Therefore, further evaluation at AOI 6 is not warranted. However, to confirm the non-detects, additional groundwater sampling and analysis (using methods with lowered detection limits) will be conducted at AOI 6 during the RI, as part of the site-wide OU 1 groundwater investigation.

6.9 AOI 7 – Emergency Response

This section presents the analytical results for soil and groundwater in comparison to SLs for AOI 7, which includes one potential PFAS release area: the location of an emergency response by the JFTB LA FD. PFAS detections are summarized in **Table 6-2** through **Table 6-6** and on **Figure 6-4**, **Figure 6-8**, and **Figure 6-12**.

6.9.1 AOI 7 Soil Analytical Results

PFOA and PFOS did not exceed the SLs in soil at the potential PFAS release area: the location of an emergency response by the JFTB LA Fire Department. PFBS was not detected in soil in AOI 7. **Figure 6-4** and **Figure 6-8** present detections in soil for PFOS and PFOA. PFAS detections in soil are summarized on **Table 6-2** through **Table 6-4**.

At AOI 7, soil was sampled from the surface (1.5 to 2 feet bgs), shallow (7.5 to 8 feet bgs), and deep (17 to 18.5 feet bgs) intervals from boring locations AOI7-9 through AOI7-11. Soil was also sampled at the surface (1.5 to 2 feet bgs) interval for locations AOI7-1 through AOI7-11. Sampling depths presented on **Table 5-1** were determined based on lithology observed during the advancement of the boring. Where present, PFOA and PFOS were detected in soil at concentrations several orders of magnitude lower than SLs. In the surface interval, PFOA was detected at all eleven locations except AOI7-3, AOI7-9, AOI7-10, and AOI7-11, with concentrations ranging from 0.183 J µg/Kg to 0.649 µg/Kg. PFOS was detected at locations AOI7-

2, AOI7-3, AOI7-4, and AOI7-8 at concentrations ranging from 0.207 J µg/Kg to 0.455 µg/Kg. PFBS was not detected in the surface soil.

In the shallow and deep intervals, PFOA, PFOS and PFBS were not detected.

6.9.2 AOI 7 Groundwater Analytical Results

PFOA and PFOS in groundwater did not exceed the SLs at the potential PFAS release area: the location of an emergency response by the JFTB LA FD. PFBS was not detected in groundwater at this potential PFAS release area. **Figure 6-12** presents the ranges of detections for PFOS and PFOA. PFAS detections from the investigation are summarized in **Table 6-5**.

Within AOI 7, groundwater was sampled from temporary monitoring well locations AOI7-9 through AOI7-11. The SLs of 40 ng/L for PFOA and PFOS were not exceeded at any locations. PFOA was detected in groundwater only at AOI7-10 at a concentration of 4.53 J ng/L. PFOS was detected in groundwater only at the duplicate sample taken at AOI7-11 at a concentration of 1.56 J ng/L.

6.9.3 AOI 7 Conclusions

Based on the results of the SI, PFOA and PFOS were detected in soil at AOI 7; however, the detected concentrations did not exceed the soil SLs. At the locations sampled in the potential PFAS release area, PFOA and PFOS were detected in groundwater at a concentration below the individual SLs of 40 ng/L. PFBS was not detected in groundwater; therefore, further evaluation at AOI 7 is not warranted.

6.10 AOI 8 – Western Drainage Ditch

This section presents the analytical results for soil and groundwater in comparison to SLs for AOI 8, which includes one potential PFAS release area: the WDD. This section also presents the analytical results for surface water for AOI 8. PFAS detections are summarized in **Table 6-2** through **Table 6-6** and on **Figure 6-2**, **Figure 6-6**, **Figure 6-10** and **Figure 6-13**.

6.10.1 AOI 8 Soil Analytical Results

PFOA and PFOS did not exceed the SLs in soil at the potential PFAS release area: the WDD. PFBS was not detected in soil in AOI 8. **Figure 6-2** and **Figure 6-6** present detections in soil for PFOS and PFOA. PFAS detections in soil are summarized on **Table 6-2** through **Table 6-4**.

At AOI 8, surface soil was sampled from 0 to 0.5 feet bgs from locations AOI8-1 and AOI8-2. Where present, PFOA and PFOS were detected in soil at concentrations several orders of magnitude lower than SLs. In surface soil, PFOA was detected at AOI8-1 and AOI8-2, with concentrations of 0.255 J µg/Kg and 0.211 J µg/Kg, respectively. PFOS was detected at locations AOI8-1 and AOI8-2 at concentrations of 3.02 µg/Kg and 2.42 µg/Kg, respectively. PFBS was not detected in surface soil.

6.10.2 AOI 8 Groundwater Analytical Results

PFOA and PFOS in groundwater exceeded the SLs at the potential PFAS release area: the WDD. PFBS did not exceed the SL at this potential PFAS release area. **Figure 6-10** presents the ranges of detections for PFOS and PFOA. PFAS detections from the investigation are summarized in **Table 6-5**.

Within AOI 8, groundwater was sampled from one existing monitoring well, X3-1, located along the WDD. The SLs of 40 ng/L for PFOA and PFOS were exceeded. Maximum concentrations of

PFOA and PFOS were observed in X3-1 at 3,040 ng/L and 4,670 ng/L, respectively. PFBS was detected below the SL of 40,000 ng/L, with a maximum concentration of 118 ng/L.

6.10.3 AOI 8 Surface Water Analytical Results

Surface water was sampled from five locations (AOI8-3, AOI8-4, AOI8-5, AOI8-6, and AOI8-7) along the Western Drainage Ditch. PFOA, PFOS, and PFBA were detected in the samples. PFOA was detected in all five locations, at concentrations ranging from 14.5 ng/L to 29.2 ng/L, with the maximum concentration detected at location AOI8-6. PFOS was detected in all five locations, at concentrations ranging from 34.5 ng/L to 104 J+ ng/L, with the maximum concentration detected at location AOI8-5. PFBS was detected in all five locations at concentrations ranging from 3.89 J ng/L to 6.43 J ng/L, with the maximum concentration detected at location AOI8-6. **Figure 6-13** presents the concentration ranges of detections in surface water for PFOA and PFOS. PFAS detections are presented in **Table 6-6**.

6.10.4 AOI 8 Conclusions

Based on the results of the SI, PFOA and PFOS were detected in surface soil at AOI 8. At the existing monitoring well sampled in the potential PFAS release area, PFOS and PFOA were detected in groundwater at concentrations exceeding the individual SLs of 40 ng/L. PFBS was detected in groundwater, at concentrations below the SL. There are no established SLs for sediment and surface water; therefore, these results are presented for informational purposes only. Based on the exceedances of the SLs for PFOA and PFOS in groundwater, further evaluation at AOI 8 is warranted.

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Table 6-2
PFAS Detections in Surface Soil
Site Inspection Report, Joint Force Training Base, Los Alamitos

Area of Interest		AOI03															
Sample ID		AOI3-1-SB-1.5-2-102519		AOI3-2-SB-1.5-2-102519		AOI3-2-SB-1.5-2-102519-D		AOI3-3-SB-1.5-2-102519		AOI3-4-SB-1.5-2-102519		AOI3-4-SB-1.5-2-102519-D		AOI3-5-SB-1.5-2-102519		AOI3-6-SB-1.5-2-102519	
Sample Date		10/25/2019		10/25/2019		10/25/2019		10/25/2019		10/25/2019		10/25/2019		10/25/2019		10/25/2019	
Depth		1.5 - 2 ft		1.5 - 2 ft		1.5 - 2 ft		1.5 - 2 ft		1.5 - 2 ft		1.5 - 2 ft		1.5 - 2 ft		1.5 - 2 ft	
Analyte	OSD Screening Level [a]	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Soil, PFAS by LCMSMS Compliant with QSM 5.1 Table B-15 (ug/Kg)																	
6:2 FTS	-	0.270	J	229	J-	230		283	J-	86.1	J-	70.5		13.6		118	J-
8:2 FTS	-	ND		1.56		1.13	J	2.59		84.9	J-	100		ND		38.1	
PFBA	-	2.78		41.8		39.4		42.0		1.24		0.948	J	9.45		9.05	
PFBS	130000	1.10	J	65.4		57.7		16.1		0.225	J	0.146	J	50.9	J	4.60	
PFDA	-	ND		ND		ND		ND		4.31		2.66		ND		1.23	J
PFDoA	-	ND		ND		ND		ND		ND		ND		ND		ND	
PFHpA	-	0.707	J	20.2		15.5		50.5		1.16		0.806	J	12.7		3.39	
PFHxA	-	3.33		305		287		293		6.04		4.15		155		20.2	
PFHxS	-	14.4		239		199		154		5.93		4.44		645		26.5	
PFNA	-	0.968	J	1.32	J	2.85	J+	0.677	J	1.44		0.983	J	0.298	J	11.4	
PFOA	130	4.31		33.1		26.5		145		4.44		2.87		63.7		14.0	
PFOS	130	381	J-	1440	J-	1570		44.6		508	J-	372		396		1120	
PFPeA	-	3.57		156		139		308		4.58		3.06		33.7		33.7	
PFTrDA	-	ND		ND		ND		ND		ND		ND		ND		ND	
PFUnDA	-	ND		ND		ND		ND		0.164	J	ND		ND		1.03	J

Grey Fill — Detected concentration exceeded OSD Screening Levels

References

a. Assistant Secretary of Defense, 2019. Risk Based Screening Levels Calculated for PFOS, PFOA, PFBS 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.

Interpreted Qualifiers

J = Estimated concentration

J- = Estimated concentration, biased low

J+ = Estimated concentration, biased high

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.

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
PFDoA	perfluorododecanoic acid
PFHpA	perfluoroheptanoic acid
PFHxA	perfluorohexanoic acid
PFHxS	perfluorohexanesulfonic acid
PFNA	perfluorononanoic acid
PFOA	perfluorooctanoic acid
PFOS	perfluorooctanesulfonic acid
PFPeA	perfluoropentanoic acid
PFTrDA	perfluorotridecanoic acid
PFUnDA	perfluoro-n-undecanoic acid

Acronyms and Abbreviations

AOI	Area of Interest
D	Duplicate
ft	feet
HQ	Hazard quotient
LCMSMS	Liquid Chromatography 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
ug/Kg	micrograms per Kilogram
-	Not applicable

Table 6-2
PFAS Detections in Surface Soil
Site Inspection Report, Joint Force Training Base, Los Alamitos

Area of Interest		AOI03															
Sample ID		AOI3-7-SB-1.5-2-102519		AOI3-7-SB-1.5-2-102519-D		AOI3-8-SB-1.5-2-102419		AOI3-8-SB-1.5-2-102419-D		AOI3-9-SB-1.5-2-102419		AOI3-10-SB-1.5-2-102419		AOI3-11-SB-1.5-2-102419		AOI3-12-SB-1.5-2-102419	
Sample Date		10/25/2019		10/25/2019		10/24/2019		10/24/2019		10/24/2019		10/24/2019		10/24/2019		10/24/2019	
Depth		1.5 - 2 ft		1.5 - 2 ft		1.5 - 2 ft		1.5 - 2 ft		1.5 - 2 ft		1.5 - 2 ft		1.5 - 2 ft		1.5 - 2 ft	
Analyte	OSD Screening Level [a]	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Soil, PFAS by LCMSMS Compliant with QSM 5.1 Table B-15 (ug/Kg)																	
6:2 FTS	-	5.89		6.83		ND		ND		14.3		0.209	J	0.356	J	202	J-
8:2 FTS	-	0.874	J	1.24		ND		ND		0.482	J	ND		0.440	J	13.4	
PFBA	-	3.83		3.03		ND		ND		4.52		ND		0.372	J	31.3	
PFBS	130000	0.281	J	0.226	J	ND		ND		0.325	J	ND		0.203	J	12.4	
PFDA	-	0.363	J	0.480	J	ND		ND		ND		ND		0.308	J	0.581	J
PFDoA	-	ND		ND		ND		ND		ND		ND		ND		ND	
PFHpA	-	4.74		4.17		ND		ND		8.19		ND		0.254	J	25.2	
PFHxA	-	5.93		5.29		ND		ND		9.85		ND		1.41		163	
PFHxS	-	9.92		8.57		ND		ND		26.2		ND		7.02		110	
PFNA	-	8.15		8.73		ND		ND		0.596	J	ND		1.02	J	2.91	
PFOA	130	8.48		8.05		ND		ND		7.23		ND		0.922	J	219	
PFOS	130	198		223		0.251	J	0.224	J	21.6		0.304	J	643		739	
PFPeA	-	7.72		6.25		ND		ND		9.45		ND		0.505	J	128	
PFTrDA	-	ND		ND		ND		ND		ND		ND		0.386	J	ND	
PFUnDA	-	ND		ND		ND		ND		ND		ND		3.45		ND	

Grey Fill — Detected concentration exceeded OSD Screening Levels

References

a. Assistant Secretary of Defense, 2019. Risk Based Screening Levels Calculated for PFOS, PFOA, PFBS 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.

Interpreted Qualifiers

J = Estimated concentration

J- = Estimated concentration, biased low

J+ = Estimated concentration, biased high

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.

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
PFDoA	perfluorododecanoic acid
PFHpA	perfluoroheptanoic acid
PFHxA	perfluorohexanoic acid
PFHxS	perfluorohexanesulfonic acid
PFNA	perfluorononanoic acid
PFOA	perfluorooctanoic acid
PFOS	perfluorooctanesulfonic acid
PFPeA	perfluoropentanoic acid
PFTrDA	perfluorotridecanoic acid
PFUnDA	perfluoro-n-undecanoic acid

Acronyms and Abbreviations

AOI	Area of Interest
D	Duplicate
ft	feet
HQ	Hazard quotient
LCMSMS	Liquid Chromatography 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
ug/Kg	micrograms per Kilogram
-	Not applicable

Table 6-2
PFAS Detections in Surface Soil
Site Inspection Report, Joint Force Training Base, Los Alamitos

Area of Interest		AOI04		AOI05				AOI06								AOI07	
Sample ID		AOI4-1-SB-0-0.5-102519		AOI5-1-SB-1.5-2-102219		AOI5-1-SB-1.5-2-102219-D		AOI6-1-SB-1.5-2-102219		AOI6-2-SB-1.5-2-102219		AOI6-3-SB-1.5-2-102219		AOI6-4-SB-1.5-2-102219		AOI7-1-SB-1.5-2-102119	
Sample Date		10/25/2019		10/22/2019		10/22/2019		10/22/2019		10/22/2019		10/22/2019		10/22/2019		10/21/2019	
Depth		0 - 0.5 ft		1.5 - 2 ft		1.5 - 2 ft		1.5 - 2 ft		1.5 - 2 ft		1.5 - 2 ft		1.5 - 2 ft		1.5 - 2 ft	
Analyte	OSD Screening Level [a]	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Soil, PFAS by LCMSMS Compliant with QSM 5.1 Table B-15 (ug/Kg)																	
6:2 FTS	-	ND		1.08	J	1.41		104	J-	194	J-	229	J+	0.310	J	ND	
8:2 FTS	-	ND		1.05	J	1.41		ND		0.386	J	1.04	J	ND		ND	
PFBA	-	ND		1.66		2.22		2.49		13.5		15.1		0.611	J	ND	
PFBS	130000	ND		0.550	J	0.772	J	ND		ND		ND		ND		ND	
PFDA	-	0.313	J	0.967	J	1.47		ND		ND		ND		ND		ND	
PFDoA	-	ND		ND		ND		ND		ND		ND		ND		ND	
PFHpA	-	ND		4.57		5.40		4.63		5.27	J+	34.8		1.11	J	ND	
PFHxA	-	ND		4.22		5.45		5.63		33.2		71.7	J-	1.42		ND	
PFHxS	-	ND		23.6		32.0		0.324	J	0.319	J	10.5		ND		ND	
PFNA	-	ND		2.20		2.73		ND		0.172	J	ND		ND		ND	
PFOA	130	ND		112		134		2.31		5.36	J+	6.24		0.213	J	0.649	J
PFOS	130	0.440	J	252		352		ND		1.06	J	1.37		ND		ND	
PFPeA	-	ND		4.05		5.49		7.45		57.7	J-	57.7	J-	2.06		0.156	J
PFTrDA	-	ND		ND		ND		ND		ND		ND		ND		ND	
PFUnDA	-	ND		ND		ND		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, PFOA, PFBS 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.

Interpreted Qualifiers

J = Estimated concentration

J- = Estimated concentration, biased low

J+ = Estimated concentration, biased high

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.

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
PFDoA	perfluorododecanoic acid
PFHpA	perfluoroheptanoic acid
PFHxA	perfluorohexanoic acid
PFHxS	perfluorohexanesulfonic acid
PFNA	perfluorononanoic acid
PFOA	perfluorooctanoic acid
PFOS	perfluorooctanesulfonic acid
PFPeA	perfluoropentanoic acid
PFTrDA	perfluorotridecanoic acid
PFUnDA	perfluoro-n-undecanoic acid

Acronyms and Abbreviations

AOI	Area of Interest
D	Duplicate
ft	feet
HQ	Hazard quotient
LCMSMS	Liquid Chromatography 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
ug/Kg	micrograms per Kilogram
-	Not applicable

Table 6-2
PFAS Detections in Surface Soil
Site Inspection Report, Joint Force Training Base, Los Alamitos

Area of Interest		AOI07															
Sample ID		AOI7-10-SB-1.5-2-102119		AOI7-11-SB-1.5-2-102119		AOI7-2-SB-1.5-2-102119		AOI7-3-SB-1.5-2-102119		AOI7-4-1.5-2-102119		AOI7-5-SB-1.5-2-102119		AOI7-6-SB-1.5-2-102119		AOI7-7-SB-1.5-2-102119	
Sample Date		10/21/2019		10/21/2019		10/21/2019		10/21/2019		10/21/2019		10/21/2019		10/21/2019		10/21/2019	
Depth		1.5 - 2 ft		1.5 - 2 ft		1.5 - 2 ft		1.5 - 2 ft		1.5 - 2 ft		1.5 - 2 ft		1.5 - 2 ft		1.5 - 2 ft	
Analyte	OSD Screening Level [a]	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Soil, PFAS by LCMSMS Compliant with QSM 5.1 Table B-15 (ug/Kg)																	
6:2 FTS	-	ND		ND		ND		ND		ND		ND		ND		ND	
8:2 FTS	-	ND		ND		ND		ND		ND		ND		ND		ND	
PFBA	-	ND		ND		ND		ND		ND		ND		ND		ND	
PFBS	130000	ND		ND		ND		ND		ND		ND		ND		ND	
PFDA	-	ND		ND		ND		ND		ND		ND		ND		ND	
PFDoA	-	ND		ND		ND		ND		ND		ND		ND		ND	
PFHpA	-	ND		ND		ND		ND		ND		ND		ND		ND	
PFHxA	-	ND		ND		ND		ND		ND		ND		ND		ND	
PFHxS	-	ND		ND		ND		ND		ND		ND		ND		ND	
PFNA	-	ND		ND		ND		ND		ND		ND		ND		ND	
PFOA	130	ND		ND		0.245	J	ND		0.183	J	0.395	J	0.496	J	0.600	J
PFOS	130	ND		ND		0.286	J	0.207	J	0.259	J	ND		ND		ND	
PFPeA	-	ND		ND		ND		ND		ND		ND		ND		ND	
PFTrDA	-	ND	UJ	ND		ND		ND		ND		ND	UJ	ND		ND	
PFUnDA	-	ND		ND		ND		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, PFOA, PFBS 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.

Interpreted Qualifiers

J = Estimated concentration

J- = Estimated concentration, biased low

J+ = Estimated concentration, biased high

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.

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
PFDoA	perfluorododecanoic acid
PFHpA	perfluoroheptanoic acid
PFHxA	perfluorohexanoic acid
PFHxS	perfluorohexanesulfonic acid
PFNA	perfluorononanoic acid
PFOA	perfluorooctanoic acid
PFOS	perfluorooctanesulfonic acid
PFPeA	perfluoropentanoic acid
PFTrDA	perfluorotridecanoic acid
PFUnDA	perfluoro-n-undecanoic acid

Acronyms and Abbreviations

AOI	Area of Interest
D	Duplicate
ft	feet
HQ	Hazard quotient
LCMSMS	Liquid Chromatography 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
ug/Kg	micrograms per Kilogram
-	Not applicable

Table 6-2
PFAS Detections in Surface Soil
Site Inspection Report, Joint Force Training Base, Los Alamitos

Area of Interest		AOI07				AOI08			
Sample ID		AOI7-8-SB-1.5-2-102119		AOI7-9-SB-1.5-2-102119		AOI 8-1-SB-0-0.5-102919		AOI 8-2-SB-0-0.5-102919	
Sample Date		10/21/2019		10/21/2019		10/29/2019		10/29/2019	
Depth		1.5 - 2 ft		1.5 - 2 ft		0 - 0.5 ft		0 - 0.5 ft	
Analyte	**OSD Screening Level [a]**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**
Soil, PFAS by LCMSMS Compliant with QSM 5.1 Table B-15 (ug/Kg)									
6:2 FTS	-	ND		ND		ND		ND	
8:2 FTS	-	ND		ND		ND		ND	
PFBA	-	ND		ND		ND		ND	
PFBS	130000	ND		ND		ND		ND	
PFDA	-	ND		ND		0.426	J	0.369	J
PFDoA	-	ND		ND		0.213	J	0.261	J
PFHpA	-	ND		ND		ND		ND	
PFHxA	-	ND		ND		ND		ND	
PFHxS	-	ND		ND		0.169	J	ND	
PFNA	-	ND		ND		0.156	J	0.147	J
PFOA	130	0.563	J	ND		0.255	J	0.211	J
PFOS	130	0.455	J	ND		3.02		2.42	
PFPeA	-	ND		ND		ND		ND	
PFTrDA	-	ND		ND		ND		ND	
PFUnDA	-	ND		ND		0.168	J	ND	

Grey Fill — Detected concentration exceeded OSD Screening Levels

References

a. Assistant Secretary of Defense, 2019. Risk Based Screening Levels Calculated for PFOS, PFOA, PFBS 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.

Interpreted Qualifiers

J = Estimated concentration

J- = Estimated concentration, biased low

J+ = Estimated concentration, biased high

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.

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
PFDoA	perfluorododecanoic acid
PFHpA	perfluoroheptanoic acid
PFHxA	perfluorohexanoic acid
PFHxS	perfluorohexanesulfonic acid
PFNA	perfluorononanoic acid
PFOA	perfluorooctanoic acid
PFOS	perfluorooctanesulfonic acid
PFPeA	perfluoropentanoic acid
PFTrDA	perfluorotridecanoic acid
PFUnDA	perfluoro-n-undecanoic acid

Acronyms and Abbreviations

AOI	Area of Interest
D	Duplicate
ft	feet
HQ	Hazard quotient
LCMSMS	Liquid Chromatography 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
ug/Kg	micrograms per Kilogram
-	Not applicable

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Table 6-3
PFAS Detections in Shallow Subsurface Soil
Site Inspection Report, Joint Force Training Base, Los Alamitos

Area of Interest		AOI01															
Sample ID		AOI1-1-SB-4.5-5-102219		AOI1-1-SB-10-10.5-102219		AOI1-2-SB-4.5-5-102319		AOI1-2-SB-9.5-10-102319		AOI1-2-SB-12.5-13-102319		AOI1-3-SB-4.5-5-102219		AOI1-3-SB-9.5-10-102219		AOI1-4-SB-4.5-5-102319	
Sample Date		10/22/2019		10/22/2019		10/23/2019		10/23/2019		10/23/2019		10/22/2019		10/22/2019		10/23/2019	
Depth		4.5 - 5 ft		10 - 10.5 ft		4.5 - 5 ft		9.5 - 10 ft		12.5 - 13 ft		4.5 - 5 ft		9.5 - 10 ft		4.5 - 5 ft	
Analyte	OSD Screening Level [a]	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Soil, PFAS by LCMSMS Compliant with QSM 5.1 Table B-15 (ug/Kg)																	
6:2 FTS	-	ND		ND		ND		ND		ND		ND		ND		ND	
8:2 FTS	-	ND		ND		ND		ND		ND		ND		ND		ND	
NEtFOSAA	-	ND		ND		ND		ND		ND		ND		ND		ND	
NMeFOSAA	-	ND		ND		ND		ND		ND		ND		ND		ND	
PFBA	-	0.261	J	ND		0.298	J	1.12	J	ND		ND		0.340	J	0.200	J
PFBS	1600000	0.284	J	0.239	J	0.431	J	0.815	J	ND		ND		0.290	J	0.169	J
PFDA	-	ND		ND		ND		ND		ND		ND		ND		0.224	J
PFDoA	-	ND		ND		ND		ND		ND	UJ	ND		ND		ND	
PFHpA	-	0.668	J	ND		5.07		1.11	J	ND		0.207	J	0.395	J	2.62	
PFHxA	-	1.78		0.924	J	7.82		7.35		0.620	J	0.826	J	2.01		3.78	
PFHxS	-	6.15		1.36		22.7		4.96		2.36		0.672	J	3.87		4.25	
PFNA	-	ND		ND		ND		ND		ND		ND		ND		ND	
PFOA	1600	24.0		3.25		332		31.9		8.83		3.38		23.0		109	
PFOS	1600	ND		0.262	J	9.85		13.0		31.8		0.304	J	2.63		12.0	
PFPeA	-	0.487	J	0.293	J	1.02	J	3.68		0.231	J	0.198	J	0.831	J	0.809	J
PFTeDA	-	ND		ND		ND		ND		ND	UJ	ND		ND		ND	UJ
PFTrDA	-	ND		ND		ND		ND		ND	UJ	ND		ND		ND	UJ
PFUnDA	-	ND		ND		ND		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, PFOA, PFBS 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.

Interpreted Qualifiers

J = Estimated concentration

J- = Estimated concentration, biased low

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.

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
D	perfluoro-n-undecanoic acid
AOI	Area of Interest
DUP	Duplicate
ft	feet
HA	Hand auger
HQ	Hazard quotient
LCMSMS	Liquid Chromatography Mass Spectrometry
LOD	Limit of Detection
ND	Analyte not detected above the LOD
QSM	Quality Systems Manual
Qual	Interpreted Qualifier
SB	Soil boring
SS	Surface Soil
USEPA	United States Environmental Protection Agency
ug/Kg	micrograms per Kilogram
-	Not applicable

Table 6-3
PFAS Detections in Shallow Subsurface Soil
Site Inspection Report, Joint Force Training Base, Los Alamitos

Area of Interest		AOI01															
Sample ID		AOI1-4-SB-4.5-5-102319-D		AOI1-4-SB-9.5-10-102319		AOI1-5-SB-4.5-5-102319		AOI1-5-SB-4.5-5-102319-D		AOI1-5-SB-7-7.5-102319		AOI1-6-SB-4.5-5-102319		AOI1-6-SB-9-9.5-102319		AOI1-6-SB-12.5-13-102319	
Sample Date		10/23/2019		10/23/2019		10/23/2019		10/23/2019		10/23/2019		10/23/2019		10/23/2019		10/23/2019	
Depth		4.5 - 5 ft		9.5 - 10 ft		4.5 - 5 ft		4.5 - 5 ft		7 - 7.5 ft		4.5 - 5 ft		9 - 9.5 ft		12.5 - 13 ft	
Analyte	OSD Screening Level [a]	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Soil, PFAS by LCMSMS Compliant with QSM 5.1 Table B-15 (ug/Kg)																	
6:2 FTS	-	ND		ND		ND		ND		ND		ND		ND		ND	
8:2 FTS	-	ND		ND		ND		ND		ND		ND		ND		ND	
NEtFOSAA	-	ND		ND		ND		ND		ND		ND		ND		ND	
NMeFOSAA	-	ND		ND		ND		ND		ND		ND		ND		ND	
PFBA	-	0.199	J	0.334	J	1.96		3.93		8.17		ND		ND		ND	
PFBS	1600000	0.173	J	ND		0.601	J	0.956	J	1.66		ND		ND		ND	
PFDA	-	0.231	J	ND		ND		ND		ND		ND		ND		ND	
PFDoA	-	ND		ND		ND		ND		ND		ND		ND		ND	
PFHpA	-	2.87		0.723	J	16.8		18.4		24.7		1.35		0.891	J	ND	
PFHxA	-	3.99		2.15		27.8		39.4		56.4	J-	0.750	J	1.01	J	ND	
PFHxS	-	4.44		0.804	J	18.6		19.5		14.7		0.803	J	0.406	J	ND	
PFNA	-	ND		ND		ND		ND		ND		ND		ND		ND	
PFOA	1600	123		28.4		1010		1040		481		191		69.3		5.71	
PFOS	1600	13.7		2.19		1.69		1.88		0.841	J	0.615	J	ND		1.84	
PFPeA	-	0.787	J	1.01	J	7.74	J	14.6	J	32.1		0.159	J	0.308	J	ND	
PFTeDA	-	ND		ND		ND		ND		ND		ND	UJ	ND		ND	
PFTrDA	-	ND		ND		ND		ND		ND		ND	UJ	ND		ND	
PFUnDA	-	ND		ND		ND		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, PFOA, PFBS 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.

Interpreted Qualifiers

J = Estimated concentration

J- = Estimated concentration, biased low

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.

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
D	perfluoro-n-undecanoic acid
AOI	Area of Interest
DUP	Duplicate
ft	feet
HA	Hand auger
HQ	Hazard quotient
LCMSMS	Liquid Chromatography Mass Spectrometry
LOD	Limit of Detection
ND	Analyte not detected above the LOD
QSM	Quality Systems Manual
Qual	Interpreted Qualifier
SB	Soil boring
SS	Surface Soil
USEPA	United States Environmental Protection Agency
ug/Kg	micrograms per Kilogram
-	Not applicable

Table 6-3
PFAS Detections in Shallow Subsurface Soil
Site Inspection Report, Joint Force Training Base, Los Alamitos

Area of Interest		AOI02															
Sample ID		AOI2-1-SB-4.5-5-102519		AOI2-2-SB-4.5-5-102319		AOI2-2-SB-4.5-5-102319-D		AOI2-3-SB-4.5-5-102319		AOI2-3-SB-4.5-5-102319-D		AOI2-4-SB-4.5-5-102519		AOI2-5-SB-4.5-5-102519		AOI2-5-SB-9.5-10-102519	
Sample Date		10/25/2019		10/23/2019		10/23/2019		10/23/2019		10/23/2019		10/25/2019		10/25/2019		10/25/2019	
Depth		4.5 - 5 ft		4.5 - 5 ft		4.5 - 5 ft		4.5 - 5 ft		4.5 - 5 ft		4.5 - 5 ft		4.5 - 5 ft		9.5 - 10 ft	
Analyte	OSD Screening Level [a]	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Soil, PFAS by LCMSMS Compliant with QSM 5.1 Table B-15 (ug/Kg)																	
6:2 FTS	-	60.9		12.2		17.4		0.495	J	0.487	J	1.06	J	72.7		2.86	
8:2 FTS	-	ND		21.8		32.7		ND		ND		6.87		2.18		0.365	J
NEtFOSAA	-	ND		ND		0.247	J	ND		ND		ND		ND		ND	
NMeFOSAA	-	ND		ND		ND		ND		ND		ND		ND		ND	
PFBA	-	12.9		5.71		8.26		9.99		9.89		1.64		13.9		9.25	
PFBS	1600000	3.50		7.24		10.7		32.4		32.9		3.47		50.0		26.0	
PFDA	-	ND		0.869	J	1.32		ND		ND		0.256	J	ND		ND	
PFDoA	-	ND		ND		ND		ND		ND		ND		ND		ND	
PFHpA	-	13.3		8.73		12.3		6.88		7.59		2.11		22.0		4.59	
PFHxA	-	58.0		23.7		34.4		73.9		69.9		5.85		133		66.9	
PFHxS	-	20.4		54.7	J	108	J	132		147		27.3		350		54.8	
PFNA	-	ND		2.06		3.24		ND		ND		2.28		0.197	J	ND	
PFOA	1600	4.21		15.6		25.5		2.45		2.86		6.88		25.9		3.06	
PFOS	1600	0.650	J	904	J-	1120		25.6		26.1		456		118		20.2	
PFPeA	-	67.3		19.1		27.2		27.7		28.2		4.78		41.4		29.8	
PFTeDA	-	ND		ND		ND		ND		ND		ND		ND		ND	
PFTrDA	-	ND		ND		ND		ND		ND		ND		ND		ND	
PFUnDA	-	ND		ND		0.182	J	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, PFOA, PFBS 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.

Interpreted Qualifiers

J = Estimated concentration

J- = Estimated concentration, biased low

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.

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
D	perfluoro-n-undecanoic acid
AOI	Area of Interest
DUP	Duplicate
ft	feet
HA	Hand auger
HQ	Hazard quotient
LCMSMS	Liquid Chromatography Mass Spectrometry
LOD	Limit of Detection
ND	Analyte not detected above the LOD
QSM	Quality Systems Manual
Qual	Interpreted Qualifier
SB	Soil boring
SS	Surface Soil
USEPA	United States Environmental Protection Agency
ug/Kg	micrograms per Kilogram
-	Not applicable

Table 6-3
PFAS Detections in Shallow Subsurface Soil
Site Inspection Report, Joint Force Training Base, Los Alamitos

Area of Interest		AOI02		AOI03													
Sample ID		AOI2-5-SB-13-13.5-102519		AOI3-10-SB-10.5-11-102419		AOI3-11-SB-8.5-9-102419		AOI3-11-SB-11-11.5-102419		AOI3-12-SB-7-7.5-102419		AOI3-8-SB-9-9.5-102419		AOI3-8-SB-13-13.5-102419		AOI3-9-SB-8.5-9-102419	
Sample Date		10/25/2019		10/24/2019		10/24/2019		10/24/2019		10/24/2019		10/24/2019		10/24/2019		10/24/2019	
Depth		13 - 13.5 ft		10.5 - 11 ft		8.5 - 9 ft		11 - 11.5 ft		7 - 7.5 ft		9 - 9.5 ft		13 - 13.5 ft		8.5 - 9 ft	
Analyte	OSD Screening Level [a]	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Soil, PFAS by LCMSMS Compliant with QSM 5.1 Table B-15 (ug/Kg)																	
6:2 FTS	-	ND		0.201	J	1.29		1.48		115		0.197	J	0.289	J	0.229	J
8:2 FTS	-	ND		ND		ND		ND		0.858	J	ND		ND		ND	
NEtFOSAA	-	ND		ND		ND		ND		ND		ND		ND		ND	
NMeFOSAA	-	ND		ND		ND		ND		ND		ND		ND		ND	
PFBA	-	0.163	J	0.332	J	2.37		0.612	J	16.6		0.736	J	0.200	J	5.33	
PFBS	1600000	ND		0.801	J	9.73		1.79		19.0		1.17		0.778	J	4.41	
PFDA	-	ND		ND		ND		ND		ND		ND		ND		0.420	J
PFDoA	-	ND		ND		ND		ND		ND		ND		ND		ND	
PFHpA	-	ND		0.719	J	1.80		0.735	J	33.1		0.513	J	0.225	J	7.75	
PFHxA	-	0.817	J	2.10		23.0		5.82		152		3.51		1.65		29.1	
PFHxS	-	0.511	J	6.56		67.6		22.3		191		5.25		4.89		18.2	
PFNA	-	ND		ND		0.256	J	ND		0.296	J	0.219	J	ND		3.01	
PFOA	1600	2.02		0.456	J	6.61		2.94		50.2		0.780	J	0.459	J	5.44	
PFOS	1600	0.884	J	2.59		599		25.6		32.4		16.7		ND		77.7	
PFPeA	-	0.433	J	1.34		6.94		1.88		81.2		2.20		0.529	J	21.7	
PFTeDA	-	ND		ND		ND		ND	UJ	ND		ND		ND		ND	
PFTrDA	-	ND		ND		ND		ND	UJ	ND		ND		ND		ND	
PFUnDA	-	ND		ND		0.478	J	ND		ND		ND		ND		0.303	J

Grey Fill — Detected concentration exceeded OSD Screening Levels

References

a. Assistant Secretary of Defense, 2019. Risk Based Screening Levels Calculated for PFOS, PFOA, PFBS 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.

Interpreted Qualifiers

J = Estimated concentration

J- = Estimated concentration, biased low

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.

Chemical Abbreviations

6:2 FTS	6:2 fluorotelomer sulfonate
8:2 FTS	8:2 fluorotelomer sulfonate
NEtFOSAA	N-ethyl perfluorooctane- sulfonamidoacetic 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

AOI	Area of Interest
D	Duplicate
ft	feet
HQ	Hazard quotient
LCMSMS	Liquid Chromatography 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
ug/Kg	micrograms per Kilogram
-	Not applicable

Table 6-3
PFAS Detections in Shallow Subsurface Soil
Site Inspection Report, Joint Force Training Base, Los Alamitos

	Area of Interest	AOI03		AOI04		AOI04		AOI05		AOI06		AOI07	AOI07	AOI07	AOI07	AOI07	AOI07
	Sample ID	AOI3-9-SB-14-14.5-102419		AOI4-1-SB-5.5-6-102519		AOI4-1-SB-9.5-10-102519		AOI5-1-SB-8-8.5-102219		AOI6-1-SB-7-7.5-102219		AOI7-10-SB-7.5-8-102119		AOI7-11-SB-7.5-8-102119		AOI7-9-SB-7.5-8-102119	
	Sample Date	10/24/2019		10/25/2019		10/25/2019		10/22/2019		10/22/2019		10/21/2019		10/21/2019		10/21/2019	
	Depth	14 - 14.5 ft		5.5 - 6 ft		9.5 - 10 ft		8 - 8.5 ft		7 - 7.5 ft		7.5 - 8 ft		7.5 - 8 ft		7.5 - 8 ft	
Analyte	OSD Screening Level [a]	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Soil, PFAS by LCMSMS Compliant with QSM 5.1 Table B-15 (ug/Kg)																	
6:2 FTS	-	0.299	J	ND		ND		1.61		0.833	J	ND		ND		ND	
8:2 FTS	-	ND		ND		ND		ND		ND		ND		ND		ND	
NEtFOSAA	-	ND		ND		ND		ND		ND		ND		ND		ND	
NMeFOSAA	-	ND		ND		ND		ND		ND		ND		ND		ND	
PFBA	-	ND		0.195	J	ND		24.4		3.37		ND		ND		ND	
PFBS	1600000	ND		ND		ND		38.3		ND		ND		ND		ND	
PFDA	-	ND		ND		ND		ND		ND		ND		ND		ND	
PFDoA	-	ND		ND	UJ	ND		ND		ND		ND		ND		ND	
PFHpA	-	ND		ND		ND		17.2		0.753	J	ND		ND		ND	
PFHxA	-	0.344	J	0.419	J	ND		115		7.48		ND		ND		ND	
PFHxS	-	0.417	J	ND		ND		12.1		ND		ND		ND		ND	
PFNA	-	ND		ND		ND		ND		ND		ND		ND		ND	
PFOA	1600	1.52		1.59		0.398	J	23.4		ND		ND		ND		ND	
PFOS	1600	0.245	J	0.967	J	ND		1.67		ND		ND		ND		ND	
PFPeA	-	ND		0.514	J	ND		56.3		11.8		ND		ND		ND	
PFTeDA	-	ND		ND	UJ	ND		ND		ND		ND	UJ	ND		ND	
PFTrDA	-	ND		ND	UJ	ND		ND		ND		ND	UJ	ND		ND	
PFUnDA	-	ND		ND		ND		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, PFOA, PFBS 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.

Interpreted Qualifiers

J = Estimated concentration

J- = Estimated concentration, biased low

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.

Chemical Abbreviations

6:2 FTS	6:2 fluorotelomer sulfonate
8:2 FTS	8:2 fluorotelomer sulfonate
NEtFOSAA	N-ethyl perfluorooctane- sulfonamidoacetic 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

AOI	Area of Interest
D	Duplicate
ft	feet
HQ	Hazard quotient
LCMSMS	Liquid Chromatography 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
ug/Kg	micrograms per Kilogram
-	Not applicable

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Table 6-4
PFAS Detections in Deep Subsurface Soil
Site Inspection Report, Joint Force Training Base, Los Alamitos

Area of Interest	AOI01						AOI03		AOI05		AOI06		AOI07			
Sample ID	AOI1-1-SB-17-17.5-102219		AOI1-3-SB-16-16.5-102219		AOI1-5-SB-17.5-18-102319		AOI3-12-SB-19-19.5-102419		AOI5-1-SB-19-19.5-102219		AOI6-1-SB-18.5-19-102219		AOI7-9-SB-17-17.5-102119		AOI7-10-SB-17-17.5-102119	
Sample Date	10/22/2019		10/22/2019		10/23/2019		10/24/2019		10/22/2019		10/22/2019		10/21/2019		10/21/2019	
Depth	17 - 17.5 ft		16 - 16.5 ft		17.5 - 18 ft		19 - 19.5 ft		19 - 19.5 ft		18.5 - 19 ft		17 - 17.5 ft		17 - 17.5 ft	
Analyte	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Soil, PFAS via PFAS by LCMSMS Compliant with QSM 5.1 Table B-15 (ug/Kg)																
6:2 FTS	ND		ND		ND		1.27		8.22		ND		ND		ND	
PFBA	ND		0.261	J	ND		ND		2.09		ND		ND		ND	
PFBS	ND		0.258	J	ND		ND		2.61		ND		ND		ND	
PFHpA	ND		0.337	J	ND		ND		1.52		ND		ND		ND	
PFHxA	0.357	J	1.54		0.546	J	0.371	J	8.08		ND		ND		ND	
PFHxS	0.665	J	3.52		ND		0.982	J	22.4		ND		ND		ND	
PFOA	1.49		21.5		3.25		0.176	J	15.7		ND		ND		ND	
PFOS	0.466	J	4.34		0.293	J	2.88		29.4		ND		ND		ND	
PFPeA	ND		0.621	J	0.230	J	ND		4.13		0.205	J	ND		ND	

Interpreted Qualifiers
J = Estimated concentration

Chemical Abbreviations

6:2 FTS	6:2 fluorotelomer sulfonate
PFBA	perfluorobutyrate
PFBS	perfluorobutane sulfonate
PFHpA	perfluoroheptanoic acid
PFHxA	perfluorohexanoic acid
PFHxS	perfluorohexanesulfonic acid
PFOA	perfluorooctanoic acid
PFOS	perfluorooctane sulfonate
PFPeA	perfluoropentanoic acid

Acronyms and Abbreviations

AOI	Area of Interest
ft	feet
LOD	Limit of Detection
ND	Analyte not detected above the LOD
Qual	Interpreted Qualifier
SB	Soil boring
µg/Kg	micrograms per Kilogram

Table 6-4
PFAS Detections in Deep Subsurface Soil
Site Inspection Report, Joint Force Training Base, Los Alamitos

Area of Interest		
Sample ID	AOI7-11-SB-18-18.5-102119	
Sample Date	10/21/2019	
Depth	18 - 18.5 ft	
Analyte	**Result**	**Qual**
Soil, PFAS via PFAS by LCMSMS Compliant with QSM 5.1 Table B-15 (ug/Kg)		
6:2 FTS	ND	
PFBA	ND	
PFBS	ND	
PFHpA	ND	
PFHxA	ND	
PFHxS	ND	
PFOA	ND	
PFOS	ND	
PFPeA	ND	

Interpreted Qualifiers
J = Estimated concentration

Chemical Abbreviations

6:2 FTS	6:2 fluorotelomer sulfonate
PFBA	perfluorobutyrate
PFBS	perfluorobutane sulfonate
PFHpA	perfluoroheptanoic acid
PFHxA	perfluorohexanoic acid
PFHxS	perfluorohexanesulfonic acid
PFOA	perfluorooctanoic acid
PFOS	perfluorooctane sulfonate
PFPeA	perfluoropentanoic acid

Acronyms and Abbreviations

AOI	Area of Interest
ft	feet
LOD	Limit of Detection
ND	Analyte not detected above the LOD
Qual	Interpreted Qualifier
SB	Soil boring
µg/Kg	micrograms per Kilogram

Table 6-5
PFAS Detections in Groundwater
Site Inspection Report, Joint Force Training Base, Los Alamitos

Area of Interest		AOI01														AOI02		AOI03			
Sample ID		AOI1-1-GW-102219		AOI1-2-GW-102319		AOI1-3-GW-102219		AOI1-4-GW-102319		AOI1-5A-GW-102319		AOI1-5-GW-102319		AOI1-6-GW-102319		AOI2-5-GW-102519		AOI3-8-GW-102419		AOI3-9-GW-102419	
Sample Date		10/22/2019		10/23/2019		10/22/2019		10/23/2019		10/23/2019		10/23/2019		10/23/2019		10/25/2019		10/24/2019		10/24/2019	
Analyte	OSD Screening Level [a]	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Water, PFAS via PFAS by LCMSMS Compliant with QSM 5.1 Table B-15 (ng/L)																					
6:2 FTS	-	ND		ND		ND		ND		ND		ND		ND		861		36.5		187	
8:2 FTS	-	ND		ND		ND		ND		ND		ND		ND		9.22		ND		ND	
PFBA	-	596		648		892		170		571		1740		51.7		2090		1060		83.3	
PFBS	40000	675		538		759		36.4		70.7		134		22.7		1600		3060		150	
PFDA	-	ND		2.44	J	8.06	J	1.62	J	4.95	J	ND		1.59	J	ND		ND		ND	
PFHpA	-	1060		759		1330		268		1180		4730		114		2560		995		145	
PFHxA	-	4330		3260		5930		1140		4180		14100	J+	222		12700		7120		565	
PFHxS	-	7010		10500		8590		310		635		1330		341		7810		10900		727	
PFNA	-	9.75		28.5		26.8		5.02	J	11.2		8.10	J	4.53	J	14.5		3.18	J	ND	
PFOA	40	47800		34000		50700		9690		34900		166000		43600		62900		817		1820	
PFOS	40	3660		11100	J-	8810	J-	583		585		273		539		1620		110		ND	
PFPeA	-	1470		1100		2050		509		1770		7190		105		7340		2900		256	
PFTrDA	-	ND		ND	UJ	ND		ND		ND	UJ	3.37	J+	ND		ND		ND	UJ	ND	
PFUnDA	-	ND		ND		ND		ND		ND		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, PFOA, PFBS 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.

Interpreted Qualifiers

J = Estimated concentration
J- = Estimated concentration, biased low
J+ = Estimated concentration, biased high
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.

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
PFHpA	perfluoroheptanoic acid
PFHxA	perfluorohexanoic acid
PFHxS	perfluorohexanesulfonic acid
PFNA	perfluorononanoic acid
PFOA	perfluorooctanoic acid
PFOS	perfluorooctanesulfonic acid
PFPeA	perfluoropentanoic acid
PFTrDA	perfluorotridecanoic acid
PFUnDA	perfluoro-n-undecanoic acid

Acronyms and Abbreviations

AOI	Area of Interest
D	Duplicate
GW	Groundwater
HQ	Hazard quotient
LOD	Limit of Detection
ND	Analyte not detected above the LOD
OSD	Office of the Secretary of Defense
Qual	Interpreted Qualifier
USEPA	United States Environmental Protection Agency
ng/L	nanogram per liter
-	Not applicable

Table 6-5
PFAS Detections in Groundwater
Site Inspection Report, Joint Force Training Base, Los Alamitos

Area of Interest		AOI03						AOI04		AOI05						AOI06		AOI07			
Sample ID		AOI3-10-GW-102419		AOI3-11-GW-102419		AOI3-12-GW-102419		AOI4-1-GW-102519		AOI5-1-GW-102219		AOI 5-N19-3-102919		AOI 5-N19-3-102919-D		AOI6-1-GW-102219		AOI7-9-GW-102119		AOI7-10-GW-102119	
Sample Date		10/24/2019		10/24/2019		10/24/2019		10/25/2019		10/22/2019		10/29/2019		10/29/2019		10/22/2019		10/21/2019		10/21/2019	
Analyte	OSD Screening Level [a]	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Water, PFAS via PFAS by LCMSMS Compliant with QSM 5.1 Table B-15 (ng/L)																					
6:2 FTS	-	866		1690		2660		481		6140	J-	5040	J-	5270	J-	165		ND		119	
8:2 FTS	-	ND		8.19	J	3.31	J	ND		20.3	J+	375		465		ND		ND		ND	
PFBA	-	507		2480		230		188		3930		1280		1160		65.9		ND		ND	
PFBS	40000	454		6310	J-	330		55.9		7870		795		924		21.7		ND		ND	
PFDA	-	1.55	J	5.37	J	ND		ND		ND		4.30	J	5.78	J	ND		ND		2.11	J
PFHpA	-	625		2130		202		265		2710		988		1150		17.3		ND		ND	
PFHxA	-	2700		16100	J-	1280		513		22900		6200		7020		122		ND		7.45	J
PFHxS	-	3580		46100	J-	2430		360		50900		3020		3490		79.4		ND		4.40	J
PFNA	-	ND		29.0		5.72	J	5.02	J	11.6		10.1		12.4		ND		ND		ND	
PFOA	40	5800		6380		340		245		31300		3450		3450		ND		ND		4.53	J
PFOS	40	486		16600	J-	1830		401		16800	J	2520		2770		ND		ND		ND	
PFPeA	-	1520		7560		785		637		14900		5770		6890		212		ND		ND	
PFTrDA	-	ND		ND	UJ	ND	UJ	ND		ND		ND	UJ	ND	UJ	ND		ND		ND	
PFUnDA	-	ND		6.83	J	ND		ND		ND		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, PFOA, PFBS 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.

Interpreted Qualifiers

J = Estimated concentration

J- = Estimated concentration, biased low

J+ = Estimated concentration, biased high

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.

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
PFHpA	perfluoroheptanoic acid
PFHxA	perfluorohexanoic acid
PFHxS	perfluorohexanesulfonic acid
PFNA	perfluorononanoic acid
PFOA	perfluorooctanoic acid
PFOS	perfluorooctanesulfonic acid
PFPeA	perfluoropentanoic acid
PFTrDA	perfluorotridecanoic acid
PFUnDA	perfluoro-n-undecanoic acid

Acronyms and Abbreviations

AOI	Area of Interest
D	Duplicate
GW	Groundwater
HQ	Hazard quotient
LOD	Limit of Detection
ND	Analyte not detected above the LOD
OSD	Office of the Secretary of Defense
Qual	Interpreted Qualifier
USEPA	United States Environmental Protection Agency
ng/L	nanogram per liter
-	Not applicable

Table 6-5
PFAS Detections in Groundwater
Site Inspection Report, Joint Force Training Base, Los Alamitos

Area of Interest		AOI07		AOI08			
Sample ID		AOI7-7-11-GW-102119		AOI 8-X3-1-102919		AOI 8-X3-1-102919-D	
Sample Date		10/21/2019		10/29/2019		10/29/2019	
Analyte	OSD Screening Level [a]	Result	Qual	Result	Qual	Result	Qual
Water, PFAS via PFAS by LCMSMS Compliant with QSM 5.1 Table B-15 (ng/L)							
6:2 FTS	-	94.1		1540		1530	
8:2 FTS	-	ND		155		181	
PFBA	-	ND		426		479	
PFBS	40000	ND		118		132	
PFDA	-	ND		26.2		28.7	
PFHpA	-	ND		559		602	
PFHxA	-	3.77	J	1470		1910	
PFHxS	-	1.63	J	1130		1280	
PFNA	-	ND		229		247	
PFOA	40	ND		3040		3740	
PFOS	40	1.56	J	4670		4880	
PFPeA	-	ND		1590		1940	
PFTrDA	-	ND		ND		ND	
PFUnDA	-	ND		3.31	J	3.50	J

Grey Fill — Detected concentration exceeded OSD Screening Levels

References

a. Assistant Secretary of Defense, 2019. Risk Based Screening Levels Calculated for PFOS, PFOA, PFBS 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.

Interpreted Qualifiers

J = Estimated concentration

J- = Estimated concentration, biased low

J+ = Estimated concentration, biased high

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.

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
PFHpA	perfluoroheptanoic acid
PFHxA	perfluorohexanoic acid
PFHxS	perfluorohexanesulfonic acid
PFNA	perfluorononanoic acid
PFOA	perfluorooctanoic acid
PFOS	perfluorooctanesulfonic acid
PFPeA	perfluoropentanoic acid
PFTrDA	perfluorotridecanoic acid
PFUnDA	perfluoro-n-undecanoic acid

Acronyms and Abbreviations

AOI	Area of Interest
D	Duplicate
GW	Groundwater
HQ	Hazard quotient
LOD	Limit of Detection
ND	Analyte not detected above the LOD
OSD	Office of the Secretary of Defense
Qual	Interpreted Qualifier
USEPA	United States Environmental Protection Agency
ng/L	nanogram per liter
-	Not applicable

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Table 6-6
PFAS Detections in Surface Water
Site Inspection Report, Joint Force Training Base, Los Alamitos

Area of Interest	AOI08											
Sample ID	AOI 8-3-SW-102919		AOI 8-4-SW-102919		AOI 8-5-SW-102919		AOI 8-6-SW-102919		AOI 8-7-SW-102919		AOI 8-7-SW-102919-D	
Sample Date	10/29/2019		10/29/2019		10/29/2019		10/29/2019		10/29/2019		10/29/2019	
Analyte	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Water, PFAS via PFAS by LCMSMS Compliant with QSM 5.1 Table B-15 (ng/L)												
6:2 FTS	122		233		275	J-	306	J-	271		250	
8:2 FTS	4.97	J+	7.93	J	13.5		7.69	J	8.20	J	9.13	
PFBA	8.61		15.7		18.6		19.3		19.6		18.0	
PFBS	3.89	J	5.42	J	5.90	J	6.43	J	5.68	J	5.19	J
PFDA	ND		1.89	J	3.16	J	2.35	J	2.44	J	1.97	J
PFHpA	6.63	J	11.6		14.0		15.8		15.5		13.3	
PFHxA	30.4		59.2		65.4		74.1		69.3		68.9	
PFHxS	16.5		28.8		33.5		36.6		33.4		30.3	
PFNA	2.86	J	5.01	J	6.68	J	6.02	J	4.41	J	4.22	J
PFOA	14.5		25.4		26.7		29.2		25.8		24.7	
PFOS	34.5		54.4		104	J+	71.2	J+	57.6		58.8	
PFPeA	33.7		63.8		74.1		80.2		76.2		70.8	
PFTrDA	3.12	J+	ND	UJ	ND		ND		ND	UJ	ND	UJ
PFUnDA	ND	UJ	ND		ND		ND		ND		1.73	J

Interpreted Qualifiers

J = Estimated concentration

J- = Estimated concentration, biased low

J+ = Estimated concentration, biased high

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.

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
PFHpA	perfluoroheptanoic acid
PFHxA	perfluorohexanoic acid
PFHxS	perfluorohexanesulfonic acid
PFNA	perfluorononanoic acid
PFOA	perfluorooctanoic acid
PFOS	perfluorooctanesulfonic acid
PFPeA	perfluoropentanoic acid
PFTrDA	perfluorotridecanoic acid
PFUnDA	perfluoro-n-undecanoic acid

Acronyms and Abbreviations

AOI	Area of Interest
D	Duplicate
LOD	Limit of Detection
ND	Analyte not detected above the LOD
Qual	Interpreted Qualifier
SW	Surface water
ng/L	nanogram per liter

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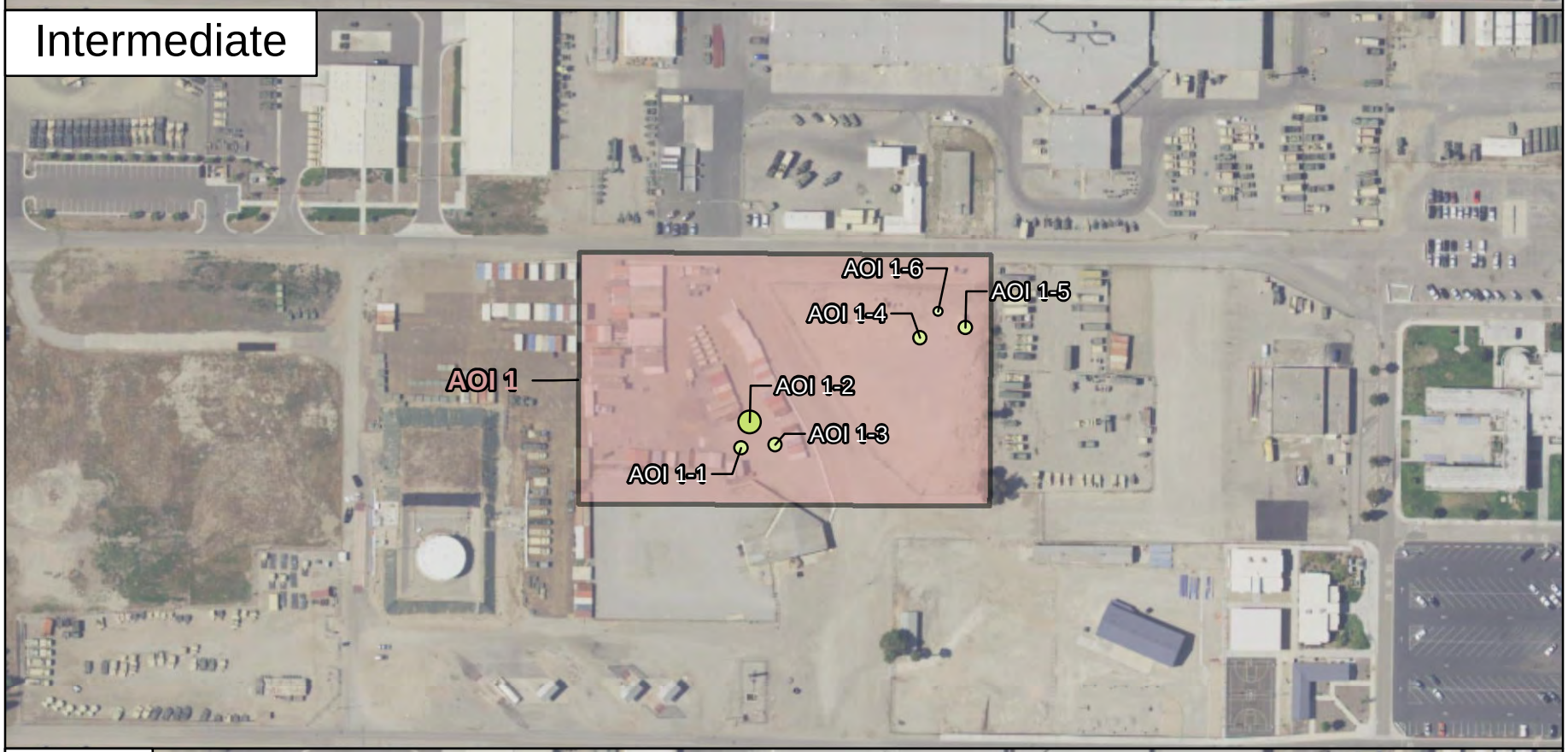
Shallow

Intermediate



Deep

Area of Interest (AOI)

Facility Boundary

PFOS (µg/kg)

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

0 100 200 400 Feet

PFOS Detections in Soil, AOI 1

CLIENT	ARNG			
PROJECT	Site Inspection for PFAS at Los Alamitos, CA			
REVISED	3/17/2020	GIS BY	MS	3/17/2020
SCALE	1:2,400	CHK BY	SL	3/17/2020
Base Map: National Agricultural Imagery Program, 2016		PM	RG	3/17/2020

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Figure 6-1

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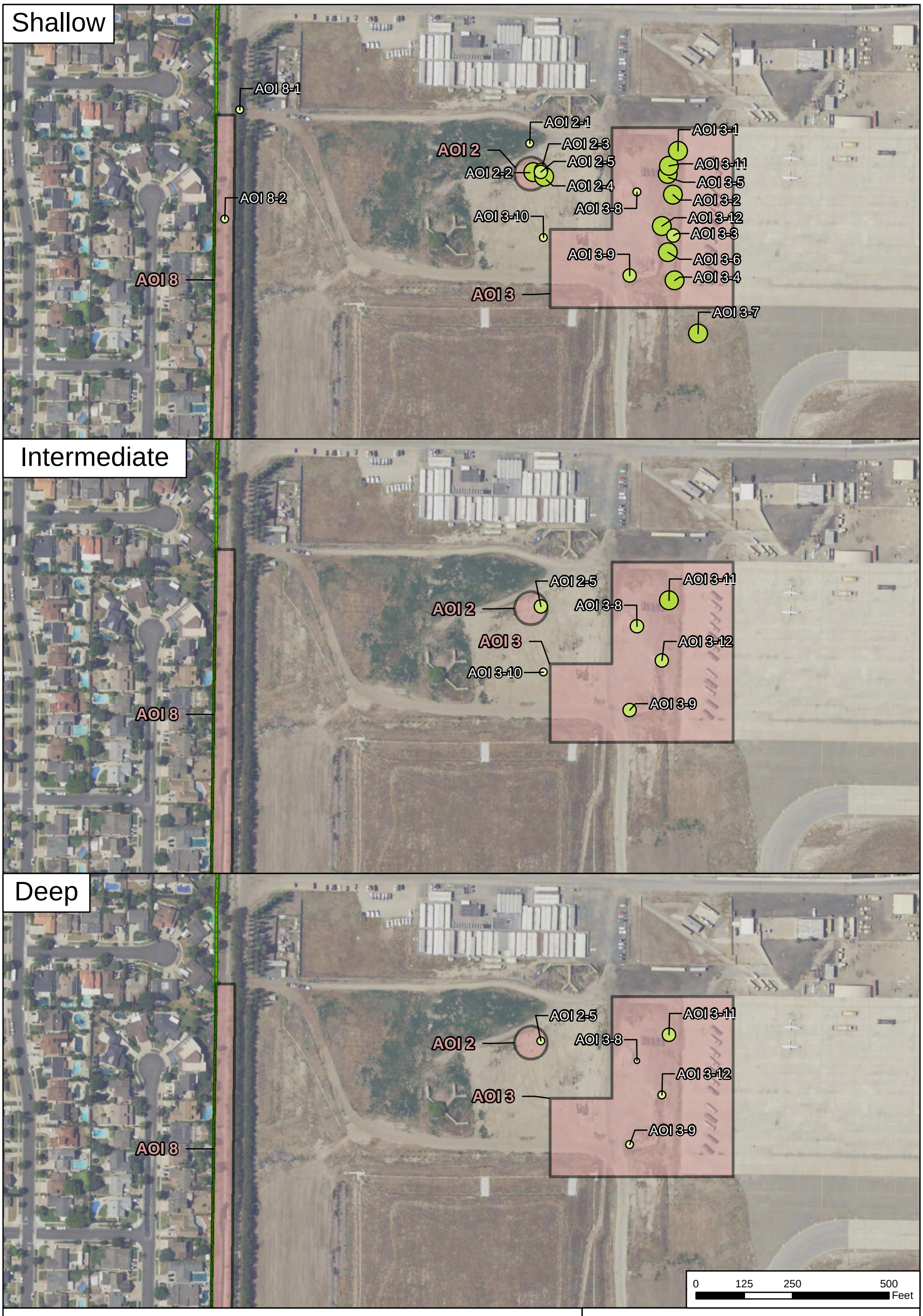

Area of Interest (AOI)

Facility Boundary

PFOS (µg/kg)

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

0 125 250 500 Feet

PFOS Detections in Soil, AOIs 2, 3, 8

CLIENT	ARNG			
PROJECT	Site Inspection for PFAS at Los Alamitos, CA			
REVISED	3/16/2020	GIS BY	MS	3/16/2020
SCALE	1:3,000	CHK BY	SL	3/16/2020
Base Map: National Agricultural Imagery Program, 2016		PM	RG	3/16/2020

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Figure 6-2

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Area of Interest (AOI)

Facility Boundary

PFOS (µg/kg)

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

0 125 250 500 Feet

PFOS Detections in Soil, AOIs 4, 5, 6

CLIENT	ARNG			
PROJECT	Site Inspection for PFAS at Los Alamitos, CA			
REVISED	3/17/2020	GIS BY	MS	3/17/2020
SCALE	1:3,000	CHK BY	SL	3/17/2020
Base Map: National Agricultural Imagery Program, 2016		PM	RG	3/17/2020

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Figure 6-3

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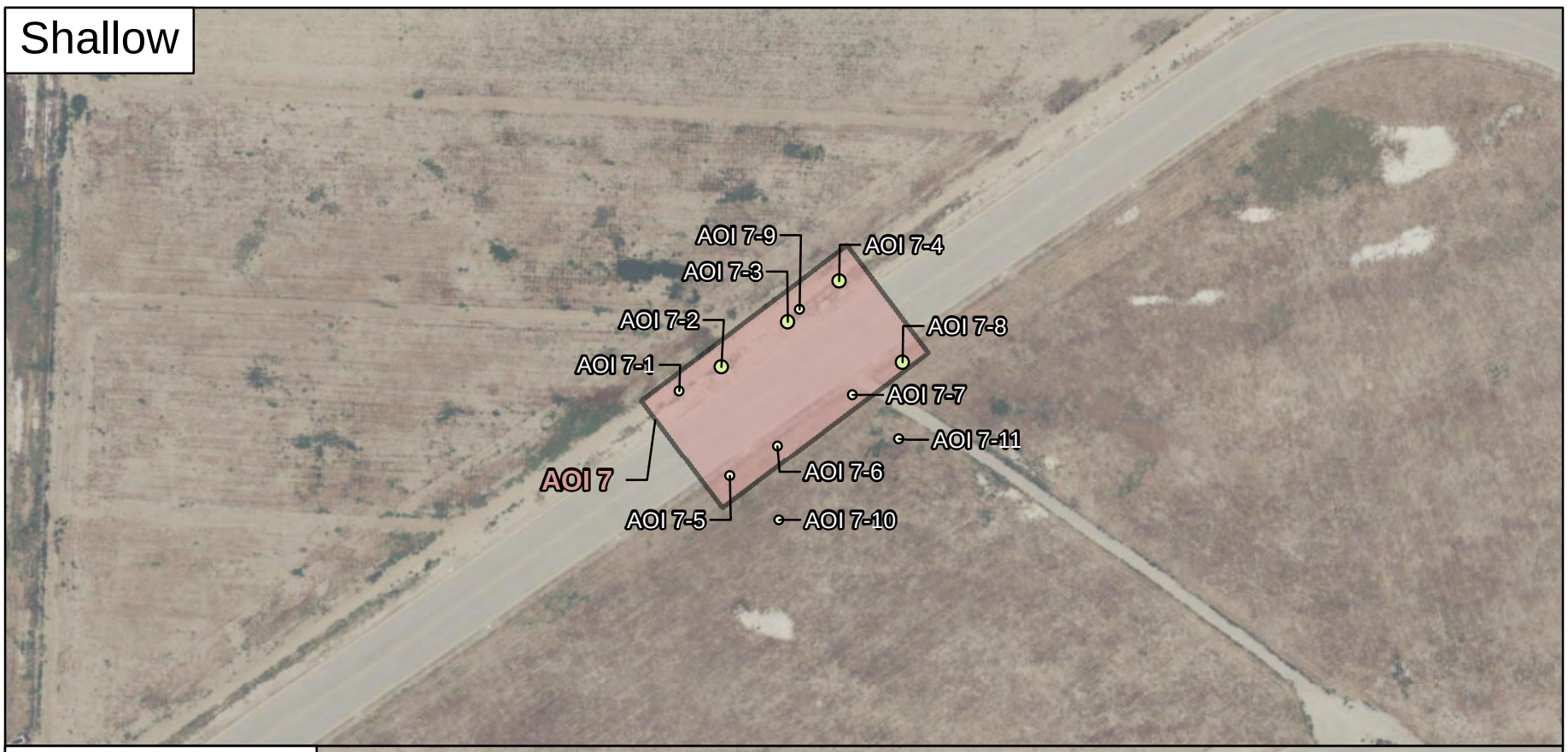

Intermediate

Deep

Area of Interest (AOI)
Facility Boundary

PFOS (µg/kg)

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

0 100 200 400 Feet

PFOS Detections in Soil, AOI 7

CLIENT	ARNG			
PROJECT	Site Inspection for PFAS at Los Alamitos, CA			
REVISED	3/17/2020	GIS BY	MS	3/17/2020
SCALE	1:2,400	CHK BY	SL	3/17/2020
Base Map: National Agricultural Imagery Program, 2016		PM	RG	3/17/2020

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Figure 6-4

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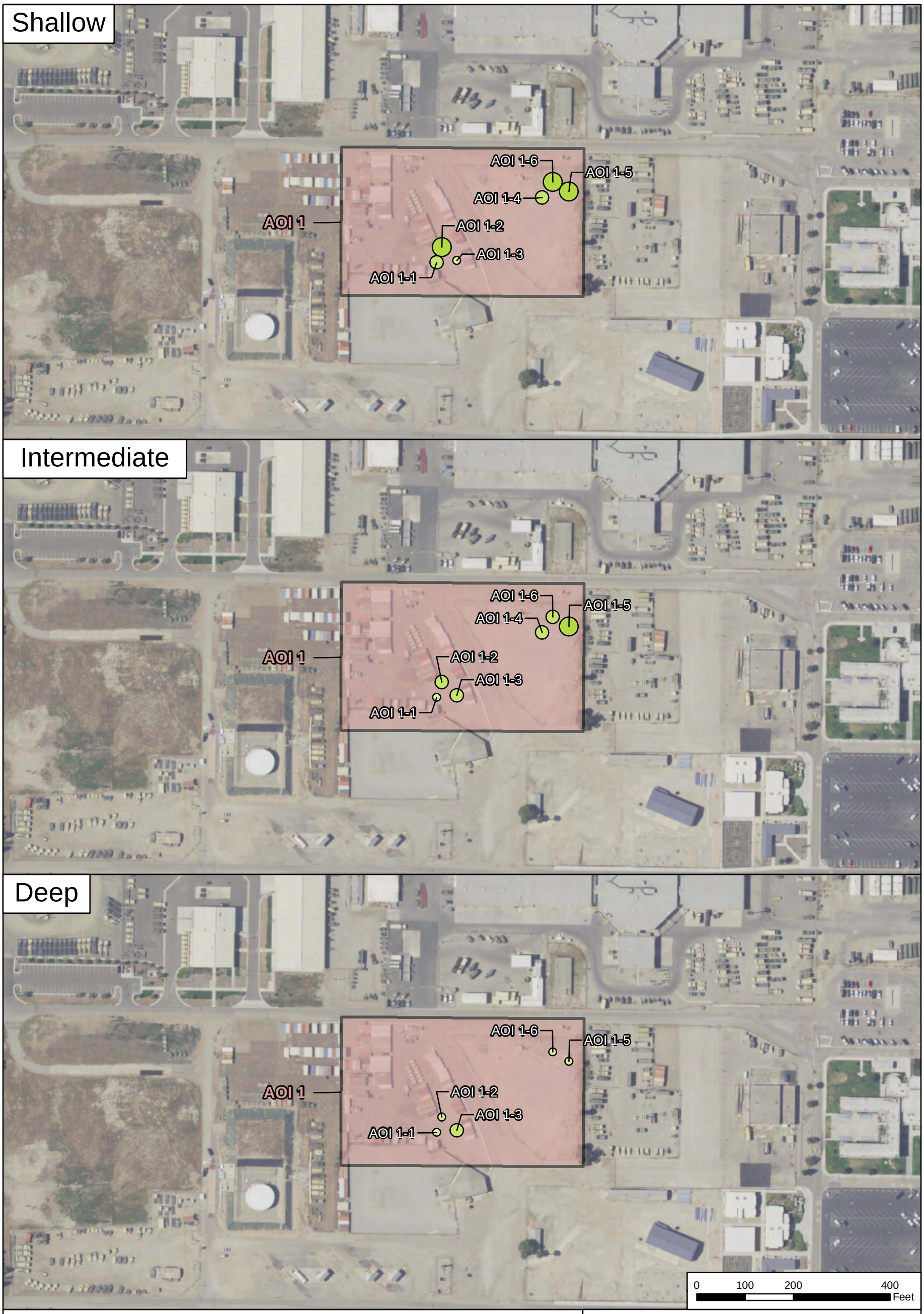

Area of Interest (AOI)

Facility Boundary

PFOA (µg/kg)

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

0 100 200 400 Feet

PFOA Detections in Soil, AOI 1

CLIENT	ARNG			
PROJECT	Site Inspection for PFAS at Los Alamitos, CA			
REVISED	3/17/2020	GIS BY	MS	3/17/2020
SCALE	1:2,400	CHK BY	SL	3/17/2020
Base Map: National Agricultural Imagery Program, 2016		PM	RG	3/17/2020

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Figure 6-5

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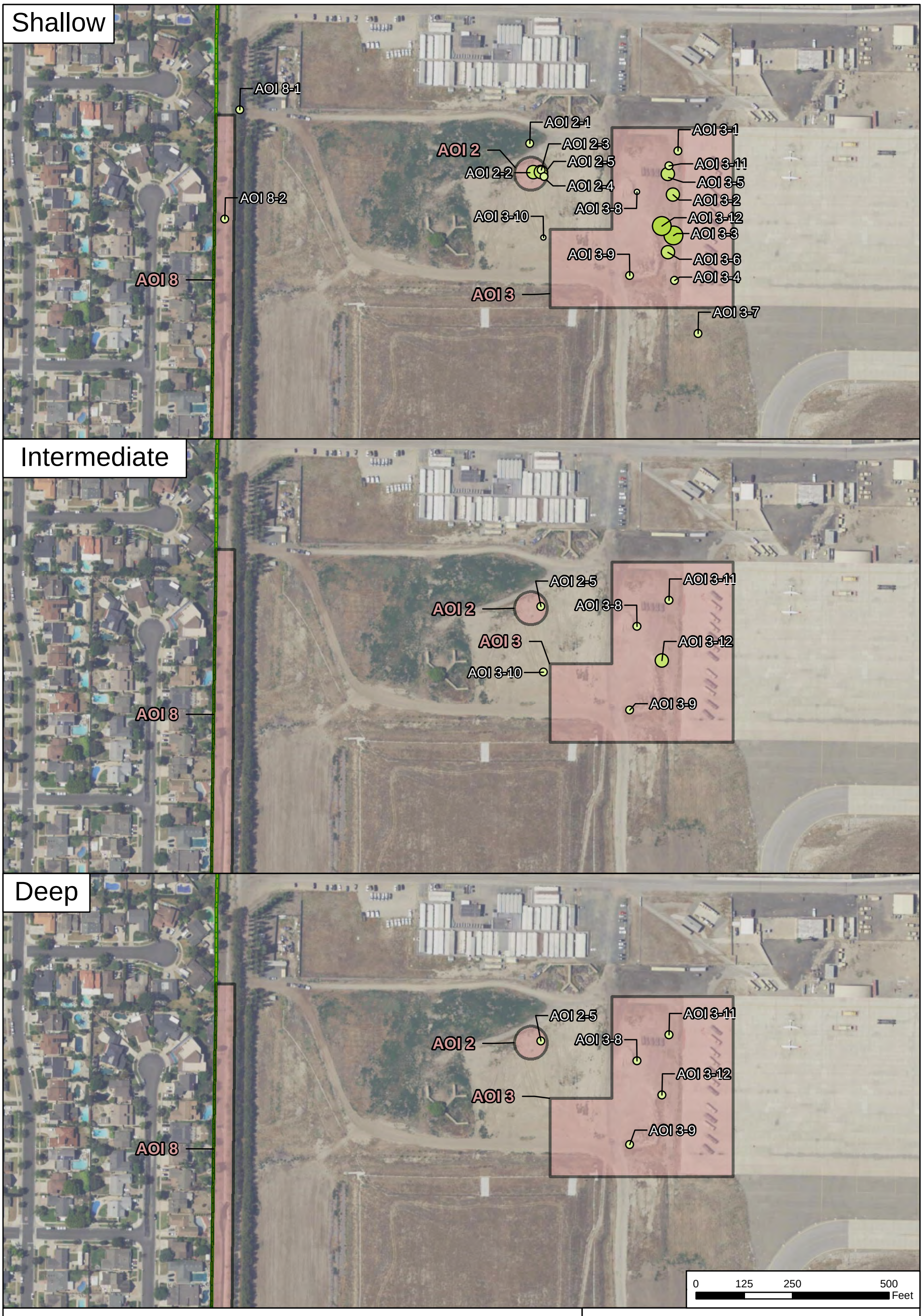

Area of Interest (AOI)

Facility Boundary

PFOA (µg/kg)

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

0 125 250 500 Feet

PFOA Detections in Soil, AOIs 2, 3, 8

CLIENT	ARNG			
PROJECT	Site Inspection for PFAS at Los Alamitos, CA			
REVISED	3/17/2020	GIS BY	MS	3/17/2020
SCALE	1:3,000	CHK BY	SL	3/17/2020
Base Map: National Agricultural Imagery Program, 2016		PM	RG	3/17/2020

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Figure 6-6

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Shallow

AOI 5-1
AOI 5
AOI 4-1
AOI 4
AOI 6-3
AOI 6-2
AOI 6-4
AOI 6
AOI 6-1

Intermediate

AOI 5-1
AOI 5
AOI 4-1
AOI 4
AOI 6-1
AOI 6

Deep

AOI 5-1
AOI 5
AOI 4-1
AOI 4
AOI 6-1
AOI 6

0 125 250 500 Feet

Area of Interest (AOI)
Facility Boundary

PFOA (µg/kg)

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

0 125 250 500 Feet

PFOA Detections in Soil, AOIs 4, 5, 6

CLIENT	ARNG			
PROJECT	Site Inspection for PFAS at Los Alamitos, CA			
REVISED	3/17/2020	GIS BY	MS	3/17/2020
SCALE	1:3,000	CHK BY	SL	3/17/2020
Base Map: National Agricultural Imagery Program, 2016		PM	RG	3/17/2020

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Figure 6-7

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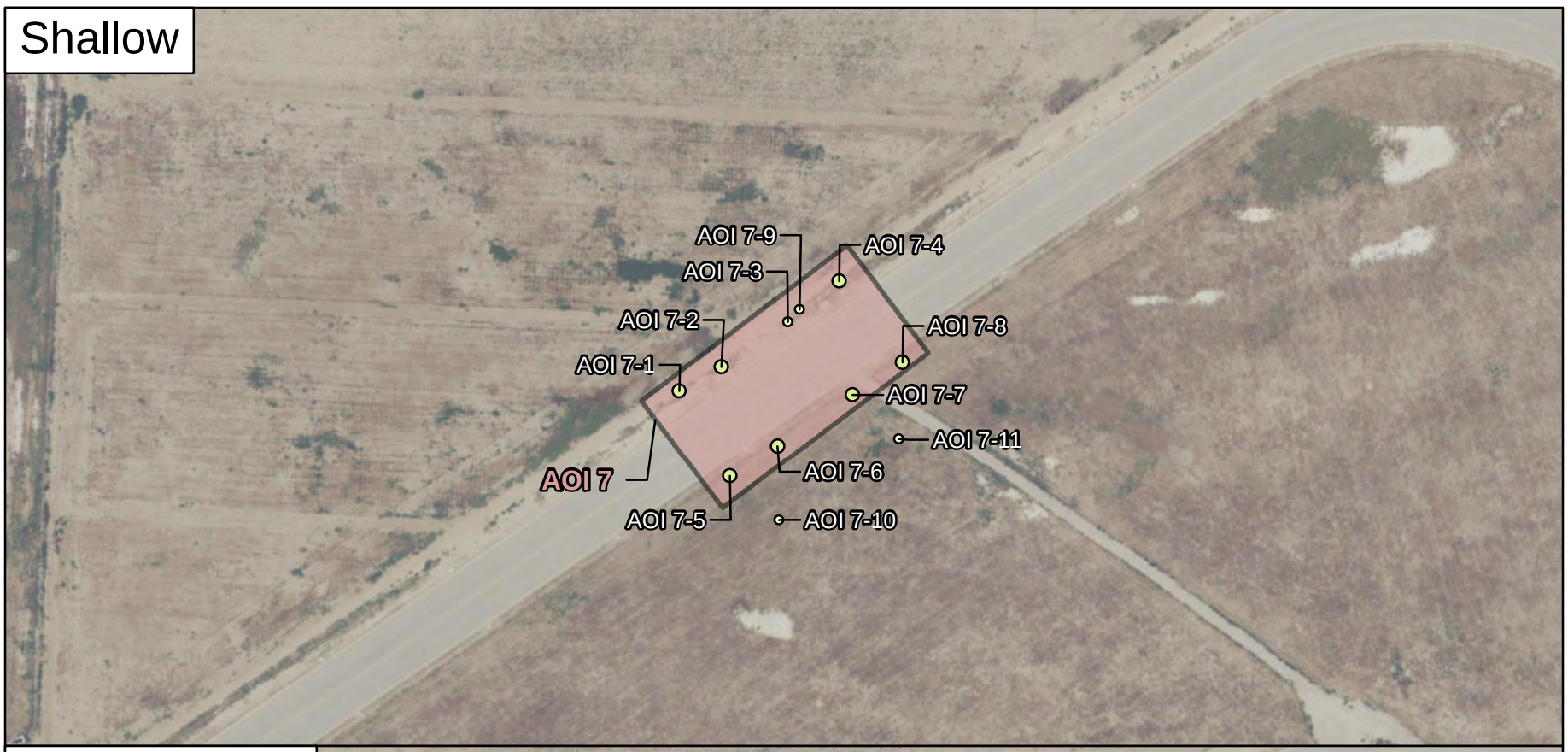

Intermediate

Deep

Area of Interest (AOI)
Facility Boundary

PFOA (µg/kg)

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

0 100 200 400
Feet

PFOA Detections in Soil, AOI 7

CLIENT	ARNG			
PROJECT	Site Inspection for PFAS at Los Alamitos, CA			
REVISED	3/17/2020	GIS BY	MS	3/17/2020
SCALE	1:2,400	CHK BY	SL	3/17/2020
Base Map: National Agricultural Imagery Program, 2016		PM	RG	3/17/2020

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Figure 6-8

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PFOA

AOI 1
AOI 1-1
AOI 1-2
AOI 1-3
AOI 1-4
AOI 1-5
AOI 1-5A
AOI 1-6

PFOS

AOI 1
AOI 1-1
AOI 1-2
AOI 1-3
AOI 1-4
AOI 1-5
AOI 1-5A
AOI 1-6

0 100 200 400 Feet

Area of Interest (AOI)
Facility Boundary
Inferred Groundwater Flow Direction

PFOA Results (ng/L)
ND
>ND - 10
>10 - 40
>40 - 70
>70 - 400
>400

PFOS Results (ng/L)
ND
>ND - 10
>10 - 40
>40 - 70
>70 - 400
>400

PFOA & PFOS Detections in Groundwater, AOI 1

CLIENT	ARNG			
PROJECT	Site Inspection for PFAS at Los Alamitos, CA			
REVISED	7/23/2020	GIS BY	MS	7/23/2020
SCALE	1:2,400	CHK BY	SL	7/23/2020
Base Map: National Agricultural Imagery Program, 2016		PM	RG	7/23/2020

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Figure 6-9

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PFOA

AOI 2-5
AOI 3-11
AOI 3-8
AOI 2
AOI 3-12
AOI 3-10
AOI 3-9
AOI 3
AOI 8
X3-1

PFOA Results (ng/L)
- ND
- >ND - 10
- >10 - 40
- >40 - 70
- >70 - 400
- >400

PFOS

AOI 2-5
AOI 3-11
AOI 3-8
AOI 2
AOI 3-12
AOI 3-10
AOI 3-9
AOI 3
AOI 8
X3-1

PFOS Results (ng/L)
- ND
- >ND - 10
- >10 - 40
- >40 - 70
- >70 - 400
- >400

CLIENT	ARNG			
PROJECT	Site Inspection for PFAS at Los Alamitos, CA			
REVISED	7/23/2020	GIS BY	MS	7/23/2020
SCALE	1:3,600	CHK BY	SL	7/23/2020
Base Map:		PM	RG	7/23/2020

- Area of Interest (AOI)
- Facility Boundary
- Inferred Groundwater Flow Direction

0 150 300 600 Feet

N

PFOA & PFOS Detections in Groundwater, AOI 2, 3, 8

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Figure 6-10

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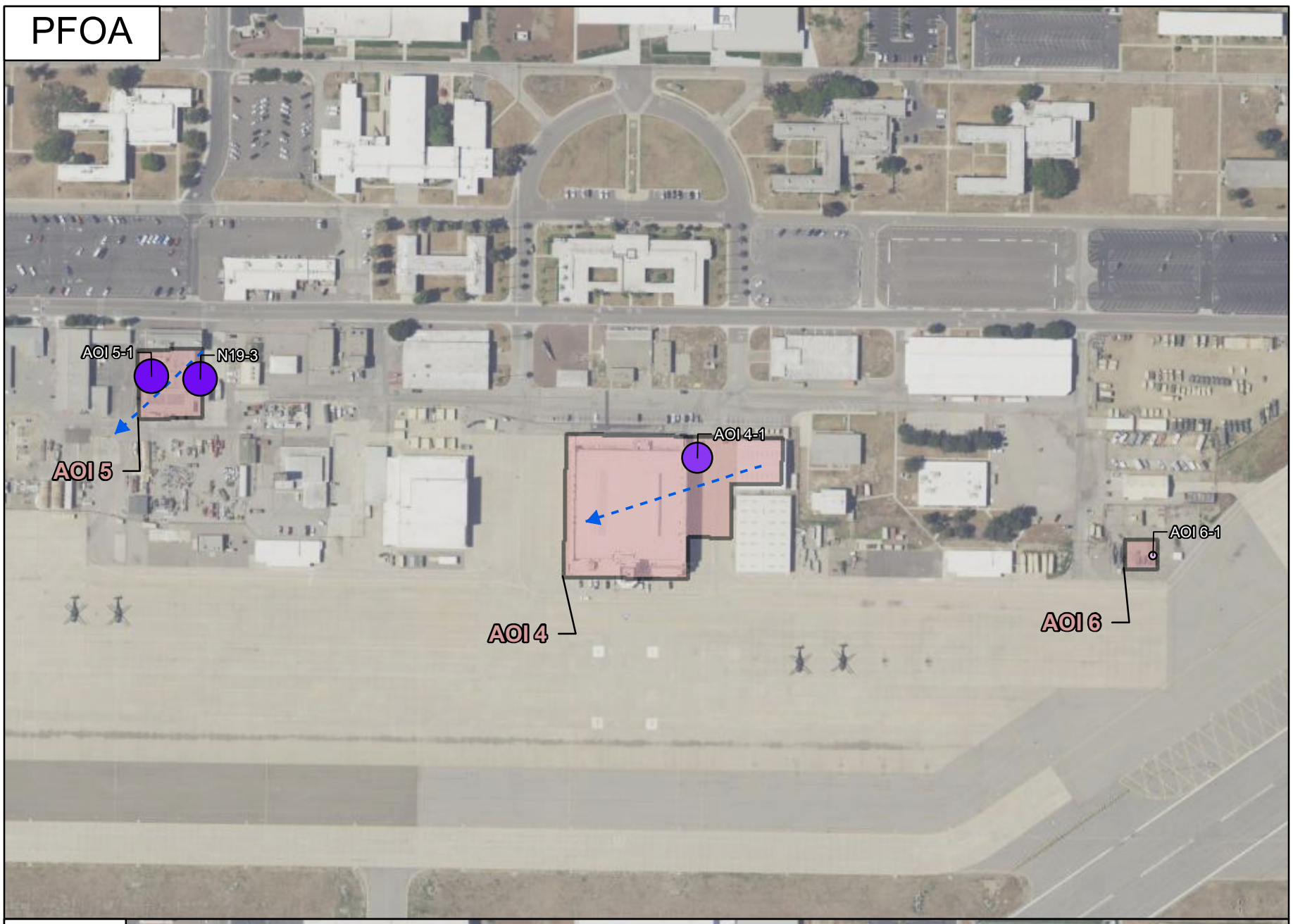
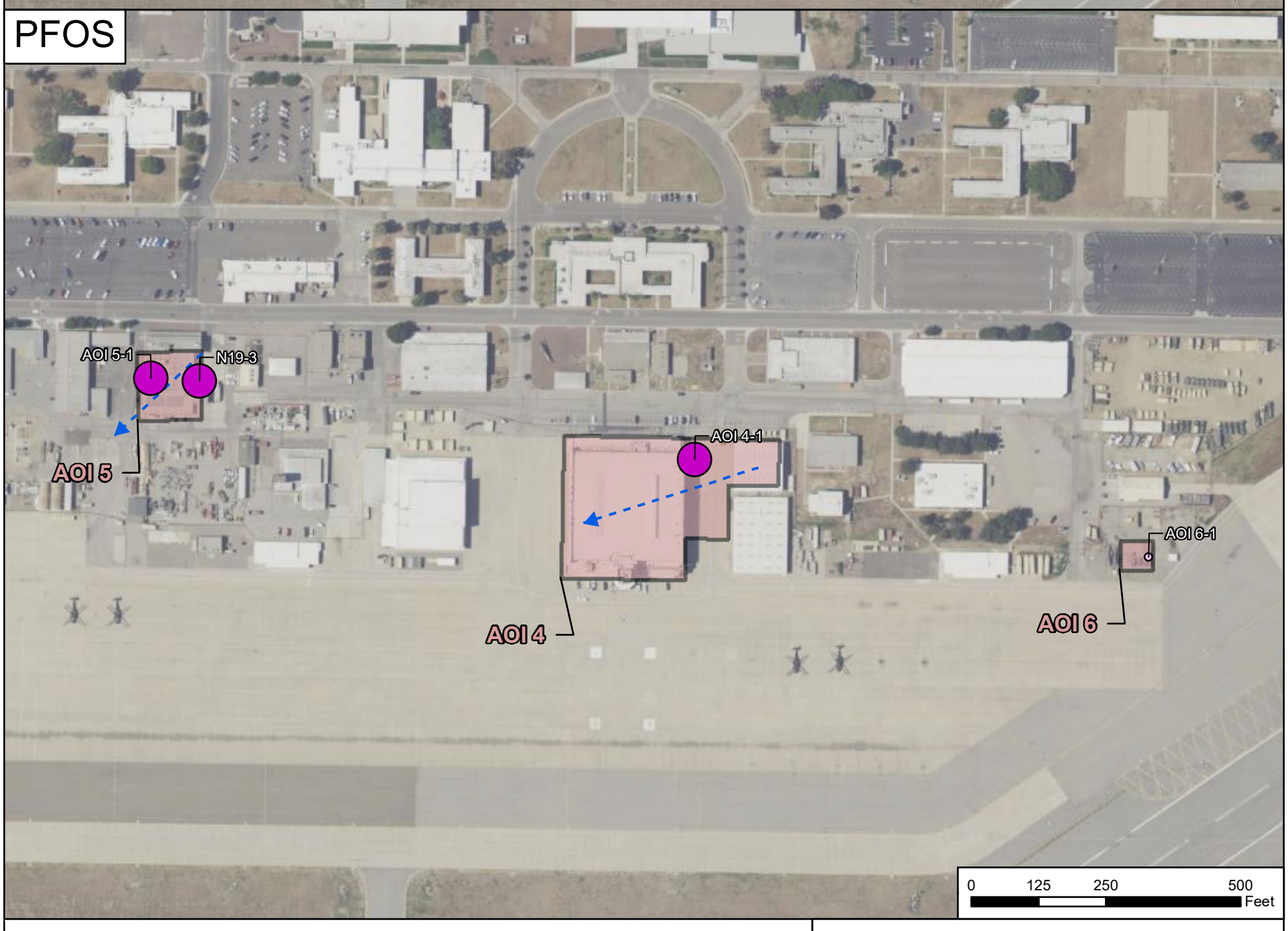
PFOA



PFOS



Area of Interest (AOI)
Facility Boundary
Inferred Groundwater Flow Direction

PFOA Results (ng/L)
- ND
- >ND - 10
- >10 - 40
- >40 - 70
- >70 - 400
- >400

PFOS Results (ng/L)
- ND
- >ND - 10
- >10 - 40
- >40 - 70
- >70 - 400
- >400

PFOA & PFOS Detections in Groundwater, AOI 4, 5, 6

CLIENT	ARNG			
PROJECT	Site Inspection for PFAS at Los Alamitos, CA			
REVISED	7/23/2020	GIS BY	MS	7/23/2020
SCALE	1:3,000	CHK BY	SL	7/23/2020
Base Map: National Agricultural Imagery Program, 2016		PM	RG	7/23/2020

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12420 Milestone Center Drive
Germantown, MD 20876

Figure 6-11

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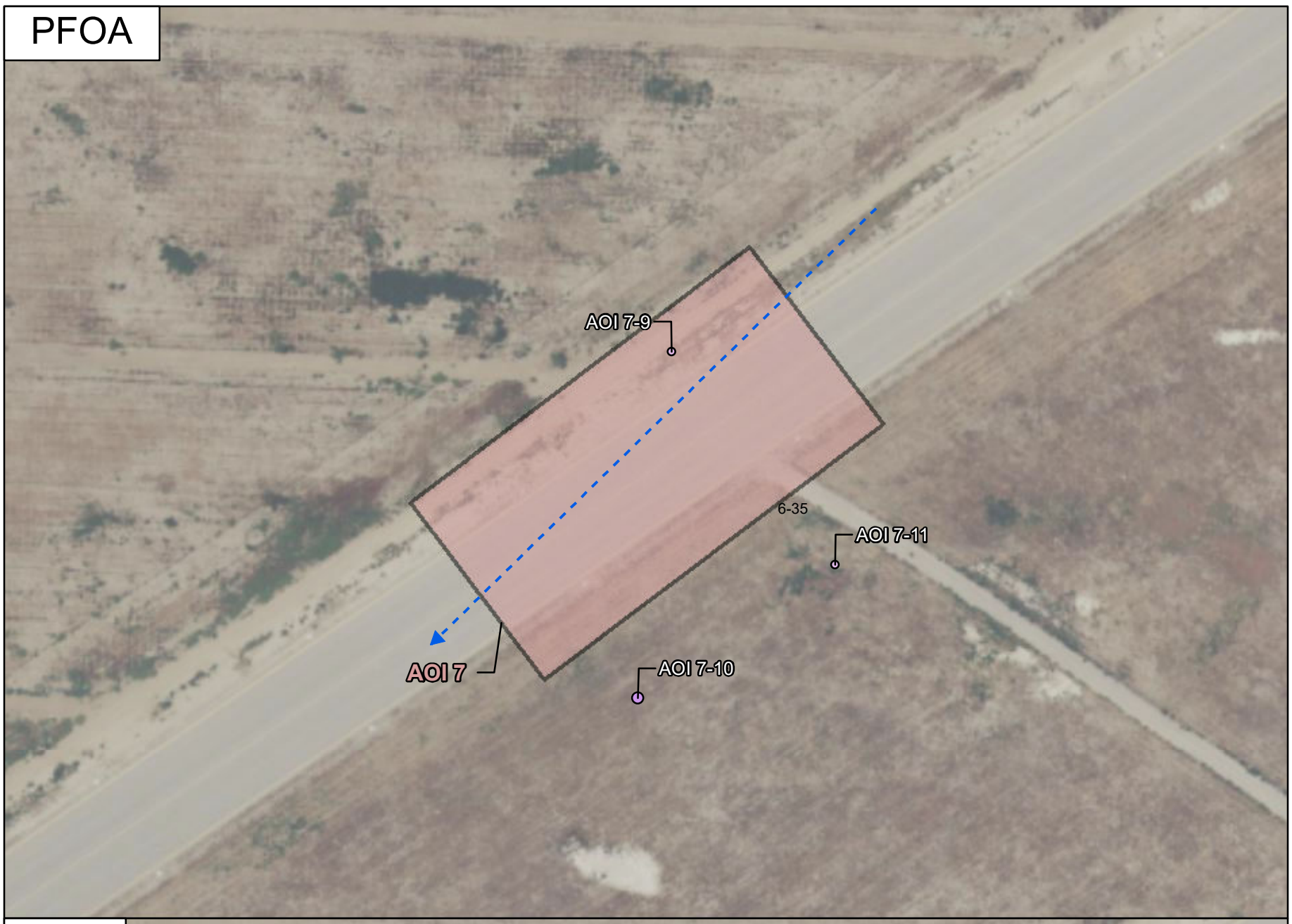
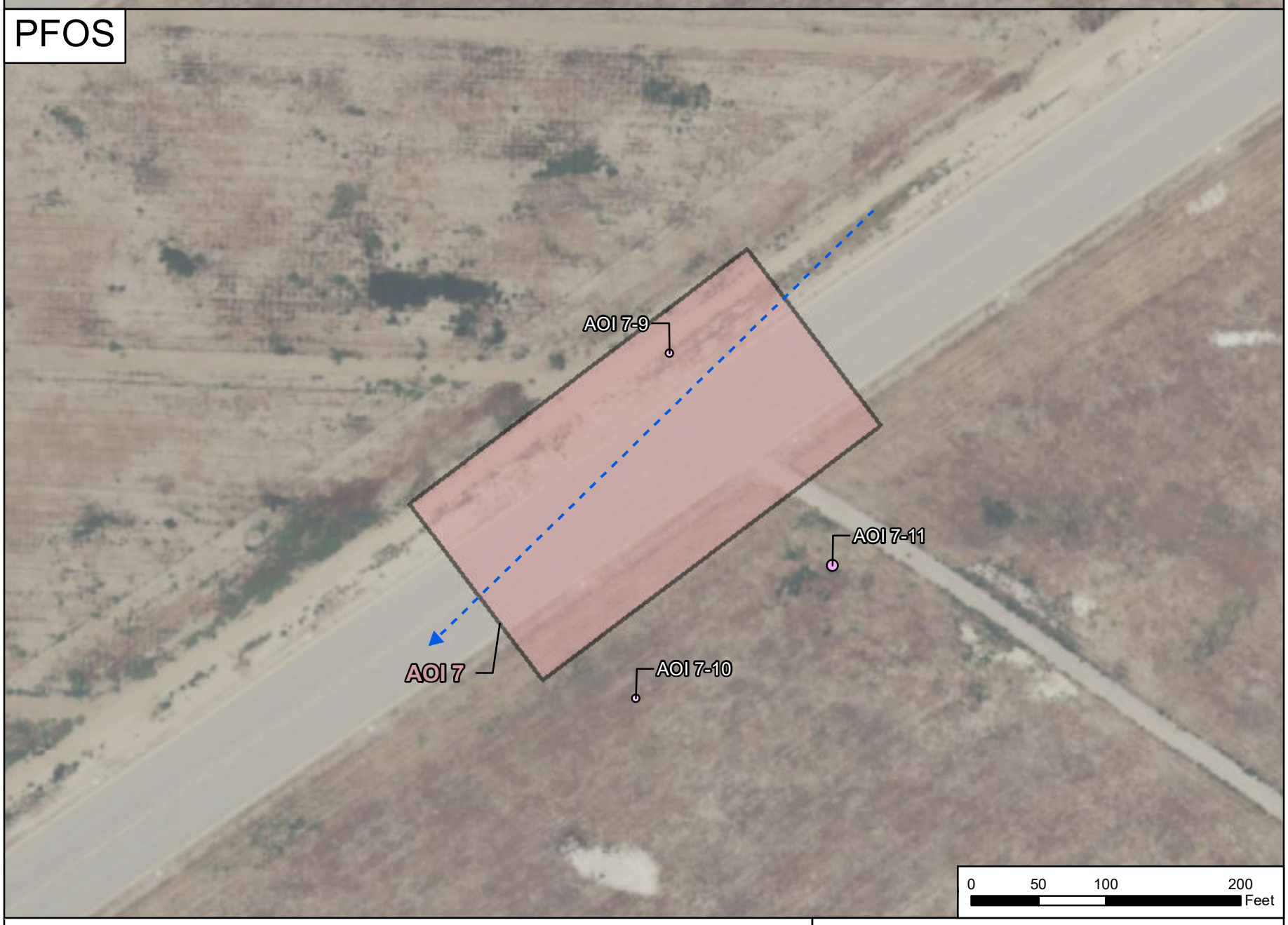
PFOA



PFOS



Area of Interest (AOI)

Inferred Groundwater Flow Direction

PFOA Results (ng/L)

- ND
- >ND - 10
- >10 - 40
- >40 - 70
- >70 - 400
- >400

PFOS Results (ng/L)

- ND
- >ND - 10
- >10 - 40
- >40 - 70
- >70 - 400
- >400

PFOA & PFOS Detections in Groundwater, AOI 7

CLIENT	ARNG			
PROJECT	Site Inspection for PFAS at Los Alamitos, CA			
REVISED	7/23/2020	GIS BY	MS	7/23/2020
SCALE	1:1,200	CHK BY	SL	7/23/2020
Base Map: National Agricultural Imagery Program, 2016		PM	RG	7/23/2020

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Figure 6-12

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PFOA

PFOS

AOI 1
AOI 2
AOI 3
AOI 4
AOI 5
AOI 6
AOI 7
AOI 8
AOI 8-3
AOI 8-4
AOI 8-5
AOI 8-6
AOI 8-7

LOS ALAMITOS ARMY AIRFIELD (AAF)

0 500 1,000 2,000 Feet

Facility Boundary

PFOA Results (ng/L)
- ND
- >ND - 10
- >10 - 100
- >100 - 1,000
- >1,000

PFOS Results (ng/L)
- ND
- >ND - 10
- >10 - 100
- >100 - 1,000
- >1,000

N

CLIENT	ARNG			
Site Inspection for PFAS at Los Alamitos, CA				
REVISED	3/20/2020	GIS BY	MS	3/20/2020
SCALE	1:12,000	CHK BY	SL	3/20/2020
Base Map: National Agricultural Imagery Program, 2016		PM	RG	3/20/2020

PFOA and PFOS Detections in Surface Water

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Figure 6-13

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7.0 Exposure Pathways

The CSMs for each AOI, revised based on the SI findings, are presented on **Figure 7-1** through **Figure 7-8**. A 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 figures use an empty circle symbol to represent an incomplete exposure pathway. Areas with no identified complete 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 PFAS exposure pathways 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, construction workers, trespassers (though unlikely due to the restricted access at the facility), 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 each AOI based on the aforementioned criteria.

7.1.1 AOI 1

Until approximately 1983, an unknown amount of AFFF may have been released to soil at the two Old CFR Training Pits, located in close proximity to each other in the northwest portion of the JFTB LA. During the fire training exercises, fuels or other combustibles were ignited in the unlined pits, and the fires were extinguished using AFFF. The quantity of fuel used during each fire training session was reported to be approximately 500 to 1,000 gallons, and exercises were conducted six to eight times per week over the period that the pits were used. PFOA, PFOS and PFBS were detected in soil at AOI 1 and confirm the release of PFAS to soil in AOI 1. Based on the results of the SI in AOI 1, ground-disturbing activities could potentially result in site worker, future construction worker, and trespassers exposure to PFOA, PFOS, and PFBS via inhalation of dust or ingestion of surface soil. Ground-disturbing activities could also potentially result in future construction worker exposure to subsurface soil. No current construction is occurring at AOI 1. Additionally, off-facility recreational users and off-facility residents may potentially be exposed to

PFOA, PFOS, and PFBS via inhalation of dust caused by on-facility ground disturbing activities, although this exposure is likely insignificant. The CSM for AOI 1 is presented on **Figure 7-1**.

7.1.2 AOI 2

The New CFR Training Pit is located to the south of the former JP-4 TFA, in the western portion of the JFTB LA. From 1983 until September 1987, an unknown quantity of unknown percentage of AFFF may have been released to surface soil at the unlined training pit during fire training exercises. Fire training exercises were conducted six to eight times per week over the approximate 5-year period the pit was used, and approximately 500 to 10,00 gallons of fuel were burned during each training session. PFOA, PFOS, and PFBS were detected in soil at AOI 2 and confirm the release of PFAS to soil in AOI 2. Based on the results of the SI in AOI 2, ground-disturbing activities could potentially result in site worker, future construction worker, and trespassers exposure to PFOA, PFOS, and PFBS via inhalation of dust or ingestion of surface soil. Ground-disturbing activities could also potentially result in future construction worker exposure to subsurface soil. No current construction is occurring at AOI 2. Additionally, off-facility recreational users and off-facility residents may potentially be exposed to PFOA, PFOS, and PFBS via inhalation of dust caused by on-facility ground disturbing activities, although this exposure is likely insignificant. The CSM for AOI 2 is presented on **Figure 7-2**.

7.1.3 AOI 3

The WEF FTA is located at the northwest edge of the paved runway area, in the northwest portion of the JFTB LA. According to PA findings, fire training exercises were conducted in the WEF area within the last 20 years. An unknown amount of 3% AFFF was applied to simulated targets on the concrete portion of the tarmac during each training session. The residual AFFF was sprayed off the concrete with water into the grass and soil covered areas west of the concrete tarmac. In addition, AFFF equipment nozzle testing was conducted between approximately 2000 to 2017 on a monthly basis in the southwest corner of the WEF. During the tests, 3% AFFF was sprayed through equipment nozzles for approximately 10 seconds. The stream of AFFF spray was directed to the grassy area west of the WEF's concrete surface. PFOA, PFOS, and PFBS were detected in soil at AOI 3 and confirm the release of PFAS to soil in AOI 3. Based on the results of the SI in AOI 3, ground-disturbing activities could potentially result in site worker, future construction worker, and trespassers exposure to PFOA, PFOS, and PFBS via inhalation of dust or ingestion of surface soil. Ground-disturbing activities could also potentially result in future construction worker exposure to subsurface soil. No current construction is occurring at AOI 3. Additionally, off-facility recreational users and off-facility residents may potentially be exposed to PFOA, PFOS, and PFBS via inhalation of dust caused by on-facility ground disturbing activities, although this exposure is likely insignificant. The CSM for AOI 3 is presented on **Figure 7-3**.

7.1.4 AOI 4

The JFTB LA Hangar 1 is located to the north of the approximate center of the flightline and west of the wash rack and Building 914. In October 2012, approximately 100 gallons of 3% AFFF were reported to have been released into Hangar 1 during the fire suppression system testing. The helicopter that was being serviced in the hangar when the event occurred was hosed off with water in the wash rack area situated west of the hangar. AFFF in the hangar was pushed out to the concrete driveway area between the hangar and wash rack. During the PA visit, a 750-gallon capacity AST containing 3% AFFF was observed outdoors, in the northeast corner of the hangar.

Although AFFF was released to the paved surface, cracks in the concrete observed during the PA visit in the driveway areas in the vicinity of Hangar 1 and Building 34 may be conduits for PFAS migration to soil. PFOA and PFOS were detected in soil at AOI 4 and confirm the release of PFAS to soil in AOI 4. Based on the results of the SI in AOI 4, ground-disturbing activities could potentially result in site worker, future construction worker, and trespassers exposure to PFOA

and PFOS via inhalation of dust or ingestion of surface soil. Ground-disturbing activities could also potentially result in future construction worker exposure to subsurface soil. No current construction is occurring at AOI 4, and the area is paved. Additionally, off-facility recreational users and off-facility residents may potentially be exposed to PFOA and PFOS via inhalation of dust caused by on-facility ground disturbing activities, although this exposure is likely insignificant. The CSM for AOI 4 is presented on **Figure 7-4**.

7.1.5 AOI 5

Building 34 (JFTB LA Fire Station) is located south of Constitution Avenue, east of Building 35. The Fire Station operates four firefighting trucks that are filled with 3% AFFF in a concrete driveway area on the west side of the building. The firefighting trucks are parked in multiple areas around the Fire Station, including both the east and west sides of the station and the station bays. According to PA findings, 3% AFFF is occasionally spilled and leaked onto the driveway where the firefighting trucks are filled. The spills and leaks were reported to be on the order of a few drops to a few gallons. In addition, approximately 48 55-gallon plastic drums and 36 5-gallon plastic containers containing various brands of AFFF products were observed in the AFFF storage area located in the southwest portion of Building 34 during PA visit.

Although AFFF was released to the paved surface, cracks in the asphalt may be conduits for PFAS migration to soil. PFOA, PFOS, and PFBS were detected in soil at AOI 5 and confirm the release of PFAS to soil in AOI 5. Based on the results of the SI in AOI 5, ground-disturbing activities could potentially result in site worker, future construction worker, and trespassers exposure to PFOA, PFOS, and PFBS via inhalation of dust or ingestion of surface soil. Ground-disturbing activities could also potentially result in future construction worker exposure to subsurface soil. No current construction is occurring at AOI 5. Additionally, off-facility recreational users and off-facility residents may potentially be exposed to PFOA, PFOS, and PFBS via inhalation of dust caused by on-facility ground disturbing activities, although this exposure is likely insignificant. The CSM for AOI 5 is presented on **Figure 7-5**.

7.1.6 AOI 6

According to PA findings, approximately 70 to 80 gallons of 3% AFFF were expelled from a firefighting truck into an abandoned structure located to the south of the existing Building 80 for insect abatement purpose. The structure was subsequently demolished and removed at an unknown time. The area surrounding Building 80 is paved with concrete. PFOA and PFOS were detected in soil at AOI 6 at several orders of magnitude lower than SLs and primarily concentrated at the surface. Based on the results of the SI in AOI 6, ground-disturbing activities could potentially result in site worker, future construction worker, and trespassers to PFOA and PFOS via inhalation of dust or ingestion of surface soil. No current construction is occurring at AOI 6. Additionally, off-facility recreational users and off-facility residents may potentially be exposed to PFOA and PFOS via inhalation of dust caused by on-facility ground disturbing activities, although this exposure is likely insignificant, especially given the low concentrations detected in soil at AOI 6. The CSM for AOI 6 is presented on **Figure 7-6**.

7.1.7 AOI 7

An estimated 70 to 100 gallons of 3% AFFF were reported to be released to the approximate mid-point of the Alpha Hammer-Head taxiway during an emergency response to a wheel-brake fire. The taxiway is situated in the northeastern corner of the JFTB LA. PFOA and PFOS were detected in soil at AOI 7 at several orders of magnitude lower than SLs and primarily concentrated at the surface. Based on the results of the SI in AOI 7, ground-disturbing activities could potentially result in site worker, future construction worker, and trespassers exposure to PFOA and PFOS via inhalation of dust or ingestion of surface soil. No current construction is occurring at AOI 7. Additionally, off-facility recreational users and off-facility residents may potentially be exposed to

PFOA and PFOS via inhalation of dust caused by on-facility ground disturbing activities, although this exposure is likely insignificant. The CSM for AOI 7 is presented on **Figure 7-7**.

7.1.8 AOI 8

The WDD is a mostly unlined and open ditch that parallels the JFTB LA western property boundary. The drainage ditch leaves the facility in a direction to the southwest and discharges into the Los Alamitos Retarding Basin and the San Gabriel River before entering the Pacific Ocean. The WDD is considered a potential release area, as surface water and sediment potentially impacted from various AFFF release sites on the west portion of the property may have migrated to the WDD. In addition, water in the WDD may be marginally influent to the shallow groundwater zone during the rainy season based on available hydrogeological data. PFOA and PFOS were detected in soil at AOI 8 at several orders of magnitude lower than SLs and primarily concentrated at the surface. Based on the results of the SI in AOI 8, ground-disturbing activities could potentially result in site worker, future construction worker, and trespassers exposure to PFOA and PFOS via inhalation of dust or ingestion of surface soil. No current construction is occurring at AOI 8. Additionally, off-facility recreational users and off-facility residents may potentially be exposed to PFOA and PFOS via inhalation of dust caused by on-facility ground disturbing activities, although this exposure is likely insignificant. The CSM for AOI 8 is presented on **Figure 7-8**.

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 each AOI based on the aforementioned criteria.

7.2.1 AOI 1

PFOA, PFOS, and PFBS were detected in groundwater from temporary monitoring wells at the source area and exceeded the SLs for PFOS and PFOA at seven temporary monitoring wells in the Old CFR Training Pits. Although drinking water wells are located downgradient of the site, the screen intervals of these wells are significantly deeper than the shallow groundwater sampled during the SI. Therefore, the exposure pathway via ingestion of groundwater is considered potentially complete for off-facility residents. The ingestion exposure pathway for future construction workers is considered complete due to the exceedance of the SL for PFOS and PFOA, although this exposure is likely insignificant because groundwater is deeper than 15 feet bgs and construction worker contact is unlikely. The CSM for AOI 1 is presented on **Figure 7-1**.

7.2.2 AOI 2

PFOA, PFOS, and PFBS were detected in groundwater from one temporary monitoring well at the source area and exceeded the SLs for PFOS and PFOA at one temporary monitoring well in the New CFR Training Pits. Although drinking water wells are located downgradient of the site, the screen intervals of these wells are significantly deeper than the shallow groundwater sampled during the SI. Therefore, the exposure pathway via ingestion of groundwater is considered potentially complete for off-facility residents. The ingestion exposure pathway for future construction workers is considered complete due to the exceedance of the SL for PFOS and PFOA, although this exposure is likely insignificant because groundwater is deeper than 15 feet bgs and construction worker contact is unlikely. The CSM for AOI 2 is presented on **Figure 7-2**.

7.2.3 AOI 3

PFOA, PFOS, and PFBS were detected in groundwater from five temporary monitoring wells at the source area and exceeded the SLs for PFOS and PFOA at five temporary monitoring wells in the WEF FTA with the exception of no detection of PFOS in AOI3-9. Although drinking water wells are located downgradient of the site, the screen intervals of these wells are significantly deeper than the shallow groundwater sampled during the SI. Therefore, the exposure pathway via ingestion of groundwater is considered potentially complete for off-facility residents. The ingestion exposure pathway for future construction workers is considered complete due to the exceedance of the SL for PFOS and PFOA, although this exposure is likely insignificant because groundwater is deeper than 15 feet bgs and construction worker contact is unlikely. The CSM for AOI 3 is presented on **Figure 7-3**.

7.2.4 AOI 4

PFOA, PFOS, and PFBS were detected in groundwater from one temporary monitoring well at the source area and exceeded the SLs for PFOS and PFOA at one temporary monitoring well in the Hangar 1 area. Although drinking water wells are located downgradient of the site, the screen intervals of these wells are significantly deeper than the shallow groundwater sampled during the SI. Therefore, the exposure pathway via ingestion of groundwater is considered potentially complete for off-facility residents. The ingestion exposure pathway for future construction workers is considered complete due to the exceedance of the SL for PFOS and PFOA, although this exposure is likely insignificant because groundwater is deeper than 15 feet bgs and construction worker contact is unlikely. The CSM for AOI 4 is presented on **Figure 7-4**.

7.2.5 AOI 5

PFOA, PFOS, and PFBS were detected in groundwater from one temporary monitoring well and one existing monitoring well at the source area and exceeded the SLs for PFOS and PFOA at one temporary monitoring well and one existing monitoring well in the JFTB LA Fire Station area. Although drinking water wells are located downgradient of the site, the screen intervals of these wells are significantly deeper than the shallow groundwater sampled during the SI. Therefore, the exposure pathway via ingestion of groundwater is considered potentially complete for off-facility residents. The ingestion exposure pathway for future construction workers is considered complete due to the exceedance of the SL for PFOS and PFOA, although this exposure is likely insignificant because groundwater is deeper than 15 feet bgs and construction worker contact is unlikely. The CSM for AOI 5 is presented on **Figure 7-5**.

7.2.6 AOI 6

PFBS was detected in groundwater from one temporary monitoring well at the source below the SL for PFBS at one temporary monitoring well monitoring well in the Building 80 area. PFOA and PFOS were not detected in the groundwater at the source area. Although drinking water wells are located downgradient of the site, the screen intervals of these wells are significantly deeper than the shallow groundwater sampled during the SI. Therefore, the exposure pathway via ingestion of groundwater is considered potentially complete for off-facility residents. Additionally, the ingestion exposure pathway is potentially complete for future construction workers during trenching activities deep enough to encounter shallow groundwater. The CSM for AOI 6 is presented on **Figure 7-6**.

7.2.7 AOI 7

PFOA and PFOS were detected in groundwater from two temporary monitoring wells at the source below the individual SL for PFOA and PFOS at two temporary monitoring well monitoring wells in

the Emergency Response area. PFBS was not detected in the groundwater at the source area. Although drinking water wells are located downgradient of the site, the screen intervals of these wells are significantly deeper than the shallow groundwater sampled during the SI. Therefore, the exposure pathway via ingestion of groundwater is considered potentially complete for off-facility residents. Additionally, the ingestion exposure pathway is potentially complete for future construction workers during trenching activities deep enough to encounter shallow groundwater. The CSM for AOI 7 is presented on **Figure 7-7**.

7.2.8 AOI 8

PFOA, PFOS, and PFBS were detected in groundwater from one existing monitoring well at the source area and exceeded the SLs for PFOS and PFOA at one existing monitoring well in the WDD. Although drinking water wells are located downgradient of the site, the screen intervals of these wells are significantly deeper than the shallow groundwater sampled during the SI. Therefore, the exposure pathway via ingestion of groundwater is considered potentially complete for off-facility residents. Additionally, the ingestion exposure pathway for future construction workers is considered complete due to the exceedance of the SL for PFOS and PFOA, although this exposure is likely insignificant because groundwater is deeper than 15 feet bgs and construction worker contact is unlikely. The CSM for AOI 8 is presented on **Figure 7-8**.

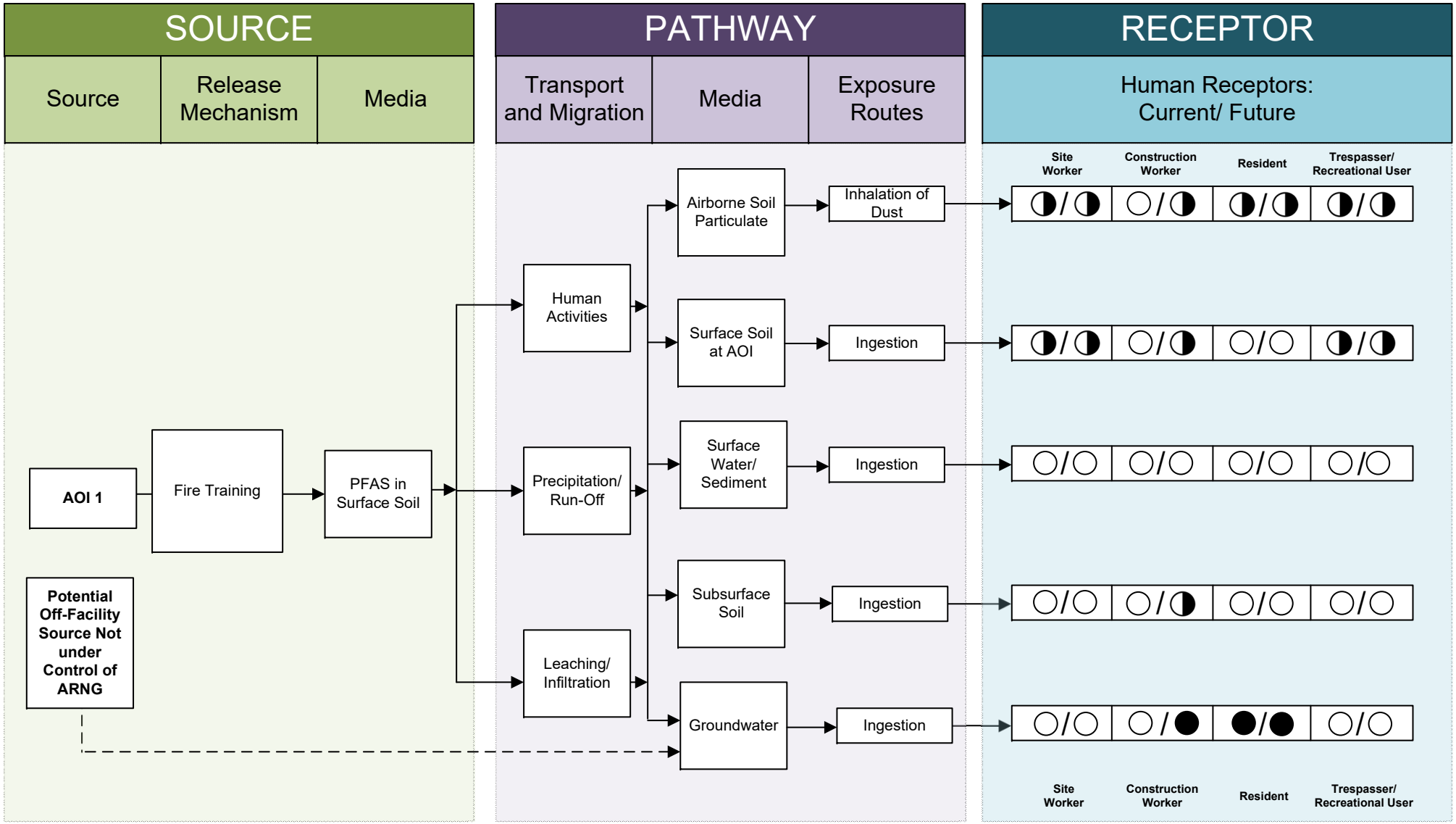
7.3 Surface Water Exposure Pathway

The SI results for PFOA, PFOS, and PFBS in surface water were used to determine whether a potentially complete pathway exists between the source and potential receptors.

7.3.1 AOI 8

Surface water entering storm drains at the flight line, main roadways, and other areas within the operational cantonment areas of the JFTB LA flows to an outfall structure located in the WDD, south of the JP-4 containment system. Surface water entering all other catch basins at the facility, with exception to water entering catch basins associated with the various wash rack facilities, drain to the WDD. In addition, a majority of surface water runoff from the cantonment areas of the facility and from areas generally in the western side of the facility, likely flows to and is captured by the WDD. Significant volumes of groundwater extracted historically by various remediation systems were passed through granular activated carbon vessels subsequent to which the effluent was ultimately discharged to the WDD.

PFOA, PFOS, and PFBS were detected in surface water samples collected at AOI 8. Therefore, the exposure pathways for surface water via ingestion are potentially complete for site workers and construction workers for the portion of the WDD that flows onsite, and for nearby off-facility residents and recreational users of the offsite portion of the WDD. The ingestion exposure pathway for groundwater is potentially complete for workers and construction workers. The CSM for AOI 8 is presented on **Figure 7-8**.



LEGEND

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

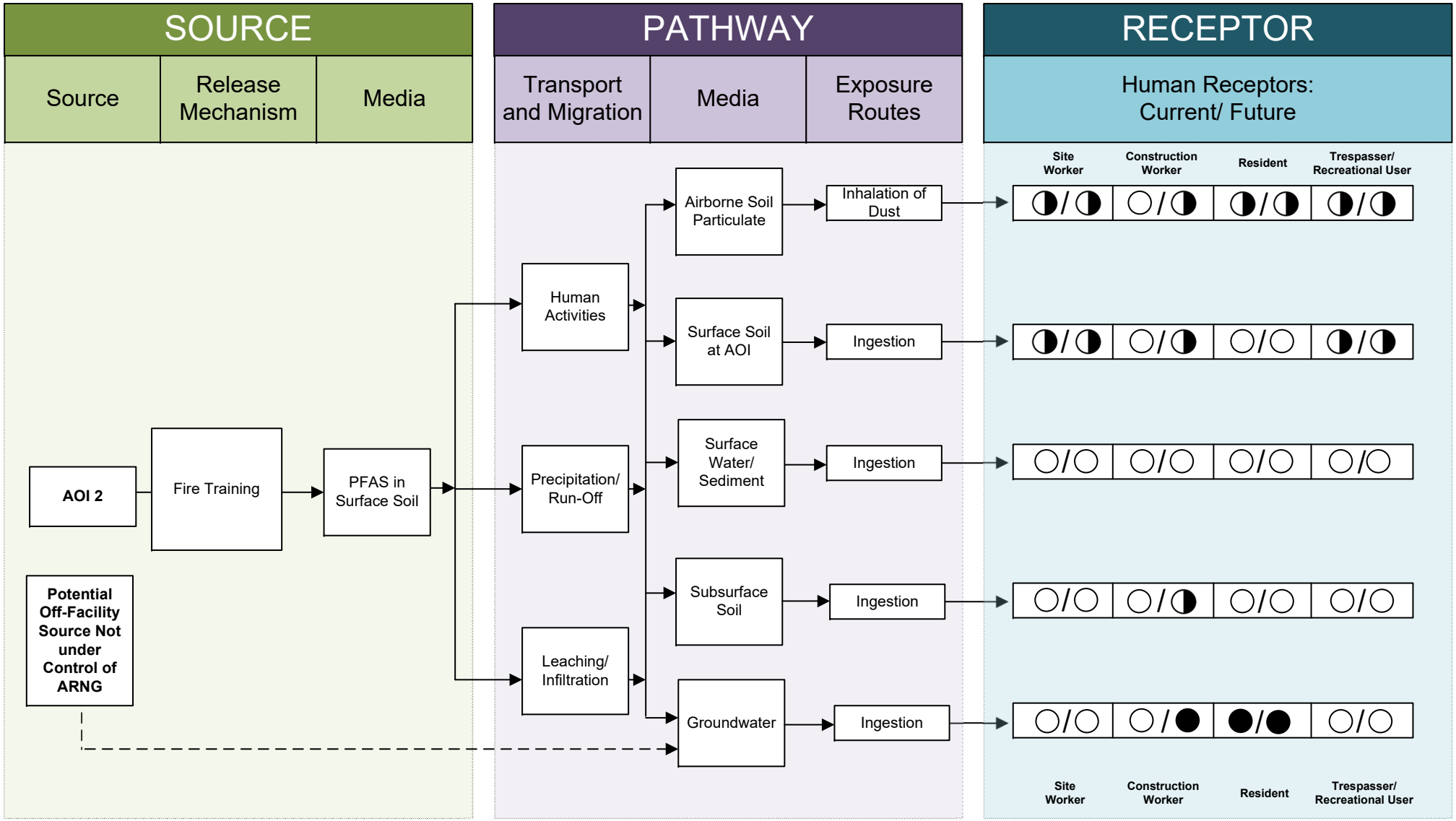
NOTES

1. The resident and recreational user receptors refer to an off-site resident or recreational user.
2. Human consumption of agricultural products potentially affected by PFAS is possible.
3. Dermal contact exposure pathway is incomplete for PFAS

Figure 7-1. Conceptual Site Model

AOI 1 – Old Crash Fire Training Pits

Joint Forces Training Base Los Alamitos



LEGEND

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

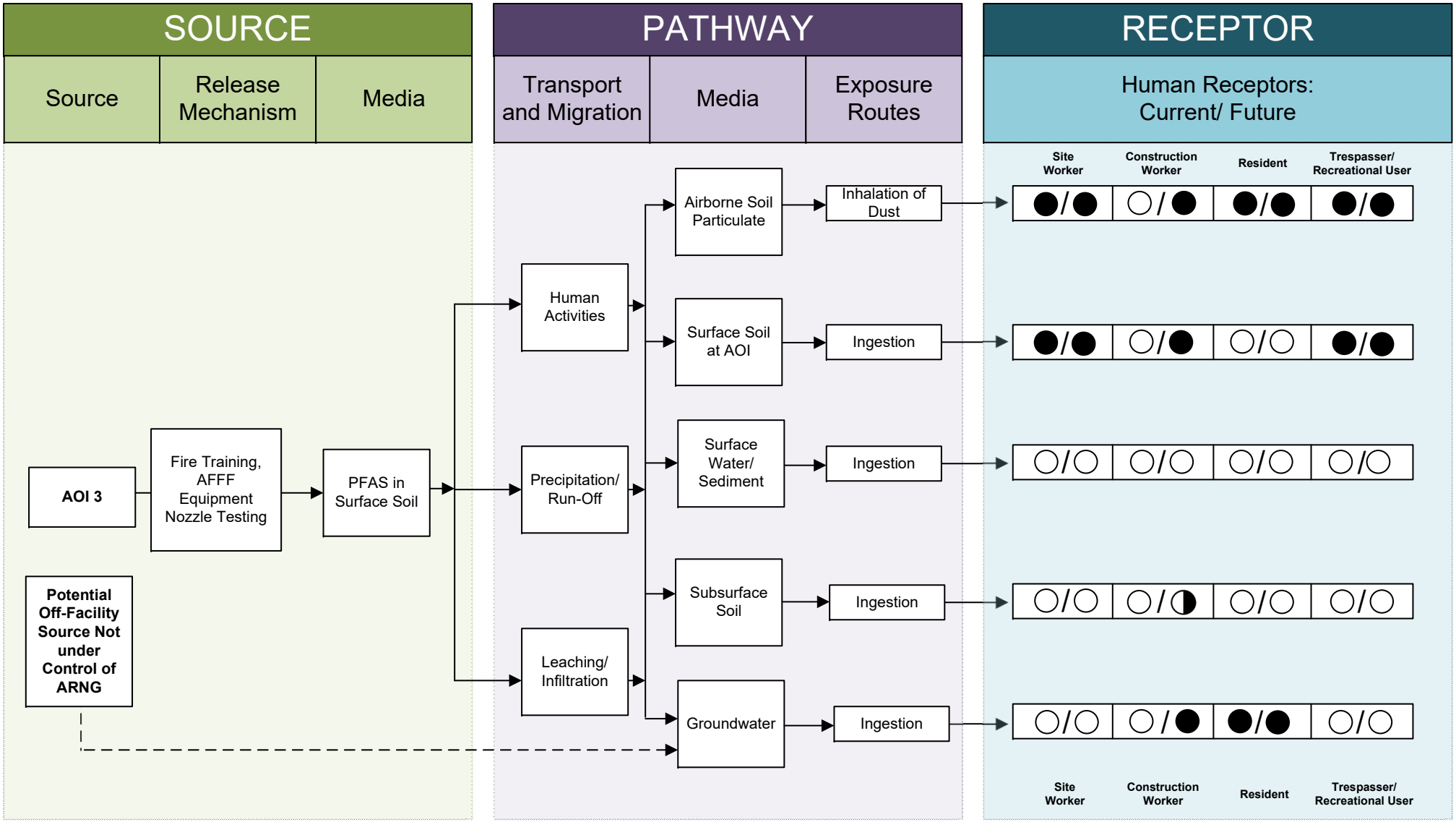
NOTES

1. The resident and recreational user receptors refer to an off-site resident or recreational user.
2. Human consumption of agricultural products potentially affected by PFAS is possible.
3. Dermal contact exposure pathway is incomplete for PFAS

Figure 7-2. Conceptual Site Model

AOI 2 – New Crash Fire Rescue Training Pit

Joint Forces Training Base Los Alamitos



LEGEND

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

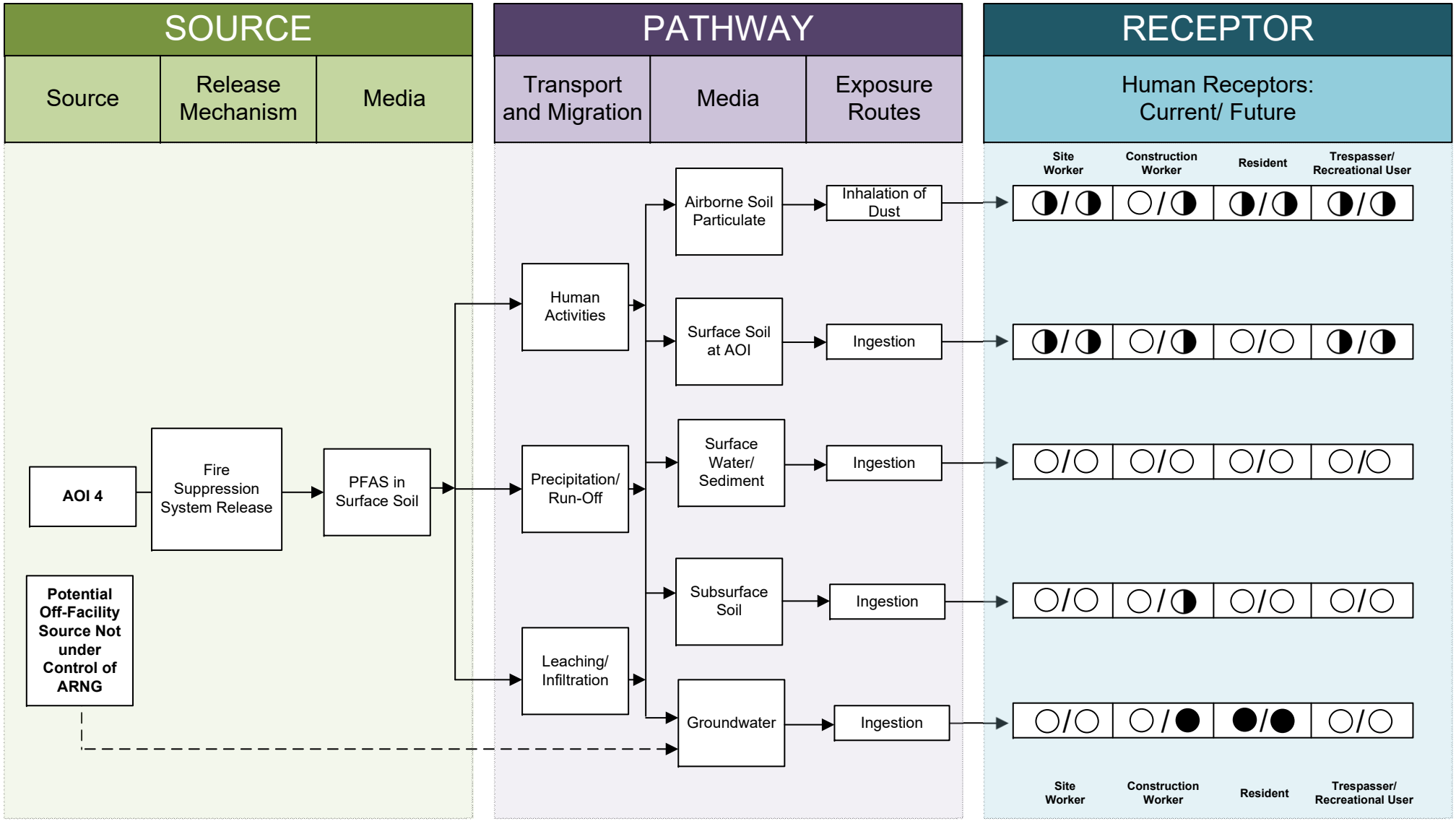
NOTES

1. The resident and recreational user receptors refer to an off-site resident or recreational user.
2. Human consumption of agricultural products potentially affected by PFAS is possible.
3. Dermal contact exposure pathway is incomplete for PFAS

Figure 7-3. Conceptual Site Model

AOI 3 – West End of the Flightline Fire Training Area

Joint Forces Training Base Los Alamitos



LEGEND

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

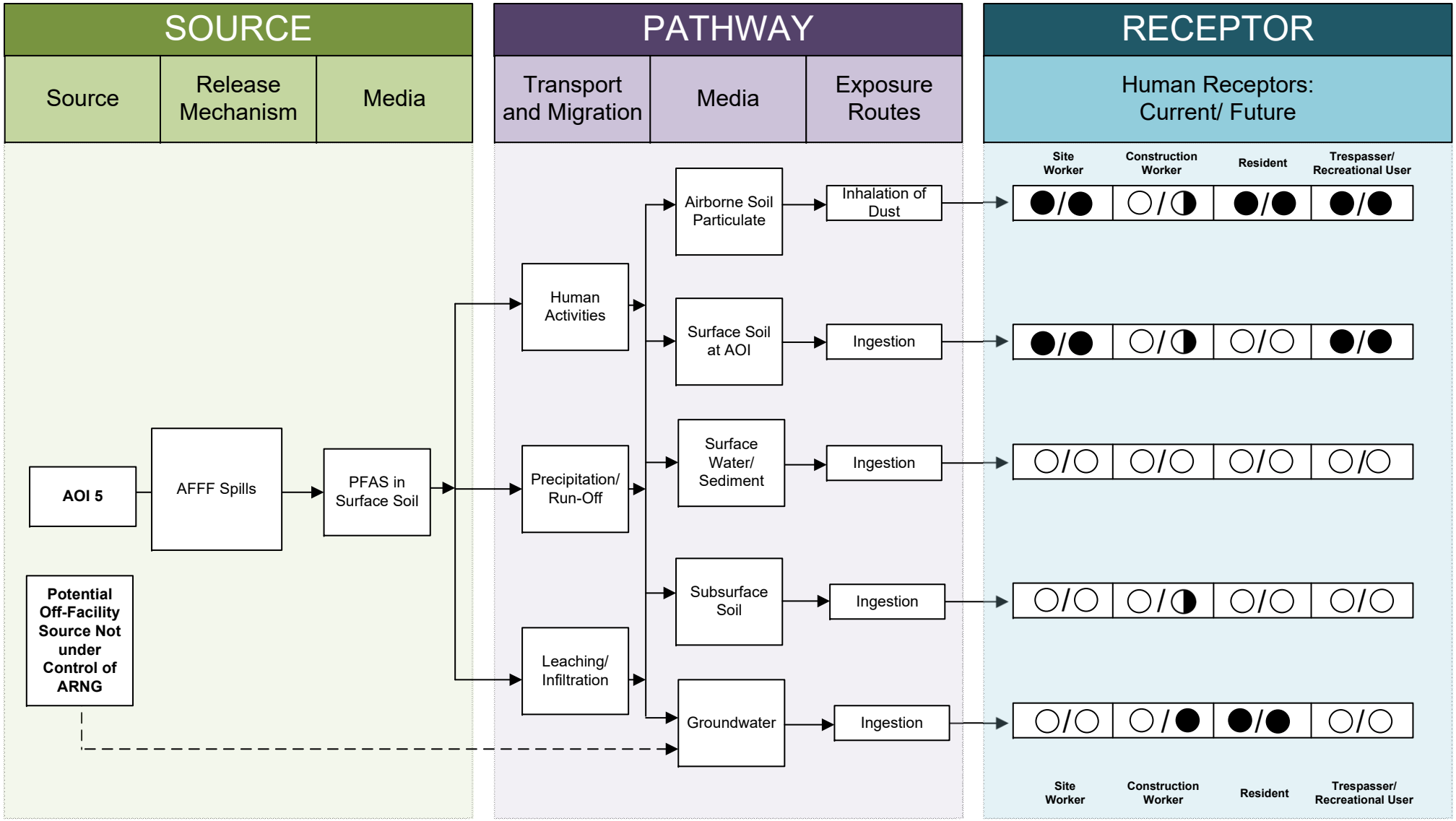
NOTES

1. The resident and recreational user receptors refer to an off-site resident or recreational user.
2. Human consumption of agricultural products potentially affected by PFAS is possible.
3. Dermal contact exposure pathway is incomplete for PFAS

Figure 7-4. Conceptual Site Model

AOI 4 – Hangar 1

Joint Forces Training Base Los Alamitos



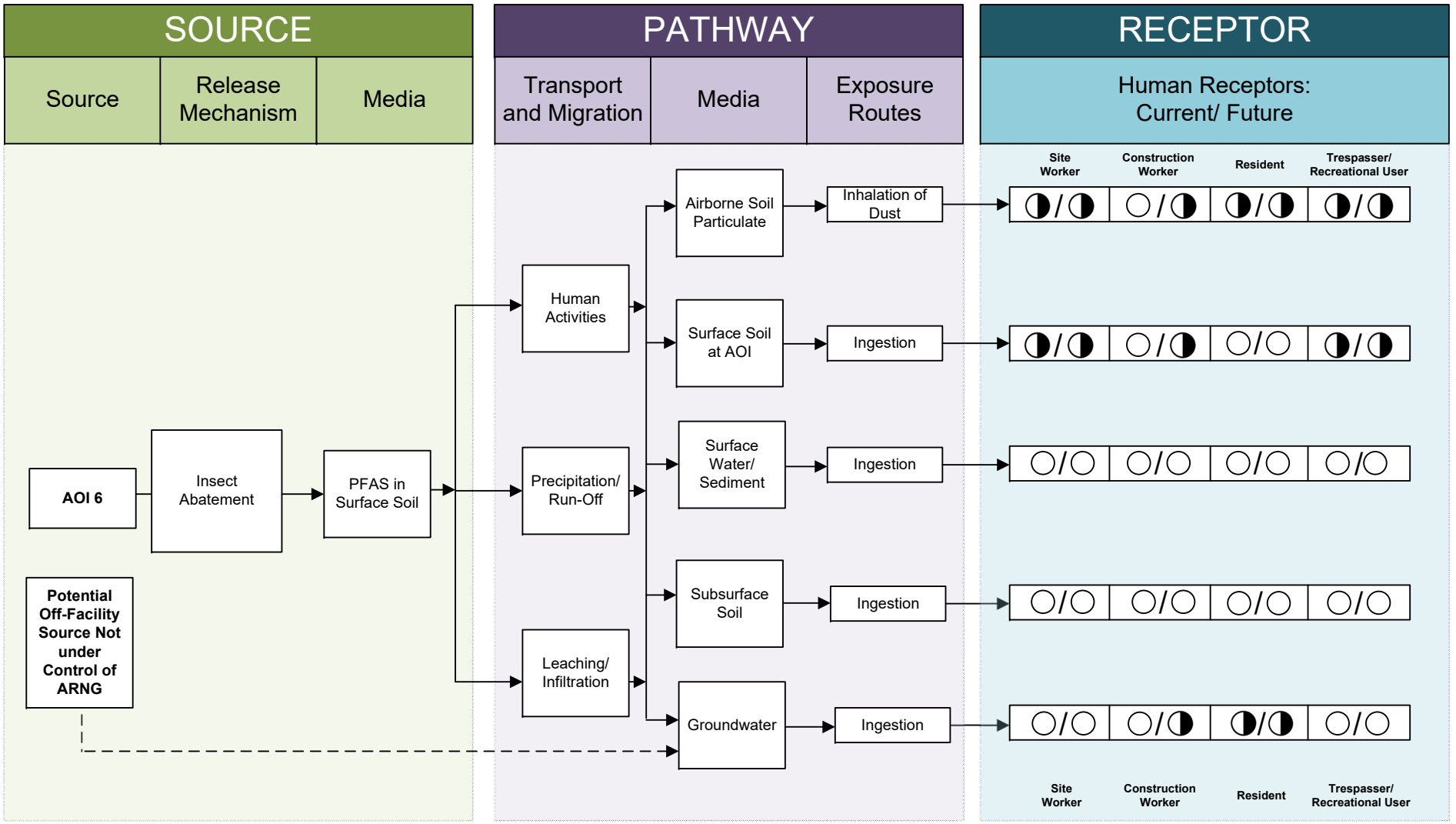
LEGEND

- 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 user receptors refer to an off-site resident or recreational user.
2. Human consumption of agricultural products potentially affected by PFAS is possible.
3. Dermal contact exposure pathway is incomplete for PFAS

Figure 7-5. Conceptual Site Model
AOI 5 – Building 34 (JFTB LA Fire Station)
Joint Forces Training Base Los Alamitos



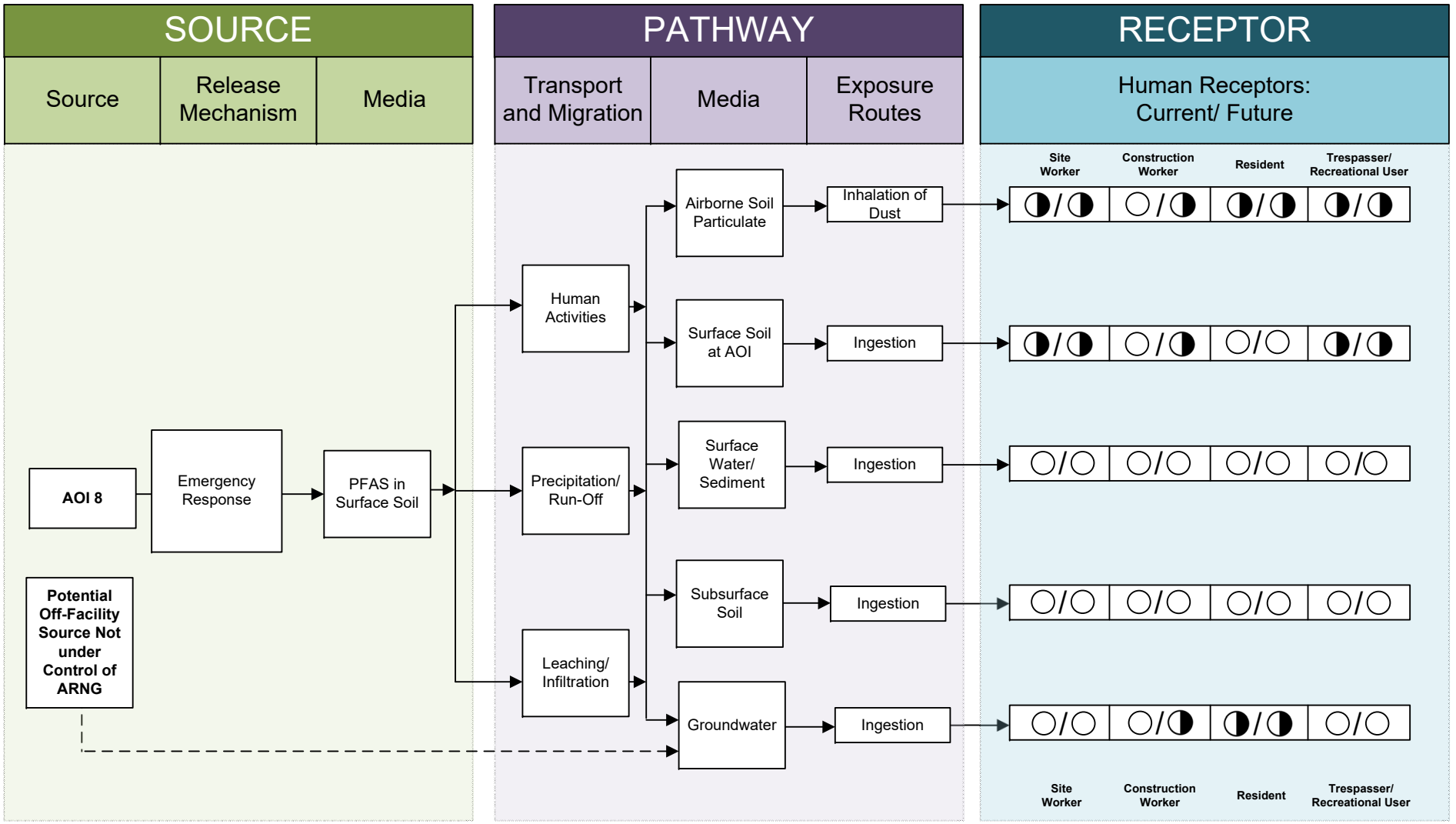
LEGEND

- 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 user receptors refer to an off-site resident or recreational user.
2. Human consumption of agricultural products potentially affected by PFAS is possible.
3. Dermal contact exposure pathway is incomplete for PFAS

Figure 7-6. Conceptual Site Model
AOI 6 – AFFF Release in the Vicinity of Building 80
Joint Forces Training Base Los Alamitos



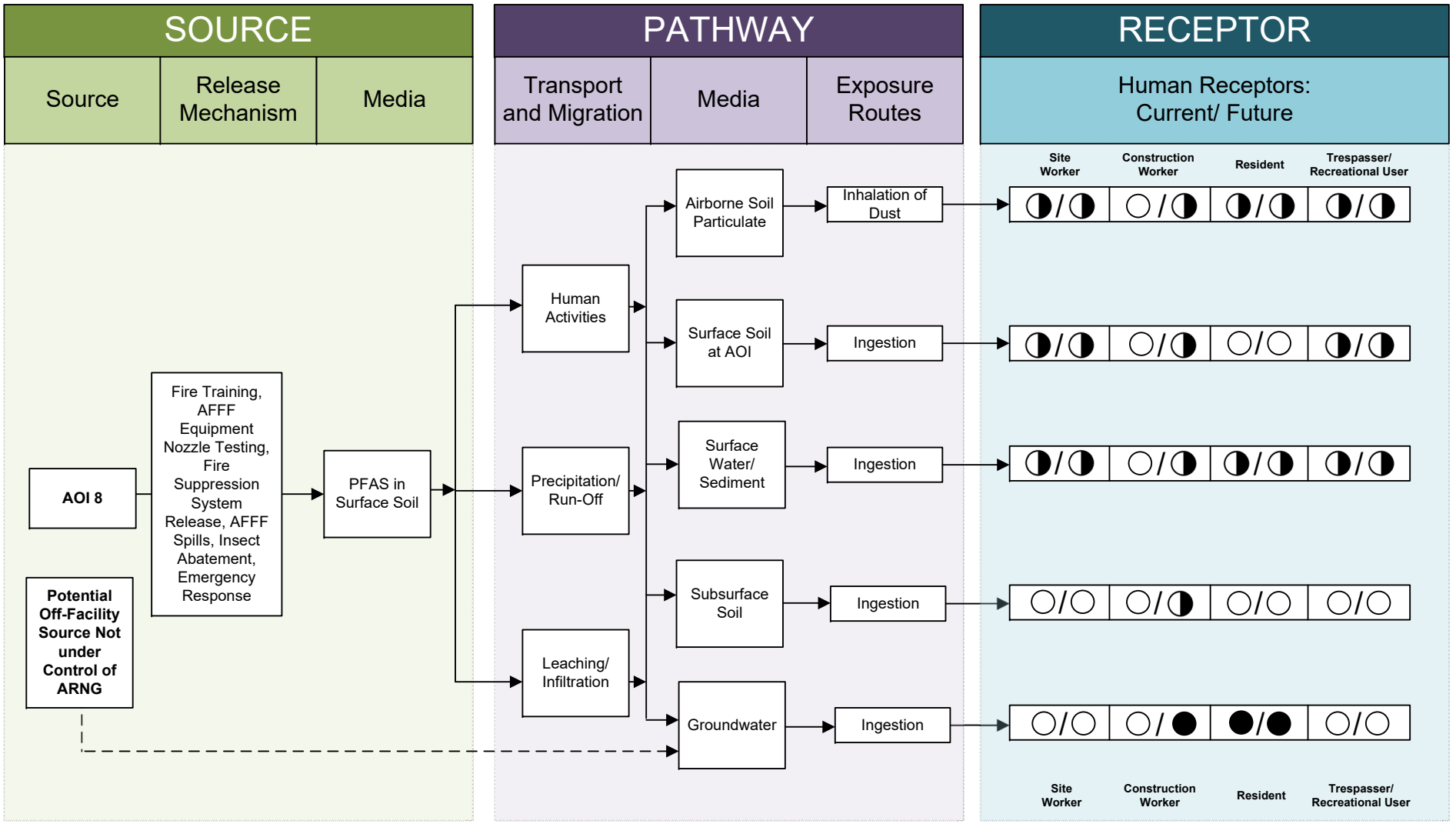
LEGEND

- 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 user receptors refer to an off-site resident or recreational user.
2. Human consumption of agricultural products potentially affected by PFAS is possible.
3. Dermal contact exposure pathway is incomplete for PFAS

Figure 7-7. Conceptual Site Model
AOI 7 – Emergency Response Area
Joint Forces Training Base Los Alamitos



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 user receptors refer to an off-site resident or recreational user.
2. Human consumption of agricultural products potentially affected by PFAS is possible.
3. Dermal contact exposure pathway is incomplete for PFAS

Figure 7-8. Conceptual Site Model
AOI 8 – Western Drainage Ditch
Joint Forces Training Base Los Alamitos

8.0 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 Summary

The SI field activities at JFTB LA were conducted from 21 to 29 October 2019. The SI field activities included soil, groundwater, and surface water sampling. Field activities were conducted in accordance with the QAPP Addendum (AECOM, 2019b), except as previously noted in **Section 5.7**.

To fulfill the project DQOs set forth in the approved SI QAPP Addendum (AECOM, 2019b), samples were collected and analyzed for a subset of PFAS by LC/MS/MS QSM 5.1 Table B-15 as follows. The 18 PFAS analyzed as part of the ARNG SI program are specified in **Section 5.6** of this report:

- 76 soil samples from 40 locations (soil borings or hand auger locations);
- 19 grab groundwater samples from temporary well locations;
- Two (2) low-flow groundwater samples from existing monitoring wells; and
- Five (5) surface water samples.

This information gathered during this investigation was used to determine the PFOA, PFOS, and PFBS at or above SLs. Additionally, the CSMs were refined to assess whether a 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 7.0**.

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 Site in soil, groundwater, and surface water. PFOA, PFOS, and PFBS were detected both at the source areas, as well as near the facility boundary between source areas and potential drinking water receptors. Detections in soil exceeded the SLs for PFOA and PFOS at AOI 3 and AOI 5. Detections in groundwater exceeded the SLs for PFOA and PFOS at AOI 1, AOI 2, AOI 3, AOI 4, AOI 5, and AOI 8. The detected concentrations of PFOA, PFOS, and PFBS in soil samples from all AOIs were below the 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.*

   Two potential PFAS release areas were removed from further consideration based on the groundwater and soil data collected during the SI: AFFF Release in the vicinity of Building 80 (AOI 6) and Emergency Response Area (AOI 7). PFOA and PFOS were not detected in groundwater above the SLs at AOI 6 and AOI 7; therefore, these areas pose no significant threat to human health or the environment. Although AOI 6 will not be listed as an individual site in the RI because PFOA and PFOS concentrations detected at this site

did not exceed DoD screening levels, additional groundwater sampling and analysis (using methods with lowered detection limits) will be conducted at AOI 6 during the RI, as part of the site-wide OU 1 groundwater investigation.

3. *Determine the potential need for a removal action.*

   Based on the data collected during this SI, no need for a removal action was identified.

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 permeable and conductive environment with soils dominated by sandy silt, silty sand, and poorly graded sand.

   Depth to shallow groundwater at JFTB LA ranged from approximately 7 to 22 feet btoc. Groundwater beneath the facility generally flows to the southwest. These geologic and hydrogeologic observations inform development of technical approach for the RI.

5. *Identify within 4 miles of the installation other potential PFAS sources (fire stations, major manufacturers, other DoD facilities) and receptors, including both groundwater and surface water receptors, to determine whether the ARNG is the likely source of PFAS, or whether there is an off-facility source of PFAS responsible for installation detections of PFAS (USEPA, 2005).*

   Based upon the evaluation of groundwater and soil results in comparison to SLs, in combination with groundwater flow direction analysis, the results of the SI indicate that the source of detected concentrations of PFOA, PFOS, and PFBS at the Site is likely attributable to ARNG activities and/or potentially historical Navy activities.

6. *Determine whether a 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 and groundwater at source areas and the facility boundary indicate there are potentially complete pathways for site and construction workers, off-site residents, and a complete pathway for future construction workers.

8.3 Outcome

Based on the CSMs developed and revised based on the SI findings, there is potential for exposure to nearby off-facility residential drinking water receptors, site workers, construction workers, and recreational users from sources at JFTB LA from releases resulting from historical DoD activities.

Sample chemical analytical concentrations collected during this SI were compared against the project SLs for PFOA, PFOS and PFBS in soil and groundwater as described in **Table 6-1**. Maximum detected concentrations for PFOA and PFOS in groundwater, soil, and surface water are shown on **Figure 8-1** through **Figure 8-5**. The following bullets summarize the SI results:

- PFOS and PFOA in soil at AOI 3: West End of the Flightline exceeded the individual SLs of 130 µg/Kg with maximum concentrations of 1570 µg/Kg (AOI3-2) and 219 µg/Kg (AOI 3-12), respectively. Based on the results of the SI, further evaluation of AOI 3 is warranted in the RI.
- PFOA and PFOS in soil at AOI 5: Building 34 exceeded the individual SLs of 130 µg/Kg with concentrations of 134 µg/Kg and 352 µg/Kg, respectively. Based on the results of the SI, further evaluation of AOI 5 is warranted in the RI.

- PFOA in groundwater at AOI 1: Old CFR Training Pits exceeded the SL of 40 ng/L, with maximum concentration of 166,000 ng/L at location AOI 1-5. Additionally, PFOS in groundwater at AOI 1 exceeded the SL of 40 ng/L, with maximum concentration of 11,100 J- ng/L at location AOI 1-2. Based on the results of the SI, further evaluation of AOI 1 is warranted in the RI.

- PFOA and PFOS in groundwater at AOI 2: New CFR Training Pit exceeded the individual SLs of 40 ng/L ,with concentrations of 62,900 ng/L and 1,620 ng/L, respectively, at location AOI 2-5. Based on the results of the SI, further evaluation of AOI 2 is warranted in the RI.

- PFOA and PFOS in groundwater at AOI 3: West End of the Flightline exceeded the individual SLs of 40 ng/L, with maximum concentrations of 6,380 ng/L and 16,600 J- ng/L, respectively, at location AOI 3-11. Based on the results of the SI, further evaluation of AOI 3 is warranted in the RI.

- PFOA and PFOS in groundwater at AOI 4: Hangar 1 exceeded the individual SLs of 40 ng/L, with concentrations of 245 ng/L and 401 ng/L, respectively, at location AOI 4-1. Based on the results of the SI, further evaluation of AOI 4 is warranted in the RI.

- PFOA and PFOS in groundwater at AOI 5: Building 34 exceeded the individual SLs of 40 ng/L, with maximum concentrations of 31,300 ng/L and 16,800 J ng/L, respectively, at location AOI 5-1. Based on the results of the SI, further evaluation of AOI 5 is warranted in the RI.

- PFOA and PFOS in groundwater at AOI 6: Although AOI 6 will not be listed as an individual site in the RI because PFOA and PFOS concentrations detected at this site did not exceed DoD screening levels, additional groundwater sampling and analysis (using methods with lowered detection limits) will be conducted at AOI 6 during the RI, as part of the site-wide OU 1 groundwater investigation.

- PFOA and PFOS in groundwater at AOI 8: Western Drainage Ditch exceeded the individual SLs of 40 ng/L with concentrations of 3,740 ng/L and 4,880 ng/L, respectively, at location AOI 8-X3. Based on the results of the SI, further evaluation of AOI 8 is warranted in the RI.

- The detected concentrations of PFOA, PFOS, and PFBS in soil samples from all AOIs were below the 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 a potential for exposure to off-facility residential drinking water receptors caused by DoD activities at or adjacent to 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: the Old CFR Training Pits, AOI 2: the New CFR Training Pits, AOI 3: the WEF FTA and AFFF Equipment Nozzle Testing Area, AOI 4: Hangar 1, including the nearby wash rack, AOI 5: Building 34, the JFTB LA Fire Station, and AOI 8: the WDD.

Table 8-1 Summary of Site Inspection Findings

AOI	Potential PFAS Release Area	Soil – Source Area	Groundwater – Source Area	Groundwater – Facility Boundary
1	Old CFR Training Pits	◐	●	NA
2	New CFR Training Pit	◐	●	NA
3	West End of the Flightline	●	●	NA
4	Hangar 1	◐	●	NA
5	Building 34 (JFTB LA Fire Station)	●	●	NA
6	AFFF Release in Vicinity of Building 80	◐	◐	NA
7	Emergency Response	◐	◐	NA
8	Western Drainage Ditch	NA	NA	●

Legend:

AFFF = Aqueous Film Forming Foam
CFR = Crash Fire Rescue
JFTB LA = Joint Force Training Base Los Alamitos
NA = 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	Old CFR Training Pits	Exceedances of SLs in groundwater at source area. No exceedances of SLs in soil.	Proceed to RI
2	New CFR Training Pit	Exceedances of SLs in groundwater at source area. No exceedances of SLs in soil.	Proceed to RI
3	West End of the Flightline	Exceedances of SLs in groundwater at source area. Exceedances of SLs in soil at source area.	Proceed to RI
4	Hangar 1	Exceedances of SLs in groundwater at source area. No exceedances of SLs in soil.	Proceed to RI
5	Building 34 (JFTB LA Fire Station)	Exceedances of SLs in groundwater at source area. Exceedances of SLs in soil at source area.	Proceed to RI
6	AFFF Release in Vicinity of Building 80	Detections in groundwater but no exceedance of SLs. No exceedances of SLs in soil.	No further action
7	Emergency Response	Detections in groundwater but no exceedance of SLs. No exceedances of SLs in soil.	No further action
8	Western Drainage Ditch	Exceedances of SLs in groundwater at the facility boundary. No soil samples collected.	Proceed to RI

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CLIENT	ARNG			
Site Inspection for PFAS at Los Alamitos, CA				
REVISED	3/26/2020	GIS BY	MS	3/26/2020
SCALE	1:14,400	CHK BY	SL	3/26/2020
Base Map: National Agricultural Imagery Program, 2016		PM	RG	3/26/2020

Maximum PFOA Detections in Groundwater

AECOM 12420 Milestone Center Drive Germantown, MD 20876

Figure 8-1

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Notes:

ND = Non Detect
J = Estimated concentration
J- = Estimated concentration, biased low

Results are reported in nanograms per liter (ng/L)

CLIENT	ARNG			
Site Inspection for PFAS at Los Alamitos, CA				
REVISED	3/26/2020	GIS BY	MS	3/26/2020
SCALE	1:14,400	CHK BY	SL	3/26/2020
Base Map: National Agricultural Imagery Program, 2016		PM	RG	3/26/2020

Area of Interest (AOI)
Facility Boundary
Inferred Groundwater Flow Direction
Public Supply Well
Monitoring Well
Non-Potable Water Well

Sample ID	
Sample Date	
Constituent	Value

N

Maximum PFOS Detections in Groundwater

AECOM 12420 Milestone Center Drive Germantown, MD 20876

Figure 8-2

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Notes:

J = Estimated concentration

Results are reported in micrograms per kilogram (µg/Kg)

CLIENT	ARNG			
Site Inspection for PFAS at Los Alamitos, CA				
REVISED	3/25/2020	GIS BY	MS	3/25/2020
SCALE	1:12,000	CHK BY	SL	3/25/2020
Base Map: National Agricultural Imagery Program, 2016		PM	RG	3/25/2020

Area of Interest (AOI)

Facility Boundary

Sample ID	
Sample Date	
Constituent	Value

N

Maximum PFOA Detections in Soil

AECOM

12420 Milestone Center Drive
Germantown, MD 20876

Figure 8-3

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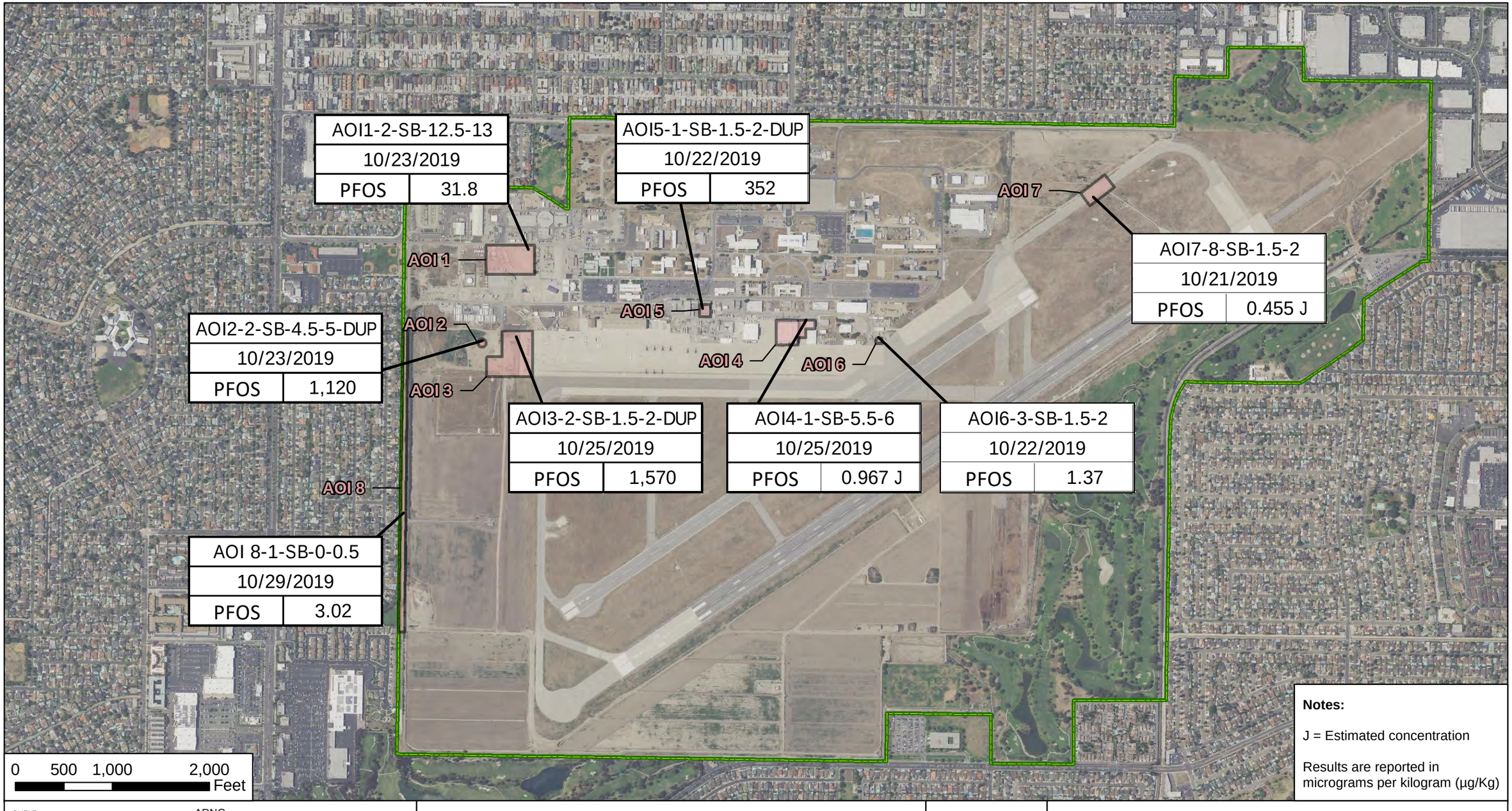

Notes:

J = Estimated concentration

Results are reported in micrograms per kilogram (µg/Kg)

CLIENT	ARNG			
Site Inspection for PFAS at Los Alamitos, CA				
REVISED	3/25/2020	GIS BY	MS	3/25/2020
SCALE	1:12,000	CHK BY	SL	3/25/2020
Base Map: National Agricultural Imagery Program, 2016		PM	RG	3/25/2020

Area of Interest (AOI)

Facility Boundary

Sample ID	
Sample Date	
Constituent	Value

N

Maximum PFOS Detections in Soil

AECOM

12420 Milestone Center Drive
Germantown, MD 20876

Figure 8-4

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Notes:

J+ = Estimated concentration, biased high

Results are reported in nanograms per liter (ng/L)

CLIENT	ARNG			
Site Inspection for PFAS at Los Alamitos, CA				
REVISED	3/27/2020	GIS BY	MS	3/27/2020
SCALE	1:12,000	CHK BY	SL	3/27/2020
Base Map: National Agricultural Imagery Program, 2016		PM	RG	3/27/2020

Area of Interest (AOI)
Facility Boundary

Sample ID	
Sample Date	
Constituent	Value

N

Maximum PFOA and PFOS Detections in Surface Water

AECOM
12420 Milestone Center Drive
Germantown, MD 20876

Figure 8-5

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Appendix A
Data Validation Reports

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DATA VALIDATION REPORT - Level III Review

SDG No.:	**219091838+219102326+219102333+219102541+219102613+219102717+219103085**	**Analysis:**	**Per- and Polyfluorinated Alkyl Substances**
Laboratory:	**Pace Gulf Coast**	**Project:**	**Los Alamitos**
Reviewer:	**Devon Chicoine**	**Date:**	**January 20th, 2020**

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-2017-002, January 2017, Modifications reflect the level of review requested, the specifications of the project-specific QAPP, and the specifics of the analytical methods employed.

Major Anomalies: The following field and quality control (QC) samples displayed recoveries outside the QC limits of 50-150% for extraction internal standards (EIS):

Field Sample	EIS	Associated Target Compound(s)	Area Count (%)
AOI6-3-SB-1.5-2-102219DL	M_2 6:2 FTS	6:2 FTS	317
AOI6-3-SB-1.5-2-102219MSDL			314
AOI6-3-SB-1.5-2-102219MSD	M_2PFTeDA	PFTeDA, PFTrDA	45
AOI6-3-SB-1.5-2-102219MSDDL	M_2 6:2 FTS	6:2 FTS	296
AOI6-2-SB-1.5-2-102219DL			324
AOI6-2-SB-1.5-2-102219MSDL			313
AOI6-2-SB-1.5-2-102219MSDDL			342
AOI5-1-GW-102219DL	M_2 6:2 FTS	6:2 FTS	365
AOI5-1-GW-102219 (RE) DL	M_8PFOS	PFOS	154
JFTBLA-EB-PW-102219 (RE)	M_2PFTeDA	PFTeDA, PFTrDA	20
AOI1-3-GW-102219DL	M_8PFOS	PFOS	214
AOI7-10-SB-7.5-8-102119	M_2PFTeDA	PFTeDA, PFTrDA	28
AOI7-5-SB-1.5-2-102119			27
AOI7-7-SB-1.5-2-102119			19
AOI7-11-SB-18-18.5-102119			27
AOI7-9-SB-17-17.5-102119			11
AOI1-4-SB-4.5-5-102319			26
AOI1-6-SB-4.5-5-102319			44
AOI1-5-GW-102319			3
	M_5PFHxA	PFHxA, PFPeS	41
	M_8FOSA	FOSA	27
AOI1-5-SB-7-7.5-102319DL	M_5PFHxA	PFHxA, PFPeS	160
AOI1-SA-GW-102319	M_2PFTeDA	PFTeDA, PFTrDA	7
	MPFDoA	PFDoA	35
AOI-6-GW-102319	M_8FOSA	FOSA	44
AOI1-2-SB-12.5-13-102319	M_2PFTeDA	PFTeDA, PFTrDA	7
	MPFDoA	PFDoA	33
AOI1-2-GW-102319	M_2PFTeDA	PFTeDA, PFTrDA	1
AOI1-2-GW-102319DL	M_8PFOS	PFOS	174
AOI2-2-SB-4.5-5-102319DL1			240
AOI3-11-SB-11-11.5-102419	M_2PFTeDA	PFTeDA, PFTrDA	35

Field Sample	EIS	Associated Target Compound(s)	Area Count (%)
AOI3-12-SB-1.5-2-102419DL	M_2 6:2 FTS	6:2 FTS	**534**
AOI3-8-GW-102419	M_2PFTeDA	PFTeDA, PFTrDA	**35**
AOI3-11-GW-102419	M_2PFTeDA	PFTeDA, PFTrDA	**30**
AOI3-11-GW-102419DL	M_3PFBS	PFBS	**155**
AOI3-11-GW-102419DL1	M_3PFHxS	PFHxS	**154**
	M_5PFHxA	PFHxA, PFPeS	**151**
	M_8PFOS	PFOS	**285**
AOI3-12-GW-102419	M_2PFTeDA	PFTeDA, PFTrDA	**29**
AOI3-1-SB-1.5-2-102519DL	M_8PFOS	PFOS	**174**
AOI3-2-SB-1.5-2-102519DL	M_2 6:2 FTS	6:2 FTS	**651**
AOI3-2-SB-1.5-2-102519DL1	M_8PFOS	PFOS	**180**
AOI3-2-SB-1.5-2-102519DDL	M_2 6:2 FTS	6:2 FTS	**525**
AOI3-2-SB-1.5-2-102519DDL1	M_8PFOS	PFOS	**229**
AOI3-2-SB-1.5-2-102519-D	M_9PFNA	PFNA, PFNS	**14**
JFTBLA-EB-HA-102519	M_2PFTeDA	PFTeDA, PFTrDA	**39**
AOI3-3-SB-1.5-2-102519	M_2 6:2 FTS	6:2 FTS	**1540**
AOI3-6-SB-1.5-2-102519RE			**196**
AOI3-4-SB-1.5-2-102519DL			**190**
	M_2 8:2 FTS	8:2 FTS	**377**
	M_8PFOS	PFOS	**230**
AOI3-4-SB-1.5-2-102519-DDL	M_2 6:2 FTS	6:2 FTS	**178**
	M_2 8:2 FTS	8:2 FTS	**175**
AOI4-1-SB-5.5-6-102519	M_2PFTeDA	PFTeDA, PFTrDA	**32**
AOI2-4-SB-4.5-5-102519DL	M_8PFOA	PFOA, PFHpS	**164**
AOI8-X3-1-102919	M_2PFTeDA	PFTeDA, PFTrDA	**10**
	MPFDoA	PFDoA	**33**
AOI8-X3-1-102919-D	M_2PFTeDA	PFTeDA, PFTrDA	**27**
AOI8-X3-1-102919-DDL	M_2 6:2 FTS	6:2 FTS	**168**
AOI8-5-SW-102919	M_2PFTeDA	PFTeDA, PFTrDA	**11**
	MPFDoA	PFDoA	**36**
AOI8-5-SW-102919-MS	M_2PFTeDA	PFTeDA, PFTrDA	**32**
AOI8-5-SW-102919-MSD			**36**
AOI8-6-SW-102919-MS	M_2 8:2 FTS	8:2 FTS	**42**
	M_2PFTeDA	PFTeDA, PFTrDA	**0.80**
	M_7PFUdA	PFUdA	**38**
	M_8FOSA	FOSA	**39**
	MPFDoA	PFDoA	**15**
	d5-NEtFOSAA	NEtFOSAA	**36**
AOI8-7-SW-102919	M_2PFTeDA	PFTeDA, PFTrDA	**31**
AOI8-7-SW-102919-D			**22**
	MPFDoA	PFDoA	**43**
	d5-NEtFOSAA	NEtFOSAA	**45**
AOI8-4-SW-102919	M_2PFTeDA	PFTeDA, PFTrDA	**32**
	MPFDoA	PFDoA	**42**
AOI8-3-SW-102919	M_2 8:2 FTS	8:2 FTS	**44**
	M_2PFTeDA	PFTeDA, PFTrDA	**6**
	M_7PFUdA	PFUdA	**47**
	MPFDoA	PFDoA	**23**
	d5-NEtFOSAA	NEtFOSAA	**44**
AOI5-N19-3-102919	M_2PFTeDA	PFTeDA, PFTrDA	**36**
AOI5-N19-3-102919DL	M_2 6:2 FTS	6:2 FTS	**322**
AOI5-N19-3-102919D	M_2PFTeDA	PFTeDA, PFTrDA	**31**

Field Sample	EIS	Associated Target Compound(s)	Area Count (%)
AOI5-N19-3-102919DDL	M_2 6:2 FTS	6:2 FTS	**340**
MB1975549	M_2PFTeDA	PFTeDA, PFTrDA	**28**
LCS1975550			**30**
LCSD1975551			**17**
LCSD1976212			**40**
LCSD1976212			**40**
LCSD1976212			**40**

Non-detect field sample results associated with EIS recoveries less than 10% were initially flagged "X,i", but should be considered for inclusion in the data set since PFAS compounds are quantitated based on a normalized 100% internal standard percent recovery for this method and in matrix spike pairs (MS/MSD) with low area counts and the target compounds were shown to be able to be recovered. The positive field sample results associated with low internal standard area counts were qualified J+,i, while non-detects were qualified UJ,i. The positive field sample results associated with high internal standard area counts were qualified J-,i. Several field samples were re-extracted outside holding time due to internal standard failures in the initial extraction with similar results.

Minor Anomalies: The following blanks displayed concentrations greater than the detection limit:

Prep Batch	Sample ID	Analyte	Concentration	Units
670675	JFTBLA-FRB-102119	6:2 FTS	8.60	ng/L
		PFOS	3.08	
	JFTBLA-EB-HA-102119	6:2 FTS	9.01	
		PFOS	2.39	
669972	JFTBLA-EB-PW-102219	6:2 FTS	8.60	
		PFHxS	1.91	
		PFOS	4.62	
		PFOA	2.54	
670127	JFTBLA-EB-B-102319	6:2 FTS	2.11	
670182	JFTBLA-EB-HA-102519	6:2 FTS	1.89	
		PFHxA	2.13	
		PFHxS	3.14	
		PFOA	3.22	
		PFOS	10	
671184	JFTBLA-EB-102919	PFOS	1.76	
670213	MB1976210	6:2 FTS	4.83	
		PFHxA	1.96	
		PFOS	2.28	
670180	MB219102717	PFOS	2.28	
		6:2 FTS	4.83	
		PFHxA	1.96	
670675	MB219102326	6:2 FTS	6.30	

The positive associated field sample results less than five times the concentration found in the blanks were qualified "U", with associated reason codes applied depending on which blank required qualification of the result: "bl" for method blank detection, "be" for equipment blank detection, and "bf" for field blank detection. When appropriate, the quantitation limits were elevated to the concentrations detected. The following laboratory

control spike pairs (LCS/LCSD) displayed percent recoveries greater than the laboratory QC limit of 130%:

Prep Batch	Analyte	LCS Recovery (%)	LCSD Recovery (%)
669969	NMeFOSAA	**135**	**-**
669972	8:2 FTS	127	**134**
	NMeFOSAA	105	**134**
	PFOS	129	**146**
	PFTrDA	114	**150**
670959	NEtFOSAA	108	**135**
670389	PFTrDA	**134**	**167**
671184		96	**178**

The positive associated field sample results associated with a positive bias were qualified J+,l unless previously qualified due to blank contamination. The field sample results associated with the high bias for NMeFOSAA, NEtFOSAA, and PFTrDA were non-detect; no further data qualifying action was required. In addition, several LCS/LCSD displayed relative percent differences (RPD) greater than the control limit of 30%. The associated field sample results were either non-detect or previously qualified due to a percent recovery anomaly. The following matrix spike pairs (MS/MSD) displayed percent recoveries outside the laboratory QC limits of 70%-130%:

Prep Batch	Parent Sample	Analyte	MS Recovery (%)	MSD Recovery (%)
670458	AOI-8-5-SW-102919	6:2 FTS	73	**20**
		PFOS	**142**	95
670458	AOI-8-6-SW-102919	6:2 FTS	113	**56**
		PFOS	**131**	115
		PFTrDA	**478**	130
669969	AOI6-2-SB-1.5-2-102219	PFHpA	119	**155**
		PFOA	**145**	**146**
	AOI6-3-SB-1.5-2-102219	PFTrDA	114	**204**

The positive parent sample results associated with the positive biases were qualified J+,m. The parent sample results associated with the negative biases were positive and were qualified J-,m, while non-detects were qualified UJ,m. The initial results were recommended for data use. The field duplicate pair performed on parent sample AOI1-5-SB-4.5-5-102319 and AOI2-2-SB-4.5-5-102319 displayed RPD greater than the upper QC limit of 50% for PFPeA at 61.4% and PFHxS at 65.5%, respectively. The positive associated field sample and field duplicate results were qualified J,f.

The holding time for pH analysis is 'immediate', all field samples analyzed for pH were qualified J,h.

Correctable Anomalies: None.

Comments: On the basis of this evaluation, the laboratory appears to have followed the specified method, with the exception of anomalies discussed previously. All data are usable, as qualified, for their intended purposed based on the quality control data reviewed.

Signed: Devon Chicoine

Devon Chicoine

Los Alamitos

Laboratory: Gulf Coast Analytical Laboratories

SDG: 219091838, 219102326, 219102333, 219102541, 219102613, 219102717, 218103085

Job: 60552172

Field Sample ID	Field Samplet ID	Field Sample Type	Field Sample Date	Matrix	PFAS - Method 537M	EPA 9060A	EPA 9045D
21909183801	JFTBLA-Decon-091719	Decon Water	9/17/2019	Aqueous	X		
21909183802	JFTBLA-DW-FieldBlank-091719	Field Blank	9/17/2019	Aqueous	X		
21910232601	JFTBLA-EB-PW-102219	Equipment Blank	10/22/2019	Aqueous	X		
21910232602	AOI6-1-SB-1.5-2-102219	Field Sample	10/22/2019	Solid	X	X	X
21910232605	AOI6-1-SB-7-7.5-102219	Field Sample	10/22/2019	Solid	X	X	X
21910232606	AOI6-1-SB-18.5-19-102219	Field Sample	10/22/2019	Solid	X	X	X
21910232607	AOI6-1-GW-102219	Field Sample	10/22/2019	Aqueous	X		
21910232608	AOI6-3-SB-1.5-2-102219	Field Sample	10/22/2019	Solid	X	X	X
21910232611	AOI6-2-SB-1.5-2-102219	Field Sample	10/22/2019	Solid	X	X	X
21910232614	AOI6-4-SB-1.5-2-102219	Field Sample	10/22/2019	Solid	X	X	X
21910232617	AOI5-1-SB-1.5-2-102219	Field Sample	10/22/2019	Solid	X	X	X
21910232618	AOI5-1-SB-1.5-2-102219-D	Field Duplicate	10/22/2019	Solid	X	X	X
21910232619	AOI5-1-SB-8-8.5-102219	Field Sample	10/22/2019	Solid	X	X	X
21910232620	AOI5-1-SB-19-19.5-102219	Field Sample	10/22/2019	Solid	X	X	X
21910232621	AOI5-1-GW-102219	Field Duplicate	10/22/2019	Aqueous	X		
21910232622	AOI1-3-SB-4.5-5-102219	Field Sample	10/22/2019	Solid	X	X	X
21910232623	AOI1-3-SB-9.5-10-102219	Field Sample	10/22/2019	Solid	X	X	X
21910232624	AOI1-3-SB-16-16.5-102219	Field Sample	10/22/2019	Solid	X	X	X
21910232625	AOI1-1-SB-4.5-5-102219	Field Sample	10/22/2019	Solid	X	X	X
21910232626	AOI1-3-GW-102219	Field Sample	10/22/2019	Aqueous	X		
21910232627	AOI1-1-SB-10-10.5-102219	Field Sample	10/22/2019	Solid	X	X	X
21910232628	AOI1-1-SB-17-17.5-102219	Field Sample	10/22/2019	Solid	X	X	X
21910232629	AOI1-1-GW-102219	Field Sample	10/22/2019	Aqueous	X		
21910232630	JFTBLA-EB-PW-102219 (RE)	Equipment Blank	10/22/2019	Aqueous	X		
21910232631	AOI6-1-GW-102219 (RE)	Field Sample	10/22/2019	Aqueous	X		
21910232632	AOI5-1-GW-102219 (RE)	Field Sample	10/22/2019	Aqueous	X		
21910232633	AOI1-3-GW-102219 (RE)	Field Sample	10/22/2019	Aqueous	X		
21910232634	AOI1-1-GW-102219 (RE)	Field Sample	10/22/2019	Aqueous	X		
21910232635	AOI6-3-SB-1.5-2-102219 (RE)	Field Sample	10/22/2019	Solid	X	X	X
21910233301	AOI7-10-SB-1.5-2-102119	Field Sample	10/21/2019	Solid	X	X	X
21910233302	AOI7-10-SB-7.5-8-102119	Field Sample	10/21/2019	Solid	X	X	X
21910233303	AOI7-5-SB-1.5-2-102119	Field Sample	10/21/2019	Solid	X	X	X
21910233304	AOI7-10-SB-17-17.5-102119	Field Sample	10/21/2019	Solid	X	X	X
21910233305	JFTBLA-EB-HA-102119	Equipment Blank	10/21/2019	Aqueous	X		
21910233306	AOI7-6-SB-1.5-2-102119	Field Sample	10/21/2019	Solid	X	X	X
21910233307	AOI7-7-SB-1.5-2-102119	Field Sample	10/21/2019	Solid	X	X	X
21910233308	AOI7-10-GW-102119	Field Sample	10/21/2019	Aqueous	X		
21910233309	AOI7-11-SB-1.5-2-102119	Field Sample	10/21/2019	Solid	X	X	X
21910233310	AOI7-11-SB-7.5-8-102119	Field Sample	10/21/2019	Solid	X	X	X
21910233311	AOI7-8-SB-1.5-2-102119	Field Sample	10/21/2019	Solid	X	X	X
21910233312	AOI7-11-SB-18-18.5-102119	Field Sample	10/21/2019	Solid	X	X	X
21910233313	AOI7-9-SB-1.5-2-102119	Field Sample	10/21/2019	Solid	X	X	X
21910233314	AOI7-7-11-GW-102119	Field Sample	10/21/2019	Aqueous	X		
21910233315	AOI7-9-SB-7.5-8-102119	Field Sample	10/21/2019	Solid	X	X	X
21910233316	JFTBLA-FRB-102119	Field Rinse Blank	10/21/2019	Aqueous	X		
21910233317	AOI7-1-SB-1.5-2-102119	Field Sample	10/21/2019	Solid	X	X	X
21910233318	AOI7-9-SB-17-17.5-102119	Field Sample	10/21/2019	Solid	X	X	X
21910233319	AOI7-2-SB-1.5-2-102119	Field Sample	10/21/2019	Solid	X	X	X

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Laboratory: Gulf Coast Analytical Laboratories

SDG: 219091838, 219102326, 219102333, 219102541, 219102613, 219102717, 218103085

Job: 60552172

Field Sample ID	Field Samplet ID	Field Sample Type	Field Sample Date	Matrix	PFAS - Method 537M	EPA 9060A	EPA 9045D
21910233320	AOI7-3-SB-1.5-2-102119	Field Sample	10/21/2019	Solid	X	X	X
21910233321	AOI7-9-GW-102119	Field Sample	10/21/2019	Aqueous	X		
21910233322	AOI7-4-1.5-2-102119	Field Sample	10/21/2019	Solid	X	X	X
21910233323	JFTBLA-EB-HA-102119 (RE)	Equipment Blank	10/21/2019	Aqueous	X		
21910233324	AOI7-10-GW-102119 (RE)	Field Sample	10/21/2019	Aqueous	X		
21910233325	AOI7-7-11-GW-102119 (RE)	Field Sample	10/21/2019	Aqueous	X		
21910233326	AOI7-9-GW-102119 (RE)	Field Blank	10/21/2019	Aqueous	X		
21910233327	AOI7-10-SB-7.5-8-102119 (RE)	Field Blank	10/21/2019	Solid	X		
21910233328	AOI7-5-SB-1.5-2-102119 (RE)	Field Blank	10/21/2019	Solid	X		
21910233329	AOI7-7-SB-1.5-2-102119 (RE)	Field Blank	10/21/2019	Solid	X		
21910233330	AOI7-11-SB-18-18.5-102119 (RE)	Field Sample	10/21/2019	Solid	X		
21910233331	AOI7-9-SB-17-17.5-102119 (RE)	Field Sample	10/21/2019	Solid	X		
21910254101	AOI1-5-SB-4.5-5-102319	Field Sample	10/23/2019	Solid	X	X	X
21910254102	AOI1-5-SB-4.5-5-102319-D	Field Duplicate	10/23/2019	Solid	X	X	X
21910254103	AOI1-4-SB-4.5-5-102319-D	Field Duplicate	10/23/2019	Solid	X	X	X
21910254104	AOI1-4-SB-4.5-5-102319	Field Sample	10/23/2019	Solid	X	X	X
21910254105	JFTBLA-EB-B-102319	Equipment Blank	10/23/2019	Aqueous	X		
21910254106	JFTBLA-EB-HA-02319	Equipment Blank	10/23/2019	Aqueous	X		
21910254107	AOI1-6-SB-4.5-5-102319	Field Sample	10/23/2019	Solid	X	X	X
21910254108	JFTBLA-EB-WM-102319	Equipment Blank	10/23/2019	Aqueous	X		
21910254109	AOI1-5-SB-7-7.5-102319	Field Sample	10/23/2019	Solid	X	X	X
21910254110	AOI1-5-SB-17.5-18-102319	Field Sample	10/23/2019	Solid	X	X	X
21910254111	AOI1-5-GW-102319	Field Sample	10/23/2019	Aqueous	X		
21910254112	AOI1-SA-GW-102319	Field Sample	10/23/2019	Aqueous	X		
21910254113	AOI1-6-SB-9-9.5-102319	Field Sample	10/23/2019	Solid	X	X	X
21910254114	AOI1-6-SB-12.5-13-102319	Field Sample	10/23/2019	Solid	X	X	X
21910254115	AOI1-6-GW-102319	Field Sample	10/23/2019	Aqueous	X		
21910254116	AOI1-4-SB-9.5-10-102319	Field Sample	10/23/2019	Solid	X	X	X
21910254117	AOI1-4-GW-102319	Field Sample	10/23/2019	Aqueous	X		
21910254118	AOI1-2-SB-4.5-5-102319	Field Sample	10/23/2019	Solid	X	X	X
21910254119	AOI1-2-SB-9.5-10-102319	Field Sample	10/23/2019	Solid	X	X	X
21910254120	AOI1-2-SB-12.5-13-102319	Field Sample	10/23/2019	Solid	X	X	X
21910254121	AOI1-2-GW-102319	Field Sample	10/23/2019	Aqueous			
21910254122	AOI2-3-SB-4.5-5-102319	Field Sample	10/23/2019	Solid	X	X	X
21910254123	AOI2-3-SB-4.5-5-102319-D	Field Duplicate	10/23/2019	Solid	X	X	X
21910254124	AOI2-2-SB-4.5-5-102319	Field Sample	10/23/2019	Solid	X	X	X
21910254125	AOI2-2-SB-4.5-5-102319-D	Field Duplicate	10/23/2019	Solid	X	X	X
21910254127	AOI1-6-SB-4.5-5-102319 (RE)	Field Sample	10/23/2019	Solid	X	X	X
21910254128	AOI1-2-SB-12.5-13-102319 (RE)	Field Sample	10/23/2019	Solid	X	X	X
21910261301	AOI3-8-SB-1.5-2-102419	Field Sample	10/24/2019	Solid	X	X	X
21910261302	AOI3-8-SB-1.5-2-102419-D	Field Duplicate	10/24/2019	Solid	X	X	X
21910261303	AOI3-8-SB-9-9.5-102419	Field Sample	10/24/2019	Solid	X	X	X
21910261304	AOI3-8-SB-13-13.5-102419	Field Sample	10/24/2019	Solid	X	X	X
21910261305	AOI3-11-SB-1.5-2-102419	Field Sample	10/24/2019	Solid	X	X	X
21910261306	AOI3-11-SB-8.5-9-102419	Field Sample	10/24/2019	Solid	X	X	X
21910261307	AOI3-11-SB-11-11.5-102419	Field Sample	10/24/2019	Solid	X	X	X
21910261308	AOI3-12-SB-1.5-2-102419	Field Sample	10/24/2019	Solid	X	X	X
21910261309	AOI3-12-SB-7-7.5-102419	Field Sample	10/24/2019	Solid	X	X	X
21910261310	AOI3-12-SB-19-19.5-102419	Field Sample	10/24/2019	Solid	X	X	X

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Laboratory: Gulf Coast Analytical Laboratories

SDG: 219091838, 219102326, 219102333, 219102541, 219102613, 219102717, 218103085

Job: 60552172

Field Sample ID	Field Samplet ID	Field Sample Type	Field Sample Date	Matrix	PFAS - Method 537M	EPA 9060A	EPA 9045D
21910261311	AOI3-8-GW-102419	Field Sample	10/24/2019	Aqueous	X		
21910261312	AOI3-9-SB-1.5-2-102419	Field Sample	10/24/2019	Solid	X	X	X
21910261313	AOI3-11-GW-102419	Field Sample	10/24/2019	Aqueous	X		
21910261314	AOI3-9-SB-8.5-9-102419	Field Sample	10/24/2019	Solid	X	X	X
21910261315	AOI3-9-SB-14-14.5-102419	Field Sample	10/24/2019	Solid	X	X	X
21910261316	AOI3-12-GW-102419	Field Sample	10/24/2019	Aqueous	X		
21910261317	AOI3-10-SB-1.5-2-102419	Field Sample	10/24/2019	Solid	X	X	X
21910261318	AOI3-10-SB-10.5-11-102419	Field Sample	10/24/2019	Solid	X	X	X
21910261319	AOI3-9-GW-102419	Field Sample	10/24/2019	Aqueous	X		
21910261320	AOI3-10-GW-102419	Field Sample	10/24/2019	Aqueous	X		
21910261321	AOI3-11-SB-11-11.5-102419 (RE)	Field Sample	10/24/2019	Solid	X	X	X
21910271701	AOI3-1-SB-1.5-2-102519	Field Sample	10/25/2019	Solid	X	X	X
21910271702	AOI3-2-SB-1.5-2-102519	Field Sample	10/25/2019	Solid	X	X	X
21910271703	AOI3-2-SB-1.5-2-102519-D	Field Duplicate	10/25/2019	Solid	X	X	X
21910271704	JFTBLA-EB-HA-102519	Equipment Blank	10/25/2019	Aqueous	X		
21910271705	AOI3-5-SB-1.5-2-102519	Field Sample	10/25/2019	Solid	X	X	X
21910271706	AOI3-3-SB-1.5-2-102519	Field Sample	10/25/2019	Solid	X	X	X
21910271707	AOI3-6-SB-1.5-2-102519	Field Sample	10/25/2019	Solid	X	X	X
21910271708	AOI3-4-SB-1.5-2-102519	Field Sample	10/25/2019	Solid	X	X	X
21910271709	AOI3-4-SB-1.5-2-102519-D	Field Duplicate	10/25/2019	Solid	X	X	X
21910271710	AOI4-1-SB-0-0.5-102519	Field Sample	10/25/2019	Solid	X	X	X
21910271711	AOI4-1-SB-5.5-6-102519	Field Sample	10/25/2019	Solid	X	X	X
21910271712	AOI4-1-SB-9.5-10-102519	Field Sample	10/25/2019	Solid	X	X	X
21910271713	AOI4-1-GW-102519	Field Sample	10/25/2019	Aqueous	X		
21910271714	AOI3-7-SB-1.5-2-102519	Field Sample	10/25/2019	Solid	X	X	X
21910271715	AOI3-7-SB-1.5-2-102519-D	Field Duplicate	10/25/2019	Solid	X	X	X
21910271716	AOI2-5-SB-4.5-5-102519	Field Sample	10/25/2019	Solid	X	X	X
21910271717	AOI2-5-SB-9.5-10-102519	Field Sample	10/25/2019	Solid	X	X	X
21910271718	AOI2-5-SB-13-13.5-102519	Field Sample	10/25/2019	Solid	X	X	X
21910271719	AOI2-5-GW-102519	Field Sample	10/25/2019	Aqueous	X		
21910271720	AOI2-4-SB-4.5-5-102519	Field Sample	10/25/2019	Solid	X	X	X
21910271721	AOI2-1-SB-4.5-5-102519	Field Sample	10/25/2019	Solid	X	X	X
21910271722	JFTBLA-EB-HA-102519 (RE)	Equipment Blank	10/25/2019	Aqueous	X		
21910271723	AOI4-1-SB-5.5-6-102519 (RE)	Field Sample	10/25/2019	Solid	X	X	X
21910308501	AOI 8-X3-1-102919	Field Sample	10/29/2019	Aqueous	X		
21910308502	AOI 8-X3-1-102919-D	Field Duplicate	10/29/2019	Aqueous	X		
21910308503	AOI 8-5-SW-102919	Field Sample	10/29/2019	Aqueous	X		
21910308506	AOI 8-6-SW-102919	Field Sample	10/29/2019	Aqueous	X		
21910308509	AOI 8-7-SW-102919	Field Sample	10/29/2019	Aqueous	X		
21910308510	AOI 8-7-SW-102919-D	Field Duplicate	10/29/2019	Aqueous	X		
21910308511	AOI 8-4-SW-102919	Field Sample	10/29/2019	Aqueous	X		
21910308512	AOI 8-3-SW-102919	Field Sample	10/29/2019	Aqueous	X		
21910308513	AOI 8-2-SB-0-0.5-102919	Field Sample	10/29/2019	Solid	X	X	X
21910308514	AOI 8-1-SB-0-0.5-102919	Field Sample	10/29/2019	Solid	X	X	X
21910308515	AOI 5-N19-3-102919	Field Sample	10/29/2019	Aqueous	X		
21910308516	AOI 5-N19-3-102919-D	Field Duplicate	10/29/2019	Aqueous	X		
21910308517	JFTBLA-EB-102919	Equipment Blank	10/29/2019	Aqueous	X		
21910308518	AOI 8-X3-1-102919 (RE)	Field Sample	10/29/2019	Aqueous	X		
21910308519	AOI 8-5-SW-102919 (RE)	Field Sample	10/29/2019	Aqueous	X		

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Laboratory: Gulf Coast Analytical Laboratories

SDG: 219091838, 219102326, 219102333, 219102541, 219102613, 219102717, 218103085

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Field Sample ID	Field Samplet ID	Field Sample Type	Field Sample Date	Matrix	PFAS - Method 537M	EPA 9060A	EPA 9045D
21910308522	AOI 8-6-SW-102919 (RE)	Field Sample	10/29/2019	Aqueous	X		
21910308525	AOI 8-7-SW-102919-D (RE)	Field Duplicate	10/29/2019	Aqueous	X		
21910308526	AOI 8-4-SW-102919 (RE)	Field Sample	10/29/2019	Aqueous	X		
21910308527	AOI 8-3-SW-102919 (RE)	Field Sample	10/29/2019	Aqueous	X		
21910308528	AOI 5-N19-3-102919 (RE)	Field Sample	10/29/2019	Aqueous	X		
21910308529	AOI 5-N19-3-102919-D (RE)	Field Duplicate	10/29/2019	Aqueous	X		

Los Alamitos
Field Duplicates

Client Sample ID:				AOI5-1-SB-1.5-2-102219		AOI5-1-SB-1.5-2-102219-D					
Date Sampled:				10/22/19		10/22/19					
	Units	LOQ	5x LOQ	Sample Conc		Duplicate Conc		% RPD	Delta	4x LOQ	Pass/ Fail
Perfluorinated Alkyl Substances											
PFOS	ug/kg	11.4	57.0	252		352		**33.1%**	100	45.6	Pass
PFOA	ug/kg	11.4	57.0	112		134		**17.9%**	22	45.6	Pass
PFUnDA	ug/kg	1.14	5.7	0.456	U	0.454	U	0.4%	**0.0020**	4.56	Pass
NMeFOSAA	ug/kg	1.14	5.7	0.456	U	0.454	U	0.4%	**0.0020**	4.56	Pass
PFPeA	ug/kg	1.14	5.7	4.05		5.49		30.2%	**1.44**	4.56	Pass
6:2 FTS	ug/kg	1.14	5.7	1.08	J	1.41		26.5%	**0.33**	4.56	Pass
NEtFOSAA	ug/kg	1.14	5.7	0.456	U	0.454	U	0.4%	**0.0020**	4.56	Pass
PFHxA	ug/kg	1.14	5.7	4.22		5.45		25.4%	**1.23**	4.56	Pass
PFDoA	ug/kg	1.14	5.7	0.456	U	0.454	U	0.4%	**0.0020**	4.56	Pass
PFDA	ug/kg	1.14	5.7	0.967	J	1.47		41.3%	**0.503**	4.56	Pass
PFHxS	ug/kg	1.14	5.7	23.6		32		**30.2%**	8.4	4.56	Pass
PFBA	ug/kg	1.14	5.7	1.66		2.22		28.9%	**0.56**	4.56	Pass
PFBS	ug/kg	1.14	5.7	0.55	J	0.772	J	33.6%	**0.222**	4.56	Pass
PFHpA	ug/kg	1.14	5.7	4.57		5.4		16.6%	**0.83**	4.56	Pass
PFNA	ug/kg	1.14	5.7	2.2		2.73		21.5%	**0.53**	4.56	Pass
PFTeDA	ug/kg	1.14	5.7	0.456	U	0.454	U	0.4%	**0.0020**	4.56	Pass
8:2 FTS	ug/kg	1.14	5.7	1.05	J	1.41		29.3%	**0.36**	4.56	Pass
PFTrDA	ug/kg	1.14	5.7	0.456	U	0.454	U	0.4%	**0.0020**	4.56	Pass
Wet Chemistry											
TOC	mg/kg	250	1250	3220		2290		**33.8%**	930	1000	Pass

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

Los Alamitos
Field Duplicates

Client Sample ID:				AOI1-5-SB-4.5-5-102319		AOI1-5-SB-4.5-5-102319-D					
Date Sampled:				10/23/19		10/23/19					
	Units	LOQ	5x LOQ	Sample Conc		Duplicate Conc		% RPD	Delta	4x LOQ	Pass/ Fail
Perfluorinated Alkyl Substances											
PFOA	ug/kg	76.5	383	1010		1040		**2.9%**	30	306	Pass
PFOS	ug/kg	1.53	7.65	1.69		1.88		10.6%	**0.19**	6.12	Pass
PFUnDA	ug/kg	1.53	7.65	0.592	U	0.612	U	3.3%	**0.020**	6.12	Pass
NMeFOSAA	ug/kg	1.53	7.65	0.592	U	0.612	U	3.3%	**0.020**	6.12	Pass
PFPeA	ug/kg	1.53	7.65	7.74		14.6		**61.4%**	6.86	6.12	**Fail**
6:2 FTS	ug/kg	1.53	7.65	0.592	U	0.612	U	3.3%	**0.020**	6.12	Pass
NEtFOSAA	ug/kg	1.53	7.65	0.592	U	0.612	U	3.3%	**0.020**	6.12	Pass
PFHxA	ug/kg	1.53	7.65	27.8		39.4		**34.5%**	11.6	6.12	Pass
PFDoA	ug/kg	1.53	7.65	0.592	U	0.612	U	3.3%	**0.020**	6.12	Pass
PFDA	ug/kg	1.53	7.65	0.592	U	0.612	U	3.3%	**0.020**	6.12	Pass
PFHxS	ug/kg	1.53	7.65	18.6		19.5		**4.7%**	0.90	6.12	Pass
PFBA	ug/kg	1.53	7.65	1.96		3.93		66.9%	**1.97**	6.12	Pass
PFBS	ug/kg	1.53	7.65	0.601	J	0.956	J	45.6%	**0.355**	6.12	Pass
PFHpA	ug/kg	1.53	7.65	16.8		18.4		**9.1%**	1.6	6.12	Pass
PFNA	ug/kg	1.53	7.65	0.592	U	0.612	U	3.3%	**0.020**	6.12	Pass
PFTeDA	ug/kg	1.53	7.65	0.592	U	0.612	U	3.3%	**0.020**	6.12	Pass
8:2 FTS	ug/kg	1.53	7.65	0.592	U	0.612	U	3.3%	**0.020**	6.12	Pass
PFTrDA	ug/kg	1.53	7.65	0.592	U	0.612	U	3.3%	**0.020**	6.12	Pass
Wet Chemistry											
TOC	mg/kg	250	1250	1450		1610		**10.5%**	160	1000	Pass

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

Los Alamitos
Field Duplicates

Client Sample ID:				AOI1-4-SB-4.5-5-102319		AOI1-4-SB-4.5-5-102319-D					
Date Sampled:				6/18/19		6/18/19					
	Units	LOQ	5x LOQ	Sample Conc		Duplicate Conc		% RPD	Delta	4x LOQ	Pass/ Fail
Perfluorinated Alkyl Substances											
PFOA	ug/kg	6.15	30.8	109		123		**12.1%**	14	24.6	Pass
PFOS	ug/kg	1.23	6.2	12.0		13.7		**13.2%**	1.7	4.92	Pass
PFUnDA	ug/kg	1.23	6.2	0.401	U	0.492	U	20.4%	**0.091**	4.92	Pass
NMeFOSAA	ug/kg	1.23	6.2	0.401	U	0.492	U	20.4%	**0.091**	4.92	Pass
PFPeA	ug/kg	1.23	6.2	0.809	J	0.787	J	2.8%	**0.022**	4.92	Pass
6:2 FTS	ug/kg	1.23	6.2	0.401	U	0.492	U	20.4%	**0.091**	4.92	Pass
NEtFOSAA	ug/kg	1.23	6.2	0.401	U	0.492	U	20.4%	**0.091**	4.92	Pass
PFHxA	ug/kg	1.23	6.2	3.78		3.99		5.4%	**0.21**	4.92	Pass
PFDoA	ug/kg	1.23	6.2	0.401	U	0.492	U	20.4%	**0.091**	4.92	Pass
PFDA	ug/kg	1.23	6.2	0.224	J	0.231	J	3.1%	**0.007**	4.92	Pass
PFHxS	ug/kg	1.23	6.2	4.25		4.44		4.4%	**0.190**	4.92	Pass
PFBA	ug/kg	1.23	6.2	0.200	J	0.199	J	0.5%	**0.0010**	4.92	Pass
PFBS	ug/kg	1.23	6.2	0.169	J	0.173	J	2.3%	**0.0040**	4.92	Pass
PFHpA	ug/kg	1.23	6.2	2.62		2.87		9.1%	**0.25**	4.92	Pass
PFNA	ug/kg	1.23	6.2	0.401	U	0.492	U	20.4%	**0.091**	4.92	Pass
PFTeDA	ug/kg	1.23	6.2	0.401	U	0.492	U	20.4%	**0.091**	4.92	Pass
8:2 FTS	ug/kg	1.23	6.2	0.401	U	0.492	U	20.4%	**0.091**	4.92	Pass
PFTrDA	ug/kg	1.23	6.2	0.401	U	0.492	U	20.4%	**0.091**	4.92	Pass
Wet Chemistry											
TOC	mg/kg	250	1250	260		438		51.0%	**178**	1000	Pass

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

Los Alamitos
Field Duplicates

Client Sample ID:				AOI2-3-SB-4.5-5-102319		AOI2-3-SB-4.5-5-102319-D					
Date Sampled:				10/23/19		10/23/19					
	Units	LOQ	5x LOQ	Sample Conc		Duplicate Conc		% RPD	Delta	4x LOQ	Pass/ Fail
Perfluorinated Alkyl Substances											
PFHxA	ug/kg	5.55	27.8	73.9		69.9		**5.6%**	4.00	22.2	Pass
PFHxS	ug/kg	5.55	27.8	132		147		**10.8%**	15	22.2	Pass
PFOS	ug/kg	1.11	5.6	25.6		26.1		**1.9%**	0.50	4.44	Pass
PFUnDA	ug/kg	1.11	5.6	0.429	U	0.444	U	3.4%	**0.015**	4.44	Pass
NMeFOSAA	ug/kg	1.11	5.6	0.429	U	0.444	U	3.4%	**0.015**	4.44	Pass
PFPeA	ug/kg	1.11	5.6	27.7		28.2		**1.8%**	0.50	4.44	Pass
6:2 FTS	ug/kg	1.11	5.6	0.495	J	0.487	J	1.6%	**0.0080**	4.44	Pass
NEtFOSAA	ug/kg	1.11	5.6	0.429	U	0.444	U	3.4%	**0.015**	4.44	Pass
PFDoA	ug/kg	1.11	5.6	0.429	U	0.444	U	3.4%	**0.015**	4.44	Pass
PFOA	ug/kg	1.11	5.6	2.45		2.86		15.4%	**0.41**	4.44	Pass
PFDA	ug/kg	1.11	5.6	0.429	U	0.444	U	3.4%	**0.015**	4.44	Pass
PFBA	ug/kg	1.11	5.6	9.99		9.89		**1.0%**	0.10	4.44	Pass
PFBS	ug/kg	1.11	5.6	32.4		32.9		**1.5%**	0.50	4.44	Pass
PFHpA	ug/kg	1.11	5.6	6.88		7.59		**9.8%**	0.71	4.44	Pass
PFNA	ug/kg	1.11	5.6	0.429	U	0.444	U	3.4%	**0.015**	4.44	Pass
PFTeDA	ug/kg	1.11	5.6	0.429	U	0.444	U	3.4%	**0.015**	4.44	Pass
8:2 FTS	ug/kg	1.11	5.6	0.429	U	0.444	U	3.4%	**0.015**	4.44	Pass
PFTrDA	ug/kg	1.11	5.6	0.429	U	0.444	U	3.4%	**0.015**	4.44	Pass
Wet Chemistry											
TOC	mg/kg	1.29	6.5	2200		1610		**31.0%**	590	5.16	Pass

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

Los Alamitos
Field Duplicates

Client Sample ID:				AOI2-2-SB-4.5-5-102319		AOI2-2-SB-4.5-5-102319-D					
Date Sampled:				10/22/19		10/22/19					
	Units	LOQ	5x LOQ	Sample Conc		Duplicate Conc		% RPD	Delta	4x LOQ	Pass/ Fail
Perfluorinated Alkyl Substances											
PFHxS	ug/kg	5.61	28.1	54.7		108		**65.5%**	53.3	22.4	Fail
PFOS	ug/kg	56.1	280.5	904		1120		**21.3%**	216	224	Pass
PFUnDA	ug/kg	1.12	5.6	0.446	U	0.182	J	84.1%	**0.264**	4.48	Pass
NMeFOSAA	ug/kg	1.12	5.6	0.446	U	0.449	U	0.7%	**0.0030**	4.48	Pass
PFPeA	ug/kg	1.12	5.6	19.1		27.2		**35.0%**	8.1	4.48	Pass
6:2 FTS	ug/kg	1.12	5.6	12.2		17.4		**35.1%**	5.2	4.48	Pass
NEtFOSAA	ug/kg	1.12	5.6	0.446	U	0.247	J	57.4%	**0.199**	4.48	Pass
PFHxA	ug/kg	1.12	5.6	23.7		34.4		**36.8%**	10.7	4.48	Pass
PFDoA	ug/kg	1.12	5.6	0.446	U	0.449	U	0.7%	**0.0030**	4.48	Pass
PFOA	ug/kg	1.12	5.6	15.6		25.5		**48.2%**	9.9	4.48	Pass
PFDA	ug/kg	1.12	5.6	0.869	J	1.32		41.2%	**0.451**	4.48	Pass
PFBA	ug/kg	1.12	5.6	5.71		8.26		**36.5%**	2.55	4.48	Pass
PFBS	ug/kg	1.12	5.6	7.24		10.7		**38.6%**	3.46	4.48	Pass
PFHpA	ug/kg	1.12	5.6	8.73		12.3		**34.0%**	3.57	4.48	Pass
PFNA	ug/kg	1.12	5.6	2.06		3.24		44.5%	**1.18**	4.48	Pass
PFTeDA	ug/kg	1.12	5.6	0.446	U	0.449	U	0.7%	**0.0030**	4.48	Pass
8:2 FTS	ug/kg	1.12	5.6	21.8		32.7		**40.0%**	10.9	4.48	Pass
PFTrDA	ug/kg	1.12	5.6	0.446	U	0.449	U	0.7%	**0.0030**	4.48	Pass
Wet Chemistry											
TOC	mg/kg	250	1250	3200		3070		**4.1%**	130	1000	Pass

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

Los Alamitos
Field Duplicates

Client Sample ID:				AOI3-8-SB-1.5-2-102419		AOI3-8-SB-1.5-2-102419-D					
Date Sampled:				10/24/19		10/24/19					
	Units	LOQ	5x LOQ	Sample Conc		Duplicate Conc		% RPD	Delta	4x LOQ	Pass/ Fail
Perfluorinated Alkyl Substances											
PFOS	ug/kg	1.03	5.2	0.251	J	0.224	J	11.4%	**0.027**	4.12	Pass
PFUnDA	ug/kg	1.03	5.2	0.410	U	0.375	U	8.9%	**0.035**	4.12	Pass
NMeFOSAA	ug/kg	1.03	5.2	0.410	U	0.375	U	8.9%	**0.035**	4.12	Pass
PFPeA	ug/kg	1.03	5.2	0.410	U	0.375	U	8.9%	**0.035**	4.12	Pass
6:2 FTS	ug/kg	1.03	5.2	0.410	U	0.375	U	8.9%	**0.035**	4.12	Pass
NEtFOSAA	ug/kg	1.03	5.2	0.410	U	0.375	U	8.9%	**0.035**	4.12	Pass
PFHxA	ug/kg	1.03	5.2	0.410	U	0.375	U	8.9%	**0.035**	4.12	Pass
PFDoA	ug/kg	1.03	5.2	0.410	U	0.375	U	8.9%	**0.035**	4.12	Pass
PFOA	ug/kg	1.03	5.2	0.410	U	0.375	U	8.9%	**0.035**	4.12	Pass
PFDA	ug/kg	1.03	5.2	0.410	U	0.375	U	8.9%	**0.035**	4.12	Pass
PFHxS	ug/kg	1.03	5.2	0.410	U	0.375	U	8.9%	**0.035**	4.12	Pass
PFBA	ug/kg	1.03	5.2	0.410	U	0.375	U	8.9%	**0.035**	4.12	Pass
PFBS	ug/kg	1.03	5.2	0.410	U	0.375	U	8.9%	**0.035**	4.12	Pass
PFHpA	ug/kg	1.03	5.2	0.410	U	0.375	U	8.9%	**0.035**	4.12	Pass
PFNA	ug/kg	1.03	5.2	0.410	U	0.375	U	8.9%	**0.035**	4.12	Pass
PFTeDA	ug/kg	1.03	5.2	0.410	U	0.375	U	8.9%	**0.035**	4.12	Pass
8:2 FTS	ug/kg	1.03	5.2	0.410	U	0.375	U	8.9%	**0.035**	4.12	Pass
PFTrDA	ug/kg	1.03	5.2	0.410	U	0.375	U	8.9%	**0.035**	4.12	Pass
Wet Chemistry											
TOC	mg/kg	250	1250	9420		8880		**5.9%**	540	1000	Pass

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

Los Alamitos
Field Duplicates

Client Sample ID:				AOI3-2-SB-1.5-2-102519		AOI3-2-SB-1.5-2-102519-D					
Date Sampled:				10/25/19		10/25/19					
	Units	LOQ	5x LOQ	Sample Conc		Duplicate Conc		% RPD	Delta	4x LOQ	Pass/ Fail
Perfluorinated Alkyl Substances											
PFOS	ug/kg	1.03	5.2	0.251		0.224		11.4%	**0.027**	4.12	Pass
PFUnDA	ug/kg	1.03	5.2	0.41	U	0.375	U	8.9%	**0.035**	4.12	Pass
NMeFOSAA	ug/kg	1.03	5.2	0.41	U	0.375	U	8.9%	**0.035**	4.12	Pass
PFPeA	ug/kg	1.03	5.2	0.41	U	0.375	U	8.9%	**0.035**	4.12	Pass
6:2 FTS	ug/kg	1.03	5.2	0.41	J	0.375	U	8.9%	**0.035**	4.12	Pass
NEtFOSAA	ug/kg	1.03	5.2	0.41	U	0.375	U	8.9%	**0.035**	4.12	Pass
PFHxA	ug/kg	1.03	5.2	0.41	U	0.375	U	8.9%	**0.035**	4.12	Pass
PFDoA	ug/kg	1.03	5.2	0.41	U	0.375	U	8.9%	**0.035**	4.12	Pass
PFOA	ug/kg	1.03	5.2	0.41	U	0.375	U	8.9%	**0.035**	4.12	Pass
PFDA	ug/kg	1.03	5.2	0.41	U	0.375	U	8.9%	**0.035**	4.12	Pass
PFHxS	ug/kg	1.03	5.2	0.41	U	0.375	U	8.9%	**0.035**	4.12	Pass
PFBA	ug/kg	1.03	5.2	0.41	U	0.375	U	8.9%	**0.035**	4.12	Pass
PFBS	ug/kg	1.03	5.2	0.41	U	0.375	U	8.9%	**0.035**	4.12	Pass
PFHpA	ug/kg	1.03	5.2	0.41	U	0.375	U	8.9%	**0.035**	4.12	Pass
PFNA	ug/kg	1.03	5.2	0.41	U	0.375	U	8.9%	**0.035**	4.12	Pass
PFTeDA	ug/kg	1.03	5.2	0.41	U	0.375	U	8.9%	**0.035**	4.12	Pass
8:2 FTS	ug/kg	1.03	5.2	0.41	U	0.375	U	8.9%	**0.035**	4.12	Pass
PFTrDA	ug/kg	1.03	5.2	0.41	U	0.375	U	8.9%	**0.035**	4.12	Pass
Wet Chemistry											
TOC	mg/kg	1.1	5.5	9420		8880		**5.9%**	540	4.40	Pass

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

Los Alamitos
Field Duplicates

Client Sample ID:				AOI3-4-SB-1.5-2-102519		AOI3-4-SB-1.5-2-102519-D					
Date Sampled:				10/25/19		10/25/19					
	Units	LOQ	5x LOQ	Sample Conc		Duplicate Conc		% RPD	Delta	4x LOQ	Pass/ Fail
Perfluorinated Alkyl Substances											
PFUnDA	ug/kg	1.09	5.45	0.164	J	0.438	U	91.0%	**0.274**	4.36	Pass
NMeFOSAA	ug/kg	1.09	5.45	0.421	U	0.438	U	4.0%	**0.017**	4.36	Pass
PFPeA	ug/kg	1.09	5.45	4.58		3.06		39.8%	**1.52**	4.36	Pass
NEtFOSAA	ug/kg	1.09	5.45	0.421	U	0.438	U	4.0%	**0.017**	4.36	Pass
PFHxA	ug/kg	1.09	5.45	6.04		4.15		37.1%	**1.89**	4.36	Pass
PFDoA	ug/kg	1.09	5.45	0.421	U	0.438	U	4.0%	**0.017**	4.36	Pass
PFOA	ug/kg	1.09	5.45	4.44		2.87		43.0%	**1.57**	4.36	Pass
PFDA	ug/kg	1.09	5.45	4.31		2.66		47.3%	**1.65**	4.36	Pass
PFHxS	ug/kg	1.09	5.45	5.93		4.44		28.7%	**1.49**	4.36	Pass
PFBA	ug/kg	1.09	5.45	1.24		0.948	J	26.7%	**0.292**	4.36	Pass
PFBS	ug/kg	1.09	5.45	0.225	J	0.146	J	42.6%	**0.079**	4.36	Pass
PFHpA	ug/kg	1.09	5.45	1.16		0.806	J	36.0%	**0.354**	4.36	Pass
PFNA	ug/kg	1.09	5.45	1.44		0.983	J	37.7%	**0.457**	4.36	Pass
PFTeDA	ug/kg	1.09	5.45	0.421	U	0.438	U	4.0%	**0.017**	4.36	Pass
PFTrDA	ug/kg	1.09	5.45	0.421	U	0.438	U	4.0%	**0.017**	4.36	Pass
PFOS	ug/kg	52.6	263	508		372		**30.9%**	136	210	Pass
6:2 FTS	ug/kg	52.6	263	86.1		70.5		19.9%	**15.6**	210	Pass
8:2 FTS	ug/kg	52.6	263	84.9		100		16.3%	**15.1**	210	Pass
Wet Chemistry											
TOC	mg/kg	250	1250	2770		3080		**10.6%**	310	1000	Pass

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

Los Alamitos
Field Duplicates

Client Sample ID:				AOI3-7-SB-1.5-2-102519		AOI3-7-SB-1.5-2-102519-D					
Date Sampled:				10/25/19		10/25/19					
	Units	LOQ	5x LOQ	Sample Conc		Duplicate Conc		% RPD	Delta	4x LOQ	Pass/ Fail
Perfluorinated Alkyl Substances											
6:2 FTS	ug/kg	1.10	5.50	0.441	U	0.429	U	2.8%	**0.012**	4.40	Pass
8:2 FTS	ug/kg	1.10	5.50	0.441	U	0.014	J	187.7%	**0.43**	4.40	Pass
NEtFOSAA	ug/kg	1.10	5.50	0.441	U	0.429	U	2.8%	**0.012**	4.40	Pass
NMeFOSAA	ug/kg	1.10	5.50	0.441	U	0.429	U	2.8%	**0.012**	4.40	Pass
PFBA	ug/kg	1.10	5.50	0.028	J	0.019	J	38.3%	**0.0090**	4.40	Pass
PFBS	ug/kg	1.10	5.50	0.441	U	0.429	U	2.8%	**0.012**	4.40	Pass
PFDA	ug/kg	1.10	5.50	0.016	J	0.027	J	51.2%	**0.011**	4.40	Pass
PFDoA	ug/kg	1.10	5.50	0.441	U	0.429	U	2.8%	**0.012**	4.40	Pass
PFHpA	ug/kg	1.10	5.50	0.441	U	0.429	U	2.8%	**0.012**	4.40	Pass
PFHxA	ug/kg	1.10	5.50	0.034	J	0.033	J	3.0%	**0.0010**	4.40	Pass
PFHxS	ug/kg	1.10	5.50	0.441	U	0.429	U	2.8%	**0.012**	4.40	Pass
PFNA	ug/kg	1.10	5.50	0.441	U	0.429	U	2.8%	**0.012**	4.40	Pass
PFOA	ug/kg	1.10	5.50	0.013	J	0.010	J	26.1%	**0.0030**	4.40	Pass
PFOS	ug/kg	1.10	5.50	0.026	J	0.026	J	0.0%	**0.0**	4.40	Pass
PFPeA	ug/kg	1.10	5.50	0.441	U	0.016	J	186.0%	**0.43**	4.40	Pass
PFTeDA	ug/kg	1.10	5.50	0.00635	J	0.00788	J	21.5%	**0.0015**	4.40	Pass
PFTrDA	ug/kg	1.10	5.50	0.00776	J	0.429	U	192.9%	**0.42**	4.40	Pass
PFUdA	ug/kg	1.10	5.50	0.00976	J	0.429	U	191.1%	**0.42**	4.40	Pass
Wet Chemistry											
TOC	mg/kg	250	1250	0.00976	J	0.429	U	191.1%	**0.42**	1000	Pass

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

Los Alamitos
Field Duplicates

Client Sample ID:				AOI 8-X3-1-102919		AOI 8-X3-1-102919-D					
Date Sampled:				10/29/19		10/29/19					
	Units	LOQ	5x LOQ	Sample Conc		Duplicate Conc		% RPD	Delta	2x LOQ	Pass/ Fail
Perfluorinated Alkyl Substances											
PFUnDA	ng/L	8.33	41.7	3.31	J	3.5	J	5.6%	**0.19**	16.7	Pass
NMeFOSAA	ng/L	8.33	41.7	6.67	U	6.67	U	0.0%	**0.0**	16.7	Pass
NEtFOSAA	ng/L	8.33	41.7	6.67	U	6.67	U	0.0%	**0.0**	16.7	Pass
PFDoA	ng/L	8.33	41.7	3.33	U	3.33	U	0.0%	**0.0**	16.7	Pass
PFDA	ng/L	8.33	41.7	26.2		28.7		9.1%	**2.5**	16.7	Pass
PFHxS	ng/L	8.33	41.7	1130		1280		**12.4%**	150	16.7	Pass
PFBA	ng/L	8.33	41.7	426		479		**11.7%**	53	16.7	Pass
PFBS	ng/L	8.33	41.7	118		132		**11.2%**	14	16.7	Pass
PFHpA	ng/L	8.33	41.7	559		602		**7.4%**	43	16.7	Pass
PFNA	ng/L	8.33	41.7	229		247		**7.6%**	18	16.7	Pass
PFTeDA	ng/L	8.33	41.7	3.33	U	3.33	U	0.0%	**0.0**	16.7	Pass
8:2 FTS	ng/L	8.33	41.7	155		181		**15.5%**	26	16.7	Pass
PFTrDA	ng/L	8.33	41.7	3.33	U	3.33	U	0.0%	**0.0**	16.7	Pass
PFOS	ng/L	8.33	41.7	4670		4880		**4.4%**	210	16.7	Pass
PFPeA	ng/L	83.3	417	1590		1940		**19.8%**	350	167	Pass
6:2 FTS	ng/L	83.3	417	1540		1530		**0.7%**	10	167	Pass
PFHxA	ng/L	83.3	417	1470		1910		**26.0%**	440	167	Pass
PFOA	ng/L	83.3	417	3040		3740		**20.6%**	700	167	Pass

Control limit [sample]>5xLOQ use 30%
[sample]<5xLOQ use Delta<2xLOQ

Los Alamitos
Field Duplicates

Client Sample ID:				AOI 8-7-SW-102919		AOI 8-7-SW-102919					
Date Sampled:				10/29/19		10/29/19					
	Units	LOQ	5x LOQ	Sample Conc		Duplicate Conc		% RPD	Delta	2x LOQ	Pass/ Fail
Perfluorinated Alkyl Substances											
PFOS	ng/L	8.33	41.7	57.6		58.8		**2.1%**	1.2	16.7	Pass
PFUnDA	ng/L	8.33	41.7	3.33	U	1.73	J	63.2%	**1.6**	16.7	Pass
NMeFOSAA	ng/L	8.33	41.7	6.67	U	6.67	U	0.0%	**0.0**	16.7	Pass
PFPeA	ng/L	8.33	41.7	76.2		70.8		**7.3%**	5.4	16.7	Pass
6:2 FTS	ng/L	8.33	41.7	271		250		**8.1%**	21	16.7	Pass
NEtFOSAA	ng/L	8.33	41.7	6.67	U	6.67	U	0.0%	**0.0**	16.7	Pass
PFHxA	ng/L	8.33	41.7	69.3		68.9		**0.6%**	0.40	16.7	Pass
PFDoA	ng/L	8.33	41.7	3.33	U	3.33	U	0.0%	**0.0**	16.7	Pass
PFOA	ng/L	8.33	41.7	25.8		24.7		4.4%	**1.1**	16.7	Pass
PFDA	ng/L	8.33	41.7	2.44	J	1.97	J	21.3%	**0.47**	16.7	Pass
PFHxS	ng/L	8.33	41.7	33.4		30.3		9.7%	**3.1**	16.7	Pass
PFBA	ng/L	8.33	41.7	19.6		18.0		8.5%	**1.6**	16.7	Pass
PFBS	ng/L	8.33	41.7	5.68	J	5.19	J	9.0%	**0.49**	16.7	Pass
PFHpA	ng/L	8.33	41.7	15.5		13.3		15.3%	**2.2**	16.7	Pass
PFNA	ng/L	8.33	41.7	4.41	J	4.22	J	4.4%	**0.19**	16.7	Pass
PFTeDA	ng/L	8.33	41.7	3.33	U	3.33	U	0.0%	**0.0**	16.7	Pass
8:2 FTS	ng/L	8.33	41.7	8.20	J	9.13		10.7%	**0.93**	16.7	Pass
PFTrDA	ng/L	8.33	41.7	3.33	U	3.33	U	0.0%	**0.0**	16.7	Pass

Control limit [sample]>5xLOQ use 30%
[sample]<5xLOQ use Delta<2xLOQ

Los Alamitos
Field Duplicates

Client Sample ID:				AOI 5-N19-3-102919		AOI 5-N19-3-102919					
Date Sampled:				10/29/19		10/29/19					
	Units	LOQ	5x LOQ	Sample Conc		Duplicate Conc		% RPD	Delta	2x LOQ	Pass/ Fail
Perfluorinated Alkyl Substances											
PFUnDA	ng/L	8.33	41.7	3.33	U	3.33	U	0.0%	**0.0**	16.7	Pass
NMeFOSAA	ng/L	8.33	41.7	6.67	U	6.67	U	0.0%	**0.0**	16.7	Pass
NEtFOSAA	ng/L	8.33	41.7	6.67	U	6.67	U	0.0%	**0.0**	16.7	Pass
PFDoA	ng/L	8.33	41.7	3.33	U	3.33	U	0.0%	**0.0**	16.7	Pass
PFBS	ng/L	8.33	41.7	795		924	J	**15.0%**	129	16.7	Pass
PFHpA	ng/L	8.33	41.7	988		1150		**15.2%**	162	16.7	Pass
PFNA	ng/L	8.33	41.7	10.1		12.4		20.4%	**2.3**	16.7	Pass
PFTeDA	ng/L	8.33	41.7	3.33	U	3.33	U	0.0%	**0.0**	16.7	Pass
8:2 FTS	ng/L	8.33	41.7	375		465		**21.4%**	90	16.7	Pass
PFTrDA	ng/L	8.33	41.7	3.33	U	3.33	U	0.0%	**0.0**	16.7	Pass
PFDA	ng/L	8.33	41.7	4.30	J	5.78	J	29.4%	**1.5**	16.7	Pass
PFBA	ng/L	8.33	41.7	1280		1160		**9.8%**	120	16.7	Pass
PFOS	ng/L	83.3	417	2520		2770		**9.5%**	250	167	Pass
PFPeA	ng/L	83.3	417	5770		6890		**17.7%**	1120	167	Pass
6:2 FTS	ng/L	83.3	417	5040		5270		**4.5%**	230	167	Pass
PFHxA	ng/L	83.3	417	6200		7020		**12.4%**	820	167	Pass
PFOA	ng/L	83.3	417	3450		3450		**0.0%**	0.0	167	Pass
PFHxS	ng/L	83.3	417	3020		3490		**14.4%**	470	167	Pass

Control limit [sample]>5xLOQ use 30%
[sample]<5xLOQ use Delta<2xLOQ

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219091838	Client Sample ID:	JFTBLA-Decon-091719
Collect Date:	09/17/19 Time: 1451	GCAL Sample ID:	21909183801
Matrix:	Water % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	150 mL	Lab File ID:	2190922A_43.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	09/18/19	Analysis Date:	09/23/19 Time: 0047
Prep Batch:	667464	Analytical Batch:	667837
Prep Method:	537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ng/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	3.33	U	1.49	3.33	8.33
39108-34-4	8:2 Fluorotelomer sulfonate	3.33	U	1.36	3.33	8.33
2991-50-6	NEtFOSAA	6.67	U	4.48	6.67	8.33
2355-31-9	NMeFOSAA	6.67	U	3.83	6.67	8.33
375-73-5	Perfluorobutanesulfonic acid	3.33	U	1.23	3.33	8.33
375-22-4	Perfluorobutanoic acid	10.0		1.78	3.33	8.33
335-76-2	Perfluorodecanoic acid	3.33	U	1.38	3.33	8.33
307-55-1	Perfluorododecanoic acid	3.33	U	2.04	3.33	8.33
375-85-9	Perfluoroheptanoic acid	3.33	U	1.54	3.33	8.33
355-46-4	Perfluorohexanesulfonic acid	3.33	U	1.37	3.33	8.33
307-24-4	Perfluorohexanoic acid	3.33	U	1.62	3.33	8.33
375-95-1	Perfluorononanoic acid	3.33	U	1.40	3.33	8.33
1763-23-1	Perfluorooctane Sulfonate	1.71	J	1.42	3.33	8.33
335-67-1	Perfluorooctanoic acid	3.33	U	1.50	3.33	8.33
2706-90-3	Perfluoropentanoic acid	3.33	U	1.96	3.33	8.33
376-06-7	Perfluorotetradecanoic acid	3.33	U	2.30	3.33	8.33
72629-94-8	Perfluorotridecanoic acid	3.33	U	2.13	3.33	8.33
2058-94-8	Perfluoroundecanoic acid	3.33	U	1.55	3.33	8.33

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219091838	Client Sample ID:	JFTBLA-DW-FieldBlank-091719
Collect Date:	09/17/19 Time: 1442	GCAL Sample ID:	21909183802
Matrix:	Water % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	150 mL	Lab File ID:	2190922A_40.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	09/18/19	Analysis Date:	09/23/19 Time: 0013
Prep Batch:	667464	Analytical Batch:	667837
Prep Method:	537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ng/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	3.33	U	1.49	3.33	8.33
39108-34-4	8:2 Fluorotelomer sulfonate	3.33	U	1.36	3.33	8.33
2991-50-6	NEtFOSAA	6.67	U	4.48	6.67	8.33
2355-31-9	NMeFOSAA	6.67	U	3.83	6.67	8.33
375-73-5	Perfluorobutanesulfonic acid	3.33	U	1.23	3.33	8.33
375-22-4	Perfluorobutanoic acid	3.33	U	1.78	3.33	8.33
335-76-2	Perfluorodecanoic acid	3.33	U	1.38	3.33	8.33
307-55-1	Perfluorododecanoic acid	3.33	U	2.04	3.33	8.33
375-85-9	Perfluoroheptanoic acid	3.33	U	1.54	3.33	8.33
355-46-4	Perfluorohexanesulfonic acid	3.33	U	1.37	3.33	8.33
307-24-4	Perfluorohexanoic acid	3.33	U	1.62	3.33	8.33
375-95-1	Perfluorononanoic acid	3.33	U	1.40	3.33	8.33
1763-23-1	Perfluorooctane Sulfonate	3.33	U	1.42	3.33	8.33
335-67-1	Perfluorooctanoic acid	3.33	U	1.50	3.33	8.33
2706-90-3	Perfluoropentanoic acid	3.33	U	1.96	3.33	8.33
376-06-7	Perfluorotetradecanoic acid	3.33	U	2.30	3.33	8.33
72629-94-8	Perfluorotridecanoic acid	3.33	U	2.13	3.33	8.33
2058-94-8	Perfluoroundecanoic acid	3.33	U	1.55	3.33	8.33

FORM I SV-1

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102326	Client Sample ID:	JFTBLA-EB-PW-102219
Collect Date:	10/22/19 Time: 0820	GCAL Sample ID:	21910232601
Matrix:	Water % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	150 mL	Lab File ID:	2191104A_43.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/02/19	Analysis Date:	11/05/19 Time: 0407
Prep Batch:	669972	Analytical Batch:	670675
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ng/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	8.60		1.49	3.33	8.33
39108-34-4	8:2 Fluorotelomer sulfonate	3.33	U	1.36	3.33	8.33
2991-50-6	NEtFOSAA	6.67	U	4.48	6.67	8.33
2355-31-9	NMeFOSAA	6.67	U	3.83	6.67	8.33
375-73-5	Perfluorobutanesulfonic acid	3.33	U	1.23	3.33	8.33
375-22-4	Perfluorobutanoic acid	3.33	U	1.78	3.33	8.33
335-76-2	Perfluorodecanoic acid	3.33	U	1.38	3.33	8.33
307-55-1	Perfluorododecanoic acid	3.33	U	2.04	3.33	8.33
375-85-9	Perfluoroheptanoic acid	3.33	U	1.54	3.33	8.33
355-46-4	Perfluorohexanesulfonic acid	1.91	J	1.37	3.33	8.33
307-24-4	Perfluorohexanoic acid	3.33	U	1.62	3.33	8.33
375-95-1	Perfluorononanoic acid	3.33	U	1.40	3.33	8.33
1763-23-1	Perfluorooctane Sulfonate	4.62	J	1.42	3.33	8.33
335-67-1	Perfluorooctanoic acid	2.54	J	1.50	3.33	8.33
2706-90-3	Perfluoropentanoic acid	3.33	U	1.96	3.33	8.33
376-06-7	Perfluorotetradecanoic acid	3.33	U	2.30	3.33	8.33
72629-94-8	Perfluorotridecanoic acid	3.33	U	2.13	3.33	8.33
2058-94-8	Perfluoroundecanoic acid	3.33	U	1.55	3.33	8.33

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102326	Client Sample ID:	JFTBLA-EB-PW-102219 (RE)
Collect Date:	10/22/19 Time: 0820	GCAL Sample ID:	21910232630
Matrix:	Water % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	150 mL	Lab File ID:	2191118A_68.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/16/19	Analysis Date:	11/19/19 Time: 0637
Prep Batch:	671259	Analytical Batch:	671739
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ng/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
39108-34-4	8:2 Fluorotelomer sulfonate	3.33	U	1.36	3.33	8.33
1763-23-1	Perfluorooctane Sulfonate	2.43	J	1.42	3.33	8.33
72629-94-8	Perfluorotridecanoic acid	3.33	U	2.13	3.33	8.33

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102326	Client Sample ID:	AOI6-1-SB-1.5-2-102219
Collect Date:	10/22/19 Time: 0905	GCAL Sample ID:	21910232602
Matrix:	Solid % Moisture: 20.1	Instrument ID:	QQQ1
Sample Amt:	5 g	Lab File ID:	2191028A_39.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	10/24/19	Analysis Date:	10/28/19 Time: 1800
Prep Batch:	669968	Analytical Batch:	670389
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ug/kg*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
39108-34-4	8:2 Fluorotelomer sulfonate	0.500	U	0.325	0.500	1.25
2991-50-6	NEtFOSAA	0.500	U	0.238	0.500	1.25
2355-31-9	NMeFOSAA	0.500	U	0.350	0.500	1.25
375-73-5	Perfluorobutanesulfonic acid	0.500	U	0.150	0.500	1.25
375-22-4	Perfluorobutanoic acid	2.49		0.163	0.500	1.25
335-76-2	Perfluorodecanoic acid	0.500	U	0.150	0.500	1.25
307-55-1	Perfluorododecanoic acid	0.500	U	0.250	0.500	1.25
375-85-9	Perfluoroheptanoic acid	4.63		0.163	0.500	1.25
355-46-4	Perfluorohexanesulfonic acid	0.324	J	0.175	0.500	1.25
307-24-4	Perfluorohexanoic acid	5.63		0.188	0.500	1.25
375-95-1	Perfluorononanoic acid	0.500	U	0.113	0.500	1.25
1763-23-1	Perfluorooctane Sulfonate	0.500	U	0.225	0.500	1.25
335-67-1	Perfluorooctanoic acid	2.31		0.188	0.500	1.25
2706-90-3	Perfluoropentanoic acid	7.45		0.188	0.500	1.25
2058-94-8	Perfluoroundecanoic acid	0.500	U	0.175	0.500	1.25

FORM I SV-1

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102326	Client Sample ID:	AOI6-1-SB-1.5-2-102219DL
Collect Date:	10/22/19 Time: 0905	GCAL Sample ID:	21910232602DL
Matrix:	Solid % Moisture: 20.1	Instrument ID:	QQQ1
Sample Amt:	5 g	Lab File ID:	2191031A_43.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	5 Analyst: BMH
Prep Date:	10/24/19	Analysis Date:	10/31/19 Time: 1931
Prep Batch:	669968	Analytical Batch:	670526
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ug/kg*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	104		1.06	2.50	6.26

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102326	Client Sample ID:	AOI6-1-SB-1.5-2-102219RE
Collect Date:	10/22/19 Time: 0905	GCAL Sample ID:	21910232602RE
Matrix:	Solid % Moisture: 20.1	Instrument ID:	QQQ1
Sample Amt:	5.16 g	Lab File ID:	2191106A_49.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/04/19	Analysis Date:	11/07/19 Time: 0050
Prep Batch:	670205	Analytical Batch:	671080
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ug/kg*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
376-06-7	Perfluorotetradecanoic acid	0.485	U	0.194	0.485	1.21
72629-94-8	Perfluorotridecanoic acid	0.485	U	0.267	0.485	1.21

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102326	Client Sample ID:	AOI6-1-SB-7-7.5-102219
Collect Date:	10/22/19 Time: 0920	GCAL Sample ID:	21910232605
Matrix:	Solid % Moisture: 21.2	Instrument ID:	QQQ1
Sample Amt:	5.2 g	Lab File ID:	2191028A_42.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	10/24/19	Analysis Date:	10/28/19 Time: 1834
Prep Batch:	669968	Analytical Batch:	670389
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	0.833	J	0.208	0.488	1.22
39108-34-4	8:2 Fluorotelomer sulfonate	0.488	U	0.317	0.488	1.22
2991-50-6	NEtFOSAA	0.488	U	0.232	0.488	1.22
2355-31-9	NMeFOSAA	0.488	U	0.342	0.488	1.22
375-73-5	Perfluorobutanesulfonic acid	0.488	U	0.146	0.488	1.22
375-22-4	Perfluorobutanoic acid	3.37		0.159	0.488	1.22
335-76-2	Perfluorodecanoic acid	0.488	U	0.146	0.488	1.22
307-55-1	Perfluorododecanoic acid	0.488	U	0.244	0.488	1.22
375-85-9	Perfluoroheptanoic acid	0.753	J	0.159	0.488	1.22
355-46-4	Perfluorohexanesulfonic acid	0.488	U	0.171	0.488	1.22
307-24-4	Perfluorohexanoic acid	7.48		0.183	0.488	1.22
375-95-1	Perfluorononanoic acid	0.488	U	0.110	0.488	1.22
1763-23-1	Perfluorooctane Sulfonate	0.488	U	0.220	0.488	1.22
335-67-1	Perfluorooctanoic acid	0.488	U	0.183	0.488	1.22
2706-90-3	Perfluoropentanoic acid	11.8		0.183	0.488	1.22
376-06-7	Perfluorotetradecanoic acid	0.488	U	0.195	0.488	1.22
72629-94-8	Perfluorotridecanoic acid	0.488	U	0.269	0.488	1.22
2058-94-8	Perfluoroundecanoic acid	0.488	U	0.171	0.488	1.22

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102326	Client Sample ID:	AOI6-1-SB-18.5-19-102219
Collect Date:	10/22/19 Time: 0930	GCAL Sample ID:	21910232606
Matrix:	Solid % Moisture: 18.6	Instrument ID:	QQQ1
Sample Amt:	5 g	Lab File ID:	2191028A_43.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	10/24/19	Analysis Date:	10/28/19 Time: 1845
Prep Batch:	669968	Analytical Batch:	670389
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ug/kg*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	0.491	U	0.209	0.491	1.23
39108-34-4	8:2 Fluorotelomer sulfonate	0.491	U	0.319	0.491	1.23
2991-50-6	NEtFOSAA	0.491	U	0.233	0.491	1.23
2355-31-9	NMeFOSAA	0.491	U	0.344	0.491	1.23
375-73-5	Perfluorobutanesulfonic acid	0.491	U	0.147	0.491	1.23
375-22-4	Perfluorobutanoic acid	0.491	U	0.160	0.491	1.23
335-76-2	Perfluorodecanoic acid	0.491	U	0.147	0.491	1.23
307-55-1	Perfluorododecanoic acid	0.491	U	0.246	0.491	1.23
375-85-9	Perfluoroheptanoic acid	0.491	U	0.160	0.491	1.23
355-46-4	Perfluorohexanesulfonic acid	0.491	U	0.172	0.491	1.23
307-24-4	Perfluorohexanoic acid	0.491	U	0.184	0.491	1.23
375-95-1	Perfluorononanoic acid	0.491	U	0.111	0.491	1.23
1763-23-1	Perfluorooctane Sulfonate	0.491	U	0.221	0.491	1.23
335-67-1	Perfluorooctanoic acid	0.491	U	0.184	0.491	1.23
2706-90-3	Perfluoropentanoic acid	0.205	J	0.184	0.491	1.23
376-06-7	Perfluorotetradecanoic acid	0.491	U	0.197	0.491	1.23
72629-94-8	Perfluorotridecanoic acid	0.491	U	0.270	0.491	1.23
2058-94-8	Perfluoroundecanoic acid	0.491	U	0.172	0.491	1.23

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102326	Client Sample ID:	AOI6-1-GW-102219
Collect Date:	10/22/19 Time: 1005	GCAL Sample ID:	21910232607
Matrix:	Water % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	150 mL	Lab File ID:	2191104A_44.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/02/19	Analysis Date:	11/05/19 Time: 0418
Prep Batch:	669972	Analytical Batch:	670675
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ng/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	165		1.49	3.33	8.33
39108-34-4	8:2 Fluorotelomer sulfonate	3.33	U	1.36	3.33	8.33
2991-50-6	NEtFOSAA	6.67	U	4.48	6.67	8.33
2355-31-9	NMeFOSAA	6.67	U	3.83	6.67	8.33
375-73-5	Perfluorobutanesulfonic acid	21.7		1.23	3.33	8.33
375-22-4	Perfluorobutanoic acid	65.9		1.78	3.33	8.33
335-76-2	Perfluorodecanoic acid	3.33	U	1.38	3.33	8.33
307-55-1	Perfluorododecanoic acid	3.33	U	2.04	3.33	8.33
375-85-9	Perfluoroheptanoic acid	17.3		1.54	3.33	8.33
355-46-4	Perfluorohexanesulfonic acid	79.4		1.37	3.33	8.33
307-24-4	Perfluorohexanoic acid	122		1.62	3.33	8.33
375-95-1	Perfluorononanoic acid	3.33	U	1.40	3.33	8.33
1763-23-1	Perfluorooctane Sulfonate	19.4		1.42	3.33	8.33
335-67-1	Perfluorooctanoic acid	8.39		1.50	3.33	8.33
2706-90-3	Perfluoropentanoic acid	212		1.96	3.33	8.33
376-06-7	Perfluorotetradecanoic acid	3.33	U	2.30	3.33	8.33
72629-94-8	Perfluorotridecanoic acid	3.33	U	2.13	3.33	8.33
2058-94-8	Perfluoroundecanoic acid	3.33	U	1.55	3.33	8.33

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102326	Client Sample ID:	AOI6-1-GW-102219 (RE)
Collect Date:	10/22/19 Time: 1005	GCAL Sample ID:	21910232631
Matrix:	Water % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	150 mL	Lab File ID:	2191118A_69.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/16/19	Analysis Date:	11/19/19 Time: 0649
Prep Batch:	671259	Analytical Batch:	671739
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ng/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
39108-34-4	8:2 Fluorotelomer sulfonate	3.33	U	1.36	3.33	8.33
2355-31-9	NMeFOSAA	6.67	U	3.83	6.67	8.33
1763-23-1	Perfluorooctane Sulfonate	21.3		1.42	3.33	8.33
72629-94-8	Perfluorotridecanoic acid	3.33	U	2.13	3.33	8.33

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102326	Client Sample ID:	AOI6-3-SB-1.5-2-102219
Collect Date:	10/22/19 Time: 1015	GCAL Sample ID:	21910232608
Matrix:	Solid % Moisture: 15.0	Instrument ID:	QQQ1
Sample Amt:	5.13 g	Lab File ID:	2191105A_33.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	10/30/19	Analysis Date:	11/05/19 Time: 1802
Prep Batch:	669969	Analytical Batch:	670959
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ug/kg*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
39108-34-4	8:2 Fluorotelomer sulfonate	1.04	J	0.298	0.459	1.15
2991-50-6	NEtFOSAA	0.459	U	0.218	0.459	1.15
2355-31-9	NMeFOSAA	0.459	U	0.321	0.459	1.15
375-73-5	Perfluorobutanesulfonic acid	0.459	U	0.138	0.459	1.15
375-22-4	Perfluorobutanoic acid	15.1		0.149	0.459	1.15
335-76-2	Perfluorodecanoic acid	0.459	U	0.138	0.459	1.15
307-55-1	Perfluorododecanoic acid	0.459	U	0.229	0.459	1.15
375-85-9	Perfluoroheptanoic acid	34.8		0.149	0.459	1.15
355-46-4	Perfluorohexanesulfonic acid	10.5		0.161	0.459	1.15
375-95-1	Perfluorononanoic acid	0.459	U	0.103	0.459	1.15
1763-23-1	Perfluorooctane Sulfonate	1.37		0.206	0.459	1.15
335-67-1	Perfluorooctanoic acid	6.24		0.172	0.459	1.15
376-06-7	Perfluorotetradecanoic acid	0.459	U	0.184	0.459	1.15
72629-94-8	Perfluorotridecanoic acid	0.459	U	0.252	0.459	1.15
2058-94-8	Perfluoroundecanoic acid	0.459	U	0.161	0.459	1.15

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102326	Client Sample ID:	AOI6-3-SB-1.5-2-102219DL
Collect Date:	10/22/19 Time: 1015	GCAL Sample ID:	21910232608DL
Matrix:	Solid % Moisture: 15.0	Instrument ID:	QQQ1
Sample Amt:	5.13 g	Lab File ID:	2191117A_72.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	10 Analyst: BMH
Prep Date:	10/30/19	Analysis Date:	11/18/19 Time: 0640
Prep Batch:	669969	Analytical Batch:	671600
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ug/kg*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	229		1.95	4.59	11.5
307-24-4	Perfluorohexanoic acid	71.7		1.72	4.59	11.5
2706-90-3	Perfluoropentanoic acid	57.7		1.72	4.59	11.5

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102326	Client Sample ID:	AOI6-3-SB-1.5-2-102219 (RE)
Collect Date:	10/22/19 Time: 1015	GCAL Sample ID:	21910232635
Matrix:	Solid % Moisture: 15.0	Instrument ID:	QQQ1
Sample Amt:	5 g	Lab File ID:	2191125A_77.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/22/19	Analysis Date:	11/26/19 Time: 0244
Prep Batch:	671638	Analytical Batch:	672385
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ug/kg*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
376-06-7	Perfluorotetradecanoic acid	0.471	U	0.188	0.471	1.18
72629-94-8	Perfluorotridecanoic acid	0.471	U	0.259	0.471	1.18

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102326	Client Sample ID:	AOI6-2-SB-1.5-2-102219
Collect Date:	10/22/19 Time: 1027	GCAL Sample ID:	21910232611
Matrix:	Solid % Moisture: 10.4	Instrument ID:	QQQ1
Sample Amt:	5.03 g	Lab File ID:	2191105A_36.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	10/30/19	Analysis Date:	11/05/19 Time: 1836
Prep Batch:	669969	Analytical Batch:	670959
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ug/kg*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
39108-34-4	8:2 Fluorotelomer sulfonate	0.386	J	0.288	0.444	1.11
2991-50-6	NEtFOSAA	0.444	U	0.211	0.444	1.11
2355-31-9	NMeFOSAA	0.444	U	0.311	0.444	1.11
375-73-5	Perfluorobutanesulfonic acid	0.444	U	0.133	0.444	1.11
375-22-4	Perfluorobutanoic acid	13.5		0.144	0.444	1.11
335-76-2	Perfluorodecanoic acid	0.444	U	0.133	0.444	1.11
307-55-1	Perfluorododecanoic acid	0.444	U	0.222	0.444	1.11
375-85-9	Perfluoroheptanoic acid	5.27		0.144	0.444	1.11
355-46-4	Perfluorohexanesulfonic acid	0.319	J	0.155	0.444	1.11
307-24-4	Perfluorohexanoic acid	33.2		0.166	0.444	1.11
375-95-1	Perfluorononanoic acid	0.172	J	0.100	0.444	1.11
1763-23-1	Perfluorooctane Sulfonate	1.06	J	0.200	0.444	1.11
335-67-1	Perfluorooctanoic acid	5.36		0.166	0.444	1.11
376-06-7	Perfluorotetradecanoic acid	0.444	U	0.177	0.444	1.11
72629-94-8	Perfluorotridecanoic acid	0.444	U	0.244	0.444	1.11
2058-94-8	Perfluoroundecanoic acid	0.444	U	0.155	0.444	1.11

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102326	Client Sample ID:	AOI6-2-SB-1.5-2-102219DL
Collect Date:	10/22/19 Time: 1027	GCAL Sample ID:	21910232611DL
Matrix:	Solid % Moisture: 10.4	Instrument ID:	QQQ1
Sample Amt:	5.03 g	Lab File ID:	2191117A_75.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	10 Analyst: BMH
Prep Date:	10/30/19	Analysis Date:	11/18/19 Time: 0714
Prep Batch:	669969	Analytical Batch:	671600
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ug/kg*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	194		1.89	4.44	11.1
2706-90-3	Perfluoropentanoic acid	57.7		1.66	4.44	11.1

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102326	Client Sample ID:	AOI5-1-SB-1.5-2-102219
Collect Date:	10/22/19 Time: 1215	GCAL Sample ID:	21910232617
Matrix:	Solid % Moisture: 17.3	Instrument ID:	QQQ1
Sample Amt:	5.3 g	Lab File ID:	2191105A_42.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	10/30/19	Analysis Date:	11/05/19 Time: 1944
Prep Batch:	669969	Analytical Batch:	670959
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ug/kg*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	1.08	J	0.194	0.456	1.14
39108-34-4	8:2 Fluorotelomer sulfonate	1.05	J	0.296	0.456	1.14
2991-50-6	NEtFOSAA	0.456	U	0.217	0.456	1.14
2355-31-9	NMeFOSAA	0.456	U	0.319	0.456	1.14
375-73-5	Perfluorobutanesulfonic acid	0.550	J	0.137	0.456	1.14
375-22-4	Perfluorobutanoic acid	1.66		0.148	0.456	1.14
335-76-2	Perfluorodecanoic acid	0.967	J	0.137	0.456	1.14
307-55-1	Perfluorododecanoic acid	0.456	U	0.228	0.456	1.14
375-85-9	Perfluoroheptanoic acid	4.57		0.148	0.456	1.14
355-46-4	Perfluorohexanesulfonic acid	23.6		0.160	0.456	1.14
307-24-4	Perfluorohexanoic acid	4.22		0.171	0.456	1.14
375-95-1	Perfluorononanoic acid	2.20		0.103	0.456	1.14
2706-90-3	Perfluoropentanoic acid	4.05		0.171	0.456	1.14
376-06-7	Perfluorotetradecanoic acid	0.456	U	0.182	0.456	1.14
72629-94-8	Perfluorotridecanoic acid	0.456	U	0.251	0.456	1.14
2058-94-8	Perfluoroundecanoic acid	0.456	U	0.160	0.456	1.14

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102326	Client Sample ID:	AOI5-1-SB-1.5-2-102219DL
Collect Date:	10/22/19 Time: 1215	GCAL Sample ID:	21910232617DL
Matrix:	Solid % Moisture: 17.3	Instrument ID:	QQQ1
Sample Amt:	5.3 g	Lab File ID:	2191117A_78.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	10 Analyst: BMH
Prep Date:	10/30/19	Analysis Date:	11/18/19 Time: 0748
Prep Batch:	669969	Analytical Batch:	671600
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ug/kg*

CAS	*ANALYTE*	*RESULT*	*Q*	*DL*	*LOD*	*LOQ*
1763-23-1	Perfluorooctane Sulfonate	252		2.05	4.56	11.4
335-67-1	Perfluorooctanoic acid	112		1.71	4.56	11.4

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102326	Client Sample ID:	AOI5-1-SB-1.5-2-102219-D
Collect Date:	10/22/19 Time: 1221	GCAL Sample ID:	21910232618
Matrix:	Solid % Moisture: 16.2	Instrument ID:	QQQ1
Sample Amt:	5.26 g	Lab File ID:	2191105A_43.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	10/30/19	Analysis Date:	11/05/19 Time: 1955
Prep Batch:	669969	Analytical Batch:	670959
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ug/kg*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	1.41		0.193	0.454	1.13
39108-34-4	8:2 Fluorotelomer sulfonate	1.41		0.295	0.454	1.13
2991-50-6	NEtFOSAA	0.454	U	0.216	0.454	1.13
2355-31-9	NMeFOSAA	0.454	U	0.318	0.454	1.13
375-73-5	Perfluorobutanesulfonic acid	0.772	J	0.136	0.454	1.13
375-22-4	Perfluorobutanoic acid	2.22		0.148	0.454	1.13
335-76-2	Perfluorodecanoic acid	1.47		0.136	0.454	1.13
307-55-1	Perfluorododecanoic acid	0.454	U	0.227	0.454	1.13
375-85-9	Perfluoroheptanoic acid	5.40		0.148	0.454	1.13
355-46-4	Perfluorohexanesulfonic acid	32.0		0.159	0.454	1.13
307-24-4	Perfluorohexanoic acid	5.45		0.170	0.454	1.13
375-95-1	Perfluorononanoic acid	2.73		0.102	0.454	1.13
2706-90-3	Perfluoropentanoic acid	5.49		0.170	0.454	1.13
376-06-7	Perfluorotetradecanoic acid	0.454	U	0.182	0.454	1.13
72629-94-8	Perfluorotridecanoic acid	0.454	U	0.250	0.454	1.13
2058-94-8	Perfluoroundecanoic acid	0.454	U	0.159	0.454	1.13

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102326	Client Sample ID:	AOI5-1-SB-1.5-2-102219-DDL
Collect Date:	10/22/19 Time: 1221	GCAL Sample ID:	21910232618DL
Matrix:	Solid % Moisture: 16.2	Instrument ID:	QQQ1
Sample Amt:	5.26 g	Lab File ID:	2191117A_79.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	10 Analyst: BMH
Prep Date:	10/30/19	Analysis Date:	11/18/19 Time: 0800
Prep Batch:	669969	Analytical Batch:	671600
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ug/kg*

CAS	*ANALYTE*	*RESULT*	*Q*	*DL*	*LOD*	*LOQ*
1763-23-1	Perfluorooctane Sulfonate	352		2.04	4.54	11.3
335-67-1	Perfluorooctanoic acid	134		1.70	4.54	11.3

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102326	Client Sample ID:	AOI5-1-SB-8-8.5-102219
Collect Date:	10/22/19 Time: 1230	GCAL Sample ID:	21910232619
Matrix:	Solid % Moisture: 17.1	Instrument ID:	QQQ1
Sample Amt:	5.08 g	Lab File ID:	2191105A_44.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	10/30/19	Analysis Date:	11/05/19 Time: 2007
Prep Batch:	669969	Analytical Batch:	670959
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ug/kg*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	1.61		0.202	0.475	1.19
39108-34-4	8:2 Fluorotelomer sulfonate	0.475	U	0.309	0.475	1.19
2991-50-6	NEtFOSAA	0.475	U	0.226	0.475	1.19
2355-31-9	NMeFOSAA	0.475	U	0.332	0.475	1.19
375-73-5	Perfluorobutanesulfonic acid	38.3		0.142	0.475	1.19
375-22-4	Perfluorobutanoic acid	24.4		0.154	0.475	1.19
335-76-2	Perfluorodecanoic acid	0.475	U	0.142	0.475	1.19
307-55-1	Perfluorododecanoic acid	0.475	U	0.237	0.475	1.19
375-85-9	Perfluoroheptanoic acid	17.2		0.154	0.475	1.19
355-46-4	Perfluorohexanesulfonic acid	12.1		0.166	0.475	1.19
375-95-1	Perfluorononanoic acid	0.475	U	0.107	0.475	1.19
1763-23-1	Perfluorooctane Sulfonate	1.67		0.214	0.475	1.19
335-67-1	Perfluorooctanoic acid	23.4		0.178	0.475	1.19
376-06-7	Perfluorotetradecanoic acid	0.475	U	0.190	0.475	1.19
72629-94-8	Perfluorotridecanoic acid	0.475	U	0.261	0.475	1.19
2058-94-8	Perfluoroundecanoic acid	0.475	U	0.166	0.475	1.19

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102326	Client Sample ID:	AOI5-1-SB-8-8.5-102219DL
Collect Date:	10/22/19 Time: 1230	GCAL Sample ID:	21910232619DL
Matrix:	Solid % Moisture: 17.1	Instrument ID:	QQQ1
Sample Amt:	5.08 g	Lab File ID:	2191117A_71.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	5 Analyst: BMH
Prep Date:	10/30/19	Analysis Date:	11/18/19 Time: 0629
Prep Batch:	669969	Analytical Batch:	671600
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ug/kg*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
307-24-4	Perfluorohexanoic acid	115		0.890	2.37	5.93
2706-90-3	Perfluoropentanoic acid	56.3		0.890	2.37	5.93

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102326	Client Sample ID:	AOI5-1-SB-19-19.5-102219
Collect Date:	10/22/19 Time: 1240	GCAL Sample ID:	21910232620
Matrix:	Solid % Moisture: 17.1	Instrument ID:	QQQ1
Sample Amt:	5.19 g	Lab File ID:	2191105A_45.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	10/30/19	Analysis Date:	11/05/19 Time: 2018
Prep Batch:	669969	Analytical Batch:	670959
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	8.22		0.198	0.465	1.16
39108-34-4	8:2 Fluorotelomer sulfonate	0.465	U	0.302	0.465	1.16
2991-50-6	NEtFOSAA	0.465	U	0.221	0.465	1.16
2355-31-9	NMeFOSAA	0.465	U	0.325	0.465	1.16
375-73-5	Perfluorobutanesulfonic acid	2.61		0.139	0.465	1.16
375-22-4	Perfluorobutanoic acid	2.09		0.151	0.465	1.16
335-76-2	Perfluorodecanoic acid	0.465	U	0.139	0.465	1.16
307-55-1	Perfluorododecanoic acid	0.465	U	0.232	0.465	1.16
375-85-9	Perfluoroheptanoic acid	1.52		0.151	0.465	1.16
355-46-4	Perfluorohexanesulfonic acid	22.4		0.163	0.465	1.16
307-24-4	Perfluorohexanoic acid	8.08		0.174	0.465	1.16
375-95-1	Perfluorononanoic acid	0.465	U	0.105	0.465	1.16
1763-23-1	Perfluorooctane Sulfonate	29.4		0.209	0.465	1.16
335-67-1	Perfluorooctanoic acid	15.7		0.174	0.465	1.16
2706-90-3	Perfluoropentanoic acid	4.13		0.174	0.465	1.16
376-06-7	Perfluorotetradecanoic acid	0.465	U	0.186	0.465	1.16
72629-94-8	Perfluorotridecanoic acid	0.465	U	0.256	0.465	1.16
2058-94-8	Perfluoroundecanoic acid	0.465	U	0.163	0.465	1.16

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102326	Client Sample ID:	AOI5-1-GW-102219
Collect Date:	10/22/19 Time: 1310	GCAL Sample ID:	21910232621
Matrix:	Water % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	140 mL	Lab File ID:	2191104A_45.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/02/19	Analysis Date:	11/05/19 Time: 0429
Prep Batch:	669972	Analytical Batch:	670675
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ng/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
39108-34-4	8:2 Fluorotelomer sulfonate	20.3		1.46	3.57	8.93
2991-50-6	NEtFOSAA	7.14	U	4.80	7.14	8.93
2355-31-9	NMeFOSAA	7.14	U	4.11	7.14	8.93
335-76-2	Perfluorodecanoic acid	3.57	U	1.47	3.57	8.93
307-55-1	Perfluorododecanoic acid	3.57	U	2.19	3.57	8.93
375-95-1	Perfluorononanoic acid	11.6		1.50	3.57	8.93
376-06-7	Perfluorotetradecanoic acid	3.57	U	2.46	3.57	8.93
72629-94-8	Perfluorotridecanoic acid	3.57	U	2.29	3.57	8.93
2058-94-8	Perfluoroundecanoic acid	3.57	U	1.66	3.57	8.93

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102326	Client Sample ID:	AOI5-1-GW-102219DL
Collect Date:	10/22/19 Time: 1310	GCAL Sample ID:	21910232621DL
Matrix:	Water % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	140 mL	Lab File ID:	2191106A_61.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	50 Analyst: BMH
Prep Date:	11/02/19	Analysis Date:	11/07/19 Time: 0307
Prep Batch:	669972	Analytical Batch:	671080
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ng/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	6140		79.9	179	446
375-73-5	Perfluorobutanesulfonic acid	7870		65.6	179	446
375-22-4	Perfluorobutanoic acid	3930		95.1	179	446
375-85-9	Perfluoroheptanoic acid	2710		82.6	179	446
355-46-4	Perfluorohexanesulfonic acid	50900		73.2	179	446
307-24-4	Perfluorohexanoic acid	22900		86.6	179	446
1763-23-1	Perfluorooctane Sulfonate	16800		75.9	179	446
335-67-1	Perfluorooctanoic acid	31300		80.4	179	446
2706-90-3	Perfluoropentanoic acid	14900		105	179	446

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102326	Client Sample ID:	AOI5-1-GW-102219 (RE)
Collect Date:	10/22/19 Time: 1310	GCAL Sample ID:	21910232632
Matrix:	Water % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	150 mL	Lab File ID:	2191118A_70.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/16/19	Analysis Date:	11/19/19 Time: 0700
Prep Batch:	671259	Analytical Batch:	671739
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ng/L*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
39108-34-4	8:2 Fluorotelomer sulfonate	20.2		1.36	3.33	8.33
2355-31-9	NMeFOSAA	6.67	U	3.83	6.67	8.33
72629-94-8	Perfluorotridecanoic acid	3.33	U	2.13	3.33	8.33

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102326	Client Sample ID:	AOI5-1-GW-102219 (RE)DL
Collect Date:	10/22/19 Time: 1310	GCAL Sample ID:	21910232632DL
Matrix:	Water % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	150 mL	Lab File ID:	2191220A_59.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	50 Analyst: BMH
Prep Date:	11/16/19	Analysis Date:	12/20/19 Time: 2000
Prep Batch:	671259	Analytical Batch:	674094
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ng/L*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
1763-23-1	Perfluorooctane Sulfonate	14300		70.8	167	417

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102326	Client Sample ID:	AOI1-3-SB-4.5-5-102219
Collect Date:	10/22/19 Time: 1417	GCAL Sample ID:	21910232622
Matrix:	Solid % Moisture: 4.2	Instrument ID:	QQQ1
Sample Amt:	5.18 g	Lab File ID:	2191105A_46.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	10/30/19	Analysis Date:	11/05/19 Time: 2030
Prep Batch:	669969	Analytical Batch:	670959
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ug/kg*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	0.403	U	0.171	0.403	1.01
39108-34-4	8:2 Fluorotelomer sulfonate	0.403	U	0.262	0.403	1.01
2991-50-6	NEtFOSAA	0.403	U	0.191	0.403	1.01
2355-31-9	NMeFOSAA	0.403	U	0.282	0.403	1.01
375-73-5	Perfluorobutanesulfonic acid	0.403	U	0.121	0.403	1.01
375-22-4	Perfluorobutanoic acid	0.403	U	0.131	0.403	1.01
335-76-2	Perfluorodecanoic acid	0.403	U	0.121	0.403	1.01
307-55-1	Perfluorododecanoic acid	0.403	U	0.201	0.403	1.01
375-85-9	Perfluoroheptanoic acid	0.207	J	0.131	0.403	1.01
355-46-4	Perfluorohexanesulfonic acid	0.672	J	0.141	0.403	1.01
307-24-4	Perfluorohexanoic acid	0.826	J	0.151	0.403	1.01
375-95-1	Perfluorononanoic acid	0.403	U	0.091	0.403	1.01
1763-23-1	Perfluorooctane Sulfonate	0.304	J	0.181	0.403	1.01
335-67-1	Perfluorooctanoic acid	3.38		0.151	0.403	1.01
2706-90-3	Perfluoropentanoic acid	0.198	J	0.151	0.403	1.01
376-06-7	Perfluorotetradecanoic acid	0.403	U	0.161	0.403	1.01
72629-94-8	Perfluorotridecanoic acid	0.403	U	0.222	0.403	1.01
2058-94-8	Perfluoroundecanoic acid	0.403	U	0.141	0.403	1.01

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102326	Client Sample ID:	AOI1-3-SB-9.5-10-102219
Collect Date:	10/22/19 Time: 1430	GCAL Sample ID:	21910232623
Matrix:	Solid % Moisture: 19.2	Instrument ID:	QQQ1
Sample Amt:	5.02 g	Lab File ID:	2191105A_47.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	10/30/19	Analysis Date:	11/05/19 Time: 2041
Prep Batch:	669969	Analytical Batch:	670959
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ug/kg*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	0.493	U	0.210	0.493	1.23
39108-34-4	8:2 Fluorotelomer sulfonate	0.493	U	0.321	0.493	1.23
2991-50-6	NEtFOSAA	0.493	U	0.234	0.493	1.23
2355-31-9	NMeFOSAA	0.493	U	0.345	0.493	1.23
375-73-5	Perfluorobutanesulfonic acid	0.290	J	0.148	0.493	1.23
375-22-4	Perfluorobutanoic acid	0.340	J	0.160	0.493	1.23
335-76-2	Perfluorodecanoic acid	0.493	U	0.148	0.493	1.23
307-55-1	Perfluorododecanoic acid	0.493	U	0.247	0.493	1.23
375-85-9	Perfluoroheptanoic acid	0.395	J	0.160	0.493	1.23
355-46-4	Perfluorohexanesulfonic acid	3.87		0.173	0.493	1.23
307-24-4	Perfluorohexanoic acid	2.01		0.185	0.493	1.23
375-95-1	Perfluorononanoic acid	0.493	U	0.111	0.493	1.23
1763-23-1	Perfluorooctane Sulfonate	2.63		0.222	0.493	1.23
335-67-1	Perfluorooctanoic acid	23.0		0.185	0.493	1.23
2706-90-3	Perfluoropentanoic acid	0.831	J	0.185	0.493	1.23
376-06-7	Perfluorotetradecanoic acid	0.493	U	0.197	0.493	1.23
72629-94-8	Perfluorotridecanoic acid	0.493	U	0.271	0.493	1.23
2058-94-8	Perfluoroundecanoic acid	0.493	U	0.173	0.493	1.23

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102326	Client Sample ID:	AOI1-3-SB-16-16.5-102219
Collect Date:	10/22/19 Time: 1435	GCAL Sample ID:	21910232624
Matrix:	Solid % Moisture: 18.5	Instrument ID:	QQQ1
Sample Amt:	5.18 g	Lab File ID:	2191105A_48.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	10/30/19	Analysis Date:	11/05/19 Time: 2052
Prep Batch:	669969	Analytical Batch:	670959
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ug/kg*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	0.474	U	0.201	0.474	1.18
39108-34-4	8:2 Fluorotelomer sulfonate	0.474	U	0.308	0.474	1.18
2991-50-6	NEtFOSAA	0.474	U	0.225	0.474	1.18
2355-31-9	NMeFOSAA	0.474	U	0.332	0.474	1.18
375-73-5	Perfluorobutanesulfonic acid	0.258	J	0.142	0.474	1.18
375-22-4	Perfluorobutanoic acid	0.261	J	0.154	0.474	1.18
335-76-2	Perfluorodecanoic acid	0.474	U	0.142	0.474	1.18
307-55-1	Perfluorododecanoic acid	0.474	U	0.237	0.474	1.18
375-85-9	Perfluoroheptanoic acid	0.337	J	0.154	0.474	1.18
355-46-4	Perfluorohexanesulfonic acid	3.52		0.166	0.474	1.18
307-24-4	Perfluorohexanoic acid	1.54		0.178	0.474	1.18
375-95-1	Perfluorononanoic acid	0.474	U	0.107	0.474	1.18
1763-23-1	Perfluorooctane Sulfonate	4.34		0.213	0.474	1.18
335-67-1	Perfluorooctanoic acid	21.5		0.178	0.474	1.18
2706-90-3	Perfluoropentanoic acid	0.621	J	0.178	0.474	1.18
376-06-7	Perfluorotetradecanoic acid	0.474	U	0.190	0.474	1.18
72629-94-8	Perfluorotridecanoic acid	0.474	U	0.261	0.474	1.18
2058-94-8	Perfluoroundecanoic acid	0.474	U	0.166	0.474	1.18

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102326	Client Sample ID:	AOI1-1-SB-4.5-5-102219
Collect Date:	10/22/19 Time: 1500	GCAL Sample ID:	21910232625
Matrix:	Solid % Moisture: 20.1	Instrument ID:	QQQ1
Sample Amt:	5.2 g	Lab File ID:	2191105A_50.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	10/30/19	Analysis Date:	11/05/19 Time: 2115
Prep Batch:	669969	Analytical Batch:	670959
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ug/kg*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	0.481	U	0.205	0.481	1.20
39108-34-4	8:2 Fluorotelomer sulfonate	0.481	U	0.313	0.481	1.20
2991-50-6	NEtFOSAA	0.481	U	0.229	0.481	1.20
2355-31-9	NMeFOSAA	0.481	U	0.337	0.481	1.20
375-73-5	Perfluorobutanesulfonic acid	0.284	J	0.144	0.481	1.20
375-22-4	Perfluorobutanoic acid	0.261	J	0.156	0.481	1.20
335-76-2	Perfluorodecanoic acid	0.481	U	0.144	0.481	1.20
307-55-1	Perfluorododecanoic acid	0.481	U	0.241	0.481	1.20
375-85-9	Perfluoroheptanoic acid	0.668	J	0.156	0.481	1.20
355-46-4	Perfluorohexanesulfonic acid	6.15		0.168	0.481	1.20
307-24-4	Perfluorohexanoic acid	1.78		0.181	0.481	1.20
375-95-1	Perfluorononanoic acid	0.481	U	0.108	0.481	1.20
1763-23-1	Perfluorooctane Sulfonate	0.481	U	0.217	0.481	1.20
335-67-1	Perfluorooctanoic acid	24.0		0.181	0.481	1.20
2706-90-3	Perfluoropentanoic acid	0.487	J	0.181	0.481	1.20
376-06-7	Perfluorotetradecanoic acid	0.481	U	0.193	0.481	1.20
72629-94-8	Perfluorotridecanoic acid	0.481	U	0.265	0.481	1.20
2058-94-8	Perfluoroundecanoic acid	0.481	U	0.168	0.481	1.20

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102326	Client Sample ID:	AOI1-3-GW-102219
Collect Date:	10/22/19 Time: 1505	GCAL Sample ID:	21910232626
Matrix:	Water % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	150 mL	Lab File ID:	2191104A_46.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/02/19	Analysis Date:	11/05/19 Time: 0441
Prep Batch:	669972	Analytical Batch:	670675
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ng/L*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	9.76		1.49	3.33	8.33
39108-34-4	8:2 Fluorotelomer sulfonate	3.33	U	1.36	3.33	8.33
2991-50-6	NEtFOSAA	6.67	U	4.48	6.67	8.33
2355-31-9	NMeFOSAA	6.67	U	3.83	6.67	8.33
375-73-5	Perfluorobutanesulfonic acid	759		1.23	3.33	8.33
375-22-4	Perfluorobutanoic acid	892		1.78	3.33	8.33
335-76-2	Perfluorodecanoic acid	8.06	J	1.38	3.33	8.33
307-55-1	Perfluorododecanoic acid	3.33	U	2.04	3.33	8.33
375-85-9	Perfluoroheptanoic acid	1330		1.54	3.33	8.33
375-95-1	Perfluorononanoic acid	26.8		1.40	3.33	8.33
376-06-7	Perfluorotetradecanoic acid	3.33	U	2.30	3.33	8.33
72629-94-8	Perfluorotridecanoic acid	3.33	U	2.13	3.33	8.33
2058-94-8	Perfluoroundecanoic acid	3.33	U	1.55	3.33	8.33

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102326	Client Sample ID:	AOI1-3-GW-102219DL
Collect Date:	10/22/19 Time: 1505	GCAL Sample ID:	21910232626DL
Matrix:	Water % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	150 mL	Lab File ID:	2191106A_63.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	50 Analyst: BMH
Prep Date:	11/02/19	Analysis Date:	11/07/19 Time: 0329
Prep Batch:	669972	Analytical Batch:	671080
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ng/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
355-46-4	Perfluorohexanesulfonic acid	8590		68.3	167	417
307-24-4	Perfluorohexanoic acid	5930		80.8	167	417
1763-23-1	Perfluorooctane Sulfonate	8810		70.8	167	417
335-67-1	Perfluorooctanoic acid	50700		75.0	167	417
2706-90-3	Perfluoropentanoic acid	2050		97.9	167	417

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102326	Client Sample ID:	AOI1-3-GW-102219 (RE)
Collect Date:	10/22/19 Time: 1505	GCAL Sample ID:	21910232633
Matrix:	Water % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	150 mL	Lab File ID:	2191118A_71.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/16/19	Analysis Date:	11/19/19 Time: 0711
Prep Batch:	671259	Analytical Batch:	671739
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ng/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
39108-34-4	8:2 Fluorotelomer sulfonate	3.33	U	1.36	3.33	8.33
2355-31-9	NMeFOSAA	6.67	U	3.83	6.67	8.33
72629-94-8	Perfluorotridecanoic acid	3.33	U	2.13	3.33	8.33

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102326	Client Sample ID:	AOI1-3-GW-102219 (RE)DL
Collect Date:	10/22/19 Time: 1505	GCAL Sample ID:	21910232633DL
Matrix:	Water % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	150 mL	Lab File ID:	2191220A_60.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	20 Analyst: BMH
Prep Date:	11/16/19	Analysis Date:	12/20/19 Time: 2012
Prep Batch:	671259	Analytical Batch:	674094
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ng/L*

CAS	*ANALYTE*	*RESULT*	*Q*	*DL*	*LOD*	*LOQ*
1763-23-1	Perfluorooctane Sulfonate	14900		28.3	66.7	167

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102326	Client Sample ID:	AOI1-1-SB-10-10.5-102219
Collect Date:	10/22/19 Time: 1530	GCAL Sample ID:	21910232627
Matrix:	Solid % Moisture: 20.6	Instrument ID:	QQQ1
Sample Amt:	5.02 g	Lab File ID:	2191105A_51.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	10/30/19	Analysis Date:	11/05/19 Time: 2126
Prep Batch:	669969	Analytical Batch:	670959
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	0.502	U	0.213	0.502	1.25
39108-34-4	8:2 Fluorotelomer sulfonate	0.502	U	0.326	0.502	1.25
2991-50-6	NEtFOSAA	0.502	U	0.238	0.502	1.25
2355-31-9	NMeFOSAA	0.502	U	0.351	0.502	1.25
375-73-5	Perfluorobutanesulfonic acid	0.239	J	0.151	0.502	1.25
375-22-4	Perfluorobutanoic acid	0.502	U	0.163	0.502	1.25
335-76-2	Perfluorodecanoic acid	0.502	U	0.151	0.502	1.25
307-55-1	Perfluorododecanoic acid	0.502	U	0.251	0.502	1.25
375-85-9	Perfluoroheptanoic acid	0.502	U	0.163	0.502	1.25
355-46-4	Perfluorohexanesulfonic acid	1.36		0.176	0.502	1.25
307-24-4	Perfluorohexanoic acid	0.924	J	0.188	0.502	1.25
375-95-1	Perfluorononanoic acid	0.502	U	0.113	0.502	1.25
1763-23-1	Perfluorooctane Sulfonate	0.262	J	0.226	0.502	1.25
335-67-1	Perfluorooctanoic acid	3.25		0.188	0.502	1.25
2706-90-3	Perfluoropentanoic acid	0.293	J	0.188	0.502	1.25
376-06-7	Perfluorotetradecanoic acid	0.502	U	0.201	0.502	1.25
72629-94-8	Perfluorotridecanoic acid	0.502	U	0.276	0.502	1.25
2058-94-8	Perfluoroundecanoic acid	0.502	U	0.176	0.502	1.25

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102326	Client Sample ID:	AOI1-1-SB-17-17.5-102219
Collect Date:	10/22/19 Time: 1536	GCAL Sample ID:	21910232628
Matrix:	Solid % Moisture: 19.3	Instrument ID:	QQQ1
Sample Amt:	5.28 g	Lab File ID:	2191105A_52.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	10/30/19	Analysis Date:	11/05/19 Time: 2138
Prep Batch:	669969	Analytical Batch:	670959
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	0.469	U	0.199	0.469	1.17
39108-34-4	8:2 Fluorotelomer sulfonate	0.469	U	0.305	0.469	1.17
2991-50-6	NEtFOSAA	0.469	U	0.223	0.469	1.17
2355-31-9	NMeFOSAA	0.469	U	0.329	0.469	1.17
375-73-5	Perfluorobutanesulfonic acid	0.469	U	0.141	0.469	1.17
375-22-4	Perfluorobutanoic acid	0.469	U	0.153	0.469	1.17
335-76-2	Perfluorodecanoic acid	0.469	U	0.141	0.469	1.17
307-55-1	Perfluorododecanoic acid	0.469	U	0.235	0.469	1.17
375-85-9	Perfluoroheptanoic acid	0.469	U	0.153	0.469	1.17
355-46-4	Perfluorohexanesulfonic acid	0.665	J	0.164	0.469	1.17
307-24-4	Perfluorohexanoic acid	0.357	J	0.176	0.469	1.17
375-95-1	Perfluorononanoic acid	0.469	U	0.106	0.469	1.17
1763-23-1	Perfluorooctane Sulfonate	0.466	J	0.211	0.469	1.17
335-67-1	Perfluorooctanoic acid	1.49		0.176	0.469	1.17
2706-90-3	Perfluoropentanoic acid	0.469	U	0.176	0.469	1.17
376-06-7	Perfluorotetradecanoic acid	0.469	U	0.188	0.469	1.17
72629-94-8	Perfluorotridecanoic acid	0.469	U	0.258	0.469	1.17
2058-94-8	Perfluoroundecanoic acid	0.469	U	0.164	0.469	1.17

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102326	Client Sample ID:	AOI1-1-GW-102219
Collect Date:	10/22/19 Time: 1545	GCAL Sample ID:	21910232629
Matrix:	Water % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	150 mL	Lab File ID:	2191104A_47.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/02/19	Analysis Date:	11/05/19 Time: 0452
Prep Batch:	669972	Analytical Batch:	670675
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ng/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	7.83	J	1.49	3.33	8.33
39108-34-4	8:2 Fluorotelomer sulfonate	3.33	U	1.36	3.33	8.33
2991-50-6	NEtFOSAA	6.67	U	4.48	6.67	8.33
2355-31-9	NMeFOSAA	6.67	U	3.83	6.67	8.33
375-73-5	Perfluorobutanesulfonic acid	675		1.23	3.33	8.33
375-22-4	Perfluorobutanoic acid	596		1.78	3.33	8.33
335-76-2	Perfluorodecanoic acid	3.33	U	1.38	3.33	8.33
307-55-1	Perfluorododecanoic acid	3.33	U	2.04	3.33	8.33
375-85-9	Perfluoroheptanoic acid	1060		1.54	3.33	8.33
375-95-1	Perfluorononanoic acid	9.75		1.40	3.33	8.33
376-06-7	Perfluorotetradecanoic acid	3.33	U	2.30	3.33	8.33
72629-94-8	Perfluorotridecanoic acid	3.33	U	2.13	3.33	8.33
2058-94-8	Perfluoroundecanoic acid	3.33	U	1.55	3.33	8.33

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102326	Client Sample ID:	AOI1-1-GW-102219DL
Collect Date:	10/22/19 Time: 1545	GCAL Sample ID:	21910232629DL
Matrix:	Water % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	150 mL	Lab File ID:	2191106A_66.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	50 Analyst: BMH
Prep Date:	11/02/19	Analysis Date:	11/07/19 Time: 0404
Prep Batch:	669972	Analytical Batch:	671080
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ng/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
355-46-4	Perfluorohexanesulfonic acid	7010		68.3	167	417
307-24-4	Perfluorohexanoic acid	4330		80.8	167	417
1763-23-1	Perfluorooctane Sulfonate	3660		70.8	167	417
335-67-1	Perfluorooctanoic acid	47800		75.0	167	417
2706-90-3	Perfluoropentanoic acid	1470		97.9	167	417

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102326	Client Sample ID:	AOI1-1-GW-102219 (RE)
Collect Date:	10/22/19 Time: 1545	GCAL Sample ID:	21910232634
Matrix:	Water % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	140 mL	Lab File ID:	2191118A_72.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/16/19	Analysis Date:	11/19/19 Time: 0723
Prep Batch:	671259	Analytical Batch:	671739
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ng/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
39108-34-4	8:2 Fluorotelomer sulfonate	3.57	U	1.46	3.57	8.93
2355-31-9	NMeFOSAA	7.14	U	4.11	7.14	8.93
72629-94-8	Perfluorotridecanoic acid	3.57	U	2.29	3.57	8.93

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102326	Client Sample ID:	AOI1-1-GW-102219 (RE)DL
Collect Date:	10/22/19 Time: 1545	GCAL Sample ID:	21910232634DL
Matrix:	Water % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	140 mL	Lab File ID:	2191220A_61.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	5 Analyst: BMH
Prep Date:	11/16/19	Analysis Date:	12/20/19 Time: 2023
Prep Batch:	671259	Analytical Batch:	674094
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ng/L*

CAS	*ANALYTE*	*RESULT*	*Q*	*DL*	*LOD*	*LOQ*
1763-23-1	Perfluorooctane Sulfonate	4440		7.59	17.9	44.6

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102333	Client Sample ID:	AOI7-10-SB-1.5-2-102119
Collect Date:	10/21/19 Time: 1225	GCAL Sample ID:	21910233301
Matrix:	Solid % Moisture: 6.6	Instrument ID:	QQQ1
Sample Amt:	5.23 g	Lab File ID:	2191105A_103.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	10/29/19	Analysis Date:	11/06/19 Time: 0717
Prep Batch:	669971	Analytical Batch:	670959
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ug/kg*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	0.410	U	0.174	0.410	1.02
39108-34-4	8:2 Fluorotelomer sulfonate	0.410	U	0.266	0.410	1.02
2991-50-6	NEtFOSAA	0.410	U	0.195	0.410	1.02
2355-31-9	NMeFOSAA	0.410	U	0.287	0.410	1.02
375-73-5	Perfluorobutanesulfonic acid	0.410	U	0.123	0.410	1.02
375-22-4	Perfluorobutanoic acid	0.410	U	0.133	0.410	1.02
335-76-2	Perfluorodecanoic acid	0.410	U	0.123	0.410	1.02
307-55-1	Perfluorododecanoic acid	0.410	U	0.205	0.410	1.02
375-85-9	Perfluoroheptanoic acid	0.410	U	0.133	0.410	1.02
355-46-4	Perfluorohexanesulfonic acid	0.410	U	0.143	0.410	1.02
307-24-4	Perfluorohexanoic acid	0.410	U	0.154	0.410	1.02
375-95-1	Perfluorononanoic acid	0.410	U	0.092	0.410	1.02
1763-23-1	Perfluorooctane Sulfonate	0.410	U	0.184	0.410	1.02
335-67-1	Perfluorooctanoic acid	0.410	U	0.154	0.410	1.02
2706-90-3	Perfluoropentanoic acid	0.410	U	0.154	0.410	1.02
376-06-7	Perfluorotetradecanoic acid	0.410	U	0.164	0.410	1.02
72629-94-8	Perfluorotridecanoic acid	0.410	U	0.225	0.410	1.02
2058-94-8	Perfluoroundecanoic acid	0.410	U	0.143	0.410	1.02

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102333	Client Sample ID:	AOI7-10-SB-7.5-8-102119
Collect Date:	10/21/19 Time: 1245	GCAL Sample ID:	21910233302
Matrix:	Solid % Moisture: 15.7	Instrument ID:	QQQ1
Sample Amt:	5.1 g	Lab File ID:	2191105A_104.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	10/29/19	Analysis Date:	11/06/19 Time: 0728
Prep Batch:	669971	Analytical Batch:	670959
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ug/kg*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	0.465	U	0.198	0.465	1.16
39108-34-4	8:2 Fluorotelomer sulfonate	0.465	U	0.302	0.465	1.16
2991-50-6	NEtFOSAA	0.465	U	0.221	0.465	1.16
2355-31-9	NMeFOSAA	0.465	U	0.326	0.465	1.16
375-73-5	Perfluorobutanesulfonic acid	0.465	U	0.140	0.465	1.16
375-22-4	Perfluorobutanoic acid	0.465	U	0.151	0.465	1.16
335-76-2	Perfluorodecanoic acid	0.465	U	0.140	0.465	1.16
307-55-1	Perfluorododecanoic acid	0.465	U	0.233	0.465	1.16
375-85-9	Perfluoroheptanoic acid	0.465	U	0.151	0.465	1.16
355-46-4	Perfluorohexanesulfonic acid	0.465	U	0.163	0.465	1.16
307-24-4	Perfluorohexanoic acid	0.465	U	0.174	0.465	1.16
375-95-1	Perfluorononanoic acid	0.465	U	0.105	0.465	1.16
1763-23-1	Perfluorooctane Sulfonate	0.465	U	0.209	0.465	1.16
335-67-1	Perfluorooctanoic acid	0.465	U	0.174	0.465	1.16
2706-90-3	Perfluoropentanoic acid	0.465	U	0.174	0.465	1.16
376-06-7	Perfluorotetradecanoic acid	0.465	U	0.186	0.465	1.16
72629-94-8	Perfluorotridecanoic acid	0.465	U	0.256	0.465	1.16
2058-94-8	Perfluoroundecanoic acid	0.465	U	0.163	0.465	1.16

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102333	Client Sample ID:	AOI7-10-SB-7.5-8-102119 (RE)
Collect Date:	10/21/19 Time: 1245	GCAL Sample ID:	21910233327
Matrix:	Solid % Moisture: 15.7	Instrument ID:	QQQ1
Sample Amt:	5.01 g	Lab File ID:	2191125A_69.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/22/19	Analysis Date:	11/26/19 Time: 0113
Prep Batch:	671638	Analytical Batch:	672385
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ug/kg*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
376-06-7	Perfluorotetradecanoic acid	0.473	U	0.189	0.473	1.18
72629-94-8	Perfluorotridecanoic acid	0.473	U	0.260	0.473	1.18

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102333	Client Sample ID:	AOI7-5-SB-1.5-2-102119
Collect Date:	10/21/19 Time: 1300	GCAL Sample ID:	21910233303
Matrix:	Solid % Moisture: 6.1	Instrument ID:	QQQ1
Sample Amt:	5.12 g	Lab File ID:	2191105A_105.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	10/29/19	Analysis Date:	11/06/19 Time: 0740
Prep Batch:	669971	Analytical Batch:	670959
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	0.416	U	0.177	0.416	1.04
39108-34-4	8:2 Fluorotelomer sulfonate	0.416	U	0.270	0.416	1.04
2991-50-6	NEtFOSAA	0.416	U	0.198	0.416	1.04
2355-31-9	NMeFOSAA	0.416	U	0.291	0.416	1.04
375-73-5	Perfluorobutanesulfonic acid	0.416	U	0.125	0.416	1.04
375-22-4	Perfluorobutanoic acid	0.416	U	0.135	0.416	1.04
335-76-2	Perfluorodecanoic acid	0.416	U	0.125	0.416	1.04
307-55-1	Perfluorododecanoic acid	0.416	U	0.208	0.416	1.04
375-85-9	Perfluoroheptanoic acid	0.416	U	0.135	0.416	1.04
355-46-4	Perfluorohexanesulfonic acid	0.416	U	0.146	0.416	1.04
307-24-4	Perfluorohexanoic acid	0.416	U	0.156	0.416	1.04
375-95-1	Perfluorononanoic acid	0.416	U	0.094	0.416	1.04
1763-23-1	Perfluorooctane Sulfonate	0.416	U	0.187	0.416	1.04
335-67-1	Perfluorooctanoic acid	0.395	J	0.156	0.416	1.04
2706-90-3	Perfluoropentanoic acid	0.416	U	0.156	0.416	1.04
376-06-7	Perfluorotetradecanoic acid	0.416	U	0.166	0.416	1.04
72629-94-8	Perfluorotridecanoic acid	0.416	U	0.229	0.416	1.04
2058-94-8	Perfluoroundecanoic acid	0.416	U	0.146	0.416	1.04

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102333	Client Sample ID:	AOI7-5-SB-1.5-2-102119 (RE)
Collect Date:	10/21/19 Time: 1300	GCAL Sample ID:	21910233328
Matrix:	Solid % Moisture: 6.1	Instrument ID:	QQQ1
Sample Amt:	5 g	Lab File ID:	2191125A_70.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/22/19	Analysis Date:	11/26/19 Time: 0125
Prep Batch:	671638	Analytical Batch:	672385
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ug/kg*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
376-06-7	Perfluorotetradecanoic acid	0.426	U	0.170	0.426	1.06
72629-94-8	Perfluorotridecanoic acid	0.426	U	0.234	0.426	1.06

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102333	Client Sample ID:	AOI7-10-SB-17-17.5-102119
Collect Date:	10/21/19 Time: 1310	GCAL Sample ID:	21910233304
Matrix:	Solid % Moisture: 19.9	Instrument ID:	QQQ1
Sample Amt:	5.3 g	Lab File ID:	2191105A_106.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	10/29/19	Analysis Date:	11/06/19 Time: 0751
Prep Batch:	669971	Analytical Batch:	670959
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	0.471	U	0.200	0.471	1.18
39108-34-4	8:2 Fluorotelomer sulfonate	0.471	U	0.306	0.471	1.18
2991-50-6	NEtFOSAA	0.471	U	0.224	0.471	1.18
2355-31-9	NMeFOSAA	0.471	U	0.330	0.471	1.18
375-73-5	Perfluorobutanesulfonic acid	0.471	U	0.141	0.471	1.18
375-22-4	Perfluorobutanoic acid	0.471	U	0.153	0.471	1.18
335-76-2	Perfluorodecanoic acid	0.471	U	0.141	0.471	1.18
307-55-1	Perfluorododecanoic acid	0.471	U	0.235	0.471	1.18
375-85-9	Perfluoroheptanoic acid	0.471	U	0.153	0.471	1.18
355-46-4	Perfluorohexanesulfonic acid	0.471	U	0.165	0.471	1.18
307-24-4	Perfluorohexanoic acid	0.471	U	0.177	0.471	1.18
375-95-1	Perfluorononanoic acid	0.471	U	0.106	0.471	1.18
1763-23-1	Perfluorooctane Sulfonate	0.471	U	0.212	0.471	1.18
335-67-1	Perfluorooctanoic acid	0.471	U	0.177	0.471	1.18
2706-90-3	Perfluoropentanoic acid	0.471	U	0.177	0.471	1.18
376-06-7	Perfluorotetradecanoic acid	0.471	U	0.188	0.471	1.18
72629-94-8	Perfluorotridecanoic acid	0.471	U	0.259	0.471	1.18
2058-94-8	Perfluoroundecanoic acid	0.471	U	0.165	0.471	1.18

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102333	Client Sample ID:	JFTBLA-EB-HA-102119
Collect Date:	10/21/19 Time: 1320	GCAL Sample ID:	21910233305
Matrix:	Water % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	140 mL	Lab File ID:	2191104A_42.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/02/19	Analysis Date:	11/05/19 Time: 0355
Prep Batch:	669972	Analytical Batch:	670675
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ng/L*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	9.01		1.60	3.57	8.93
39108-34-4	8:2 Fluorotelomer sulfonate	3.57	U	1.46	3.57	8.93
2991-50-6	NEtFOSAA	7.14	U	4.80	7.14	8.93
2355-31-9	NMeFOSAA	7.14	U	4.11	7.14	8.93
375-73-5	Perfluorobutanesulfonic acid	3.57	U	1.31	3.57	8.93
375-22-4	Perfluorobutanoic acid	3.57	U	1.90	3.57	8.93
335-76-2	Perfluorodecanoic acid	3.57	U	1.47	3.57	8.93
307-55-1	Perfluorododecanoic acid	3.57	U	2.19	3.57	8.93
375-85-9	Perfluoroheptanoic acid	3.57	U	1.65	3.57	8.93
355-46-4	Perfluorohexanesulfonic acid	3.57	U	1.46	3.57	8.93
307-24-4	Perfluorohexanoic acid	3.57	U	1.73	3.57	8.93
375-95-1	Perfluorononanoic acid	3.57	U	1.50	3.57	8.93
1763-23-1	Perfluorooctane Sulfonate	2.39	J	1.52	3.57	8.93
335-67-1	Perfluorooctanoic acid	3.57	U	1.61	3.57	8.93
2706-90-3	Perfluoropentanoic acid	3.57	U	2.10	3.57	8.93
376-06-7	Perfluorotetradecanoic acid	3.57	U	2.46	3.57	8.93
72629-94-8	Perfluorotridecanoic acid	3.57	U	2.29	3.57	8.93
2058-94-8	Perfluoroundecanoic acid	3.57	U	1.66	3.57	8.93

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102333	Client Sample ID:	JFTBLA-EB-HA-102119 (RE)
Collect Date:	10/21/19 Time: 1320	GCAL Sample ID:	21910233323
Matrix:	Water % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	150 mL	Lab File ID:	2191117A_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: BMH
Prep Date:	11/16/19	Analysis Date:	11/17/19 Time: 2028
Prep Batch:	671164	Analytical Batch:	671600
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ng/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
39108-34-4	8:2 Fluorotelomer sulfonate	3.33	U	1.36	3.33	8.33
2355-31-9	NMeFOSAA	6.67	U	3.83	6.67	8.33
1763-23-1	Perfluorooctane Sulfonate	3.33	U	1.42	3.33	8.33
72629-94-8	Perfluorotridecanoic acid	3.33	U	2.13	3.33	8.33

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102333	Client Sample ID:	AOI7-6-SB-1.5-2-102119
Collect Date:	10/21/19 Time: 1330	GCAL Sample ID:	21910233306
Matrix:	Solid % Moisture: 3.6	Instrument ID:	QQQ1
Sample Amt:	5.16 g	Lab File ID:	2191105A_107.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	10/29/19	Analysis Date:	11/06/19 Time: 0803
Prep Batch:	669971	Analytical Batch:	670959
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	0.402	U	0.171	0.402	1.01
39108-34-4	8:2 Fluorotelomer sulfonate	0.402	U	0.261	0.402	1.01
2991-50-6	NEtFOSAA	0.402	U	0.191	0.402	1.01
2355-31-9	NMeFOSAA	0.402	U	0.282	0.402	1.01
375-73-5	Perfluorobutanesulfonic acid	0.402	U	0.121	0.402	1.01
375-22-4	Perfluorobutanoic acid	0.402	U	0.131	0.402	1.01
335-76-2	Perfluorodecanoic acid	0.402	U	0.121	0.402	1.01
307-55-1	Perfluorododecanoic acid	0.402	U	0.201	0.402	1.01
375-85-9	Perfluoroheptanoic acid	0.402	U	0.131	0.402	1.01
355-46-4	Perfluorohexanesulfonic acid	0.402	U	0.141	0.402	1.01
307-24-4	Perfluorohexanoic acid	0.402	U	0.151	0.402	1.01
375-95-1	Perfluorononanoic acid	0.402	U	0.091	0.402	1.01
1763-23-1	Perfluorooctane Sulfonate	0.402	U	0.181	0.402	1.01
335-67-1	Perfluorooctanoic acid	0.496	J	0.151	0.402	1.01
2706-90-3	Perfluoropentanoic acid	0.402	U	0.151	0.402	1.01
376-06-7	Perfluorotetradecanoic acid	0.402	U	0.161	0.402	1.01
72629-94-8	Perfluorotridecanoic acid	0.402	U	0.221	0.402	1.01
2058-94-8	Perfluoroundecanoic acid	0.402	U	0.141	0.402	1.01

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102333	Client Sample ID:	AOI7-7-SB-1.5-2-102119
Collect Date:	10/21/19 Time: 1405	GCAL Sample ID:	21910233307
Matrix:	Solid % Moisture: 5.8	Instrument ID:	QQQ1
Sample Amt:	5.27 g	Lab File ID:	2191105A_108.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	10/29/19	Analysis Date:	11/06/19 Time: 0814
Prep Batch:	669971	Analytical Batch:	670959
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	0.403	U	0.171	0.403	1.01
39108-34-4	8:2 Fluorotelomer sulfonate	0.403	U	0.262	0.403	1.01
2991-50-6	NEtFOSAA	0.403	U	0.191	0.403	1.01
2355-31-9	NMeFOSAA	0.403	U	0.282	0.403	1.01
375-73-5	Perfluorobutanesulfonic acid	0.403	U	0.121	0.403	1.01
375-22-4	Perfluorobutanoic acid	0.403	U	0.131	0.403	1.01
335-76-2	Perfluorodecanoic acid	0.403	U	0.121	0.403	1.01
307-55-1	Perfluorododecanoic acid	0.403	U	0.201	0.403	1.01
375-85-9	Perfluoroheptanoic acid	0.403	U	0.131	0.403	1.01
355-46-4	Perfluorohexanesulfonic acid	0.403	U	0.141	0.403	1.01
307-24-4	Perfluorohexanoic acid	0.403	U	0.151	0.403	1.01
375-95-1	Perfluorononanoic acid	0.403	U	0.091	0.403	1.01
1763-23-1	Perfluorooctane Sulfonate	0.403	U	0.181	0.403	1.01
335-67-1	Perfluorooctanoic acid	0.600	J	0.151	0.403	1.01
2706-90-3	Perfluoropentanoic acid	0.403	U	0.151	0.403	1.01
376-06-7	Perfluorotetradecanoic acid	0.403	U	0.161	0.403	1.01
72629-94-8	Perfluorotridecanoic acid	0.403	U	0.222	0.403	1.01
2058-94-8	Perfluoroundecanoic acid	0.403	U	0.141	0.403	1.01

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102333	Client Sample ID:	AOI7-7-SB-1.5-2-102119 (RE)
Collect Date:	10/21/19 Time: 1405	GCAL Sample ID:	21910233329
Matrix:	Solid % Moisture: 5.8	Instrument ID:	QQQ1
Sample Amt:	5.05 g	Lab File ID:	2191125A_71.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/22/19	Analysis Date:	11/26/19 Time: 0136
Prep Batch:	671638	Analytical Batch:	672385
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ug/kg*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
376-06-7	Perfluorotetradecanoic acid	0.421	U	0.168	0.421	1.05
72629-94-8	Perfluorotridecanoic acid	0.421	U	0.231	0.421	1.05

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102333	Client Sample ID:	AOI7-10-GW-102119
Collect Date:	10/21/19 Time: 1414	GCAL Sample ID:	21910233308
Matrix:	Water % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	150 mL	Lab File ID:	2191104A_48.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/02/19	Analysis Date:	11/05/19 Time: 0503
Prep Batch:	669972	Analytical Batch:	670675
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ng/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	119		1.49	3.33	8.33
39108-34-4	8:2 Fluorotelomer sulfonate	3.33	U	1.36	3.33	8.33
2991-50-6	NEtFOSAA	6.67	U	4.48	6.67	8.33
2355-31-9	NMeFOSAA	6.67	U	3.83	6.67	8.33
375-73-5	Perfluorobutanesulfonic acid	3.33	U	1.23	3.33	8.33
375-22-4	Perfluorobutanoic acid	3.33	U	1.78	3.33	8.33
335-76-2	Perfluorodecanoic acid	2.11	J	1.38	3.33	8.33
307-55-1	Perfluorododecanoic acid	3.33	U	2.04	3.33	8.33
375-85-9	Perfluoroheptanoic acid	3.33	U	1.54	3.33	8.33
355-46-4	Perfluorohexanesulfonic acid	4.40	J	1.37	3.33	8.33
307-24-4	Perfluorohexanoic acid	7.45	J	1.62	3.33	8.33
375-95-1	Perfluorononanoic acid	3.33	U	1.40	3.33	8.33
1763-23-1	Perfluorooctane Sulfonate	8.74		1.42	3.33	8.33
335-67-1	Perfluorooctanoic acid	4.53	J	1.50	3.33	8.33
2706-90-3	Perfluoropentanoic acid	3.33	U	1.96	3.33	8.33
376-06-7	Perfluorotetradecanoic acid	3.33	U	2.30	3.33	8.33
72629-94-8	Perfluorotridecanoic acid	3.33	U	2.13	3.33	8.33
2058-94-8	Perfluoroundecanoic acid	3.33	U	1.55	3.33	8.33

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102333	Client Sample ID:	AOI7-10-GW-102119 (RE)
Collect Date:	10/21/19 Time: 1414	GCAL Sample ID:	21910233324
Matrix:	Water % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	150 mL	Lab File ID:	2191117A_21.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/16/19	Analysis Date:	11/17/19 Time: 2102
Prep Batch:	671164	Analytical Batch:	671600
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ng/L*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
39108-34-4	8:2 Fluorotelomer sulfonate	3.33	U	1.36	3.33	8.33
2355-31-9	NMeFOSAA	6.67	U	3.83	6.67	8.33
1763-23-1	Perfluorooctane Sulfonate	3.33	U	1.42	3.33	8.33
72629-94-8	Perfluorotridecanoic acid	3.33	U	2.13	3.33	8.33

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102333	Client Sample ID:	AOI7-11-SB-1.5-2-102119
Collect Date:	10/21/19 Time: 1415	GCAL Sample ID:	21910233309
Matrix:	Solid % Moisture: 19.7	Instrument ID:	QQQ1
Sample Amt:	5.1 g	Lab File ID:	2191105A_109.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	10/29/19	Analysis Date:	11/06/19 Time: 0825
Prep Batch:	669971	Analytical Batch:	670959
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ug/kg*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	0.489	U	0.208	0.489	1.22
39108-34-4	8:2 Fluorotelomer sulfonate	0.489	U	0.318	0.489	1.22
2991-50-6	NEtFOSAA	0.489	U	0.232	0.489	1.22
2355-31-9	NMeFOSAA	0.489	U	0.342	0.489	1.22
375-73-5	Perfluorobutanesulfonic acid	0.489	U	0.147	0.489	1.22
375-22-4	Perfluorobutanoic acid	0.489	U	0.159	0.489	1.22
335-76-2	Perfluorodecanoic acid	0.489	U	0.147	0.489	1.22
307-55-1	Perfluorododecanoic acid	0.489	U	0.244	0.489	1.22
375-85-9	Perfluoroheptanoic acid	0.489	U	0.159	0.489	1.22
355-46-4	Perfluorohexanesulfonic acid	0.489	U	0.171	0.489	1.22
307-24-4	Perfluorohexanoic acid	0.489	U	0.183	0.489	1.22
375-95-1	Perfluorononanoic acid	0.489	U	0.110	0.489	1.22
1763-23-1	Perfluorooctane Sulfonate	0.489	U	0.220	0.489	1.22
335-67-1	Perfluorooctanoic acid	0.489	U	0.183	0.489	1.22
2706-90-3	Perfluoropentanoic acid	0.489	U	0.183	0.489	1.22
376-06-7	Perfluorotetradecanoic acid	0.489	U	0.195	0.489	1.22
72629-94-8	Perfluorotridecanoic acid	0.489	U	0.269	0.489	1.22
2058-94-8	Perfluoroundecanoic acid	0.489	U	0.171	0.489	1.22

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102333	Client Sample ID:	AOI7-11-SB-7.5-8-102119
Collect Date:	10/21/19 Time: 1435	GCAL Sample ID:	21910233310
Matrix:	Solid % Moisture: 21.3	Instrument ID:	QQQ1
Sample Amt:	5.06 g	Lab File ID:	2191112B_80.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	10/29/19	Analysis Date:	11/13/19 Time: 0504
Prep Batch:	669971	Analytical Batch:	671184
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ug/kg*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	0.502	U	0.213	0.502	1.26
39108-34-4	8:2 Fluorotelomer sulfonate	0.502	U	0.326	0.502	1.26
2991-50-6	NEtFOSAA	0.502	U	0.238	0.502	1.26
2355-31-9	NMeFOSAA	0.502	U	0.351	0.502	1.26
375-73-5	Perfluorobutanesulfonic acid	0.502	U	0.151	0.502	1.26
375-22-4	Perfluorobutanoic acid	0.502	U	0.163	0.502	1.26
335-76-2	Perfluorodecanoic acid	0.502	U	0.151	0.502	1.26
307-55-1	Perfluorododecanoic acid	0.502	U	0.251	0.502	1.26
375-85-9	Perfluoroheptanoic acid	0.502	U	0.163	0.502	1.26
355-46-4	Perfluorohexanesulfonic acid	0.502	U	0.176	0.502	1.26
307-24-4	Perfluorohexanoic acid	0.502	U	0.188	0.502	1.26
375-95-1	Perfluorononanoic acid	0.502	U	0.113	0.502	1.26
1763-23-1	Perfluorooctane Sulfonate	0.502	U	0.226	0.502	1.26
335-67-1	Perfluorooctanoic acid	0.502	U	0.188	0.502	1.26
2706-90-3	Perfluoropentanoic acid	0.502	U	0.188	0.502	1.26
376-06-7	Perfluorotetradecanoic acid	0.502	U	0.201	0.502	1.26
72629-94-8	Perfluorotridecanoic acid	0.502	U	0.276	0.502	1.26
2058-94-8	Perfluoroundecanoic acid	0.502	U	0.176	0.502	1.26

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102333	Client Sample ID:	AOI7-8-SB-1.5-2-102119
Collect Date:	10/21/19 Time: 1445	GCAL Sample ID:	21910233311
Matrix:	Solid % Moisture: 3.7	Instrument ID:	QQQ1
Sample Amt:	5.08 g	Lab File ID:	2191105A_112.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	10/29/19	Analysis Date:	11/06/19 Time: 0859
Prep Batch:	669971	Analytical Batch:	670959
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ug/kg*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	0.409	U	0.174	0.409	1.02
39108-34-4	8:2 Fluorotelomer sulfonate	0.409	U	0.266	0.409	1.02
2991-50-6	NEtFOSAA	0.409	U	0.194	0.409	1.02
2355-31-9	NMeFOSAA	0.409	U	0.286	0.409	1.02
375-73-5	Perfluorobutanesulfonic acid	0.409	U	0.123	0.409	1.02
375-22-4	Perfluorobutanoic acid	0.409	U	0.133	0.409	1.02
335-76-2	Perfluorodecanoic acid	0.409	U	0.123	0.409	1.02
307-55-1	Perfluorododecanoic acid	0.409	U	0.204	0.409	1.02
375-85-9	Perfluoroheptanoic acid	0.409	U	0.133	0.409	1.02
355-46-4	Perfluorohexanesulfonic acid	0.409	U	0.143	0.409	1.02
307-24-4	Perfluorohexanoic acid	0.409	U	0.153	0.409	1.02
375-95-1	Perfluorononanoic acid	0.409	U	0.092	0.409	1.02
1763-23-1	Perfluorooctane Sulfonate	0.455	J	0.184	0.409	1.02
335-67-1	Perfluorooctanoic acid	0.563	J	0.153	0.409	1.02
2706-90-3	Perfluoropentanoic acid	0.409	U	0.153	0.409	1.02
376-06-7	Perfluorotetradecanoic acid	0.409	U	0.163	0.409	1.02
72629-94-8	Perfluorotridecanoic acid	0.409	U	0.225	0.409	1.02
2058-94-8	Perfluoroundecanoic acid	0.409	U	0.143	0.409	1.02

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102333	Client Sample ID:	AOI7-11-SB-18-18.5-102119
Collect Date:	10/21/19 Time: 1500	GCAL Sample ID:	21910233312
Matrix:	Solid % Moisture: 18.6	Instrument ID:	QQQ1
Sample Amt:	5.08 g	Lab File ID:	2191105A_113.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	10/29/19	Analysis Date:	11/06/19 Time: 0910
Prep Batch:	669971	Analytical Batch:	670959
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ug/kg*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	0.484	U	0.206	0.484	1.21
39108-34-4	8:2 Fluorotelomer sulfonate	0.484	U	0.314	0.484	1.21
2991-50-6	NEtFOSAA	0.484	U	0.230	0.484	1.21
2355-31-9	NMeFOSAA	0.484	U	0.339	0.484	1.21
375-73-5	Perfluorobutanesulfonic acid	0.484	U	0.145	0.484	1.21
375-22-4	Perfluorobutanoic acid	0.484	U	0.157	0.484	1.21
335-76-2	Perfluorodecanoic acid	0.484	U	0.145	0.484	1.21
307-55-1	Perfluorododecanoic acid	0.484	U	0.242	0.484	1.21
375-85-9	Perfluoroheptanoic acid	0.484	U	0.157	0.484	1.21
355-46-4	Perfluorohexanesulfonic acid	0.484	U	0.169	0.484	1.21
307-24-4	Perfluorohexanoic acid	0.484	U	0.181	0.484	1.21
375-95-1	Perfluorononanoic acid	0.484	U	0.109	0.484	1.21
1763-23-1	Perfluorooctane Sulfonate	0.484	U	0.218	0.484	1.21
335-67-1	Perfluorooctanoic acid	0.484	U	0.181	0.484	1.21
2706-90-3	Perfluoropentanoic acid	0.484	U	0.181	0.484	1.21
376-06-7	Perfluorotetradecanoic acid	0.484	U	0.193	0.484	1.21
72629-94-8	Perfluorotridecanoic acid	0.484	U	0.266	0.484	1.21
2058-94-8	Perfluoroundecanoic acid	0.484	U	0.169	0.484	1.21

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102333	Client Sample ID:	AOI7-11-SB-18-18.5-102119 (RE)
Collect Date:	10/21/19 Time: 1500	GCAL Sample ID:	21910233330
Matrix:	Solid % Moisture: 18.6	Instrument ID:	QQQ1
Sample Amt:	5 g	Lab File ID:	2191125A_72.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/22/19	Analysis Date:	11/26/19 Time: 0147
Prep Batch:	671638	Analytical Batch:	672385
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ug/kg*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
376-06-7	Perfluorotetradecanoic acid	0.491	U	0.197	0.491	1.23
72629-94-8	Perfluorotridecanoic acid	0.491	U	0.270	0.491	1.23

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102333	Client Sample ID:	AOI7-9-SB-1.5-2-102119
Collect Date:	10/21/19 Time: 1520	GCAL Sample ID:	21910233313
Matrix:	Solid % Moisture: 3.1	Instrument ID:	QQQ1
Sample Amt:	5.22 g	Lab File ID:	2191105A_114.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	10/29/19	Analysis Date:	11/06/19 Time: 0921
Prep Batch:	669971	Analytical Batch:	670959
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	0.395	U	0.168	0.395	0.988
39108-34-4	8:2 Fluorotelomer sulfonate	0.395	U	0.257	0.395	0.988
2991-50-6	NEtFOSAA	0.395	U	0.188	0.395	0.988
2355-31-9	NMeFOSAA	0.395	U	0.277	0.395	0.988
375-73-5	Perfluorobutanesulfonic acid	0.395	U	0.119	0.395	0.988
375-22-4	Perfluorobutanoic acid	0.395	U	0.128	0.395	0.988
335-76-2	Perfluorodecanoic acid	0.395	U	0.119	0.395	0.988
307-55-1	Perfluorododecanoic acid	0.395	U	0.198	0.395	0.988
375-85-9	Perfluoroheptanoic acid	0.395	U	0.128	0.395	0.988
355-46-4	Perfluorohexanesulfonic acid	0.395	U	0.138	0.395	0.988
307-24-4	Perfluorohexanoic acid	0.395	U	0.148	0.395	0.988
375-95-1	Perfluorononanoic acid	0.395	U	0.089	0.395	0.988
1763-23-1	Perfluorooctane Sulfonate	0.395	U	0.178	0.395	0.988
335-67-1	Perfluorooctanoic acid	0.395	U	0.148	0.395	0.988
2706-90-3	Perfluoropentanoic acid	0.395	U	0.148	0.395	0.988
376-06-7	Perfluorotetradecanoic acid	0.395	U	0.158	0.395	0.988
72629-94-8	Perfluorotridecanoic acid	0.395	U	0.217	0.395	0.988
2058-94-8	Perfluoroundecanoic acid	0.395	U	0.138	0.395	0.988

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102333	Client Sample ID:	AOI7-7-11-GW-102119
Collect Date:	10/21/19 Time: 1530	GCAL Sample ID:	21910233314
Matrix:	Water % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	150 mL	Lab File ID:	2191104A_49.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/02/19	Analysis Date:	11/05/19 Time: 0515
Prep Batch:	669972	Analytical Batch:	670675
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ng/L*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	94.1		1.49	3.33	8.33
39108-34-4	8:2 Fluorotelomer sulfonate	3.33	U	1.36	3.33	8.33
2991-50-6	NEtFOSAA	6.67	U	4.48	6.67	8.33
2355-31-9	NMeFOSAA	6.67	U	3.83	6.67	8.33
375-73-5	Perfluorobutanesulfonic acid	3.33	U	1.23	3.33	8.33
375-22-4	Perfluorobutanoic acid	3.33	U	1.78	3.33	8.33
335-76-2	Perfluorodecanoic acid	3.33	U	1.38	3.33	8.33
307-55-1	Perfluorododecanoic acid	3.33	U	2.04	3.33	8.33
375-85-9	Perfluoroheptanoic acid	3.33	U	1.54	3.33	8.33
355-46-4	Perfluorohexanesulfonic acid	1.63	J	1.37	3.33	8.33
307-24-4	Perfluorohexanoic acid	3.77	J	1.62	3.33	8.33
375-95-1	Perfluorononanoic acid	3.33	U	1.40	3.33	8.33
1763-23-1	Perfluorooctane Sulfonate	1.90	J	1.42	3.33	8.33
335-67-1	Perfluorooctanoic acid	3.33	U	1.50	3.33	8.33
2706-90-3	Perfluoropentanoic acid	3.33	U	1.96	3.33	8.33
376-06-7	Perfluorotetradecanoic acid	3.33	U	2.30	3.33	8.33
72629-94-8	Perfluorotridecanoic acid	3.33	U	2.13	3.33	8.33
2058-94-8	Perfluoroundecanoic acid	3.33	U	1.55	3.33	8.33

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102333	Client Sample ID:	AOI7-7-11-GW-102119 (RE)
Collect Date:	10/21/19 Time: 1530	GCAL Sample ID:	21910233325
Matrix:	Water % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	150 mL	Lab File ID:	2191117A_22.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/16/19	Analysis Date:	11/17/19 Time: 2113
Prep Batch:	671164	Analytical Batch:	671600
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ng/L*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
39108-34-4	8:2 Fluorotelomer sulfonate	3.33	U	1.36	3.33	8.33
2355-31-9	NMeFOSAA	6.67	U	3.83	6.67	8.33
1763-23-1	Perfluorooctane Sulfonate	1.56	J	1.42	3.33	8.33
72629-94-8	Perfluorotridecanoic acid	3.33	U	2.13	3.33	8.33

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102333	Client Sample ID:	AOI7-9-SB-7.5-8-102119
Collect Date:	10/21/19 Time: 1550	GCAL Sample ID:	21910233315
Matrix:	Solid % Moisture: 5.8	Instrument ID:	QQQ1
Sample Amt:	5.05 g	Lab File ID:	2191105A_115.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	10/29/19	Analysis Date:	11/06/19 Time: 0933
Prep Batch:	669971	Analytical Batch:	670959
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	0.420	U	0.179	0.420	1.05
39108-34-4	8:2 Fluorotelomer sulfonate	0.420	U	0.273	0.420	1.05
2991-50-6	NEtFOSAA	0.420	U	0.200	0.420	1.05
2355-31-9	NMeFOSAA	0.420	U	0.294	0.420	1.05
375-73-5	Perfluorobutanesulfonic acid	0.420	U	0.126	0.420	1.05
375-22-4	Perfluorobutanoic acid	0.420	U	0.137	0.420	1.05
335-76-2	Perfluorodecanoic acid	0.420	U	0.126	0.420	1.05
307-55-1	Perfluorododecanoic acid	0.420	U	0.210	0.420	1.05
375-85-9	Perfluoroheptanoic acid	0.420	U	0.137	0.420	1.05
355-46-4	Perfluorohexanesulfonic acid	0.420	U	0.147	0.420	1.05
307-24-4	Perfluorohexanoic acid	0.420	U	0.158	0.420	1.05
375-95-1	Perfluorononanoic acid	0.420	U	0.095	0.420	1.05
1763-23-1	Perfluorooctane Sulfonate	0.420	U	0.189	0.420	1.05
335-67-1	Perfluorooctanoic acid	0.420	U	0.158	0.420	1.05
2706-90-3	Perfluoropentanoic acid	0.420	U	0.158	0.420	1.05
376-06-7	Perfluorotetradecanoic acid	0.420	U	0.168	0.420	1.05
72629-94-8	Perfluorotridecanoic acid	0.420	U	0.231	0.420	1.05
2058-94-8	Perfluoroundecanoic acid	0.420	U	0.147	0.420	1.05

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102333	Client Sample ID:	JFTBLA-FRB-102119
Collect Date:	10/21/19 Time: 1600	GCAL Sample ID:	21910233316
Matrix:	Water % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	150 mL	Lab File ID:	2191104A_50.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/02/19	Analysis Date:	11/05/19 Time: 0526
Prep Batch:	669972	Analytical Batch:	670675
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ng/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	8.60		1.49	3.33	8.33
39108-34-4	8:2 Fluorotelomer sulfonate	3.33	U	1.36	3.33	8.33
2991-50-6	NEtFOSAA	6.67	U	4.48	6.67	8.33
2355-31-9	NMeFOSAA	6.67	U	3.83	6.67	8.33
375-73-5	Perfluorobutanesulfonic acid	3.33	U	1.23	3.33	8.33
375-22-4	Perfluorobutanoic acid	3.33	U	1.78	3.33	8.33
335-76-2	Perfluorodecanoic acid	3.33	U	1.38	3.33	8.33
307-55-1	Perfluorododecanoic acid	3.33	U	2.04	3.33	8.33
375-85-9	Perfluoroheptanoic acid	3.33	U	1.54	3.33	8.33
355-46-4	Perfluorohexanesulfonic acid	3.33	U	1.37	3.33	8.33
307-24-4	Perfluorohexanoic acid	3.33	U	1.62	3.33	8.33
375-95-1	Perfluorononanoic acid	3.33	U	1.40	3.33	8.33
1763-23-1	Perfluorooctane Sulfonate	3.08	J	1.42	3.33	8.33
335-67-1	Perfluorooctanoic acid	3.33	U	1.50	3.33	8.33
2706-90-3	Perfluoropentanoic acid	3.33	U	1.96	3.33	8.33
376-06-7	Perfluorotetradecanoic acid	3.33	U	2.30	3.33	8.33
72629-94-8	Perfluorotridecanoic acid	3.33	U	2.13	3.33	8.33
2058-94-8	Perfluoroundecanoic acid	3.33	U	1.55	3.33	8.33

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102333	Client Sample ID:	AOI7-1-SB-1.5-2-102119
Collect Date:	10/21/19 Time: 1600	GCAL Sample ID:	21910233317
Matrix:	Solid % Moisture: 2.2	Instrument ID:	QQQ1
Sample Amt:	5.11 g	Lab File ID:	2191105A_116.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	10/29/19	Analysis Date:	11/06/19 Time: 0944
Prep Batch:	669971	Analytical Batch:	670959
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	0.400	U	0.170	0.400	1.00
39108-34-4	8:2 Fluorotelomer sulfonate	0.400	U	0.260	0.400	1.00
2991-50-6	NEtFOSAA	0.400	U	0.190	0.400	1.00
2355-31-9	NMeFOSAA	0.400	U	0.280	0.400	1.00
375-73-5	Perfluorobutanesulfonic acid	0.400	U	0.120	0.400	1.00
375-22-4	Perfluorobutanoic acid	0.400	U	0.130	0.400	1.00
335-76-2	Perfluorodecanoic acid	0.400	U	0.120	0.400	1.00
307-55-1	Perfluorododecanoic acid	0.400	U	0.200	0.400	1.00
375-85-9	Perfluoroheptanoic acid	0.400	U	0.130	0.400	1.00
355-46-4	Perfluorohexanesulfonic acid	0.400	U	0.140	0.400	1.00
307-24-4	Perfluorohexanoic acid	0.400	U	0.150	0.400	1.00
375-95-1	Perfluorononanoic acid	0.400	U	0.090	0.400	1.00
1763-23-1	Perfluorooctane Sulfonate	0.400	U	0.180	0.400	1.00
335-67-1	Perfluorooctanoic acid	0.649	J	0.150	0.400	1.00
2706-90-3	Perfluoropentanoic acid	0.156	J	0.150	0.400	1.00
376-06-7	Perfluorotetradecanoic acid	0.400	U	0.160	0.400	1.00
72629-94-8	Perfluorotridecanoic acid	0.400	U	0.220	0.400	1.00
2058-94-8	Perfluoroundecanoic acid	0.400	U	0.140	0.400	1.00

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102333	Client Sample ID:	AOI7-9-SB-17-17.5-102119
Collect Date:	10/21/19 Time: 1605	GCAL Sample ID:	21910233318
Matrix:	Solid % Moisture: 18.6	Instrument ID:	QQQ1
Sample Amt:	5.24 g	Lab File ID:	2191105A_117.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	10/29/19	Analysis Date:	11/06/19 Time: 0956
Prep Batch:	669971	Analytical Batch:	670959
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	0.469	U	0.199	0.469	1.17
39108-34-4	8:2 Fluorotelomer sulfonate	0.469	U	0.305	0.469	1.17
2991-50-6	NEtFOSAA	0.469	U	0.223	0.469	1.17
2355-31-9	NMeFOSAA	0.469	U	0.328	0.469	1.17
375-73-5	Perfluorobutanesulfonic acid	0.469	U	0.141	0.469	1.17
375-22-4	Perfluorobutanoic acid	0.469	U	0.152	0.469	1.17
335-76-2	Perfluorodecanoic acid	0.469	U	0.141	0.469	1.17
307-55-1	Perfluorododecanoic acid	0.469	U	0.234	0.469	1.17
375-85-9	Perfluoroheptanoic acid	0.469	U	0.152	0.469	1.17
355-46-4	Perfluorohexanesulfonic acid	0.469	U	0.164	0.469	1.17
307-24-4	Perfluorohexanoic acid	0.469	U	0.176	0.469	1.17
375-95-1	Perfluorononanoic acid	0.469	U	0.106	0.469	1.17
1763-23-1	Perfluorooctane Sulfonate	0.469	U	0.211	0.469	1.17
335-67-1	Perfluorooctanoic acid	0.469	U	0.176	0.469	1.17
2706-90-3	Perfluoropentanoic acid	0.469	U	0.176	0.469	1.17
376-06-7	Perfluorotetradecanoic acid	0.469	U	0.188	0.469	1.17
72629-94-8	Perfluorotridecanoic acid	0.469	U	0.258	0.469	1.17
2058-94-8	Perfluoroundecanoic acid	0.469	U	0.164	0.469	1.17

FORM I SV-1

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102333	Client Sample ID:	AOI7-9-SB-17-17.5-102119 (RE)
Collect Date:	10/21/19 Time: 1605	GCAL Sample ID:	21910233331
Matrix:	Solid % Moisture: 18.6	Instrument ID:	QQQ1
Sample Amt:	5.03 g	Lab File ID:	2191125A_73.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/22/19	Analysis Date:	11/26/19 Time: 0159
Prep Batch:	671638	Analytical Batch:	672385
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ug/kg*

CAS	*ANALYTE*	*RESULT*	*Q*	*DL*	*LOD*	*LOQ*
376-06-7	Perfluorotetradecanoic acid	0.489	U	0.195	0.489	1.22
72629-94-8	Perfluorotridecanoic acid	0.489	U	0.269	0.489	1.22

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102333	Client Sample ID:	AOI7-2-SB-1.5-2-102119
Collect Date:	10/21/19 Time: 1620	GCAL Sample ID:	21910233319
Matrix:	Solid % Moisture: 2.1	Instrument ID:	QQQ1
Sample Amt:	5.07 g	Lab File ID:	2191105A_118.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	10/29/19	Analysis Date:	11/06/19 Time: 1007
Prep Batch:	669971	Analytical Batch:	670959
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	0.403	U	0.171	0.403	1.01
39108-34-4	8:2 Fluorotelomer sulfonate	0.403	U	0.262	0.403	1.01
2991-50-6	NEtFOSAA	0.403	U	0.191	0.403	1.01
2355-31-9	NMeFOSAA	0.403	U	0.282	0.403	1.01
375-73-5	Perfluorobutanesulfonic acid	0.403	U	0.121	0.403	1.01
375-22-4	Perfluorobutanoic acid	0.403	U	0.131	0.403	1.01
335-76-2	Perfluorodecanoic acid	0.403	U	0.121	0.403	1.01
307-55-1	Perfluorododecanoic acid	0.403	U	0.201	0.403	1.01
375-85-9	Perfluoroheptanoic acid	0.403	U	0.131	0.403	1.01
355-46-4	Perfluorohexanesulfonic acid	0.403	U	0.141	0.403	1.01
307-24-4	Perfluorohexanoic acid	0.403	U	0.151	0.403	1.01
375-95-1	Perfluorononanoic acid	0.403	U	0.091	0.403	1.01
1763-23-1	Perfluorooctane Sulfonate	0.286	J	0.181	0.403	1.01
335-67-1	Perfluorooctanoic acid	0.245	J	0.151	0.403	1.01
2706-90-3	Perfluoropentanoic acid	0.403	U	0.151	0.403	1.01
376-06-7	Perfluorotetradecanoic acid	0.403	U	0.161	0.403	1.01
72629-94-8	Perfluorotridecanoic acid	0.403	U	0.222	0.403	1.01
2058-94-8	Perfluoroundecanoic acid	0.403	U	0.141	0.403	1.01

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102333	Client Sample ID:	AOI7-3-SB-1.5-2-102119
Collect Date:	10/21/19 Time: 1635	GCAL Sample ID:	21910233320
Matrix:	Solid % Moisture: 2.7	Instrument ID:	QQQ1
Sample Amt:	5.13 g	Lab File ID:	2191105A_119.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	10/29/19	Analysis Date:	11/06/19 Time: 1018
Prep Batch:	669971	Analytical Batch:	670959
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	0.401	U	0.170	0.401	1.00
39108-34-4	8:2 Fluorotelomer sulfonate	0.401	U	0.260	0.401	1.00
2991-50-6	NEtFOSAA	0.401	U	0.190	0.401	1.00
2355-31-9	NMeFOSAA	0.401	U	0.280	0.401	1.00
375-73-5	Perfluorobutanesulfonic acid	0.401	U	0.120	0.401	1.00
375-22-4	Perfluorobutanoic acid	0.401	U	0.130	0.401	1.00
335-76-2	Perfluorodecanoic acid	0.401	U	0.120	0.401	1.00
307-55-1	Perfluorododecanoic acid	0.401	U	0.200	0.401	1.00
375-85-9	Perfluoroheptanoic acid	0.401	U	0.130	0.401	1.00
355-46-4	Perfluorohexanesulfonic acid	0.401	U	0.140	0.401	1.00
307-24-4	Perfluorohexanoic acid	0.401	U	0.150	0.401	1.00
375-95-1	Perfluorononanoic acid	0.401	U	0.090	0.401	1.00
1763-23-1	Perfluorooctane Sulfonate	0.207	J	0.180	0.401	1.00
335-67-1	Perfluorooctanoic acid	0.401	U	0.150	0.401	1.00
2706-90-3	Perfluoropentanoic acid	0.401	U	0.150	0.401	1.00
376-06-7	Perfluorotetradecanoic acid	0.401	U	0.160	0.401	1.00
72629-94-8	Perfluorotridecanoic acid	0.401	U	0.220	0.401	1.00
2058-94-8	Perfluoroundecanoic acid	0.401	U	0.140	0.401	1.00

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102333	Client Sample ID:	AOI7-9-GW-102119
Collect Date:	10/21/19 Time: 1645	GCAL Sample ID:	21910233321
Matrix:	Water % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	150 mL	Lab File ID:	2191104A_52.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/02/19	Analysis Date:	11/05/19 Time: 0549
Prep Batch:	669972	Analytical Batch:	670675
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ng/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	5.54	J	1.49	3.33	8.33
39108-34-4	8:2 Fluorotelomer sulfonate	3.33	U	1.36	3.33	8.33
2991-50-6	NEtFOSAA	6.67	U	4.48	6.67	8.33
2355-31-9	NMeFOSAA	6.67	U	3.83	6.67	8.33
375-73-5	Perfluorobutanesulfonic acid	3.33	U	1.23	3.33	8.33
375-22-4	Perfluorobutanoic acid	3.33	U	1.78	3.33	8.33
335-76-2	Perfluorodecanoic acid	3.33	U	1.38	3.33	8.33
307-55-1	Perfluorododecanoic acid	3.33	U	2.04	3.33	8.33
375-85-9	Perfluoroheptanoic acid	3.33	U	1.54	3.33	8.33
355-46-4	Perfluorohexanesulfonic acid	3.33	U	1.37	3.33	8.33
307-24-4	Perfluorohexanoic acid	3.33	U	1.62	3.33	8.33
375-95-1	Perfluorononanoic acid	3.33	U	1.40	3.33	8.33
1763-23-1	Perfluorooctane Sulfonate	2.41	J	1.42	3.33	8.33
335-67-1	Perfluorooctanoic acid	3.33	U	1.50	3.33	8.33
2706-90-3	Perfluoropentanoic acid	3.33	U	1.96	3.33	8.33
376-06-7	Perfluorotetradecanoic acid	3.33	U	2.30	3.33	8.33
72629-94-8	Perfluorotridecanoic acid	3.33	U	2.13	3.33	8.33
2058-94-8	Perfluoroundecanoic acid	3.33	U	1.55	3.33	8.33

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102333	Client Sample ID:	AOI7-9-GW-102119 (RE)
Collect Date:	10/21/19 Time: 1645	GCAL Sample ID:	21910233326
Matrix:	Water % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	150 mL	Lab File ID:	2191117A_23.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/16/19	Analysis Date:	11/17/19 Time: 2124
Prep Batch:	671164	Analytical Batch:	671600
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ng/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
39108-34-4	8:2 Fluorotelomer sulfonate	3.33	U	1.36	3.33	8.33
2355-31-9	NMeFOSAA	6.67	U	3.83	6.67	8.33
1763-23-1	Perfluorooctane Sulfonate	3.33	U	1.42	3.33	8.33
72629-94-8	Perfluorotridecanoic acid	3.33	U	2.13	3.33	8.33

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102333	Client Sample ID:	AOI7-4-1.5-2-102119
Collect Date:	10/21/19 Time: 1650	GCAL Sample ID:	21910233322
Matrix:	Solid % Moisture: 2.7	Instrument ID:	QQQ1
Sample Amt:	5.1 g	Lab File ID:	2191105A_120.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	10/29/19	Analysis Date:	11/06/19 Time: 1029
Prep Batch:	669971	Analytical Batch:	670959
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ug/kg*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	0.403	U	0.171	0.403	1.01
39108-34-4	8:2 Fluorotelomer sulfonate	0.403	U	0.262	0.403	1.01
2991-50-6	NEtFOSAA	0.403	U	0.191	0.403	1.01
2355-31-9	NMeFOSAA	0.403	U	0.282	0.403	1.01
375-73-5	Perfluorobutanesulfonic acid	0.403	U	0.121	0.403	1.01
375-22-4	Perfluorobutanoic acid	0.403	U	0.131	0.403	1.01
335-76-2	Perfluorodecanoic acid	0.403	U	0.121	0.403	1.01
307-55-1	Perfluorododecanoic acid	0.403	U	0.201	0.403	1.01
375-85-9	Perfluoroheptanoic acid	0.403	U	0.131	0.403	1.01
355-46-4	Perfluorohexanesulfonic acid	0.403	U	0.141	0.403	1.01
307-24-4	Perfluorohexanoic acid	0.403	U	0.151	0.403	1.01
375-95-1	Perfluorononanoic acid	0.403	U	0.091	0.403	1.01
1763-23-1	Perfluorooctane Sulfonate	0.259	J	0.181	0.403	1.01
335-67-1	Perfluorooctanoic acid	0.183	J	0.151	0.403	1.01
2706-90-3	Perfluoropentanoic acid	0.403	U	0.151	0.403	1.01
376-06-7	Perfluorotetradecanoic acid	0.403	U	0.161	0.403	1.01
72629-94-8	Perfluorotridecanoic acid	0.403	U	0.222	0.403	1.01
2058-94-8	Perfluoroundecanoic acid	0.403	U	0.141	0.403	1.01

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102541	Client Sample ID:	AOI1-5-SB-4.5-5-102319
Collect Date:	10/23/19 Time: 0800	GCAL Sample ID:	21910254101
Matrix:	Solid % Moisture: 35.8	Instrument ID:	QQQ1
Sample Amt:	5.26 g	Lab File ID:	2191107A_29.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/05/19	Analysis Date:	11/07/19 Time: 2208
Prep Batch:	670126	Analytical Batch:	671082
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ug/kg*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	0.592	U	0.252	0.592	1.48
39108-34-4	8:2 Fluorotelomer sulfonate	0.592	U	0.385	0.592	1.48
2991-50-6	NEtFOSAA	0.592	U	0.281	0.592	1.48
2355-31-9	NMeFOSAA	0.592	U	0.415	0.592	1.48
375-73-5	Perfluorobutanesulfonic acid	0.601	J	0.178	0.592	1.48
375-22-4	Perfluorobutanoic acid	1.96		0.193	0.592	1.48
335-76-2	Perfluorodecanoic acid	0.592	U	0.178	0.592	1.48
307-55-1	Perfluorododecanoic acid	0.592	U	0.296	0.592	1.48
375-85-9	Perfluoroheptanoic acid	16.8		0.193	0.592	1.48
355-46-4	Perfluorohexanesulfonic acid	18.6		0.207	0.592	1.48
307-24-4	Perfluorohexanoic acid	27.8		0.222	0.592	1.48
375-95-1	Perfluorononanoic acid	0.592	U	0.133	0.592	1.48
1763-23-1	Perfluorooctane Sulfonate	1.69		0.267	0.592	1.48
2706-90-3	Perfluoropentanoic acid	7.74		0.222	0.592	1.48
376-06-7	Perfluorotetradecanoic acid	0.592	U	0.237	0.592	1.48
72629-94-8	Perfluorotridecanoic acid	0.592	U	0.326	0.592	1.48
2058-94-8	Perfluoroundecanoic acid	0.592	U	0.207	0.592	1.48

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102541	Client Sample ID:	AOI1-5-SB-4.5-5-102319DL
Collect Date:	10/23/19 Time: 0800	GCAL Sample ID:	21910254101DL
Matrix:	Solid % Moisture: 35.8	Instrument ID:	QQQ1
Sample Amt:	5.26 g	Lab File ID:	2191117A_93.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	50 Analyst: BMH
Prep Date:	11/05/19	Analysis Date:	11/18/19 Time: 1127
Prep Batch:	670126	Analytical Batch:	671600
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ug/kg*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
335-67-1	Perfluorooctanoic acid	1010		11.1	29.6	74.1

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102541	Client Sample ID:	AOI1-5-SB-4.5-5-102319-D
Collect Date:	10/23/19 Time: 0800	GCAL Sample ID:	21910254102
Matrix:	Solid % Moisture: 35.9	Instrument ID:	QQQ1
Sample Amt:	5.1 g	Lab File ID:	2191107A_30.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/05/19	Analysis Date:	11/07/19 Time: 2219
Prep Batch:	670126	Analytical Batch:	671082
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	0.612	U	0.260	0.612	1.53
39108-34-4	8:2 Fluorotelomer sulfonate	0.612	U	0.398	0.612	1.53
2991-50-6	NEtFOSAA	0.612	U	0.291	0.612	1.53
2355-31-9	NMeFOSAA	0.612	U	0.428	0.612	1.53
375-73-5	Perfluorobutanesulfonic acid	0.956	J	0.184	0.612	1.53
375-22-4	Perfluorobutanoic acid	3.93		0.199	0.612	1.53
335-76-2	Perfluorodecanoic acid	0.612	U	0.184	0.612	1.53
307-55-1	Perfluorododecanoic acid	0.612	U	0.306	0.612	1.53
375-85-9	Perfluoroheptanoic acid	18.4		0.199	0.612	1.53
355-46-4	Perfluorohexanesulfonic acid	19.5		0.214	0.612	1.53
307-24-4	Perfluorohexanoic acid	39.4		0.229	0.612	1.53
375-95-1	Perfluorononanoic acid	0.612	U	0.138	0.612	1.53
1763-23-1	Perfluorooctane Sulfonate	1.88		0.275	0.612	1.53
2706-90-3	Perfluoropentanoic acid	14.6		0.229	0.612	1.53
376-06-7	Perfluorotetradecanoic acid	0.612	U	0.245	0.612	1.53
72629-94-8	Perfluorotridecanoic acid	0.612	U	0.337	0.612	1.53
2058-94-8	Perfluoroundecanoic acid	0.612	U	0.214	0.612	1.53

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102541	Client Sample ID:	AOI1-5-SB-4.5-5-102319-DDL
Collect Date:	10/23/19 Time: 0800	GCAL Sample ID:	21910254102DL
Matrix:	Solid % Moisture: 35.9	Instrument ID:	QQQ1
Sample Amt:	5.1 g	Lab File ID:	2191117A_94.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	50 Analyst: BMH
Prep Date:	11/05/19	Analysis Date:	11/18/19 Time: 1138
Prep Batch:	670126	Analytical Batch:	671600
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ug/kg*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
335-67-1	Perfluorooctanoic acid	1040		11.5	30.6	76.5

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102541	Client Sample ID:	AOI1-4-SB-4.5-5-102319-D
Collect Date:	10/23/19 Time: 0832	GCAL Sample ID:	21910254103
Matrix:	Solid % Moisture: 23.7	Instrument ID:	QQQ1
Sample Amt:	5.33 g	Lab File ID:	2191107A_31.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/05/19	Analysis Date:	11/07/19 Time: 2231
Prep Batch:	670126	Analytical Batch:	671082
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ug/kg*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	0.492	U	0.209	0.492	1.23
39108-34-4	8:2 Fluorotelomer sulfonate	0.492	U	0.320	0.492	1.23
2991-50-6	NEtFOSAA	0.492	U	0.234	0.492	1.23
2355-31-9	NMeFOSAA	0.492	U	0.344	0.492	1.23
375-73-5	Perfluorobutanesulfonic acid	0.173	J	0.148	0.492	1.23
375-22-4	Perfluorobutanoic acid	0.199	J	0.160	0.492	1.23
335-76-2	Perfluorodecanoic acid	0.231	J	0.148	0.492	1.23
307-55-1	Perfluorododecanoic acid	0.492	U	0.246	0.492	1.23
375-85-9	Perfluoroheptanoic acid	2.87		0.160	0.492	1.23
355-46-4	Perfluorohexanesulfonic acid	4.44		0.172	0.492	1.23
307-24-4	Perfluorohexanoic acid	3.99		0.185	0.492	1.23
375-95-1	Perfluorononanoic acid	0.492	U	0.111	0.492	1.23
1763-23-1	Perfluorooctane Sulfonate	13.7		0.221	0.492	1.23
2706-90-3	Perfluoropentanoic acid	0.787	J	0.185	0.492	1.23
376-06-7	Perfluorotetradecanoic acid	0.492	U	0.197	0.492	1.23
72629-94-8	Perfluorotridecanoic acid	0.492	U	0.271	0.492	1.23
2058-94-8	Perfluoroundecanoic acid	0.492	U	0.172	0.492	1.23

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102541	Client Sample ID:	AOI1-4-SB-4.5-5-102319-DDL
Collect Date:	10/23/19 Time: 0832	GCAL Sample ID:	21910254103DL
Matrix:	Solid % Moisture: 23.7	Instrument ID:	QQQ1
Sample Amt:	5.33 g	Lab File ID:	2191117A_90.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	5 Analyst: BMH
Prep Date:	11/05/19	Analysis Date:	11/18/19 Time: 1053
Prep Batch:	670126	Analytical Batch:	671600
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ug/kg*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
335-67-1	Perfluorooctanoic acid	123		0.923	2.46	6.15

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102541	Client Sample ID:	AOI1-4-SB-4.5-5-102319
Collect Date:	10/23/19 Time: 0832	GCAL Sample ID:	21910254104
Matrix:	Solid % Moisture: 3.3	Instrument ID:	QQQ1
Sample Amt:	5.15 g	Lab File ID:	2191107A_32.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/05/19	Analysis Date:	11/07/19 Time: 2242
Prep Batch:	670126	Analytical Batch:	671082
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ug/kg*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	0.401	U	0.171	0.401	1.00
39108-34-4	8:2 Fluorotelomer sulfonate	0.401	U	0.261	0.401	1.00
2991-50-6	NEtFOSAA	0.401	U	0.191	0.401	1.00
2355-31-9	NMeFOSAA	0.401	U	0.281	0.401	1.00
375-73-5	Perfluorobutanesulfonic acid	0.169	J	0.120	0.401	1.00
375-22-4	Perfluorobutanoic acid	0.200	J	0.130	0.401	1.00
335-76-2	Perfluorodecanoic acid	0.224	J	0.120	0.401	1.00
307-55-1	Perfluorododecanoic acid	0.401	U	0.201	0.401	1.00
375-85-9	Perfluoroheptanoic acid	2.62		0.130	0.401	1.00
355-46-4	Perfluorohexanesulfonic acid	4.25		0.140	0.401	1.00
307-24-4	Perfluorohexanoic acid	3.78		0.151	0.401	1.00
375-95-1	Perfluorononanoic acid	0.401	U	0.090	0.401	1.00
1763-23-1	Perfluorooctane Sulfonate	12.0		0.181	0.401	1.00
2706-90-3	Perfluoropentanoic acid	0.809	J	0.151	0.401	1.00
376-06-7	Perfluorotetradecanoic acid	0.401	U	0.161	0.401	1.00
72629-94-8	Perfluorotridecanoic acid	0.401	U	0.221	0.401	1.00
2058-94-8	Perfluoroundecanoic acid	0.401	U	0.140	0.401	1.00

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102541	Client Sample ID:	AOI1-4-SB-4.5-5-102319DL
Collect Date:	10/23/19 Time: 0832	GCAL Sample ID:	21910254104DL
Matrix:	Solid % Moisture: 3.3	Instrument ID:	QQQ1
Sample Amt:	5.15 g	Lab File ID:	2191117A_91.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	5 Analyst: BMH
Prep Date:	11/05/19	Analysis Date:	11/18/19 Time: 1104
Prep Batch:	670126	Analytical Batch:	671600
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ug/kg*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
335-67-1	Perfluorooctanoic acid	109		0.753	2.01	5.02

FORM I SV-1

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102541	Client Sample ID:	JFTBLA-EB-B-102319
Collect Date:	10/23/19 Time: 0815	GCAL Sample ID:	21910254105
Matrix:	Water % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	150 mL	Lab File ID:	2191028A_55.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	10/25/19	Analysis Date:	10/28/19 Time: 2101
Prep Batch:	670127	Analytical Batch:	670389
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ng/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	2.11	J	1.49	3.33	8.33
39108-34-4	8:2 Fluorotelomer sulfonate	3.33	U	1.36	3.33	8.33
2991-50-6	NEtFOSAA	6.67	U	4.48	6.67	8.33
2355-31-9	NMeFOSAA	6.67	U	3.83	6.67	8.33
375-73-5	Perfluorobutanesulfonic acid	3.33	U	1.23	3.33	8.33
375-22-4	Perfluorobutanoic acid	3.33	U	1.78	3.33	8.33
335-76-2	Perfluorodecanoic acid	3.33	U	1.38	3.33	8.33
375-85-9	Perfluoroheptanoic acid	3.33	U	1.54	3.33	8.33
355-46-4	Perfluorohexanesulfonic acid	3.33	U	1.37	3.33	8.33
307-24-4	Perfluorohexanoic acid	3.33	U	1.62	3.33	8.33
375-95-1	Perfluorononanoic acid	3.33	U	1.40	3.33	8.33
1763-23-1	Perfluorooctane Sulfonate	3.33	U	1.42	3.33	8.33
335-67-1	Perfluorooctanoic acid	3.33	U	1.50	3.33	8.33
2706-90-3	Perfluoropentanoic acid	3.33	U	1.96	3.33	8.33
2058-94-8	Perfluoroundecanoic acid	3.33	U	1.55	3.33	8.33

FORM I SV-1

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102541	Client Sample ID:	JFTBLA-EB-B-102319RE
Collect Date:	10/23/19 Time: 0815	GCAL Sample ID:	21910254105RE
Matrix:	Water % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	150 mL	Lab File ID:	2191107A_17.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/05/19	Analysis Date:	11/07/19 Time: 1952
Prep Batch:	670213	Analytical Batch:	671082
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ng/L*

CAS	*ANALYTE*	*RESULT*	*Q*	*DL*	*LOD*	*LOQ*
307-55-1	Perfluorododecanoic acid	3.33	U	2.04	3.33	8.33
376-06-7	Perfluorotetradecanoic acid	3.33	U	2.30	3.33	8.33
72629-94-8	Perfluorotridecanoic acid	3.33	U	2.13	3.33	8.33

FORM I SV-1

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102541	Client Sample ID:	JFTBLA-EB-HA-02319
Collect Date:	10/23/19 Time: 0820	GCAL Sample ID:	21910254106
Matrix:	Water % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	150 mL	Lab File ID:	2191028A_56.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	10/25/19	Analysis Date:	10/28/19 Time: 2112
Prep Batch:	670127	Analytical Batch:	670389
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ng/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	3.33	U	1.49	3.33	8.33
39108-34-4	8:2 Fluorotelomer sulfonate	3.33	U	1.36	3.33	8.33
2991-50-6	NEtFOSAA	6.67	U	4.48	6.67	8.33
2355-31-9	NMeFOSAA	6.67	U	3.83	6.67	8.33
375-73-5	Perfluorobutanesulfonic acid	3.33	U	1.23	3.33	8.33
375-22-4	Perfluorobutanoic acid	3.33	U	1.78	3.33	8.33
335-76-2	Perfluorodecanoic acid	3.33	U	1.38	3.33	8.33
375-85-9	Perfluoroheptanoic acid	3.33	U	1.54	3.33	8.33
355-46-4	Perfluorohexanesulfonic acid	3.33	U	1.37	3.33	8.33
307-24-4	Perfluorohexanoic acid	3.33	U	1.62	3.33	8.33
375-95-1	Perfluorononanoic acid	3.33	U	1.40	3.33	8.33
1763-23-1	Perfluorooctane Sulfonate	3.33	U	1.42	3.33	8.33
335-67-1	Perfluorooctanoic acid	3.33	U	1.50	3.33	8.33
2706-90-3	Perfluoropentanoic acid	3.33	U	1.96	3.33	8.33
2058-94-8	Perfluoroundecanoic acid	3.33	U	1.55	3.33	8.33

FORM I SV-1

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102541	Client Sample ID:	JFTBLA-EB-HA-02319RE
Collect Date:	10/23/19 Time: 0820	GCAL Sample ID:	21910254106RE
Matrix:	Water % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	150 mL	Lab File ID:	2191107A_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: BMH
Prep Date:	11/05/19	Analysis Date:	11/07/19 Time: 2003
Prep Batch:	670213	Analytical Batch:	671082
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ng/L*

CAS	*ANALYTE*	*RESULT*	*Q*	*DL*	*LOD*	*LOQ*
307-55-1	Perfluorododecanoic acid	3.33	U	2.04	3.33	8.33
376-06-7	Perfluorotetradecanoic acid	3.33	U	2.30	3.33	8.33
72629-94-8	Perfluorotridecanoic acid	3.33	U	2.13	3.33	8.33

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102541	Client Sample ID:	AOI1-6-SB-4.5-5-102319
Collect Date:	10/23/19 Time: 0830	GCAL Sample ID:	21910254107
Matrix:	Solid % Moisture: 5.4	Instrument ID:	QQQ1
Sample Amt:	5.2 g	Lab File ID:	2191107A_33.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/05/19	Analysis Date:	11/07/19 Time: 2254
Prep Batch:	670126	Analytical Batch:	671082
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ug/kg*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	0.407	U	0.173	0.407	1.02
39108-34-4	8:2 Fluorotelomer sulfonate	0.407	U	0.264	0.407	1.02
2991-50-6	NEtFOSAA	0.407	U	0.193	0.407	1.02
2355-31-9	NMeFOSAA	0.407	U	0.285	0.407	1.02
375-73-5	Perfluorobutanesulfonic acid	0.407	U	0.122	0.407	1.02
375-22-4	Perfluorobutanoic acid	0.407	U	0.132	0.407	1.02
335-76-2	Perfluorodecanoic acid	0.407	U	0.122	0.407	1.02
307-55-1	Perfluorododecanoic acid	0.407	U	0.203	0.407	1.02
375-85-9	Perfluoroheptanoic acid	1.35		0.132	0.407	1.02
355-46-4	Perfluorohexanesulfonic acid	0.803	J	0.142	0.407	1.02
307-24-4	Perfluorohexanoic acid	0.750	J	0.152	0.407	1.02
375-95-1	Perfluorononanoic acid	0.407	U	0.091	0.407	1.02
1763-23-1	Perfluorooctane Sulfonate	0.615	J	0.183	0.407	1.02
2706-90-3	Perfluoropentanoic acid	0.159	J	0.152	0.407	1.02
376-06-7	Perfluorotetradecanoic acid	0.407	U	0.163	0.407	1.02
72629-94-8	Perfluorotridecanoic acid	0.407	U	0.224	0.407	1.02
2058-94-8	Perfluoroundecanoic acid	0.407	U	0.142	0.407	1.02

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102541	Client Sample ID:	AOI1-6-SB-4.5-5-102319DL
Collect Date:	10/23/19 Time: 0830	GCAL Sample ID:	21910254107DL
Matrix:	Solid % Moisture: 5.4	Instrument ID:	QQQ1
Sample Amt:	5.2 g	Lab File ID:	2191117A_92.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	5 Analyst: BMH
Prep Date:	11/05/19	Analysis Date:	11/18/19 Time: 1116
Prep Batch:	670126	Analytical Batch:	671600
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ug/kg*

CAS	*ANALYTE*	*RESULT*	*Q*	*DL*	*LOD*	*LOQ*
335-67-1	Perfluorooctanoic acid	191		0.762	2.03	5.08

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102541	Client Sample ID:	AOI1-6-SB-4.5-5-102319 (RE)
Collect Date:	10/23/19 Time: 0830	GCAL Sample ID:	21910254127
Matrix:	Solid % Moisture: 5.4	Instrument ID:	QQQ1
Sample Amt:	5.15 g	Lab File ID:	2191119A_47.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/15/19	Analysis Date:	11/19/19 Time: 2301
Prep Batch:	670918	Analytical Batch:	671741
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ug/kg*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
376-06-7	Perfluorotetradecanoic acid	0.411	U	0.164	0.411	1.03
72629-94-8	Perfluorotridecanoic acid	0.411	U	0.226	0.411	1.03

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102541	Client Sample ID:	AOI1-4-GW-102319RE
Collect Date:	10/23/19 Time: 1140	GCAL Sample ID:	21910254117RE
Matrix:	Water % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	150 mL	Lab File ID:	2191107A_23.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/05/19	Analysis Date:	11/07/19 Time: 2100
Prep Batch:	670213	Analytical Batch:	671082
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ng/L*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
376-06-7	Perfluorotetradecanoic acid	3.33	U	2.30	3.33	8.33
72629-94-8	Perfluorotridecanoic acid	3.33	U	2.13	3.33	8.33

FORM I SV-1

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102541	Client Sample ID:	JFTBLA-EB-WM-102319
Collect Date:	10/23/19 Time: 0835	GCAL Sample ID:	21910254108
Matrix:	Water % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	150 mL	Lab File ID:	2191028A_57.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	10/25/19	Analysis Date:	10/28/19 Time: 2124
Prep Batch:	670127	Analytical Batch:	670389
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ng/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	3.33	U	1.49	3.33	8.33
39108-34-4	8:2 Fluorotelomer sulfonate	3.33	U	1.36	3.33	8.33
2991-50-6	NEtFOSAA	6.67	U	4.48	6.67	8.33
2355-31-9	NMeFOSAA	6.67	U	3.83	6.67	8.33
375-73-5	Perfluorobutanesulfonic acid	3.33	U	1.23	3.33	8.33
375-22-4	Perfluorobutanoic acid	3.33	U	1.78	3.33	8.33
335-76-2	Perfluorodecanoic acid	3.33	U	1.38	3.33	8.33
375-85-9	Perfluoroheptanoic acid	3.33	U	1.54	3.33	8.33
355-46-4	Perfluorohexanesulfonic acid	3.33	U	1.37	3.33	8.33
307-24-4	Perfluorohexanoic acid	3.33	U	1.62	3.33	8.33
375-95-1	Perfluorononanoic acid	3.33	U	1.40	3.33	8.33
1763-23-1	Perfluorooctane Sulfonate	3.33	U	1.42	3.33	8.33
335-67-1	Perfluorooctanoic acid	3.33	U	1.50	3.33	8.33
2706-90-3	Perfluoropentanoic acid	3.33	U	1.96	3.33	8.33
2058-94-8	Perfluoroundecanoic acid	3.33	U	1.55	3.33	8.33

FORM I SV-1

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102541	Client Sample ID:	JFTBLA-EB-WM-102319RE
Collect Date:	10/23/19 Time: 0835	GCAL Sample ID:	21910254108RE
Matrix:	Water % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	150 mL	Lab File ID:	2191107A_19.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/05/19	Analysis Date:	11/07/19 Time: 2015
Prep Batch:	670213	Analytical Batch:	671082
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ng/L*

CAS	*ANALYTE*	*RESULT*	*Q*	*DL*	*LOD*	*LOQ*
307-55-1	Perfluorododecanoic acid	3.33	U	2.04	3.33	8.33
376-06-7	Perfluorotetradecanoic acid	3.33	U	2.30	3.33	8.33
72629-94-8	Perfluorotridecanoic acid	3.33	U	2.13	3.33	8.33

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102541	Client Sample ID:	AOI1-5-SB-7-7.5-102319
Collect Date:	10/23/19 Time: 0845	GCAL Sample ID:	21910254109
Matrix:	Solid % Moisture: 33.3	Instrument ID:	QQQ1
Sample Amt:	5.24 g	Lab File ID:	2191107A_34.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/05/19	Analysis Date:	11/07/19 Time: 2305
Prep Batch:	670126	Analytical Batch:	671082
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ug/kg*

CAS	*ANALYTE*	*RESULT*	*Q*	*DL*	*LOD*	*LOQ*
27619-97-2	6:2 Fluorotelomer sulfonate	0.572	U	0.243	0.572	1.43
39108-34-4	8:2 Fluorotelomer sulfonate	0.572	U	0.372	0.572	1.43
2991-50-6	NEtFOSAA	0.572	U	0.272	0.572	1.43
2355-31-9	NMeFOSAA	0.572	U	0.400	0.572	1.43
375-73-5	Perfluorobutanesulfonic acid	1.66		0.172	0.572	1.43
375-22-4	Perfluorobutanoic acid	8.17		0.186	0.572	1.43
335-76-2	Perfluorodecanoic acid	0.572	U	0.172	0.572	1.43
307-55-1	Perfluorododecanoic acid	0.572	U	0.286	0.572	1.43
375-85-9	Perfluoroheptanoic acid	24.7		0.186	0.572	1.43
355-46-4	Perfluorohexanesulfonic acid	14.7		0.200	0.572	1.43
375-95-1	Perfluorononanoic acid	0.572	U	0.129	0.572	1.43
1763-23-1	Perfluorooctane Sulfonate	0.841	J	0.257	0.572	1.43
2706-90-3	Perfluoropentanoic acid	32.1		0.214	0.572	1.43
376-06-7	Perfluorotetradecanoic acid	0.572	U	0.229	0.572	1.43
72629-94-8	Perfluorotridecanoic acid	0.572	U	0.315	0.572	1.43
2058-94-8	Perfluoroundecanoic acid	0.572	U	0.200	0.572	1.43

FORM I SV-1

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102541	Client Sample ID:	AOI1-5-SB-7-7.5-102319DL
Collect Date:	10/23/19 Time: 0845	GCAL Sample ID:	21910254109DL
Matrix:	Solid % Moisture: 33.3	Instrument ID:	QQQ1
Sample Amt:	5.24 g	Lab File ID:	2191127A_88.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	50 Analyst: BMH
Prep Date:	11/05/19	Analysis Date:	11/28/19 Time: 0528
Prep Batch:	670126	Analytical Batch:	672386
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ug/kg*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
307-24-4	Perfluorohexanoic acid	56.4	J	10.7	28.6	71.5
335-67-1	Perfluorooctanoic acid	481		10.7	28.6	71.5

FORM I SV-1

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102541	Client Sample ID:	AOI1-5-SB-17.5-18-102319
Collect Date:	10/23/19 Time: 0915	GCAL Sample ID:	21910254110
Matrix:	Solid % Moisture: 18.9	Instrument ID:	QQQ1
Sample Amt:	5.19 g	Lab File ID:	2191107A_35.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/05/19	Analysis Date:	11/07/19 Time: 2316
Prep Batch:	670126	Analytical Batch:	671082
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ug/kg*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	0.475	U	0.202	0.475	1.19
39108-34-4	8:2 Fluorotelomer sulfonate	0.475	U	0.309	0.475	1.19
2991-50-6	NEtFOSAA	0.475	U	0.226	0.475	1.19
2355-31-9	NMeFOSAA	0.475	U	0.333	0.475	1.19
375-73-5	Perfluorobutanesulfonic acid	0.475	U	0.143	0.475	1.19
375-22-4	Perfluorobutanoic acid	0.475	U	0.154	0.475	1.19
335-76-2	Perfluorodecanoic acid	0.475	U	0.143	0.475	1.19
307-55-1	Perfluorododecanoic acid	0.475	U	0.238	0.475	1.19
375-85-9	Perfluoroheptanoic acid	0.475	U	0.154	0.475	1.19
355-46-4	Perfluorohexanesulfonic acid	0.475	U	0.166	0.475	1.19
307-24-4	Perfluorohexanoic acid	0.546	J	0.178	0.475	1.19
375-95-1	Perfluorononanoic acid	0.475	U	0.107	0.475	1.19
1763-23-1	Perfluorooctane Sulfonate	0.293	J	0.214	0.475	1.19
335-67-1	Perfluorooctanoic acid	3.25		0.178	0.475	1.19
2706-90-3	Perfluoropentanoic acid	0.230	J	0.178	0.475	1.19
376-06-7	Perfluorotetradecanoic acid	0.475	U	0.190	0.475	1.19
72629-94-8	Perfluorotridecanoic acid	0.475	U	0.261	0.475	1.19
2058-94-8	Perfluoroundecanoic acid	0.475	U	0.166	0.475	1.19

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102541	Client Sample ID:	AOI1-5-GW-102319
Collect Date:	10/23/19 Time: 0945	GCAL Sample ID:	21910254111
Matrix:	Water % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	140 mL	Lab File ID:	2191028A_59.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	10/25/19	Analysis Date:	10/28/19 Time: 2147
Prep Batch:	670127	Analytical Batch:	670389
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ng/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	2.22	J	1.60	3.57	8.93
39108-34-4	8:2 Fluorotelomer sulfonate	3.57	U	1.46	3.57	8.93
2991-50-6	NEtFOSAA	7.14	U	4.80	7.14	8.93
2355-31-9	NMeFOSAA	7.14	U	4.11	7.14	8.93
375-73-5	Perfluorobutanesulfonic acid	134		1.31	3.57	8.93
335-76-2	Perfluorodecanoic acid	3.57	U	1.47	3.57	8.93
355-46-4	Perfluorohexanesulfonic acid	1330		1.46	3.57	8.93
375-95-1	Perfluorononanoic acid	8.10	J	1.50	3.57	8.93
1763-23-1	Perfluorooctane Sulfonate	273		1.52	3.57	8.93
376-06-7	Perfluorotetradecanoic acid	3.57	U	2.46	3.57	8.93
72629-94-8	Perfluorotridecanoic acid	3.37	J	2.29	3.57	8.93
2058-94-8	Perfluoroundecanoic acid	3.57	U	1.66	3.57	8.93

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102541	Client Sample ID:	AOI1-5-GW-102319DL
Collect Date:	10/23/19 Time: 0945	GCAL Sample ID:	21910254111DL
Matrix:	Water % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	140 mL	Lab File ID:	2191031A_40.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	20 Analyst: BMH
Prep Date:	10/25/19	Analysis Date:	10/31/19 Time: 1858
Prep Batch:	670127	Analytical Batch:	670526
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ng/L*

CAS	*ANALYTE*	*RESULT*	*Q*	*DL*	*LOD*	*LOQ*
375-22-4	Perfluorobutanoic acid	1740		38.0	71.4	179
375-85-9	Perfluoroheptanoic acid	4730		33.0	71.4	179
307-24-4	Perfluorohexanoic acid	14100		34.6	71.4	179
2706-90-3	Perfluoropentanoic acid	7190		42.0	71.4	179

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102541	Client Sample ID:	AOI1-5-GW-102319RE
Collect Date:	10/23/19 Time: 0945	GCAL Sample ID:	21910254111RE
Matrix:	Water % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	150 mL	Lab File ID:	2191107A_20.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/05/19	Analysis Date:	11/07/19 Time: 2026
Prep Batch:	670213	Analytical Batch:	671082
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ng/L*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
307-55-1	Perfluorododecanoic acid	3.33	U	2.04	3.33	8.33

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102541	Client Sample ID:	AOI1-5-GW-102319RE1
Collect Date:	10/23/19 Time: 0945	GCAL Sample ID:	21910254111RE1
Matrix:	Water % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	140 mL	Lab File ID:	2191206A_41.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	10000000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	10/25/19	Analysis Date:	12/07/19 Time: 0045
Prep Batch:	670127	Analytical Batch:	672863
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ng/L*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
335-67-1	Perfluorooctanoic acid	166000		16100	35700	89300

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102541	Client Sample ID:	AOI1-SA-GW-102319
Collect Date:	10/23/19 Time: 1000	GCAL Sample ID:	21910254112
Matrix:	Water % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	150 mL	Lab File ID:	2191028A_60.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	10/25/19	Analysis Date:	10/28/19 Time: 2158
Prep Batch:	670127	Analytical Batch:	670389
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ng/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	3.33	U	1.49	3.33	8.33
39108-34-4	8:2 Fluorotelomer sulfonate	3.33	U	1.36	3.33	8.33
2991-50-6	NEtFOSAA	6.67	U	4.48	6.67	8.33
2355-31-9	NMeFOSAA	6.67	U	3.83	6.67	8.33
375-73-5	Perfluorobutanesulfonic acid	70.7		1.23	3.33	8.33
375-22-4	Perfluorobutanoic acid	571		1.78	3.33	8.33
335-76-2	Perfluorodecanoic acid	4.95	J	1.38	3.33	8.33
307-55-1	Perfluorododecanoic acid	3.33	U	2.04	3.33	8.33
375-85-9	Perfluoroheptanoic acid	1180		1.54	3.33	8.33
355-46-4	Perfluorohexanesulfonic acid	635		1.37	3.33	8.33
375-95-1	Perfluorononanoic acid	11.2		1.40	3.33	8.33
1763-23-1	Perfluorooctane Sulfonate	585		1.42	3.33	8.33
376-06-7	Perfluorotetradecanoic acid	3.33	U	2.30	3.33	8.33
72629-94-8	Perfluorotridecanoic acid	3.33	U	2.13	3.33	8.33
2058-94-8	Perfluoroundecanoic acid	3.33	U	1.55	3.33	8.33

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102541	Client Sample ID:	AOI1-SA-GW-102319DL
Collect Date:	10/23/19 Time: 1000	GCAL Sample ID:	21910254112DL
Matrix:	Water % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	150 mL	Lab File ID:	2191031A_30.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	50 Analyst: BMH
Prep Date:	10/25/19	Analysis Date:	10/31/19 Time: 1705
Prep Batch:	670127	Analytical Batch:	670526
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ng/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
307-24-4	Perfluorohexanoic acid	4180		80.8	167	417
335-67-1	Perfluorooctanoic acid	34900		75.0	167	417
2706-90-3	Perfluoropentanoic acid	1770		97.9	167	417

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102541	Client Sample ID:	AOI1-6-SB-9-9.5-102319
Collect Date:	10/23/19 Time: 1026	GCAL Sample ID:	21910254113
Matrix:	Solid % Moisture: 19.7	Instrument ID:	QQQ1
Sample Amt:	5.08 g	Lab File ID:	2191107A_36.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/05/19	Analysis Date:	11/07/19 Time: 2328
Prep Batch:	670126	Analytical Batch:	671082
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ug/kg*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	0.491	U	0.208	0.491	1.23
39108-34-4	8:2 Fluorotelomer sulfonate	0.491	U	0.319	0.491	1.23
2991-50-6	NEtFOSAA	0.491	U	0.233	0.491	1.23
2355-31-9	NMeFOSAA	0.491	U	0.343	0.491	1.23
375-73-5	Perfluorobutanesulfonic acid	0.491	U	0.147	0.491	1.23
375-22-4	Perfluorobutanoic acid	0.491	U	0.159	0.491	1.23
335-76-2	Perfluorodecanoic acid	0.491	U	0.147	0.491	1.23
307-55-1	Perfluorododecanoic acid	0.491	U	0.245	0.491	1.23
375-85-9	Perfluoroheptanoic acid	0.891	J	0.159	0.491	1.23
355-46-4	Perfluorohexanesulfonic acid	0.406	J	0.172	0.491	1.23
307-24-4	Perfluorohexanoic acid	1.01	J	0.184	0.491	1.23
375-95-1	Perfluorononanoic acid	0.491	U	0.110	0.491	1.23
1763-23-1	Perfluorooctane Sulfonate	0.491	U	0.221	0.491	1.23
2706-90-3	Perfluoropentanoic acid	0.308	J	0.184	0.491	1.23
376-06-7	Perfluorotetradecanoic acid	0.491	U	0.196	0.491	1.23
72629-94-8	Perfluorotridecanoic acid	0.491	U	0.270	0.491	1.23
2058-94-8	Perfluoroundecanoic acid	0.491	U	0.172	0.491	1.23

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102541	Client Sample ID:	AOI1-6-SB-9-9.5-102319DL
Collect Date:	10/23/19 Time: 1026	GCAL Sample ID:	21910254113DL
Matrix:	Solid % Moisture: 19.7	Instrument ID:	QQQ1
Sample Amt:	5.08 g	Lab File ID:	2191117A_102.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	5 Analyst: BMH
Prep Date:	11/05/19	Analysis Date:	11/18/19 Time: 1308
Prep Batch:	670126	Analytical Batch:	671600
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ug/kg*

CAS	*ANALYTE*	*RESULT*	*Q*	*DL*	*LOD*	*LOQ*
335-67-1	Perfluorooctanoic acid	69.3		0.920	2.45	6.13

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102541	Client Sample ID:	AOI1-6-SB-12.5-13-102319
Collect Date:	10/23/19 Time: 1033	GCAL Sample ID:	21910254114
Matrix:	Solid % Moisture: 23.0	Instrument ID:	QQQ1
Sample Amt:	5.28 g	Lab File ID:	2191107A_37.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/05/19	Analysis Date:	11/07/19 Time: 2339
Prep Batch:	670126	Analytical Batch:	671082
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	0.492	U	0.209	0.492	1.23
39108-34-4	8:2 Fluorotelomer sulfonate	0.492	U	0.320	0.492	1.23
2991-50-6	NEtFOSAA	0.492	U	0.234	0.492	1.23
2355-31-9	NMeFOSAA	0.492	U	0.344	0.492	1.23
375-73-5	Perfluorobutanesulfonic acid	0.492	U	0.147	0.492	1.23
375-22-4	Perfluorobutanoic acid	0.492	U	0.160	0.492	1.23
335-76-2	Perfluorodecanoic acid	0.492	U	0.147	0.492	1.23
307-55-1	Perfluorododecanoic acid	0.492	U	0.246	0.492	1.23
375-85-9	Perfluoroheptanoic acid	0.492	U	0.160	0.492	1.23
355-46-4	Perfluorohexanesulfonic acid	0.492	U	0.172	0.492	1.23
307-24-4	Perfluorohexanoic acid	0.492	U	0.184	0.492	1.23
375-95-1	Perfluorononanoic acid	0.492	U	0.111	0.492	1.23
1763-23-1	Perfluorooctane Sulfonate	1.84		0.221	0.492	1.23
335-67-1	Perfluorooctanoic acid	5.71		0.184	0.492	1.23
2706-90-3	Perfluoropentanoic acid	0.492	U	0.184	0.492	1.23
376-06-7	Perfluorotetradecanoic acid	0.492	U	0.197	0.492	1.23
72629-94-8	Perfluorotridecanoic acid	0.492	U	0.270	0.492	1.23
2058-94-8	Perfluoroundecanoic acid	0.492	U	0.172	0.492	1.23

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102541	Client Sample ID:	AOI1-6-GW-102319
Collect Date:	10/23/19 Time: 1115	GCAL Sample ID:	21910254115
Matrix:	Water % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	150 mL	Lab File ID:	2191028A_61.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	10/25/19	Analysis Date:	10/28/19 Time: 2209
Prep Batch:	670127	Analytical Batch:	670389
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ng/L*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	3.33	U	1.49	3.33	8.33
39108-34-4	8:2 Fluorotelomer sulfonate	3.33	U	1.36	3.33	8.33
2355-31-9	NMeFOSAA	6.67	U	3.83	6.67	8.33
375-73-5	Perfluorobutanesulfonic acid	22.7		1.23	3.33	8.33
375-22-4	Perfluorobutanoic acid	51.7		1.78	3.33	8.33
335-76-2	Perfluorodecanoic acid	1.59	J	1.38	3.33	8.33
375-85-9	Perfluoroheptanoic acid	114		1.54	3.33	8.33
355-46-4	Perfluorohexanesulfonic acid	341		1.37	3.33	8.33
307-24-4	Perfluorohexanoic acid	222		1.62	3.33	8.33
375-95-1	Perfluorononanoic acid	4.53	J	1.40	3.33	8.33
1763-23-1	Perfluorooctane Sulfonate	539		1.42	3.33	8.33
2706-90-3	Perfluoropentanoic acid	105		1.96	3.33	8.33

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102541	Client Sample ID:	AOI1-6-GW-102319DL
Collect Date:	10/23/19 Time: 1115	GCAL Sample ID:	21910254115DL
Matrix:	Water % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	150 mL	Lab File ID:	2191031A_31.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	50 Analyst: BMH
Prep Date:	10/25/19	Analysis Date:	10/31/19 Time: 1716
Prep Batch:	670127	Analytical Batch:	670526
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ng/L*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
335-67-1	Perfluorooctanoic acid	43600		75.0	167	417

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102541	Client Sample ID:	AOI1-6-GW-102319RE
Collect Date:	10/23/19 Time: 1115	GCAL Sample ID:	21910254115RE
Matrix:	Water % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	150 mL	Lab File ID:	2191107A_22.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/05/19	Analysis Date:	11/07/19 Time: 2049
Prep Batch:	670213	Analytical Batch:	671082
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ng/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
2991-50-6	NEtFOSAA	6.67	U	4.48	6.67	8.33
307-55-1	Perfluorododecanoic acid	3.33	U	2.04	3.33	8.33
376-06-7	Perfluorotetradecanoic acid	3.33	U	2.30	3.33	8.33
72629-94-8	Perfluorotridecanoic acid	3.33	U	2.13	3.33	8.33
2058-94-8	Perfluoroundecanoic acid	3.33	U	1.55	3.33	8.33

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102541	Client Sample ID:	AOI1-4-SB-9.5-10-102319
Collect Date:	10/23/19 Time: 1110	GCAL Sample ID:	21910254116
Matrix:	Solid % Moisture: 19.9	Instrument ID:	QQQ1
Sample Amt:	5.23 g	Lab File ID:	2191107A_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: BMH
Prep Date:	11/05/19	Analysis Date:	11/07/19 Time: 2350
Prep Batch:	670126	Analytical Batch:	671082
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ug/kg*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	0.477	U	0.203	0.477	1.19
39108-34-4	8:2 Fluorotelomer sulfonate	0.477	U	0.310	0.477	1.19
2991-50-6	NEtFOSAA	0.477	U	0.227	0.477	1.19
2355-31-9	NMeFOSAA	0.477	U	0.334	0.477	1.19
375-73-5	Perfluorobutanesulfonic acid	0.477	U	0.143	0.477	1.19
375-22-4	Perfluorobutanoic acid	0.334	J	0.155	0.477	1.19
335-76-2	Perfluorodecanoic acid	0.477	U	0.143	0.477	1.19
307-55-1	Perfluorododecanoic acid	0.477	U	0.239	0.477	1.19
375-85-9	Perfluoroheptanoic acid	0.723	J	0.155	0.477	1.19
355-46-4	Perfluorohexanesulfonic acid	0.804	J	0.167	0.477	1.19
307-24-4	Perfluorohexanoic acid	2.15		0.179	0.477	1.19
375-95-1	Perfluorononanoic acid	0.477	U	0.107	0.477	1.19
1763-23-1	Perfluorooctane Sulfonate	2.19		0.215	0.477	1.19
335-67-1	Perfluorooctanoic acid	28.4		0.179	0.477	1.19
2706-90-3	Perfluoropentanoic acid	1.01	J	0.179	0.477	1.19
376-06-7	Perfluorotetradecanoic acid	0.477	U	0.191	0.477	1.19
72629-94-8	Perfluorotridecanoic acid	0.477	U	0.263	0.477	1.19
2058-94-8	Perfluoroundecanoic acid	0.477	U	0.167	0.477	1.19

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102541	Client Sample ID:	AOI1-4-GW-102319
Collect Date:	10/23/19 Time: 1140	GCAL Sample ID:	21910254117
Matrix:	Water % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	150 mL	Lab File ID:	2191028A_62.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	10/25/19	Analysis Date:	10/28/19 Time: 2221
Prep Batch:	670127	Analytical Batch:	670389
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ng/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	3.33	U	1.49	3.33	8.33
39108-34-4	8:2 Fluorotelomer sulfonate	3.33	U	1.36	3.33	8.33
2991-50-6	NEtFOSAA	6.67	U	4.48	6.67	8.33
2355-31-9	NMeFOSAA	6.67	U	3.83	6.67	8.33
375-73-5	Perfluorobutanesulfonic acid	36.4		1.23	3.33	8.33
375-22-4	Perfluorobutanoic acid	170		1.78	3.33	8.33
335-76-2	Perfluorodecanoic acid	1.62	J	1.38	3.33	8.33
307-55-1	Perfluorododecanoic acid	3.33	U	2.04	3.33	8.33
375-85-9	Perfluoroheptanoic acid	268		1.54	3.33	8.33
355-46-4	Perfluorohexanesulfonic acid	310		1.37	3.33	8.33
307-24-4	Perfluorohexanoic acid	1140		1.62	3.33	8.33
375-95-1	Perfluorononanoic acid	5.02	J	1.40	3.33	8.33
1763-23-1	Perfluorooctane Sulfonate	583		1.42	3.33	8.33
2706-90-3	Perfluoropentanoic acid	509		1.96	3.33	8.33
2058-94-8	Perfluoroundecanoic acid	3.33	U	1.55	3.33	8.33

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102541	Client Sample ID:	AOI1-4-GW-102319DL
Collect Date:	10/23/19 Time: 1140	GCAL Sample ID:	21910254117DL
Matrix:	Water % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	150 mL	Lab File ID:	2191031A_41.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	10 Analyst: BMH
Prep Date:	10/25/19	Analysis Date:	10/31/19 Time: 1909
Prep Batch:	670127	Analytical Batch:	670526
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ng/L*

CAS	*ANALYTE*	*RESULT*	*Q*	*DL*	*LOD*	*LOQ*
335-67-1	Perfluorooctanoic acid	9690		15.0	33.3	83.3

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102541	Client Sample ID:	AOI1-2-SB-4.5-5-102319
Collect Date:	10/23/19 Time: 1255	GCAL Sample ID:	21910254118
Matrix:	Solid % Moisture: 4.7	Instrument ID:	QQQ1
Sample Amt:	5.1 g	Lab File ID:	2191107A_40.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/05/19	Analysis Date:	11/08/19 Time: 0013
Prep Batch:	670126	Analytical Batch:	671082
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ug/kg*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	0.412	U	0.175	0.412	1.03
39108-34-4	8:2 Fluorotelomer sulfonate	0.412	U	0.268	0.412	1.03
2991-50-6	NEtFOSAA	0.412	U	0.195	0.412	1.03
2355-31-9	NMeFOSAA	0.412	U	0.288	0.412	1.03
375-73-5	Perfluorobutanesulfonic acid	0.431	J	0.123	0.412	1.03
375-22-4	Perfluorobutanoic acid	0.298	J	0.134	0.412	1.03
335-76-2	Perfluorodecanoic acid	0.412	U	0.123	0.412	1.03
307-55-1	Perfluorododecanoic acid	0.412	U	0.206	0.412	1.03
375-85-9	Perfluoroheptanoic acid	5.07		0.134	0.412	1.03
355-46-4	Perfluorohexanesulfonic acid	22.7		0.144	0.412	1.03
307-24-4	Perfluorohexanoic acid	7.82		0.154	0.412	1.03
375-95-1	Perfluorononanoic acid	0.412	U	0.093	0.412	1.03
2706-90-3	Perfluoropentanoic acid	1.02	J	0.154	0.412	1.03
376-06-7	Perfluorotetradecanoic acid	0.412	U	0.165	0.412	1.03
72629-94-8	Perfluorotridecanoic acid	0.412	U	0.226	0.412	1.03
2058-94-8	Perfluoroundecanoic acid	0.412	U	0.144	0.412	1.03

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102541	Client Sample ID:	AOI1-2-SB-4.5-5-102319RE
Collect Date:	10/23/19 Time: 1255	GCAL Sample ID:	21910254118RE
Matrix:	Solid % Moisture: 4.7	Instrument ID:	QQQ1
Sample Amt:	5.1 g	Lab File ID:	2191117A_104.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/05/19	Analysis Date:	11/18/19 Time: 1331
Prep Batch:	670126	Analytical Batch:	671600
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ug/kg*

CAS	*ANALYTE*	*RESULT*	*Q*	*DL*	*LOD*	*LOQ*
1763-23-1	Perfluorooctane Sulfonate	9.85		0.185	0.412	1.03

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102541	Client Sample ID:	AOI1-2-SB-4.5-5-102319DL
Collect Date:	10/23/19 Time: 1255	GCAL Sample ID:	21910254118DL
Matrix:	Solid % Moisture: 4.7	Instrument ID:	QQQ1
Sample Amt:	5.1 g	Lab File ID:	2191117A_103.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	10 Analyst: BMH
Prep Date:	11/05/19	Analysis Date:	11/18/19 Time: 1320
Prep Batch:	670126	Analytical Batch:	671600
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ug/kg*

CAS	*ANALYTE*	*RESULT*	*Q*	*DL*	*LOD*	*LOQ*
335-67-1	Perfluorooctanoic acid	332		1.54	4.12	10.3

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102541	Client Sample ID:	AOI1-2-SB-9.5-10-102319
Collect Date:	10/23/19 Time: 1311	GCAL Sample ID:	21910254119
Matrix:	Solid % Moisture: 34.1	Instrument ID:	QQQ1
Sample Amt:	5.32 g	Lab File ID:	2191107A_41.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/05/19	Analysis Date:	11/08/19 Time: 0024
Prep Batch:	670126	Analytical Batch:	671082
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	0.571	U	0.243	0.571	1.43
39108-34-4	8:2 Fluorotelomer sulfonate	0.571	U	0.371	0.571	1.43
2991-50-6	NEtFOSAA	0.571	U	0.271	0.571	1.43
2355-31-9	NMeFOSAA	0.571	U	0.400	0.571	1.43
375-73-5	Perfluorobutanesulfonic acid	0.815	J	0.171	0.571	1.43
375-22-4	Perfluorobutanoic acid	1.12	J	0.186	0.571	1.43
335-76-2	Perfluorodecanoic acid	0.571	U	0.171	0.571	1.43
307-55-1	Perfluorododecanoic acid	0.571	U	0.285	0.571	1.43
375-85-9	Perfluoroheptanoic acid	1.11	J	0.186	0.571	1.43
355-46-4	Perfluorohexanesulfonic acid	4.96		0.200	0.571	1.43
307-24-4	Perfluorohexanoic acid	7.35		0.214	0.571	1.43
375-95-1	Perfluorononanoic acid	0.571	U	0.128	0.571	1.43
335-67-1	Perfluorooctanoic acid	31.9		0.214	0.571	1.43
2706-90-3	Perfluoropentanoic acid	3.68		0.214	0.571	1.43
376-06-7	Perfluorotetradecanoic acid	0.571	U	0.228	0.571	1.43
72629-94-8	Perfluorotridecanoic acid	0.571	U	0.314	0.571	1.43
2058-94-8	Perfluoroundecanoic acid	0.571	U	0.200	0.571	1.43

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102541	Client Sample ID:	AOI1-2-SB-9.5-10-102319RE
Collect Date:	10/23/19 Time: 1311	GCAL Sample ID:	21910254119RE
Matrix:	Solid % Moisture: 34.1	Instrument ID:	QQQ1
Sample Amt:	5.32 g	Lab File ID:	2191117A_105.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/05/19	Analysis Date:	11/18/19 Time: 1343
Prep Batch:	670126	Analytical Batch:	671600
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ug/kg*

CAS	*ANALYTE*	*RESULT*	*Q*	*DL*	*LOD*	*LOQ*
1763-23-1	Perfluorooctane Sulfonate	13.0		0.257	0.571	1.43

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102541	Client Sample ID:	AOI1-2-SB-12.5-13-102319
Collect Date:	10/23/19 Time: 1315	GCAL Sample ID:	21910254120
Matrix:	Solid % Moisture: 17.5	Instrument ID:	QQQ1
Sample Amt:	5.08 g	Lab File ID:	2191107A_42.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/05/19	Analysis Date:	11/08/19 Time: 0036
Prep Batch:	670126	Analytical Batch:	671082
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	0.477	U	0.203	0.477	1.19
39108-34-4	8:2 Fluorotelomer sulfonate	0.477	U	0.310	0.477	1.19
2991-50-6	NEtFOSAA	0.477	U	0.227	0.477	1.19
2355-31-9	NMeFOSAA	0.477	U	0.334	0.477	1.19
375-73-5	Perfluorobutanesulfonic acid	0.477	U	0.143	0.477	1.19
375-22-4	Perfluorobutanoic acid	0.477	U	0.155	0.477	1.19
335-76-2	Perfluorodecanoic acid	0.477	U	0.143	0.477	1.19
307-55-1	Perfluorododecanoic acid	0.477	U	0.239	0.477	1.19
375-85-9	Perfluoroheptanoic acid	0.477	U	0.155	0.477	1.19
355-46-4	Perfluorohexanesulfonic acid	2.36		0.167	0.477	1.19
307-24-4	Perfluorohexanoic acid	0.620	J	0.179	0.477	1.19
375-95-1	Perfluorononanoic acid	0.477	U	0.107	0.477	1.19
335-67-1	Perfluorooctanoic acid	8.83		0.179	0.477	1.19
2706-90-3	Perfluoropentanoic acid	0.231	J	0.179	0.477	1.19
376-06-7	Perfluorotetradecanoic acid	0.477	U	0.191	0.477	1.19
72629-94-8	Perfluorotridecanoic acid	0.477	U	0.263	0.477	1.19
2058-94-8	Perfluoroundecanoic acid	0.477	U	0.167	0.477	1.19

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102541	Client Sample ID:	AOI1-2-SB-12.5-13-102319 (RE)
Collect Date:	10/24/19 Time: 1010	GCAL Sample ID:	21910254128
Matrix:	Solid % Moisture: 17.5	Instrument ID:	QQQ1
Sample Amt:	5 g	Lab File ID:	2191119A_48.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/15/19	Analysis Date:	11/19/19 Time: 2312
Prep Batch:	670918	Analytical Batch:	671741
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ug/kg*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
307-55-1	Perfluorododecanoic acid	0.485	U	0.243	0.485	1.21
376-06-7	Perfluorotetradecanoic acid	0.485	U	0.194	0.485	1.21
72629-94-8	Perfluorotridecanoic acid	0.485	U	0.267	0.485	1.21

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102541	Client Sample ID:	AOI1-2-SB-12.5-13-102319RE
Collect Date:	10/23/19 Time: 1315	GCAL Sample ID:	21910254120RE
Matrix:	Solid % Moisture: 17.5	Instrument ID:	QQQ1
Sample Amt:	5.08 g	Lab File ID:	2191117A_106.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/05/19	Analysis Date:	11/18/19 Time: 1354
Prep Batch:	670126	Analytical Batch:	671600
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ug/kg*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
1763-23-1	Perfluorooctane Sulfonate	31.8		0.215	0.477	1.19

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102541	Client Sample ID:	AOI1-2-GW-102319
Collect Date:	10/23/19 Time: 1340	GCAL Sample ID:	21910254121
Matrix:	Water % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	150 mL	Lab File ID:	2191028A_63.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	10/25/19	Analysis Date:	10/28/19 Time: 2232
Prep Batch:	670127	Analytical Batch:	670389
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ng/L*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	3.33	U	1.49	3.33	8.33
39108-34-4	8:2 Fluorotelomer sulfonate	3.33	U	1.36	3.33	8.33
2355-31-9	NMeFOSAA	6.67	U	3.83	6.67	8.33
375-73-5	Perfluorobutanesulfonic acid	538		1.23	3.33	8.33
335-76-2	Perfluorodecanoic acid	2.44	J	1.38	3.33	8.33
375-85-9	Perfluoroheptanoic acid	759		1.54	3.33	8.33
375-95-1	Perfluorononanoic acid	28.5		1.40	3.33	8.33
2706-90-3	Perfluoropentanoic acid	1100		1.96	3.33	8.33
376-06-7	Perfluorotetradecanoic acid	3.33	U	2.30	3.33	8.33
72629-94-8	Perfluorotridecanoic acid	3.33	U	2.13	3.33	8.33

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102541	Client Sample ID:	AOI1-2-GW-102319DL1
Collect Date:	10/23/19 Time: 1340	GCAL Sample ID:	21910254121DL1
Matrix:	Water % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	150 mL	Lab File ID:	2191031A_32.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	50 Analyst: BMH
Prep Date:	10/25/19	Analysis Date:	10/31/19 Time: 1728
Prep Batch:	670127	Analytical Batch:	670526
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ng/L*

CAS	*ANALYTE*	*RESULT*	*Q*	*DL*	*LOD*	*LOQ*
355-46-4	Perfluorohexanesulfonic acid	10500		68.3	167	417
307-24-4	Perfluorohexanoic acid	3260		80.8	167	417
335-67-1	Perfluorooctanoic acid	34000		75.0	167	417

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102541	Client Sample ID:	AOI1-2-GW-102319RE
Collect Date:	10/23/19 Time: 1340	GCAL Sample ID:	21910254121RE
Matrix:	Water % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	150 mL	Lab File ID:	2191107A_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: BMH
Prep Date:	11/05/19	Analysis Date:	11/07/19 Time: 2112
Prep Batch:	670213	Analytical Batch:	671082
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ng/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
2991-50-6	NEtFOSAA	6.67	U	4.48	6.67	8.33
375-22-4	Perfluorobutanoic acid	648		1.78	3.33	8.33
307-55-1	Perfluorododecanoic acid	3.33	U	2.04	3.33	8.33
2058-94-8	Perfluoroundecanoic acid	3.33	U	1.55	3.33	8.33

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102541	Client Sample ID:	AOI1-2-GW-102319DL
Collect Date:	10/23/19 Time: 1340	GCAL Sample ID:	21910254121DL
Matrix:	Water % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	150 mL	Lab File ID:	2191119A_26.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	20 Analyst: BMH
Prep Date:	11/05/19	Analysis Date:	11/19/19 Time: 1903
Prep Batch:	670213	Analytical Batch:	671741
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ng/L*

CAS	*ANALYTE*	*RESULT*	*Q*	*DL*	*LOD*	*LOQ*
1763-23-1	Perfluorooctane Sulfonate	11100		28.3	66.7	167

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102541	Client Sample ID:	AOI2-3-SB-4.5-5-102319
Collect Date:	10/23/19 Time: 1455	GCAL Sample ID:	21910254122
Matrix:	Solid % Moisture: 11.7	Instrument ID:	QQQ1
Sample Amt:	5.28 g	Lab File ID:	2191107A_43.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/05/19	Analysis Date:	11/08/19 Time: 0047
Prep Batch:	670126	Analytical Batch:	671082
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ug/kg*

CAS	*ANALYTE*	*RESULT*	*Q*	*DL*	*LOD*	*LOQ*
27619-97-2	6:2 Fluorotelomer sulfonate	0.495	J	0.182	0.429	1.07
39108-34-4	8:2 Fluorotelomer sulfonate	0.429	U	0.279	0.429	1.07
2991-50-6	NEtFOSAA	0.429	U	0.204	0.429	1.07
2355-31-9	NMeFOSAA	0.429	U	0.300	0.429	1.07
375-73-5	Perfluorobutanesulfonic acid	32.4		0.129	0.429	1.07
375-22-4	Perfluorobutanoic acid	9.99		0.139	0.429	1.07
335-76-2	Perfluorodecanoic acid	0.429	U	0.129	0.429	1.07
307-55-1	Perfluorododecanoic acid	0.429	U	0.214	0.429	1.07
375-85-9	Perfluoroheptanoic acid	6.88		0.139	0.429	1.07
375-95-1	Perfluorononanoic acid	0.429	U	0.097	0.429	1.07
335-67-1	Perfluorooctanoic acid	2.45		0.161	0.429	1.07
2706-90-3	Perfluoropentanoic acid	27.7		0.161	0.429	1.07
376-06-7	Perfluorotetradecanoic acid	0.429	U	0.172	0.429	1.07
72629-94-8	Perfluorotridecanoic acid	0.429	U	0.236	0.429	1.07
2058-94-8	Perfluoroundecanoic acid	0.429	U	0.150	0.429	1.07

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102541	Client Sample ID:	AOI2-3-SB-4.5-5-102319RE
Collect Date:	10/23/19 Time: 1455	GCAL Sample ID:	21910254122RE
Matrix:	Solid % Moisture: 11.7	Instrument ID:	QQQ1
Sample Amt:	5.28 g	Lab File ID:	2191117A_96.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/05/19	Analysis Date:	11/18/19 Time: 1201
Prep Batch:	670126	Analytical Batch:	671600
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
1763-23-1	Perfluorooctane Sulfonate	25.6		0.193	0.429	1.07

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102541	Client Sample ID:	AOI2-3-SB-4.5-5-102319DL
Collect Date:	10/23/19 Time: 1455	GCAL Sample ID:	21910254122DL
Matrix:	Solid % Moisture: 11.7	Instrument ID:	QQQ1
Sample Amt:	5.28 g	Lab File ID:	2191117A_95.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	5 Analyst: BMH
Prep Date:	11/05/19	Analysis Date:	11/18/19 Time: 1150
Prep Batch:	670126	Analytical Batch:	671600
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ug/kg*

CAS	*ANALYTE*	*RESULT*	*Q*	*DL*	*LOD*	*LOQ*
355-46-4	Perfluorohexanesulfonic acid	132		0.751	2.14	5.36
307-24-4	Perfluorohexanoic acid	73.9		0.804	2.14	5.36

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102541	Client Sample ID:	AOI2-3-SB-4.5-5-102319-D
Collect Date:	10/23/19 Time: 1455	GCAL Sample ID:	21910254123
Matrix:	Solid % Moisture: 11.7	Instrument ID:	QQQ1
Sample Amt:	5.1 g	Lab File ID:	2191107A_44.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/05/19	Analysis Date:	11/08/19 Time: 0058
Prep Batch:	670126	Analytical Batch:	671082
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ug/kg*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	0.487	J	0.189	0.444	1.11
39108-34-4	8:2 Fluorotelomer sulfonate	0.444	U	0.289	0.444	1.11
2991-50-6	NEtFOSAA	0.444	U	0.211	0.444	1.11
2355-31-9	NMeFOSAA	0.444	U	0.311	0.444	1.11
375-73-5	Perfluorobutanesulfonic acid	32.9		0.133	0.444	1.11
375-22-4	Perfluorobutanoic acid	9.89		0.144	0.444	1.11
335-76-2	Perfluorodecanoic acid	0.444	U	0.133	0.444	1.11
307-55-1	Perfluorododecanoic acid	0.444	U	0.222	0.444	1.11
375-85-9	Perfluoroheptanoic acid	7.59		0.144	0.444	1.11
375-95-1	Perfluorononanoic acid	0.444	U	0.100	0.444	1.11
335-67-1	Perfluorooctanoic acid	2.86		0.167	0.444	1.11
2706-90-3	Perfluoropentanoic acid	28.2		0.167	0.444	1.11
376-06-7	Perfluorotetradecanoic acid	0.444	U	0.178	0.444	1.11
72629-94-8	Perfluorotridecanoic acid	0.444	U	0.244	0.444	1.11
2058-94-8	Perfluoroundecanoic acid	0.444	U	0.156	0.444	1.11

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102541	Client Sample ID:	AOI2-3-SB-4.5-5-102319-DDL
Collect Date:	10/23/19 Time: 1455	GCAL Sample ID:	21910254123DL
Matrix:	Solid % Moisture: 11.7	Instrument ID:	QQQ1
Sample Amt:	5.1 g	Lab File ID:	2191117A_97.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	5 Analyst: BMH
Prep Date:	11/05/19	Analysis Date:	11/18/19 Time: 1212
Prep Batch:	670126	Analytical Batch:	671600
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ug/kg*

CAS	*ANALYTE*	*RESULT*	*Q*	*DL*	*LOD*	*LOQ*
355-46-4	Perfluorohexanesulfonic acid	147		0.778	2.22	5.55
307-24-4	Perfluorohexanoic acid	69.9		0.833	2.22	5.55

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102541	Client Sample ID:	AOI2-3-SB-4.5-5-102319-DRE
Collect Date:	10/23/19 Time: 1455	GCAL Sample ID:	21910254123RE
Matrix:	Solid % Moisture: 11.7	Instrument ID:	QQQ1
Sample Amt:	5.1 g	Lab File ID:	2191117A_101.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/05/19	Analysis Date:	11/18/19 Time: 1257
Prep Batch:	670126	Analytical Batch:	671600
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ug/kg*

CAS	*ANALYTE*	*RESULT*	*Q*	*DL*	*LOD*	*LOQ*
1763-23-1	Perfluorooctane Sulfonate	26.1		0.200	0.444	1.11

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102541	Client Sample ID:	AOI2-2-SB-4.5-5-102319
Collect Date:	10/23/19 Time: 1520	GCAL Sample ID:	21910254124
Matrix:	Solid % Moisture: 12.4	Instrument ID:	QQQ1
Sample Amt:	5.12 g	Lab File ID:	2191107A_45.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/05/19	Analysis Date:	11/08/19 Time: 0110
Prep Batch:	670126	Analytical Batch:	671082
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	12.2		0.190	0.446	1.11
39108-34-4	8:2 Fluorotelomer sulfonate	21.8		0.290	0.446	1.11
2991-50-6	NEtFOSAA	0.446	U	0.212	0.446	1.11
2355-31-9	NMeFOSAA	0.446	U	0.312	0.446	1.11
375-73-5	Perfluorobutanesulfonic acid	7.24		0.134	0.446	1.11
375-22-4	Perfluorobutanoic acid	5.71		0.145	0.446	1.11
335-76-2	Perfluorodecanoic acid	0.869	J	0.134	0.446	1.11
307-55-1	Perfluorododecanoic acid	0.446	U	0.223	0.446	1.11
375-85-9	Perfluoroheptanoic acid	8.73		0.145	0.446	1.11
307-24-4	Perfluorohexanoic acid	23.7		0.167	0.446	1.11
375-95-1	Perfluorononanoic acid	2.06		0.100	0.446	1.11
335-67-1	Perfluorooctanoic acid	15.6		0.167	0.446	1.11
2706-90-3	Perfluoropentanoic acid	19.1		0.167	0.446	1.11
376-06-7	Perfluorotetradecanoic acid	0.446	U	0.178	0.446	1.11
72629-94-8	Perfluorotridecanoic acid	0.446	U	0.245	0.446	1.11
2058-94-8	Perfluoroundecanoic acid	0.446	U	0.156	0.446	1.11

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102541	Client Sample ID:	AOI2-2-SB-4.5-5-102319DL
Collect Date:	10/23/19 Time: 1520	GCAL Sample ID:	21910254124DL
Matrix:	Solid % Moisture: 12.4	Instrument ID:	QQQ1
Sample Amt:	5.12 g	Lab File ID:	2191117A_98.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	5 Analyst: BMH
Prep Date:	11/05/19	Analysis Date:	11/18/19 Time: 1223
Prep Batch:	670126	Analytical Batch:	671600
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ug/kg*

CAS	*ANALYTE*	*RESULT*	*Q*	*DL*	*LOD*	*LOQ*
355-46-4	Perfluorohexanesulfonic acid	54.7		0.780	2.23	5.57

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102541	Client Sample ID:	AOI2-2-SB-4.5-5-102319DL1
Collect Date:	10/23/19 Time: 1520	GCAL Sample ID:	21910254124DL1
Matrix:	Solid % Moisture: 12.4	Instrument ID:	QQQ1
Sample Amt:	5.12 g	Lab File ID:	2191129A_28.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	50 Analyst: BMH
Prep Date:	11/05/19	Analysis Date:	11/29/19 Time: 1943
Prep Batch:	670126	Analytical Batch:	672374
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ug/kg*

CAS	*ANALYTE*	*RESULT*	*Q*	*DL*	*LOD*	*LOQ*
1763-23-1	Perfluorooctane Sulfonate	904		10.0	22.3	55.7

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102541	Client Sample ID:	AOI2-2-SB-4.5-5-102319-D
Collect Date:	10/23/19 Time: 1520	GCAL Sample ID:	21910254125
Matrix:	Solid % Moisture: 12.5	Instrument ID:	QQQ1
Sample Amt:	5.09 g	Lab File ID:	2191107A_46.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/05/19	Analysis Date:	11/08/19 Time: 0121
Prep Batch:	670126	Analytical Batch:	671082
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	17.4		0.191	0.449	1.12
39108-34-4	8:2 Fluorotelomer sulfonate	32.7		0.292	0.449	1.12
2991-50-6	NEtFOSAA	0.247	J	0.213	0.449	1.12
2355-31-9	NMeFOSAA	0.449	U	0.314	0.449	1.12
375-73-5	Perfluorobutanesulfonic acid	10.7		0.135	0.449	1.12
375-22-4	Perfluorobutanoic acid	8.26		0.146	0.449	1.12
335-76-2	Perfluorodecanoic acid	1.32		0.135	0.449	1.12
307-55-1	Perfluorododecanoic acid	0.449	U	0.225	0.449	1.12
375-85-9	Perfluoroheptanoic acid	12.3		0.146	0.449	1.12
307-24-4	Perfluorohexanoic acid	34.4		0.168	0.449	1.12
375-95-1	Perfluorononanoic acid	3.24		0.101	0.449	1.12
335-67-1	Perfluorooctanoic acid	25.5		0.168	0.449	1.12
2706-90-3	Perfluoropentanoic acid	27.2		0.168	0.449	1.12
376-06-7	Perfluorotetradecanoic acid	0.449	U	0.180	0.449	1.12
72629-94-8	Perfluorotridecanoic acid	0.449	U	0.247	0.449	1.12
2058-94-8	Perfluoroundecanoic acid	0.182	J	0.157	0.449	1.12

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102541	Client Sample ID:	AOI2-2-SB-4.5-5-102319-DDL
Collect Date:	10/23/19 Time: 1520	GCAL Sample ID:	21910254125DL
Matrix:	Solid % Moisture: 12.5	Instrument ID:	QQQ1
Sample Amt:	5.09 g	Lab File ID:	2191117A_107.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	5 Analyst: BMH
Prep Date:	11/05/19	Analysis Date:	11/18/19 Time: 1405
Prep Batch:	670126	Analytical Batch:	671600
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ug/kg*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
355-46-4	Perfluorohexanesulfonic acid	108		0.786	2.25	5.61

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102541	Client Sample ID:	AOI2-2-SB-4.5-5-102319-DDL1
Collect Date:	10/23/19 Time: 1520	GCAL Sample ID:	21910254125DL1
Matrix:	Solid % Moisture: 12.5	Instrument ID:	QQQ1
Sample Amt:	5.09 g	Lab File ID:	2191129A_29.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	50 Analyst: BMH
Prep Date:	11/05/19	Analysis Date:	11/29/19 Time: 1954
Prep Batch:	670126	Analytical Batch:	672374
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ug/kg*

CAS	*ANALYTE*	*RESULT*	*Q*	*DL*	*LOD*	*LOQ*
1763-23-1	Perfluorooctane Sulfonate	1120		10.1	22.5	56.1

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102613	Client Sample ID:	AOI3-8-SB-1.5-2-102419
Collect Date:	10/24/19 Time: 0845	GCAL Sample ID:	21910261301
Matrix:	Solid % Moisture: 3.8	Instrument ID:	QQQ1
Sample Amt:	5.07 g	Lab File ID:	2191106A_33.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/04/19	Analysis Date:	11/06/19 Time: 2149
Prep Batch:	670205	Analytical Batch:	671080
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ug/kg*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	0.410	U	0.174	0.410	1.03
39108-34-4	8:2 Fluorotelomer sulfonate	0.410	U	0.267	0.410	1.03
2991-50-6	NEtFOSAA	0.410	U	0.195	0.410	1.03
2355-31-9	NMeFOSAA	0.410	U	0.287	0.410	1.03
375-73-5	Perfluorobutanesulfonic acid	0.410	U	0.123	0.410	1.03
375-22-4	Perfluorobutanoic acid	0.410	U	0.133	0.410	1.03
335-76-2	Perfluorodecanoic acid	0.410	U	0.123	0.410	1.03
307-55-1	Perfluorododecanoic acid	0.410	U	0.205	0.410	1.03
375-85-9	Perfluoroheptanoic acid	0.410	U	0.133	0.410	1.03
355-46-4	Perfluorohexanesulfonic acid	0.410	U	0.144	0.410	1.03
307-24-4	Perfluorohexanoic acid	0.410	U	0.154	0.410	1.03
375-95-1	Perfluorononanoic acid	0.410	U	0.092	0.410	1.03
1763-23-1	Perfluorooctane Sulfonate	0.251	J	0.185	0.410	1.03
335-67-1	Perfluorooctanoic acid	0.410	U	0.154	0.410	1.03
2706-90-3	Perfluoropentanoic acid	0.410	U	0.154	0.410	1.03
376-06-7	Perfluorotetradecanoic acid	0.410	U	0.164	0.410	1.03
72629-94-8	Perfluorotridecanoic acid	0.410	U	0.226	0.410	1.03
2058-94-8	Perfluoroundecanoic acid	0.410	U	0.144	0.410	1.03

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102613	Client Sample ID:	AOI3-8-SB-1.5-2-102419-D
Collect Date:	10/24/19 Time: 0845	GCAL Sample ID:	21910261302
Matrix:	Solid % Moisture: 1.8	Instrument ID:	QQQ1
Sample Amt:	5.43 g	Lab File ID:	2191106A_34.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/04/19	Analysis Date:	11/06/19 Time: 2200
Prep Batch:	670205	Analytical Batch:	671080
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	0.375	U	0.159	0.375	0.938
39108-34-4	8:2 Fluorotelomer sulfonate	0.375	U	0.244	0.375	0.938
2991-50-6	NEtFOSAA	0.375	U	0.178	0.375	0.938
2355-31-9	NMeFOSAA	0.375	U	0.263	0.375	0.938
375-73-5	Perfluorobutanesulfonic acid	0.375	U	0.113	0.375	0.938
375-22-4	Perfluorobutanoic acid	0.375	U	0.122	0.375	0.938
335-76-2	Perfluorodecanoic acid	0.375	U	0.113	0.375	0.938
307-55-1	Perfluorododecanoic acid	0.375	U	0.188	0.375	0.938
375-85-9	Perfluoroheptanoic acid	0.375	U	0.122	0.375	0.938
355-46-4	Perfluorohexanesulfonic acid	0.375	U	0.131	0.375	0.938
307-24-4	Perfluorohexanoic acid	0.375	U	0.141	0.375	0.938
375-95-1	Perfluorononanoic acid	0.375	U	0.084	0.375	0.938
1763-23-1	Perfluorooctane Sulfonate	0.224	J	0.169	0.375	0.938
335-67-1	Perfluorooctanoic acid	0.375	U	0.141	0.375	0.938
2706-90-3	Perfluoropentanoic acid	0.375	U	0.141	0.375	0.938
376-06-7	Perfluorotetradecanoic acid	0.375	U	0.150	0.375	0.938
72629-94-8	Perfluorotridecanoic acid	0.375	U	0.206	0.375	0.938
2058-94-8	Perfluoroundecanoic acid	0.375	U	0.131	0.375	0.938

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102613	Client Sample ID:	AOI3-8-SB-9-9.5-102419
Collect Date:	10/24/19 Time: 0907	GCAL Sample ID:	21910261303
Matrix:	Solid % Moisture: 11.9	Instrument ID:	QQQ1
Sample Amt:	5.17 g	Lab File ID:	2191106A_35.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/04/19	Analysis Date:	11/06/19 Time: 2211
Prep Batch:	670205	Analytical Batch:	671080
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ug/kg*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	0.197	J	0.187	0.439	1.10
39108-34-4	8:2 Fluorotelomer sulfonate	0.439	U	0.285	0.439	1.10
2991-50-6	NEtFOSAA	0.439	U	0.209	0.439	1.10
2355-31-9	NMeFOSAA	0.439	U	0.307	0.439	1.10
375-73-5	Perfluorobutanesulfonic acid	1.17		0.132	0.439	1.10
375-22-4	Perfluorobutanoic acid	0.736	J	0.143	0.439	1.10
335-76-2	Perfluorodecanoic acid	0.439	U	0.132	0.439	1.10
307-55-1	Perfluorododecanoic acid	0.439	U	0.220	0.439	1.10
375-85-9	Perfluoroheptanoic acid	0.513	J	0.143	0.439	1.10
355-46-4	Perfluorohexanesulfonic acid	5.25		0.154	0.439	1.10
307-24-4	Perfluorohexanoic acid	3.51		0.165	0.439	1.10
375-95-1	Perfluorononanoic acid	0.219	J	0.099	0.439	1.10
1763-23-1	Perfluorooctane Sulfonate	16.7		0.198	0.439	1.10
335-67-1	Perfluorooctanoic acid	0.780	J	0.165	0.439	1.10
2706-90-3	Perfluoropentanoic acid	2.20		0.165	0.439	1.10
376-06-7	Perfluorotetradecanoic acid	0.439	U	0.176	0.439	1.10
72629-94-8	Perfluorotridecanoic acid	0.439	U	0.242	0.439	1.10
2058-94-8	Perfluoroundecanoic acid	0.439	U	0.154	0.439	1.10

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102613	Client Sample ID:	AOI3-8-SB-13-13.5-102419
Collect Date:	10/24/19 Time: 0912	GCAL Sample ID:	21910261304
Matrix:	Solid % Moisture: 18.0	Instrument ID:	QQQ1
Sample Amt:	5.02 g	Lab File ID:	2191106A_36.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/04/19	Analysis Date:	11/06/19 Time: 2223
Prep Batch:	670205	Analytical Batch:	671080
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	0.289	J	0.206	0.486	1.21
39108-34-4	8:2 Fluorotelomer sulfonate	0.486	U	0.316	0.486	1.21
2991-50-6	NEtFOSAA	0.486	U	0.231	0.486	1.21
2355-31-9	NMeFOSAA	0.486	U	0.340	0.486	1.21
375-73-5	Perfluorobutanesulfonic acid	0.778	J	0.146	0.486	1.21
375-22-4	Perfluorobutanoic acid	0.200	J	0.158	0.486	1.21
335-76-2	Perfluorodecanoic acid	0.486	U	0.146	0.486	1.21
307-55-1	Perfluorododecanoic acid	0.486	U	0.243	0.486	1.21
375-85-9	Perfluoroheptanoic acid	0.225	J	0.158	0.486	1.21
355-46-4	Perfluorohexanesulfonic acid	4.89		0.170	0.486	1.21
307-24-4	Perfluorohexanoic acid	1.65		0.182	0.486	1.21
375-95-1	Perfluorononanoic acid	0.486	U	0.109	0.486	1.21
1763-23-1	Perfluorooctane Sulfonate	0.486	U	0.219	0.486	1.21
335-67-1	Perfluorooctanoic acid	0.459	J	0.182	0.486	1.21
2706-90-3	Perfluoropentanoic acid	0.529	J	0.182	0.486	1.21
376-06-7	Perfluorotetradecanoic acid	0.486	U	0.194	0.486	1.21
72629-94-8	Perfluorotridecanoic acid	0.486	U	0.267	0.486	1.21
2058-94-8	Perfluoroundecanoic acid	0.486	U	0.170	0.486	1.21

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102613	Client Sample ID:	AOI3-11-SB-1.5-2-102419
Collect Date:	10/24/19 Time: 0920	GCAL Sample ID:	21910261305
Matrix:	Solid % Moisture: 5.4	Instrument ID:	QQQ1
Sample Amt:	5.06 g	Lab File ID:	2191106A_37.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/04/19	Analysis Date:	11/06/19 Time: 2234
Prep Batch:	670205	Analytical Batch:	671080
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ug/kg*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	0.356	J	0.178	0.418	1.04
39108-34-4	8:2 Fluorotelomer sulfonate	0.440	J	0.272	0.418	1.04
2991-50-6	NEtFOSAA	0.418	U	0.198	0.418	1.04
2355-31-9	NMeFOSAA	0.418	U	0.293	0.418	1.04
375-73-5	Perfluorobutanesulfonic acid	0.203	J	0.125	0.418	1.04
375-22-4	Perfluorobutanoic acid	0.372	J	0.136	0.418	1.04
335-76-2	Perfluorodecanoic acid	0.308	J	0.125	0.418	1.04
307-55-1	Perfluorododecanoic acid	0.418	U	0.209	0.418	1.04
375-85-9	Perfluoroheptanoic acid	0.254	J	0.136	0.418	1.04
355-46-4	Perfluorohexanesulfonic acid	7.02		0.146	0.418	1.04
307-24-4	Perfluorohexanoic acid	1.41		0.157	0.418	1.04
375-95-1	Perfluorononanoic acid	1.02	J	0.094	0.418	1.04
335-67-1	Perfluorooctanoic acid	0.922	J	0.157	0.418	1.04
2706-90-3	Perfluoropentanoic acid	0.505	J	0.157	0.418	1.04
376-06-7	Perfluorotetradecanoic acid	0.418	U	0.167	0.418	1.04
72629-94-8	Perfluorotridecanoic acid	0.386	J	0.230	0.418	1.04
2058-94-8	Perfluoroundecanoic acid	3.45		0.146	0.418	1.04

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102613	Client Sample ID:	AOI3-11-SB-1.5-2-102419DL
Collect Date:	10/24/19 Time: 0920	GCAL Sample ID:	21910261305DL
Matrix:	Solid % Moisture: 5.4	Instrument ID:	QQQ1
Sample Amt:	5.06 g	Lab File ID:	2191129A_27.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	50 Analyst: BMH
Prep Date:	11/04/19	Analysis Date:	11/29/19 Time: 1931
Prep Batch:	670205	Analytical Batch:	672374
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ug/kg*

CAS	*ANALYTE*	*RESULT*	*Q*	*DL*	*LOD*	*LOQ*
1763-23-1	Perfluorooctane Sulfonate	643		9.40	20.9	52.2

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102613	Client Sample ID:	AOI3-11-SB-8.5-9-102419
Collect Date:	10/24/19 Time: 0950	GCAL Sample ID:	21910261306
Matrix:	Solid % Moisture: 19.8	Instrument ID:	QQQ1
Sample Amt:	5.18 g	Lab File ID:	2191106A_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: BMH
Prep Date:	11/04/19	Analysis Date:	11/06/19 Time: 2245
Prep Batch:	670205	Analytical Batch:	671080
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ug/kg*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	1.29		0.205	0.481	1.20
39108-34-4	8:2 Fluorotelomer sulfonate	0.481	U	0.313	0.481	1.20
2991-50-6	NEtFOSAA	0.481	U	0.229	0.481	1.20
2355-31-9	NMeFOSAA	0.481	U	0.337	0.481	1.20
375-73-5	Perfluorobutanesulfonic acid	9.73		0.144	0.481	1.20
375-22-4	Perfluorobutanoic acid	2.37		0.156	0.481	1.20
335-76-2	Perfluorodecanoic acid	0.481	U	0.144	0.481	1.20
307-55-1	Perfluorododecanoic acid	0.481	U	0.241	0.481	1.20
375-85-9	Perfluoroheptanoic acid	1.80		0.156	0.481	1.20
307-24-4	Perfluorohexanoic acid	23.0		0.180	0.481	1.20
375-95-1	Perfluorononanoic acid	0.256	J	0.108	0.481	1.20
335-67-1	Perfluorooctanoic acid	6.61		0.180	0.481	1.20
2706-90-3	Perfluoropentanoic acid	6.94		0.180	0.481	1.20
376-06-7	Perfluorotetradecanoic acid	0.481	U	0.192	0.481	1.20
72629-94-8	Perfluorotridecanoic acid	0.481	U	0.265	0.481	1.20
2058-94-8	Perfluoroundecanoic acid	0.478	J	0.168	0.481	1.20

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102613	Client Sample ID:	AOI3-11-SB-8.5-9-102419DL
Collect Date:	10/24/19 Time: 0950	GCAL Sample ID:	21910261306DL
Matrix:	Solid % Moisture: 19.8	Instrument ID:	QQQ1
Sample Amt:	5.18 g	Lab File ID:	2191117A_84.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	20 Analyst: BMH
Prep Date:	11/04/19	Analysis Date:	11/18/19 Time: 0856
Prep Batch:	670205	Analytical Batch:	671600
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
355-46-4	Perfluorohexanesulfonic acid	67.6		3.37	9.62	24.1
1763-23-1	Perfluorooctane Sulfonate	599		4.33	9.62	24.1

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102613	Client Sample ID:	AOI3-11-SB-11-11.5-102419
Collect Date:	10/24/19 Time: 0954	GCAL Sample ID:	21910261307
Matrix:	Solid % Moisture: 20.8	Instrument ID:	QQQ1
Sample Amt:	5.06 g	Lab File ID:	2191106A_39.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/04/19	Analysis Date:	11/06/19 Time: 2257
Prep Batch:	670205	Analytical Batch:	671080
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	1.48		0.212	0.499	1.25
39108-34-4	8:2 Fluorotelomer sulfonate	0.499	U	0.324	0.499	1.25
2991-50-6	NEtFOSAA	0.499	U	0.237	0.499	1.25
2355-31-9	NMeFOSAA	0.499	U	0.349	0.499	1.25
375-73-5	Perfluorobutanesulfonic acid	1.79		0.150	0.499	1.25
375-22-4	Perfluorobutanoic acid	0.612	J	0.162	0.499	1.25
335-76-2	Perfluorodecanoic acid	0.499	U	0.150	0.499	1.25
307-55-1	Perfluorododecanoic acid	0.499	U	0.249	0.499	1.25
375-85-9	Perfluoroheptanoic acid	0.735	J	0.162	0.499	1.25
355-46-4	Perfluorohexanesulfonic acid	22.3		0.175	0.499	1.25
307-24-4	Perfluorohexanoic acid	5.82		0.187	0.499	1.25
375-95-1	Perfluorononanoic acid	0.499	U	0.112	0.499	1.25
1763-23-1	Perfluorooctane Sulfonate	25.6		0.224	0.499	1.25
335-67-1	Perfluorooctanoic acid	2.94		0.187	0.499	1.25
2706-90-3	Perfluoropentanoic acid	1.88		0.187	0.499	1.25
376-06-7	Perfluorotetradecanoic acid	0.499	U	0.200	0.499	1.25
72629-94-8	Perfluorotridecanoic acid	0.499	U	0.274	0.499	1.25
2058-94-8	Perfluoroundecanoic acid	0.499	U	0.175	0.499	1.25

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102613	Client Sample ID:	AOI3-11-SB-11-11.5-102419 (RE)
Collect Date:	10/24/19 Time: 0954	GCAL Sample ID:	21910261321
Matrix:	Solid % Moisture: 20.8	Instrument ID:	QQQ1
Sample Amt:	5.11 g	Lab File ID:	2191119A_49.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/15/19	Analysis Date:	11/19/19 Time: 2324
Prep Batch:	670918	Analytical Batch:	671741
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ug/kg*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
376-06-7	Perfluorotetradecanoic acid	0.494	U	0.198	0.494	1.23
72629-94-8	Perfluorotridecanoic acid	0.494	U	0.272	0.494	1.23

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102613	Client Sample ID:	AOI3-12-SB-1.5-2-102419
Collect Date:	10/24/19 Time: 1020	GCAL Sample ID:	21910261308
Matrix:	Solid % Moisture: 11.8	Instrument ID:	QQQ1
Sample Amt:	5.23 g	Lab File ID:	2191106A_40.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/04/19	Analysis Date:	11/06/19 Time: 2308
Prep Batch:	670205	Analytical Batch:	671080
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ug/kg*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
39108-34-4	8:2 Fluorotelomer sulfonate	13.4		0.282	0.433	1.08
2991-50-6	NEtFOSAA	0.433	U	0.206	0.433	1.08
2355-31-9	NMeFOSAA	0.433	U	0.303	0.433	1.08
375-73-5	Perfluorobutanesulfonic acid	12.4		0.130	0.433	1.08
375-22-4	Perfluorobutanoic acid	31.3		0.141	0.433	1.08
335-76-2	Perfluorodecanoic acid	0.581	J	0.130	0.433	1.08
307-55-1	Perfluorododecanoic acid	0.433	U	0.217	0.433	1.08
375-85-9	Perfluoroheptanoic acid	25.2		0.141	0.433	1.08
375-95-1	Perfluorononanoic acid	2.91		0.098	0.433	1.08
376-06-7	Perfluorotetradecanoic acid	0.433	U	0.173	0.433	1.08
72629-94-8	Perfluorotridecanoic acid	0.433	U	0.238	0.433	1.08
2058-94-8	Perfluoroundecanoic acid	0.433	U	0.152	0.433	1.08

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102613	Client Sample ID:	AOI3-12-SB-1.5-2-102419DL
Collect Date:	10/24/19 Time: 1020	GCAL Sample ID:	21910261308DL
Matrix:	Solid % Moisture: 11.8	Instrument ID:	QQQ1
Sample Amt:	5.23 g	Lab File ID:	2191117A_86.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	50 Analyst: BMH
Prep Date:	11/04/19	Analysis Date:	11/18/19 Time: 0918
Prep Batch:	670205	Analytical Batch:	671600
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ug/kg*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	202		9.21	21.7	54.2
355-46-4	Perfluorohexanesulfonic acid	110		7.58	21.7	54.2
307-24-4	Perfluorohexanoic acid	163		8.13	21.7	54.2
1763-23-1	Perfluorooctane Sulfonate	739		9.75	21.7	54.2
335-67-1	Perfluorooctanoic acid	219		8.13	21.7	54.2
2706-90-3	Perfluoropentanoic acid	128		8.13	21.7	54.2

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102613	Client Sample ID:	AOI3-12-SB-7-7.5-102419
Collect Date:	10/24/19 Time: 1040	GCAL Sample ID:	21910261309
Matrix:	Solid % Moisture: 19.2	Instrument ID:	QQQ1
Sample Amt:	5.5 g	Lab File ID:	2191106A_41.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/04/19	Analysis Date:	11/06/19 Time: 2319
Prep Batch:	670205	Analytical Batch:	671080
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
39108-34-4	8:2 Fluorotelomer sulfonate	0.858	J	0.292	0.450	1.12
2991-50-6	NEtFOSAA	0.450	U	0.214	0.450	1.12
2355-31-9	NMeFOSAA	0.450	U	0.315	0.450	1.12
375-73-5	Perfluorobutanesulfonic acid	19.0		0.135	0.450	1.12
375-22-4	Perfluorobutanoic acid	16.6		0.146	0.450	1.12
335-76-2	Perfluorodecanoic acid	0.450	U	0.135	0.450	1.12
307-55-1	Perfluorododecanoic acid	0.450	U	0.225	0.450	1.12
375-85-9	Perfluoroheptanoic acid	33.1		0.146	0.450	1.12
375-95-1	Perfluorononanoic acid	0.296	J	0.101	0.450	1.12
1763-23-1	Perfluorooctane Sulfonate	32.4		0.202	0.450	1.12
376-06-7	Perfluorotetradecanoic acid	0.450	U	0.180	0.450	1.12
72629-94-8	Perfluorotridecanoic acid	0.450	U	0.247	0.450	1.12
2058-94-8	Perfluoroundecanoic acid	0.450	U	0.157	0.450	1.12

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102613	Client Sample ID:	AOI3-12-SB-7-7.5-102419DL
Collect Date:	10/24/19 Time: 1040	GCAL Sample ID:	21910261309DL
Matrix:	Solid % Moisture: 19.2	Instrument ID:	QQQ1
Sample Amt:	5.5 g	Lab File ID:	2191117A_82.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	5 Analyst: BMH
Prep Date:	11/04/19	Analysis Date:	11/18/19 Time: 0833
Prep Batch:	670205	Analytical Batch:	671600
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ug/kg*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	115		0.956	2.25	5.62
355-46-4	Perfluorohexanesulfonic acid	191		0.787	2.25	5.62
307-24-4	Perfluorohexanoic acid	152		0.843	2.25	5.62
335-67-1	Perfluorooctanoic acid	50.2		0.843	2.25	5.62
2706-90-3	Perfluoropentanoic acid	81.2		0.843	2.25	5.62

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102613	Client Sample ID:	AOI3-12-SB-19-19.5-102419
Collect Date:	10/24/19 Time: 1055	GCAL Sample ID:	21910261310
Matrix:	Solid % Moisture: 18.0	Instrument ID:	QQQ1
Sample Amt:	5.23 g	Lab File ID:	2191106A_42.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/04/19	Analysis Date:	11/06/19 Time: 2331
Prep Batch:	670205	Analytical Batch:	671080
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ug/kg*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	1.27		0.198	0.466	1.17
39108-34-4	8:2 Fluorotelomer sulfonate	0.466	U	0.303	0.466	1.17
2991-50-6	NEtFOSAA	0.466	U	0.221	0.466	1.17
2355-31-9	NMeFOSAA	0.466	U	0.326	0.466	1.17
375-73-5	Perfluorobutanesulfonic acid	0.466	U	0.140	0.466	1.17
375-22-4	Perfluorobutanoic acid	0.466	U	0.151	0.466	1.17
335-76-2	Perfluorodecanoic acid	0.466	U	0.140	0.466	1.17
307-55-1	Perfluorododecanoic acid	0.466	U	0.233	0.466	1.17
375-85-9	Perfluoroheptanoic acid	0.466	U	0.151	0.466	1.17
355-46-4	Perfluorohexanesulfonic acid	0.982	J	0.163	0.466	1.17
307-24-4	Perfluorohexanoic acid	0.371	J	0.175	0.466	1.17
375-95-1	Perfluorononanoic acid	0.466	U	0.105	0.466	1.17
1763-23-1	Perfluorooctane Sulfonate	2.88		0.210	0.466	1.17
335-67-1	Perfluorooctanoic acid	0.176	J	0.175	0.466	1.17
2706-90-3	Perfluoropentanoic acid	0.466	U	0.175	0.466	1.17
376-06-7	Perfluorotetradecanoic acid	0.466	U	0.186	0.466	1.17
72629-94-8	Perfluorotridecanoic acid	0.466	U	0.256	0.466	1.17
2058-94-8	Perfluoroundecanoic acid	0.466	U	0.163	0.466	1.17

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102613	Client Sample ID:	AOI3-8-GW-102419
Collect Date:	10/24/19 Time: 1110	GCAL Sample ID:	21910261311
Matrix:	Water % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	150 mL	Lab File ID:	2191107A_08.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/05/19	Analysis Date:	11/07/19 Time: 1810
Prep Batch:	670213	Analytical Batch:	671082
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ng/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	36.5		1.49	3.33	8.33
39108-34-4	8:2 Fluorotelomer sulfonate	3.33	U	1.36	3.33	8.33
2991-50-6	NEtFOSAA	6.67	U	4.48	6.67	8.33
2355-31-9	NMeFOSAA	6.67	U	3.83	6.67	8.33
375-22-4	Perfluorobutanoic acid	1060		1.78	3.33	8.33
335-76-2	Perfluorodecanoic acid	3.33	U	1.38	3.33	8.33
307-55-1	Perfluorododecanoic acid	3.33	U	2.04	3.33	8.33
375-85-9	Perfluoroheptanoic acid	995		1.54	3.33	8.33
375-95-1	Perfluorononanoic acid	3.18	J	1.40	3.33	8.33
1763-23-1	Perfluorooctane Sulfonate	110		1.42	3.33	8.33
335-67-1	Perfluorooctanoic acid	817		1.50	3.33	8.33
376-06-7	Perfluorotetradecanoic acid	3.33	U	2.30	3.33	8.33
72629-94-8	Perfluorotridecanoic acid	3.33	U	2.13	3.33	8.33
2058-94-8	Perfluoroundecanoic acid	3.33	U	1.55	3.33	8.33

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102613	Client Sample ID:	AOI3-8-GW-102419DL
Collect Date:	10/24/19 Time: 1110	GCAL Sample ID:	21910261311DL
Matrix:	Water % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	150 mL	Lab File ID:	2191119A_16.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	20 Analyst: BMH
Prep Date:	11/05/19	Analysis Date:	11/19/19 Time: 1709
Prep Batch:	670213	Analytical Batch:	671741
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ng/L*

CAS	*ANALYTE*	*RESULT*	*Q*	*DL*	*LOD*	*LOQ*
375-73-5	Perfluorobutanesulfonic acid	3060		24.5	66.7	167
355-46-4	Perfluorohexanesulfonic acid	10900		27.3	66.7	167
307-24-4	Perfluorohexanoic acid	7120		32.3	66.7	167
2706-90-3	Perfluoropentanoic acid	2900		39.2	66.7	167

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102613	Client Sample ID:	AOI3-9-SB-1.5-2-102419
Collect Date:	10/24/19 Time: 1125	GCAL Sample ID:	21910261312
Matrix:	Solid % Moisture: 7.2	Instrument ID:	QQQ1
Sample Amt:	5.38 g	Lab File ID:	2191106A_44.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/04/19	Analysis Date:	11/06/19 Time: 2354
Prep Batch:	670205	Analytical Batch:	671080
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	14.3		0.170	0.401	1.00
39108-34-4	8:2 Fluorotelomer sulfonate	0.482	J	0.260	0.401	1.00
2991-50-6	NEtFOSAA	0.401	U	0.190	0.401	1.00
2355-31-9	NMeFOSAA	0.401	U	0.280	0.401	1.00
375-73-5	Perfluorobutanesulfonic acid	0.325	J	0.120	0.401	1.00
375-22-4	Perfluorobutanoic acid	4.52		0.130	0.401	1.00
335-76-2	Perfluorodecanoic acid	0.401	U	0.120	0.401	1.00
307-55-1	Perfluorododecanoic acid	0.401	U	0.200	0.401	1.00
375-85-9	Perfluoroheptanoic acid	8.19		0.130	0.401	1.00
355-46-4	Perfluorohexanesulfonic acid	26.2		0.140	0.401	1.00
307-24-4	Perfluorohexanoic acid	9.85		0.150	0.401	1.00
375-95-1	Perfluorononanoic acid	0.596	J	0.090	0.401	1.00
1763-23-1	Perfluorooctane Sulfonate	21.6		0.180	0.401	1.00
335-67-1	Perfluorooctanoic acid	7.23		0.150	0.401	1.00
2706-90-3	Perfluoropentanoic acid	9.45		0.150	0.401	1.00
376-06-7	Perfluorotetradecanoic acid	0.401	U	0.160	0.401	1.00
72629-94-8	Perfluorotridecanoic acid	0.401	U	0.220	0.401	1.00
2058-94-8	Perfluoroundecanoic acid	0.401	U	0.140	0.401	1.00

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102613	Client Sample ID:	AOI3-11-GW-102419
Collect Date:	10/24/19 Time: 1150	GCAL Sample ID:	21910261313
Matrix:	Water % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	150 mL	Lab File ID:	2191107A_09.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/05/19	Analysis Date:	11/07/19 Time: 1821
Prep Batch:	670213	Analytical Batch:	671082
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ng/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
39108-34-4	8:2 Fluorotelomer sulfonate	8.19	J	1.36	3.33	8.33
2991-50-6	NEtFOSAA	6.67	U	4.48	6.67	8.33
2355-31-9	NMeFOSAA	6.67	U	3.83	6.67	8.33
335-76-2	Perfluorodecanoic acid	5.37	J	1.38	3.33	8.33
307-55-1	Perfluorododecanoic acid	3.33	U	2.04	3.33	8.33
375-95-1	Perfluorononanoic acid	29.0		1.40	3.33	8.33
376-06-7	Perfluorotetradecanoic acid	3.33	U	2.30	3.33	8.33
72629-94-8	Perfluorotridecanoic acid	3.33	U	2.13	3.33	8.33
2058-94-8	Perfluoroundecanoic acid	6.83	J	1.55	3.33	8.33

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102613	Client Sample ID:	AOI3-11-GW-102419DL
Collect Date:	10/24/19 Time: 1150	GCAL Sample ID:	21910261313DL
Matrix:	Water % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	150 mL	Lab File ID:	2191119A_18.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	10 Analyst: BMH
Prep Date:	11/05/19	Analysis Date:	11/19/19 Time: 1732
Prep Batch:	670213	Analytical Batch:	671741
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ng/L*

CAS	*ANALYTE*	*RESULT*	*Q*	*DL*	*LOD*	*LOQ*
27619-97-2	6:2 Fluorotelomer sulfonate	1690		14.9	33.3	83.3
375-73-5	Perfluorobutanesulfonic acid	6310		12.3	33.3	83.3
375-22-4	Perfluorobutanoic acid	2480		17.8	33.3	83.3
375-85-9	Perfluoroheptanoic acid	2130		15.4	33.3	83.3
335-67-1	Perfluorooctanoic acid	6380		15.0	33.3	83.3
2706-90-3	Perfluoropentanoic acid	7560		19.6	33.3	83.3

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102613	Client Sample ID:	AOI3-11-GW-102419DL1
Collect Date:	10/24/19 Time: 1150	GCAL Sample ID:	21910261313DL1
Matrix:	Water % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	150 mL	Lab File ID:	2191119A_17.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	100 Analyst: BMH
Prep Date:	11/05/19	Analysis Date:	11/19/19 Time: 1720
Prep Batch:	670213	Analytical Batch:	671741
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ng/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
355-46-4	Perfluorohexanesulfonic acid	46100		137	333	833
307-24-4	Perfluorohexanoic acid	16100		162	333	833
1763-23-1	Perfluorooctane Sulfonate	16600		142	333	833

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102613	Client Sample ID:	AOI3-9-SB-8.5-9-102419
Collect Date:	10/24/19 Time: 1245	GCAL Sample ID:	21910261314
Matrix:	Solid % Moisture: 18.4	Instrument ID:	QQQ1
Sample Amt:	5 g	Lab File ID:	2191106A_45.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/04/19	Analysis Date:	11/07/19 Time: 0005
Prep Batch:	670205	Analytical Batch:	671080
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ug/kg*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	0.229	J	0.208	0.490	1.23
39108-34-4	8:2 Fluorotelomer sulfonate	0.490	U	0.319	0.490	1.23
2991-50-6	NEtFOSAA	0.490	U	0.233	0.490	1.23
2355-31-9	NMeFOSAA	0.490	U	0.343	0.490	1.23
375-73-5	Perfluorobutanesulfonic acid	4.41		0.147	0.490	1.23
375-22-4	Perfluorobutanoic acid	5.33		0.159	0.490	1.23
335-76-2	Perfluorodecanoic acid	0.420	J	0.147	0.490	1.23
307-55-1	Perfluorododecanoic acid	0.490	U	0.245	0.490	1.23
375-85-9	Perfluoroheptanoic acid	7.75		0.159	0.490	1.23
355-46-4	Perfluorohexanesulfonic acid	18.2		0.172	0.490	1.23
307-24-4	Perfluorohexanoic acid	29.1		0.184	0.490	1.23
375-95-1	Perfluorononanoic acid	3.01		0.110	0.490	1.23
335-67-1	Perfluorooctanoic acid	5.44		0.184	0.490	1.23
2706-90-3	Perfluoropentanoic acid	21.7		0.184	0.490	1.23
376-06-7	Perfluorotetradecanoic acid	0.490	U	0.196	0.490	1.23
72629-94-8	Perfluorotridecanoic acid	0.490	U	0.270	0.490	1.23
2058-94-8	Perfluoroundecanoic acid	0.303	J	0.172	0.490	1.23

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102613	Client Sample ID:	AOI3-9-SB-8.5-9-102419DL
Collect Date:	10/24/19 Time: 1245	GCAL Sample ID:	21910261314DL
Matrix:	Solid % Moisture: 18.4	Instrument ID:	QQQ1
Sample Amt:	5 g	Lab File ID:	2191117A_83.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	5 Analyst: BMH
Prep Date:	11/04/19	Analysis Date:	11/18/19 Time: 0845
Prep Batch:	670205	Analytical Batch:	671600
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ug/kg*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
1763-23-1	Perfluorooctane Sulfonate	77.7		1.10	2.45	6.13

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102613	Client Sample ID:	AOI3-9-SB-14-14.5-102419
Collect Date:	10/24/19 Time: 1250	GCAL Sample ID:	21910261315
Matrix:	Solid % Moisture: 19.3	Instrument ID:	QQQ1
Sample Amt:	5.05 g	Lab File ID:	2191106A_46.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/04/19	Analysis Date:	11/07/19 Time: 0016
Prep Batch:	670205	Analytical Batch:	671080
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ug/kg*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	0.299	J	0.209	0.491	1.23
39108-34-4	8:2 Fluorotelomer sulfonate	0.491	U	0.319	0.491	1.23
2991-50-6	NEtFOSAA	0.491	U	0.233	0.491	1.23
2355-31-9	NMeFOSAA	0.491	U	0.344	0.491	1.23
375-73-5	Perfluorobutanesulfonic acid	0.491	U	0.147	0.491	1.23
375-22-4	Perfluorobutanoic acid	0.491	U	0.159	0.491	1.23
335-76-2	Perfluorodecanoic acid	0.491	U	0.147	0.491	1.23
307-55-1	Perfluorododecanoic acid	0.491	U	0.245	0.491	1.23
375-85-9	Perfluoroheptanoic acid	0.491	U	0.159	0.491	1.23
355-46-4	Perfluorohexanesulfonic acid	0.417	J	0.172	0.491	1.23
307-24-4	Perfluorohexanoic acid	0.344	J	0.184	0.491	1.23
375-95-1	Perfluorononanoic acid	0.491	U	0.110	0.491	1.23
1763-23-1	Perfluorooctane Sulfonate	0.245	J	0.221	0.491	1.23
335-67-1	Perfluorooctanoic acid	1.52		0.184	0.491	1.23
2706-90-3	Perfluoropentanoic acid	0.491	U	0.184	0.491	1.23
376-06-7	Perfluorotetradecanoic acid	0.491	U	0.196	0.491	1.23
72629-94-8	Perfluorotridecanoic acid	0.491	U	0.270	0.491	1.23
2058-94-8	Perfluoroundecanoic acid	0.491	U	0.172	0.491	1.23

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102613	Client Sample ID:	AOI3-12-GW-102419
Collect Date:	10/24/19 Time: 1320	GCAL Sample ID:	21910261316
Matrix:	Water % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	150 mL	Lab File ID:	2191107A_10.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/05/19	Analysis Date:	11/07/19 Time: 1833
Prep Batch:	670213	Analytical Batch:	671082
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ng/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
39108-34-4	8:2 Fluorotelomer sulfonate	3.31	J	1.36	3.33	8.33
2991-50-6	NEtFOSAA	6.67	U	4.48	6.67	8.33
2355-31-9	NMeFOSAA	6.67	U	3.83	6.67	8.33
375-73-5	Perfluorobutanesulfonic acid	330		1.23	3.33	8.33
375-22-4	Perfluorobutanoic acid	230		1.78	3.33	8.33
335-76-2	Perfluorodecanoic acid	3.33	U	1.38	3.33	8.33
307-55-1	Perfluorododecanoic acid	3.33	U	2.04	3.33	8.33
375-85-9	Perfluoroheptanoic acid	202		1.54	3.33	8.33
307-24-4	Perfluorohexanoic acid	1280		1.62	3.33	8.33
375-95-1	Perfluorononanoic acid	5.72	J	1.40	3.33	8.33
335-67-1	Perfluorooctanoic acid	340		1.50	3.33	8.33
2706-90-3	Perfluoropentanoic acid	785		1.96	3.33	8.33
376-06-7	Perfluorotetradecanoic acid	3.33	U	2.30	3.33	8.33
72629-94-8	Perfluorotridecanoic acid	3.33	U	2.13	3.33	8.33
2058-94-8	Perfluoroundecanoic acid	3.33	U	1.55	3.33	8.33

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102613	Client Sample ID:	AOI3-12-GW-102419DL
Collect Date:	10/24/19 Time: 1320	GCAL Sample ID:	21910261316DL
Matrix:	Water % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	150 mL	Lab File ID:	2191119A_19.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	5 Analyst: BMH
Prep Date:	11/05/19	Analysis Date:	11/19/19 Time: 1743
Prep Batch:	670213	Analytical Batch:	671741
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ng/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	2660		7.46	16.7	41.7
355-46-4	Perfluorohexanesulfonic acid	2430		6.83	16.7	41.7
1763-23-1	Perfluorooctane Sulfonate	1830		7.08	16.7	41.7

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102613	Client Sample ID:	AOI3-10-SB-1.5-2-102419
Collect Date:	10/24/19 Time: 1330	GCAL Sample ID:	21910261317
Matrix:	Solid % Moisture: 4.0	Instrument ID:	QQQ1
Sample Amt:	5 g	Lab File ID:	2191106A_47.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/04/19	Analysis Date:	11/07/19 Time: 0028
Prep Batch:	670205	Analytical Batch:	671080
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ug/kg*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	0.209	J	0.177	0.417	1.04
39108-34-4	8:2 Fluorotelomer sulfonate	0.417	U	0.271	0.417	1.04
2991-50-6	NEtFOSAA	0.417	U	0.198	0.417	1.04
2355-31-9	NMeFOSAA	0.417	U	0.292	0.417	1.04
375-73-5	Perfluorobutanesulfonic acid	0.417	U	0.125	0.417	1.04
375-22-4	Perfluorobutanoic acid	0.417	U	0.135	0.417	1.04
335-76-2	Perfluorodecanoic acid	0.417	U	0.125	0.417	1.04
307-55-1	Perfluorododecanoic acid	0.417	U	0.208	0.417	1.04
375-85-9	Perfluoroheptanoic acid	0.417	U	0.135	0.417	1.04
355-46-4	Perfluorohexanesulfonic acid	0.417	U	0.146	0.417	1.04
307-24-4	Perfluorohexanoic acid	0.417	U	0.156	0.417	1.04
375-95-1	Perfluorononanoic acid	0.417	U	0.094	0.417	1.04
1763-23-1	Perfluorooctane Sulfonate	0.304	J	0.187	0.417	1.04
335-67-1	Perfluorooctanoic acid	0.417	U	0.156	0.417	1.04
2706-90-3	Perfluoropentanoic acid	0.417	U	0.156	0.417	1.04
376-06-7	Perfluorotetradecanoic acid	0.417	U	0.167	0.417	1.04
72629-94-8	Perfluorotridecanoic acid	0.417	U	0.229	0.417	1.04
2058-94-8	Perfluoroundecanoic acid	0.417	U	0.146	0.417	1.04

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102613	Client Sample ID:	AOI3-10-SB-10.5-11-102419
Collect Date:	10/24/19 Time: 1355	GCAL Sample ID:	21910261318
Matrix:	Solid % Moisture: 19.8	Instrument ID:	QQQ1
Sample Amt:	5.28 g	Lab File ID:	2191106A_48.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/04/19	Analysis Date:	11/07/19 Time: 0039
Prep Batch:	670205	Analytical Batch:	671080
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	0.201	J	0.201	0.472	1.18
39108-34-4	8:2 Fluorotelomer sulfonate	0.472	U	0.307	0.472	1.18
2991-50-6	NEtFOSAA	0.472	U	0.224	0.472	1.18
2355-31-9	NMeFOSAA	0.472	U	0.331	0.472	1.18
375-73-5	Perfluorobutanesulfonic acid	0.801	J	0.142	0.472	1.18
375-22-4	Perfluorobutanoic acid	0.332	J	0.154	0.472	1.18
335-76-2	Perfluorodecanoic acid	0.472	U	0.142	0.472	1.18
307-55-1	Perfluorododecanoic acid	0.472	U	0.236	0.472	1.18
375-85-9	Perfluoroheptanoic acid	0.719	J	0.154	0.472	1.18
355-46-4	Perfluorohexanesulfonic acid	6.56		0.165	0.472	1.18
307-24-4	Perfluorohexanoic acid	2.10		0.177	0.472	1.18
375-95-1	Perfluorononanoic acid	0.472	U	0.106	0.472	1.18
1763-23-1	Perfluorooctane Sulfonate	2.59		0.213	0.472	1.18
335-67-1	Perfluorooctanoic acid	0.456	J	0.177	0.472	1.18
2706-90-3	Perfluoropentanoic acid	1.34		0.177	0.472	1.18
376-06-7	Perfluorotetradecanoic acid	0.472	U	0.189	0.472	1.18
72629-94-8	Perfluorotridecanoic acid	0.472	U	0.260	0.472	1.18
2058-94-8	Perfluoroundecanoic acid	0.472	U	0.165	0.472	1.18

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102613	Client Sample ID:	AOI3-9-GW-102419
Collect Date:	10/24/19 Time: 1430	GCAL Sample ID:	21910261319
Matrix:	Water % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	150 mL	Lab File ID:	2191107A_11.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/05/19	Analysis Date:	11/07/19 Time: 1844
Prep Batch:	670213	Analytical Batch:	671082
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ng/L*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	187		1.49	3.33	8.33
39108-34-4	8:2 Fluorotelomer sulfonate	3.33	U	1.36	3.33	8.33
2991-50-6	NEtFOSAA	6.67	U	4.48	6.67	8.33
2355-31-9	NMeFOSAA	6.67	U	3.83	6.67	8.33
375-73-5	Perfluorobutanesulfonic acid	150		1.23	3.33	8.33
375-22-4	Perfluorobutanoic acid	83.3		1.78	3.33	8.33
335-76-2	Perfluorodecanoic acid	3.33	U	1.38	3.33	8.33
307-55-1	Perfluorododecanoic acid	3.33	U	2.04	3.33	8.33
375-85-9	Perfluoroheptanoic acid	145		1.54	3.33	8.33
355-46-4	Perfluorohexanesulfonic acid	727		1.37	3.33	8.33
307-24-4	Perfluorohexanoic acid	565		1.62	3.33	8.33
375-95-1	Perfluorononanoic acid	3.33	U	1.40	3.33	8.33
1763-23-1	Perfluorooctane Sulfonate	30.4		1.42	3.33	8.33
2706-90-3	Perfluoropentanoic acid	256		1.96	3.33	8.33
376-06-7	Perfluorotetradecanoic acid	3.33	U	2.30	3.33	8.33
72629-94-8	Perfluorotridecanoic acid	3.33	U	2.13	3.33	8.33
2058-94-8	Perfluoroundecanoic acid	3.33	U	1.55	3.33	8.33

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102613	Client Sample ID:	AOI3-9-GW-102419DL
Collect Date:	10/24/19 Time: 1430	GCAL Sample ID:	21910261319DL
Matrix:	Water % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	150 mL	Lab File ID:	2191119A_20.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	5 Analyst: BMH
Prep Date:	11/05/19	Analysis Date:	11/19/19 Time: 1754
Prep Batch:	670213	Analytical Batch:	671741
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ng/L*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
335-67-1	Perfluorooctanoic acid	1820		7.50	16.7	41.7

FORM I SV-1

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102613	Client Sample ID:	AOI3-10-GW-102419
Collect Date:	10/24/19 Time: 1550	GCAL Sample ID:	21910261320
Matrix:	Water % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	140 mL	Lab File ID:	2191107A_12.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/05/19	Analysis Date:	11/07/19 Time: 1855
Prep Batch:	670213	Analytical Batch:	671082
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ng/L*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	866		1.60	3.57	8.93
39108-34-4	8:2 Fluorotelomer sulfonate	3.57	U	1.46	3.57	8.93
2991-50-6	NEtFOSAA	7.14	U	4.80	7.14	8.93
2355-31-9	NMeFOSAA	7.14	U	4.11	7.14	8.93
375-73-5	Perfluorobutanesulfonic acid	454		1.31	3.57	8.93
375-22-4	Perfluorobutanoic acid	507		1.90	3.57	8.93
335-76-2	Perfluorodecanoic acid	1.55	J	1.47	3.57	8.93
307-55-1	Perfluorododecanoic acid	3.57	U	2.19	3.57	8.93
375-85-9	Perfluoroheptanoic acid	625		1.65	3.57	8.93
375-95-1	Perfluorononanoic acid	3.57	U	1.50	3.57	8.93
1763-23-1	Perfluorooctane Sulfonate	486		1.52	3.57	8.93
376-06-7	Perfluorotetradecanoic acid	3.57	U	2.46	3.57	8.93
72629-94-8	Perfluorotridecanoic acid	3.57	U	2.29	3.57	8.93
2058-94-8	Perfluoroundecanoic acid	3.57	U	1.66	3.57	8.93

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102613	Client Sample ID:	AOI3-10-GW-102419DL
Collect Date:	10/24/19 Time: 1550	GCAL Sample ID:	21910261320DL
Matrix:	Water % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	140 mL	Lab File ID:	2191119A_21.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	5 Analyst: BMH
Prep Date:	11/05/19	Analysis Date:	11/19/19 Time: 1806
Prep Batch:	670213	Analytical Batch:	671741
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ng/L*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
355-46-4	Perfluorohexanesulfonic acid	3580		7.32	17.9	44.6
307-24-4	Perfluorohexanoic acid	2700		8.66	17.9	44.6
335-67-1	Perfluorooctanoic acid	5800		8.04	17.9	44.6
2706-90-3	Perfluoropentanoic acid	1520		10.5	17.9	44.6

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102717	Client Sample ID:	AOI3-1-SB-1.5-2-102519
Collect Date:	10/25/19 Time: 0820	GCAL Sample ID:	21910271701
Matrix:	Solid % Moisture: 12.9	Instrument ID:	QQQ1
Sample Amt:	5.04 g	Lab File ID:	2191112B_25.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/08/19	Analysis Date:	11/12/19 Time: 1843
Prep Batch:	670210	Analytical Batch:	671184
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ug/kg*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	0.270	J	0.194	0.455	1.14
39108-34-4	8:2 Fluorotelomer sulfonate	0.455	U	0.296	0.455	1.14
2991-50-6	NEtFOSAA	0.455	U	0.216	0.455	1.14
2355-31-9	NMeFOSAA	0.455	U	0.319	0.455	1.14
375-73-5	Perfluorobutanesulfonic acid	1.10	J	0.137	0.455	1.14
375-22-4	Perfluorobutanoic acid	2.78		0.148	0.455	1.14
335-76-2	Perfluorodecanoic acid	0.455	U	0.137	0.455	1.14
307-55-1	Perfluorododecanoic acid	0.455	U	0.228	0.455	1.14
375-85-9	Perfluoroheptanoic acid	0.707	J	0.148	0.455	1.14
355-46-4	Perfluorohexanesulfonic acid	14.4		0.159	0.455	1.14
307-24-4	Perfluorohexanoic acid	3.33		0.171	0.455	1.14
375-95-1	Perfluorononanoic acid	0.968	J	0.102	0.455	1.14
335-67-1	Perfluorooctanoic acid	4.31		0.171	0.455	1.14
2706-90-3	Perfluoropentanoic acid	3.57		0.171	0.455	1.14
376-06-7	Perfluorotetradecanoic acid	0.455	U	0.182	0.455	1.14
72629-94-8	Perfluorotridecanoic acid	0.455	U	0.250	0.455	1.14
2058-94-8	Perfluoroundecanoic acid	0.455	U	0.159	0.455	1.14

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102717	Client Sample ID:	AOI3-1-SB-1.5-2-102519DL
Collect Date:	10/25/19 Time: 0820	GCAL Sample ID:	21910271701DL
Matrix:	Solid % Moisture: 12.9	Instrument ID:	QQQ1
Sample Amt:	5.04 g	Lab File ID:	2191119A_98.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	20 Analyst: BMH
Prep Date:	11/08/19	Analysis Date:	11/20/19 Time: 0840
Prep Batch:	670210	Analytical Batch:	671741
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ug/kg*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
1763-23-1	Perfluorooctane Sulfonate	381		4.10	9.11	22.8

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102717	Client Sample ID:	AOI3-2-SB-1.5-2-102519
Collect Date:	10/25/19 Time: 0845	GCAL Sample ID:	21910271702
Matrix:	Solid % Moisture: 16.2	Instrument ID:	QQQ1
Sample Amt:	5.13 g	Lab File ID:	2191112B_26.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/08/19	Analysis Date:	11/12/19 Time: 1854
Prep Batch:	670210	Analytical Batch:	671184
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ug/kg*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
39108-34-4	8:2 Fluorotelomer sulfonate	1.56		0.303	0.465	1.16
2991-50-6	NEtFOSAA	0.465	U	0.221	0.465	1.16
2355-31-9	NMeFOSAA	0.465	U	0.326	0.465	1.16
375-22-4	Perfluorobutanoic acid	41.8		0.151	0.465	1.16
335-76-2	Perfluorodecanoic acid	0.465	U	0.140	0.465	1.16
307-55-1	Perfluorododecanoic acid	0.465	U	0.233	0.465	1.16
375-85-9	Perfluoroheptanoic acid	20.2		0.151	0.465	1.16
335-67-1	Perfluorooctanoic acid	33.1		0.175	0.465	1.16
376-06-7	Perfluorotetradecanoic acid	0.465	U	0.186	0.465	1.16
72629-94-8	Perfluorotridecanoic acid	0.465	U	0.256	0.465	1.16
2058-94-8	Perfluoroundecanoic acid	0.465	U	0.163	0.465	1.16

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102717	Client Sample ID:	AOI3-2-SB-1.5-2-102519DL
Collect Date:	10/25/19 Time: 0845	GCAL Sample ID:	21910271702DL
Matrix:	Solid % Moisture: 16.2	Instrument ID:	QQQ1
Sample Amt:	5.13 g	Lab File ID:	2191119A_108.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	10 Analyst: BMH
Prep Date:	11/08/19	Analysis Date:	11/20/19 Time: 1033
Prep Batch:	670210	Analytical Batch:	671741
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	229		1.98	4.65	11.6
375-73-5	Perfluorobutanesulfonic acid	65.4		1.40	4.65	11.6
355-46-4	Perfluorohexanesulfonic acid	239		1.63	4.65	11.6
307-24-4	Perfluorohexanoic acid	305		1.75	4.65	11.6
375-95-1	Perfluorononanoic acid	1.32	J	1.05	4.65	11.6
2706-90-3	Perfluoropentanoic acid	156		1.75	4.65	11.6

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102717	Client Sample ID:	AOI3-2-SB-1.5-2-102519DL1
Collect Date:	10/25/19 Time: 0845	GCAL Sample ID:	21910271702DL1
Matrix:	Solid % Moisture: 16.2	Instrument ID:	QQQ1
Sample Amt:	5.13 g	Lab File ID:	2191205A_38.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	100 Analyst: BMH
Prep Date:	11/08/19	Analysis Date:	12/05/19 Time: 1350
Prep Batch:	670210	Analytical Batch:	672685
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
1763-23-1	Perfluorooctane Sulfonate	1440		20.9	46.5	116

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102717	Client Sample ID:	AOI3-2-SB-1.5-2-102519-D
Collect Date:	10/25/19 Time: 0845	GCAL Sample ID:	21910271703
Matrix:	Solid % Moisture: 16.9	Instrument ID:	QQQ1
Sample Amt:	5.23 g	Lab File ID:	2191112B_27.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/08/19	Analysis Date:	11/12/19 Time: 1905
Prep Batch:	670210	Analytical Batch:	671184
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
39108-34-4	8:2 Fluorotelomer sulfonate	1.13	J	0.299	0.460	1.15
2991-50-6	NEtFOSAA	0.460	U	0.219	0.460	1.15
2355-31-9	NMeFOSAA	0.460	U	0.322	0.460	1.15
375-22-4	Perfluorobutanoic acid	39.4		0.150	0.460	1.15
335-76-2	Perfluorodecanoic acid	0.460	U	0.138	0.460	1.15
307-55-1	Perfluorododecanoic acid	0.460	U	0.230	0.460	1.15
375-85-9	Perfluoroheptanoic acid	15.5		0.150	0.460	1.15
375-95-1	Perfluorononanoic acid	2.85		0.104	0.460	1.15
335-67-1	Perfluorooctanoic acid	26.5		0.173	0.460	1.15
376-06-7	Perfluorotetradecanoic acid	0.460	U	0.184	0.460	1.15
72629-94-8	Perfluorotridecanoic acid	0.460	U	0.253	0.460	1.15
2058-94-8	Perfluoroundecanoic acid	0.460	U	0.161	0.460	1.15

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102717	Client Sample ID:	AOI3-2-SB-1.5-2-102519-DDL
Collect Date:	10/25/19 Time: 0845	GCAL Sample ID:	21910271703DL
Matrix:	Solid % Moisture: 16.9	Instrument ID:	QQQ1
Sample Amt:	5.23 g	Lab File ID:	2191119A_109.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	10 Analyst: BMH
Prep Date:	11/08/19	Analysis Date:	11/20/19 Time: 1045
Prep Batch:	670210	Analytical Batch:	671741
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ug/kg*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	230		1.96	4.60	11.5
375-73-5	Perfluorobutanesulfonic acid	57.7		1.38	4.60	11.5
355-46-4	Perfluorohexanesulfonic acid	199		1.61	4.60	11.5
307-24-4	Perfluorohexanoic acid	287		1.73	4.60	11.5
2706-90-3	Perfluoropentanoic acid	139		1.73	4.60	11.5

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102717	Client Sample ID:	AOI3-2-SB-1.5-2-102519-DDL1
Collect Date:	10/25/19 Time: 0845	GCAL Sample ID:	21910271703DL1
Matrix:	Solid % Moisture: 16.9	Instrument ID:	QQQ1
Sample Amt:	5.23 g	Lab File ID:	2191205A_39.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	100 Analyst: BMH
Prep Date:	11/08/19	Analysis Date:	12/05/19 Time: 1401
Prep Batch:	670210	Analytical Batch:	672685
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ug/kg*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
1763-23-1	Perfluorooctane Sulfonate	1570		20.7	46.0	115

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102717	Client Sample ID:	JFTBLA-EB-HA-102519
Collect Date:	10/25/19 Time: 0815	GCAL Sample ID:	21910271704
Matrix:	Water % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	150 mL	Lab File ID:	2191107A_13.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/05/19	Analysis Date:	11/07/19 Time: 1907
Prep Batch:	670213	Analytical Batch:	671082
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ng/L*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	1.89	J	1.49	3.33	8.33
39108-34-4	8:2 Fluorotelomer sulfonate	3.33	U	1.36	3.33	8.33
2991-50-6	NEtFOSAA	6.67	U	4.48	6.67	8.33
2355-31-9	NMeFOSAA	6.67	U	3.83	6.67	8.33
375-73-5	Perfluorobutanesulfonic acid	3.33	U	1.23	3.33	8.33
375-22-4	Perfluorobutanoic acid	3.33	U	1.78	3.33	8.33
335-76-2	Perfluorodecanoic acid	3.33	U	1.38	3.33	8.33
307-55-1	Perfluorododecanoic acid	3.33	U	2.04	3.33	8.33
375-85-9	Perfluoroheptanoic acid	3.33	U	1.54	3.33	8.33
355-46-4	Perfluorohexanesulfonic acid	3.14	J	1.37	3.33	8.33
307-24-4	Perfluorohexanoic acid	2.13	J	1.62	3.33	8.33
375-95-1	Perfluorononanoic acid	3.33	U	1.40	3.33	8.33
1763-23-1	Perfluorooctane Sulfonate	10.0		1.42	3.33	8.33
335-67-1	Perfluorooctanoic acid	3.22	J	1.50	3.33	8.33
2706-90-3	Perfluoropentanoic acid	3.33	U	1.96	3.33	8.33
376-06-7	Perfluorotetradecanoic acid	3.33	U	2.30	3.33	8.33
2058-94-8	Perfluoroundecanoic acid	3.33	U	1.55	3.33	8.33

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102717	Client Sample ID:	JFTBLA-EB-HA-102519 (RE)
Collect Date:	10/25/19 Time: 0815	GCAL Sample ID:	21910271722
Matrix:	Water % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	150 mL	Lab File ID:	2191117A_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: BMH
Prep Date:	11/16/19	Analysis Date:	11/17/19 Time: 2136
Prep Batch:	671164	Analytical Batch:	671600
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ng/L*

CAS	*ANALYTE*	*RESULT*	*Q*	*DL*	*LOD*	*LOQ*
376-06-7	Perfluorotetradecanoic acid	3.33	U	2.30	3.33	8.33
72629-94-8	Perfluorotridecanoic acid	3.33	U	2.13	3.33	8.33

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102717	Client Sample ID:	AOI3-5-SB-1.5-2-102519
Collect Date:	10/25/19 Time: 0921	GCAL Sample ID:	21910271705
Matrix:	Solid % Moisture: 9.5	Instrument ID:	QQQ1
Sample Amt:	5.1 g	Lab File ID:	2191112B_28.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/08/19	Analysis Date:	11/12/19 Time: 1916
Prep Batch:	670210	Analytical Batch:	671184
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	13.6		0.184	0.433	1.08
39108-34-4	8:2 Fluorotelomer sulfonate	0.433	U	0.282	0.433	1.08
2991-50-6	NEtFOSAA	0.433	U	0.206	0.433	1.08
2355-31-9	NMeFOSAA	0.433	U	0.303	0.433	1.08
375-22-4	Perfluorobutanoic acid	9.45		0.141	0.433	1.08
335-76-2	Perfluorodecanoic acid	0.433	U	0.130	0.433	1.08
307-55-1	Perfluorododecanoic acid	0.433	U	0.217	0.433	1.08
375-85-9	Perfluoroheptanoic acid	12.7		0.141	0.433	1.08
375-95-1	Perfluorononanoic acid	0.298	J	0.098	0.433	1.08
2706-90-3	Perfluoropentanoic acid	33.7		0.163	0.433	1.08
376-06-7	Perfluorotetradecanoic acid	0.433	U	0.173	0.433	1.08
72629-94-8	Perfluorotridecanoic acid	0.433	U	0.238	0.433	1.08
2058-94-8	Perfluoroundecanoic acid	0.433	U	0.152	0.433	1.08

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102717	Client Sample ID:	AOI3-5-SB-1.5-2-102519DL
Collect Date:	10/25/19 Time: 0921	GCAL Sample ID:	21910271705DL
Matrix:	Solid % Moisture: 9.5	Instrument ID:	QQQ1
Sample Amt:	5.1 g	Lab File ID:	2191119A_95.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	50 Analyst: BMH
Prep Date:	11/08/19	Analysis Date:	11/20/19 Time: 0806
Prep Batch:	670210	Analytical Batch:	671741
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
375-73-5	Perfluorobutanesulfonic acid	50.9	J	6.50	21.7	54.2
355-46-4	Perfluorohexanesulfonic acid	645		7.58	21.7	54.2
307-24-4	Perfluorohexanoic acid	155		8.13	21.7	54.2
1763-23-1	Perfluorooctane Sulfonate	396		9.75	21.7	54.2
335-67-1	Perfluorooctanoic acid	63.7		8.13	21.7	54.2

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102717	Client Sample ID:	AOI3-3-SB-1.5-2-102519
Collect Date:	10/25/19 Time: 0948	GCAL Sample ID:	21910271706
Matrix:	Solid % Moisture: 20.1	Instrument ID:	QQQ1
Sample Amt:	5.15 g	Lab File ID:	2191112B_29.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/08/19	Analysis Date:	11/12/19 Time: 1928
Prep Batch:	670210	Analytical Batch:	671184
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
39108-34-4	8:2 Fluorotelomer sulfonate	2.59		0.316	0.486	1.22
2991-50-6	NEtFOSAA	0.486	U	0.231	0.486	1.22
2355-31-9	NMeFOSAA	0.486	U	0.340	0.486	1.22
375-73-5	Perfluorobutanesulfonic acid	16.1		0.146	0.486	1.22
335-76-2	Perfluorodecanoic acid	0.486	U	0.146	0.486	1.22
307-55-1	Perfluorododecanoic acid	0.486	U	0.243	0.486	1.22
375-95-1	Perfluorononanoic acid	0.677	J	0.109	0.486	1.22
1763-23-1	Perfluorooctane Sulfonate	44.6		0.219	0.486	1.22
376-06-7	Perfluorotetradecanoic acid	0.486	U	0.194	0.486	1.22
72629-94-8	Perfluorotridecanoic acid	0.486	U	0.267	0.486	1.22
2058-94-8	Perfluoroundecanoic acid	0.486	U	0.170	0.486	1.22

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102717	Client Sample ID:	AOI3-3-SB-1.5-2-102519DL
Collect Date:	10/25/19 Time: 0948	GCAL Sample ID:	21910271706DL
Matrix:	Solid % Moisture: 20.1	Instrument ID:	QQQ1
Sample Amt:	5.15 g	Lab File ID:	2191119A_105.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	10 Analyst: BMH
Prep Date:	11/08/19	Analysis Date:	11/20/19 Time: 0959
Prep Batch:	670210	Analytical Batch:	671741
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	283		2.07	4.86	12.2
375-22-4	Perfluorobutanoic acid	42.0		1.58	4.86	12.2
375-85-9	Perfluoroheptanoic acid	50.5		1.58	4.86	12.2
355-46-4	Perfluorohexanesulfonic acid	154		1.70	4.86	12.2
307-24-4	Perfluorohexanoic acid	293		1.82	4.86	12.2
335-67-1	Perfluorooctanoic acid	145		1.82	4.86	12.2
2706-90-3	Perfluoropentanoic acid	308		1.82	4.86	12.2

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102717	Client Sample ID:	AOI3-6-SB-1.5-2-102519
Collect Date:	10/25/19 Time: 1005	GCAL Sample ID:	21910271707
Matrix:	Solid % Moisture: 24.0	Instrument ID:	QQQ1
Sample Amt:	5.03 g	Lab File ID:	2191112B_30.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/08/19	Analysis Date:	11/12/19 Time: 1939
Prep Batch:	670210	Analytical Batch:	671184
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
39108-34-4	8:2 Fluorotelomer sulfonate	38.1		0.340	0.523	1.31
2991-50-6	NEtFOSAA	0.523	U	0.249	0.523	1.31
2355-31-9	NMeFOSAA	0.523	U	0.366	0.523	1.31
375-73-5	Perfluorobutanesulfonic acid	4.60		0.157	0.523	1.31
375-22-4	Perfluorobutanoic acid	9.05		0.170	0.523	1.31
335-76-2	Perfluorodecanoic acid	1.23	J	0.157	0.523	1.31
307-55-1	Perfluorododecanoic acid	0.523	U	0.262	0.523	1.31
375-85-9	Perfluoroheptanoic acid	3.39		0.170	0.523	1.31
355-46-4	Perfluorohexanesulfonic acid	26.5		0.183	0.523	1.31
307-24-4	Perfluorohexanoic acid	20.2		0.196	0.523	1.31
375-95-1	Perfluorononanoic acid	11.4		0.118	0.523	1.31
335-67-1	Perfluorooctanoic acid	14.0		0.196	0.523	1.31
2706-90-3	Perfluoropentanoic acid	33.7		0.196	0.523	1.31
376-06-7	Perfluorotetradecanoic acid	0.523	U	0.209	0.523	1.31
72629-94-8	Perfluorotridecanoic acid	0.523	U	0.288	0.523	1.31
2058-94-8	Perfluoroundecanoic acid	1.03	J	0.183	0.523	1.31

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102717	Client Sample ID:	AOI3-6-SB-1.5-2-102519DL
Collect Date:	10/25/19 Time: 1005	GCAL Sample ID:	21910271707DL
Matrix:	Solid % Moisture: 24.0	Instrument ID:	QQQ1
Sample Amt:	5.03 g	Lab File ID:	2191205A_40.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	50 Analyst: BMH
Prep Date:	11/08/19	Analysis Date:	12/05/19 Time: 1412
Prep Batch:	670210	Analytical Batch:	672685
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ug/kg*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
1763-23-1	Perfluorooctane Sulfonate	1120		11.8	26.2	65.4

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102717	Client Sample ID:	AOI3-6-SB-1.5-2-102519RE
Collect Date:	10/25/19 Time: 1005	GCAL Sample ID:	21910271707RE
Matrix:	Solid % Moisture: 24.0	Instrument ID:	QQQ1
Sample Amt:	5.03 g	Lab File ID:	2191206A_40.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	50 Analyst: BMH
Prep Date:	11/08/19	Analysis Date:	12/07/19 Time: 0033
Prep Batch:	670210	Analytical Batch:	672863
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	118		11.1	26.2	65.4

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102717	Client Sample ID:	AOI3-4-SB-1.5-2-102519
Collect Date:	10/25/19 Time: 1020	GCAL Sample ID:	21910271708
Matrix:	Solid % Moisture: 8.6	Instrument ID:	QQQ1
Sample Amt:	5.2 g	Lab File ID:	2191112B_31.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/08/19	Analysis Date:	11/12/19 Time: 1951
Prep Batch:	670210	Analytical Batch:	671184
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
2991-50-6	NEtFOSAA	0.421	U	0.200	0.421	1.05
2355-31-9	NMeFOSAA	0.421	U	0.295	0.421	1.05
375-73-5	Perfluorobutanesulfonic acid	0.225	J	0.126	0.421	1.05
375-22-4	Perfluorobutanoic acid	1.24		0.137	0.421	1.05
335-76-2	Perfluorodecanoic acid	4.31		0.126	0.421	1.05
307-55-1	Perfluorododecanoic acid	0.421	U	0.210	0.421	1.05
375-85-9	Perfluoroheptanoic acid	1.16		0.137	0.421	1.05
355-46-4	Perfluorohexanesulfonic acid	5.93		0.147	0.421	1.05
307-24-4	Perfluorohexanoic acid	6.04		0.158	0.421	1.05
375-95-1	Perfluorononanoic acid	1.44		0.095	0.421	1.05
335-67-1	Perfluorooctanoic acid	4.44		0.158	0.421	1.05
2706-90-3	Perfluoropentanoic acid	4.58		0.158	0.421	1.05
376-06-7	Perfluorotetradecanoic acid	0.421	U	0.168	0.421	1.05
72629-94-8	Perfluorotridecanoic acid	0.421	U	0.231	0.421	1.05
2058-94-8	Perfluoroundecanoic acid	0.164	J	0.147	0.421	1.05

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102717	Client Sample ID:	AOI3-4-SB-1.5-2-102519DL
Collect Date:	10/25/19 Time: 1020	GCAL Sample ID:	21910271708DL
Matrix:	Solid % Moisture: 8.6	Instrument ID:	QQQ1
Sample Amt:	5.2 g	Lab File ID:	2191119A_97.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	50 Analyst: BMH
Prep Date:	11/08/19	Analysis Date:	11/20/19 Time: 0829
Prep Batch:	670210	Analytical Batch:	671741
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	86.1		8.94	21.0	52.6
39108-34-4	8:2 Fluorotelomer sulfonate	84.9		13.7	21.0	52.6
1763-23-1	Perfluorooctane Sulfonate	508		9.47	21.0	52.6

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102717	Client Sample ID:	AOI3-4-SB-1.5-2-102519-D
Collect Date:	10/25/19 Time: 1020	GCAL Sample ID:	21910271709
Matrix:	Solid % Moisture: 9.5	Instrument ID:	QQQ1
Sample Amt:	5.05 g	Lab File ID:	2191112B_32.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/08/19	Analysis Date:	11/12/19 Time: 2002
Prep Batch:	670210	Analytical Batch:	671184
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
2991-50-6	NEtFOSAA	0.438	U	0.208	0.438	1.09
2355-31-9	NMeFOSAA	0.438	U	0.306	0.438	1.09
375-73-5	Perfluorobutanesulfonic acid	0.146	J	0.131	0.438	1.09
375-22-4	Perfluorobutanoic acid	0.948	J	0.142	0.438	1.09
335-76-2	Perfluorodecanoic acid	2.66		0.131	0.438	1.09
307-55-1	Perfluorododecanoic acid	0.438	U	0.219	0.438	1.09
375-85-9	Perfluoroheptanoic acid	0.806	J	0.142	0.438	1.09
355-46-4	Perfluorohexanesulfonic acid	4.44		0.153	0.438	1.09
307-24-4	Perfluorohexanoic acid	4.15		0.164	0.438	1.09
375-95-1	Perfluorononanoic acid	0.983	J	0.098	0.438	1.09
335-67-1	Perfluorooctanoic acid	2.87		0.164	0.438	1.09
2706-90-3	Perfluoropentanoic acid	3.06		0.164	0.438	1.09
376-06-7	Perfluorotetradecanoic acid	0.438	U	0.175	0.438	1.09
72629-94-8	Perfluorotridecanoic acid	0.438	U	0.241	0.438	1.09
2058-94-8	Perfluoroundecanoic acid	0.438	U	0.153	0.438	1.09

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102717	Client Sample ID:	AOI3-4-SB-1.5-2-102519-DDL
Collect Date:	10/25/19 Time: 1020	GCAL Sample ID:	21910271709DL
Matrix:	Solid % Moisture: 9.5	Instrument ID:	QQQ1
Sample Amt:	5.05 g	Lab File ID:	2191119A_102.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	10 Analyst: BMH
Prep Date:	11/08/19	Analysis Date:	11/20/19 Time: 0925
Prep Batch:	670210	Analytical Batch:	671741
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	70.5		1.86	4.38	10.9
39108-34-4	8:2 Fluorotelomer sulfonate	100		2.85	4.38	10.9
1763-23-1	Perfluorooctane Sulfonate	372		1.97	4.38	10.9

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102717	Client Sample ID:	AOI4-1-SB-0-0.5-102519
Collect Date:	10/25/19 Time: 0957	GCAL Sample ID:	21910271710
Matrix:	Solid % Moisture: 5.8	Instrument ID:	QQQ1
Sample Amt:	5.18 g	Lab File ID:	2191112B_33.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/08/19	Analysis Date:	11/12/19 Time: 2013
Prep Batch:	670210	Analytical Batch:	671184
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	0.410	U	0.174	0.410	1.02
39108-34-4	8:2 Fluorotelomer sulfonate	0.410	U	0.266	0.410	1.02
2991-50-6	NEtFOSAA	0.410	U	0.195	0.410	1.02
2355-31-9	NMeFOSAA	0.410	U	0.287	0.410	1.02
375-73-5	Perfluorobutanesulfonic acid	0.410	U	0.123	0.410	1.02
375-22-4	Perfluorobutanoic acid	0.410	U	0.133	0.410	1.02
335-76-2	Perfluorodecanoic acid	0.313	J	0.123	0.410	1.02
307-55-1	Perfluorododecanoic acid	0.410	U	0.205	0.410	1.02
375-85-9	Perfluoroheptanoic acid	0.410	U	0.133	0.410	1.02
355-46-4	Perfluorohexanesulfonic acid	0.410	U	0.143	0.410	1.02
307-24-4	Perfluorohexanoic acid	0.410	U	0.154	0.410	1.02
375-95-1	Perfluorononanoic acid	0.410	U	0.092	0.410	1.02
1763-23-1	Perfluorooctane Sulfonate	0.440	J	0.184	0.410	1.02
335-67-1	Perfluorooctanoic acid	0.410	U	0.154	0.410	1.02
2706-90-3	Perfluoropentanoic acid	0.410	U	0.154	0.410	1.02
376-06-7	Perfluorotetradecanoic acid	0.410	U	0.164	0.410	1.02
72629-94-8	Perfluorotridecanoic acid	0.410	U	0.225	0.410	1.02
2058-94-8	Perfluoroundecanoic acid	0.410	U	0.143	0.410	1.02

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102717	Client Sample ID:	AOI4-1-SB-5.5-6-102519
Collect Date:	10/25/19 Time: 1049	GCAL Sample ID:	21910271711
Matrix:	Solid % Moisture: 20.1	Instrument ID:	QQQ1
Sample Amt:	5.03 g	Lab File ID:	2191112B_34.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/08/19	Analysis Date:	11/12/19 Time: 2025
Prep Batch:	670210	Analytical Batch:	671184
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	0.497	U	0.211	0.497	1.24
39108-34-4	8:2 Fluorotelomer sulfonate	0.497	U	0.323	0.497	1.24
2991-50-6	NEtFOSAA	0.497	U	0.236	0.497	1.24
2355-31-9	NMeFOSAA	0.497	U	0.348	0.497	1.24
375-73-5	Perfluorobutanesulfonic acid	0.497	U	0.149	0.497	1.24
375-22-4	Perfluorobutanoic acid	0.195	J	0.162	0.497	1.24
335-76-2	Perfluorodecanoic acid	0.497	U	0.149	0.497	1.24
307-55-1	Perfluorododecanoic acid	0.497	U	0.249	0.497	1.24
375-85-9	Perfluoroheptanoic acid	0.497	U	0.162	0.497	1.24
355-46-4	Perfluorohexanesulfonic acid	0.497	U	0.174	0.497	1.24
307-24-4	Perfluorohexanoic acid	0.419	J	0.187	0.497	1.24
375-95-1	Perfluorononanoic acid	0.497	U	0.112	0.497	1.24
1763-23-1	Perfluorooctane Sulfonate	0.967	J	0.224	0.497	1.24
335-67-1	Perfluorooctanoic acid	1.59		0.187	0.497	1.24
2706-90-3	Perfluoropentanoic acid	0.514	J	0.187	0.497	1.24
376-06-7	Perfluorotetradecanoic acid	0.497	U	0.199	0.497	1.24
72629-94-8	Perfluorotridecanoic acid	0.497	U	0.274	0.497	1.24
2058-94-8	Perfluoroundecanoic acid	0.497	U	0.174	0.497	1.24

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102717	Client Sample ID:	AOI4-1-SB-5.5-6-102519 (RE)
Collect Date:	10/25/19 Time: 1049	GCAL Sample ID:	21910271723
Matrix:	Solid % Moisture: 19.1	Instrument ID:	QQQ1
Sample Amt:	5 g	Lab File ID:	2191125A_76.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/22/19	Analysis Date:	11/26/19 Time: 0233
Prep Batch:	671638	Analytical Batch:	672385
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
376-06-7	Perfluorotetradecanoic acid	0.494	U	0.198	0.494	1.24
72629-94-8	Perfluorotridecanoic acid	0.494	U	0.272	0.494	1.24

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102717	Client Sample ID:	AOI4-1-SB-9.5-10-102519
Collect Date:	10/25/19 Time: 1100	GCAL Sample ID:	21910271712
Matrix:	Solid % Moisture: 19.1	Instrument ID:	QQQ1
Sample Amt:	5.27 g	Lab File ID:	2191112B_36.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/08/19	Analysis Date:	11/12/19 Time: 2047
Prep Batch:	670210	Analytical Batch:	671184
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	0.469	U	0.199	0.469	1.17
39108-34-4	8:2 Fluorotelomer sulfonate	0.469	U	0.305	0.469	1.17
2991-50-6	NEtFOSAA	0.469	U	0.223	0.469	1.17
2355-31-9	NMeFOSAA	0.469	U	0.328	0.469	1.17
375-73-5	Perfluorobutanesulfonic acid	0.469	U	0.141	0.469	1.17
375-22-4	Perfluorobutanoic acid	0.469	U	0.152	0.469	1.17
335-76-2	Perfluorodecanoic acid	0.469	U	0.141	0.469	1.17
307-55-1	Perfluorododecanoic acid	0.469	U	0.234	0.469	1.17
375-85-9	Perfluoroheptanoic acid	0.469	U	0.152	0.469	1.17
355-46-4	Perfluorohexanesulfonic acid	0.469	U	0.164	0.469	1.17
307-24-4	Perfluorohexanoic acid	0.469	U	0.176	0.469	1.17
375-95-1	Perfluorononanoic acid	0.469	U	0.105	0.469	1.17
1763-23-1	Perfluorooctane Sulfonate	0.469	U	0.211	0.469	1.17
335-67-1	Perfluorooctanoic acid	0.398	J	0.176	0.469	1.17
2706-90-3	Perfluoropentanoic acid	0.469	U	0.176	0.469	1.17
376-06-7	Perfluorotetradecanoic acid	0.469	U	0.188	0.469	1.17
72629-94-8	Perfluorotridecanoic acid	0.469	U	0.258	0.469	1.17
2058-94-8	Perfluoroundecanoic acid	0.469	U	0.164	0.469	1.17

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102717	Client Sample ID:	AOI4-1-GW-102519
Collect Date:	10/25/19 Time: 1130	GCAL Sample ID:	21910271713
Matrix:	Water % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	140 mL	Lab File ID:	2191107A_14.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/05/19	Analysis Date:	11/07/19 Time: 1918
Prep Batch:	670213	Analytical Batch:	671082
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ng/L*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	481		1.60	3.57	8.93
39108-34-4	8:2 Fluorotelomer sulfonate	3.57	U	1.46	3.57	8.93
2991-50-6	NEtFOSAA	7.14	U	4.80	7.14	8.93
2355-31-9	NMeFOSAA	7.14	U	4.11	7.14	8.93
375-73-5	Perfluorobutanesulfonic acid	55.9		1.31	3.57	8.93
375-22-4	Perfluorobutanoic acid	188		1.90	3.57	8.93
335-76-2	Perfluorodecanoic acid	3.57	U	1.47	3.57	8.93
307-55-1	Perfluorododecanoic acid	3.57	U	2.19	3.57	8.93
375-85-9	Perfluoroheptanoic acid	265		1.65	3.57	8.93
355-46-4	Perfluorohexanesulfonic acid	360		1.46	3.57	8.93
307-24-4	Perfluorohexanoic acid	513		1.73	3.57	8.93
375-95-1	Perfluorononanoic acid	5.02	J	1.50	3.57	8.93
1763-23-1	Perfluorooctane Sulfonate	401		1.52	3.57	8.93
335-67-1	Perfluorooctanoic acid	245		1.61	3.57	8.93
2706-90-3	Perfluoropentanoic acid	637		2.10	3.57	8.93
376-06-7	Perfluorotetradecanoic acid	3.57	U	2.46	3.57	8.93
72629-94-8	Perfluorotridecanoic acid	3.57	U	2.29	3.57	8.93
2058-94-8	Perfluoroundecanoic acid	3.57	U	1.66	3.57	8.93

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102717	Client Sample ID:	AOI3-7-SB-1.5-2-102519
Collect Date:	10/25/19 Time: 1235	GCAL Sample ID:	21910271714
Matrix:	Solid % Moisture: 18.9	Instrument ID:	QQQ1
Sample Amt:	5.1 g	Lab File ID:	2191112B_37.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/08/19	Analysis Date:	11/12/19 Time: 2059
Prep Batch:	670210	Analytical Batch:	671184
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ug/kg*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	5.89		0.205	0.483	1.21
39108-34-4	8:2 Fluorotelomer sulfonate	0.874	J	0.314	0.483	1.21
2991-50-6	NEtFOSAA	0.483	U	0.230	0.483	1.21
2355-31-9	NMeFOSAA	0.483	U	0.338	0.483	1.21
375-73-5	Perfluorobutanesulfonic acid	0.281	J	0.145	0.483	1.21
375-22-4	Perfluorobutanoic acid	3.83		0.157	0.483	1.21
335-76-2	Perfluorodecanoic acid	0.363	J	0.145	0.483	1.21
307-55-1	Perfluorododecanoic acid	0.483	U	0.242	0.483	1.21
375-85-9	Perfluoroheptanoic acid	4.74		0.157	0.483	1.21
355-46-4	Perfluorohexanesulfonic acid	9.92		0.169	0.483	1.21
307-24-4	Perfluorohexanoic acid	5.93		0.181	0.483	1.21
375-95-1	Perfluorononanoic acid	8.15		0.109	0.483	1.21
335-67-1	Perfluorooctanoic acid	8.48		0.181	0.483	1.21
2706-90-3	Perfluoropentanoic acid	7.72		0.181	0.483	1.21
376-06-7	Perfluorotetradecanoic acid	0.483	U	0.193	0.483	1.21
72629-94-8	Perfluorotridecanoic acid	0.483	U	0.266	0.483	1.21
2058-94-8	Perfluoroundecanoic acid	0.483	U	0.169	0.483	1.21

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102717	Client Sample ID:	AOI3-7-SB-1.5-2-102519DL
Collect Date:	10/25/19 Time: 1235	GCAL Sample ID:	21910271714DL
Matrix:	Solid % Moisture: 18.9	Instrument ID:	QQQ1
Sample Amt:	5.1 g	Lab File ID:	2191119A_103.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	10 Analyst: BMH
Prep Date:	11/08/19	Analysis Date:	11/20/19 Time: 0937
Prep Batch:	670210	Analytical Batch:	671741
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
1763-23-1	Perfluorooctane Sulfonate	198		2.18	4.83	12.1

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102717	Client Sample ID:	AOI3-7-SB-1.5-2-102519-D
Collect Date:	10/25/19 Time: 1235	GCAL Sample ID:	21910271715
Matrix:	Solid % Moisture: 10.3	Instrument ID:	QQQ1
Sample Amt:	5.03 g	Lab File ID:	2191112B_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: BMH
Prep Date:	11/08/19	Analysis Date:	11/12/19 Time: 2110
Prep Batch:	670210	Analytical Batch:	671184
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	6.83		0.188	0.443	1.11
39108-34-4	8:2 Fluorotelomer sulfonate	1.24		0.288	0.443	1.11
2991-50-6	NEtFOSAA	0.443	U	0.210	0.443	1.11
2355-31-9	NMeFOSAA	0.443	U	0.310	0.443	1.11
375-73-5	Perfluorobutanesulfonic acid	0.226	J	0.133	0.443	1.11
375-22-4	Perfluorobutanoic acid	3.03		0.144	0.443	1.11
335-76-2	Perfluorodecanoic acid	0.480	J	0.133	0.443	1.11
307-55-1	Perfluorododecanoic acid	0.443	U	0.222	0.443	1.11
375-85-9	Perfluoroheptanoic acid	4.17		0.144	0.443	1.11
355-46-4	Perfluorohexanesulfonic acid	8.57		0.155	0.443	1.11
307-24-4	Perfluorohexanoic acid	5.29		0.166	0.443	1.11
375-95-1	Perfluorononanoic acid	8.73		0.100	0.443	1.11
335-67-1	Perfluorooctanoic acid	8.05		0.166	0.443	1.11
2706-90-3	Perfluoropentanoic acid	6.25		0.166	0.443	1.11
376-06-7	Perfluorotetradecanoic acid	0.443	U	0.177	0.443	1.11
72629-94-8	Perfluorotridecanoic acid	0.443	U	0.244	0.443	1.11
2058-94-8	Perfluoroundecanoic acid	0.443	U	0.155	0.443	1.11

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102717	Client Sample ID:	AOI3-7-SB-1.5-2-102519-DDL
Collect Date:	10/25/19 Time: 1235	GCAL Sample ID:	21910271715DL
Matrix:	Solid % Moisture: 10.3	Instrument ID:	QQQ1
Sample Amt:	5.03 g	Lab File ID:	2191119A_104.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	10 Analyst: BMH
Prep Date:	11/08/19	Analysis Date:	11/20/19 Time: 0948
Prep Batch:	670210	Analytical Batch:	671741
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ug/kg*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
1763-23-1	Perfluorooctane Sulfonate	223		1.99	4.43	11.1

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102717	Client Sample ID:	AOI2-5-SB-4.5-5-102519
Collect Date:	10/25/19 Time: 1300	GCAL Sample ID:	21910271716
Matrix:	Solid % Moisture: 3.9	Instrument ID:	QQQ1
Sample Amt:	5.13 g	Lab File ID:	2191112B_39.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/08/19	Analysis Date:	11/12/19 Time: 2121
Prep Batch:	670210	Analytical Batch:	671184
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
39108-34-4	8:2 Fluorotelomer sulfonate	2.18		0.264	0.406	1.01
2991-50-6	NEtFOSAA	0.406	U	0.193	0.406	1.01
2355-31-9	NMeFOSAA	0.406	U	0.284	0.406	1.01
375-22-4	Perfluorobutanoic acid	13.9		0.132	0.406	1.01
335-76-2	Perfluorodecanoic acid	0.406	U	0.122	0.406	1.01
307-55-1	Perfluorododecanoic acid	0.406	U	0.203	0.406	1.01
375-85-9	Perfluoroheptanoic acid	22.0		0.132	0.406	1.01
375-95-1	Perfluorononanoic acid	0.197	J	0.091	0.406	1.01
335-67-1	Perfluorooctanoic acid	25.9		0.152	0.406	1.01
376-06-7	Perfluorotetradecanoic acid	0.406	U	0.162	0.406	1.01
72629-94-8	Perfluorotridecanoic acid	0.406	U	0.223	0.406	1.01
2058-94-8	Perfluoroundecanoic acid	0.406	U	0.142	0.406	1.01

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102717	Client Sample ID:	AOI2-5-SB-4.5-5-102519DL
Collect Date:	10/25/19 Time: 1300	GCAL Sample ID:	21910271716DL
Matrix:	Solid % Moisture: 3.9	Instrument ID:	QQQ1
Sample Amt:	5.13 g	Lab File ID:	2191119A_101.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	20 Analyst: BMH
Prep Date:	11/08/19	Analysis Date:	11/20/19 Time: 0914
Prep Batch:	670210	Analytical Batch:	671741
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	72.7		3.45	8.12	20.3
375-73-5	Perfluorobutanesulfonic acid	50.0		2.43	8.12	20.3
355-46-4	Perfluorohexanesulfonic acid	350		2.84	8.12	20.3
307-24-4	Perfluorohexanoic acid	133		3.04	8.12	20.3
1763-23-1	Perfluorooctane Sulfonate	118		3.65	8.12	20.3
2706-90-3	Perfluoropentanoic acid	41.4		3.04	8.12	20.3

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102717	Client Sample ID:	AOI2-5-SB-9.5-10-102519
Collect Date:	10/25/19 Time: 1316	GCAL Sample ID:	21910271717
Matrix:	Solid % Moisture: 19.6	Instrument ID:	QQQ1
Sample Amt:	5.1 g	Lab File ID:	2191112B_40.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/08/19	Analysis Date:	11/12/19 Time: 2132
Prep Batch:	670210	Analytical Batch:	671184
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	2.86		0.207	0.488	1.22
39108-34-4	8:2 Fluorotelomer sulfonate	0.365	J	0.317	0.488	1.22
2991-50-6	NEtFOSAA	0.488	U	0.232	0.488	1.22
2355-31-9	NMeFOSAA	0.488	U	0.342	0.488	1.22
375-73-5	Perfluorobutanesulfonic acid	26.0		0.146	0.488	1.22
375-22-4	Perfluorobutanoic acid	9.25		0.159	0.488	1.22
335-76-2	Perfluorodecanoic acid	0.488	U	0.146	0.488	1.22
307-55-1	Perfluorododecanoic acid	0.488	U	0.244	0.488	1.22
375-85-9	Perfluoroheptanoic acid	4.59		0.159	0.488	1.22
375-95-1	Perfluorononanoic acid	0.488	U	0.110	0.488	1.22
1763-23-1	Perfluorooctane Sulfonate	20.2		0.220	0.488	1.22
335-67-1	Perfluorooctanoic acid	3.06		0.183	0.488	1.22
2706-90-3	Perfluoropentanoic acid	29.8		0.183	0.488	1.22
376-06-7	Perfluorotetradecanoic acid	0.488	U	0.195	0.488	1.22
72629-94-8	Perfluorotridecanoic acid	0.488	U	0.268	0.488	1.22
2058-94-8	Perfluoroundecanoic acid	0.488	U	0.171	0.488	1.22

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102717	Client Sample ID:	AOI2-5-SB-9.5-10-102519DL
Collect Date:	10/25/19 Time: 1316	GCAL Sample ID:	21910271717DL
Matrix:	Solid % Moisture: 19.6	Instrument ID:	QQQ1
Sample Amt:	5.1 g	Lab File ID:	2191119A_106.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	5 Analyst: BMH
Prep Date:	11/08/19	Analysis Date:	11/20/19 Time: 1011
Prep Batch:	670210	Analytical Batch:	671741
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ug/kg*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
355-46-4	Perfluorohexanesulfonic acid	54.8		0.854	2.44	6.10
307-24-4	Perfluorohexanoic acid	66.9		0.915	2.44	6.10

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102717	Client Sample ID:	AOI2-5-SB-13-13.5-102519
Collect Date:	10/25/19 Time: 1320	GCAL Sample ID:	21910271718
Matrix:	Solid % Moisture: 19.8	Instrument ID:	QQQ1
Sample Amt:	5.05 g	Lab File ID:	2191112B_41.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/08/19	Analysis Date:	11/12/19 Time: 2144
Prep Batch:	670210	Analytical Batch:	671184
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	0.494	U	0.210	0.494	1.23
39108-34-4	8:2 Fluorotelomer sulfonate	0.494	U	0.321	0.494	1.23
2991-50-6	NEtFOSAA	0.494	U	0.235	0.494	1.23
2355-31-9	NMeFOSAA	0.494	U	0.346	0.494	1.23
375-73-5	Perfluorobutanesulfonic acid	0.494	U	0.148	0.494	1.23
375-22-4	Perfluorobutanoic acid	0.163	J	0.160	0.494	1.23
335-76-2	Perfluorodecanoic acid	0.494	U	0.148	0.494	1.23
307-55-1	Perfluorododecanoic acid	0.494	U	0.247	0.494	1.23
375-85-9	Perfluoroheptanoic acid	0.494	U	0.160	0.494	1.23
355-46-4	Perfluorohexanesulfonic acid	0.511	J	0.173	0.494	1.23
307-24-4	Perfluorohexanoic acid	0.817	J	0.185	0.494	1.23
375-95-1	Perfluorononanoic acid	0.494	U	0.111	0.494	1.23
1763-23-1	Perfluorooctane Sulfonate	0.884	J	0.222	0.494	1.23
335-67-1	Perfluorooctanoic acid	2.02		0.185	0.494	1.23
2706-90-3	Perfluoropentanoic acid	0.433	J	0.185	0.494	1.23
376-06-7	Perfluorotetradecanoic acid	0.494	U	0.198	0.494	1.23
72629-94-8	Perfluorotridecanoic acid	0.494	U	0.272	0.494	1.23
2058-94-8	Perfluoroundecanoic acid	0.494	U	0.173	0.494	1.23

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102717	Client Sample ID:	AOI2-5-GW-102519
Collect Date:	10/25/19 Time: 1425	GCAL Sample ID:	21910271719
Matrix:	Water % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	150 mL	Lab File ID:	2191107A_15.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/05/19	Analysis Date:	11/07/19 Time: 1929
Prep Batch:	670213	Analytical Batch:	671082
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ng/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	861		1.49	3.33	8.33
39108-34-4	8:2 Fluorotelomer sulfonate	9.22		1.36	3.33	8.33
2991-50-6	NEtFOSAA	6.67	U	4.48	6.67	8.33
2355-31-9	NMeFOSAA	6.67	U	3.83	6.67	8.33
335-76-2	Perfluorodecanoic acid	3.33	U	1.38	3.33	8.33
307-55-1	Perfluorododecanoic acid	3.33	U	2.04	3.33	8.33
375-95-1	Perfluorononanoic acid	14.5		1.40	3.33	8.33
376-06-7	Perfluorotetradecanoic acid	3.33	U	2.30	3.33	8.33
72629-94-8	Perfluorotridecanoic acid	3.33	U	2.13	3.33	8.33
2058-94-8	Perfluoroundecanoic acid	3.33	U	1.55	3.33	8.33

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102717	Client Sample ID:	AOI2-5-GW-102519DL
Collect Date:	10/25/19 Time: 1425	GCAL Sample ID:	21910271719DL
Matrix:	Water % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	150 mL	Lab File ID:	2191119A_23.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	10 Analyst: BMH
Prep Date:	11/05/19	Analysis Date:	11/19/19 Time: 1829
Prep Batch:	670213	Analytical Batch:	671741
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ng/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
375-73-5	Perfluorobutanesulfonic acid	1600		12.3	33.3	83.3
375-22-4	Perfluorobutanoic acid	2090		17.8	33.3	83.3
375-85-9	Perfluoroheptanoic acid	2560		15.4	33.3	83.3
355-46-4	Perfluorohexanesulfonic acid	7810		13.7	33.3	83.3
1763-23-1	Perfluorooctane Sulfonate	1620		14.2	33.3	83.3
2706-90-3	Perfluoropentanoic acid	7340		19.6	33.3	83.3

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102717	Client Sample ID:	AOI2-5-GW-102519DL1
Collect Date:	10/25/19 Time: 1425	GCAL Sample ID:	21910271719DL1
Matrix:	Water % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	150 mL	Lab File ID:	2191119A_22.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	100 Analyst: BMH
Prep Date:	11/05/19	Analysis Date:	11/19/19 Time: 1817
Prep Batch:	670213	Analytical Batch:	671741
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ng/L*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
307-24-4	Perfluorohexanoic acid	12700		162	333	833
335-67-1	Perfluorooctanoic acid	62900		150	333	833

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102717	Client Sample ID:	AOI2-4-SB-4.5-5-102519
Collect Date:	10/25/19 Time: 1345	GCAL Sample ID:	21910271720
Matrix:	Solid % Moisture: 11.6	Instrument ID:	QQQ1
Sample Amt:	5.12 g	Lab File ID:	2191112B_42.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/08/19	Analysis Date:	11/12/19 Time: 2155
Prep Batch:	670210	Analytical Batch:	671184
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	1.06	J	0.188	0.442	1.10
39108-34-4	8:2 Fluorotelomer sulfonate	6.87		0.287	0.442	1.10
2991-50-6	NEtFOSAA	0.442	U	0.210	0.442	1.10
2355-31-9	NMeFOSAA	0.442	U	0.309	0.442	1.10
375-73-5	Perfluorobutanesulfonic acid	3.47		0.132	0.442	1.10
375-22-4	Perfluorobutanoic acid	1.64		0.144	0.442	1.10
335-76-2	Perfluorodecanoic acid	0.256	J	0.132	0.442	1.10
307-55-1	Perfluorododecanoic acid	0.442	U	0.221	0.442	1.10
375-85-9	Perfluoroheptanoic acid	2.11		0.144	0.442	1.10
355-46-4	Perfluorohexanesulfonic acid	27.3		0.155	0.442	1.10
307-24-4	Perfluorohexanoic acid	5.85		0.166	0.442	1.10
375-95-1	Perfluorononanoic acid	2.28		0.099	0.442	1.10
335-67-1	Perfluorooctanoic acid	6.88		0.166	0.442	1.10
2706-90-3	Perfluoropentanoic acid	4.78		0.166	0.442	1.10
376-06-7	Perfluorotetradecanoic acid	0.442	U	0.177	0.442	1.10
72629-94-8	Perfluorotridecanoic acid	0.442	U	0.243	0.442	1.10
2058-94-8	Perfluoroundecanoic acid	0.442	U	0.155	0.442	1.10

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102717	Client Sample ID:	AOI2-4-SB-4.5-5-102519DL
Collect Date:	10/25/19 Time: 1345	GCAL Sample ID:	21910271720DL
Matrix:	Solid % Moisture: 11.6	Instrument ID:	QQQ1
Sample Amt:	5.12 g	Lab File ID:	2191205A_41.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	50 Analyst: BMH
Prep Date:	11/08/19	Analysis Date:	12/05/19 Time: 1424
Prep Batch:	670210	Analytical Batch:	672685
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ug/kg*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
1763-23-1	Perfluorooctane Sulfonate	456		9.94	22.1	55.2

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102717	Client Sample ID:	AOI2-1-SB-4.5-5-102519
Collect Date:	10/25/19 Time: 1426	GCAL Sample ID:	21910271721
Matrix:	Solid % Moisture: 11.0	Instrument ID:	QQQ1
Sample Amt:	5.1 g	Lab File ID:	2191112B_43.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/08/19	Analysis Date:	11/12/19 Time: 2206
Prep Batch:	670210	Analytical Batch:	671184
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ug/kg*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
39108-34-4	8:2 Fluorotelomer sulfonate	0.441	U	0.286	0.441	1.10
2991-50-6	NEtFOSAA	0.441	U	0.209	0.441	1.10
2355-31-9	NMeFOSAA	0.441	U	0.308	0.441	1.10
375-73-5	Perfluorobutanesulfonic acid	3.50		0.132	0.441	1.10
375-22-4	Perfluorobutanoic acid	12.9		0.143	0.441	1.10
335-76-2	Perfluorodecanoic acid	0.441	U	0.132	0.441	1.10
307-55-1	Perfluorododecanoic acid	0.441	U	0.220	0.441	1.10
375-85-9	Perfluoroheptanoic acid	13.3		0.143	0.441	1.10
355-46-4	Perfluorohexanesulfonic acid	20.4		0.154	0.441	1.10
375-95-1	Perfluorononanoic acid	0.441	U	0.099	0.441	1.10
1763-23-1	Perfluorooctane Sulfonate	0.650	J	0.198	0.441	1.10
335-67-1	Perfluorooctanoic acid	4.21		0.165	0.441	1.10
376-06-7	Perfluorotetradecanoic acid	0.441	U	0.176	0.441	1.10
72629-94-8	Perfluorotridecanoic acid	0.441	U	0.242	0.441	1.10
2058-94-8	Perfluoroundecanoic acid	0.441	U	0.154	0.441	1.10

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102717	Client Sample ID:	AOI2-1-SB-4.5-5-102519DL
Collect Date:	10/25/19 Time: 1426	GCAL Sample ID:	21910271721DL
Matrix:	Solid % Moisture: 11.0	Instrument ID:	QQQ1
Sample Amt:	5.1 g	Lab File ID:	2191119A_107.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	5 Analyst: BMH
Prep Date:	11/08/19	Analysis Date:	11/20/19 Time: 1022
Prep Batch:	670210	Analytical Batch:	671741
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ug/kg*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	60.9		0.936	2.20	5.51
307-24-4	Perfluorohexanoic acid	58.0		0.826	2.20	5.51
2706-90-3	Perfluoropentanoic acid	67.3		0.826	2.20	5.51

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219103085	Client Sample ID:	AOI 8-X3-1-102919
Collect Date:	10/29/19 Time: 0900	GCAL Sample ID:	21910308501
Matrix:	Water % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	150 mL	Lab File ID:	2191111A_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: BMH
Prep Date:	11/07/19	Analysis Date:	11/11/19 Time: 1651
Prep Batch:	670458	Analytical Batch:	671157
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ng/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
39108-34-4	8:2 Fluorotelomer sulfonate	155		1.36	3.33	8.33
2991-50-6	NEtFOSAA	6.67	U	4.48	6.67	8.33
2355-31-9	NMeFOSAA	6.67	U	3.83	6.67	8.33
375-73-5	Perfluorobutanesulfonic acid	118		1.23	3.33	8.33
375-22-4	Perfluorobutanoic acid	426		1.78	3.33	8.33
335-76-2	Perfluorodecanoic acid	26.2		1.38	3.33	8.33
307-55-1	Perfluorododecanoic acid	3.33	U	2.04	3.33	8.33
375-85-9	Perfluoroheptanoic acid	559		1.54	3.33	8.33
355-46-4	Perfluorohexanesulfonic acid	1130		1.37	3.33	8.33
375-95-1	Perfluorononanoic acid	229		1.40	3.33	8.33
376-06-7	Perfluorotetradecanoic acid	3.33	U	2.30	3.33	8.33
72629-94-8	Perfluorotridecanoic acid	3.33	U	2.13	3.33	8.33
2058-94-8	Perfluoroundecanoic acid	3.31	J	1.55	3.33	8.33

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219103085	Client Sample ID:	AOI 8-X3-1-102919DL
Collect Date:	10/29/19 Time: 0900	GCAL Sample ID:	21910308501DL
Matrix:	Water % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	150 mL	Lab File ID:	2191119A_89.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	10 Analyst: BMH
Prep Date:	11/07/19	Analysis Date:	11/20/19 Time: 0658
Prep Batch:	670458	Analytical Batch:	671741
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ng/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	1540		14.9	33.3	83.3
307-24-4	Perfluorohexanoic acid	1470		16.2	33.3	83.3
1763-23-1	Perfluorooctane Sulfonate	4670		14.2	33.3	83.3
335-67-1	Perfluorooctanoic acid	3040		15.0	33.3	83.3
2706-90-3	Perfluoropentanoic acid	1590		19.6	33.3	83.3

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219103085	Client Sample ID:	AOI 8-X3-1-102919 (RE)
Collect Date:	10/29/19 Time: 0900	GCAL Sample ID:	21910308518
Matrix:	Water % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	150 mL	Lab File ID:	2191122B_52.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/20/19	Analysis Date:	11/23/19 Time: 0129
Prep Batch:	671428	Analytical Batch:	671888
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ng/L*

CAS	*ANALYTE*	*RESULT*	*Q*	*DL*	*LOD*	*LOQ*
307-55-1	Perfluorododecanoic acid	3.33	U	2.04	3.33	8.33

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219103085	Client Sample ID:	AOI 8-X3-1-102919-D
Collect Date:	10/29/19 Time: 0905	GCAL Sample ID:	21910308502
Matrix:	Water % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	150 mL	Lab File ID:	2191111A_39.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/07/19	Analysis Date:	11/11/19 Time: 1702
Prep Batch:	670458	Analytical Batch:	671157
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ng/L*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
39108-34-4	8:2 Fluorotelomer sulfonate	181		1.36	3.33	8.33
2991-50-6	NEtFOSAA	6.67	U	4.48	6.67	8.33
2355-31-9	NMeFOSAA	6.67	U	3.83	6.67	8.33
375-73-5	Perfluorobutanesulfonic acid	132		1.23	3.33	8.33
375-22-4	Perfluorobutanoic acid	479		1.78	3.33	8.33
335-76-2	Perfluorodecanoic acid	28.7		1.38	3.33	8.33
307-55-1	Perfluorododecanoic acid	3.33	U	2.04	3.33	8.33
375-85-9	Perfluoroheptanoic acid	602		1.54	3.33	8.33
355-46-4	Perfluorohexanesulfonic acid	1280		1.37	3.33	8.33
375-95-1	Perfluorononanoic acid	247		1.40	3.33	8.33
376-06-7	Perfluorotetradecanoic acid	3.33	U	2.30	3.33	8.33
72629-94-8	Perfluorotridecanoic acid	3.33	U	2.13	3.33	8.33
2058-94-8	Perfluoroundecanoic acid	3.50	J	1.55	3.33	8.33

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219103085	Client Sample ID:	AOI 8-X3-1-102919-DDL
Collect Date:	10/29/19 Time: 0905	GCAL Sample ID:	21910308502DL
Matrix:	Water % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	150 mL	Lab File ID:	2191119A_90.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	10 Analyst: BMH
Prep Date:	11/07/19	Analysis Date:	11/20/19 Time: 0709
Prep Batch:	670458	Analytical Batch:	671741
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ng/L*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	1530		14.9	33.3	83.3
307-24-4	Perfluorohexanoic acid	1910		16.2	33.3	83.3
1763-23-1	Perfluorooctane Sulfonate	4880		14.2	33.3	83.3
335-67-1	Perfluorooctanoic acid	3740		15.0	33.3	83.3
2706-90-3	Perfluoropentanoic acid	1940		19.6	33.3	83.3

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219103085	Client Sample ID:	AOI 8-5-SW-102919
Collect Date:	10/29/19 Time: 0915	GCAL Sample ID:	21910308503
Matrix:	Water % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	150 mL	Lab File ID:	2191111A_40.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/07/19	Analysis Date:	11/11/19 Time: 1714
Prep Batch:	670458	Analytical Batch:	671157
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ng/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	275		1.49	3.33	8.33
39108-34-4	8:2 Fluorotelomer sulfonate	13.5		1.36	3.33	8.33
2991-50-6	NEtFOSAA	6.67	U	4.48	6.67	8.33
2355-31-9	NMeFOSAA	6.67	U	3.83	6.67	8.33
375-73-5	Perfluorobutanesulfonic acid	5.90	J	1.23	3.33	8.33
375-22-4	Perfluorobutanoic acid	18.6		1.78	3.33	8.33
335-76-2	Perfluorodecanoic acid	3.16	J	1.38	3.33	8.33
307-55-1	Perfluorododecanoic acid	3.33	U	2.04	3.33	8.33
375-85-9	Perfluoroheptanoic acid	14.0		1.54	3.33	8.33
355-46-4	Perfluorohexanesulfonic acid	33.5		1.37	3.33	8.33
307-24-4	Perfluorohexanoic acid	65.4		1.62	3.33	8.33
375-95-1	Perfluorononanoic acid	6.68	J	1.40	3.33	8.33
1763-23-1	Perfluorooctane Sulfonate	104		1.42	3.33	8.33
335-67-1	Perfluorooctanoic acid	26.7		1.50	3.33	8.33
2706-90-3	Perfluoropentanoic acid	74.1		1.96	3.33	8.33
376-06-7	Perfluorotetradecanoic acid	3.33	U	2.30	3.33	8.33
72629-94-8	Perfluorotridecanoic acid	3.33	U	2.13	3.33	8.33
2058-94-8	Perfluoroundecanoic acid	3.33	U	1.55	3.33	8.33

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219103085	Client Sample ID:	AOI 8-5-SW-102919 (RE)
Collect Date:	10/29/19 Time: 0915	GCAL Sample ID:	21910308519
Matrix:	Water % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	150 mL	Lab File ID:	2191122B_54.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/20/19	Analysis Date:	11/23/19 Time: 0151
Prep Batch:	671428	Analytical Batch:	671888
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ng/L*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
307-55-1	Perfluorododecanoic acid	3.33	U	2.04	3.33	8.33

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219103085	Client Sample ID:	AOI 8-6-SW-102919
Collect Date:	10/29/19 Time: 0928	GCAL Sample ID:	21910308506
Matrix:	Water % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	150 mL	Lab File ID:	2191111A_44.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/07/19	Analysis Date:	11/11/19 Time: 1759
Prep Batch:	670458	Analytical Batch:	671157
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ng/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	306		1.49	3.33	8.33
39108-34-4	8:2 Fluorotelomer sulfonate	7.69	J	1.36	3.33	8.33
2991-50-6	NEtFOSAA	6.67	U	4.48	6.67	8.33
2355-31-9	NMeFOSAA	6.67	U	3.83	6.67	8.33
375-73-5	Perfluorobutanesulfonic acid	6.43	J	1.23	3.33	8.33
375-22-4	Perfluorobutanoic acid	19.3		1.78	3.33	8.33
335-76-2	Perfluorodecanoic acid	2.35	J	1.38	3.33	8.33
307-55-1	Perfluorododecanoic acid	3.33	U	2.04	3.33	8.33
375-85-9	Perfluoroheptanoic acid	15.8		1.54	3.33	8.33
355-46-4	Perfluorohexanesulfonic acid	36.6		1.37	3.33	8.33
307-24-4	Perfluorohexanoic acid	74.1		1.62	3.33	8.33
375-95-1	Perfluorononanoic acid	6.02	J	1.40	3.33	8.33
1763-23-1	Perfluorooctane Sulfonate	71.2		1.42	3.33	8.33
335-67-1	Perfluorooctanoic acid	29.2		1.50	3.33	8.33
2706-90-3	Perfluoropentanoic acid	80.2		1.96	3.33	8.33
376-06-7	Perfluorotetradecanoic acid	3.33	U	2.30	3.33	8.33
72629-94-8	Perfluorotridecanoic acid	3.33	U	2.13	3.33	8.33
2058-94-8	Perfluoroundecanoic acid	3.33	U	1.55	3.33	8.33

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219103085	Client Sample ID:	AOI 8-6-SW-102919 (RE)
Collect Date:	10/29/19 Time: 0928	GCAL Sample ID:	21910308522
Matrix:	Water % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	150 mL	Lab File ID:	2191122B_57.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/20/19	Analysis Date:	11/23/19 Time: 0225
Prep Batch:	671428	Analytical Batch:	671888
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ng/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
2991-50-6	NEtFOSAA	6.67	U	4.48	6.67	8.33
307-55-1	Perfluorododecanoic acid	3.33	U	2.04	3.33	8.33
2058-94-8	Perfluoroundecanoic acid	3.33	U	1.55	3.33	8.33

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219103085	Client Sample ID:	AOI 8-6-SW-102919 (RE)RE
Collect Date:	10/29/19 Time: 0928	GCAL Sample ID:	21910308522RE
Matrix:	Water % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	150 mL	Lab File ID:	2191127A_79.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/20/19	Analysis Date:	11/28/19 Time: 0345
Prep Batch:	671428	Analytical Batch:	672386
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ng/L*

CAS	*ANALYTE*	*RESULT*	*Q*	*DL*	*LOD*	*LOQ*
39108-34-4	8:2 Fluorotelomer sulfonate	6.07	J	1.36	3.33	8.33

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219103085	Client Sample ID:	AOI 8-7-SW-102919
Collect Date:	10/29/19 Time: 0945	GCAL Sample ID:	21910308509
Matrix:	Water % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	150 mL	Lab File ID:	2191111A_47.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/07/19	Analysis Date:	11/11/19 Time: 1833
Prep Batch:	670458	Analytical Batch:	671157
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ng/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	271		1.49	3.33	8.33
39108-34-4	8:2 Fluorotelomer sulfonate	8.20	J	1.36	3.33	8.33
2991-50-6	NEtFOSAA	6.67	U	4.48	6.67	8.33
2355-31-9	NMeFOSAA	6.67	U	3.83	6.67	8.33
375-73-5	Perfluorobutanesulfonic acid	5.68	J	1.23	3.33	8.33
375-22-4	Perfluorobutanoic acid	19.6		1.78	3.33	8.33
335-76-2	Perfluorodecanoic acid	2.44	J	1.38	3.33	8.33
307-55-1	Perfluorododecanoic acid	3.33	U	2.04	3.33	8.33
375-85-9	Perfluoroheptanoic acid	15.5		1.54	3.33	8.33
355-46-4	Perfluorohexanesulfonic acid	33.4		1.37	3.33	8.33
307-24-4	Perfluorohexanoic acid	69.3		1.62	3.33	8.33
375-95-1	Perfluorononanoic acid	4.41	J	1.40	3.33	8.33
1763-23-1	Perfluorooctane Sulfonate	57.6		1.42	3.33	8.33
335-67-1	Perfluorooctanoic acid	25.8		1.50	3.33	8.33
2706-90-3	Perfluoropentanoic acid	76.2		1.96	3.33	8.33
376-06-7	Perfluorotetradecanoic acid	3.33	U	2.30	3.33	8.33
72629-94-8	Perfluorotridecanoic acid	3.33	U	2.13	3.33	8.33
2058-94-8	Perfluoroundecanoic acid	3.33	U	1.55	3.33	8.33

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219103085	Client Sample ID:	AOI 8-7-SW-102919-D
Collect Date:	10/29/19 Time: 0945	GCAL Sample ID:	21910308510
Matrix:	Water % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	150 mL	Lab File ID:	2191111A_48.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/07/19	Analysis Date:	11/11/19 Time: 1844
Prep Batch:	670458	Analytical Batch:	671157
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ng/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	250		1.49	3.33	8.33
39108-34-4	8:2 Fluorotelomer sulfonate	9.13		1.36	3.33	8.33
2991-50-6	NEtFOSAA	6.67	U	4.48	6.67	8.33
2355-31-9	NMeFOSAA	6.67	U	3.83	6.67	8.33
375-73-5	Perfluorobutanesulfonic acid	5.19	J	1.23	3.33	8.33
375-22-4	Perfluorobutanoic acid	18.0		1.78	3.33	8.33
335-76-2	Perfluorodecanoic acid	1.97	J	1.38	3.33	8.33
307-55-1	Perfluorododecanoic acid	3.33	U	2.04	3.33	8.33
375-85-9	Perfluoroheptanoic acid	13.3		1.54	3.33	8.33
355-46-4	Perfluorohexanesulfonic acid	30.3		1.37	3.33	8.33
307-24-4	Perfluorohexanoic acid	68.9		1.62	3.33	8.33
375-95-1	Perfluorononanoic acid	4.22	J	1.40	3.33	8.33
1763-23-1	Perfluorooctane Sulfonate	58.8		1.42	3.33	8.33
335-67-1	Perfluorooctanoic acid	24.7		1.50	3.33	8.33
2706-90-3	Perfluoropentanoic acid	70.8		1.96	3.33	8.33
376-06-7	Perfluorotetradecanoic acid	3.33	U	2.30	3.33	8.33
72629-94-8	Perfluorotridecanoic acid	3.33	U	2.13	3.33	8.33
2058-94-8	Perfluoroundecanoic acid	1.73	J	1.55	3.33	8.33

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219103085	Client Sample ID:	AOI 8-7-SW-102919-D (RE)
Collect Date:	10/29/19 Time: 0945	GCAL Sample ID:	21910308525
Matrix:	Water % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	150 mL	Lab File ID:	2191122B_61.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/20/19	Analysis Date:	11/23/19 Time: 0311
Prep Batch:	671428	Analytical Batch:	671888
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ng/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
2991-50-6	NEtFOSAA	6.67	U	4.48	6.67	8.33
307-55-1	Perfluorododecanoic acid	3.33	U	2.04	3.33	8.33

FORM I SV-1

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219103085	Client Sample ID:	AOI 8-4-SW-102919
Collect Date:	10/29/19 Time: 0957	GCAL Sample ID:	21910308511
Matrix:	Water % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	150 mL	Lab File ID:	2191111A_49.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/07/19	Analysis Date:	11/11/19 Time: 1856
Prep Batch:	670458	Analytical Batch:	671157
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ng/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	233		1.49	3.33	8.33
39108-34-4	8:2 Fluorotelomer sulfonate	7.93	J	1.36	3.33	8.33
2991-50-6	NEtFOSAA	6.67	U	4.48	6.67	8.33
2355-31-9	NMeFOSAA	6.67	U	3.83	6.67	8.33
375-73-5	Perfluorobutanesulfonic acid	5.42	J	1.23	3.33	8.33
375-22-4	Perfluorobutanoic acid	15.7		1.78	3.33	8.33
335-76-2	Perfluorodecanoic acid	1.89	J	1.38	3.33	8.33
307-55-1	Perfluorododecanoic acid	3.33	U	2.04	3.33	8.33
375-85-9	Perfluoroheptanoic acid	11.6		1.54	3.33	8.33
355-46-4	Perfluorohexanesulfonic acid	28.8		1.37	3.33	8.33
307-24-4	Perfluorohexanoic acid	59.2		1.62	3.33	8.33
375-95-1	Perfluorononanoic acid	5.01	J	1.40	3.33	8.33
1763-23-1	Perfluorooctane Sulfonate	54.4		1.42	3.33	8.33
335-67-1	Perfluorooctanoic acid	25.4		1.50	3.33	8.33
2706-90-3	Perfluoropentanoic acid	63.8		1.96	3.33	8.33
376-06-7	Perfluorotetradecanoic acid	3.33	U	2.30	3.33	8.33
72629-94-8	Perfluorotridecanoic acid	3.33	U	2.13	3.33	8.33
2058-94-8	Perfluoroundecanoic acid	3.33	U	1.55	3.33	8.33

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219103085	Client Sample ID:	AOI 8-4-SW-102919 (RE)
Collect Date:	10/29/19 Time: 0957	GCAL Sample ID:	21910308526
Matrix:	Water % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	150 mL	Lab File ID:	2191122B_63.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/20/19	Analysis Date:	11/23/19 Time: 0333
Prep Batch:	671428	Analytical Batch:	671888
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ng/L*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
307-55-1	Perfluorododecanoic acid	3.33	U	2.04	3.33	8.33
376-06-7	Perfluorotetradecanoic acid	3.33	U	2.30	3.33	8.33
72629-94-8	Perfluorotridecanoic acid	3.33	U	2.13	3.33	8.33

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219103085	Client Sample ID:	AOI 8-3-SW-102919
Collect Date:	10/29/19 Time: 1005	GCAL Sample ID:	21910308512
Matrix:	Water % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	150 mL	Lab File ID:	2191111A_50.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/07/19	Analysis Date:	11/11/19 Time: 1907
Prep Batch:	670458	Analytical Batch:	671157
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ng/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	122		1.49	3.33	8.33
39108-34-4	8:2 Fluorotelomer sulfonate	4.97	J	1.36	3.33	8.33
2991-50-6	NEtFOSAA	6.67	U	4.48	6.67	8.33
2355-31-9	NMeFOSAA	6.67	U	3.83	6.67	8.33
375-73-5	Perfluorobutanesulfonic acid	3.89	J	1.23	3.33	8.33
375-22-4	Perfluorobutanoic acid	8.61		1.78	3.33	8.33
335-76-2	Perfluorodecanoic acid	3.33	U	1.38	3.33	8.33
307-55-1	Perfluorododecanoic acid	3.33	U	2.04	3.33	8.33
375-85-9	Perfluoroheptanoic acid	6.63	J	1.54	3.33	8.33
355-46-4	Perfluorohexanesulfonic acid	16.5		1.37	3.33	8.33
307-24-4	Perfluorohexanoic acid	30.4		1.62	3.33	8.33
375-95-1	Perfluorononanoic acid	2.86	J	1.40	3.33	8.33
1763-23-1	Perfluorooctane Sulfonate	34.5		1.42	3.33	8.33
335-67-1	Perfluorooctanoic acid	14.5		1.50	3.33	8.33
2706-90-3	Perfluoropentanoic acid	33.7		1.96	3.33	8.33
376-06-7	Perfluorotetradecanoic acid	3.33	U	2.30	3.33	8.33
72629-94-8	Perfluorotridecanoic acid	3.12	J	2.13	3.33	8.33
2058-94-8	Perfluoroundecanoic acid	3.33	U	1.55	3.33	8.33

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219103085	Client Sample ID:	AOI 8-3-SW-102919 (RE)
Collect Date:	10/29/19 Time: 1005	GCAL Sample ID:	21910308527
Matrix:	Water % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	150 mL	Lab File ID:	2191122B_64.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/20/19	Analysis Date:	11/23/19 Time: 0345
Prep Batch:	671428	Analytical Batch:	671888
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ng/L*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
39108-34-4	8:2 Fluorotelomer sulfonate	2.86	J	1.36	3.33	8.33
2991-50-6	NEtFOSAA	6.67	U	4.48	6.67	8.33
307-55-1	Perfluorododecanoic acid	3.33	U	2.04	3.33	8.33
2058-94-8	Perfluoroundecanoic acid	3.33	U	1.55	3.33	8.33

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219103085	Client Sample ID:	AOI 8-2-SB-0-0.5-102919
Collect Date:	10/29/19 Time: 1020	GCAL Sample ID:	21910308513
Matrix:	Solid % Moisture: 3.0	Instrument ID:	QQQ1
Sample Amt:	5.05 g	Lab File ID:	2191112B_44.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/08/19	Analysis Date:	11/12/19 Time: 2218
Prep Batch:	670210	Analytical Batch:	671184
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ug/kg*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	0.408	U	0.173	0.408	1.02
39108-34-4	8:2 Fluorotelomer sulfonate	0.408	U	0.265	0.408	1.02
2991-50-6	NEtFOSAA	0.408	U	0.194	0.408	1.02
2355-31-9	NMeFOSAA	0.408	U	0.286	0.408	1.02
375-73-5	Perfluorobutanesulfonic acid	0.408	U	0.122	0.408	1.02
375-22-4	Perfluorobutanoic acid	0.408	U	0.133	0.408	1.02
335-76-2	Perfluorodecanoic acid	0.369	J	0.122	0.408	1.02
307-55-1	Perfluorododecanoic acid	0.261	J	0.204	0.408	1.02
375-85-9	Perfluoroheptanoic acid	0.408	U	0.133	0.408	1.02
355-46-4	Perfluorohexanesulfonic acid	0.408	U	0.143	0.408	1.02
307-24-4	Perfluorohexanoic acid	0.408	U	0.153	0.408	1.02
375-95-1	Perfluorononanoic acid	0.147	J	0.092	0.408	1.02
1763-23-1	Perfluorooctane Sulfonate	2.42		0.184	0.408	1.02
335-67-1	Perfluorooctanoic acid	0.211	J	0.153	0.408	1.02
2706-90-3	Perfluoropentanoic acid	0.408	U	0.153	0.408	1.02
376-06-7	Perfluorotetradecanoic acid	0.408	U	0.163	0.408	1.02
72629-94-8	Perfluorotridecanoic acid	0.408	U	0.225	0.408	1.02
2058-94-8	Perfluoroundecanoic acid	0.408	U	0.143	0.408	1.02

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219103085	Client Sample ID:	AOI 8-1-SB-0-0.5-102919
Collect Date:	10/29/19 Time: 1030	GCAL Sample ID:	21910308514
Matrix:	Solid % Moisture: 3.6	Instrument ID:	QQQ1
Sample Amt:	5.11 g	Lab File ID:	2191112B_45.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/08/19	Analysis Date:	11/12/19 Time: 2229
Prep Batch:	670210	Analytical Batch:	671184
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ug/kg*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	0.406	U	0.172	0.406	1.01
39108-34-4	8:2 Fluorotelomer sulfonate	0.406	U	0.264	0.406	1.01
2991-50-6	NEtFOSAA	0.406	U	0.193	0.406	1.01
2355-31-9	NMeFOSAA	0.406	U	0.284	0.406	1.01
375-73-5	Perfluorobutanesulfonic acid	0.406	U	0.122	0.406	1.01
375-22-4	Perfluorobutanoic acid	0.406	U	0.132	0.406	1.01
335-76-2	Perfluorodecanoic acid	0.426	J	0.122	0.406	1.01
307-55-1	Perfluorododecanoic acid	0.213	J	0.203	0.406	1.01
375-85-9	Perfluoroheptanoic acid	0.406	U	0.132	0.406	1.01
355-46-4	Perfluorohexanesulfonic acid	0.169	J	0.142	0.406	1.01
307-24-4	Perfluorohexanoic acid	0.406	U	0.152	0.406	1.01
375-95-1	Perfluorononanoic acid	0.156	J	0.091	0.406	1.01
1763-23-1	Perfluorooctane Sulfonate	3.02		0.183	0.406	1.01
335-67-1	Perfluorooctanoic acid	0.255	J	0.152	0.406	1.01
2706-90-3	Perfluoropentanoic acid	0.406	U	0.152	0.406	1.01
376-06-7	Perfluorotetradecanoic acid	0.406	U	0.162	0.406	1.01
72629-94-8	Perfluorotridecanoic acid	0.406	U	0.223	0.406	1.01
2058-94-8	Perfluoroundecanoic acid	0.168	J	0.142	0.406	1.01

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219103085	Client Sample ID:	AOI 5-N19-3-102919
Collect Date:	10/29/19 Time: 1157	GCAL Sample ID:	21910308515
Matrix:	Water % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	150 mL	Lab File ID:	2191111A_51.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/07/19	Analysis Date:	11/11/19 Time: 1918
Prep Batch:	670458	Analytical Batch:	671157
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ng/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
39108-34-4	8:2 Fluorotelomer sulfonate	375		1.36	3.33	8.33
2991-50-6	NEtFOSAA	6.67	U	4.48	6.67	8.33
2355-31-9	NMeFOSAA	6.67	U	3.83	6.67	8.33
375-73-5	Perfluorobutanesulfonic acid	795		1.23	3.33	8.33
375-22-4	Perfluorobutanoic acid	1280		1.78	3.33	8.33
335-76-2	Perfluorodecanoic acid	4.30	J	1.38	3.33	8.33
307-55-1	Perfluorododecanoic acid	3.33	U	2.04	3.33	8.33
375-85-9	Perfluoroheptanoic acid	988		1.54	3.33	8.33
375-95-1	Perfluorononanoic acid	10.1		1.40	3.33	8.33
376-06-7	Perfluorotetradecanoic acid	3.33	U	2.30	3.33	8.33
72629-94-8	Perfluorotridecanoic acid	3.33	U	2.13	3.33	8.33
2058-94-8	Perfluoroundecanoic acid	3.33	U	1.55	3.33	8.33

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219103085	Client Sample ID:	AOI 5-N19-3-102919DL
Collect Date:	10/29/19 Time: 1157	GCAL Sample ID:	21910308515DL
Matrix:	Water % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	150 mL	Lab File ID:	2191119A_91.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	10 Analyst: BMH
Prep Date:	11/07/19	Analysis Date:	11/20/19 Time: 0721
Prep Batch:	670458	Analytical Batch:	671741
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ng/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	5040		14.9	33.3	83.3
355-46-4	Perfluorohexanesulfonic acid	3020		13.7	33.3	83.3
307-24-4	Perfluorohexanoic acid	6200		16.2	33.3	83.3
1763-23-1	Perfluorooctane Sulfonate	2520		14.2	33.3	83.3
335-67-1	Perfluorooctanoic acid	3450		15.0	33.3	83.3
2706-90-3	Perfluoropentanoic acid	5770		19.6	33.3	83.3

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219103085	Client Sample ID:	AOI 5-N19-3-102919-DDL
Collect Date:	10/29/19 Time: 1157	GCAL Sample ID:	21910308516DL
Matrix:	Water % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	150 mL	Lab File ID:	2191119A_92.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	10 Analyst: BMH
Prep Date:	11/07/19	Analysis Date:	11/20/19 Time: 0732
Prep Batch:	670458	Analytical Batch:	671741
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ng/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	5270		14.9	33.3	83.3
375-22-4	Perfluorobutanoic acid	1160		17.8	33.3	83.3
355-46-4	Perfluorohexanesulfonic acid	3490		13.7	33.3	83.3
307-24-4	Perfluorohexanoic acid	7020		16.2	33.3	83.3
1763-23-1	Perfluorooctane Sulfonate	2770		14.2	33.3	83.3
335-67-1	Perfluorooctanoic acid	3450		15.0	33.3	83.3
2706-90-3	Perfluoropentanoic acid	6890		19.6	33.3	83.3

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219103085	Client Sample ID:	AOI 5-N19-3-102919 (RE)
Collect Date:	10/29/19 Time: 1157	GCAL Sample ID:	21910308528
Matrix:	Water % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	140 mL	Lab File ID:	2191122B_65.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/20/19	Analysis Date:	11/23/19 Time: 0356
Prep Batch:	671428	Analytical Batch:	671888
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ng/L*

CAS	*ANALYTE*	*RESULT*	*Q*	*DL*	*LOD*	*LOQ*
376-06-7	Perfluorotetradecanoic acid	3.57	U	2.46	3.57	8.93
72629-94-8	Perfluorotridecanoic acid	3.57	U	2.29	3.57	8.93

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219103085	Client Sample ID:	AOI 5-N19-3-102919-D (RE)
Collect Date:	10/29/19 Time: 1157	GCAL Sample ID:	21910308529
Matrix:	Water % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	150 mL	Lab File ID:	2191122B_66.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/20/19	Analysis Date:	11/23/19 Time: 0407
Prep Batch:	671428	Analytical Batch:	671888
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ng/L*

CAS	*ANALYTE*	*RESULT*	*Q*	*DL*	*LOD*	*LOQ*
376-06-7	Perfluorotetradecanoic acid	3.33	U	2.30	3.33	8.33
72629-94-8	Perfluorotridecanoic acid	3.33	U	2.13	3.33	8.33

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219103085	Client Sample ID:	JFTBLA-EB-102919
Collect Date:	10/29/19 Time: 1200	GCAL Sample ID:	21910308517
Matrix:	Water % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	150 mL	Lab File ID:	2191112B_60.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/10/19	Analysis Date:	11/13/19 Time: 0118
Prep Batch:	670574	Analytical Batch:	671184
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ng/L*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	3.33	U	1.49	3.33	8.33
39108-34-4	8:2 Fluorotelomer sulfonate	3.33	U	1.36	3.33	8.33
2991-50-6	NEtFOSAA	6.67	U	4.48	6.67	8.33
2355-31-9	NMeFOSAA	6.67	U	3.83	6.67	8.33
375-73-5	Perfluorobutanesulfonic acid	3.33	U	1.23	3.33	8.33
375-22-4	Perfluorobutanoic acid	3.33	U	1.78	3.33	8.33
335-76-2	Perfluorodecanoic acid	3.33	U	1.38	3.33	8.33
307-55-1	Perfluorododecanoic acid	3.33	U	2.04	3.33	8.33
375-85-9	Perfluoroheptanoic acid	3.33	U	1.54	3.33	8.33
355-46-4	Perfluorohexanesulfonic acid	3.33	U	1.37	3.33	8.33
307-24-4	Perfluorohexanoic acid	3.33	U	1.62	3.33	8.33
375-95-1	Perfluorononanoic acid	3.33	U	1.40	3.33	8.33
1763-23-1	Perfluorooctane Sulfonate	1.76	J	1.42	3.33	8.33
335-67-1	Perfluorooctanoic acid	3.33	U	1.50	3.33	8.33
2706-90-3	Perfluoropentanoic acid	3.33	U	1.96	3.33	8.33
376-06-7	Perfluorotetradecanoic acid	3.33	U	2.30	3.33	8.33
72629-94-8	Perfluorotridecanoic acid	3.33	U	2.13	3.33	8.33
2058-94-8	Perfluoroundecanoic acid	3.33	U	1.55	3.33	8.33

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I

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102326	Client Sample ID:	AOI6-1-SB-1.5-2-102219
Collect Date:	10/22/19 0905	GCAL Sample ID:	21910232602
Matrix:	Solid	Instrument ID:	TOC6
% Solids:	NA	Analyst:	PLH
Sample Amt:	NA	Lab File ID:	NA
Prep Vol.:	NA	Dilution Factor:	1
Prep Date:	NA	Analysis Date:	10/29/19 1018
Prep Batch:	NA	Analytical Batch:	670208
Prep Method:	NA	Analytical Method:	EPA 9060A

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
Total Organic Carbon	2020	mg/kg		153	200	250

FORM I - GENCHEM

I

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102326	Client Sample ID:	AOI6-1-SB-7-7.5-102219
Collect Date:	10/22/19 0920	GCAL Sample ID:	21910232605
Matrix:	Solid	Instrument ID:	TOC6
% Solids:	NA	Analyst:	PLH
Sample Amt:	NA	Lab File ID:	NA
Prep Vol.:	NA	Dilution Factor:	1
Prep Date:	NA	Analysis Date:	10/29/19 1054
Prep Batch:	NA	Analytical Batch:	670208
Prep Method:	NA	Analytical Method:	EPA 9060A

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
Total Organic Carbon	2240	mg/kg		153	200	250

FORM I - GENCHEM

I

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102326	Client Sample ID:	AOI6-1-SB-18.5-19-102219
Collect Date:	10/22/19 0930	GCAL Sample ID:	21910232606
Matrix:	Solid	Instrument ID:	TOC6
% Solids:	NA	Analyst:	PLH
Sample Amt:	NA	Lab File ID:	NA
Prep Vol.:	NA	Dilution Factor:	1
Prep Date:	NA	Analysis Date:	10/29/19 1117
Prep Batch:	NA	Analytical Batch:	670208
Prep Method:	NA	Analytical Method:	EPA 9060A

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
Total Organic Carbon	373	mg/kg		153	200	250

FORM I - GENCHEM

I

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102326	Client Sample ID:	AOI6-3-SB-1.5-2-102219
Collect Date:	10/22/19 1015	GCAL Sample ID:	21910232608
Matrix:	Solid	Instrument ID:	TOC6
% Solids:	NA	Analyst:	PLH
Sample Amt:	NA	Lab File ID:	NA
Prep Vol.:	NA	Dilution Factor:	1
Prep Date:	NA	Analysis Date:	10/29/19 1141
Prep Batch:	NA	Analytical Batch:	670208
Prep Method:	NA	Analytical Method:	EPA 9060A

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
Total Organic Carbon	1750	mg/kg		153	200	250

FORM I - GENCHEM

I

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102326	Client Sample ID:	AOI6-2-SB-1.5-2-102219
Collect Date:	10/22/19 1027	GCAL Sample ID:	21910232611
Matrix:	Solid	Instrument ID:	TOC6
% Solids:	NA	Analyst:	PLH
Sample Amt:	NA	Lab File ID:	NA
Prep Vol.:	NA	Dilution Factor:	1
Prep Date:	NA	Analysis Date:	10/29/19 1327
Prep Batch:	NA	Analytical Batch:	670305
Prep Method:	NA	Analytical Method:	EPA 9060A

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
Total Organic Carbon	3440	mg/kg		153	200	250

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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102326	Client Sample ID:	AOI6-4-SB-1.5-2-102219
Collect Date:	10/22/19 1045	GCAL Sample ID:	21910232614
Matrix:	Solid	Instrument ID:	TOC6
% Solids:	NA	Analyst:	PLH
Sample Amt:	NA	Lab File ID:	NA
Prep Vol.:	NA	Dilution Factor:	1
Prep Date:	NA	Analysis Date:	10/29/19 1446
Prep Batch:	NA	Analytical Batch:	670305
Prep Method:	NA	Analytical Method:	EPA 9060A

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
Total Organic Carbon	2900	mg/kg		153	200	250

FORM I - GENCHEM

I

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102326	Client Sample ID:	AOI5-1-SB-1.5-2-102219
Collect Date:	10/22/19 1215	GCAL Sample ID:	21910232617
Matrix:	Solid	Instrument ID:	TOC6
% Solids:	NA	Analyst:	PLH
Sample Amt:	NA	Lab File ID:	NA
Prep Vol.:	NA	Dilution Factor:	1
Prep Date:	NA	Analysis Date:	10/29/19 1532
Prep Batch:	NA	Analytical Batch:	670305
Prep Method:	NA	Analytical Method:	EPA 9060A

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
Total Organic Carbon	3220	mg/kg		153	200	250

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I

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102326	Client Sample ID:	AOI5-1-SB-1.5-2-102219-D
Collect Date:	10/22/19 1221	GCAL Sample ID:	21910232618
Matrix:	Solid	Instrument ID:	TOC6
% Solids:	NA	Analyst:	PLH
Sample Amt:	NA	Lab File ID:	NA
Prep Vol.:	NA	Dilution Factor:	1
Prep Date:	NA	Analysis Date:	10/29/19 1654
Prep Batch:	NA	Analytical Batch:	670305
Prep Method:	NA	Analytical Method:	EPA 9060A

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
Total Organic Carbon	2290	mg/kg		153	200	250

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I

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102326	Client Sample ID:	AOI5-1-SB-8-8.5-102219
Collect Date:	10/22/19 1230	GCAL Sample ID:	21910232619
Matrix:	Solid	Instrument ID:	TOC6
% Solids:	NA	Analyst:	PLH
Sample Amt:	NA	Lab File ID:	NA
Prep Vol.:	NA	Dilution Factor:	1
Prep Date:	NA	Analysis Date:	10/29/19 1705
Prep Batch:	NA	Analytical Batch:	670305
Prep Method:	NA	Analytical Method:	EPA 9060A

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
Total Organic Carbon	1660	mg/kg		153	200	250

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I

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102326	Client Sample ID:	AOI5-1-SB-19-19.5-102219
Collect Date:	10/22/19 1240	GCAL Sample ID:	21910232620
Matrix:	Solid	Instrument ID:	TOC6
% Solids:	NA	Analyst:	PLH
Sample Amt:	NA	Lab File ID:	NA
Prep Vol.:	NA	Dilution Factor:	1
Prep Date:	NA	Analysis Date:	10/29/19 1721
Prep Batch:	NA	Analytical Batch:	670305
Prep Method:	NA	Analytical Method:	EPA 9060A

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
Total Organic Carbon	878	mg/kg		153	200	250

FORM I - GENCHEM

I

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102326	Client Sample ID:	AOI1-3-SB-4.5-5-102219
Collect Date:	10/22/19 1417	GCAL Sample ID:	21910232622
Matrix:	Solid	Instrument ID:	TOC6
% Solids:	NA	Analyst:	PLH
Sample Amt:	NA	Lab File ID:	NA
Prep Vol.:	NA	Dilution Factor:	1
Prep Date:	NA	Analysis Date:	10/29/19 1733
Prep Batch:	NA	Analytical Batch:	670305
Prep Method:	NA	Analytical Method:	EPA 9060A

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
Total Organic Carbon	157	mg/kg	J	153	200	250

FORM I - GENCHEM

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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102326	Client Sample ID:	AOI1-3-SB-9.5-10-102219
Collect Date:	10/22/19 1430	GCAL Sample ID:	21910232623
Matrix:	Solid	Instrument ID:	TOC6
% Solids:	NA	Analyst:	PLH
Sample Amt:	NA	Lab File ID:	NA
Prep Vol.:	NA	Dilution Factor:	1
Prep Date:	NA	Analysis Date:	10/29/19 1743
Prep Batch:	NA	Analytical Batch:	670305
Prep Method:	NA	Analytical Method:	EPA 9060A

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
Total Organic Carbon	564	mg/kg		153	200	250

FORM I - GENCHEM

I

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102326	Client Sample ID:	AOI1-3-SB-16-16.5-102219
Collect Date:	10/22/19 1435	GCAL Sample ID:	21910232624
Matrix:	Solid	Instrument ID:	TOC6
% Solids:	NA	Analyst:	PLH
Sample Amt:	NA	Lab File ID:	NA
Prep Vol.:	NA	Dilution Factor:	1
Prep Date:	NA	Analysis Date:	10/30/19 0903
Prep Batch:	NA	Analytical Batch:	670305
Prep Method:	NA	Analytical Method:	EPA 9060A

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
Total Organic Carbon	529	mg/kg		153	200	250

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I

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102326	Client Sample ID:	AOI1-1-SB-4.5-5-102219
Collect Date:	10/22/19 1500	GCAL Sample ID:	21910232625
Matrix:	Solid	Instrument ID:	TOC6
% Solids:	NA	Analyst:	PLH
Sample Amt:	NA	Lab File ID:	NA
Prep Vol.:	NA	Dilution Factor:	1
Prep Date:	NA	Analysis Date:	10/30/19 0912
Prep Batch:	NA	Analytical Batch:	670305
Prep Method:	NA	Analytical Method:	EPA 9060A

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
Total Organic Carbon	858	mg/kg		153	200	250

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I

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102326	Client Sample ID:	AOI1-1-SB-10-10.5-102219
Collect Date:	10/22/19 1530	GCAL Sample ID:	21910232627
Matrix:	Solid	Instrument ID:	TOC6
% Solids:	NA	Analyst:	PLH
Sample Amt:	NA	Lab File ID:	NA
Prep Vol.:	NA	Dilution Factor:	1
Prep Date:	NA	Analysis Date:	10/30/19 0924
Prep Batch:	NA	Analytical Batch:	670305
Prep Method:	NA	Analytical Method:	EPA 9060A

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
Total Organic Carbon	547	mg/kg		153	200	250

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I

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102326	Client Sample ID:	AOI1-1-SB-17-17.5-102219
Collect Date:	10/22/19 1536	GCAL Sample ID:	21910232628
Matrix:	Solid	Instrument ID:	TOC6
% Solids:	NA	Analyst:	PLH
Sample Amt:	NA	Lab File ID:	NA
Prep Vol.:	NA	Dilution Factor:	1
Prep Date:	NA	Analysis Date:	11/01/19 0954
Prep Batch:	NA	Analytical Batch:	670520
Prep Method:	NA	Analytical Method:	EPA 9060A

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
Total Organic Carbon	623	mg/kg		153	200	250

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I

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102333	Client Sample ID:	AOI7-10-SB-1.5-2-102119
Collect Date:	10/21/19 1225	GCAL Sample ID:	21910233301
Matrix:	Solid	Instrument ID:	TOC6
% Solids:	NA	Analyst:	PLH
Sample Amt:	NA	Lab File ID:	NA
Prep Vol.:	NA	Dilution Factor:	1
Prep Date:	NA	Analysis Date:	11/01/19 1005
Prep Batch:	NA	Analytical Batch:	670520
Prep Method:	NA	Analytical Method:	EPA 9060A

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
Total Organic Carbon	3210	mg/kg		153	200	250

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I

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102333	Client Sample ID:	AOI7-10-SB-7.5-8-102119
Collect Date:	10/21/19 1245	GCAL Sample ID:	21910233302
Matrix:	Solid	Instrument ID:	TOC6
% Solids:	NA	Analyst:	PLH
Sample Amt:	NA	Lab File ID:	NA
Prep Vol.:	NA	Dilution Factor:	1
Prep Date:	NA	Analysis Date:	11/01/19 1056
Prep Batch:	NA	Analytical Batch:	670520
Prep Method:	NA	Analytical Method:	EPA 9060A

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
Total Organic Carbon	1660	mg/kg		153	200	250

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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102333	Client Sample ID:	AOI7-5-SB-1.5-2-102119
Collect Date:	10/21/19 1300	GCAL Sample ID:	21910233303
Matrix:	Solid	Instrument ID:	TOC6
% Solids:	NA	Analyst:	PLH
Sample Amt:	NA	Lab File ID:	NA
Prep Vol.:	NA	Dilution Factor:	1
Prep Date:	NA	Analysis Date:	11/01/19 1106
Prep Batch:	NA	Analytical Batch:	670520
Prep Method:	NA	Analytical Method:	EPA 9060A

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
Total Organic Carbon	2280	mg/kg		153	200	250

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I

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102333	Client Sample ID:	AOI7-10-SB-17-17.5-102119
Collect Date:	10/21/19 1310	GCAL Sample ID:	21910233304
Matrix:	Solid	Instrument ID:	TOC6
% Solids:	NA	Analyst:	PLH
Sample Amt:	NA	Lab File ID:	NA
Prep Vol.:	NA	Dilution Factor:	1
Prep Date:	NA	Analysis Date:	11/01/19 1119
Prep Batch:	NA	Analytical Batch:	670520
Prep Method:	NA	Analytical Method:	EPA 9060A

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
Total Organic Carbon	892	mg/kg		153	200	250

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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102333	Client Sample ID:	AOI7-6-SB-1.5-2-102119
Collect Date:	10/21/19 1330	GCAL Sample ID:	21910233306
Matrix:	Solid	Instrument ID:	TOC6
% Solids:	NA	Analyst:	PLH
Sample Amt:	NA	Lab File ID:	NA
Prep Vol.:	NA	Dilution Factor:	1
Prep Date:	NA	Analysis Date:	11/01/19 1129
Prep Batch:	NA	Analytical Batch:	670520
Prep Method:	NA	Analytical Method:	EPA 9060A

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
Total Organic Carbon	2940	mg/kg		153	200	250

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I

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102333	Client Sample ID:	AOI7-7-SB-1.5-2-102119
Collect Date:	10/21/19 1405	GCAL Sample ID:	21910233307
Matrix:	Solid	Instrument ID:	TOC6
% Solids:	NA	Analyst:	PLH
Sample Amt:	NA	Lab File ID:	NA
Prep Vol.:	NA	Dilution Factor:	1
Prep Date:	NA	Analysis Date:	11/01/19 1141
Prep Batch:	NA	Analytical Batch:	670520
Prep Method:	NA	Analytical Method:	EPA 9060A

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
Total Organic Carbon	2650	mg/kg		153	200	250

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I

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102333	Client Sample ID:	AOI7-11-SB-1.5-2-102119
Collect Date:	10/21/19 1415	GCAL Sample ID:	21910233309
Matrix:	Solid	Instrument ID:	TOC6
% Solids:	NA	Analyst:	PLH
Sample Amt:	NA	Lab File ID:	NA
Prep Vol.:	NA	Dilution Factor:	1
Prep Date:	NA	Analysis Date:	11/01/19 1216
Prep Batch:	NA	Analytical Batch:	670520
Prep Method:	NA	Analytical Method:	EPA 9060A

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
Total Organic Carbon	2720	mg/kg		153	200	250

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I

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102333	Client Sample ID:	AOI7-11-SB-7.5-8-102119
Collect Date:	10/21/19 1435	GCAL Sample ID:	21910233310
Matrix:	Solid	Instrument ID:	TOC6
% Solids:	NA	Analyst:	PLH
Sample Amt:	NA	Lab File ID:	NA
Prep Vol.:	NA	Dilution Factor:	1
Prep Date:	NA	Analysis Date:	11/01/19 1239
Prep Batch:	NA	Analytical Batch:	670520
Prep Method:	NA	Analytical Method:	EPA 9060A

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
Total Organic Carbon	1640	mg/kg		153	200	250

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I

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102333	Client Sample ID:	AOI7-8-SB-1.5-2-102119
Collect Date:	10/21/19 1445	GCAL Sample ID:	21910233311
Matrix:	Solid	Instrument ID:	TOC6
% Solids:	NA	Analyst:	PLH
Sample Amt:	NA	Lab File ID:	NA
Prep Vol.:	NA	Dilution Factor:	1
Prep Date:	NA	Analysis Date:	11/01/19 1419
Prep Batch:	NA	Analytical Batch:	670520
Prep Method:	NA	Analytical Method:	EPA 9060A

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
Total Organic Carbon	2020	mg/kg		153	200	250

FORM I - GENCHEM

I

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102333	Client Sample ID:	AOI7-11-SB-18-18.5-102119
Collect Date:	10/21/19 1500	GCAL Sample ID:	21910233312
Matrix:	Solid	Instrument ID:	TOC6
% Solids:	NA	Analyst:	PLH
Sample Amt:	NA	Lab File ID:	NA
Prep Vol.:	NA	Dilution Factor:	1
Prep Date:	NA	Analysis Date:	11/01/19 1427
Prep Batch:	NA	Analytical Batch:	670520
Prep Method:	NA	Analytical Method:	EPA 9060A

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
Total Organic Carbon	233	mg/kg	J	153	200	250

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I

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102333	Client Sample ID:	AOI7-9-SB-1.5-2-102119
Collect Date:	10/21/19 1520	GCAL Sample ID:	21910233313
Matrix:	Solid	Instrument ID:	TOC6
% Solids:	NA	Analyst:	PLH
Sample Amt:	NA	Lab File ID:	NA
Prep Vol.:	NA	Dilution Factor:	1
Prep Date:	NA	Analysis Date:	11/01/19 1437
Prep Batch:	NA	Analytical Batch:	670520
Prep Method:	NA	Analytical Method:	EPA 9060A

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
Total Organic Carbon	2600	mg/kg		153	200	250

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I

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102333	Client Sample ID:	AOI7-9-SB-7.5-8-102119
Collect Date:	10/21/19 1550	GCAL Sample ID:	21910233315
Matrix:	Solid	Instrument ID:	TOC6
% Solids:	NA	Analyst:	PLH
Sample Amt:	NA	Lab File ID:	NA
Prep Vol.:	NA	Dilution Factor:	1
Prep Date:	NA	Analysis Date:	11/01/19 1445
Prep Batch:	NA	Analytical Batch:	670520
Prep Method:	NA	Analytical Method:	EPA 9060A

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
Total Organic Carbon	1490	mg/kg		153	200	250

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I

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102333	Client Sample ID:	AOI7-1-SB-1.5-2-102119
Collect Date:	10/21/19 1600	GCAL Sample ID:	21910233317
Matrix:	Solid	Instrument ID:	TOC6
% Solids:	NA	Analyst:	PLH
Sample Amt:	NA	Lab File ID:	NA
Prep Vol.:	NA	Dilution Factor:	1
Prep Date:	NA	Analysis Date:	11/01/19 1456
Prep Batch:	NA	Analytical Batch:	670520
Prep Method:	NA	Analytical Method:	EPA 9060A

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
Total Organic Carbon	2200	mg/kg		153	200	250

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I

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102333	Client Sample ID:	AOI7-9-SB-17-17.5-102119
Collect Date:	10/21/19 1605	GCAL Sample ID:	21910233318
Matrix:	Solid	Instrument ID:	TOC6
% Solids:	NA	Analyst:	PLH
Sample Amt:	NA	Lab File ID:	NA
Prep Vol.:	NA	Dilution Factor:	1
Prep Date:	NA	Analysis Date:	11/01/19 1510
Prep Batch:	NA	Analytical Batch:	670520
Prep Method:	NA	Analytical Method:	EPA 9060A

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
Total Organic Carbon	1350	mg/kg		153	200	250

FORM I - GENCHEM

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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102333	Client Sample ID:	AOI7-2-SB-1.5-2-102119
Collect Date:	10/21/19 1620	GCAL Sample ID:	21910233319
Matrix:	Solid	Instrument ID:	TOC6
% Solids:	NA	Analyst:	PLH
Sample Amt:	NA	Lab File ID:	NA
Prep Vol.:	NA	Dilution Factor:	1
Prep Date:	NA	Analysis Date:	11/01/19 1524
Prep Batch:	NA	Analytical Batch:	670520
Prep Method:	NA	Analytical Method:	EPA 9060A

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
Total Organic Carbon	2060	mg/kg		153	200	250

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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102333	Client Sample ID:	AOI7-3-SB-1.5-2-102119
Collect Date:	10/21/19 1635	GCAL Sample ID:	21910233320
Matrix:	Solid	Instrument ID:	TOC6
% Solids:	NA	Analyst:	PLH
Sample Amt:	NA	Lab File ID:	NA
Prep Vol.:	NA	Dilution Factor:	1
Prep Date:	NA	Analysis Date:	11/01/19 1536
Prep Batch:	NA	Analytical Batch:	670520
Prep Method:	NA	Analytical Method:	EPA 9060A

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
Total Organic Carbon	2850	mg/kg		153	200	250

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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102333	Client Sample ID:	AOI7-4-1.5-2-102119
Collect Date:	10/21/19 1650	GCAL Sample ID:	21910233322
Matrix:	Solid	Instrument ID:	TOC6
% Solids:	NA	Analyst:	PLH
Sample Amt:	NA	Lab File ID:	NA
Prep Vol.:	NA	Dilution Factor:	1
Prep Date:	NA	Analysis Date:	11/01/19 1607
Prep Batch:	NA	Analytical Batch:	670520
Prep Method:	NA	Analytical Method:	EPA 9060A

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
Total Organic Carbon	3580	mg/kg		153	200	250

FORM I - GENCHEM

I

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102541	Client Sample ID:	AOI1-5-SB-4.5-5-102319
Collect Date:	10/23/19 0800	GCAL Sample ID:	21910254101
Matrix:	Solid	Instrument ID:	TOC6
% Solids:	NA	Analyst:	PLH
Sample Amt:	NA	Lab File ID:	NA
Prep Vol.:	NA	Dilution Factor:	1
Prep Date:	NA	Analysis Date:	11/01/19 1617
Prep Batch:	NA	Analytical Batch:	670520
Prep Method:	NA	Analytical Method:	EPA 9060A

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
Total Organic Carbon	1450	mg/kg		153	200	250

FORM I - GENCHEM

I

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102541	Client Sample ID:	AOI1-5-SB-4.5-5-102319-D
Collect Date:	10/23/19 0800	GCAL Sample ID:	21910254102
Matrix:	Solid	Instrument ID:	TOC6
% Solids:	NA	Analyst:	PLH
Sample Amt:	NA	Lab File ID:	NA
Prep Vol.:	NA	Dilution Factor:	1
Prep Date:	NA	Analysis Date:	11/01/19 1628
Prep Batch:	NA	Analytical Batch:	670520
Prep Method:	NA	Analytical Method:	EPA 9060A

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
Total Organic Carbon	1610	mg/kg		153	200	250

FORM I - GENCHEM

I

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102541	Client Sample ID:	AOI1-4-SB-4.5-5-102319-D
Collect Date:	10/23/19 0832	GCAL Sample ID:	21910254103
Matrix:	Solid	Instrument ID:	TOC6
% Solids:	NA	Analyst:	PLH
Sample Amt:	NA	Lab File ID:	NA
Prep Vol.:	NA	Dilution Factor:	1
Prep Date:	NA	Analysis Date:	11/05/19 1003
Prep Batch:	NA	Analytical Batch:	670683
Prep Method:	NA	Analytical Method:	EPA 9060A

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
Total Organic Carbon	438	mg/kg		153	200	250

FORM I - GENCHEM

I

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102541	Client Sample ID:	AOI1-4-SB-4.5-5-102319
Collect Date:	10/23/19 0832	GCAL Sample ID:	21910254104
Matrix:	Solid	Instrument ID:	TOC6
% Solids:	NA	Analyst:	PLH
Sample Amt:	NA	Lab File ID:	NA
Prep Vol.:	NA	Dilution Factor:	1
Prep Date:	NA	Analysis Date:	11/05/19 1039
Prep Batch:	NA	Analytical Batch:	670683
Prep Method:	NA	Analytical Method:	EPA 9060A

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
Total Organic Carbon	260	mg/kg		153	200	250

FORM I - GENCHEM

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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102541	Client Sample ID:	AOI1-6-SB-4.5-5-102319
Collect Date:	10/23/19 0830	GCAL Sample ID:	21910254107
Matrix:	Solid	Instrument ID:	TOC6
% Solids:	NA	Analyst:	PLH
Sample Amt:	NA	Lab File ID:	NA
Prep Vol.:	NA	Dilution Factor:	1
Prep Date:	NA	Analysis Date:	11/05/19 1049
Prep Batch:	NA	Analytical Batch:	670683
Prep Method:	NA	Analytical Method:	EPA 9060A

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
Total Organic Carbon	369	mg/kg		153	200	250

FORM I - GENCHEM

I

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102541	Client Sample ID:	AOI1-5-SB-7-7.5-102319
Collect Date:	10/23/19 0845	GCAL Sample ID:	21910254109
Matrix:	Solid	Instrument ID:	TOC6
% Solids:	NA	Analyst:	PLH
Sample Amt:	NA	Lab File ID:	NA
Prep Vol.:	NA	Dilution Factor:	1
Prep Date:	NA	Analysis Date:	11/05/19 1144
Prep Batch:	NA	Analytical Batch:	670683
Prep Method:	NA	Analytical Method:	EPA 9060A

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
Total Organic Carbon	1500	mg/kg		153	200	250

FORM I - GENCHEM

I

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102541	Client Sample ID:	AOI1-5-SB-17.5-18-102319
Collect Date:	10/23/19 0915	GCAL Sample ID:	21910254110
Matrix:	Solid	Instrument ID:	TOC6
% Solids:	NA	Analyst:	PLH
Sample Amt:	NA	Lab File ID:	NA
Prep Vol.:	NA	Dilution Factor:	1
Prep Date:	NA	Analysis Date:	11/05/19 1153
Prep Batch:	NA	Analytical Batch:	670683
Prep Method:	NA	Analytical Method:	EPA 9060A

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
Total Organic Carbon	687	mg/kg		153	200	250

FORM I - GENCHEM

I

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102541	Client Sample ID:	AOI1-6-SB-9-9.5-102319
Collect Date:	10/23/19 1026	GCAL Sample ID:	21910254113
Matrix:	Solid	Instrument ID:	TOC6
% Solids:	NA	Analyst:	PLH
Sample Amt:	NA	Lab File ID:	NA
Prep Vol.:	NA	Dilution Factor:	1
Prep Date:	NA	Analysis Date:	11/05/19 1203
Prep Batch:	NA	Analytical Batch:	670683
Prep Method:	NA	Analytical Method:	EPA 9060A

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
Total Organic Carbon	898	mg/kg		153	200	250

FORM I - GENCHEM

I

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102541	Client Sample ID:	AOI1-6-SB-12.5-13-102319
Collect Date:	10/23/19 1033	GCAL Sample ID:	21910254114
Matrix:	Solid	Instrument ID:	TOC6
% Solids:	NA	Analyst:	PLH
Sample Amt:	NA	Lab File ID:	NA
Prep Vol.:	NA	Dilution Factor:	1
Prep Date:	NA	Analysis Date:	11/05/19 1221
Prep Batch:	NA	Analytical Batch:	670683
Prep Method:	NA	Analytical Method:	EPA 9060A

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
Total Organic Carbon	3530	mg/kg		153	200	250

FORM I - GENCHEM

I

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102541	Client Sample ID:	AOI1-4-SB-9.5-10-102319
Collect Date:	10/23/19 1110	GCAL Sample ID:	21910254116
Matrix:	Solid	Instrument ID:	TOC6
% Solids:	NA	Analyst:	PLH
Sample Amt:	NA	Lab File ID:	NA
Prep Vol.:	NA	Dilution Factor:	1
Prep Date:	NA	Analysis Date:	11/05/19 1253
Prep Batch:	NA	Analytical Batch:	670683
Prep Method:	NA	Analytical Method:	EPA 9060A

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
Total Organic Carbon	963	mg/kg		153	200	250

FORM I - GENCHEM

I

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102541	Client Sample ID:	AOI1-2-SB-4.5-5-102319
Collect Date:	10/23/19 1255	GCAL Sample ID:	21910254118
Matrix:	Solid	Instrument ID:	TOC6
% Solids:	NA	Analyst:	PLH
Sample Amt:	NA	Lab File ID:	NA
Prep Vol.:	NA	Dilution Factor:	1
Prep Date:	NA	Analysis Date:	11/05/19 1302
Prep Batch:	NA	Analytical Batch:	670683
Prep Method:	NA	Analytical Method:	EPA 9060A

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
Total Organic Carbon	301	mg/kg		153	200	250

FORM I - GENCHEM

I

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102541	Client Sample ID:	AOI1-2-SB-9.5-10-102319
Collect Date:	10/23/19 1311	GCAL Sample ID:	21910254119
Matrix:	Solid	Instrument ID:	TOC6
% Solids:	NA	Analyst:	PLH
Sample Amt:	NA	Lab File ID:	NA
Prep Vol.:	NA	Dilution Factor:	1
Prep Date:	NA	Analysis Date:	11/05/19 1316
Prep Batch:	NA	Analytical Batch:	670683
Prep Method:	NA	Analytical Method:	EPA 9060A

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
Total Organic Carbon	547	mg/kg		153	200	250

FORM I - GENCHEM

I

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102541	Client Sample ID:	AOI1-2-SB-12.5-13-102319
Collect Date:	10/23/19 1315	GCAL Sample ID:	21910254120
Matrix:	Solid	Instrument ID:	TOC6
% Solids:	NA	Analyst:	PLH
Sample Amt:	NA	Lab File ID:	NA
Prep Vol.:	NA	Dilution Factor:	1
Prep Date:	NA	Analysis Date:	11/05/19 1401
Prep Batch:	NA	Analytical Batch:	670683
Prep Method:	NA	Analytical Method:	EPA 9060A

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
Total Organic Carbon	1560	mg/kg		153	200	250

FORM I - GENCHEM

I

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102541	Client Sample ID:	AOI2-3-SB-4.5-5-102319
Collect Date:	10/23/19 1455	GCAL Sample ID:	21910254122
Matrix:	Solid	Instrument ID:	TOC6
% Solids:	NA	Analyst:	PLH
Sample Amt:	NA	Lab File ID:	NA
Prep Vol.:	NA	Dilution Factor:	1
Prep Date:	NA	Analysis Date:	11/05/19 1410
Prep Batch:	NA	Analytical Batch:	670683
Prep Method:	NA	Analytical Method:	EPA 9060A

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
Total Organic Carbon	2200	mg/kg		153	200	250

FORM I - GENCHEM

I

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102541	Client Sample ID:	AOI2-3-SB-4.5-5-102319-D
Collect Date:	10/23/19 1455	GCAL Sample ID:	21910254123
Matrix:	Solid	Instrument ID:	TOC6
% Solids:	NA	Analyst:	PLH
Sample Amt:	NA	Lab File ID:	NA
Prep Vol.:	NA	Dilution Factor:	1
Prep Date:	NA	Analysis Date:	11/05/19 1420
Prep Batch:	NA	Analytical Batch:	670683
Prep Method:	NA	Analytical Method:	EPA 9060A

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
Total Organic Carbon	1610	mg/kg		153	200	250

FORM I - GENCHEM

I

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102541	Client Sample ID:	AOI2-2-SB-4.5-5-102319
Collect Date:	10/23/19 1520	GCAL Sample ID:	21910254124
Matrix:	Solid	Instrument ID:	TOC6
% Solids:	NA	Analyst:	PLH
Sample Amt:	NA	Lab File ID:	NA
Prep Vol.:	NA	Dilution Factor:	1
Prep Date:	NA	Analysis Date:	11/05/19 1432
Prep Batch:	NA	Analytical Batch:	670683
Prep Method:	NA	Analytical Method:	EPA 9060A

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
Total Organic Carbon	3200	mg/kg		153	200	250

FORM I - GENCHEM

I

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102541	Client Sample ID:	AOI2-2-SB-4.5-5-102319-D
Collect Date:	10/23/19 1520	GCAL Sample ID:	21910254125
Matrix:	Solid	Instrument ID:	TOC6
% Solids:	NA	Analyst:	PLH
Sample Amt:	NA	Lab File ID:	NA
Prep Vol.:	NA	Dilution Factor:	1
Prep Date:	NA	Analysis Date:	11/05/19 1522
Prep Batch:	NA	Analytical Batch:	670683
Prep Method:	NA	Analytical Method:	EPA 9060A

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
Total Organic Carbon	3070	mg/kg		153	200	250

FORM I - GENCHEM

I

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102613	Client Sample ID:	AOI3-8-SB-1.5-2-102419
Collect Date:	10/24/19 0845	GCAL Sample ID:	21910261301
Matrix:	Solid	Instrument ID:	TOC6
% Solids:	NA	Analyst:	PLH
Sample Amt:	NA	Lab File ID:	NA
Prep Vol.:	NA	Dilution Factor:	1
Prep Date:	NA	Analysis Date:	11/05/19 1534
Prep Batch:	NA	Analytical Batch:	670683
Prep Method:	NA	Analytical Method:	EPA 9060A

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
Total Organic Carbon	9420	mg/kg		153	200	250

FORM I - GENCHEM

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102613	Client Sample ID:	AOI3-8-SB-1.5-2-102419-D
Collect Date:	10/24/19 0845	GCAL Sample ID:	21910261302
Matrix:	Solid	Instrument ID:	TOC6
% Solids:	NA	Analyst:	PLH
Sample Amt:	NA	Lab File ID:	NA
Prep Vol.:	NA	Dilution Factor:	1
Prep Date:	NA	Analysis Date:	11/05/19 1545
Prep Batch:	NA	Analytical Batch:	670683
Prep Method:	NA	Analytical Method:	EPA 9060A

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
Total Organic Carbon	8880	mg/kg		153	200	250

FORM I - GENCHEM

I

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102613	Client Sample ID:	AOI3-8-SB-9-9.5-102419
Collect Date:	10/24/19 0907	GCAL Sample ID:	21910261303
Matrix:	Solid	Instrument ID:	TOC6
% Solids:	NA	Analyst:	PLH
Sample Amt:	NA	Lab File ID:	NA
Prep Vol.:	NA	Dilution Factor:	1
Prep Date:	NA	Analysis Date:	11/05/19 1556
Prep Batch:	NA	Analytical Batch:	670683
Prep Method:	NA	Analytical Method:	EPA 9060A

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
Total Organic Carbon	6570	mg/kg		153	200	250

FORM I - GENCHEM

I

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102613	Client Sample ID:	AOI3-8-SB-13-13.5-102419
Collect Date:	10/24/19 0912	GCAL Sample ID:	21910261304
Matrix:	Solid	Instrument ID:	TOC6
% Solids:	NA	Analyst:	PLH
Sample Amt:	NA	Lab File ID:	NA
Prep Vol.:	NA	Dilution Factor:	1
Prep Date:	NA	Analysis Date:	11/05/19 1606
Prep Batch:	NA	Analytical Batch:	670683
Prep Method:	NA	Analytical Method:	EPA 9060A

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
Total Organic Carbon	2970	mg/kg		153	200	250

FORM I - GENCHEM

I

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102613	Client Sample ID:	AOI3-11-SB-1.5-2-102419
Collect Date:	10/24/19 0920	GCAL Sample ID:	21910261305
Matrix:	Solid	Instrument ID:	TOC6
% Solids:	NA	Analyst:	PLH
Sample Amt:	NA	Lab File ID:	NA
Prep Vol.:	NA	Dilution Factor:	1
Prep Date:	NA	Analysis Date:	11/05/19 1616
Prep Batch:	NA	Analytical Batch:	670683
Prep Method:	NA	Analytical Method:	EPA 9060A

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
Total Organic Carbon	1840	mg/kg		153	200	250

FORM I - GENCHEM

I

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102613	Client Sample ID:	AOI3-11-SB-8.5-9-102419
Collect Date:	10/24/19 0950	GCAL Sample ID:	21910261306
Matrix:	Solid	Instrument ID:	TOC6
% Solids:	NA	Analyst:	PLH
Sample Amt:	NA	Lab File ID:	NA
Prep Vol.:	NA	Dilution Factor:	1
Prep Date:	NA	Analysis Date:	11/06/19 1022
Prep Batch:	NA	Analytical Batch:	670742
Prep Method:	NA	Analytical Method:	EPA 9060A

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
Total Organic Carbon	968	mg/kg		153	200	250

FORM I - GENCHEM

I

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102613	Client Sample ID:	AOI3-11-SB-11-11.5-102419
Collect Date:	10/24/19 0954	GCAL Sample ID:	21910261307
Matrix:	Solid	Instrument ID:	TOC6
% Solids:	NA	Analyst:	PLH
Sample Amt:	NA	Lab File ID:	NA
Prep Vol.:	NA	Dilution Factor:	1
Prep Date:	NA	Analysis Date:	11/06/19 1106
Prep Batch:	NA	Analytical Batch:	670742
Prep Method:	NA	Analytical Method:	EPA 9060A

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
Total Organic Carbon	3000	mg/kg		153	200	250

FORM I - GENCHEM

I

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102613	Client Sample ID:	AOI3-12-SB-1.5-2-102419
Collect Date:	10/24/19 1020	GCAL Sample ID:	21910261308
Matrix:	Solid	Instrument ID:	TOC6
% Solids:	NA	Analyst:	PLH
Sample Amt:	NA	Lab File ID:	NA
Prep Vol.:	NA	Dilution Factor:	1
Prep Date:	NA	Analysis Date:	11/06/19 1121
Prep Batch:	NA	Analytical Batch:	670742
Prep Method:	NA	Analytical Method:	EPA 9060A

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
Total Organic Carbon	7260	mg/kg		153	200	250

FORM I - GENCHEM

I

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102613	Client Sample ID:	AOI3-12-SB-7-7.5-102419
Collect Date:	10/24/19 1040	GCAL Sample ID:	21910261309
Matrix:	Solid	Instrument ID:	TOC6
% Solids:	NA	Analyst:	PLH
Sample Amt:	NA	Lab File ID:	NA
Prep Vol.:	NA	Dilution Factor:	1
Prep Date:	NA	Analysis Date:	11/06/19 1135
Prep Batch:	NA	Analytical Batch:	670742
Prep Method:	NA	Analytical Method:	EPA 9060A

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
Total Organic Carbon	693	mg/kg		153	200	250

FORM I - GENCHEM

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102613	Client Sample ID:	AOI3-12-SB-19-19.5-102419
Collect Date:	10/24/19 1055	GCAL Sample ID:	21910261310
Matrix:	Solid	Instrument ID:	TOC6
% Solids:	NA	Analyst:	PLH
Sample Amt:	NA	Lab File ID:	NA
Prep Vol.:	NA	Dilution Factor:	1
Prep Date:	NA	Analysis Date:	11/06/19 1158
Prep Batch:	NA	Analytical Batch:	670742
Prep Method:	NA	Analytical Method:	EPA 9060A

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
Total Organic Carbon	726	mg/kg		153	200	250

FORM I - GENCHEM

I

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102613	Client Sample ID:	AOI3-9-SB-1.5-2-102419
Collect Date:	10/24/19 1125	GCAL Sample ID:	21910261312
Matrix:	Solid	Instrument ID:	TOC6
% Solids:	NA	Analyst:	PLH
Sample Amt:	NA	Lab File ID:	NA
Prep Vol.:	NA	Dilution Factor:	1
Prep Date:	NA	Analysis Date:	11/06/19 1208
Prep Batch:	NA	Analytical Batch:	670742
Prep Method:	NA	Analytical Method:	EPA 9060A

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
Total Organic Carbon	2340	mg/kg		153	200	250

FORM I - GENCHEM

I

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102613	Client Sample ID:	AOI3-9-SB-8.5-9-102419
Collect Date:	10/24/19 1245	GCAL Sample ID:	21910261314
Matrix:	Solid	Instrument ID:	TOC6
% Solids:	NA	Analyst:	PLH
Sample Amt:	NA	Lab File ID:	NA
Prep Vol.:	NA	Dilution Factor:	1
Prep Date:	NA	Analysis Date:	11/06/19 1231
Prep Batch:	NA	Analytical Batch:	670742
Prep Method:	NA	Analytical Method:	EPA 9060A

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
Total Organic Carbon	5570	mg/kg		153	200	250

FORM I - GENCHEM

I

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102613	Client Sample ID:	AOI3-9-SB-14-14.5-102419
Collect Date:	10/24/19 1250	GCAL Sample ID:	21910261315
Matrix:	Solid	Instrument ID:	TOC6
% Solids:	NA	Analyst:	PLH
Sample Amt:	NA	Lab File ID:	NA
Prep Vol.:	NA	Dilution Factor:	1
Prep Date:	NA	Analysis Date:	11/06/19 1313
Prep Batch:	NA	Analytical Batch:	670742
Prep Method:	NA	Analytical Method:	EPA 9060A

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
Total Organic Carbon	202	mg/kg	J	153	200	250

FORM I - GENCHEM

I

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102613	Client Sample ID:	AOI3-10-SB-1.5-2-102419
Collect Date:	10/24/19 1330	GCAL Sample ID:	21910261317
Matrix:	Solid	Instrument ID:	TOC6
% Solids:	NA	Analyst:	PLH
Sample Amt:	NA	Lab File ID:	NA
Prep Vol.:	NA	Dilution Factor:	1
Prep Date:	NA	Analysis Date:	11/06/19 1326
Prep Batch:	NA	Analytical Batch:	670742
Prep Method:	NA	Analytical Method:	EPA 9060A

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
Total Organic Carbon	13200	mg/kg		153	200	250

FORM I - GENCHEM

I

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102613	Client Sample ID:	AOI3-10-SB-10.5-11-102419
Collect Date:	10/24/19 1355	GCAL Sample ID:	21910261318
Matrix:	Solid	Instrument ID:	TOC6
% Solids:	NA	Analyst:	PLH
Sample Amt:	NA	Lab File ID:	NA
Prep Vol.:	NA	Dilution Factor:	1
Prep Date:	NA	Analysis Date:	11/06/19 1337
Prep Batch:	NA	Analytical Batch:	670742
Prep Method:	NA	Analytical Method:	EPA 9060A

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
Total Organic Carbon	1680	mg/kg		153	200	250

FORM I - GENCHEM

I

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102717	Client Sample ID:	AOI3-1-SB-1.5-2-102519
Collect Date:	10/25/19 0820	GCAL Sample ID:	21910271701
Matrix:	Solid	Instrument ID:	TOC6
% Solids:	NA	Analyst:	PLH
Sample Amt:	NA	Lab File ID:	NA
Prep Vol.:	NA	Dilution Factor:	1
Prep Date:	NA	Analysis Date:	11/06/19 1350
Prep Batch:	NA	Analytical Batch:	670742
Prep Method:	NA	Analytical Method:	EPA 9060A

ANALYTE	*RESULT*	*UNITS*	*Q*	*DL*	*LOD*	*LOQ*
Total Organic Carbon	4570	mg/kg		153	200	250

FORM I - GENCHEM

Sample

Sample Name: 21910271701
Sample ID: 8069,PLH,TOC6
Origin: SSM ICAL05-08-19.2019_05_08_11_30_41.cal
Status Completed
Chk. Result

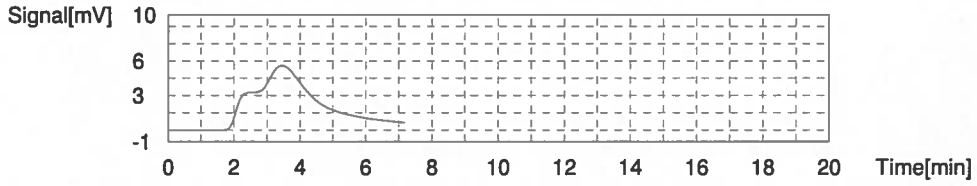
Type	Anal.	Manual Dilution	Density	Result
Unknown	SSM-TC	1.000	1.000mg/uL	SSM-TC:4573ppm

1. Det

Anal.: SSM-TC

No.	Area	CNV	Abs C	Conc.	Weight	Volume	Ex.	Cal. Curve	Date / Time
1	67.53	67.53	457.3ug	4573ppm	100.0mg	100uL		SSM ICAL05-08-19.2019_05_08_11_30_41.cal	11/6/2019 1:50:04 PM

Mean Area 67.53
Mean CNV 67.53
Mean Conc. 4573ppm



I

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102717	Client Sample ID:	AOI3-2-SB-1.5-2-102519
Collect Date:	10/25/19 0845	GCAL Sample ID:	21910271702
Matrix:	Solid	Instrument ID:	TOC6
% Solids:	NA	Analyst:	PLH
Sample Amt:	NA	Lab File ID:	NA
Prep Vol.:	NA	Dilution Factor:	1
Prep Date:	NA	Analysis Date:	11/06/19 1500
Prep Batch:	NA	Analytical Batch:	670742
Prep Method:	NA	Analytical Method:	EPA 9060A

ANALYTE	*RESULT*	*UNITS*	*Q*	*DL*	*LOD*	*LOQ*
Total Organic Carbon	3960	mg/kg		153	200	250

FORM I - GENCHEM

I

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102717	Client Sample ID:	AOI3-2-SB-1.5-2-102519-D
Collect Date:	10/25/19 0845	GCAL Sample ID:	21910271703
Matrix:	Solid	Instrument ID:	TOC6
% Solids:	NA	Analyst:	PLH
Sample Amt:	NA	Lab File ID:	NA
Prep Vol.:	NA	Dilution Factor:	1
Prep Date:	NA	Analysis Date:	11/06/19 1512
Prep Batch:	NA	Analytical Batch:	670742
Prep Method:	NA	Analytical Method:	EPA 9060A

ANALYTE	*RESULT*	*UNITS*	*Q*	*DL*	*LOD*	*LOQ*
Total Organic Carbon	4000	mg/kg		153	200	250

FORM I - GENCHEM

I

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102717	Client Sample ID:	AOI3-5-SB-1.5-2-102519
Collect Date:	10/25/19 0921	GCAL Sample ID:	21910271705
Matrix:	Solid	Instrument ID:	TOC6
% Solids:	NA	Analyst:	PLH
Sample Amt:	NA	Lab File ID:	NA
Prep Vol.:	NA	Dilution Factor:	1
Prep Date:	NA	Analysis Date:	11/06/19 1523
Prep Batch:	NA	Analytical Batch:	670742
Prep Method:	NA	Analytical Method:	EPA 9060A

ANALYTE	*RESULT*	*UNITS*	*Q*	*DL*	*LOD*	*LOQ*
Total Organic Carbon	3500	mg/kg		153	200	250

FORM I - GENCHEM

I

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102717	Client Sample ID:	AOI3-3-SB-1.5-2-102519
Collect Date:	10/25/19 0948	GCAL Sample ID:	21910271706
Matrix:	Solid	Instrument ID:	TOC6
% Solids:	NA	Analyst:	PLH
Sample Amt:	NA	Lab File ID:	NA
Prep Vol.:	NA	Dilution Factor:	1
Prep Date:	NA	Analysis Date:	11/06/19 1536
Prep Batch:	NA	Analytical Batch:	670742
Prep Method:	NA	Analytical Method:	EPA 9060A

ANALYTE	*RESULT*	*UNITS*	*Q*	*DL*	*LOD*	*LOQ*
Total Organic Carbon	7230	mg/kg		153	200	250

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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102717	Client Sample ID:	AOI3-6-SB-1.5-2-102519
Collect Date:	10/25/19 1005	GCAL Sample ID:	21910271707
Matrix:	Solid	Instrument ID:	TOC6
% Solids:	NA	Analyst:	PLH
Sample Amt:	NA	Lab File ID:	NA
Prep Vol.:	NA	Dilution Factor:	1
Prep Date:	NA	Analysis Date:	11/06/19 1548
Prep Batch:	NA	Analytical Batch:	670742
Prep Method:	NA	Analytical Method:	EPA 9060A

ANALYTE	*RESULT*	*UNITS*	*Q*	*DL*	*LOD*	*LOQ*
Total Organic Carbon	8510	mg/kg		153	200	250

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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102717	Client Sample ID:	AOI3-4-SB-1.5-2-102519
Collect Date:	10/25/19 1020	GCAL Sample ID:	21910271708
Matrix:	Solid	Instrument ID:	TOC6
% Solids:	NA	Analyst:	PLH
Sample Amt:	NA	Lab File ID:	NA
Prep Vol.:	NA	Dilution Factor:	1
Prep Date:	NA	Analysis Date:	11/06/19 1559
Prep Batch:	NA	Analytical Batch:	670742
Prep Method:	NA	Analytical Method:	EPA 9060A

ANALYTE	*RESULT*	*UNITS*	*Q*	*DL*	*LOD*	*LOQ*
Total Organic Carbon	2770	mg/kg		153	200	250

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I

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102717	Client Sample ID:	AOI3-4-SB-1.5-2-102519-D
Collect Date:	10/25/19 1020	GCAL Sample ID:	21910271709
Matrix:	Solid	Instrument ID:	TOC6
% Solids:	NA	Analyst:	PLH
Sample Amt:	NA	Lab File ID:	NA
Prep Vol.:	NA	Dilution Factor:	1
Prep Date:	NA	Analysis Date:	11/07/19 1326
Prep Batch:	NA	Analytical Batch:	670848
Prep Method:	NA	Analytical Method:	EPA 9060A

ANALYTE	*RESULT*	*UNITS*	*Q*	*DL*	*LOD*	*LOQ*
Total Organic Carbon	3080	mg/kg		153	200	250

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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102717	Client Sample ID:	AOI4-1-SB-0-0.5-102519
Collect Date:	10/25/19 0957	GCAL Sample ID:	21910271710
Matrix:	Solid	Instrument ID:	TOC6
% Solids:	NA	Analyst:	PLH
Sample Amt:	NA	Lab File ID:	NA
Prep Vol.:	NA	Dilution Factor:	1
Prep Date:	NA	Analysis Date:	11/07/19 1337
Prep Batch:	NA	Analytical Batch:	670848
Prep Method:	NA	Analytical Method:	EPA 9060A

ANALYTE	*RESULT*	*UNITS*	*Q*	*DL*	*LOD*	*LOQ*
Total Organic Carbon	1060	mg/kg		153	200	250

FORM I - GENCHEM

I

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102717	Client Sample ID:	AOI4-1-SB-5.5-6-102519
Collect Date:	10/25/19 1049	GCAL Sample ID:	21910271711
Matrix:	Solid	Instrument ID:	TOC6
% Solids:	NA	Analyst:	PLH
Sample Amt:	NA	Lab File ID:	NA
Prep Vol.:	NA	Dilution Factor:	1
Prep Date:	NA	Analysis Date:	11/07/19 1347
Prep Batch:	NA	Analytical Batch:	670848
Prep Method:	NA	Analytical Method:	EPA 9060A

ANALYTE	*RESULT*	*UNITS*	*Q*	*DL*	*LOD*	*LOQ*
Total Organic Carbon	1260	mg/kg		153	200	250

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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102717	Client Sample ID:	AOI4-1-SB-9.5-10-102519
Collect Date:	10/25/19 1100	GCAL Sample ID:	21910271712
Matrix:	Solid	Instrument ID:	TOC6
% Solids:	NA	Analyst:	PLH
Sample Amt:	NA	Lab File ID:	NA
Prep Vol.:	NA	Dilution Factor:	1
Prep Date:	NA	Analysis Date:	11/07/19 1358
Prep Batch:	NA	Analytical Batch:	670848
Prep Method:	NA	Analytical Method:	EPA 9060A

ANALYTE	*RESULT*	*UNITS*	*Q*	*DL*	*LOD*	*LOQ*
Total Organic Carbon	3990	mg/kg		153	200	250

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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102717	Client Sample ID:	AOI3-7-SB-1.5-2-102519
Collect Date:	10/25/19 1235	GCAL Sample ID:	21910271714
Matrix:	Solid	Instrument ID:	TOC6
% Solids:	NA	Analyst:	PLH
Sample Amt:	NA	Lab File ID:	NA
Prep Vol.:	NA	Dilution Factor:	1
Prep Date:	NA	Analysis Date:	11/07/19 1412
Prep Batch:	NA	Analytical Batch:	670848
Prep Method:	NA	Analytical Method:	EPA 9060A

ANALYTE	*RESULT*	*UNITS*	*Q*	*DL*	*LOD*	*LOQ*
Total Organic Carbon	7250	mg/kg		153	200	250

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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102717	Client Sample ID:	AOI3-7-SB-1.5-2-102519-D
Collect Date:	10/25/19 1235	GCAL Sample ID:	21910271715
Matrix:	Solid	Instrument ID:	TOC6
% Solids:	NA	Analyst:	PLH
Sample Amt:	NA	Lab File ID:	NA
Prep Vol.:	NA	Dilution Factor:	1
Prep Date:	NA	Analysis Date:	11/07/19 1425
Prep Batch:	NA	Analytical Batch:	670848
Prep Method:	NA	Analytical Method:	EPA 9060A

ANALYTE	*RESULT*	*UNITS*	*Q*	*DL*	*LOD*	*LOQ*
Total Organic Carbon	6970	mg/kg		153	200	250

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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102717	Client Sample ID:	AOI2-5-SB-4.5-5-102519
Collect Date:	10/25/19 1300	GCAL Sample ID:	21910271716
Matrix:	Solid	Instrument ID:	TOC6
% Solids:	NA	Analyst:	PLH
Sample Amt:	NA	Lab File ID:	NA
Prep Vol.:	NA	Dilution Factor:	1
Prep Date:	NA	Analysis Date:	11/07/19 1436
Prep Batch:	NA	Analytical Batch:	670848
Prep Method:	NA	Analytical Method:	EPA 9060A

ANALYTE	*RESULT*	*UNITS*	*Q*	*DL*	*LOD*	*LOQ*
Total Organic Carbon	1000	mg/kg		153	200	250

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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102717	Client Sample ID:	AOI2-5-SB-9.5-10-102519
Collect Date:	10/25/19 1316	GCAL Sample ID:	21910271717
Matrix:	Solid	Instrument ID:	TOC6
% Solids:	NA	Analyst:	PLH
Sample Amt:	NA	Lab File ID:	NA
Prep Vol.:	NA	Dilution Factor:	1
Prep Date:	NA	Analysis Date:	11/07/19 1445
Prep Batch:	NA	Analytical Batch:	670848
Prep Method:	NA	Analytical Method:	EPA 9060A

ANALYTE	*RESULT*	*UNITS*	*Q*	*DL*	*LOD*	*LOQ*
Total Organic Carbon	800	mg/kg		153	200	250

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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102717	Client Sample ID:	AOI2-5-SB-13-13.5-102519
Collect Date:	10/25/19 1320	GCAL Sample ID:	21910271718
Matrix:	Solid	Instrument ID:	TOC6
% Solids:	NA	Analyst:	PLH
Sample Amt:	NA	Lab File ID:	NA
Prep Vol.:	NA	Dilution Factor:	1
Prep Date:	NA	Analysis Date:	11/07/19 1456
Prep Batch:	NA	Analytical Batch:	670848
Prep Method:	NA	Analytical Method:	EPA 9060A

ANALYTE	*RESULT*	*UNITS*	*Q*	*DL*	*LOD*	*LOQ*
Total Organic Carbon	1810	mg/kg		153	200	250

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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102717	Client Sample ID:	AOI2-4-SB-4.5-5-102519
Collect Date:	10/25/19 1345	GCAL Sample ID:	21910271720
Matrix:	Solid	Instrument ID:	TOC6
% Solids:	NA	Analyst:	PLH
Sample Amt:	NA	Lab File ID:	NA
Prep Vol.:	NA	Dilution Factor:	1
Prep Date:	NA	Analysis Date:	11/07/19 1509
Prep Batch:	NA	Analytical Batch:	670848
Prep Method:	NA	Analytical Method:	EPA 9060A

ANALYTE	*RESULT*	*UNITS*	*Q*	*DL*	*LOD*	*LOQ*
Total Organic Carbon	8000	mg/kg		153	200	250

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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102717	Client Sample ID:	AOI2-1-SB-4.5-5-102519
Collect Date:	10/25/19 1426	GCAL Sample ID:	21910271721
Matrix:	Solid	Instrument ID:	TOC6
% Solids:	NA	Analyst:	PLH
Sample Amt:	NA	Lab File ID:	NA
Prep Vol.:	NA	Dilution Factor:	1
Prep Date:	NA	Analysis Date:	11/07/19 1606
Prep Batch:	NA	Analytical Batch:	670848
Prep Method:	NA	Analytical Method:	EPA 9060A

ANALYTE	*RESULT*	*UNITS*	*Q*	*DL*	*LOD*	*LOQ*
Total Organic Carbon	894	mg/kg		153	200	250

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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219103085	Client Sample ID:	AOI 8-2-SB-0-0.5-102919
Collect Date:	10/29/19 1020	GCAL Sample ID:	21910308513
Matrix:	Solid	Instrument ID:	TOC6
% Solids:	NA	Analyst:	PLH
Sample Amt:	NA	Lab File ID:	NA
Prep Vol.:	NA	Dilution Factor:	1
Prep Date:	NA	Analysis Date:	11/13/19 1234
Prep Batch:	NA	Analytical Batch:	671278
Prep Method:	NA	Analytical Method:	EPA 9060A

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
Total Organic Carbon	14600	mg/kg		153	200	250

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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219103085	Client Sample ID:	AOI 8-1-SB-0-0.5-102919
Collect Date:	10/29/19 1030	GCAL Sample ID:	21910308514
Matrix:	Solid	Instrument ID:	TOC6
% Solids:	NA	Analyst:	PLH
Sample Amt:	NA	Lab File ID:	NA
Prep Vol.:	NA	Dilution Factor:	1
Prep Date:	NA	Analysis Date:	11/13/19 1249
Prep Batch:	NA	Analytical Batch:	671278
Prep Method:	NA	Analytical Method:	EPA 9060A

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
Total Organic Carbon	21300	mg/kg		153	200	250

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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102326	Client Sample ID:	AOI6-1-SB-1.5-2-102219
Collect Date:	10/22/19 0905	GCAL Sample ID:	21910232602
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:	10/25/19 1145
Prep Batch:	NA	Analytical Batch:	670066
Prep Method:	NA	Analytical Method:	EPA 9045D

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
pH	8.36	pH UNITS		1.00	1.00	1.00

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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102326	Client Sample ID:	AOI6-1-SB-7-7.5-102219
Collect Date:	10/22/19 0920	GCAL Sample ID:	21910232605
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:	10/25/19 1157
Prep Batch:	NA	Analytical Batch:	670066
Prep Method:	NA	Analytical Method:	EPA 9045D

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
pH	9.07	pH UNITS		1.00	1.00	1.00

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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102326	Client Sample ID:	AOI6-1-SB-18.5-19-102219
Collect Date:	10/22/19 0930	GCAL Sample ID:	21910232606
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:	10/25/19 1158
Prep Batch:	NA	Analytical Batch:	670066
Prep Method:	NA	Analytical Method:	EPA 9045D

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
pH	8.87	pH UNITS		1.00	1.00	1.00

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I

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102326	Client Sample ID:	AOI6-3-SB-1.5-2-102219
Collect Date:	10/22/19 1015	GCAL Sample ID:	21910232608
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:	10/25/19 1200
Prep Batch:	NA	Analytical Batch:	670066
Prep Method:	NA	Analytical Method:	EPA 9045D

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
pH	8.52	pH UNITS		1.00	1.00	1.00

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I

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102326	Client Sample ID:	AOI6-2-SB-1.5-2-102219
Collect Date:	10/22/19 1027	GCAL Sample ID:	21910232611
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:	10/25/19 1209
Prep Batch:	NA	Analytical Batch:	670066
Prep Method:	NA	Analytical Method:	EPA 9045D

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
pH	8.48	pH UNITS		1.00	1.00	1.00

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I

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102326	Client Sample ID:	AOI6-4-SB-1.5-2-102219
Collect Date:	10/22/19 1045	GCAL Sample ID:	21910232614
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:	10/25/19 1218
Prep Batch:	NA	Analytical Batch:	670066
Prep Method:	NA	Analytical Method:	EPA 9045D

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
pH	9.01	pH UNITS		1.00	1.00	1.00

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I

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102326	Client Sample ID:	AOI5-1-SB-1.5-2-102219
Collect Date:	10/22/19 1215	GCAL Sample ID:	21910232617
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:	10/25/19 1223
Prep Batch:	NA	Analytical Batch:	670066
Prep Method:	NA	Analytical Method:	EPA 9045D

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
pH	8.84	pH UNITS		1.00	1.00	1.00

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I

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102326	Client Sample ID:	AOI5-1-SB-1.5-2-102219-D
Collect Date:	10/22/19 1221	GCAL Sample ID:	21910232618
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:	10/25/19 1225
Prep Batch:	NA	Analytical Batch:	670066
Prep Method:	NA	Analytical Method:	EPA 9045D

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
pH	8.80	pH UNITS		1.00	1.00	1.00

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I

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102326	Client Sample ID:	AOI5-1-SB-8-8.5-102219
Collect Date:	10/22/19 1230	GCAL Sample ID:	21910232619
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:	10/25/19 1226
Prep Batch:	NA	Analytical Batch:	670066
Prep Method:	NA	Analytical Method:	EPA 9045D

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
pH	8.48	pH UNITS		1.00	1.00	1.00

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I

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102326	Client Sample ID:	AOI5-1-SB-19-19.5-102219
Collect Date:	10/22/19 1240	GCAL Sample ID:	21910232620
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:	10/25/19 1228
Prep Batch:	NA	Analytical Batch:	670066
Prep Method:	NA	Analytical Method:	EPA 9045D

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
pH	8.24	pH UNITS		1.00	1.00	1.00

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I

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102326	Client Sample ID:	AOI1-3-SB-4.5-5-102219
Collect Date:	10/22/19 1417	GCAL Sample ID:	21910232622
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:	10/25/19 1509
Prep Batch:	NA	Analytical Batch:	670067
Prep Method:	NA	Analytical Method:	EPA 9045D

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
pH	9.01	pH UNITS		1.00	1.00	1.00

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I

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102326	Client Sample ID:	AOI1-3-SB-9.5-10-102219
Collect Date:	10/22/19 1430	GCAL Sample ID:	21910232623
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:	10/25/19 1513
Prep Batch:	NA	Analytical Batch:	670067
Prep Method:	NA	Analytical Method:	EPA 9045D

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
pH	8.27	pH UNITS		1.00	1.00	1.00

FORM I - GENCHEM

I

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102326	Client Sample ID:	AOI1-3-SB-16-16.5-102219
Collect Date:	10/22/19 1435	GCAL Sample ID:	21910232624
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:	10/25/19 1516
Prep Batch:	NA	Analytical Batch:	670067
Prep Method:	NA	Analytical Method:	EPA 9045D

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
pH	8.98	pH UNITS		1.00	1.00	1.00

FORM I - GENCHEM

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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102326	Client Sample ID:	AOI1-1-SB-4.5-5-102219
Collect Date:	10/22/19 1500	GCAL Sample ID:	21910232625
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:	10/25/19 1522
Prep Batch:	NA	Analytical Batch:	670067
Prep Method:	NA	Analytical Method:	EPA 9045D

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
pH	8.64	pH UNITS		1.00	1.00	1.00

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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102326	Client Sample ID:	AOI1-1-SB-10-10.5-102219
Collect Date:	10/22/19 1530	GCAL Sample ID:	21910232627
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:	10/25/19 1524
Prep Batch:	NA	Analytical Batch:	670067
Prep Method:	NA	Analytical Method:	EPA 9045D

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
pH	8.30	pH UNITS		1.00	1.00	1.00

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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102326	Client Sample ID:	AOI1-1-SB-17-17.5-102219
Collect Date:	10/22/19 1536	GCAL Sample ID:	21910232628
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:	10/25/19 1525
Prep Batch:	NA	Analytical Batch:	670067
Prep Method:	NA	Analytical Method:	EPA 9045D

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
pH	8.22	pH UNITS		1.00	1.00	1.00

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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102333	Client Sample ID:	AOI7-10-SB-1.5-2-102119
Collect Date:	10/21/19 1225	GCAL Sample ID:	21910233301
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:	10/25/19 1526
Prep Batch:	NA	Analytical Batch:	670067
Prep Method:	NA	Analytical Method:	EPA 9045D

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
pH	8.76	pH UNITS		1.00	1.00	1.00

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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102333	Client Sample ID:	AOI7-10-SB-7.5-8-102119
Collect Date:	10/21/19 1245	GCAL Sample ID:	21910233302
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:	10/25/19 1528
Prep Batch:	NA	Analytical Batch:	670067
Prep Method:	NA	Analytical Method:	EPA 9045D

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
pH	8.94	pH UNITS		1.00	1.00	1.00

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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102333	Client Sample ID:	AOI7-5-SB-1.5-2-102119
Collect Date:	10/21/19 1300	GCAL Sample ID:	21910233303
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:	10/25/19 1529
Prep Batch:	NA	Analytical Batch:	670067
Prep Method:	NA	Analytical Method:	EPA 9045D

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
pH	8.53	pH UNITS		1.00	1.00	1.00

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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102333	Client Sample ID:	AOI7-10-SB-17-17.5-102119
Collect Date:	10/21/19 1310	GCAL Sample ID:	21910233304
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:	10/25/19 1533
Prep Batch:	NA	Analytical Batch:	670067
Prep Method:	NA	Analytical Method:	EPA 9045D

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
pH	8.35	pH UNITS		1.00	1.00	1.00

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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102333	Client Sample ID:	AOI7-6-SB-1.5-2-102119
Collect Date:	10/21/19 1330	GCAL Sample ID:	21910233306
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:	10/25/19 1535
Prep Batch:	NA	Analytical Batch:	670067
Prep Method:	NA	Analytical Method:	EPA 9045D

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
pH	8.77	pH UNITS		1.00	1.00	1.00

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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102333	Client Sample ID:	AOI7-7-SB-1.5-2-102119
Collect Date:	10/21/19 1405	GCAL Sample ID:	21910233307
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:	10/25/19 1536
Prep Batch:	NA	Analytical Batch:	670067
Prep Method:	NA	Analytical Method:	EPA 9045D

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
pH	8.53	pH UNITS		1.00	1.00	1.00

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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102333	Client Sample ID:	AOI7-11-SB-1.5-2-102119
Collect Date:	10/21/19 1415	GCAL Sample ID:	21910233309
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:	10/25/19 1538
Prep Batch:	NA	Analytical Batch:	670067
Prep Method:	NA	Analytical Method:	EPA 9045D

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
pH	9.39	pH UNITS		1.00	1.00	1.00

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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102333	Client Sample ID:	AOI7-11-SB-7.5-8-102119
Collect Date:	10/21/19 1435	GCAL Sample ID:	21910233310
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:	10/25/19 1543
Prep Batch:	NA	Analytical Batch:	670067
Prep Method:	NA	Analytical Method:	EPA 9045D

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
pH	8.95	pH UNITS		1.00	1.00	1.00

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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102333	Client Sample ID:	AOI7-8-SB-1.5-2-102119
Collect Date:	10/21/19 1445	GCAL Sample ID:	21910233311
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:	10/25/19 1545
Prep Batch:	NA	Analytical Batch:	670067
Prep Method:	NA	Analytical Method:	EPA 9045D

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
pH	8.43	pH UNITS		1.00	1.00	1.00

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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102333	Client Sample ID:	AOI7-11-SB-18-18.5-102119
Collect Date:	10/21/19 1500	GCAL Sample ID:	21910233312
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:	10/25/19 1546
Prep Batch:	NA	Analytical Batch:	670067
Prep Method:	NA	Analytical Method:	EPA 9045D

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
pH	8.34	pH UNITS		1.00	1.00	1.00

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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102333	Client Sample ID:	AOI7-9-SB-1.5-2-102119
Collect Date:	10/21/19 1520	GCAL Sample ID:	21910233313
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:	10/25/19 1549
Prep Batch:	NA	Analytical Batch:	670067
Prep Method:	NA	Analytical Method:	EPA 9045D

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
pH	8.88	pH UNITS		1.00	1.00	1.00

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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102333	Client Sample ID:	AOI7-9-SB-7.5-8-102119
Collect Date:	10/21/19 1550	GCAL Sample ID:	21910233315
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:	10/25/19 1550
Prep Batch:	NA	Analytical Batch:	670067
Prep Method:	NA	Analytical Method:	EPA 9045D

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
pH	8.79	pH UNITS		1.00	1.00	1.00

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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102333	Client Sample ID:	AOI7-1-SB-1.5-2-102119
Collect Date:	10/21/19 1600	GCAL Sample ID:	21910233317
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:	10/25/19 1552
Prep Batch:	NA	Analytical Batch:	670067
Prep Method:	NA	Analytical Method:	EPA 9045D

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
pH	7.93	pH UNITS		1.00	1.00	1.00

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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102333	Client Sample ID:	AOI7-9-SB-17-17.5-102119
Collect Date:	10/21/19 1605	GCAL Sample ID:	21910233318
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:	10/25/19 1553
Prep Batch:	NA	Analytical Batch:	670067
Prep Method:	NA	Analytical Method:	EPA 9045D

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
pH	8.24	pH UNITS		1.00	1.00	1.00

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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102333	Client Sample ID:	AOI7-2-SB-1.5-2-102119
Collect Date:	10/21/19 1620	GCAL Sample ID:	21910233319
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:	10/26/19 1009
Prep Batch:	NA	Analytical Batch:	670068
Prep Method:	NA	Analytical Method:	EPA 9045D

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
pH	8.63	pH UNITS		1.00	1.00	1.00

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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102333	Client Sample ID:	AOI7-3-SB-1.5-2-102119
Collect Date:	10/21/19 1635	GCAL Sample ID:	21910233320
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:	10/26/19 1011
Prep Batch:	NA	Analytical Batch:	670068
Prep Method:	NA	Analytical Method:	EPA 9045D

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
pH	8.63	pH UNITS		1.00	1.00	1.00

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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102333	Client Sample ID:	AOI7-4-1.5-2-102119
Collect Date:	10/21/19 1650	GCAL Sample ID:	21910233322
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:	10/26/19 1013
Prep Batch:	NA	Analytical Batch:	670068
Prep Method:	NA	Analytical Method:	EPA 9045D

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
pH	8.52	pH UNITS		1.00	1.00	1.00

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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102541	Client Sample ID:	AOI1-5-SB-4.5-5-102319
Collect Date:	10/23/19 0800	GCAL Sample ID:	21910254101
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:	10/26/19 1037
Prep Batch:	NA	Analytical Batch:	670068
Prep Method:	NA	Analytical Method:	EPA 9045D

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
pH	9.13	pH UNITS		1.00	1.00	1.00

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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102541	Client Sample ID:	AOI1-5-SB-4.5-5-102319-D
Collect Date:	10/23/19 0800	GCAL Sample ID:	21910254102
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:	10/26/19 1038
Prep Batch:	NA	Analytical Batch:	670068
Prep Method:	NA	Analytical Method:	EPA 9045D

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
pH	9.01	pH UNITS		1.00	1.00	1.00

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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102541	Client Sample ID:	AOI1-4-SB-4.5-5-102319-D
Collect Date:	10/23/19 0832	GCAL Sample ID:	21910254103
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:	10/26/19 1040
Prep Batch:	NA	Analytical Batch:	670068
Prep Method:	NA	Analytical Method:	EPA 9045D

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
pH	9.10	pH UNITS		1.00	1.00	1.00

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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102541	Client Sample ID:	AOI1-4-SB-4.5-5-102319
Collect Date:	10/23/19 0832	GCAL Sample ID:	21910254104
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:	10/26/19 1042
Prep Batch:	NA	Analytical Batch:	670068
Prep Method:	NA	Analytical Method:	EPA 9045D

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
pH	9.70	pH UNITS		1.00	1.00	1.00

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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102541	Client Sample ID:	AOI1-6-SB-4.5-5-102319
Collect Date:	10/23/19 0830	GCAL Sample ID:	21910254107
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:	10/26/19 1044
Prep Batch:	NA	Analytical Batch:	670068
Prep Method:	NA	Analytical Method:	EPA 9045D

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
pH	9.83	pH UNITS		1.00	1.00	1.00

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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102541	Client Sample ID:	AOI1-5-SB-7-7.5-102319
Collect Date:	10/23/19 0845	GCAL Sample ID:	21910254109
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:	10/26/19 1046
Prep Batch:	NA	Analytical Batch:	670068
Prep Method:	NA	Analytical Method:	EPA 9045D

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
pH	8.79	pH UNITS		1.00	1.00	1.00

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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102541	Client Sample ID:	AOI1-5-SB-17.5-18-102319
Collect Date:	10/23/19 0915	GCAL Sample ID:	21910254110
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:	10/26/19 1048
Prep Batch:	NA	Analytical Batch:	670068
Prep Method:	NA	Analytical Method:	EPA 9045D

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
pH	8.56	pH UNITS		1.00	1.00	1.00

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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102541	Client Sample ID:	AOI1-6-SB-9-9.5-102319
Collect Date:	10/23/19 1026	GCAL Sample ID:	21910254113
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:	10/26/19 1052
Prep Batch:	NA	Analytical Batch:	670068
Prep Method:	NA	Analytical Method:	EPA 9045D

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
pH	8.96	pH UNITS		1.00	1.00	1.00

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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102541	Client Sample ID:	AOI1-6-SB-12.5-13-102319
Collect Date:	10/23/19 1033	GCAL Sample ID:	21910254114
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:	10/26/19 1055
Prep Batch:	NA	Analytical Batch:	670068
Prep Method:	NA	Analytical Method:	EPA 9045D

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
pH	8.14	pH UNITS		1.00	1.00	1.00

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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102541	Client Sample ID:	AOI1-4-SB-9.5-10-102319
Collect Date:	10/23/19 1110	GCAL Sample ID:	21910254116
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:	10/26/19 1057
Prep Batch:	NA	Analytical Batch:	670068
Prep Method:	NA	Analytical Method:	EPA 9045D

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
pH	8.88	pH UNITS		1.00	1.00	1.00

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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102541	Client Sample ID:	AOI1-2-SB-4.5-5-102319
Collect Date:	10/23/19 1255	GCAL Sample ID:	21910254118
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:	10/26/19 1059
Prep Batch:	NA	Analytical Batch:	670068
Prep Method:	NA	Analytical Method:	EPA 9045D

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
pH	9.99	pH UNITS		1.00	1.00	1.00

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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102541	Client Sample ID:	AOI1-2-SB-9.5-10-102319
Collect Date:	10/23/19 1311	GCAL Sample ID:	21910254119
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:	10/26/19 1101
Prep Batch:	NA	Analytical Batch:	670068
Prep Method:	NA	Analytical Method:	EPA 9045D

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
pH	8.22	pH UNITS		1.00	1.00	1.00

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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102541	Client Sample ID:	AOI1-2-SB-12.5-13-102319
Collect Date:	10/23/19 1315	GCAL Sample ID:	21910254120
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:	10/26/19 1107
Prep Batch:	NA	Analytical Batch:	670144
Prep Method:	NA	Analytical Method:	EPA 9045D

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
pH	8.55	pH UNITS		1.00	1.00	1.00

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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102541	Client Sample ID:	AOI2-3-SB-4.5-5-102319
Collect Date:	10/23/19 1455	GCAL Sample ID:	21910254122
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:	10/26/19 1109
Prep Batch:	NA	Analytical Batch:	670144
Prep Method:	NA	Analytical Method:	EPA 9045D

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
pH	9.08	pH UNITS		1.00	1.00	1.00

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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102541	Client Sample ID:	AOI2-3-SB-4.5-5-102319-D
Collect Date:	10/23/19 1455	GCAL Sample ID:	21910254123
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:	10/26/19 1112
Prep Batch:	NA	Analytical Batch:	670144
Prep Method:	NA	Analytical Method:	EPA 9045D

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
pH	9.09	pH UNITS		1.00	1.00	1.00

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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102541	Client Sample ID:	AOI2-2-SB-4.5-5-102319
Collect Date:	10/23/19 1520	GCAL Sample ID:	21910254124
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:	10/26/19 1114
Prep Batch:	NA	Analytical Batch:	670144
Prep Method:	NA	Analytical Method:	EPA 9045D

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
pH	8.65	pH UNITS		1.00	1.00	1.00

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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102541	Client Sample ID:	AOI2-2-SB-4.5-5-102319-D
Collect Date:	10/23/19 1520	GCAL Sample ID:	21910254125
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:	10/26/19 1116
Prep Batch:	NA	Analytical Batch:	670144
Prep Method:	NA	Analytical Method:	EPA 9045D

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
pH	8.66	pH UNITS		1.00	1.00	1.00

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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102613	Client Sample ID:	AOI3-8-SB-1.5-2-102419
Collect Date:	10/24/19 0845	GCAL Sample ID:	21910261301
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:	10/27/19 1238
Prep Batch:	NA	Analytical Batch:	670167
Prep Method:	NA	Analytical Method:	EPA 9045D

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
pH	8.73	pH UNITS		1.00	1.00	1.00

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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102613	Client Sample ID:	AOI3-8-SB-1.5-2-102419-D
Collect Date:	10/24/19 0845	GCAL Sample ID:	21910261302
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:	10/27/19 1241
Prep Batch:	NA	Analytical Batch:	670167
Prep Method:	NA	Analytical Method:	EPA 9045D

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
pH	8.74	pH UNITS		1.00	1.00	1.00

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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102613	Client Sample ID:	AOI3-8-SB-9-9.5-102419
Collect Date:	10/24/19 0907	GCAL Sample ID:	21910261303
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:	10/27/19 1243
Prep Batch:	NA	Analytical Batch:	670167
Prep Method:	NA	Analytical Method:	EPA 9045D

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
pH	8.07	pH UNITS		1.00	1.00	1.00

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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102613	Client Sample ID:	AOI3-8-SB-13-13.5-102419
Collect Date:	10/24/19 0912	GCAL Sample ID:	21910261304
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:	10/27/19 1245
Prep Batch:	NA	Analytical Batch:	670167
Prep Method:	NA	Analytical Method:	EPA 9045D

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
pH	7.84	pH UNITS		1.00	1.00	1.00

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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102613	Client Sample ID:	AOI3-11-SB-1.5-2-102419
Collect Date:	10/24/19 0920	GCAL Sample ID:	21910261305
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:	10/27/19 1247
Prep Batch:	NA	Analytical Batch:	670167
Prep Method:	NA	Analytical Method:	EPA 9045D

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
pH	8.84	pH UNITS		1.00	1.00	1.00

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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102613	Client Sample ID:	AOI3-11-SB-8.5-9-102419
Collect Date:	10/24/19 0950	GCAL Sample ID:	21910261306
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:	10/27/19 1250
Prep Batch:	NA	Analytical Batch:	670167
Prep Method:	NA	Analytical Method:	EPA 9045D

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
pH	8.66	pH UNITS		1.00	1.00	1.00

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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102613	Client Sample ID:	AOI3-11-SB-11-11.5-102419
Collect Date:	10/24/19 0954	GCAL Sample ID:	21910261307
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:	10/27/19 1253
Prep Batch:	NA	Analytical Batch:	670167
Prep Method:	NA	Analytical Method:	EPA 9045D

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
pH	8.16	pH UNITS		1.00	1.00	1.00

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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102613	Client Sample ID:	AOI3-12-SB-1.5-2-102419
Collect Date:	10/24/19 1020	GCAL Sample ID:	21910261308
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:	10/27/19 1255
Prep Batch:	NA	Analytical Batch:	670167
Prep Method:	NA	Analytical Method:	EPA 9045D

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
pH	9.03	pH UNITS		1.00	1.00	1.00

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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102613	Client Sample ID:	AOI3-12-SB-7-7.5-102419
Collect Date:	10/24/19 1040	GCAL Sample ID:	21910261309
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:	10/27/19 1256
Prep Batch:	NA	Analytical Batch:	670167
Prep Method:	NA	Analytical Method:	EPA 9045D

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
pH	8.00	pH UNITS		1.00	1.00	1.00

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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102613	Client Sample ID:	AOI3-12-SB-19-19.5-102419
Collect Date:	10/24/19 1055	GCAL Sample ID:	21910261310
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:	10/27/19 1301
Prep Batch:	NA	Analytical Batch:	670167
Prep Method:	NA	Analytical Method:	EPA 9045D

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
pH	7.75	pH UNITS		1.00	1.00	1.00

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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102613	Client Sample ID:	AOI3-9-SB-1.5-2-102419
Collect Date:	10/24/19 1125	GCAL Sample ID:	21910261312
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:	10/27/19 1302
Prep Batch:	NA	Analytical Batch:	670167
Prep Method:	NA	Analytical Method:	EPA 9045D

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
pH	8.35	pH UNITS		1.00	1.00	1.00

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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102613	Client Sample ID:	AOI3-9-SB-8.5-9-102419
Collect Date:	10/24/19 1245	GCAL Sample ID:	21910261314
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:	10/27/19 1305
Prep Batch:	NA	Analytical Batch:	670167
Prep Method:	NA	Analytical Method:	EPA 9045D

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
pH	7.72	pH UNITS		1.00	1.00	1.00

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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102613	Client Sample ID:	AOI3-9-SB-14-14.5-102419
Collect Date:	10/24/19 1250	GCAL Sample ID:	21910261315
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:	10/27/19 1307
Prep Batch:	NA	Analytical Batch:	670167
Prep Method:	NA	Analytical Method:	EPA 9045D

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
pH	7.65	pH UNITS		1.00	1.00	1.00

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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102613	Client Sample ID:	AOI3-10-SB-1.5-2-102419
Collect Date:	10/24/19 1330	GCAL Sample ID:	21910261317
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:	10/27/19 1310
Prep Batch:	NA	Analytical Batch:	670167
Prep Method:	NA	Analytical Method:	EPA 9045D

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
pH	8.82	pH UNITS		1.00	1.00	1.00

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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102613	Client Sample ID:	AOI3-10-SB-10.5-11-102419
Collect Date:	10/24/19 1355	GCAL Sample ID:	21910261318
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:	10/27/19 1312
Prep Batch:	NA	Analytical Batch:	670167
Prep Method:	NA	Analytical Method:	EPA 9045D

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
pH	7.79	pH UNITS		1.00	1.00	1.00

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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102717	Client Sample ID:	AOI3-1-SB-1.5-2-102519
Collect Date:	10/25/19 0820	GCAL Sample ID:	21910271701
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:	10/27/19 1319
Prep Batch:	NA	Analytical Batch:	670171
Prep Method:	NA	Analytical Method:	EPA 9045D

ANALYTE	*RESULT*	*UNITS*	*Q*	*DL*	*LOD*	*LOQ*
pH	9.17	pH UNITS		1.00	1.00	1.00

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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102717	Client Sample ID:	AOI3-2-SB-1.5-2-102519
Collect Date:	10/25/19 0845	GCAL Sample ID:	21910271702
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:	10/27/19 1322
Prep Batch:	NA	Analytical Batch:	670171
Prep Method:	NA	Analytical Method:	EPA 9045D

ANALYTE	*RESULT*	*UNITS*	*Q*	*DL*	*LOD*	*LOQ*
pH	9.31	pH UNITS		1.00	1.00	1.00

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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102717	Client Sample ID:	AOI3-2-SB-1.5-2-102519-D
Collect Date:	10/25/19 0845	GCAL Sample ID:	21910271703
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:	10/27/19 1323
Prep Batch:	NA	Analytical Batch:	670171
Prep Method:	NA	Analytical Method:	EPA 9045D

ANALYTE	*RESULT*	*UNITS*	*Q*	*DL*	*LOD*	*LOQ*
pH	9.32	pH UNITS		1.00	1.00	1.00

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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102717	Client Sample ID:	AOI3-5-SB-1.5-2-102519
Collect Date:	10/25/19 0921	GCAL Sample ID:	21910271705
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:	10/27/19 1325
Prep Batch:	NA	Analytical Batch:	670171
Prep Method:	NA	Analytical Method:	EPA 9045D

ANALYTE	*RESULT*	*UNITS*	*Q*	*DL*	*LOD*	*LOQ*
pH	9.32	pH UNITS		1.00	1.00	1.00

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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102717	Client Sample ID:	AOI3-3-SB-1.5-2-102519
Collect Date:	10/25/19 0948	GCAL Sample ID:	21910271706
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:	10/27/19 1327
Prep Batch:	NA	Analytical Batch:	670171
Prep Method:	NA	Analytical Method:	EPA 9045D

ANALYTE	*RESULT*	*UNITS*	*Q*	*DL*	*LOD*	*LOQ*
pH	8.97	pH UNITS		1.00	1.00	1.00

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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102717	Client Sample ID:	AOI3-6-SB-1.5-2-102519
Collect Date:	10/25/19 1005	GCAL Sample ID:	21910271707
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:	10/27/19 1329
Prep Batch:	NA	Analytical Batch:	670171
Prep Method:	NA	Analytical Method:	EPA 9045D

ANALYTE	*RESULT*	*UNITS*	*Q*	*DL*	*LOD*	*LOQ*
pH	9.29	pH UNITS		1.00	1.00	1.00

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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102717	Client Sample ID:	AOI3-4-SB-1.5-2-102519
Collect Date:	10/25/19 1020	GCAL Sample ID:	21910271708
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:	10/27/19 1331
Prep Batch:	NA	Analytical Batch:	670171
Prep Method:	NA	Analytical Method:	EPA 9045D

ANALYTE	*RESULT*	*UNITS*	*Q*	*DL*	*LOD*	*LOQ*
pH	8.38	pH UNITS		1.00	1.00	1.00

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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102717	Client Sample ID:	AOI3-4-SB-1.5-2-102519-D
Collect Date:	10/25/19 1020	GCAL Sample ID:	21910271709
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:	10/27/19 1334
Prep Batch:	NA	Analytical Batch:	670171
Prep Method:	NA	Analytical Method:	EPA 9045D

ANALYTE	*RESULT*	*UNITS*	*Q*	*DL*	*LOD*	*LOQ*
pH	8.42	pH UNITS		1.00	1.00	1.00

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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102717	Client Sample ID:	AOI4-1-SB-0-0.5-102519
Collect Date:	10/25/19 0957	GCAL Sample ID:	21910271710
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:	10/27/19 1338
Prep Batch:	NA	Analytical Batch:	670171
Prep Method:	NA	Analytical Method:	EPA 9045D

ANALYTE	*RESULT*	*UNITS*	*Q*	*DL*	*LOD*	*LOQ*
pH	9.50	pH UNITS		1.00	1.00	1.00

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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102717	Client Sample ID:	AOI4-1-SB-5.5-6-102519
Collect Date:	10/25/19 1049	GCAL Sample ID:	21910271711
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:	10/27/19 1343
Prep Batch:	NA	Analytical Batch:	670171
Prep Method:	NA	Analytical Method:	EPA 9045D

ANALYTE	*RESULT*	*UNITS*	*Q*	*DL*	*LOD*	*LOQ*
pH	9.00	pH UNITS		1.00	1.00	1.00

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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102717	Client Sample ID:	AOI4-1-SB-9.5-10-102519
Collect Date:	10/25/19 1100	GCAL Sample ID:	21910271712
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:	10/27/19 1345
Prep Batch:	NA	Analytical Batch:	670171
Prep Method:	NA	Analytical Method:	EPA 9045D

ANALYTE	*RESULT*	*UNITS*	*Q*	*DL*	*LOD*	*LOQ*
pH	8.65	pH UNITS		1.00	1.00	1.00

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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102717	Client Sample ID:	AOI3-7-SB-1.5-2-102519
Collect Date:	10/25/19 1235	GCAL Sample ID:	21910271714
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:	10/27/19 1348
Prep Batch:	NA	Analytical Batch:	670171
Prep Method:	NA	Analytical Method:	EPA 9045D

ANALYTE	*RESULT*	*UNITS*	*Q*	*DL*	*LOD*	*LOQ*
pH	8.89	pH UNITS		1.00	1.00	1.00

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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102717	Client Sample ID:	AOI3-7-SB-1.5-2-102519-D
Collect Date:	10/25/19 1235	GCAL Sample ID:	21910271715
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:	10/27/19 1350
Prep Batch:	NA	Analytical Batch:	670171
Prep Method:	NA	Analytical Method:	EPA 9045D

ANALYTE	*RESULT*	*UNITS*	*Q*	*DL*	*LOD*	*LOQ*
pH	8.78	pH UNITS		1.00	1.00	1.00

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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102717	Client Sample ID:	AOI2-5-SB-4.5-5-102519
Collect Date:	10/25/19 1300	GCAL Sample ID:	21910271716
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:	10/27/19 1351
Prep Batch:	NA	Analytical Batch:	670171
Prep Method:	NA	Analytical Method:	EPA 9045D

ANALYTE	*RESULT*	*UNITS*	*Q*	*DL*	*LOD*	*LOQ*
pH	9.14	pH UNITS		1.00	1.00	1.00

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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102717	Client Sample ID:	AOI2-5-SB-9.5-10-102519
Collect Date:	10/25/19 1316	GCAL Sample ID:	21910271717
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:	10/27/19 1354
Prep Batch:	NA	Analytical Batch:	670171
Prep Method:	NA	Analytical Method:	EPA 9045D

ANALYTE	*RESULT*	*UNITS*	*Q*	*DL*	*LOD*	*LOQ*
pH	8.38	pH UNITS		1.00	1.00	1.00

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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102717	Client Sample ID:	AOI2-5-SB-13-13.5-102519
Collect Date:	10/25/19 1320	GCAL Sample ID:	21910271718
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:	10/27/19 1356
Prep Batch:	NA	Analytical Batch:	670171
Prep Method:	NA	Analytical Method:	EPA 9045D

ANALYTE	*RESULT*	*UNITS*	*Q*	*DL*	*LOD*	*LOQ*
pH	8.79	pH UNITS		1.00	1.00	1.00

FORM I - GENCHEM

I

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102717	Client Sample ID:	AOI2-4-SB-4.5-5-102519
Collect Date:	10/25/19 1345	GCAL Sample ID:	21910271720
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:	10/27/19 1358
Prep Batch:	NA	Analytical Batch:	670171
Prep Method:	NA	Analytical Method:	EPA 9045D

ANALYTE	*RESULT*	*UNITS*	*Q*	*DL*	*LOD*	*LOQ*
pH	8.88	pH UNITS		1.00	1.00	1.00

FORM I - GENCHEM

I

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219102717	Client Sample ID:	AOI2-1-SB-4.5-5-102519
Collect Date:	10/25/19 1426	GCAL Sample ID:	21910271721
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:	10/27/19 1400
Prep Batch:	NA	Analytical Batch:	670171
Prep Method:	NA	Analytical Method:	EPA 9045D

ANALYTE	*RESULT*	*UNITS*	*Q*	*DL*	*LOD*	*LOQ*
pH	9.65	pH UNITS		1.00	1.00	1.00

FORM I - GENCHEM

I

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219103085	Client Sample ID:	AOI 8-2-SB-0-0.5-102919
Collect Date:	10/29/19 1020	GCAL Sample ID:	21910308513
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:	11/01/19 1113
Prep Batch:	NA	Analytical Batch:	670536
Prep Method:	NA	Analytical Method:	EPA 9045D

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
pH	8.20	pH UNITS		1.00	1.00	1.00

FORM I - GENCHEM

I

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Report No:	219103085	Client Sample ID:	AOI 8-1-SB-0-0.5-102919
Collect Date:	10/29/19 1030	GCAL Sample ID:	21910308514
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:	11/01/19 1115
Prep Batch:	NA	Analytical Batch:	670536
Prep Method:	NA	Analytical Method:	EPA 9045D

ANALYTE	RESULT	UNITS	Q	DL	LOD	LOQ
pH	7.76	pH UNITS		1.00	1.00	1.00

FORM I - GENCHEM

DATA VALIDATION WORKSHEET

Per- and Polyfluorinated Compounds by LC/MS/MS

Reviewer: Devon Chicoine
Date: 1/17/2020
DV Level: **II** **III** **IV**

Project Name: Los Alamitos
Project Number: 60552172
Laboratory: GCAL
SDG No.: 219091838+219102326 +219102333+21910254 1+219102613+2191027 17+219103085
Test Name: PFAS

Review Document:

__X__ National Functional Guidelines for Organic Data Review
__X__ DOD QSM 5.1, Table B-15
_____ Method 537 Rev. 1.1

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:

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: Equipment blanks, field reagent blanks, and method blanks displayed detections ranging from 1.76 ppt to 10 ppt for PFOS (and other compounds)

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 r2≥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	

Notes: High LCS recoveries - only appropriate to flag positive associated resutls

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	
		<10%	low	high			
	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	
		<20%	low	high			
	Positives	J+	J+	J-			
	Non-detects	X	UJ	None			

Notes: Many EIS recoveries out of QC limits, initial X flagging should be updated because the MS pairs that show similar EIS recoveries are shown to be able to recover the compound (in some cases, greater than the upper QC limit for the native compound)

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? (±30%)	X		
	Action: No action is required based on MS/MSd failure alone. Note in the report and use professional judgement.			

Notes: Several MS/MSD recoveries out of QC limits,

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

Notes: 12 field duplicates x 18 results per sample, only 2 results total out of qc limits

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 ±30% of their true values? If not (J(+)/UJ(-)	X		

Notes:

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:_____120_____			
11.1.2	Number of target compounds in each analysis:_____18_____			
11.1.3	Number of results "X" or "R" flagged results:_____0_____			

LCMS1 Run Log

Analyst:	BMH	Expiration
Batch:	2190920A	Date
Current ICAL Bath:	2190920ACAL	Date
20mM Amm Acetate	010-2-1	9/22/2019
Methanol	2128234	2/29/2024
Calibration Std	008-48-4	3/9/2020
ICV Std	008-47-1	3/1/2020
EIS Mix	008-43-5/008-50-8	2/13/20;1/23/20

Name	Data File	Type	Acq. Date-Time	Comment	Dil.
Blank	2190920A_01.d	Method Blank	9/20/2019 12:16	Instrument Idle/MeOH shot	1
1201	2190920A_02.d	Cal	9/20/2019 12:27		1
1202	2190920A_03.d	Cal	9/20/2019 12:38		1
1203	2190920A_04.d	Cal	9/20/2019 12:49		1
1204	2190920A_05.d	Cal	9/20/2019 13:00		1
1205	2190920A_06.d	Cal	9/20/2019 13:12		1
1206	2190920A_07.d	Cal	9/20/2019 13:23		1
1207	2190920A_08.d	Cal	9/20/2019 13:35		1
Blank	2190920A_09.d	Method Blank	9/20/2019 13:59	Instrument Idle/MeOH shot	1
1600	2190920A_10.d	QC	9/20/2019 14:10		1
1450	2190920A_11.d	QC	9/20/2019 14:21		1
1500	2190920A_12.d	Sample	9/20/2019 14:33		1
Blank	2190920A_13.d	Method Blank	9/20/2019 15:07	Instrument Idle/MeOH shot	1
1961971	2190920A_14.d	Sample	9/20/2019 15:18	668462	1
1961972	2190920A_15.d	QC	9/20/2019 15:29	668462	1
1961973	2190920A_16.d	QC	9/20/2019 15:40	668462 RR	1
21908302701	2190920A_17.d	Sample	9/20/2019 15:52	668462	1
21908302702	2190920A_18.d	Sample	9/20/2019 16:03	668462	1
21908302703	2190920A_19.d	Sample	9/20/2019 16:15	668462	1

21908302704	2190920A_20.d	Sample	9/20/2019 16:26	668462		1
21908302705	2190920A_21.d	Sample	9/20/2019 16:37	668462		1
21908302706	2190920A_22.d	Sample	9/20/2019 16:49	668462		1
21908302707	2190920A_23.d	Sample	9/20/2019 17:00	668462		1
21908302708	2190920A_24.d	Sample	9/20/2019 17:12	668462		1
21908302709	2190920A_25.d	Sample	9/20/2019 17:23	668462		1
21908302710	2190920A_26.d	Sample	9/20/2019 17:34	668462		1
21908302711	2190920A_27.d	Sample	9/20/2019 17:46	668462		1
1961972	2190920A_28.d	QC	9/20/2019 17:57	668462	CONFIRMED 15:29 FAILURES	1
1961973	2190920A_29.d	QC	9/20/2019 18:08	668462		1
1400	2190920A_30.d	QC	9/20/2019 18:20			1
1959721	2190920A_31.d	Sample	9/20/2019 18:31	667036		1
1959722	2190920A_32.d	QC	9/20/2019 18:43	667036		1
1959723	2190920A_33.d	QC	9/20/2019 18:54	667036		1
21908232136	2190920A_34.d	Sample	9/20/2019 19:05	667036		1
21908232137	2190920A_35.d	Sample	9/20/2019 19:17	667036		1
21908232138	2190920A_36.d	Sample	9/20/2019 19:28	667036		1
21908232139	2190920A_37.d	Sample	9/20/2019 19:40	667036		1
21908232140	2190920A_38.d	Sample	9/20/2019 19:51	667036		1
21908232141	2190920A_39.d	Sample	9/20/2019 20:02	667036		1
21908232142	2190920A_40.d	Sample	9/20/2019 20:14	667036		1
21908233901	2190920A_41.d	Sample	9/20/2019 20:25	667036		1
21908233903	2190920A_42.d	Sample	9/20/2019 20:36	667036		1
1400	2190920A_43.d	QC	9/20/2019 20:48			1
21909201106 X200	2190920A_44.d	Sample	9/20/2019 20:59	DIA		1
21909201106 X200	2190920A_45.d	QC	9/20/2019 21:11	DIA		1
21909201106 X200	2190920A_46.d	Sample	9/20/2019 21:22	DIA		1
1963587	2190920A_47.d	Sample	9/20/2019 21:33	667741		1
1963588	2190920A_48.d	QC	9/20/2019 21:45	667741		1
1963589	2190920A_49.d	QC	9/20/2019 21:56	667741		1
21909201101	2190920A_50.d	Sample	9/20/2019 22:07	667741		1
21909201102	2190920A_51.d	Sample	9/20/2019 22:19	667741		1
21909201103	2190920A_52.d	Sample	9/20/2019 22:30	667741		1
21909201105 X10	2190920A_53.d	Sample	9/20/2019 22:42	667741		10

1400	2190920A_54.d	Sample	9/20/2019 22:53		1
1963597	2190920A_55.d	Sample	9/20/2019 23:35	667744	1
1963598	2190920A_56.d	QC	9/20/2019 23:47	667744	1
1963599	2190920A_57.d	QC	9/20/2019 23:58	667744	1
21909201104	2190920A_58.d	Sample	9/21/2019 0:09	667744	1
21909201105 X5	2190920A_59.d	Sample	9/21/2019 0:21	667741	5
1400	2190920A_60.d	QC	9/21/2019 0:32		1

Quantitative Analysis Calibration Report

Batch Data Path	D:\MassHunter\Data\2190920ACAL\QuantResults\2190922A.batch.bin		
Analysis Time	9/24/2019 10:25 AM	**Analyst Name**	GCAL\lcms
Report Time	9/24/2019 10:27 AM	**Reporter Name**	GCAL\lcms
Last Calib Update	9/20/2019 1:58 PM	**Batch State**	Processed

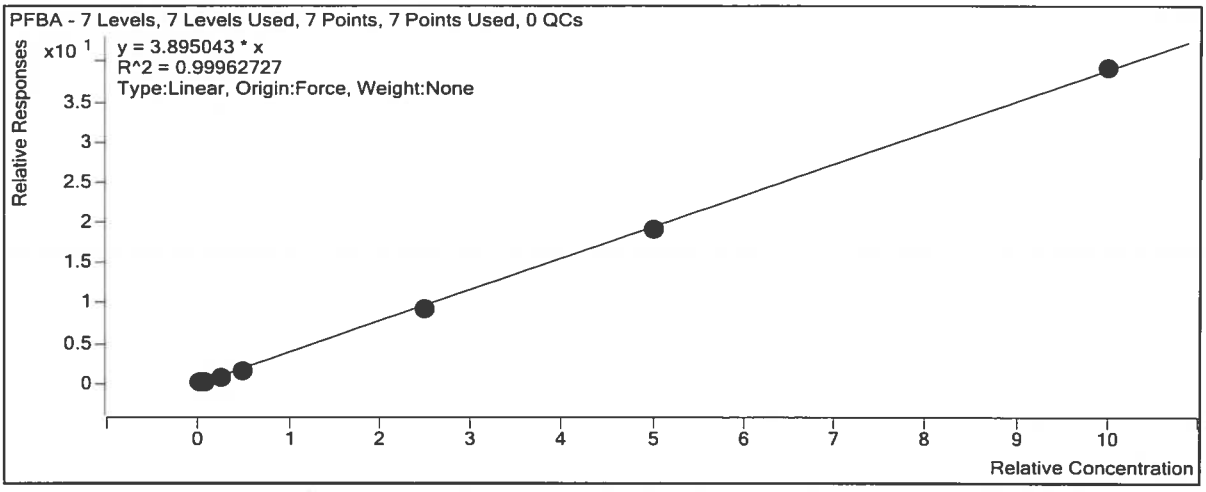
Calibration Info

Extracted ISTD *MPFBA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2190920ACAL\2190920A_02.d	Calibration	1	☑	28756	20.0000	1437.7757
D:\MassHunter\Data\2190920ACAL\2190920A_03.d	Calibration	2	☑	30728	20.0000	1536.4141
D:\MassHunter\Data\2190920ACAL\2190920A_04.d	Calibration	3	☑	27685	20.0000	1384.2356
D:\MassHunter\Data\2190920ACAL\2190920A_05.d	Calibration	4	☑	28098	20.0000	1404.9130
D:\MassHunter\Data\2190920ACAL\2190920A_06.d	Calibration	5	☑	26300	20.0000	1315.0077
D:\MassHunter\Data\2190920ACAL\2190920A_07.d	Calibration	6	☑	25548	20.0000	1277.4197
D:\MassHunter\Data\2190920ACAL\2190920A_08.d	Calibration	7	☑	24798	20.0000	1239.8943

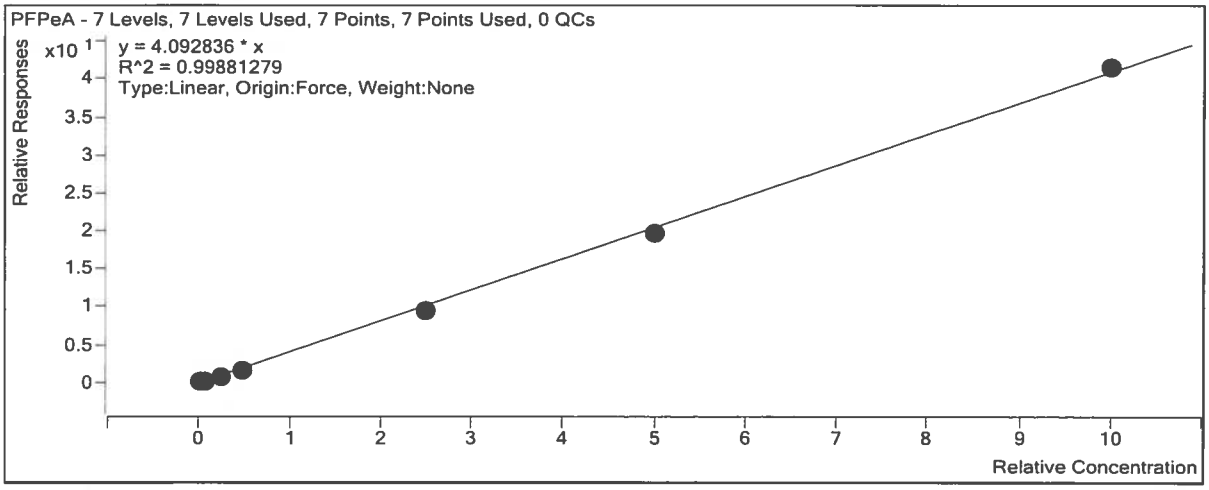
Target Compound *PFBA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2190920ACAL\2190920A_02.d	Calibration	1	☑	2038	0.5000	2.8352
D:\MassHunter\Data\2190920ACAL\2190920A_03.d	Calibration	2	☑	5810	1.2500	3.0252
D:\MassHunter\Data\2190920ACAL\2190920A_04.d	Calibration	3	☑	22183	5.0000	3.2051
D:\MassHunter\Data\2190920ACAL\2190920A_05.d	Calibration	4	☑	46339	10.0000	3.2984
D:\MassHunter\Data\2190920ACAL\2190920A_06.d	Calibration	5	☑	244093	50.0000	3.7124
D:\MassHunter\Data\2190920ACAL\2190920A_07.d	Calibration	6	☑	490532	100.0000	3.8400
D:\MassHunter\Data\2190920ACAL\2190920A_08.d	Calibration	7	☑	972617	200.0000	3.9222



Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2190920ACAL\2190920A_05.d	Calibration	4	☑	45792	10.0000	3.2913
D:\MassHunter\Data\2190920ACAL\2190920A_06.d	Calibration	5	☑	243594	50.0000	3.7933
D:\MassHunter\Data\2190920ACAL\2190920A_07.d	Calibration	6	☑	507230	100.0000	3.9409
D:\MassHunter\Data\2190920ACAL\2190920A_08.d	Calibration	7	☑	1019257	200.0000	4.1522



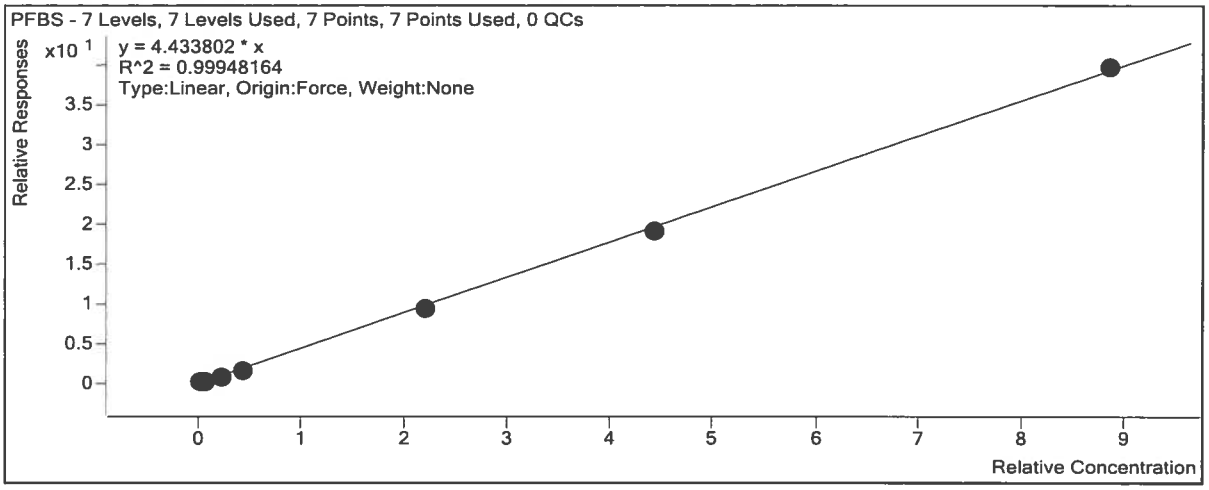
Extracted ISTD *M5PFPeA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2190920ACAL\2190920A_02.d	Calibration	1	☑	27972	20.0000	1398.6246
D:\MassHunter\Data\2190920ACAL\2190920A_03.d	Calibration	2	☑	30128	20.0000	1506.4157
D:\MassHunter\Data\2190920ACAL\2190920A_04.d	Calibration	3	☑	27030	20.0000	1351.4926
D:\MassHunter\Data\2190920ACAL\2190920A_05.d	Calibration	4	☑	27826	20.0000	1391.2973
D:\MassHunter\Data\2190920ACAL\2190920A_06.d	Calibration	5	☑	25686	20.0000	1284.3246
D:\MassHunter\Data\2190920ACAL\2190920A_07.d	Calibration	6	☑	25742	20.0000	1287.1066
D:\MassHunter\Data\2190920ACAL\2190920A_08.d	Calibration	7	☑	24548	20.0000	1227.3829

Target Compound *PFBS*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2190920ACAL\2190920A_02.d	Calibration	1	☑	2850	0.4425	3.3027
D:\MassHunter\Data\2190920ACAL\2190920A_03.d	Calibration	2	☑	8179	1.1100	3.3965
D:\MassHunter\Data\2190920ACAL\2190920A_04.d	Calibration	3	☑	32146	4.4250	3.7074
D:\MassHunter\Data\2190920ACAL\2190920A_05.d	Calibration	4	☑	66927	8.8500	3.8455

D:\MassHunter\Data\2190920ACAL\2190920A_06.d	Calibration	5	☑	348816	44.2500	4.1989
D:\MassHunter\Data\2190920ACAL\2190920A_07.d	Calibration	6	☑	710048	88.5000	4.3376
D:\MassHunter\Data\2190920ACAL\2190920A_08.d	Calibration	7	☑	1429847	177.0000	4.4745



Extracted ISTD *M3PFBS*

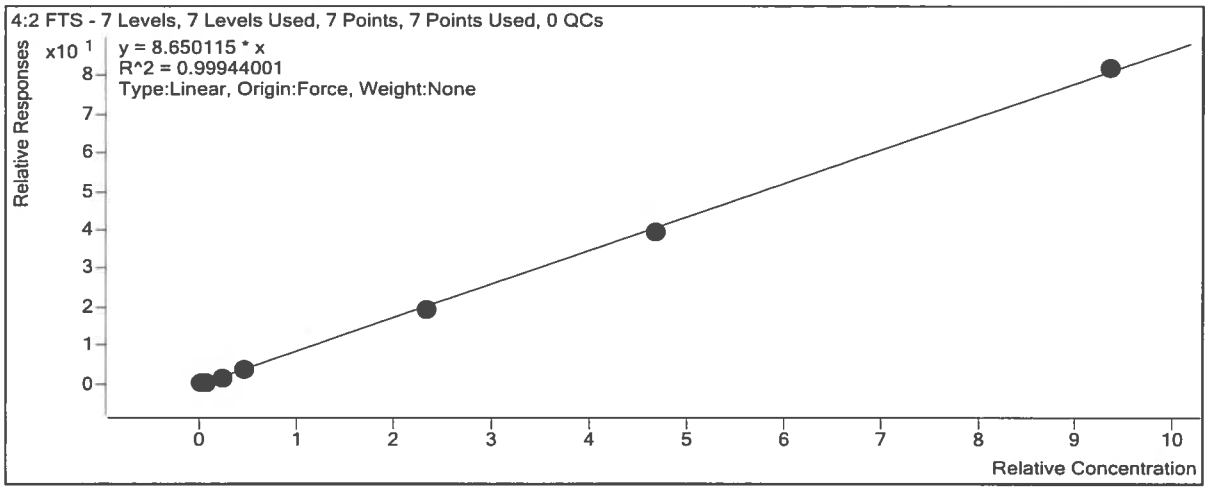
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2190920ACAL\2190920A_02.d	Calibration	1	☑	39007	20.0000	1950.3629
D:\MassHunter\Data\2190920ACAL\2190920A_03.d	Calibration	2	☑	43391	20.0000	2169.5359
D:\MassHunter\Data\2190920ACAL\2190920A_04.d	Calibration	3	☑	39190	20.0000	1959.4764
D:\MassHunter\Data\2190920ACAL\2190920A_05.d	Calibration	4	☑	39332	20.0000	1966.5780
D:\MassHunter\Data\2190920ACAL\2190920A_06.d	Calibration	5	☑	37547	20.0000	1877.3534
D:\MassHunter\Data\2190920ACAL\2190920A_07.d	Calibration	6	☑	36993	20.0000	1849.6687
D:\MassHunter\Data\2190920ACAL\2190920A_08.d	Calibration	7	☑	36108	20.0000	1805.3925

Extracted ISTD *M2 4:2 FTS*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2190920ACAL\2190920A_02.d	Calibration	1	☑	8998	20.0000	449.8966
D:\MassHunter\Data\2190920ACAL\2190920A_03.d	Calibration	2	☑	10498	20.0000	524.8923
D:\MassHunter\Data\2190920ACAL\2190920A_04.d	Calibration	3	☑	9311	20.0000	465.5507
D:\MassHunter\Data\2190920ACAL\2190920A_05.d	Calibration	4	☑	8733	20.0000	436.6597
D:\MassHunter\Data\2190920ACAL\2190920A_06.d	Calibration	5	☑	8738	20.0000	436.9246
D:\MassHunter\Data\2190920ACAL\2190920A_07.d	Calibration	6	☑	8605	20.0000	430.2500
D:\MassHunter\Data\2190920ACAL\2190920A_08.d	Calibration	7	☑	8002	20.0000	400.0873

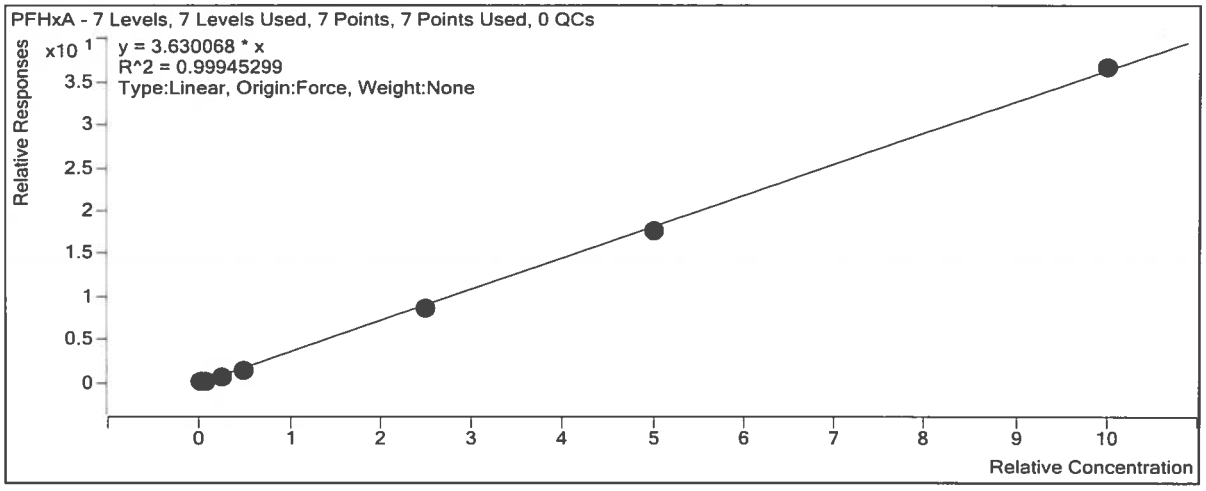
Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2190920ACAL\2190920A_08.d	Calibration	7	☑	653807	187.0000	8.7388

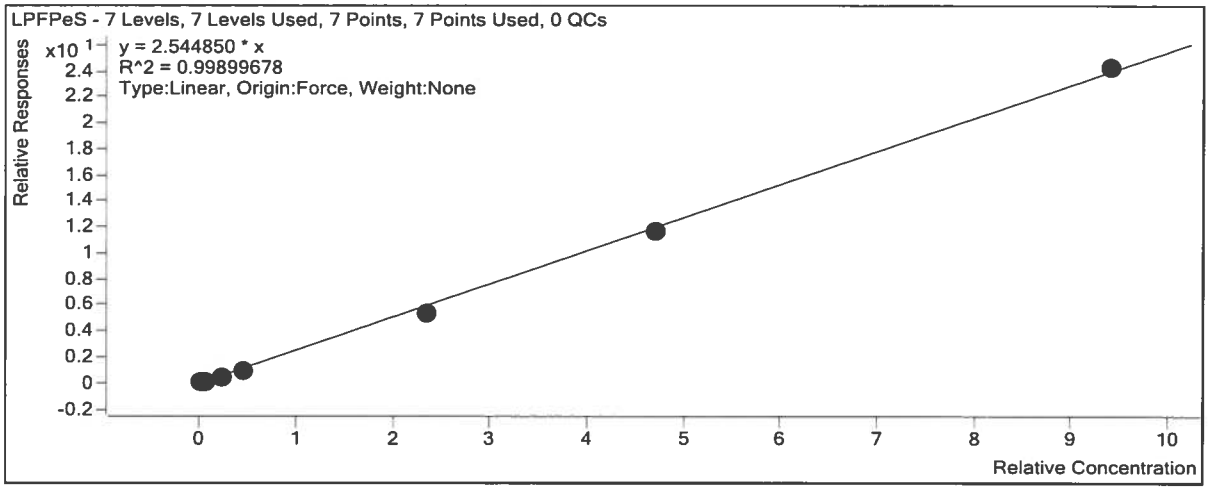


Target Compound *PFHxA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2190920ACAL\2190920A_02.d	Calibration	1	☑	6149	0.5000	3.3979
D:\MassHunter\Data\2190920ACAL\2190920A_03.d	Calibration	2	☑	14893	1.2500	2.8616
D:\MassHunter\Data\2190920ACAL\2190920A_04.d	Calibration	3	☑	57446	5.0000	3.1322
D:\MassHunter\Data\2190920ACAL\2190920A_05.d	Calibration	4	☑	121730	10.0000	3.1804
D:\MassHunter\Data\2190920ACAL\2190920A_06.d	Calibration	5	☑	627814	50.0000	3.4274
D:\MassHunter\Data\2190920ACAL\2190920A_07.d	Calibration	6	☑	1235500	100.0000	3.5482
D:\MassHunter\Data\2190920ACAL\2190920A_08.d	Calibration	7	☑	2456022	200.0000	3.6647



D:\MassHunter\Data\2190920ACAL\2190920A_06.d	Calibration	5	☑	400849	47.0000	2.3280
D:\MassHunter\Data\2190920ACAL\2190920A_07.d	Calibration	6	☑	810734	94.0000	2.4769
D:\MassHunter\Data\2190920ACAL\2190920A_08.d	Calibration	7	☑	1623184	188.0000	2.5766



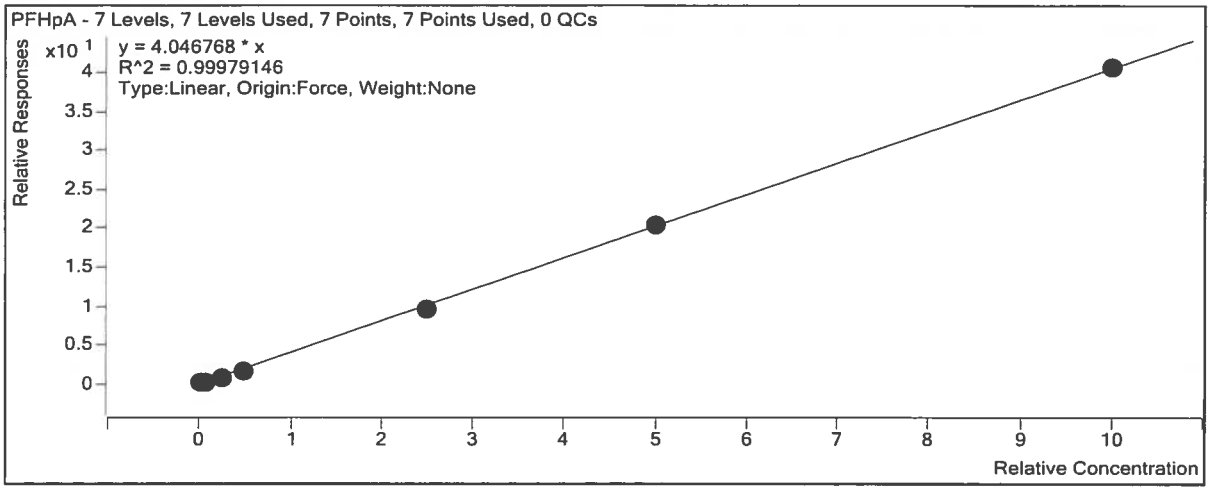
Extracted ISTD *M3HFPODA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2190920ACAL\2190920A_02.d	Calibration	1	☑	2450	20.0000	122.4900
D:\MassHunter\Data\2190920ACAL\2190920A_03.d	Calibration	2	☑	2382	20.0000	119.1021
D:\MassHunter\Data\2190920ACAL\2190920A_04.d	Calibration	3	☑	2552	20.0000	127.6243
D:\MassHunter\Data\2190920ACAL\2190920A_05.d	Calibration	4	☑	2725	20.0000	136.2653
D:\MassHunter\Data\2190920ACAL\2190920A_06.d	Calibration	5	☑	2542	20.0000	127.1106
D:\MassHunter\Data\2190920ACAL\2190920A_07.d	Calibration	6	☑	2441	20.0000	122.0503
D:\MassHunter\Data\2190920ACAL\2190920A_08.d	Calibration	7	☑	2769	20.0000	138.4372

Target Compound *HFPO-DA*

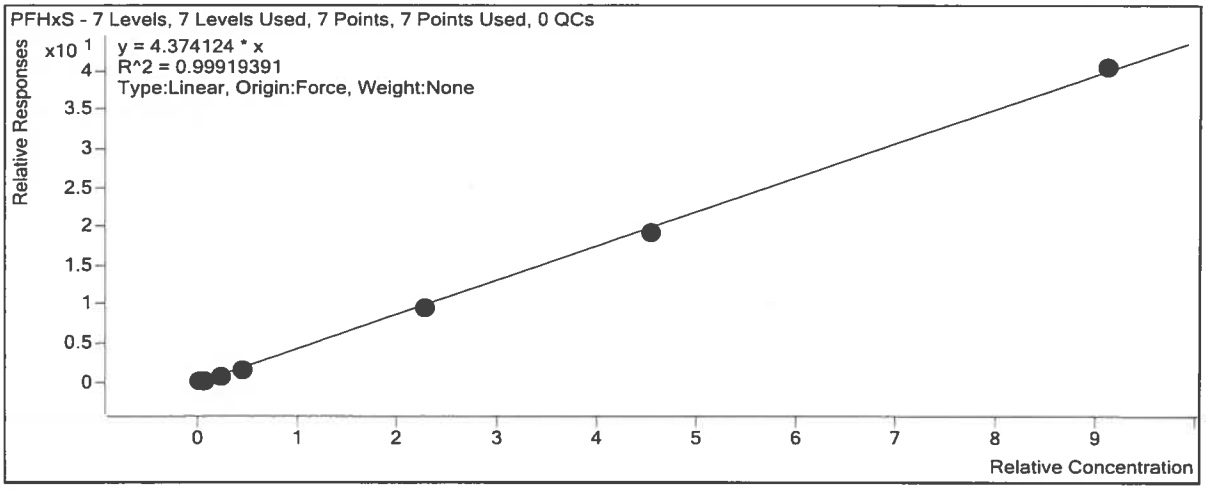
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2190920ACAL\2190920A_02.d	Calibration	1	☑	155	0.5000	2.5293
D:\MassHunter\Data\2190920ACAL\2190920A_03.d	Calibration	2	☑	590	1.2500	3.9637
D:\MassHunter\Data\2190920ACAL\2190920A_04.d	Calibration	3	☑	2412	5.0000	3.7794
D:\MassHunter\Data\2190920ACAL\2190920A_05.d	Calibration	4	☑	5445	10.0000	3.9957
D:\MassHunter\Data\2190920ACAL\2190920A_06.d	Calibration	5	☑	28229	50.0000	4.4417
D:\MassHunter\Data\2190920ACAL\2190920A_07.d	Calibration	6	☑	60348	100.0000	4.9445
D:\MassHunter\Data\2190920ACAL\2190920A_08.d	Calibration	7	☑	123884	200.0000	4.4744

Quantitative Analysis Calibration Report



Target Compound *PFHxS*

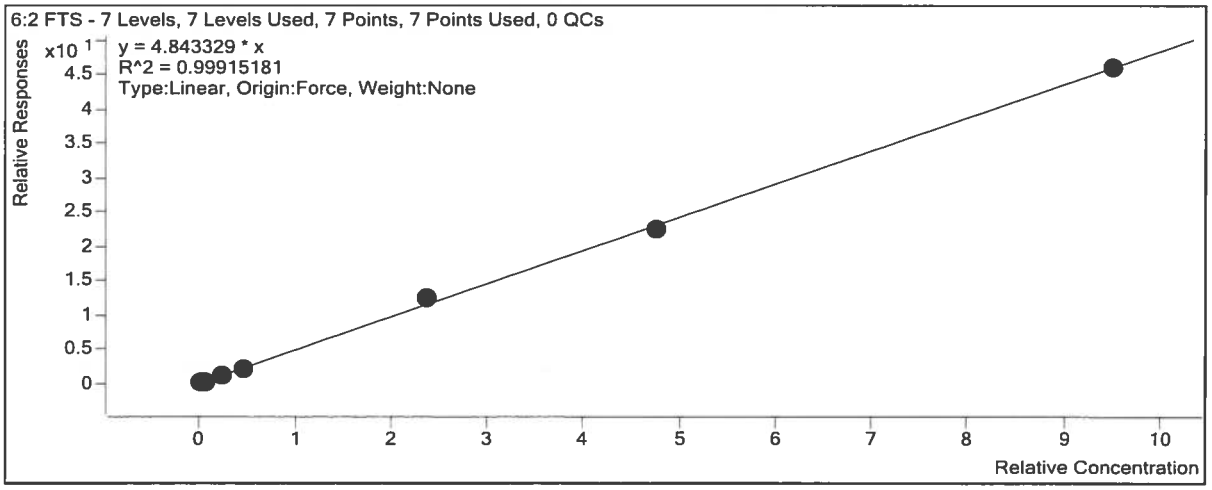
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2190920ACAL\2190920A_02.d	Calibration	1	☑	3254	0.4560	3.2326
D:\MassHunter\Data\2190920ACAL\2190920A_03.d	Calibration	2	☑	9098	1.1400	3.3501
D:\MassHunter\Data\2190920ACAL\2190920A_04.d	Calibration	3	☑	37426	4.5600	3.7500
D:\MassHunter\Data\2190920ACAL\2190920A_05.d	Calibration	4	☑	75151	9.1200	3.6032
D:\MassHunter\Data\2190920ACAL\2190920A_06.d	Calibration	5	☑	394032	45.6000	4.1930
D:\MassHunter\Data\2190920ACAL\2190920A_07.d	Calibration	6	☑	805618	91.2000	4.2139
D:\MassHunter\Data\2190920ACAL\2190920A_08.d	Calibration	7	☑	1609379	182.4000	4.4279



Extracted ISTD *M3PFHxS*

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

Quantitative Analysis Calibration Report



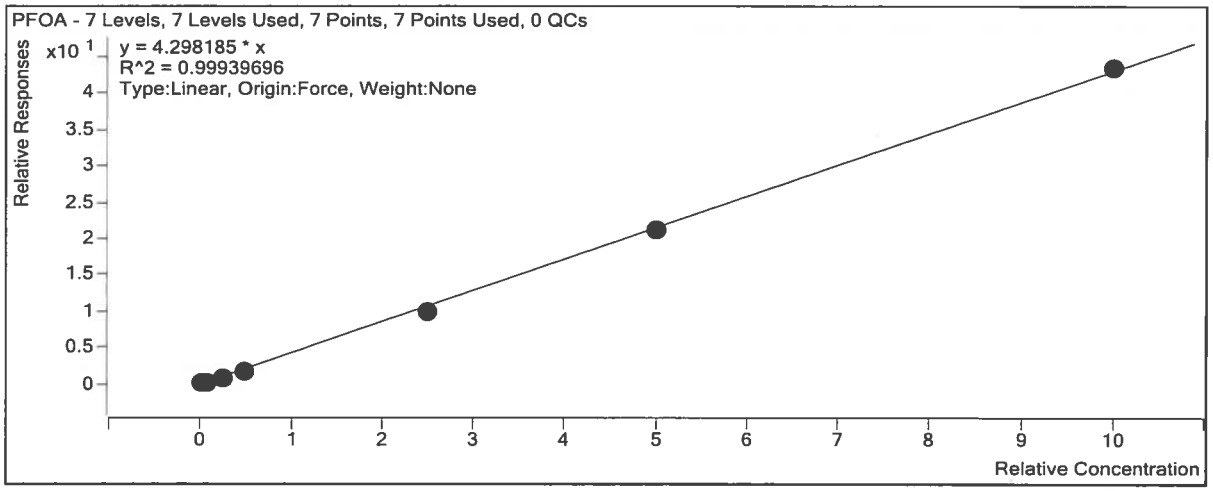
Extracted ISTD *M2 6:2 FTS*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2190920ACAL\2190920A_02.d	Calibration	1	☑	13923	20.0000	696.1746
D:\MassHunter\Data\2190920ACAL\2190920A_03.d	Calibration	2	☑	14224	20.0000	711.2186
D:\MassHunter\Data\2190920ACAL\2190920A_04.d	Calibration	3	☑	12927	20.0000	646.3567
D:\MassHunter\Data\2190920ACAL\2190920A_05.d	Calibration	4	☑	13189	20.0000	659.4688
D:\MassHunter\Data\2190920ACAL\2190920A_06.d	Calibration	5	☑	11636	20.0000	581.8148
D:\MassHunter\Data\2190920ACAL\2190920A_07.d	Calibration	6	☑	12787	20.0000	639.3440
D:\MassHunter\Data\2190920ACAL\2190920A_08.d	Calibration	7	☑	11963	20.0000	598.1477

Instrument ISTD *M2PFOA*

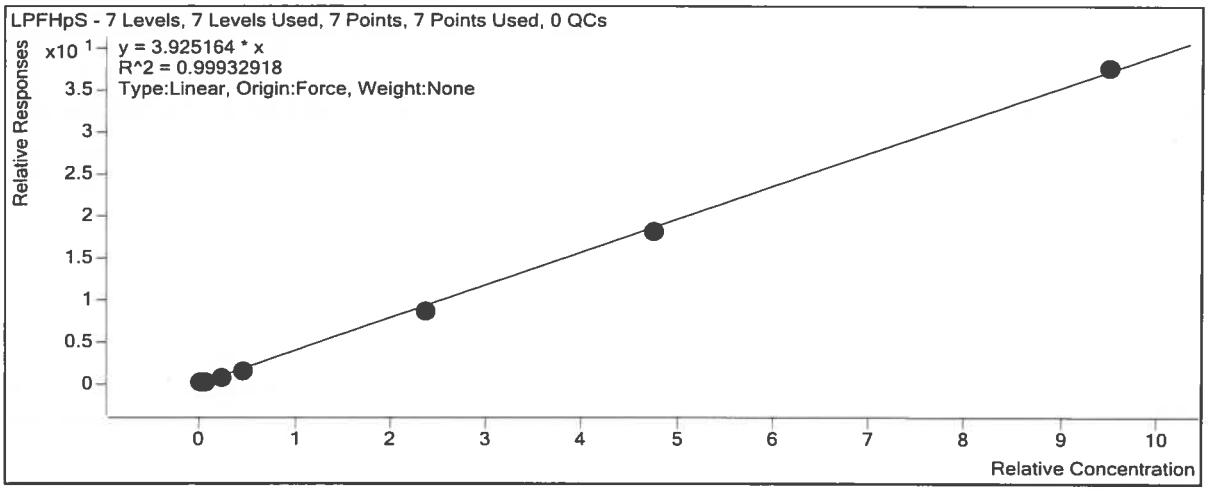
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2190920ACAL\2190920A_02.d	Calibration	1	☑	175407	20.0000	8770.3382
D:\MassHunter\Data\2190920ACAL\2190920A_03.d	Calibration	2	☑	197142	20.0000	9857.1029
D:\MassHunter\Data\2190920ACAL\2190920A_04.d	Calibration	3	☑	188340	20.0000	9416.9805
D:\MassHunter\Data\2190920ACAL\2190920A_05.d	Calibration	4	☑	190997	20.0000	9549.8434
D:\MassHunter\Data\2190920ACAL\2190920A_06.d	Calibration	5	☑	182758	20.0000	9137.9070
D:\MassHunter\Data\2190920ACAL\2190920A_07.d	Calibration	6	☑	186688	20.0000	9334.3976
D:\MassHunter\Data\2190920ACAL\2190920A_08.d	Calibration	7	☑	174829	20.0000	8741.4594

Quantitative Analysis Calibration Report



Target Compound *LPFHpS*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2190920ACAL\2190920A_02.d	Calibration	1	☑	3579	0.4750	2.9503
D:\MassHunter\Data\2190920ACAL\2190920A_03.d	Calibration	2	☑	10081	1.1900	3.0955
D:\MassHunter\Data\2190920ACAL\2190920A_04.d	Calibration	3	☑	40034	4.7500	3.2541
D:\MassHunter\Data\2190920ACAL\2190920A_05.d	Calibration	4	☑	81949	9.5000	3.3328
D:\MassHunter\Data\2190920ACAL\2190920A_06.d	Calibration	5	☑	423028	47.5000	3.6477
D:\MassHunter\Data\2190920ACAL\2190920A_07.d	Calibration	6	☑	847018	95.0000	3.8511
D:\MassHunter\Data\2190920ACAL\2190920A_08.d	Calibration	7	☑	1708430	190.0000	3.9630



Extracted ISTD *M9PFNA*

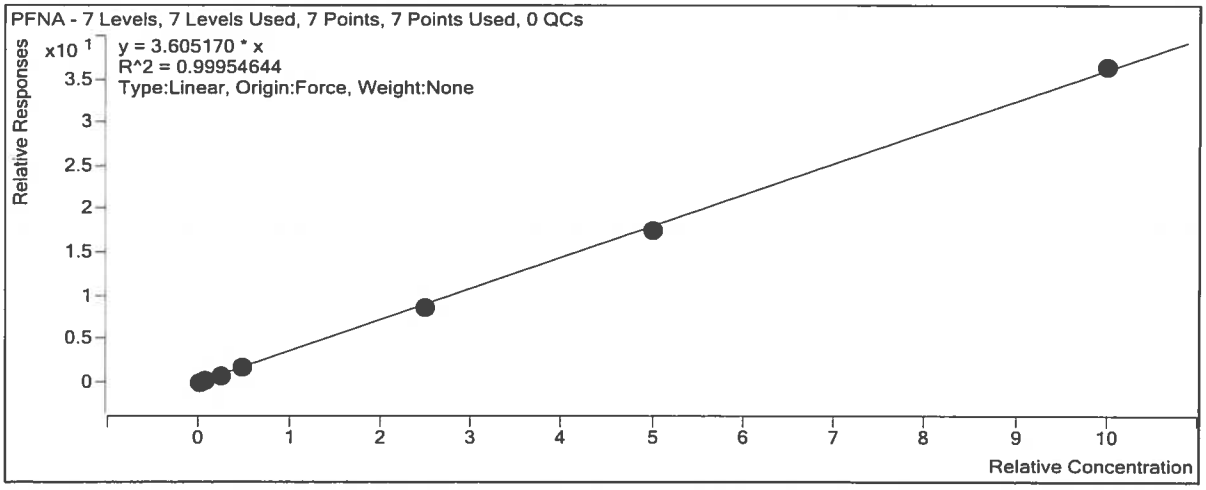
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF

Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2190920ACAL\2190920A_08.d	Calibration	7	☑	55128	20.0000	2756.4056

Target Compound *PFNA*

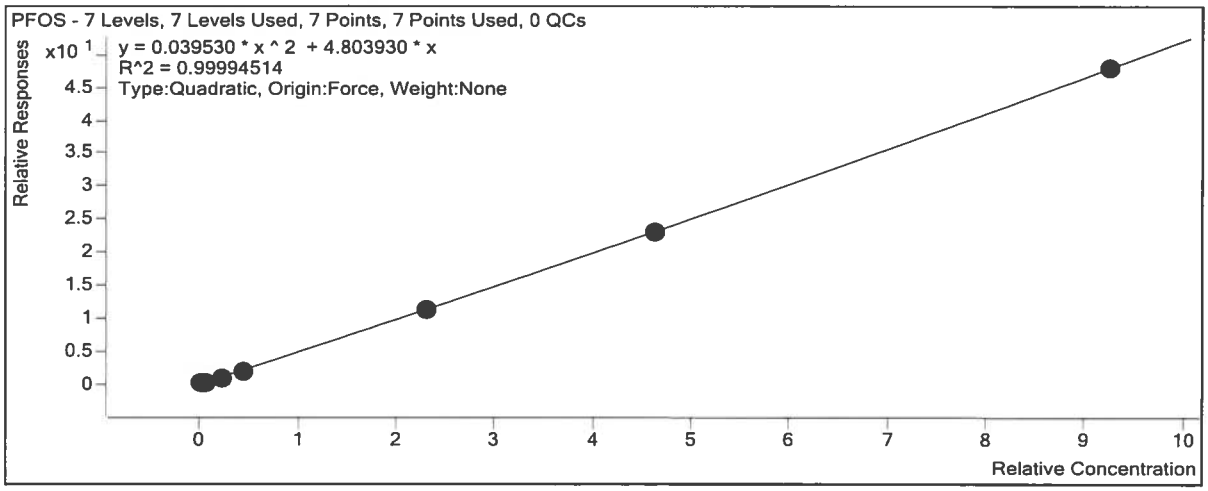
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2190920ACAL\2190920A_02.d	Calibration	1	☑	3943	0.5000	2.5385
D:\MassHunter\Data\2190920ACAL\2190920A_03.d	Calibration	2	☑	11394	1.2500	2.6733
D:\MassHunter\Data\2190920ACAL\2190920A_04.d	Calibration	3	☑	46466	5.0000	3.0244
D:\MassHunter\Data\2190920ACAL\2190920A_05.d	Calibration	4	☑	100893	10.0000	3.2080
D:\MassHunter\Data\2190920ACAL\2190920A_06.d	Calibration	5	☑	513732	50.0000	3.4353
D:\MassHunter\Data\2190920ACAL\2190920A_07.d	Calibration	6	☑	1015526	100.0000	3.5264
D:\MassHunter\Data\2190920ACAL\2190920A_08.d	Calibration	7	☑	2004940	200.0000	3.6369



Target Compound *PFOS*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2190920ACAL\2190920A_02.d	Calibration	1	☑	3815	0.4628	4.1016
D:\MassHunter\Data\2190920ACAL\2190920A_03.d	Calibration	2	☑	9232	1.1600	3.5108
D:\MassHunter\Data\2190920ACAL\2190920A_04.d	Calibration	3	☑	38162	4.6280	4.0146
D:\MassHunter\Data\2190920ACAL\2190920A_05.d	Calibration	4	☑	81148	9.2550	4.4698
D:\MassHunter\Data\2190920ACAL\2190920A_06.d	Calibration	5	☑	415741	46.2800	4.8406
D:\MassHunter\Data\2190920ACAL\2190920A_07.d	Calibration	6	☑	865994	92.5500	5.0184
D:\MassHunter\Data\2190920ACAL\2190920A_08.d	Calibration	7	☑	1699434	185.1000	5.1667

Quantitative Analysis Calibration Report



Extracted ISTD *M8PFOS*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2190920ACAL\2190920A_02.d	Calibration	1	☑	40203	20.0000	2010.1619
D:\MassHunter\Data\2190920ACAL\2190920A_03.d	Calibration	2	☑	45337	20.0000	2266.8508
D:\MassHunter\Data\2190920ACAL\2190920A_04.d	Calibration	3	☑	41080	20.0000	2054.0007
D:\MassHunter\Data\2190920ACAL\2190920A_05.d	Calibration	4	☑	39232	20.0000	1961.5971
D:\MassHunter\Data\2190920ACAL\2190920A_06.d	Calibration	5	☑	37116	20.0000	1855.7874
D:\MassHunter\Data\2190920ACAL\2190920A_07.d	Calibration	6	☑	37291	20.0000	1864.5354
D:\MassHunter\Data\2190920ACAL\2190920A_08.d	Calibration	7	☑	35539	20.0000	1776.9739

Instrument ISTD *M4PFOS*

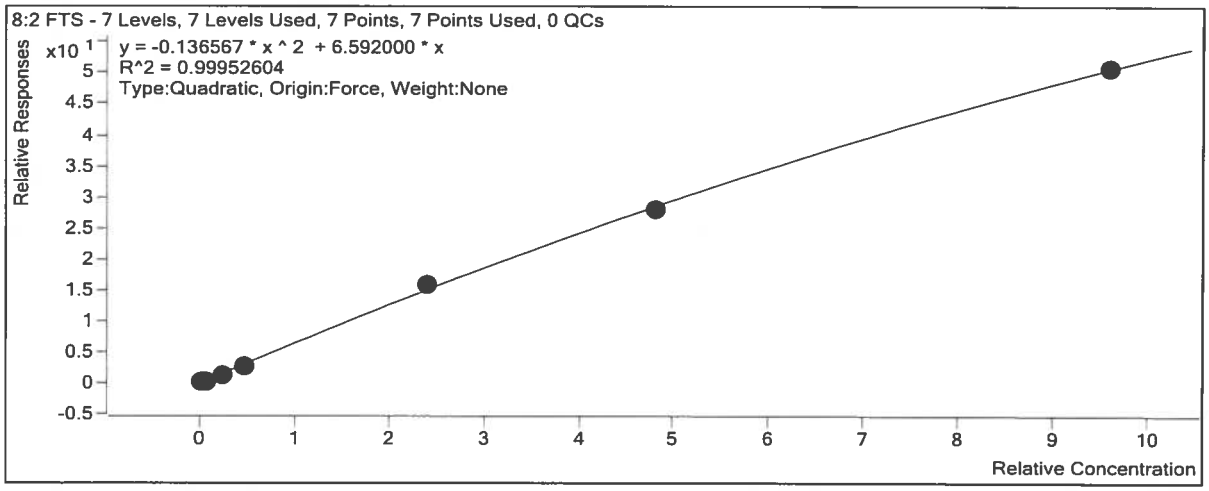
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2190920ACAL\2190920A_02.d	Calibration	1	☑	159628	20.0000	7981.4048
D:\MassHunter\Data\2190920ACAL\2190920A_03.d	Calibration	2	☑	184266	20.0000	9213.3197
D:\MassHunter\Data\2190920ACAL\2190920A_04.d	Calibration	3	☑	175251	20.0000	8762.5667
D:\MassHunter\Data\2190920ACAL\2190920A_05.d	Calibration	4	☑	169094	20.0000	8454.7003
D:\MassHunter\Data\2190920ACAL\2190920A_06.d	Calibration	5	☑	169591	20.0000	8479.5428
D:\MassHunter\Data\2190920ACAL\2190920A_07.d	Calibration	6	☑	172168	20.0000	8608.3925
D:\MassHunter\Data\2190920ACAL\2190920A_08.d	Calibration	7	☑	163503	20.0000	8175.1384

Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2190920ACAL\2190920A_08.d	Calibration	7	☑	12452	20.0000	622.6217

Target Compound *8:2 FTS*

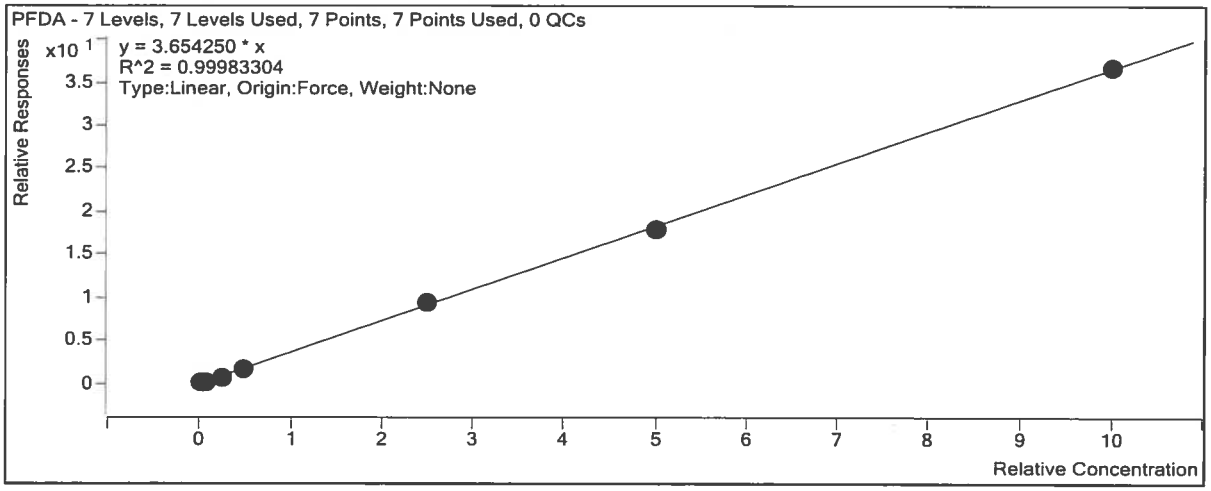
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2190920ACAL\2190920A_02.d	Calibration	1	☑	1676	0.4800	5.3379
D:\MassHunter\Data\2190920ACAL\2190920A_03.d	Calibration	2	☑	5052	1.2000	5.9448
D:\MassHunter\Data\2190920ACAL\2190920A_04.d	Calibration	3	☑	16485	4.8000	5.4173
D:\MassHunter\Data\2190920ACAL\2190920A_05.d	Calibration	4	☑	34816	9.6000	6.0448
D:\MassHunter\Data\2190920ACAL\2190920A_06.d	Calibration	5	☑	174110	48.0000	6.5963
D:\MassHunter\Data\2190920ACAL\2190920A_07.d	Calibration	6	☑	341216	96.0000	5.8269
D:\MassHunter\Data\2190920ACAL\2190920A_08.d	Calibration	7	☑	632330	192.0000	5.2895



Extracted ISTD *M6PFDA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2190920ACAL\2190920A_02.d	Calibration	1	☑	59443	20.0000	2972.1385
D:\MassHunter\Data\2190920ACAL\2190920A_03.d	Calibration	2	☑	66425	20.0000	3321.2455
D:\MassHunter\Data\2190920ACAL\2190920A_04.d	Calibration	3	☑	60396	20.0000	3019.7836
D:\MassHunter\Data\2190920ACAL\2190920A_05.d	Calibration	4	☑	61242	20.0000	3062.1088
D:\MassHunter\Data\2190920ACAL\2190920A_06.d	Calibration	5	☑	54302	20.0000	2715.0900
D:\MassHunter\Data\2190920ACAL\2190920A_07.d	Calibration	6	☑	56414	20.0000	2820.7169
D:\MassHunter\Data\2190920ACAL\2190920A_08.d	Calibration	7	☑	53709	20.0000	2685.4391

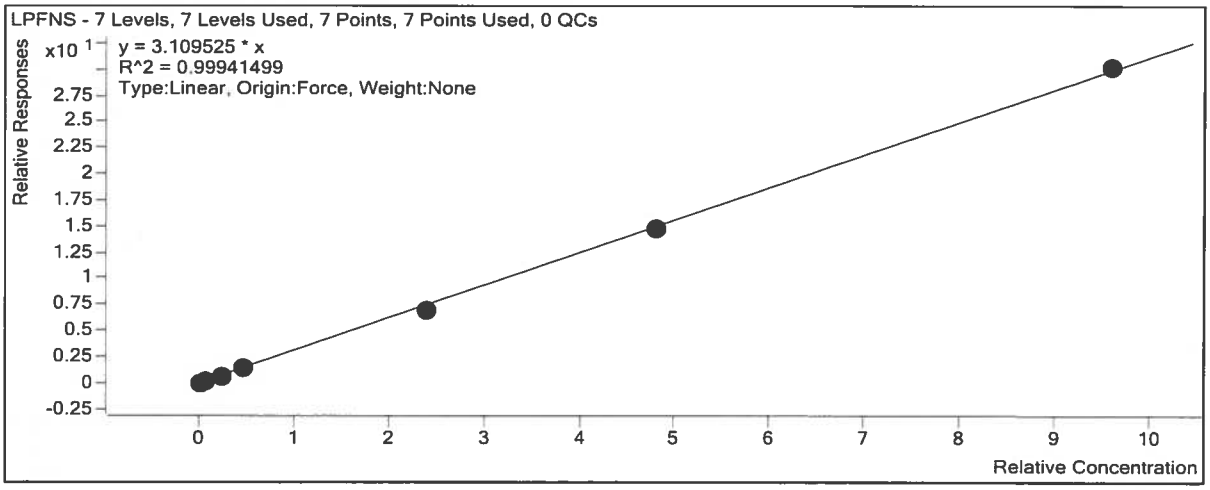
Quantitative Analysis Calibration Report



Quantitative Analysis Calibration Report

Target Compound *LPFNS*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2190920ACAL\2190920A_02.d	Calibration	1	☑	3109	0.4800	2.0853
D:\MassHunter\Data\2190920ACAL\2190920A_03.d	Calibration	2	☑	10099	1.2000	2.4683
D:\MassHunter\Data\2190920ACAL\2190920A_04.d	Calibration	3	☑	39052	4.8000	2.6478
D:\MassHunter\Data\2190920ACAL\2190920A_05.d	Calibration	4	☑	84371	9.6000	2.7944
D:\MassHunter\Data\2190920ACAL\2190920A_06.d	Calibration	5	☑	413308	48.0000	2.8789
D:\MassHunter\Data\2190920ACAL\2190920A_07.d	Calibration	6	☑	848343	96.0000	3.0686
D:\MassHunter\Data\2190920ACAL\2190920A_08.d	Calibration	7	☑	1659279	192.0000	3.1353



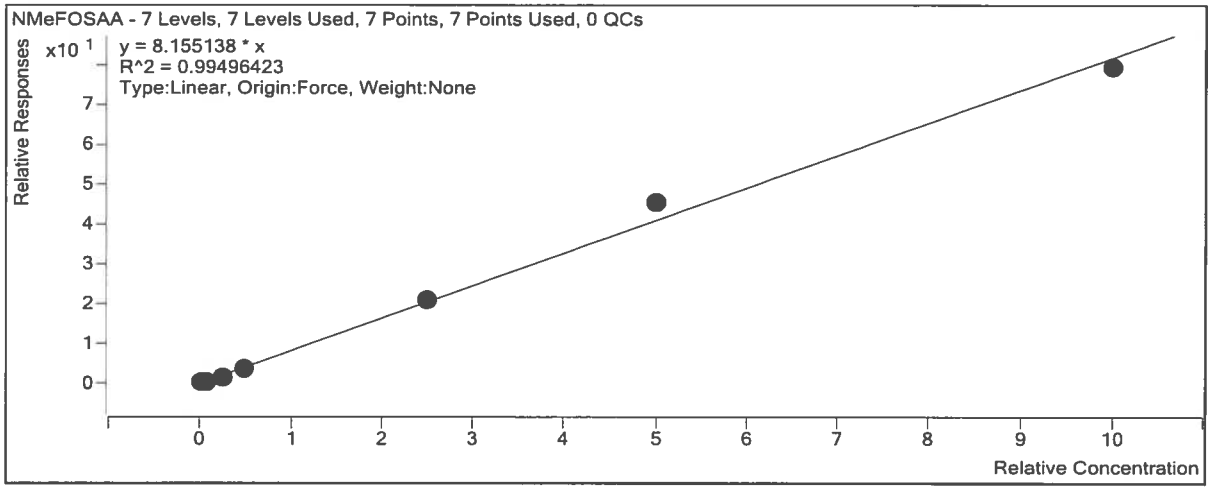
Extracted ISTD *d3-NMeFOSAA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2190920ACAL\2190920A_02.d	Calibration	1	☑	7386	20.0000	369.3145
D:\MassHunter\Data\2190920ACAL\2190920A_03.d	Calibration	2	☑	7873	20.0000	393.6308
D:\MassHunter\Data\2190920ACAL\2190920A_04.d	Calibration	3	☑	7923	20.0000	396.1742
D:\MassHunter\Data\2190920ACAL\2190920A_05.d	Calibration	4	☑	8407	20.0000	420.3394
D:\MassHunter\Data\2190920ACAL\2190920A_06.d	Calibration	5	☑	7564	20.0000	378.1981
D:\MassHunter\Data\2190920ACAL\2190920A_07.d	Calibration	6	☑	7349	20.0000	367.4276
D:\MassHunter\Data\2190920ACAL\2190920A_08.d	Calibration	7	☑	8549	20.0000	427.4666

Target Compound *NMeFOSAA*

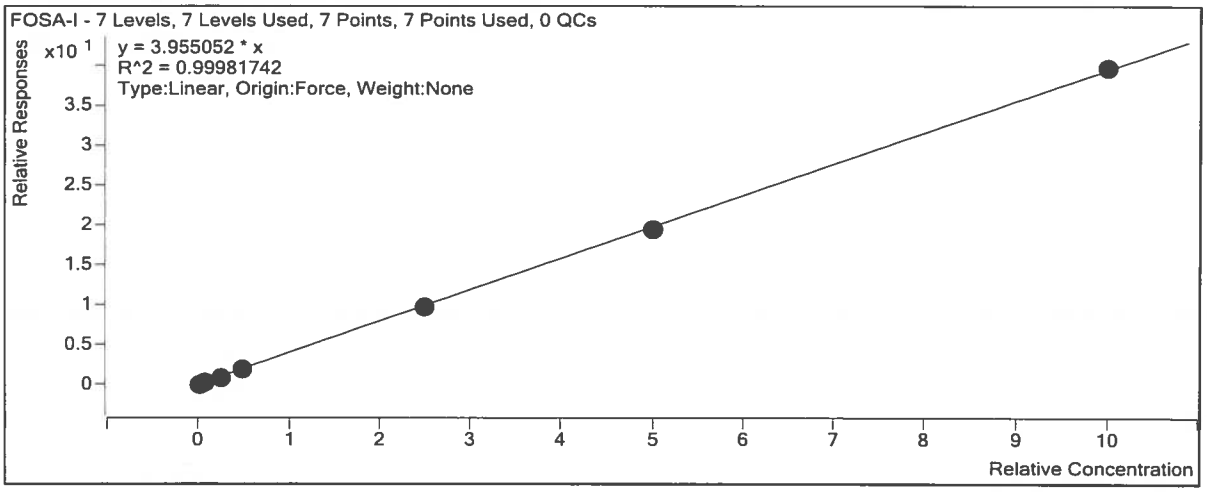
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF

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



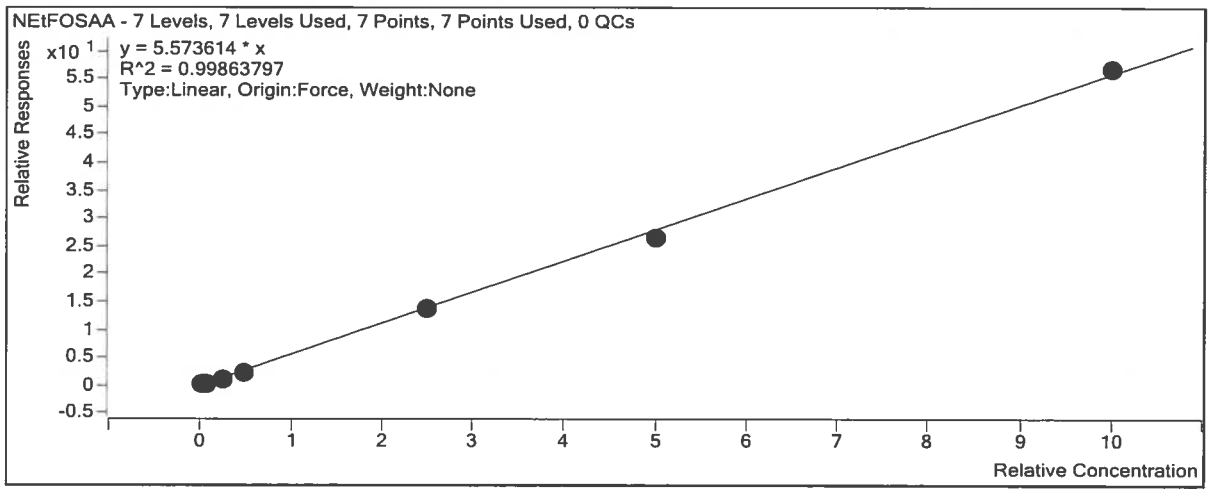
Target Compound *FOSA-I*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2190920ACAL\2190920A_02.d	Calibration	1	☑	4375	0.5000	2.7218
D:\MassHunter\Data\2190920ACAL\2190920A_03.d	Calibration	2	☑	13656	1.2500	3.0375
D:\MassHunter\Data\2190920ACAL\2190920A_04.d	Calibration	3	☑	54240	5.0000	3.2671
D:\MassHunter\Data\2190920ACAL\2190920A_05.d	Calibration	4	☑	118798	10.0000	3.5946
D:\MassHunter\Data\2190920ACAL\2190920A_06.d	Calibration	5	☑	595961	50.0000	3.8422
D:\MassHunter\Data\2190920ACAL\2190920A_07.d	Calibration	6	☑	1249325	100.0000	3.9082
D:\MassHunter\Data\2190920ACAL\2190920A_08.d	Calibration	7	☑	2519214	200.0000	3.9752



Extracted ISTD *M8FOSA*

Quantitative Analysis Calibration Report



Extracted ISTD *M7PFUdA*

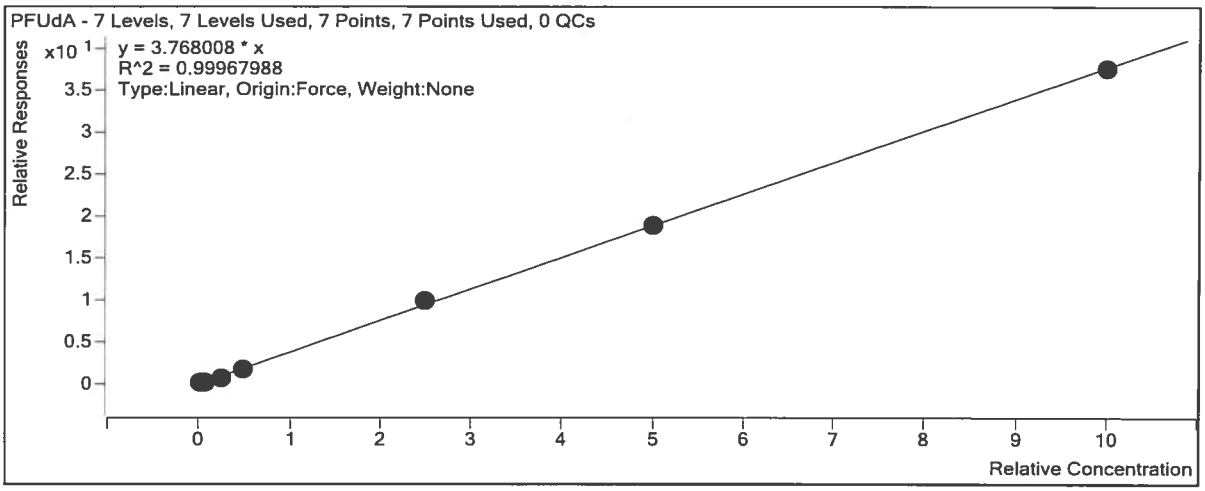
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2190920ACAL\2190920A_02.d	Calibration	1	☑	47093	20.0000	2354.6519

Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2190920ACAL\2190920A_03.d	Calibration	2	☑	56308	20.0000	2815.4004
D:\MassHunter\Data\2190920ACAL\2190920A_04.d	Calibration	3	☑	48379	20.0000	2418.9725
D:\MassHunter\Data\2190920ACAL\2190920A_05.d	Calibration	4	☑	50608	20.0000	2530.4159
D:\MassHunter\Data\2190920ACAL\2190920A_06.d	Calibration	5	☑	44014	20.0000	2200.7213
D:\MassHunter\Data\2190920ACAL\2190920A_07.d	Calibration	6	☑	46283	20.0000	2314.1316
D:\MassHunter\Data\2190920ACAL\2190920A_08.d	Calibration	7	☑	43411	20.0000	2170.5287

Target Compound *PFUdA*

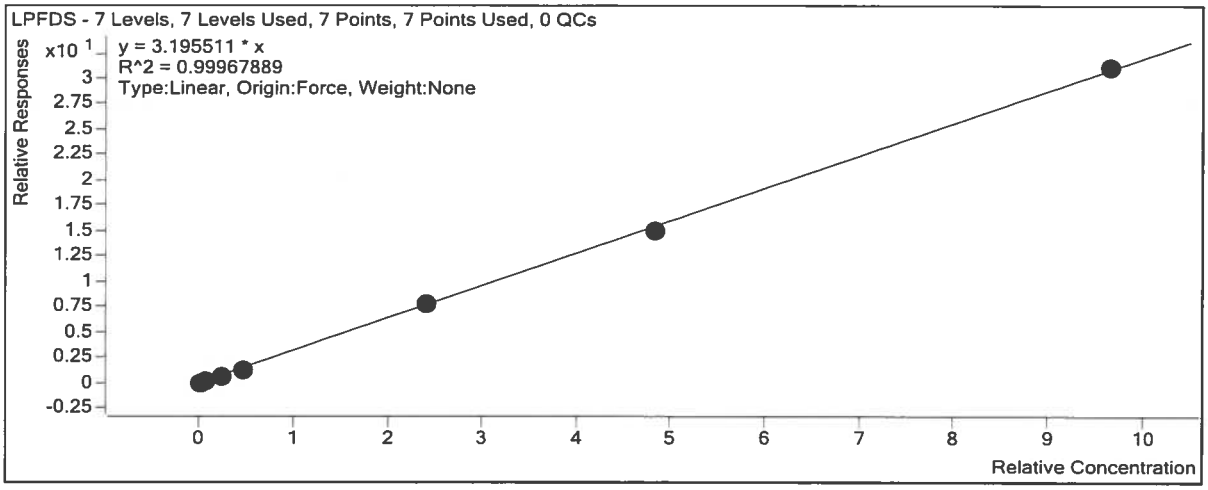
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2190920ACAL\2190920A_02.d	Calibration	1	☑	3808	0.5000	3.2347
D:\MassHunter\Data\2190920ACAL\2190920A_03.d	Calibration	2	☑	9715	1.2500	2.7605
D:\MassHunter\Data\2190920ACAL\2190920A_04.d	Calibration	3	☑	40001	5.0000	3.3073
D:\MassHunter\Data\2190920ACAL\2190920A_05.d	Calibration	4	☑	86184	10.0000	3.4059
D:\MassHunter\Data\2190920ACAL\2190920A_06.d	Calibration	5	☑	439132	50.0000	3.9908
D:\MassHunter\Data\2190920ACAL\2190920A_07.d	Calibration	6	☑	872838	100.0000	3.7718
D:\MassHunter\Data\2190920ACAL\2190920A_08.d	Calibration	7	☑	1629797	200.0000	3.7544



Target Compound *LPFDS*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2190920ACAL\2190920A_02.d	Calibration	1	☑	3097	0.4825	2.1594
D:\MassHunter\Data\2190920ACAL\2190920A_03.d	Calibration	2	☑	10058	1.2100	2.5028

D:\MassHunter\Data\2190920ACAL\2190920A_04.d	Calibration	3	☑	40207	4.8250	2.7595
D:\MassHunter\Data\2190920ACAL\2190920A_05.d	Calibration	4	☑	80679	9.6500	2.7303
D:\MassHunter\Data\2190920ACAL\2190920A_06.d	Calibration	5	☑	420550	48.2500	3.2102
D:\MassHunter\Data\2190920ACAL\2190920A_07.d	Calibration	6	☑	847776	96.5000	3.1145
D:\MassHunter\Data\2190920ACAL\2190920A_08.d	Calibration	7	☑	1666977	193.0000	3.2163



Target Compound *11Cl-PF3OUdS*

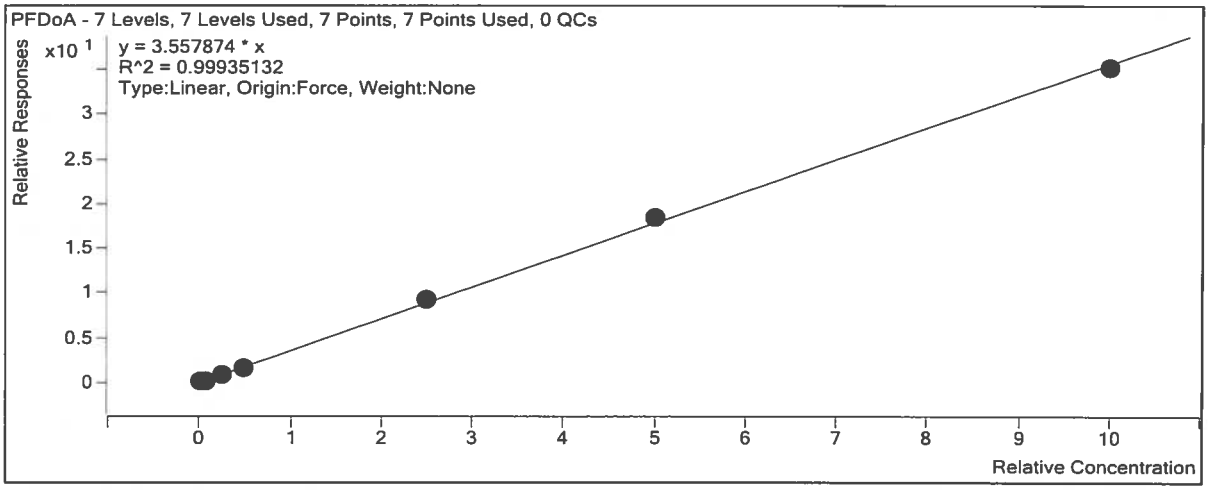
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2190920ACAL\2190920A_02.d	Calibration	1	☑	6485	0.5000	6.4518
D:\MassHunter\Data\2190920ACAL\2190920A_03.d	Calibration	2	☑	17729	1.2500	6.2569
D:\MassHunter\Data\2190920ACAL\2190920A_04.d	Calibration	3	☑	74561	5.0000	7.2601
D:\MassHunter\Data\2190920ACAL\2190920A_05.d	Calibration	4	☑	154369	10.0000	7.8696
D:\MassHunter\Data\2190920ACAL\2190920A_06.d	Calibration	5	☑	797152	50.0000	8.5910
D:\MassHunter\Data\2190920ACAL\2190920A_07.d	Calibration	6	☑	1655565	100.0000	8.8792
D:\MassHunter\Data\2190920ACAL\2190920A_08.d	Calibration	7	☑	3348915	200.0000	9.4231

Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2190920ACAL\2190920A_08.d	Calibration	7	☑	34626	20.0000	1731.2975

Target Compound *PFDoA*

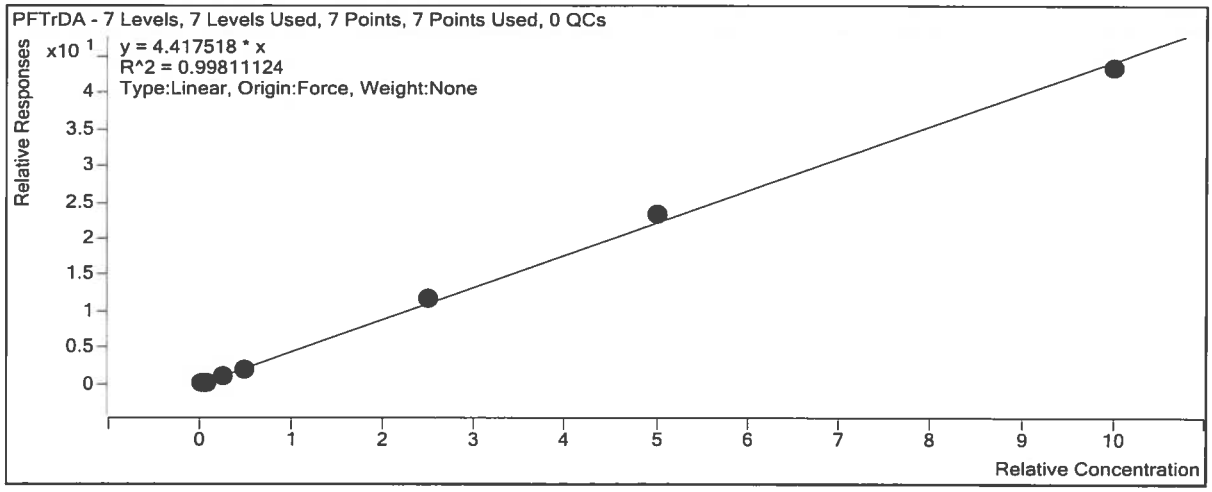
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2190920ACAL\2190920A_02.d	Calibration	1	☑	2534	0.5000	2.8140
D:\MassHunter\Data\2190920ACAL\2190920A_03.d	Calibration	2	☑	7077	1.2500	3.4088
D:\MassHunter\Data\2190920ACAL\2190920A_04.d	Calibration	3	☑	27339	5.0000	3.3355
D:\MassHunter\Data\2190920ACAL\2190920A_05.d	Calibration	4	☑	58708	10.0000	3.2578
D:\MassHunter\Data\2190920ACAL\2190920A_06.d	Calibration	5	☑	318606	50.0000	3.7205
D:\MassHunter\Data\2190920ACAL\2190920A_07.d	Calibration	6	☑	645573	100.0000	3.6748
D:\MassHunter\Data\2190920ACAL\2190920A_08.d	Calibration	7	☑	1218613	200.0000	3.5194



Target Compound *PFTrDA*

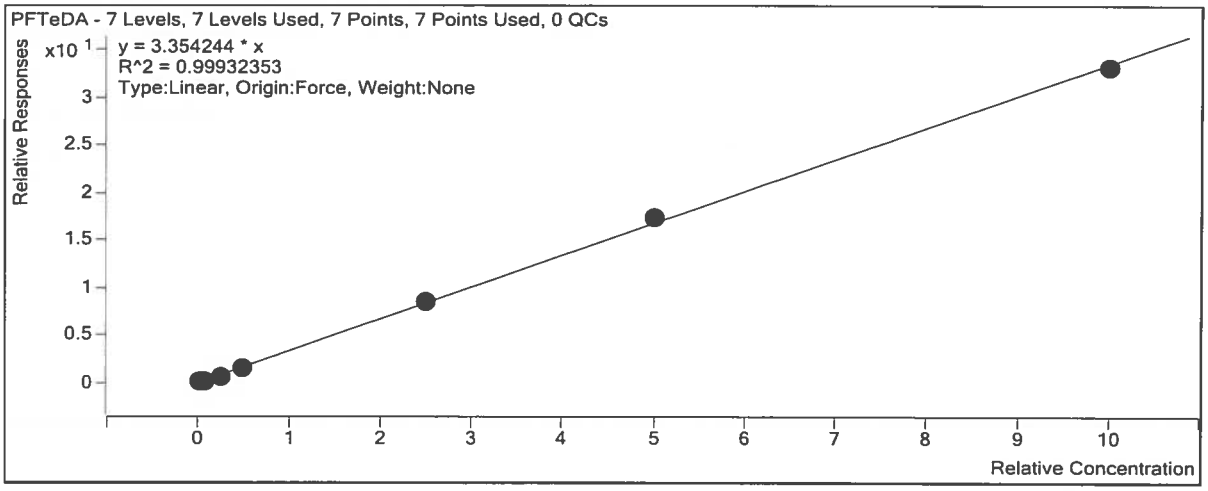
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2190920ACAL\2190920A_02.d	Calibration	1	☑	2370	0.5000	3.5808
D:\MassHunter\Data\2190920ACAL\2190920A_03.d	Calibration	2	☑	6812	1.2500	3.7596
D:\MassHunter\Data\2190920ACAL\2190920A_04.d	Calibration	3	☑	27108	5.0000	4.1608
D:\MassHunter\Data\2190920ACAL\2190920A_05.d	Calibration	4	☑	57896	10.0000	4.2385
D:\MassHunter\Data\2190920ACAL\2190920A_06.d	Calibration	5	☑	300415	50.0000	4.7097
D:\MassHunter\Data\2190920ACAL\2190920A_07.d	Calibration	6	☑	612375	100.0000	4.6844
D:\MassHunter\Data\2190920ACAL\2190920A_08.d	Calibration	7	☑	1206468	200.0000	4.3332

Quantitative Analysis Calibration Report



Target Compound *PFTeDA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2190920ACAL\2190920A_02.d	Calibration	1	☑	1760	0.5000	2.6586
D:\MassHunter\Data\2190920ACAL\2190920A_03.d	Calibration	2	☑	4861	1.2500	2.6832
D:\MassHunter\Data\2190920ACAL\2190920A_04.d	Calibration	3	☑	19551	5.0000	3.0010
D:\MassHunter\Data\2190920ACAL\2190920A_05.d	Calibration	4	☑	41725	10.0000	3.0546
D:\MassHunter\Data\2190920ACAL\2190920A_06.d	Calibration	5	☑	221119	50.0000	3.4665
D:\MassHunter\Data\2190920ACAL\2190920A_07.d	Calibration	6	☑	454709	100.0000	3.4783
D:\MassHunter\Data\2190920ACAL\2190920A_08.d	Calibration	7	☑	923596	200.0000	3.3172



Extracted ISTD *M2PFTeDA*

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

7S

ORGANICS INSTRUMENT SENSITIVITY CHECK

Report No:	219091838	Instrument ID:	QQQ1
Analysis Date:	09/20/2019 14:21	Lab File ID:	2190920A_11.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	667826

ANALYTE	*UNITS*	*TRUE*	*FOUND*	*% REC*	*LCL*	*UCL*	*Q*
6:2 Fluorotelomer sulfonate	ng/L	7.93	7.53	95	70	130	
8:2 Fluorotelomer sulfonate	ng/L	8.00	6.17	77	70	130	
NEtFOSAA	ng/L	8.33	6.57	79	70	130	
NMeFOSAA	ng/L	8.33	8.07	96	70	130	
Perfluorobutanoic acid	ng/L	8.33	6.59	79	70	130	
Perfluorobutanesulfonic acid	ng/L	7.40	5.77	78	70	130	
Perfluorodecanoic acid	ng/L	8.33	7.07	84	70	130	
Perfluorododecanoic acid	ng/L	8.33	6.87	83	70	130	
Perfluoroheptanoic acid	ng/L	8.33	5.99	72	70	130	
Perfluorohexanoic acid	ng/L	8.33	6.93	83	70	130	
Perfluorohexanesulfonic acid	ng/L	7.60	5.95	78	70	130	
Perfluorononanoic acid	ng/L	8.33	6.47	78	70	130	
Perfluorooctanoic acid	ng/L	8.33	6.73	81	70	130	
Perfluorooctane Sulfonate	ng/L	7.73	6.23	81	70	130	
Perfluoropentanoic acid	ng/L	8.33	6.50	78	70	130	
Perfluorotetradecanoic acid	ng/L	8.33	6.87	82	70	130	
Perfluorotridecanoic acid	ng/L	8.33	6.87	82	70	130	
Perfluoroundecanoic acid	ng/L	8.33	7.00	84	70	130	

4I

ORGANICS INSTRUMENT BLANK

Report No:	219091838	Instrument ID:	QQQ1
Analysis Date:	09/20/2019 14:33	Lab File ID:	2190920A_12.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	667826

ANALYTE	*UNITS*	*RESULT*	*Q*	*DL*	*LOD*	*LOQ*	*#*
6:2 Fluorotelomer sulfonate	ng/L	4.00	U	1.79	4.00	10.0	
8:2 Fluorotelomer sulfonate	ng/L	4.00	U	1.63	4.00	10.0	
NEtFOSAA	ng/L	8.00	U	5.38	8.00	10.0	
NMeFOSAA	ng/L	8.00	U	4.60	8.00	10.0	
Perfluorobutanesulfonic acid	ng/L	4.00	U	1.47	4.00	10.0	
Perfluorobutanoic acid	ng/L	4.00	U	2.13	4.00	10.0	
Perfluorodecanoic acid	ng/L	4.00	U	1.65	4.00	10.0	
Perfluorododecanoic acid	ng/L	4.00	U	2.45	4.00	10.0	
Perfluoroheptanoic acid	ng/L	4.00	U	1.85	4.00	10.0	
Perfluorohexanesulfonic acid	ng/L	4.00	U	1.64	4.00	10.0	
Perfluorohexanoic acid	ng/L	4.00	U	1.94	4.00	10.0	
Perfluorononanoic acid	ng/L	4.00	U	1.68	4.00	10.0	
Perfluorooctane Sulfonate	ng/L	4.00	U	1.70	4.00	10.0	
Perfluorooctanoic acid	ng/L	4.00	U	1.80	4.00	10.0	
Perfluoropentanoic acid	ng/L	4.00	U	2.35	4.00	10.0	
Perfluorotetradecanoic acid	ng/L	4.00	U	2.76	4.00	10.0	
Perfluorotridecanoic acid	ng/L	4.00	U	2.56	4.00	10.0	
Perfluoroundecanoic acid	ng/L	4.00	U	1.86	4.00	10.0	

* - Result greater than 1/2 LOQ

FORM 4I - ORG

LCMS1 Run Log

Analyst:	BMH	Expiration
Batch:	2190922A	Date
Current ICAL Bath:	2190920ACAL	Date
20mM Amm Acetate	010-2-3	9/24/2019
Methanol	2128234	2/29/2024
Calibration Std	008-48-4	3/9/2020
ICV Std	008-47-1	3/1/2020
EIS Mix	008-43-5/008-50-8	2/13/20;1/23/20

Name	Data File	Type	Acq. Date-Time	Comment	Dil.
MeOH Shot	2190922A_01.d	MeOH Shot	9/22/2019 16:25	Instrument Idle/MeOH shot	1
1450	2190922A_02.d	QC	9/22/2019 16:35		1
1500	2190922A_03.d	Sample	9/22/2019 16:47		1
1961975	2190922A_04.d	Sample	9/22/2019 16:58	667463	1
1961976	2190922A_05.d	QC	9/22/2019 17:09	667463	1
1961977	2190922A_06.d	QC	9/22/2019 17:20	667463	1
21909040905	2190922A_07.d	Sample	9/22/2019 17:32	667463	1
21909040901	2190922A_08.d	Sample	9/22/2019 17:43	667463	1
21909040902	2190922A_09.d	Sample	9/22/2019 17:55	667463	1
21909040903	2190922A_10.d	Sample	9/22/2019 18:06	667463	1
21909040904	2190922A_11.d	Sample	9/22/2019 18:17	667463	1
21909040906	2190922A_12.d	Sample	9/22/2019 18:29	667463	1
21909040907	2190922A_13.d	Sample	9/22/2019 18:40	667463	1
21909040908	2190922A_14.d	Sample	9/22/2019 18:52	667463	1
21909040909	2190922A_15.d	QC	9/22/2019 19:03	667463	1
21909040910	2190922A_16.d	QC	9/22/2019 19:14	667463	1
1400	2190922A_17.d	QC	9/22/2019 19:26		1
21909040911	2190922A_18.d	Sample	9/22/2019 19:39	667463	1
21909040912	2190922A_19.d	Sample	9/22/2019 19:50	667463	1
21909040913	2190922A_20.d	Sample	9/22/2019 20:01	667463	1
21909040914	2190922A_21.d	Sample	9/22/2019 20:13	667463	1

21909201106 Ext	2190922A_22.d	Sample	9/22/2019 20:24	667744	10
1400	2190922A_23.d	QC	9/22/2019 20:36		1
MeOH Shot	2190922A_24.d	MeOH Shot	9/22/2019 21:12	Instrument Idle/MeOH shot	1
1961980	2190922A_25.d	Sample	9/22/2019 21:23	667464	1
1961981	2190922A_26.d	QC	9/22/2019 21:34	667464	1
1961982	2190922A_27.d	QC	9/22/2019 21:45	667464	1
21909040601	2190922A_28.d	Sample	9/22/2019 21:57	667464	1
21909040602	2190922A_29.d	Sample	9/22/2019 22:08	667464	1
21909040603	2190922A_30.d	Sample	9/22/2019 22:19	667464	1
21909171001	2190922A_31.d	Sample	9/22/2019 22:31	667464	1
21909171002	2190922A_32.d	Sample	9/22/2019 22:42	667464	1
21909171101	2190922A_33.d	Sample	9/22/2019 22:53	667464	1
21909171102	2190922A_34.d	Sample	9/22/2019 23:05	667464	1
21909183201	2190922A_35.d	Sample	9/22/2019 23:16	667464	1
21909183301	2190922A_36.d	Sample	9/22/2019 23:28	667464	1
21909183302	2190922A_37.d	Sample	9/22/2019 23:39	667464	1
1400	2190922A_38.d	QC	9/22/2019 23:50		1
21909183305	2190922A_39.d	Sample	9/23/2019 0:02	667464	1
21909183802	2190922A_40.d	QC	9/23/2019 0:13	667464	1
21909183303	2190922A_41.d	Sample	9/23/2019 0:24	667464	1
21909183304	2190922A_42.d	QC	9/23/2019 0:36	667464	1
21909183801	2190922A_43.d	Sample	9/23/2019 0:47	667464	1
MeOH Shot	2190922A_44.d	MeOH Shot	9/23/2019 0:59	Instrument Idle/MeOH shot	1
1963361	2190922A_45.d	Sample	9/23/2019 1:09	667689	1
1963362	2190922A_46.d	QC	9/23/2019 1:21	667689	1
1963363	2190922A_47.d	QC	9/23/2019 1:32	667689	1
21909102106	2190922A_48.d	Sample	9/23/2019 1:43	667689	1
21909102103	2190922A_49.d	Sample	9/23/2019 1:55	667689	1
21909102104	2190922A_50.d	Sample	9/23/2019 2:06	667689	1
1400	2190922A_51.d	QC	9/23/2019 2:18		1
1956810	2190922A_52.d	Sample	9/23/2019 2:29	666445	1
1956811	2190922A_53.d	QC	9/23/2019 2:40	666445	1
1956812	2190922A_54.d	QC	9/23/2019 2:52	666445	1
21908293101	2190922A_55.d	Sample	9/23/2019 3:03	666445	1

21908293102	2190922A_56.d	Sample	9/23/2019 3:15	666445	1
21908293103	2190922A_57.d	Sample	9/23/2019 3:26	666445	1
21908293104	2190922A_58.d	Sample	9/23/2019 3:37	666445	1
21908293109	2190922A_59.d	Sample	9/23/2019 3:49	666445	5
21908293110	2190922A_60.d	Sample	9/23/2019 4:00	666445	5
21908293111	2190922A_61.d	Sample	9/23/2019 4:12	666445	5
21908293112	2190922A_62.d	Sample	9/23/2019 4:23	666445	5
1400	2190922A_63.d	QC	9/23/2019 4:35		1
1956813	2190922A_64.d	Sample	9/23/2019 4:46	666446	1
1956814	2190922A_65.d	QC	9/23/2019 4:57	666446	1
1956815	2190922A_66.d	QC	9/23/2019 5:09	666446	1
21908293113	2190922A_67.d	Sample	9/23/2019 5:20	666446	1
21908293114	2190922A_68.d	Sample	9/23/2019 5:31	666446	1
21908293115 X5	2190922A_69.d	Sample	9/23/2019 5:43	666446	5
21908293115	2190922A_70.d	Sample	9/23/2019 5:54	666446	1
21908293116	2190922A_71.d	Sample	9/23/2019 6:06	666446	1
21908293105	2190922A_72.d	Sample	9/23/2019 6:17	666446	1
21908293106	2190922A_73.d	Sample	9/23/2019 6:28	666446	1
21908293107	2190922A_74.d	Sample	9/23/2019 6:40	666446	1
21908293108	2190922A_75.d	Sample	9/23/2019 6:51	666446	1
1400	2190922A_76.d	QC	9/23/2019 7:02		1
1959970	2190922A_77.d	Sample	9/23/2019 7:14	667092 DIA	1
1959971	2190922A_78.d	QC	9/23/2019 7:25	667092 DIA	1
1959972	2190922A_79.d	QC	9/23/2019 7:36	667092 DIA	1
21909101701 X1000	2190922A_80.d	Sample	9/23/2019 7:48	667092 DIA	1
21909101701 X500	2190922A_81.d	Sample	9/23/2019 7:59	667092 DIA	1
21909101702 X1000	2190922A_82.d	QC	9/23/2019 8:11	667092 DIA	1
21909101702 X500	2190922A_83.d	QC	9/23/2019 8:22	667092 DIA	1
21909101703 X1000	2190922A_84.d	Sample	9/23/2019 8:34	667092 DIA	1
21909101703 X500	2190922A_85.d	Sample	9/23/2019 8:45	667092 DIA	1
1400	2190922A_86.d	QC	9/23/2019 8:56		1
1959967	2190922A_87.d	Sample	9/23/2019 9:07	667091	1
1959968	2190922A_88.d	QC	9/23/2019 9:19	667091	1
1959969	2190922A_89.d	QC	9/23/2019 9:30	667091	1

21909106901	2190922A_90.d	Sample	9/23/2019 9:41	667091	1
21909106902	2190922A_91.d	Sample	9/23/2019 9:53	667091	1
21909106903	2190922A_92.d	Sample	9/23/2019 10:04	667091	1
21909106904	2190922A_93.d	Sample	9/23/2019 10:15	667091	1
21909106905	2190922A_94.d	Sample	9/23/2019 10:27	667091	1
1500 TEST	2190922A_95.d	Sample	9/23/2019 10:39	EIS TEST	1
21909106906	2190922A_96.d	Sample	9/23/2019 10:51	667091	1
21909106907	2190922A_97.d	Sample	9/23/2019 11:02	667091	1
21909106908	2190922A_98.d	Sample	9/23/2019 11:13	667091	1
21909106909	2190922A_99.d	Sample	9/23/2019 11:25	667091	1
21909106910	2190922A_100.d	Sample	9/23/2019 11:36	667091	1
1400	2190922A_101.d	QC	9/23/2019 11:47		1
21909106911	2190922A_102.d	Sample	9/23/2019 11:59	667091	1
21909106912	2190922A_103.d	Sample	9/23/2019 12:10	667091	1
21909106913	2190922A_104.d	Sample	9/23/2019 12:22	667091	1
21909106914	2190922A_105.d	QC	9/23/2019 12:33	667091	1
21909106915	2190922A_106.d	QC	9/23/2019 12:44	667091	1
21909106916	2190922A_107.d	Sample	9/23/2019 12:55	667091	1
21909106917	2190922A_108.d	Sample	9/23/2019 13:07	667091	1
1400	2190922A_109.d	QC	9/23/2019 13:18		1
21909141301	2190922A_110.d	Sample	9/23/2019 13:34	666446	1
21909141302	2190922A_111.d	QC	9/23/2019 13:46	666446	1
21909141303	2190922A_112.d	QC	9/23/2019 13:57	666446	1
21909141304	2190922A_113.d	Sample	9/23/2019 14:08	666446	1
21909141305	2190922A_114.d	Sample	9/23/2019 14:20	667330	1
21909141306	2190922A_115.d	Sample	9/23/2019 14:31	667330	1
21909141307	2190922A_116.d	Sample	9/23/2019 14:43	667330	1
MB MDL	2190922A_117.d	Sample	9/23/2019 14:54	667330	1
MDL 1	2190922A_118.d	Sample	9/23/2019 15:05	667330	1
MDL 2	2190922A_119.d	Sample	9/23/2019 15:17	667330	1
MDL 3	2190922A_120.d	Sample	9/23/2019 15:28	667330	1
MDL 4	2190922A_121.d	Sample	9/23/2019 15:39	667330	1
1400	2190922A_122.d	QC	9/23/2019 15:51		1

7S

ORGANICS INSTRUMENT SENSITIVITY CHECK

Report No:	219091838	Instrument ID:	QQQ1
Analysis Date:	09/22/2019 16:35	Lab File ID:	2190922A_02.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	667837

ANALYTE	*UNITS*	*TRUE*	*FOUND*	*% REC*	*LCL*	*UCL*	*Q*
6:2 Fluorotelomer sulfonate	ng/L	7.93	9.80	124	70	130	
8:2 Fluorotelomer sulfonate	ng/L	8.00	7.67	96	70	130	
NEtFOSAA	ng/L	8.33	5.92	71	70	130	
NMeFOSAA	ng/L	8.33	8.40	101	70	130	
Perfluorobutanoic acid	ng/L	8.33	6.51	78	70	130	
Perfluorobutanesulfonic acid	ng/L	7.40	6.15	83	70	130	
Perfluorodecanoic acid	ng/L	8.33	6.93	84	70	130	
Perfluorododecanoic acid	ng/L	8.33	7.27	87	70	130	
Perfluoroheptanoic acid	ng/L	8.33	6.80	81	70	130	
Perfluorohexanoic acid	ng/L	8.33	7.73	93	70	130	
Perfluorohexanesulfonic acid	ng/L	7.60	6.38	84	70	130	
Perfluorononanoic acid	ng/L	8.33	7.33	88	70	130	
Perfluorooctanoic acid	ng/L	8.33	6.67	80	70	130	
Perfluorooctane Sulfonate	ng/L	7.73	6.73	87	70	130	
Perfluoropentanoic acid	ng/L	8.33	6.80	82	70	130	
Perfluorotetradecanoic acid	ng/L	8.33	6.80	81	70	130	
Perfluorotridecanoic acid	ng/L	8.33	6.35	76	70	130	
Perfluoroundecanoic acid	ng/L	8.33	6.80	82	70	130	

7E

ORGANICS CALIBRATION VERIFICATION

Report No:	219091838	Instrument ID:	QQQ1
Analysis Date:	09/22/2019 23:50	Lab File ID:	2190922A_38.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	667837

ANALYTE	*UNITS*	*TRUE*	*FOUND*	*% REC*	*LCL*	*UCL*	*Q*
6:2 Fluorotelomer sulfonate	ng/L	47500	46900	99	70	130	
8:2 Fluorotelomer sulfonate	ng/L	48000	49500	103	70	130	
NEtFOSAA	ng/L	50000	50400	101	70	130	
NMeFOSAA	ng/L	50000	54300	109	70	130	
Perfluorobutanoic acid	ng/L	50000	48100	96	70	130	
Perfluorobutanesulfonic acid	ng/L	44300	42500	96	70	130	
Perfluorodecanoic acid	ng/L	50000	49600	99	70	130	
Perfluorododecanoic acid	ng/L	50000	49700	99	70	130	
Perfluoroheptanoic acid	ng/L	50000	48800	98	70	130	
Perfluorohexanoic acid	ng/L	50000	47900	96	70	130	
Perfluorohexanesulfonic acid	ng/L	45600	42400	93	70	130	
Perfluorononanoic acid	ng/L	50000	49300	99	70	130	
Perfluorooctanoic acid	ng/L	50000	48000	96	70	130	
Perfluorooctane Sulfonate	ng/L	46300	47100	102	70	130	
Perfluoropentanoic acid	ng/L	50000	47400	95	70	130	
Perfluorotetradecanoic acid	ng/L	50000	51200	102	70	130	
Perfluorotridecanoic acid	ng/L	50000	53400	107	70	130	
Perfluoroundecanoic acid	ng/L	50000	48300	97	70	130	

7E

ORGANICS CALIBRATION VERIFICATION

Report No:	219091838	Instrument ID:	QQQ1
Analysis Date:	09/23/2019 02:18	Lab File ID:	2190922A_51.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	667837

ANALYTE	*UNITS*	*TRUE*	*FOUND*	*% REC*	*LCL*	*UCL*	*Q*
6:2 Fluorotelomer sulfonate	ng/L	47500	49300	104	70	130	
8:2 Fluorotelomer sulfonate	ng/L	48000	47600	99	70	130	
NEtFOSAA	ng/L	50000	52100	104	70	130	
NMeFOSAA	ng/L	50000	56500	113	70	130	
Perfluorobutanoic acid	ng/L	50000	48400	97	70	130	
Perfluorobutanesulfonic acid	ng/L	44300	42800	97	70	130	
Perfluorodecanoic acid	ng/L	50000	48300	97	70	130	
Perfluorododecanoic acid	ng/L	50000	51100	102	70	130	
Perfluoroheptanoic acid	ng/L	50000	47700	95	70	130	
Perfluorohexanoic acid	ng/L	50000	49300	99	70	130	
Perfluorohexanesulfonic acid	ng/L	45600	43300	95	70	130	
Perfluorononanoic acid	ng/L	50000	50100	100	70	130	
Perfluorooctanoic acid	ng/L	50000	46900	94	70	130	
Perfluorooctane Sulfonate	ng/L	46300	45600	99	70	130	
Perfluoropentanoic acid	ng/L	50000	46700	93	70	130	
Perfluorotetradecanoic acid	ng/L	50000	49600	99	70	130	
Perfluorotridecanoic acid	ng/L	50000	53500	107	70	130	
Perfluoroundecanoic acid	ng/L	50000	47500	95	70	130	

FORM 7E - ORG

8I

INJECTION INTERNAL STANDARD AREA SUMMARY

Report No:	219091838	Standard ID:	1450 (ISC)
Analyst:	BMH	Instrument ID:	QQQ1
Analysis Date:	09/22/19 16:35	Lab File ID:	2190922A_02.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	667837

	M2PFDA	M2PFHxA	M2PFOA	M4PFOS
	Area	*Area*	*Area*	*Area*
STANDARD	273295	508513	194845	162748

CLIENT SAMPLE ID	*GCAL SAMP ID*		#		#		#		#
MB1961980	1961980	394859		731166		285715		255799	*
LCS1961981	1961981	416262	*	729217		284353		256255	*
LCSD1961982	1961982	400886		729154		287117		261406	*
JFTBLA-Decon-091719	21909183801	214877		457324		195960		185925	
JFTBLA-DW-FieldBlank-091719	21909183802	233553		546829		214488		202998	

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

*used for monitoring only

FORM 8I - ORG

LCMS1 Run Log

Analyst:	BMH	Expiration
Batch:	2191025A	Date
Current ICAL Bath:	2191025ACAL/2191025ACALDW	Date
20mM Amm Acetate	010-9-5	10/26/2019
Methanol	2128420	7/31/2024
Calibration Std	010-9-3	4/23/2020
ICV Std	010-6-5	4/9/2020
EIS Mix	010-9-2	4/22/2020

Name	Data File	Type	Level	Acq. Date-Time	Comment	Dil.
MeOH Shot	2191025A_01.d	MeOH Shot		10/25/2019 8:57	Instrument Idle/MeOH shot	1
1201	2191025A_02.d	Cal	1	10/25/2019 9:08		1
1202	2191025A_03.d	Cal	2	10/25/2019 9:19		1
1203	2191025A_04.d	Cal	3	10/25/2019 9:31		1
1204	2191025A_05.d	Cal	4	10/25/2019 9:42		1
1205	2191025A_06.d	Cal	5	10/25/2019 9:53		1
1206	2191025A_07.d	Cal	6	10/25/2019 10:04	Accuracy Fail Remake cal std	1
1207	2191025A_08.d	Cal	7	10/25/2019 10:16		1
1600	2191025A_09.d	QC	5	10/25/2019 10:27	RR after cal curve completed	1
1450	2191025A_10.d	QC	2	10/25/2019 10:38	RR after cal curve completed	1
1500	2191025A_11.d	Sample		10/25/2019 10:50	RR after cal curve completed	1
MeOH Shot	2191025A_12.d	MeOH Shot		10/25/2019 11:27	Instrument Idle/MeOH shot	1
1206	2191025A_13.d	Cal	6	10/25/2019 11:37		1
MeOH Shot	2191025A_14.d	MeOH Shot		10/25/2019 12:01	Instrument Idle/MeOH shot	1
1600	2191025A_15.d	QC	5	10/25/2019 12:12		1
1450	2191025A_16.d	QC	2	10/25/2019 12:23		1
1500	2191025A_17.d	Sample		10/25/2019 12:34		1
MeOH Shot	2191025A_18.d	MeOH Shot		10/25/2019 12:46	Instrument Idle/MeOH shot	1
MeOH Shot	2191025A_19.d	MeOH Shot		10/25/2019 12:56	Instrument Idle/MeOH shot	1
MeOH Shot	2191025A_20.d	MeOH Shot		10/25/2019 15:33	Instrument Idle/MeOH shot	1
21910105207	2191025A_21.d	Sample		10/25/2019 15:44	669220	1
21910105209	2191025A_22.d	Sample		10/25/2019 15:55	669220	1

21910105213	2191025A_23.d	Sample		10/25/2019 16:06	669220	1
21910105215	2191025A_24.d	Sample		10/25/2019 16:18	669220	1
1400	2191025A_25.d	QC	5	10/25/2019 16:29		1
1973861	2191025A_26.d	Sample		10/25/2019 16:41	669805	1
1973862	2191025A_27.d	QC	4	10/25/2019 16:52	669805	1
1973863	2191025A_28.d	QC	4	10/25/2019 17:03	669805	1
21910210326 X5	2191025A_29.d	Sample		10/25/2019 17:14	669805	5
21910210320	2191025A_30.d	Sample		10/25/2019 17:26	669805	1
21910210323	2191025A_31.d	Sample		10/25/2019 17:37	669805	1
21910210324	2191025A_32.d	Sample		10/25/2019 17:48	669805	1
21910210325	2191025A_33.d	Sample		10/25/2019 18:00	669805	1
21910210327	2191025A_34.d	Sample		10/25/2019 18:11	669805	1
1400	2191025A_35.d	QC	5	10/25/2019 18:22		1
1973858	2191025A_36.d	Sample		10/25/2019 18:34	669804	1
1973859	2191025A_37.d	QC	4	10/25/2019 18:45	669804	1
1973860	2191025A_38.d	QC	4	10/25/2019 18:56	669804	1
21910210301	2191025A_39.d	Sample		10/25/2019 19:08	669804	1
21910210302	2191025A_40.d	Sample		10/25/2019 19:19	669804	1
21910210303	2191025A_41.d	Sample		10/25/2019 19:30	669804	1
21910210304	2191025A_42.d	Sample		10/25/2019 19:42	669804	1
21910210305	2191025A_43.d	Sample		10/25/2019 19:53	669804	1
21910210306	2191025A_44.d	Sample		10/25/2019 20:05	669804	1
21910210307	2191025A_45.d	Sample		10/25/2019 20:16	669804	1
21910210308	2191025A_46.d	Sample		10/25/2019 20:27	669804	1
21910210309	2191025A_47.d	Sample		10/25/2019 20:39	669804	1
21910210310	2191025A_48.d	Sample		10/25/2019 20:50	669804	1
1400	2191025A_49.d	QC	5	10/25/2019 21:01		1
21910210311	2191025A_50.d	Sample		10/25/2019 21:13	669804	1
21910210312	2191025A_51.d	Sample		10/25/2019 21:24	669804	1
21910210313	2191025A_52.d	Sample		10/25/2019 21:35	669804	1
21910210314	2191025A_53.d	Sample		10/25/2019 21:47	669804	1
21910210315	2191025A_54.d	Sample		10/25/2019 21:58	669804	1
21910210316	2191025A_55.d	Sample		10/25/2019 22:09	669804	1
21910210317	2191025A_56.d	Sample		10/25/2019 22:21	669804	1

21910210318	2191025A_57.d	Sample		10/25/2019 22:32	669804	1
21910210319	2191025A_58.d	Sample		10/25/2019 22:44	669804	1
21910210321	2191025A_59.d	QC	4	10/25/2019 22:55	669804	1
21910210322	2191025A_60.d	QC	4	10/25/2019 23:06	669804	1
1400	2191025A_61.d	QC	5	10/25/2019 23:18		1
MB Test 1	2191025A_62.d	Sample		10/25/2019 23:29	Reagent Water test	1
MB Test 2	2191025A_63.d	Sample		10/25/2019 23:40	Reagent Water test	1
MB Test 3	2191025A_64.d	Sample		10/25/2019 23:52	Reagent Water test	1
1974518	2191025A_65.d	Sample		10/26/2019 0:03	669937	1
1974519	2191025A_66.d	QC	4	10/26/2019 0:15	669937	1
1974520	2191025A_67.d	QC	4	10/26/2019 0:26	669937	1
21910120206	2191025A_68.d	Sample		10/26/2019 0:37	669937	1
21910120201	2191025A_69.d	Sample		10/26/2019 0:49	669937	1
21910120202	2191025A_70.d	Sample		10/26/2019 1:00	669937	1
21910120203	2191025A_71.d	Sample		10/26/2019 1:11	669937	1
21910120204	2191025A_72.d	Sample		10/26/2019 1:23	669937	1
21910120205 X10	2191025A_73.d	Sample		10/26/2019 1:34	669937	10
21910120205	2191025A_74.d	Sample		10/26/2019 1:45	669937	1
MeOH Shot	2191025A_75.d	MeOH Shot		10/26/2019 1:57	Instrument Idle/MeOH shot	1
21910121402	2191025A_76.d	Sample		10/26/2019 2:08	669937	1
21910121403	2191025A_77.d	QC	4	10/26/2019 2:19	669937	1
21910121404	2191025A_78.d	QC	4	10/26/2019 2:30	669937	1
1400	2191025A_79.d	QC	5	10/26/2019 2:42		1
21910121401	2191025A_80.d	Sample		10/26/2019 2:53	669937	1
21910121405	2191025A_81.d	Sample		10/26/2019 3:04	669937	1
21910121407	2191025A_82.d	Sample		10/26/2019 3:16	669937	1
21910121409	2191025A_83.d	Sample		10/26/2019 3:27	669937	1
21910121410	2191025A_84.d	Sample		10/26/2019 3:39	669937	1
21910121411	2191025A_85.d	Sample		10/26/2019 3:50	669937	1
21910121412	2191025A_86.d	Sample		10/26/2019 4:01	669937	1
1400	2191025A_87.d	QC	5	10/26/2019 4:13		1
21910171513	2191025A_88.d	Sample		10/26/2019 4:24	669627	10
21910171514	2191025A_89.d	Sample		10/26/2019 4:35	669627	10
21910173801	2191025A_90.d	Sample		10/26/2019 4:46	669627	10

Quantitative Analysis Calibration Report

Batch Data Path	D:\MassHunter\Data\2191025ACAL\QuantResults\2191028A.batch.bin		
Analysis Time	10/30/2019 9:28 AM	**Analyst Name**	GCAL\lcms
Report Time	10/30/2019 9:30 AM	**Reporter Name**	GCAL\lcms
Last Calib Update	10/25/2019 10:22 PM	**Batch State**	Processed

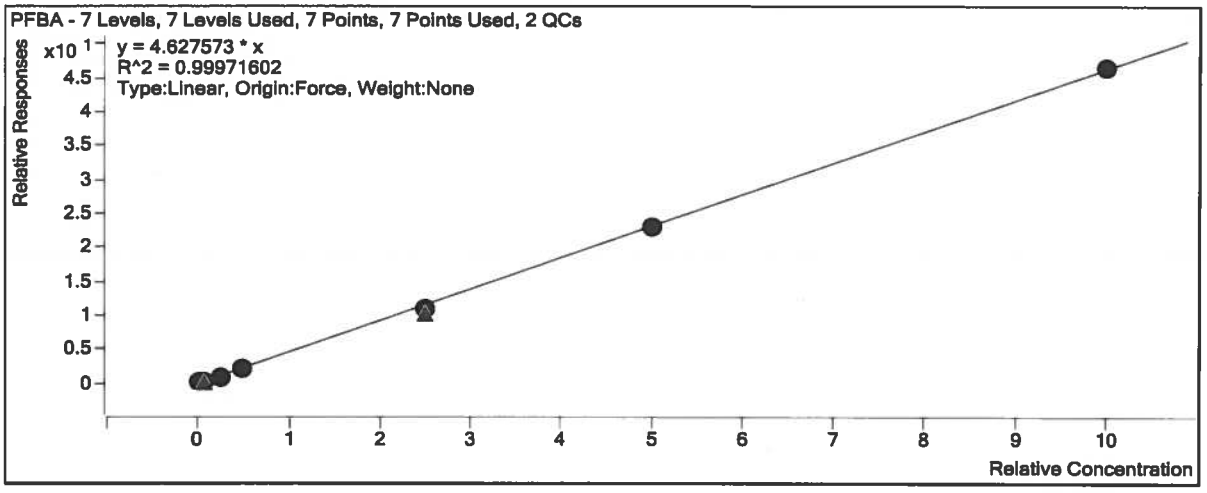
Calibration Info

Extracted ISTD *MPFBA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191025ACAL\2191025A_02.d	Calibration	1	☑	88222	20.0000	4411.1134
D:\MassHunter\Data\2191025ACAL\2191025A_03.d	Calibration	2	☑	94295	20.0000	4714.7527
D:\MassHunter\Data\2191025ACAL\2191025A_04.d	Calibration	3	☑	88347	20.0000	4417.3473
D:\MassHunter\Data\2191025ACAL\2191025A_05.d	Calibration	4	☑	89272	20.0000	4463.5781
D:\MassHunter\Data\2191025ACAL\2191025A_06.d	Calibration	5	☑	87320	20.0000	4365.9983
D:\MassHunter\Data\2191025ACAL\2191025A_13.d	Calibration	6	☑	93471	20.0000	4673.5550
D:\MassHunter\Data\2191025ACAL\2191025A_08.d	Calibration	7	☑	93302	20.0000	4665.0988

Target Compound *PFBA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191025ACAL\2191025A_02.d	Calibration	1	☑	9944	0.5000	4.5086
D:\MassHunter\Data\2191025ACAL\2191025A_03.d	Calibration	2	☑	24601	1.2500	4.1743
D:\MassHunter\Data\2191025ACAL\2191025A_04.d	Calibration	3	☑	89648	5.0000	4.0589
D:\MassHunter\Data\2191025ACAL\2191025A_05.d	Calibration	4	☑	189480	10.0000	4.2450
D:\MassHunter\Data\2191025ACAL\2191025A_06.d	Calibration	5	☑	952920	50.0000	4.3652
D:\MassHunter\Data\2191025ACAL\2191025A_13.d	Calibration	6	☑	2167169	100.0000	4.6371
D:\MassHunter\Data\2191025ACAL\2191025A_08.d	Calibration	7	☑	4331940	200.0000	4.6429

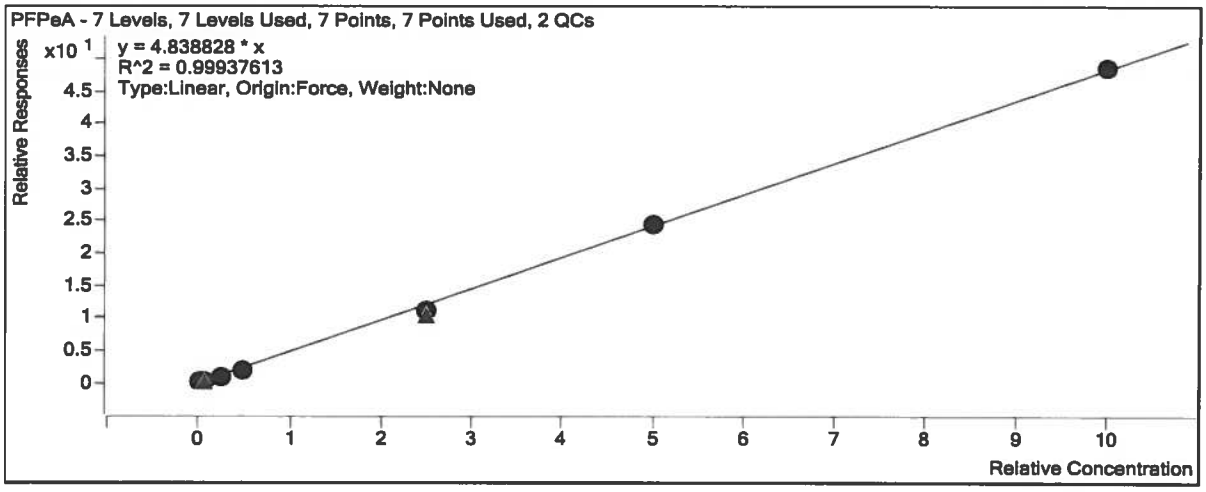


Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191025ACAL\2191025A_05.d	Calibration	4	☑	44814	20.0000	2240.6943
D:\MassHunter\Data\2191025ACAL\2191025A_06.d	Calibration	5	☑	43931	20.0000	2196.5372
D:\MassHunter\Data\2191025ACAL\2191025A_13.d	Calibration	6	☑	45345	20.0000	2267.2636
D:\MassHunter\Data\2191025ACAL\2191025A_08.d	Calibration	7	☑	44567	20.0000	2228.3690

Target Compound *PFPeA*

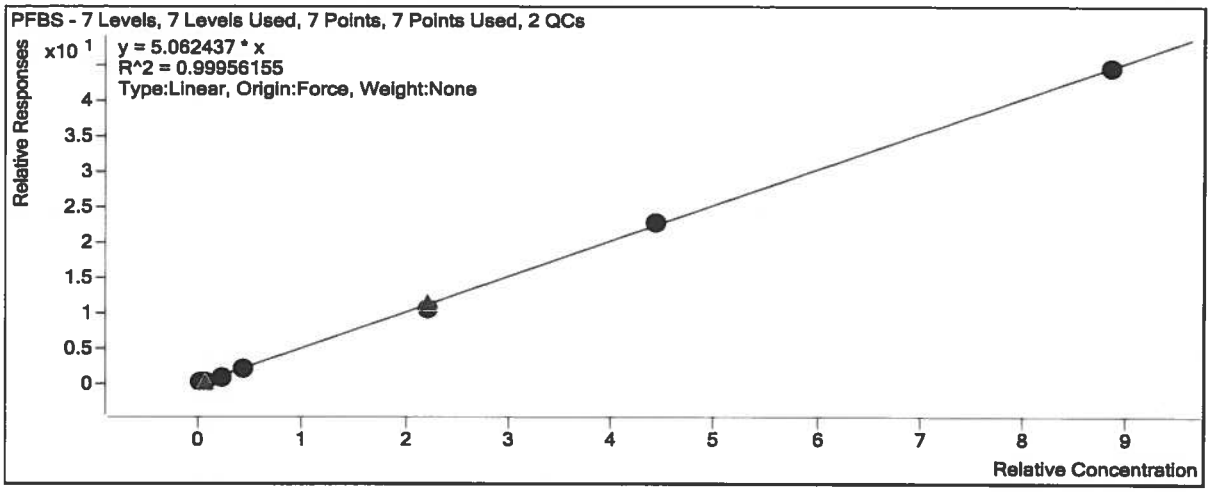
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191025ACAL\2191025A_02.d	Calibration	1	☑	4573	0.5000	3.9443
D:\MassHunter\Data\2191025ACAL\2191025A_03.d	Calibration	2	☑	11864	1.2500	3.8258
D:\MassHunter\Data\2191025ACAL\2191025A_04.d	Calibration	3	☑	44153	5.0000	3.9331
D:\MassHunter\Data\2191025ACAL\2191025A_05.d	Calibration	4	☑	91448	10.0000	4.0812
D:\MassHunter\Data\2191025ACAL\2191025A_06.d	Calibration	5	☑	487872	50.0000	4.4422
D:\MassHunter\Data\2191025ACAL\2191025A_13.d	Calibration	6	☑	1102294	100.0000	4.8618
D:\MassHunter\Data\2191025ACAL\2191025A_08.d	Calibration	7	☑	2166146	200.0000	4.8604



Target Compound *PFBS*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191025ACAL\2191025A_02.d	Calibration	1	☑	2621	0.4425	4.0022
D:\MassHunter\Data\2191025ACAL\2191025A_03.d	Calibration	2	☑	7373	1.1100	4.1259
D:\MassHunter\Data\2191025ACAL\2191025A_04.d	Calibration	3	☑	28396	4.4250	4.2912
D:\MassHunter\Data\2191025ACAL\2191025A_05.d	Calibration	4	☑	60682	8.8500	4.4597

D:\MassHunter\Data\2191025ACAL\2191025A_06.d	Calibration	5	☑	315047	44.2500	4.7814
D:\MassHunter\Data\2191025ACAL\2191025A_13.d	Calibration	6	☑	710561	88.5000	5.1747
D:\MassHunter\Data\2191025ACAL\2191025A_08.d	Calibration	7	☑	1278518	177.0000	5.0540



Extracted ISTD ***M3PFBS***

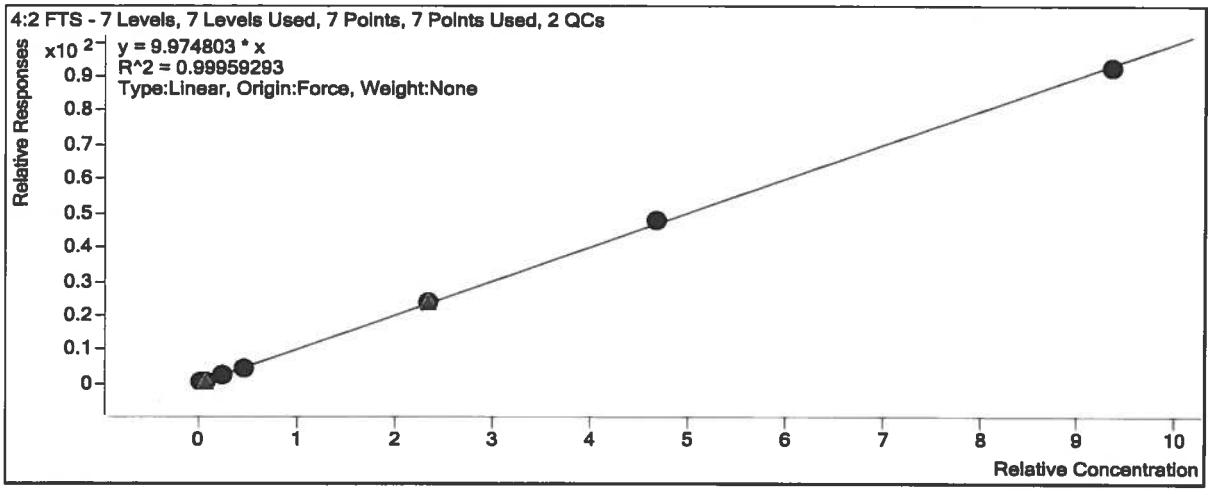
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191025ACAL\2191025A_02.d	Calibration	1	☑	29602	20.0000	1480.0833
D:\MassHunter\Data\2191025ACAL\2191025A_03.d	Calibration	2	☑	32198	20.0000	1609.9168
D:\MassHunter\Data\2191025ACAL\2191025A_04.d	Calibration	3	☑	29908	20.0000	1495.4066
D:\MassHunter\Data\2191025ACAL\2191025A_05.d	Calibration	4	☑	30750	20.0000	1537.4835
D:\MassHunter\Data\2191025ACAL\2191025A_06.d	Calibration	5	☑	29781	20.0000	1489.0466
D:\MassHunter\Data\2191025ACAL\2191025A_13.d	Calibration	6	☑	31031	20.0000	1551.5636
D:\MassHunter\Data\2191025ACAL\2191025A_08.d	Calibration	7	☑	28585	20.0000	1429.2295

Extracted ISTD ***M2 4:2 FTS***

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191025ACAL\2191025A_02.d	Calibration	1	☑	7591	20.0000	379.5321
D:\MassHunter\Data\2191025ACAL\2191025A_03.d	Calibration	2	☑	7761	20.0000	388.0268
D:\MassHunter\Data\2191025ACAL\2191025A_04.d	Calibration	3	☑	7026	20.0000	351.3049
D:\MassHunter\Data\2191025ACAL\2191025A_05.d	Calibration	4	☑	7315	20.0000	365.7600
D:\MassHunter\Data\2191025ACAL\2191025A_06.d	Calibration	5	☑	6954	20.0000	347.6967
D:\MassHunter\Data\2191025ACAL\2191025A_13.d	Calibration	6	☑	7328	20.0000	366.4141
D:\MassHunter\Data\2191025ACAL\2191025A_08.d	Calibration	7	☑	7101	20.0000	355.0653

Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191025ACAL\2191025A_08.d	Calibration	7	☑	656470	187.0000	9.8870



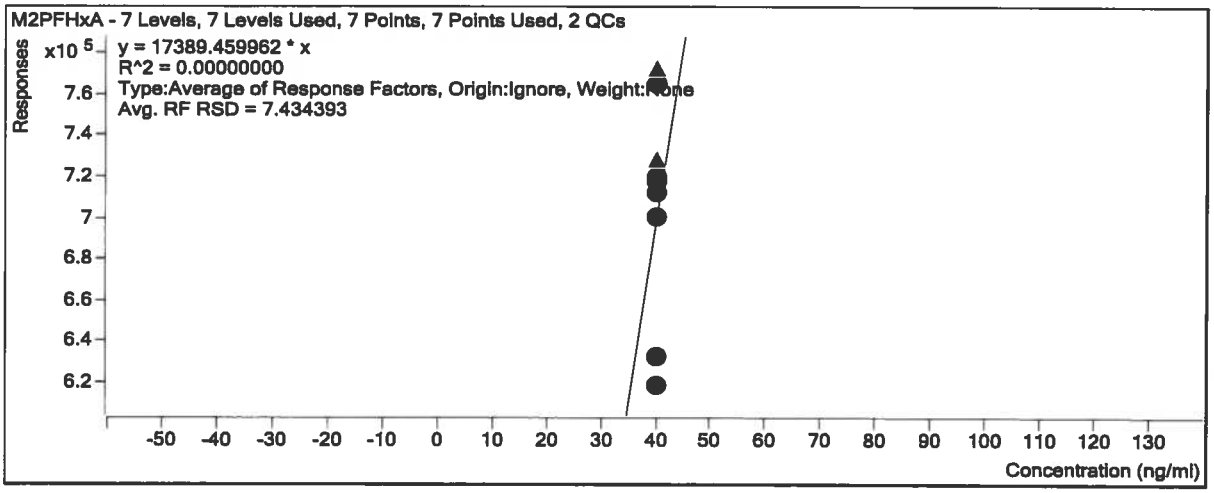
Extracted ISTD *M5PFHxA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191025ACAL\2191025A_02.d	Calibration	1	☑	77529	20.0000	3876.4438
D:\MassHunter\Data\2191025ACAL\2191025A_03.d	Calibration	2	☑	83516	20.0000	4175.8005
D:\MassHunter\Data\2191025ACAL\2191025A_04.d	Calibration	3	☑	76078	20.0000	3803.8794
D:\MassHunter\Data\2191025ACAL\2191025A_05.d	Calibration	4	☑	74827	20.0000	3741.3650
D:\MassHunter\Data\2191025ACAL\2191025A_06.d	Calibration	5	☑	73461	20.0000	3673.0746
D:\MassHunter\Data\2191025ACAL\2191025A_13.d	Calibration	6	☑	74794	20.0000	3739.7165
D:\MassHunter\Data\2191025ACAL\2191025A_08.d	Calibration	7	☑	72190	20.0000	3609.4765

Instrument ISTD *M2PFHxA*

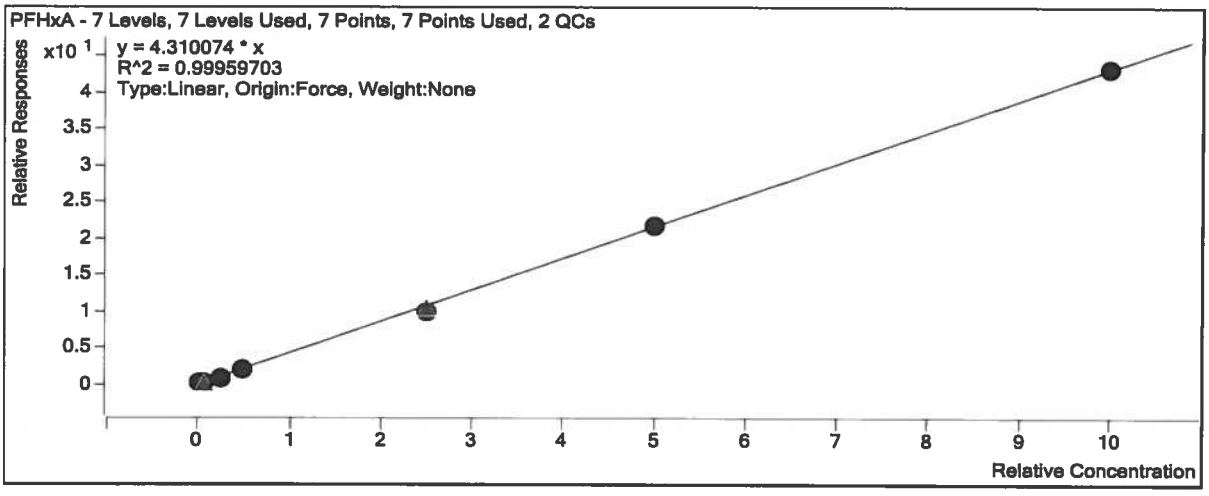
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191025ACAL\2191025A_02.d	Calibration	1	☑	720027	40.0000	18000.6719
D:\MassHunter\Data\2191025ACAL\2191025A_03.d	Calibration	2	☑	765584	40.0000	19139.5904
D:\MassHunter\Data\2191025ACAL\2191025A_04.d	Calibration	3	☑	700916	40.0000	17522.8978
D:\MassHunter\Data\2191025ACAL\2191025A_05.d	Calibration	4	☑	712480	40.0000	17811.9933
D:\MassHunter\Data\2191025ACAL\2191025A_06.d	Calibration	5	☑	633081	40.0000	15827.0327
D:\MassHunter\Data\2191025ACAL\2191025A_13.d	Calibration	6	☑	717764	40.0000	17944.1064
D:\MassHunter\Data\2191025ACAL\2191025A_08.d	Calibration	7	☑	619197	40.0000	15479.9272

Quantitative Analysis Calibration Report



Target Compound *PFHxA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191025ACAL\2191025A_02.d	Calibration	1	☑	8189	0.5000	4.2250
D:\MassHunter\Data\2191025ACAL\2191025A_03.d	Calibration	2	☑	18863	1.2500	3.6137
D:\MassHunter\Data\2191025ACAL\2191025A_04.d	Calibration	3	☑	74648	5.0000	3.9248
D:\MassHunter\Data\2191025ACAL\2191025A_05.d	Calibration	4	☑	147868	10.0000	3.9522
D:\MassHunter\Data\2191025ACAL\2191025A_06.d	Calibration	5	☑	739332	50.0000	4.0257
D:\MassHunter\Data\2191025ACAL\2191025A_13.d	Calibration	6	☑	1633132	100.0000	4.3670
D:\MassHunter\Data\2191025ACAL\2191025A_08.d	Calibration	7	☑	3114820	200.0000	4.3148

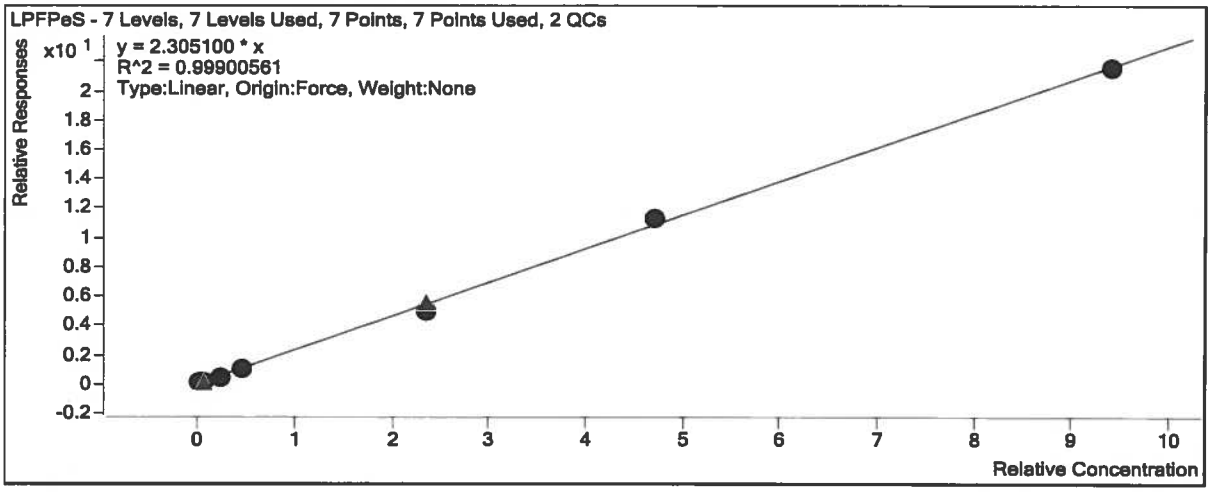


Target Compound *LPFPeS*

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

Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191025ACAL\2191025A_08.d	Calibration	7	☑	1555861	188.0000	2.2928



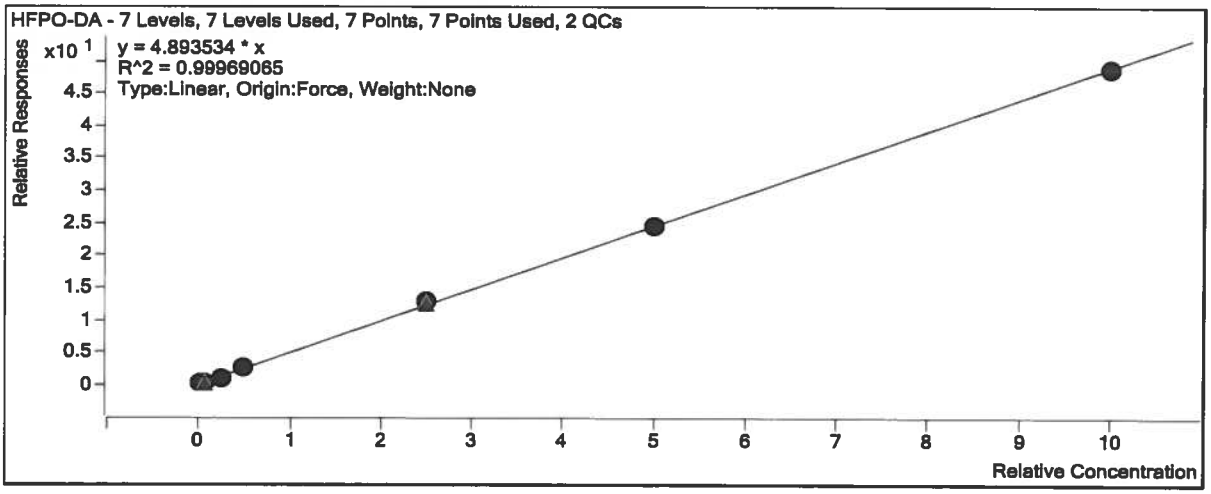
Extracted ISTD *M3HFPODA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191025ACAL\2191025A_02.d	Calibration	1	☑	3491	20.0000	174.5363
D:\MassHunter\Data\2191025ACAL\2191025A_03.d	Calibration	2	☑	3730	20.0000	186.5136
D:\MassHunter\Data\2191025ACAL\2191025A_04.d	Calibration	3	☑	3232	20.0000	161.5808
D:\MassHunter\Data\2191025ACAL\2191025A_05.d	Calibration	4	☑	2960	20.0000	148.0109
D:\MassHunter\Data\2191025ACAL\2191025A_06.d	Calibration	5	☑	2766	20.0000	138.3118
D:\MassHunter\Data\2191025ACAL\2191025A_13.d	Calibration	6	☑	3427	20.0000	171.3368
D:\MassHunter\Data\2191025ACAL\2191025A_08.d	Calibration	7	☑	3364	20.0000	168.2010

Target Compound *HFPO-DA*

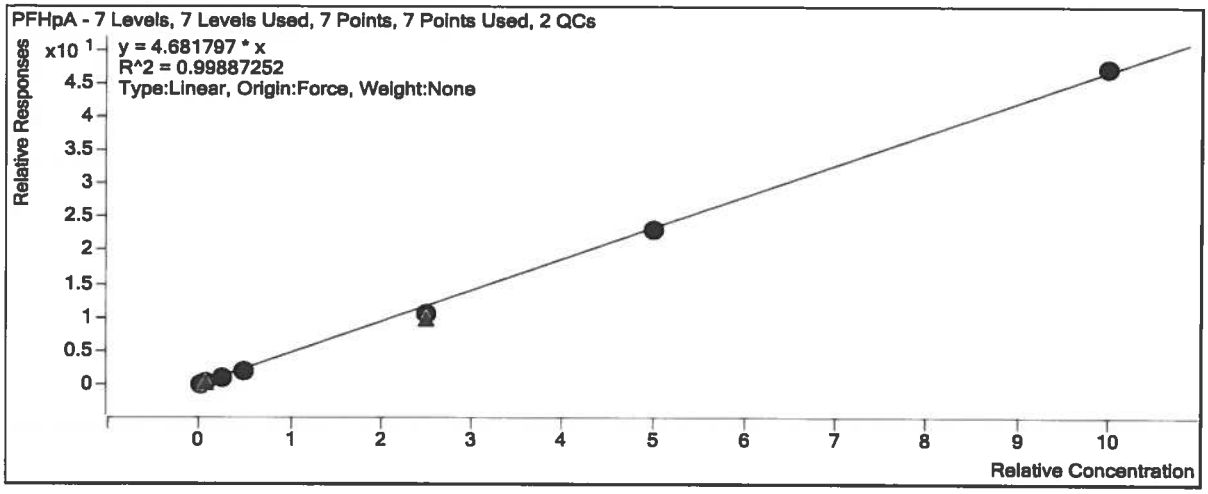
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191025ACAL\2191025A_02.d	Calibration	1	☑	445	0.5000	5.0961
D:\MassHunter\Data\2191025ACAL\2191025A_03.d	Calibration	2	☑	760	1.2500	3.2605
D:\MassHunter\Data\2191025ACAL\2191025A_04.d	Calibration	3	☑	3080	5.0000	3.8125
D:\MassHunter\Data\2191025ACAL\2191025A_05.d	Calibration	4	☑	7414	10.0000	5.0093
D:\MassHunter\Data\2191025ACAL\2191025A_06.d	Calibration	5	☑	35776	50.0000	5.1733
D:\MassHunter\Data\2191025ACAL\2191025A_13.d	Calibration	6	☑	84020	100.0000	4.9038
D:\MassHunter\Data\2191025ACAL\2191025A_08.d	Calibration	7	☑	163960	200.0000	4.8739

Quantitative Analysis Calibration Report



Target Compound *PFHpA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191025ACAL\2191025A_02.d	Calibration	1	☑	5818	0.5000	3.2281
D:\MassHunter\Data\2191025ACAL\2191025A_03.d	Calibration	2	☑	17392	1.2500	3.7003
D:\MassHunter\Data\2191025ACAL\2191025A_04.d	Calibration	3	☑	68669	5.0000	3.8284
D:\MassHunter\Data\2191025ACAL\2191025A_05.d	Calibration	4	☑	142915	10.0000	4.0820
D:\MassHunter\Data\2191025ACAL\2191025A_06.d	Calibration	5	☑	701884	50.0000	4.1533
D:\MassHunter\Data\2191025ACAL\2191025A_13.d	Calibration	6	☑	1625382	100.0000	4.6460
D:\MassHunter\Data\2191025ACAL\2191025A_08.d	Calibration	7	☑	3140788	200.0000	4.7259



Extracted ISTD *M4PFHpA*

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

Quantitative Analysis Calibration Report

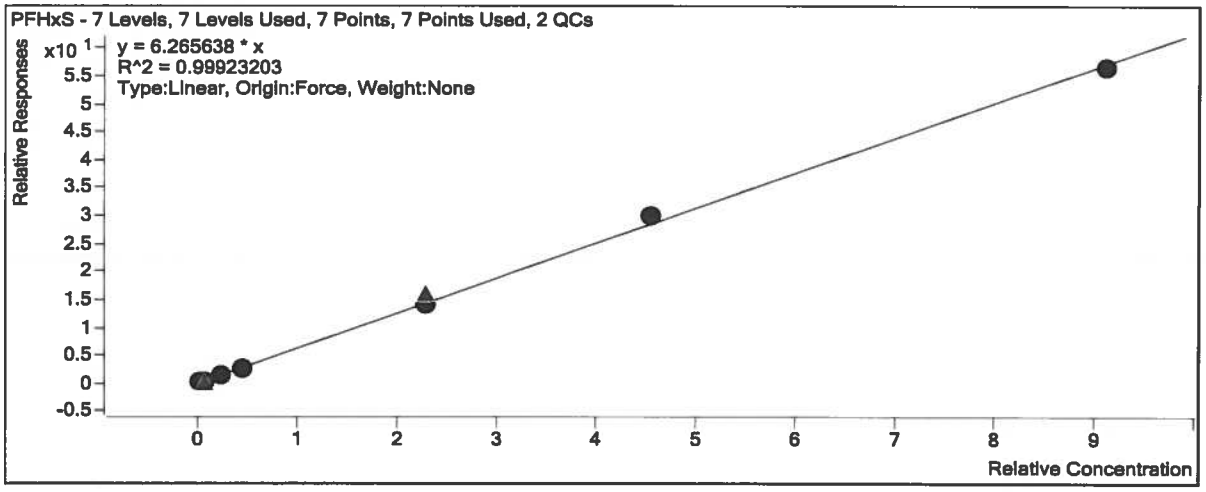
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191025ACAL\2191025A_08.d	Calibration	7	☑	66460	20.0000	3322.9815

Extracted ISTD *M3PFHxS*

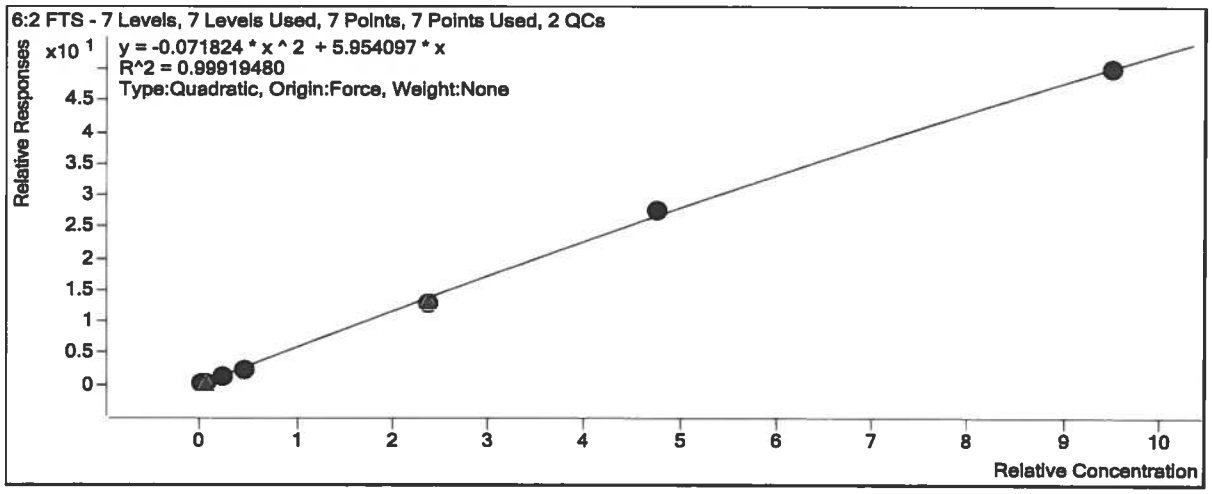
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191025ACAL\2191025A_02.d	Calibration	1	☑	26500	20.0000	1324.9856
D:\MassHunter\Data\2191025ACAL\2191025A_03.d	Calibration	2	☑	28455	20.0000	1422.7494
D:\MassHunter\Data\2191025ACAL\2191025A_04.d	Calibration	3	☑	25752	20.0000	1287.6194
D:\MassHunter\Data\2191025ACAL\2191025A_05.d	Calibration	4	☑	25114	20.0000	1255.7074
D:\MassHunter\Data\2191025ACAL\2191025A_06.d	Calibration	5	☑	25280	20.0000	1263.9878
D:\MassHunter\Data\2191025ACAL\2191025A_13.d	Calibration	6	☑	28391	20.0000	1419.5426
D:\MassHunter\Data\2191025ACAL\2191025A_08.d	Calibration	7	☑	27999	20.0000	1399.9714

Target Compound *PFHxS*

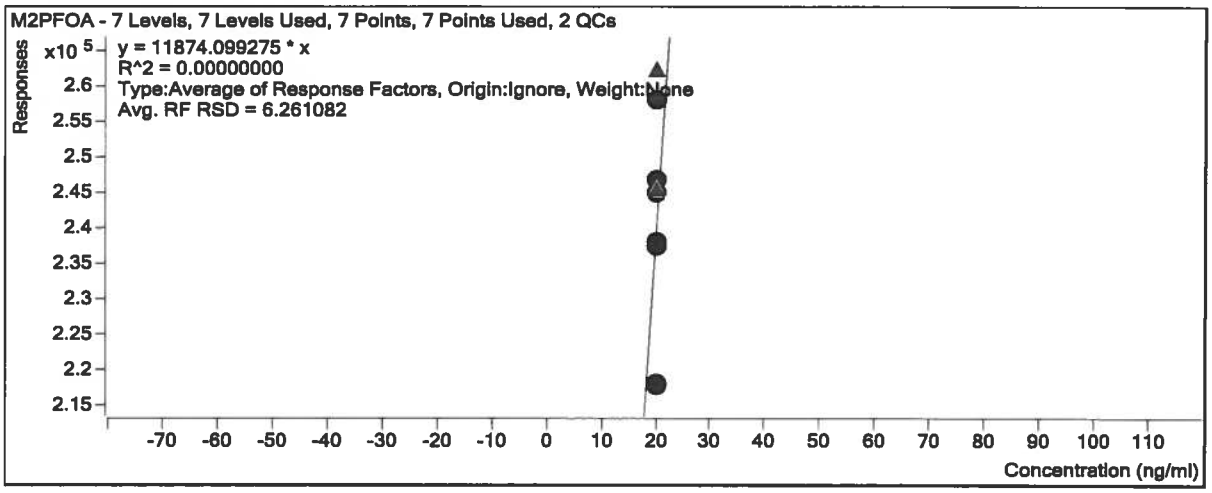
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191025ACAL\2191025A_02.d	Calibration	1	☑	3309	0.4560	5.4765
D:\MassHunter\Data\2191025ACAL\2191025A_03.d	Calibration	2	☑	9256	1.1400	5.7065
D:\MassHunter\Data\2191025ACAL\2191025A_04.d	Calibration	3	☑	35336	4.5600	6.0182
D:\MassHunter\Data\2191025ACAL\2191025A_05.d	Calibration	4	☑	71514	9.1200	6.2447
D:\MassHunter\Data\2191025ACAL\2191025A_06.d	Calibration	5	☑	362839	45.6000	6.2951
D:\MassHunter\Data\2191025ACAL\2191025A_13.d	Calibration	6	☑	847564	91.2000	6.5468
D:\MassHunter\Data\2191025ACAL\2191025A_08.d	Calibration	7	☑	1581601	182.4000	6.1937



Quantitative Analysis Calibration Report

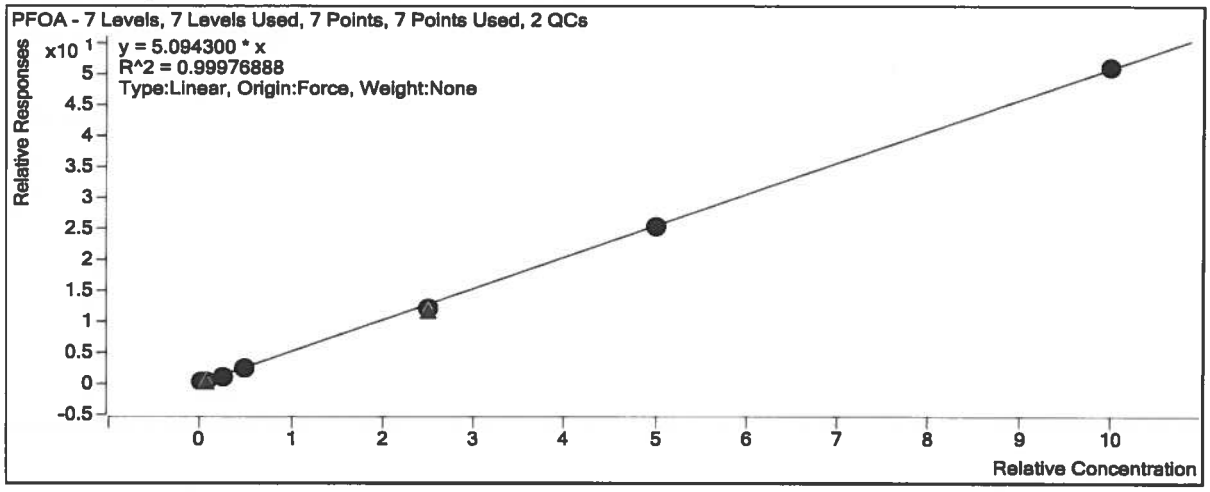


Quantitative Analysis Calibration Report



Target Compound *PFOA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191025ACAL\2191025A_02.d	Calibration	1	☑	5347	0.5000	4.2260
D:\MassHunter\Data\2191025ACAL\2191025A_03.d	Calibration	2	☑	13817	1.2500	4.2410
D:\MassHunter\Data\2191025ACAL\2191025A_04.d	Calibration	3	☑	53290	5.0000	4.3018
D:\MassHunter\Data\2191025ACAL\2191025A_05.d	Calibration	4	☑	110166	10.0000	4.5407
D:\MassHunter\Data\2191025ACAL\2191025A_06.d	Calibration	5	☑	562585	50.0000	4.8534
D:\MassHunter\Data\2191025ACAL\2191025A_13.d	Calibration	6	☑	1253610	100.0000	5.0997
D:\MassHunter\Data\2191025ACAL\2191025A_08.d	Calibration	7	☑	2381371	200.0000	5.1099

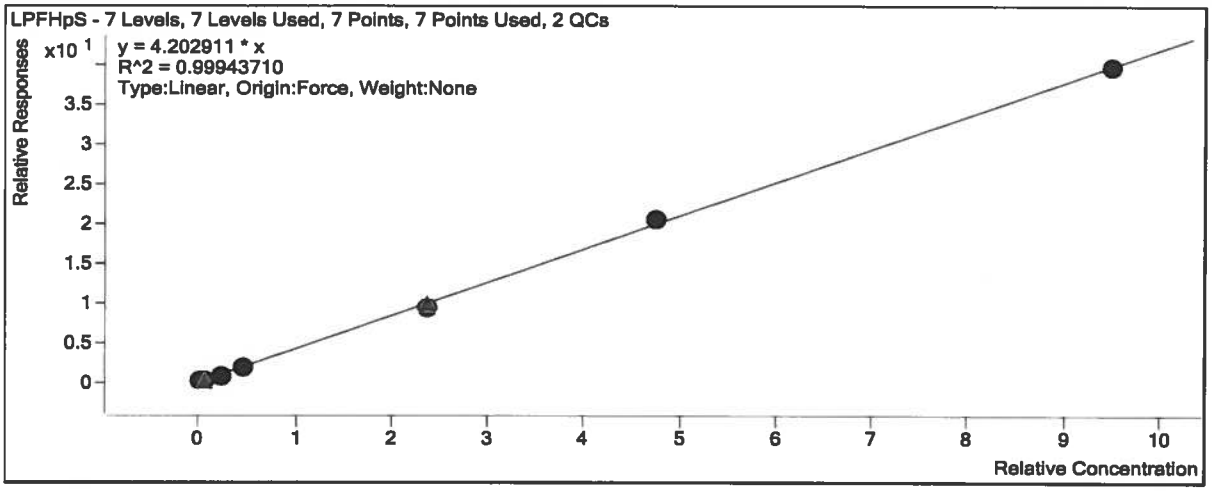


Target Compound *LPFHpS*

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

Quantitative Analysis Calibration Report

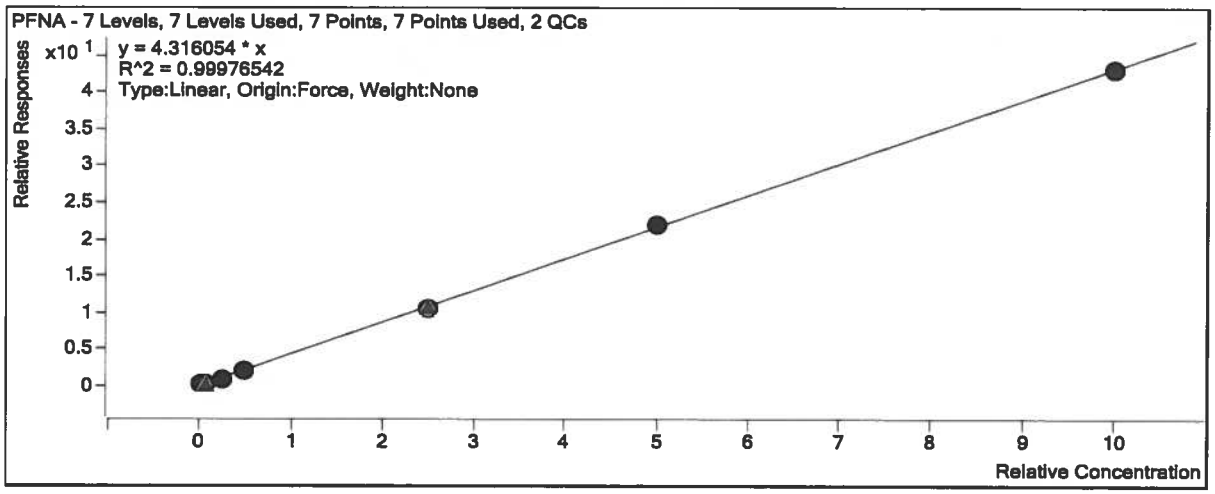
D:\MassHunter\Data\2191025ACAL\2191025A_02.d	Calibration	1	☑	3673	0.4750	3.0557
D:\MassHunter\Data\2191025ACAL\2191025A_03.d	Calibration	2	☑	10516	1.1900	3.3907
D:\MassHunter\Data\2191025ACAL\2191025A_04.d	Calibration	3	☑	40361	4.7500	3.4296
D:\MassHunter\Data\2191025ACAL\2191025A_05.d	Calibration	4	☑	87893	9.5000	3.8134
D:\MassHunter\Data\2191025ACAL\2191025A_06.d	Calibration	5	☑	437051	47.5000	3.9689
D:\MassHunter\Data\2191025ACAL\2191025A_13.d	Calibration	6	☑	1010815	95.0000	4.3284
D:\MassHunter\Data\2191025ACAL\2191025A_08.d	Calibration	7	☑	1853989	190.0000	4.1877



Target Compound ***PFNA***

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191025ACAL\2191025A_02.d	Calibration	1	☑	5540	0.5000	3.4314
D:\MassHunter\Data\2191025ACAL\2191025A_03.d	Calibration	2	☑	14438	1.2500	3.5087
D:\MassHunter\Data\2191025ACAL\2191025A_04.d	Calibration	3	☑	56160	5.0000	3.5736
D:\MassHunter\Data\2191025ACAL\2191025A_05.d	Calibration	4	☑	117491	10.0000	3.9114
D:\MassHunter\Data\2191025ACAL\2191025A_06.d	Calibration	5	☑	590801	50.0000	4.2015
D:\MassHunter\Data\2191025ACAL\2191025A_13.d	Calibration	6	☑	1339836	100.0000	4.4032
D:\MassHunter\Data\2191025ACAL\2191025A_08.d	Calibration	7	☑	2495415	200.0000	4.3029

Quantitative Analysis Calibration Report



Extracted ISTD *M9PFNA*

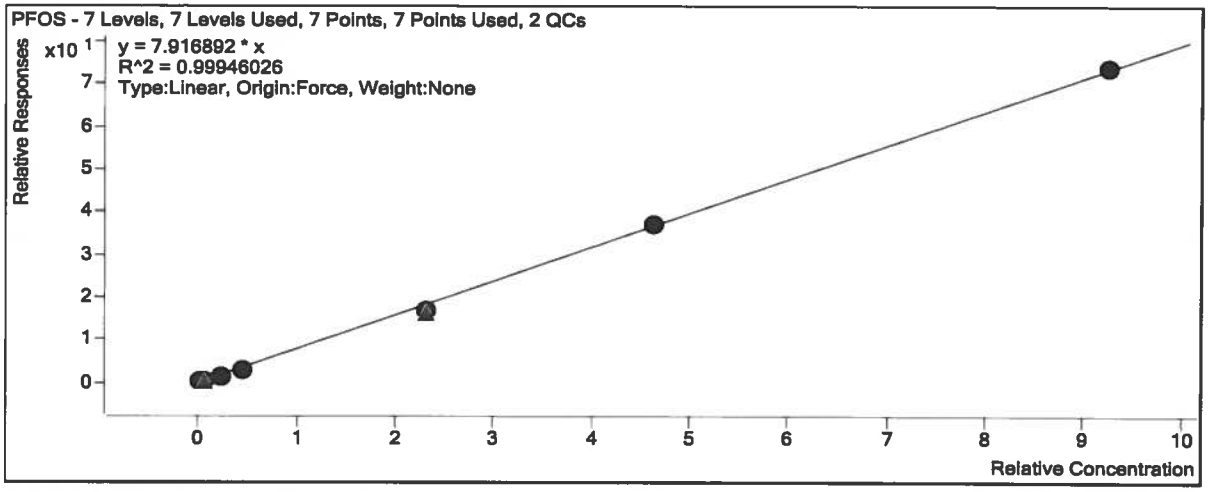
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191025ACAL\2191025A_02.d	Calibration	1	☑	64578	20.0000	3228.9111
D:\MassHunter\Data\2191025ACAL\2191025A_03.d	Calibration	2	☑	65840	20.0000	3291.9966
D:\MassHunter\Data\2191025ACAL\2191025A_04.d	Calibration	3	☑	62861	20.0000	3143.0288
D:\MassHunter\Data\2191025ACAL\2191025A_05.d	Calibration	4	☑	60076	20.0000	3003.7918
D:\MassHunter\Data\2191025ACAL\2191025A_06.d	Calibration	5	☑	56246	20.0000	2812.3237
D:\MassHunter\Data\2191025ACAL\2191025A_13.d	Calibration	6	☑	60858	20.0000	3042.8758

Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191025ACAL\2191025A_08.d	Calibration	7	☑	57993	20.0000	2899.6617

Target Compound *PFOS*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191025ACAL\2191025A_02.d	Calibration	1	☑	4250	0.4628	7.2441
D:\MassHunter\Data\2191025ACAL\2191025A_03.d	Calibration	2	☑	10598	1.1600	6.9542
D:\MassHunter\Data\2191025ACAL\2191025A_04.d	Calibration	3	☑	37420	4.6280	6.8900
D:\MassHunter\Data\2191025ACAL\2191025A_05.d	Calibration	4	☑	76383	9.2550	6.7822
D:\MassHunter\Data\2191025ACAL\2191025A_06.d	Calibration	5	☑	402473	46.2800	7.3053
D:\MassHunter\Data\2191025ACAL\2191025A_13.d	Calibration	6	☑	903083	92.5500	7.9545
D:\MassHunter\Data\2191025ACAL\2191025A_08.d	Calibration	7	☑	1733018	185.1000	7.9493



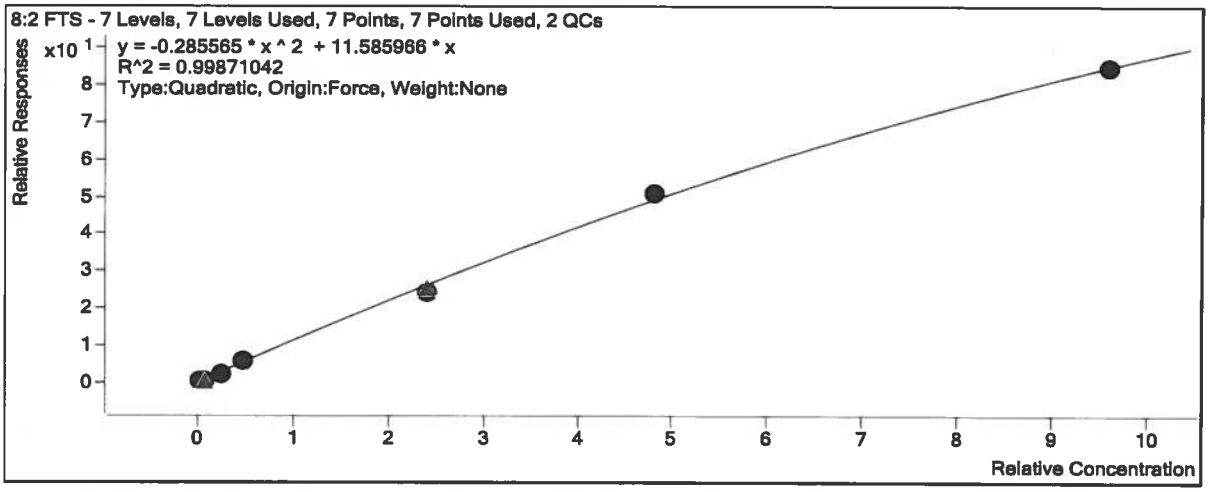
Extracted ISTD *M8PFOS*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191025ACAL\2191025A_02.d	Calibration	1	☑	25359	20.0000	1267.9428
D:\MassHunter\Data\2191025ACAL\2191025A_03.d	Calibration	2	☑	26274	20.0000	1313.7159
D:\MassHunter\Data\2191025ACAL\2191025A_04.d	Calibration	3	☑	23471	20.0000	1173.5383
D:\MassHunter\Data\2191025ACAL\2191025A_05.d	Calibration	4	☑	24338	20.0000	1216.8944
D:\MassHunter\Data\2191025ACAL\2191025A_06.d	Calibration	5	☑	23809	20.0000	1190.4310
D:\MassHunter\Data\2191025ACAL\2191025A_13.d	Calibration	6	☑	24534	20.0000	1226.7050
D:\MassHunter\Data\2191025ACAL\2191025A_08.d	Calibration	7	☑	23556	20.0000	1177.7974

Quantitative Analysis Calibration Report

Target Compound *8:2 FTS*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191025ACAL\2191025A_02.d	Calibration	1	☑	2234	0.4800	15.4796
D:\MassHunter\Data\2191025ACAL\2191025A_03.d	Calibration	2	☑	4679	1.2000	9.0585
D:\MassHunter\Data\2191025ACAL\2191025A_04.d	Calibration	3	☑	18704	4.8000	10.4565
D:\MassHunter\Data\2191025ACAL\2191025A_05.d	Calibration	4	☑	39245	9.6000	12.1412
D:\MassHunter\Data\2191025ACAL\2191025A_06.d	Calibration	5	☑	190132	48.0000	9.9609
D:\MassHunter\Data\2191025ACAL\2191025A_13.d	Calibration	6	☑	395726	96.0000	10.5603
D:\MassHunter\Data\2191025ACAL\2191025A_08.d	Calibration	7	☑	688525	192.0000	8.8160



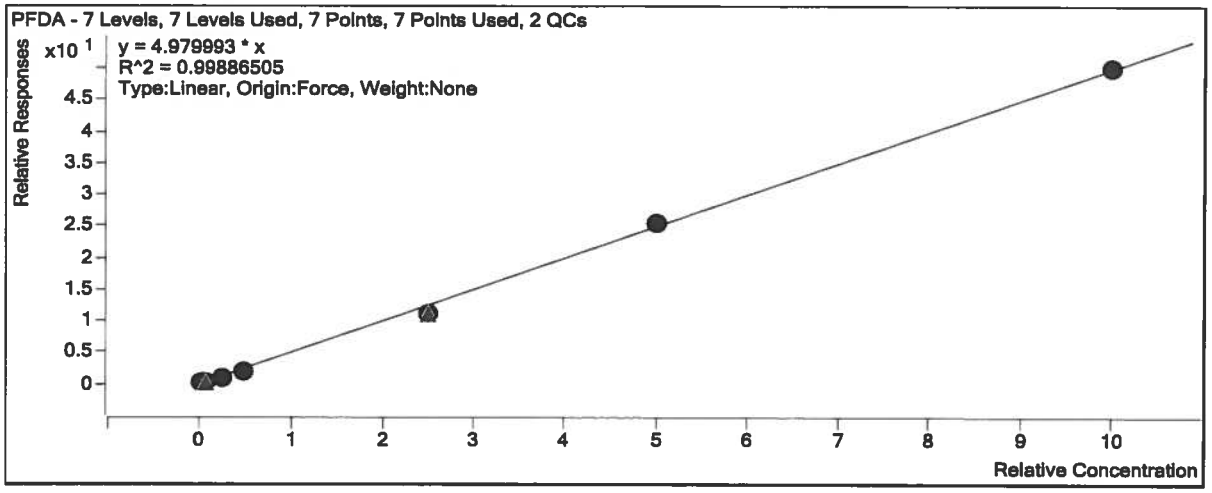
Extracted ISTD *M2 8:2 FTS*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191025ACAL\2191025A_02.d	Calibration	1	☑	6014	20.0000	300.7022
D:\MassHunter\Data\2191025ACAL\2191025A_03.d	Calibration	2	☑	8610	20.0000	430.4767
D:\MassHunter\Data\2191025ACAL\2191025A_04.d	Calibration	3	☑	7453	20.0000	372.6454
D:\MassHunter\Data\2191025ACAL\2191025A_05.d	Calibration	4	☑	6734	20.0000	336.7095
D:\MassHunter\Data\2191025ACAL\2191025A_06.d	Calibration	5	☑	7953	20.0000	397.6644
D:\MassHunter\Data\2191025ACAL\2191025A_13.d	Calibration	6	☑	7807	20.0000	390.3453
D:\MassHunter\Data\2191025ACAL\2191025A_08.d	Calibration	7	☑	8135	20.0000	406.7667

Extracted ISTD *M6PFDA*

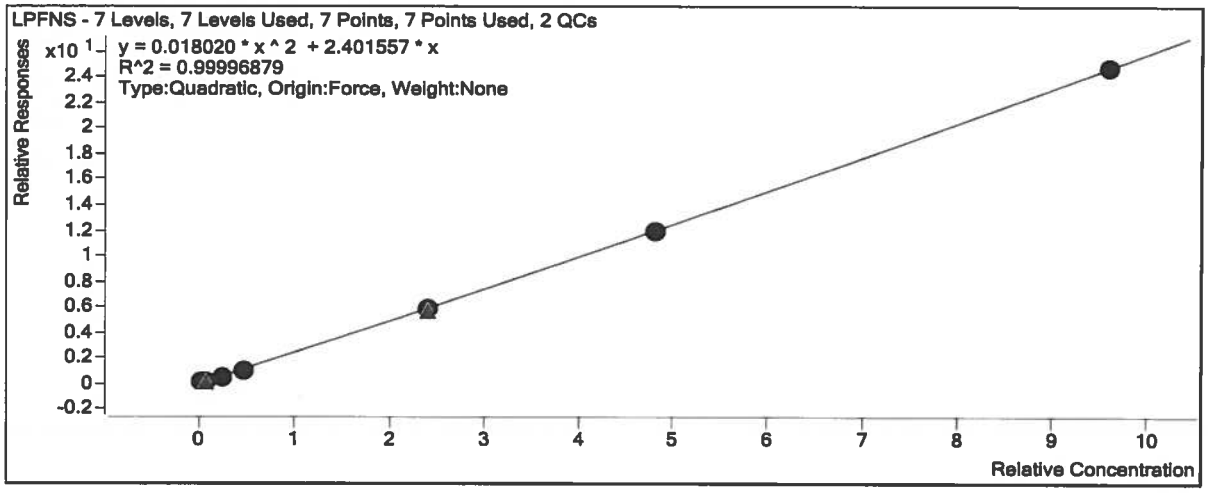
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF

Quantitative Analysis Calibration Report



Target Compound *LPFNS*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191025ACAL\2191025A_02.d	Calibration	1	☑	3134	0.4800	2.0221
D:\MassHunter\Data\2191025ACAL\2191025A_03.d	Calibration	2	☑	8254	1.2000	2.0895
D:\MassHunter\Data\2191025ACAL\2191025A_04.d	Calibration	3	☑	31315	4.8000	2.0757
D:\MassHunter\Data\2191025ACAL\2191025A_05.d	Calibration	4	☑	64147	9.6000	2.2245
D:\MassHunter\Data\2191025ACAL\2191025A_06.d	Calibration	5	☑	332001	48.0000	2.4594
D:\MassHunter\Data\2191025ACAL\2191025A_13.d	Calibration	6	☑	726734	96.0000	2.4878
D:\MassHunter\Data\2191025ACAL\2191025A_08.d	Calibration	7	☑	1433247	192.0000	2.5744



Extracted ISTD *d3-NMeFOSAA*

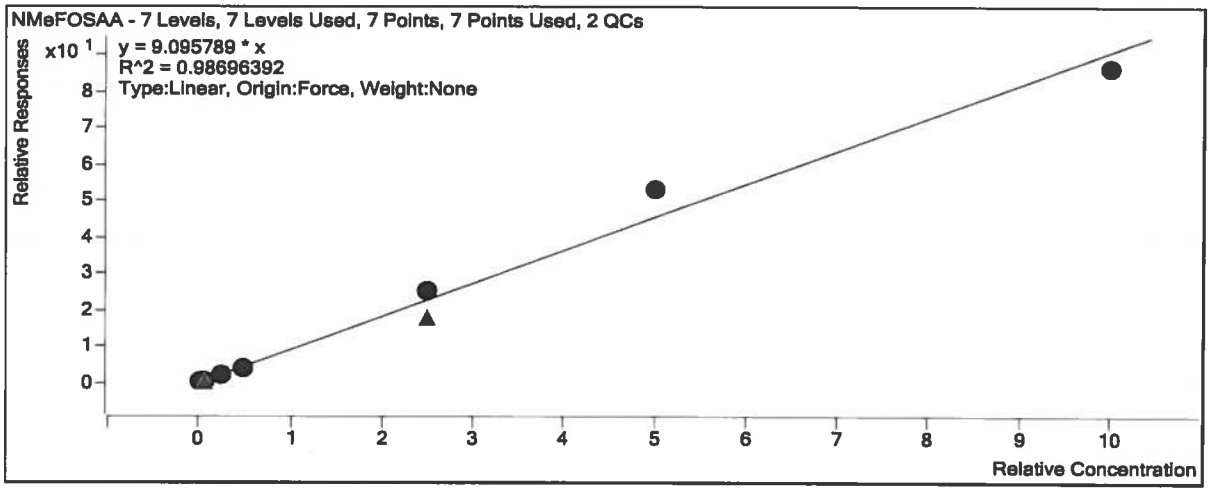
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF

Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191025ACAL\2191025A_08.d	Calibration	7	☑	9806	20.0000	490.2785

Target Compound *NMeFOSAA*

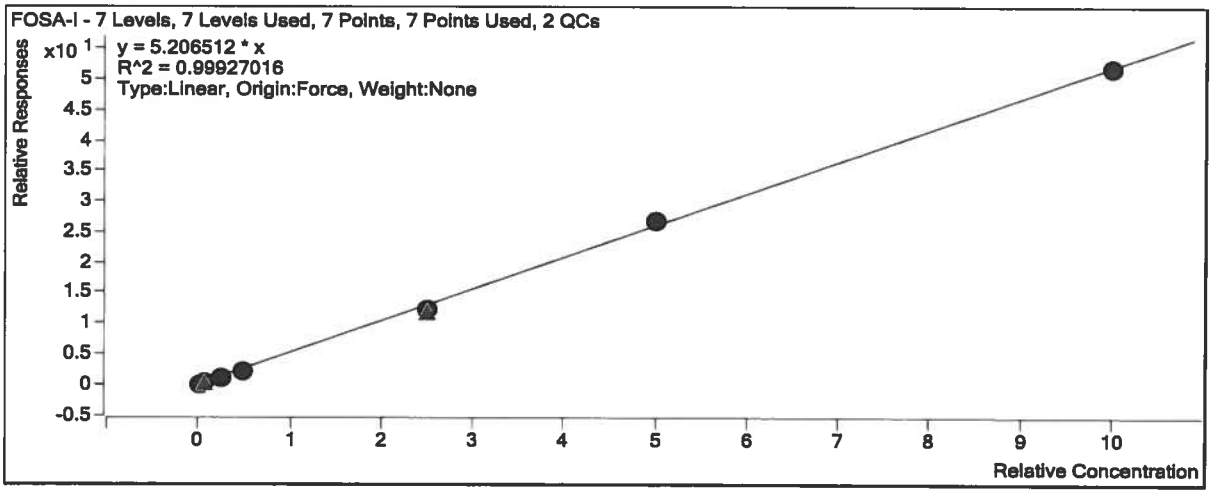
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191025ACAL\2191025A_02.d	Calibration	1	☑	1438	0.5000	7.7845
D:\MassHunter\Data\2191025ACAL\2191025A_03.d	Calibration	2	☑	4328	1.2500	8.2033
D:\MassHunter\Data\2191025ACAL\2191025A_04.d	Calibration	3	☑	16031	5.0000	8.9365
D:\MassHunter\Data\2191025ACAL\2191025A_05.d	Calibration	4	☑	36245	10.0000	8.5106
D:\MassHunter\Data\2191025ACAL\2191025A_06.d	Calibration	5	☑	194270	50.0000	10.1464
D:\MassHunter\Data\2191025ACAL\2191025A_13.d	Calibration	6	☑	441963	100.0000	10.6493
D:\MassHunter\Data\2191025ACAL\2191025A_08.d	Calibration	7	☑	847531	200.0000	8.6434



Target Compound *FOSA-I*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191025ACAL\2191025A_02.d	Calibration	1	☑	6013	0.5000	3.5797
D:\MassHunter\Data\2191025ACAL\2191025A_03.d	Calibration	2	☑	16701	1.2500	3.9797
D:\MassHunter\Data\2191025ACAL\2191025A_04.d	Calibration	3	☑	72842	5.0000	4.5143
D:\MassHunter\Data\2191025ACAL\2191025A_05.d	Calibration	4	☑	160165	10.0000	4.4802
D:\MassHunter\Data\2191025ACAL\2191025A_06.d	Calibration	5	☑	795180	50.0000	4.9038
D:\MassHunter\Data\2191025ACAL\2191025A_13.d	Calibration	6	☑	1889495	100.0000	5.3923
D:\MassHunter\Data\2191025ACAL\2191025A_08.d	Calibration	7	☑	3462198	200.0000	5.1813

Quantitative Analysis Calibration Report



Extracted ISTD *M8FOSA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191025ACAL\2191025A_02.d	Calibration	1	☑	67190	20.0000	3359.5008
D:\MassHunter\Data\2191025ACAL\2191025A_03.d	Calibration	2	☑	67145	20.0000	3357.2326
D:\MassHunter\Data\2191025ACAL\2191025A_04.d	Calibration	3	☑	64543	20.0000	3227.1580
D:\MassHunter\Data\2191025ACAL\2191025A_05.d	Calibration	4	☑	71499	20.0000	3574.9484
D:\MassHunter\Data\2191025ACAL\2191025A_06.d	Calibration	5	☑	64863	20.0000	3243.1381
D:\MassHunter\Data\2191025ACAL\2191025A_13.d	Calibration	6	☑	70082	20.0000	3504.0842
D:\MassHunter\Data\2191025ACAL\2191025A_08.d	Calibration	7	☑	66821	20.0000	3341.0505

Extracted ISTD *d5-NEtFOSAA*

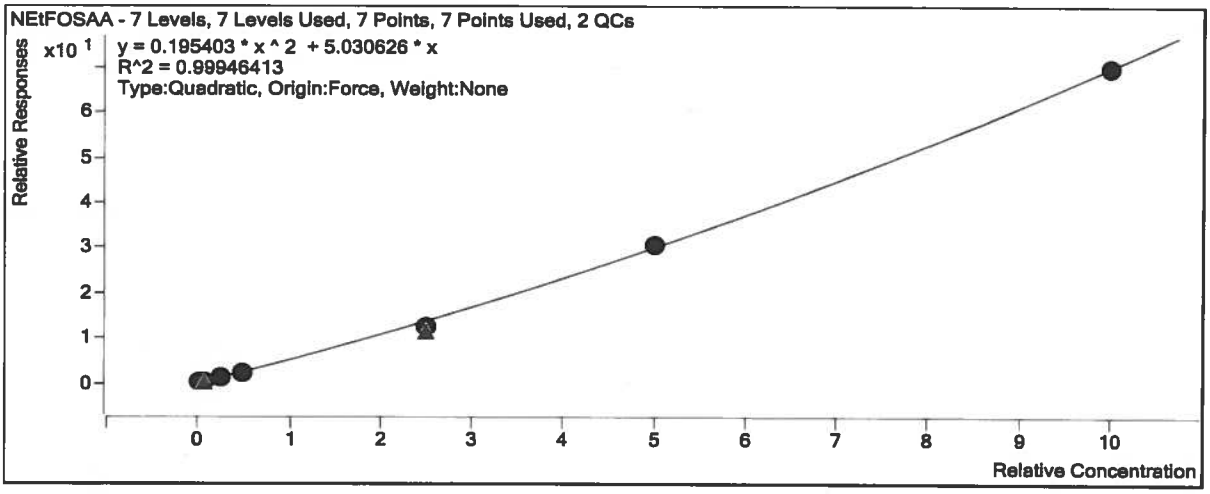
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191025ACAL\2191025A_02.d	Calibration	1	☑	10806	20.0000	540.3092
D:\MassHunter\Data\2191025ACAL\2191025A_03.d	Calibration	2	☑	11420	20.0000	571.0038
D:\MassHunter\Data\2191025ACAL\2191025A_04.d	Calibration	3	☑	13607	20.0000	680.3498
D:\MassHunter\Data\2191025ACAL\2191025A_05.d	Calibration	4	☑	13275	20.0000	663.7348
D:\MassHunter\Data\2191025ACAL\2191025A_06.d	Calibration	5	☑	13621	20.0000	681.0327
D:\MassHunter\Data\2191025ACAL\2191025A_13.d	Calibration	6	☑	12104	20.0000	605.1907
D:\MassHunter\Data\2191025ACAL\2191025A_08.d	Calibration	7	☑	10337	20.0000	516.8379

Target Compound *NEtFOSAA*

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

Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191025ACAL\2191025A_08.d	Calibration	7	☑	720425	200.0000	6.9695



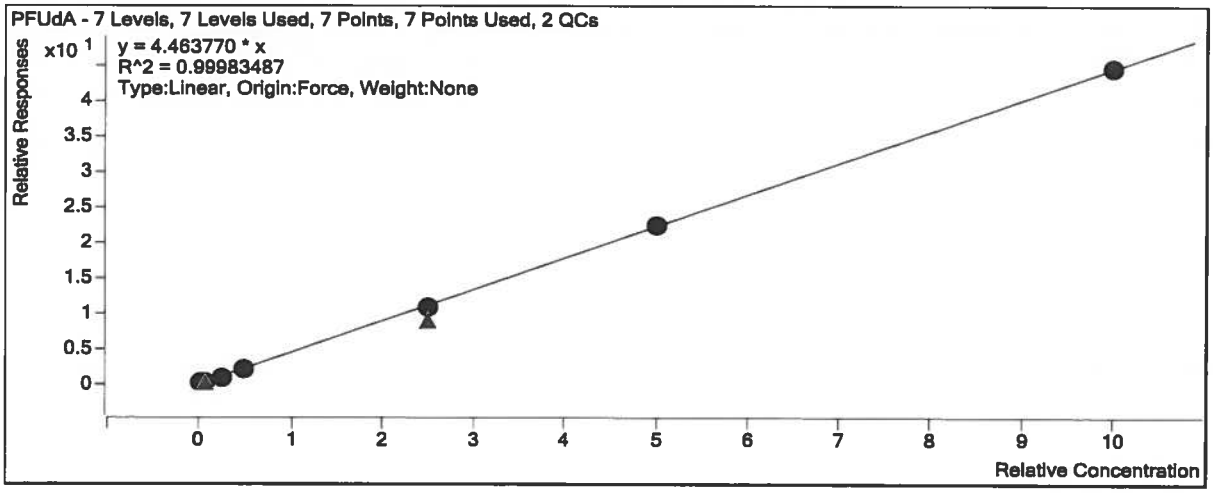
Extracted ISTD *M7PFUdA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191025ACAL\2191025A_02.d	Calibration	1	☑	64364	20.0000	3218.1926
D:\MassHunter\Data\2191025ACAL\2191025A_03.d	Calibration	2	☑	62162	20.0000	3108.0874
D:\MassHunter\Data\2191025ACAL\2191025A_04.d	Calibration	3	☑	56630	20.0000	2831.5240
D:\MassHunter\Data\2191025ACAL\2191025A_05.d	Calibration	4	☑	55162	20.0000	2758.0871
D:\MassHunter\Data\2191025ACAL\2191025A_06.d	Calibration	5	☑	50955	20.0000	2547.7714
D:\MassHunter\Data\2191025ACAL\2191025A_13.d	Calibration	6	☑	54198	20.0000	2709.9163
D:\MassHunter\Data\2191025ACAL\2191025A_08.d	Calibration	7	☑	49054	20.0000	2452.7113

Target Compound *PFUdA*

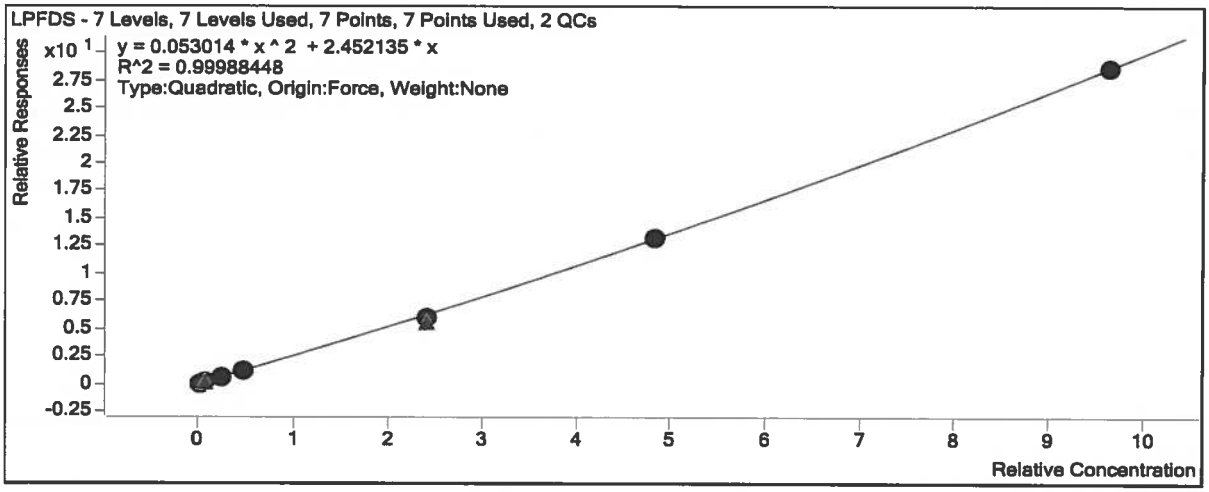
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191025ACAL\2191025A_02.d	Calibration	1	☑	5334	0.5000	3.3151
D:\MassHunter\Data\2191025ACAL\2191025A_03.d	Calibration	2	☑	13659	1.2500	3.5156
D:\MassHunter\Data\2191025ACAL\2191025A_04.d	Calibration	3	☑	50412	5.0000	3.5608
D:\MassHunter\Data\2191025ACAL\2191025A_05.d	Calibration	4	☑	110986	10.0000	4.0240
D:\MassHunter\Data\2191025ACAL\2191025A_06.d	Calibration	5	☑	548978	50.0000	4.3095
D:\MassHunter\Data\2191025ACAL\2191025A_13.d	Calibration	6	☑	1218031	100.0000	4.4947
D:\MassHunter\Data\2191025ACAL\2191025A_08.d	Calibration	7	☑	2191441	200.0000	4.4674

Quantitative Analysis Calibration Report



Target Compound *LPFDS*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191025ACAL\2191025A_02.d	Calibration	1	☑	2915	0.4825	1.8561
D:\MassHunter\Data\2191025ACAL\2191025A_03.d	Calibration	2	☑	7845	1.2100	2.0325
D:\MassHunter\Data\2191025ACAL\2191025A_04.d	Calibration	3	☑	30175	4.8250	2.1753
D:\MassHunter\Data\2191025ACAL\2191025A_05.d	Calibration	4	☑	64481	9.6500	2.4303
D:\MassHunter\Data\2191025ACAL\2191025A_06.d	Calibration	5	☑	320129	48.2500	2.4941
D:\MassHunter\Data\2191025ACAL\2191025A_13.d	Calibration	6	☑	701783	96.5000	2.7426
D:\MassHunter\Data\2191025ACAL\2191025A_08.d	Calibration	7	☑	1410787	193.0000	2.9607

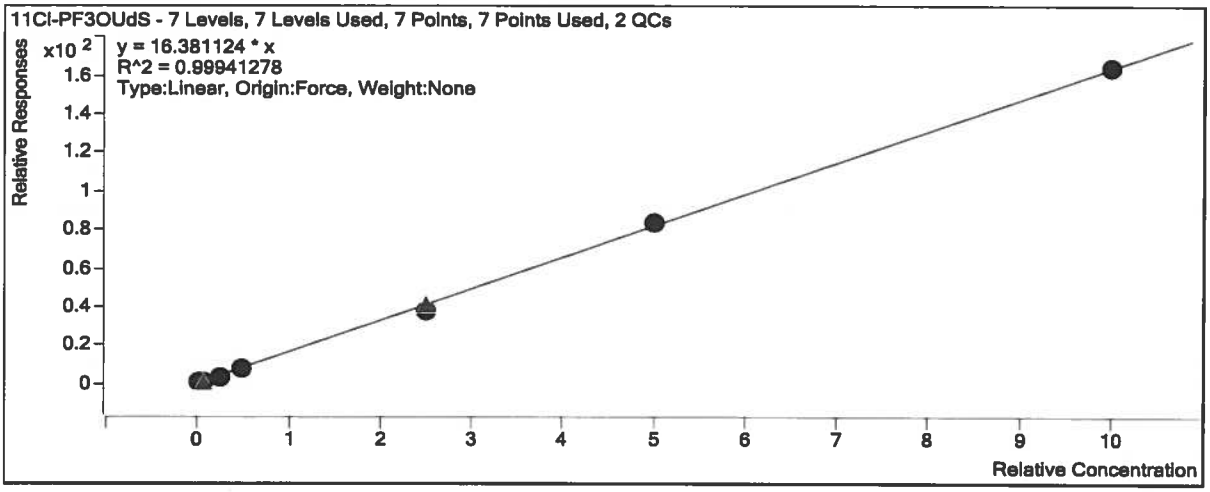


Target Compound *11Cl-PF3OUdS*

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

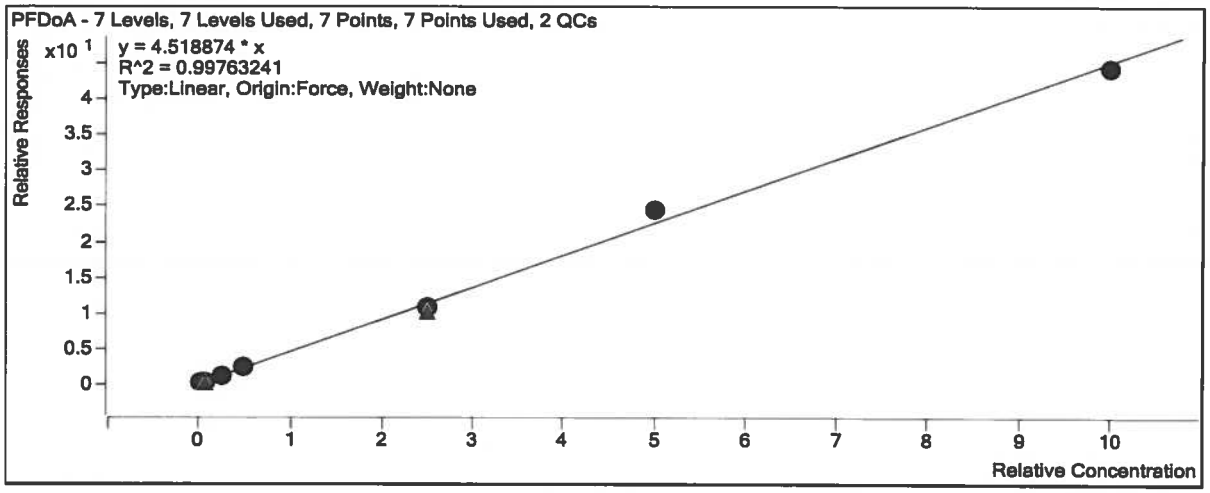
Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191025ACAL\2191025A_08.d	Calibration	7	☑	3863438	200.0000	16.4011



Target Compound *PFDoA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191025ACAL\2191025A_02.d	Calibration	1	☑	3521	0.5000	3.1448
D:\MassHunter\Data\2191025ACAL\2191025A_03.d	Calibration	2	☑	9271	1.2500	3.4921
D:\MassHunter\Data\2191025ACAL\2191025A_04.d	Calibration	3	☑	40384	5.0000	4.2621
D:\MassHunter\Data\2191025ACAL\2191025A_05.d	Calibration	4	☑	81642	10.0000	4.6089
D:\MassHunter\Data\2191025ACAL\2191025A_06.d	Calibration	5	☑	404237	50.0000	4.3850
D:\MassHunter\Data\2191025ACAL\2191025A_13.d	Calibration	6	☑	901311	100.0000	4.8783
D:\MassHunter\Data\2191025ACAL\2191025A_08.d	Calibration	7	☑	1731088	200.0000	4.4374

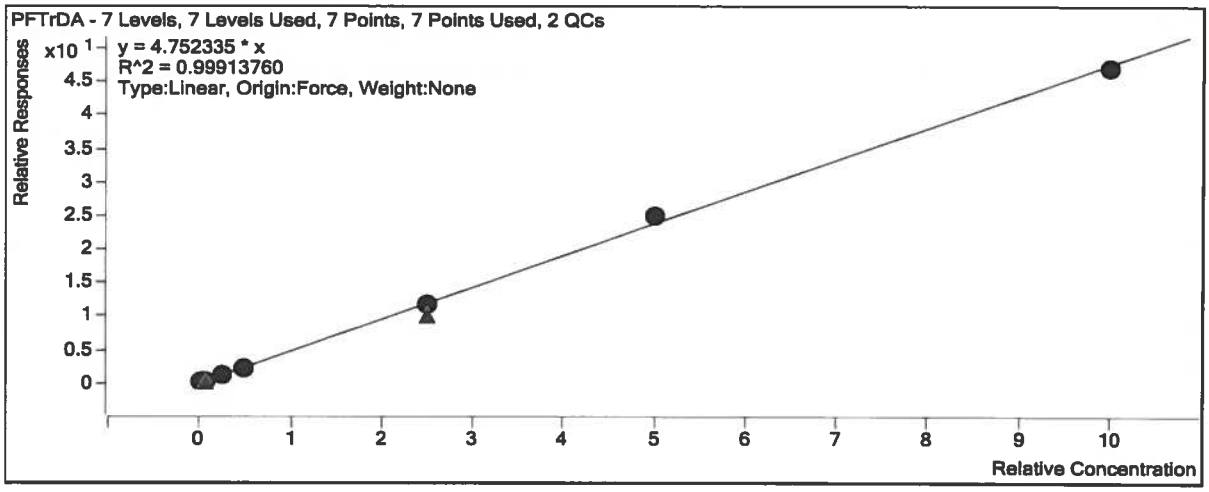


Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191025ACAL\2191025A_05.d	Calibration	4	☑	35428	20.0000	1771.4243
D:\MassHunter\Data\2191025ACAL\2191025A_06.d	Calibration	5	☑	36875	20.0000	1843.7399
D:\MassHunter\Data\2191025ACAL\2191025A_13.d	Calibration	6	☑	36952	20.0000	1847.5815
D:\MassHunter\Data\2191025ACAL\2191025A_08.d	Calibration	7	☑	39012	20.0000	1950.5817

Target Compound *PFTrDA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191025ACAL\2191025A_02.d	Calibration	1	☑	3648	0.5000	4.0033
D:\MassHunter\Data\2191025ACAL\2191025A_03.d	Calibration	2	☑	9326	1.2500	4.1089
D:\MassHunter\Data\2191025ACAL\2191025A_04.d	Calibration	3	☑	38490	5.0000	4.5366
D:\MassHunter\Data\2191025ACAL\2191025A_05.d	Calibration	4	☑	76930	10.0000	4.6596
D:\MassHunter\Data\2191025ACAL\2191025A_06.d	Calibration	5	☑	393729	50.0000	4.7601
D:\MassHunter\Data\2191025ACAL\2191025A_13.d	Calibration	6	☑	891723	100.0000	4.9794
D:\MassHunter\Data\2191025ACAL\2191025A_08.d	Calibration	7	☑	1734815	200.0000	4.6955

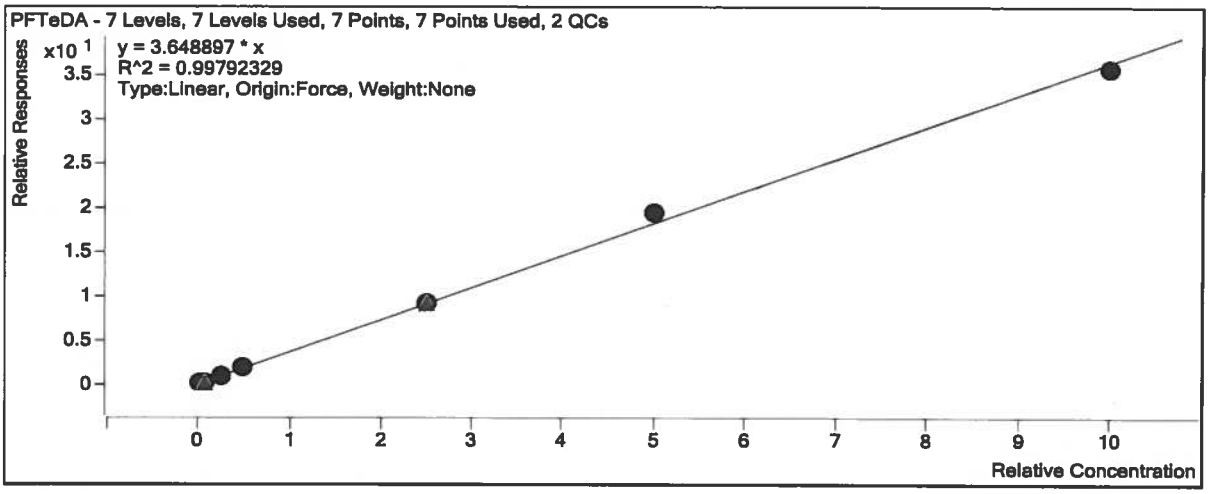


Target Compound *PFTeDA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191025ACAL\2191025A_02.d	Calibration	1	☑	3311	0.5000	3.6336
D:\MassHunter\Data\2191025ACAL\2191025A_03.d	Calibration	2	☑	7810	1.2500	3.4409
D:\MassHunter\Data\2191025ACAL\2191025A_04.d	Calibration	3	☑	29231	5.0000	3.4453
D:\MassHunter\Data\2191025ACAL\2191025A_05.d	Calibration	4	☑	60720	10.0000	3.6778

Quantitative Analysis Calibration Report

D:\MassHunter\Data\2191025ACAL\2191025A_06.d	Calibration	5	☑	306505	50.0000	3.7056
D:\MassHunter\Data\2191025ACAL\2191025A_13.d	Calibration	6	☑	701135	100.0000	3.9151
D:\MassHunter\Data\2191025ACAL\2191025A_08.d	Calibration	7	☑	1322261	200.0000	3.5789



Extracted ISTD ***M2PFTeDA***

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191025ACAL\2191025A_02.d	Calibration	1	☑	36450	20.0000	1822.5179
D:\MassHunter\Data\2191025ACAL\2191025A_03.d	Calibration	2	☑	36316	20.0000	1815.8139
D:\MassHunter\Data\2191025ACAL\2191025A_04.d	Calibration	3	☑	33937	20.0000	1696.8630
D:\MassHunter\Data\2191025ACAL\2191025A_05.d	Calibration	4	☑	33020	20.0000	1650.9814
D:\MassHunter\Data\2191025ACAL\2191025A_06.d	Calibration	5	☑	33086	20.0000	1654.2807
D:\MassHunter\Data\2191025ACAL\2191025A_13.d	Calibration	6	☑	35817	20.0000	1790.8374
D:\MassHunter\Data\2191025ACAL\2191025A_08.d	Calibration	7	☑	36946	20.0000	1847.3217

6I

ORGANICS INITIAL CALIBRATION VERIFICATION

Report No:	219102326	Instrument ID:	QQQ1
Analysis Date:	10/25/2019 12:12	Lab File ID:	2191025A_15.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	670215

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	50000	45700	91	70	130	
8:2 Fluorotelomer sulfonate	ng/L	50000	47000	94	70	130	
NEtFOSAA	ng/L	50000	47200	94	70	130	
NMeFOSAA	ng/L	50000	43500	87	70	130	
Perfluorobutanoic acid	ng/L	50000	45200	90	70	130	
Perfluorobutanesulfonic acid	ng/L	50000	45000	90	70	130	
Perfluorodecanoic acid	ng/L	50000	44300	89	70	130	
Perfluorododecanoic acid	ng/L	50000	44600	89	70	130	
Perfluoroheptanoic acid	ng/L	50000	42000	84	70	130	
Perfluorohexanoic acid	ng/L	50000	49100	98	70	130	
Perfluorohexanesulfonic acid	ng/L	50000	51200	102	70	130	
Perfluorononanoic acid	ng/L	50000	49800	100	70	130	
Perfluorooctanoic acid	ng/L	50000	46300	93	70	130	
Perfluorooctane Sulfonate	ng/L	50000	41000	82	70	130	
Perfluoropentanoic acid	ng/L	50000	44000	88	70	130	
Perfluorotetradecanoic acid	ng/L	50000	50100	100	70	130	
Perfluorotridecanoic acid	ng/L	50000	42400	85	70	130	
Perfluoroundecanoic acid	ng/L	50000	40600	81	70	130	

7S

ORGANICS INSTRUMENT SENSITIVITY CHECK

Report No:	219102326	Instrument ID:	QQQ1
Analysis Date:	10/25/2019 12:23	Lab File ID:	2191025A_16.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	670215

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	7.93	7.40	93	70	130	
8:2 Fluorotelomer sulfonate	ng/L	8.00	7.53	94	70	130	
NEtFOSAA	ng/L	8.33	7.80	94	70	130	
NMeFOSAA	ng/L	8.33	8.47	102	70	130	
Perfluorobutanoic acid	ng/L	8.33	7.27	87	70	130	
Perfluorobutanesulfonic acid	ng/L	7.40	6.19	84	70	130	
Perfluorodecanoic acid	ng/L	8.33	6.67	80	70	130	
Perfluorododecanoic acid	ng/L	8.33	7.33	88	70	130	
Perfluoroheptanoic acid	ng/L	8.33	6.17	74	70	130	
Perfluorohexanoic acid	ng/L	8.33	7.67	92	70	130	
Perfluorohexanesulfonic acid	ng/L	7.60	7.93	105	70	130	
Perfluorononanoic acid	ng/L	8.33	7.27	88	70	130	
Perfluorooctanoic acid	ng/L	8.33	7.33	88	70	130	
Perfluorooctane Sulfonate	ng/L	7.73	7.73	100	70	130	
Perfluoropentanoic acid	ng/L	8.33	6.29	75	70	130	
Perfluorotetradecanoic acid	ng/L	8.33	7.73	93	70	130	
Perfluorotridecanoic acid	ng/L	8.33	7.67	92	70	130	
Perfluoroundecanoic acid	ng/L	8.33	6.87	83	70	130	

FORM 7S - ORG

4I

ORGANICS INSTRUMENT BLANK

Report No:	219102326	Instrument ID:	QQQ1
Analysis Date:	10/25/2019 12:34	Lab File ID:	2191025A_17.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	670215

ANALYTE	UNITS	RESULT	Q	DL	LOD	LOQ	#
6:2 Fluorotelomer sulfonate	ng/L	4.00	U	1.79	4.00	10.0	
8:2 Fluorotelomer sulfonate	ng/L	4.00	U	1.63	4.00	10.0	
NEtFOSAA	ng/L	8.00	U	5.38	8.00	10.0	
NMeFOSAA	ng/L	8.00	U	4.60	8.00	10.0	
Perfluorobutanesulfonic acid	ng/L	4.00	U	1.47	4.00	10.0	
Perfluorobutanoic acid	ng/L	4.00	U	2.13	4.00	10.0	
Perfluorodecanoic acid	ng/L	4.00	U	1.65	4.00	10.0	
Perfluorododecanoic acid	ng/L	4.00	U	2.45	4.00	10.0	
Perfluoroheptanoic acid	ng/L	4.00	U	1.85	4.00	10.0	
Perfluorohexanesulfonic acid	ng/L	4.00	U	1.64	4.00	10.0	
Perfluorohexanoic acid	ng/L	4.00	U	1.94	4.00	10.0	
Perfluorononanoic acid	ng/L	4.00	U	1.68	4.00	10.0	
Perfluorooctane Sulfonate	ng/L	4.00	U	1.70	4.00	10.0	
Perfluorooctanoic acid	ng/L	4.00	U	1.80	4.00	10.0	
Perfluoropentanoic acid	ng/L	4.00	U	2.35	4.00	10.0	
Perfluorotetradecanoic acid	ng/L	4.00	U	2.76	4.00	10.0	
Perfluorotridecanoic acid	ng/L	4.00	U	2.56	4.00	10.0	
Perfluoroundecanoic acid	ng/L	4.00	U	1.86	4.00	10.0	

* - Result greater than 1/2 LOQ

LCMS1 Run Log

Analyst:	BMH	Expiration
Batch:	2191028A	Date
Current ICAL Bath:	2191025ACAL/2191025ACALDW	Date
20mM Amm Acetate	010-9-6	10/30/2019
Methanol	2128445	7/31/2024
Calibration Std	010-9-3	4/23/2020
ICV Std	010-6-5	4/9/2020
EIS Mix	010-9-2	4/22/2020

Name	Data File	Type	Acq. Date-Time	Comment	Dil.
MeOH Shot	2191028A_01.d	MeOH shot	10/28/2019 8:30	Instrument Idle/MeOH shot	1
1500	2191028A_02.d	Sample	10/28/2019 8:41		1
1450	2191028A_03.d	QC	10/28/2019 8:52		1
1973858	2191028A_04.d	Sample	10/28/2019 9:03	669804	1
1973859	2191028A_05.d	QC	10/28/2019 9:15	669804	1
1973860	2191028A_06.d	QC	10/28/2019 9:26	669804	1
1400	2191028A_07.d	QC	10/28/2019 9:37		1
MeOH Shot	2191028A_08.d	MeOH shot	10/28/2019 10:17	Instrument Idle/MeOH shot	1
LCS Test 1	2191028A_09.d	Sample	10/28/2019 10:27	10 mL Eluent	1
LCS Test 2	2191028A_10.d	Sample	10/28/2019 10:39	10 mL Eluent	1
LCS Test 3	2191028A_11.d	Sample	10/28/2019 10:50	10 mL Eluent	1
LCS Test 4	2191028A_12.d	Sample	10/28/2019 11:01	10 mL Eluent	1
LCS Test 1	2191028A_13.d	Sample	10/28/2019 11:13	14 mL Eluent	1
LCS Test 2	2191028A_14.d	Sample	10/28/2019 11:24	14 mL Eluent	1
LCS Test 3	2191028A_15.d	Sample	10/28/2019 11:35	14 mL Eluent	1
LCS Test 4	2191028A_16.d	Sample	10/28/2019 11:47	14 mL Eluent	1
MeOH Shot	2191028A_17.d	MeOH shot	10/28/2019 11:58	Instrument Idle/MeOH shot	1
1974706	2191028A_18.d	Sample	10/28/2019 12:09	669968	1
1974707	2191028A_19.d	QC	10/28/2019 12:20	669968	1
MeOH Shot	2191028A_20.d	MeOH shot	10/28/2019 13:42	Instrument Idle/MeOH shot	1
1974708	2191028A_21.d	QC	10/28/2019 13:53	Instrument error occurred after analysis	1
MeOH Shot	2191028A_22.d	MeOH shot	10/28/2019 14:47	Instrument Idle/MeOH shot - Restart Run	1

21910171501	2191028A_23.d	Sample	10/28/2019 14:58	669968	1
21910171503	2191028A_24.d	Sample	10/28/2019 15:09	669968	1
21910171504	2191028A_25.d	Sample	10/28/2019 15:21	669968	1
21910171505	2191028A_26.d	Sample	10/28/2019 15:32	669968	1
21910171506	2191028A_27.d	Sample	10/28/2019 15:44	669968	1
21910171507	2191028A_28.d	Sample	10/28/2019 15:55	669968	1
21910171508	2191028A_29.d	Sample	10/28/2019 16:06	669968	1
21910171509	2191028A_30.d	Sample	10/28/2019 16:17	669968	1
21910171510	2191028A_31.d	QC	10/28/2019 16:29	669968	1
21910171511	2191028A_32.d	QC	10/28/2019 16:40	669968	1
1400	2191028A_33.d	QC	10/28/2019 16:51		1
21910171512	2191028A_34.d	Sample	10/28/2019 17:03	669968	1
21910171515	2191028A_35.d	Sample	10/28/2019 17:14	669968	1
21910171516	2191028A_36.d	Sample	10/28/2019 17:26	669968	1
21910171518	2191028A_37.d	Sample	10/28/2019 17:37	669968	1
21910171521	2191028A_38.d	Sample	10/28/2019 17:48	669968	1
21910232602	2191028A_39.d	Sample	10/28/2019 18:00	669968	1
21910232603	2191028A_40.d	QC	10/28/2019 18:11	669968	1
21910232604	2191028A_41.d	QC	10/28/2019 18:22	669968	1
21910232605	2191028A_42.d	Sample	10/28/2019 18:34	669968	1
21910232606	2191028A_43.d	Sample	10/28/2019 18:45	669968	1
1400	2191028A_44.d	QC	10/28/2019 18:56		1
1975549	2191028A_45.d	Sample	10/28/2019 19:08	670127	1
1975550	2191028A_46.d	QC	10/28/2019 19:19	670127	1
1975551	2191028A_47.d	QC	10/28/2019 19:30	670127	1
21910171502	2191028A_48.d	Sample	10/28/2019 19:42	670127	1
21910171519	2191028A_49.d	Sample	10/28/2019 19:53	670127	1
21910171520	2191028A_50.d	Sample	10/28/2019 20:04	670127	1
21910171513	2191028A_51.d	Sample	10/28/2019 20:16	670127	1
21910171514	2191028A_52.d	Sample	10/28/2019 20:27	670127	1
21910173801	2191028A_53.d	Sample	10/28/2019 20:38	670127	1
21910183301	2191028A_54.d	Sample	10/28/2019 20:50	670127	1
21910254105	2191028A_55.d	Sample	10/28/2019 21:01	670127	1
21910254106	2191028A_56.d	Sample	10/28/2019 21:12	670127	1

21910254108	2191028A_57.d	Sample	10/28/2019 21:24	670127	1
1400	2191028A_58.d	QC	10/28/2019 21:35		1
21910254111	2191028A_59.d	Sample	10/28/2019 21:47	670127	1
21910254112	2191028A_60.d	Sample	10/28/2019 21:58	670127	1
21910254115	2191028A_61.d	Sample	10/28/2019 22:09	670127	1
21910254117	2191028A_62.d	Sample	10/28/2019 22:21	670127	1
21910254121	2191028A_63.d	Sample	10/28/2019 22:32	670127	1
1400	2191028A_64.d	QC	10/28/2019 22:43		1
1974523	2191028A_65.d	Sample	10/28/2019 22:55	669938	1
1974524	2191028A_66.d	QC	10/28/2019 23:06	669938	1
1974525	2191028A_67.d	QC	10/28/2019 23:18	669938	1
21910222815	2191028A_68.d	Sample	10/28/2019 23:29	669938	1
21910222801	2191028A_69.d	Sample	10/28/2019 23:40	669938	1
21910222802	2191028A_70.d	Sample	10/28/2019 23:52	669938	1
21910222803	2191028A_71.d	Sample	10/29/2019 0:03	669938	1
21910222804	2191028A_72.d	Sample	10/29/2019 0:14	669938	1
21910222805	2191028A_73.d	Sample	10/29/2019 0:26	669938	1
21910222806	2191028A_74.d	QC	10/29/2019 0:37	669938	1
21910222807	2191028A_75.d	QC	10/29/2019 0:48	669938	1
21910222808	2191028A_76.d	Sample	10/29/2019 1:00	669938	1
21910222809	2191028A_77.d	Sample	10/29/2019 1:11	669938	1
21910222810	2191028A_78.d	Sample	10/29/2019 1:22	669938	1
21910222811	2191028A_79.d	Sample	10/29/2019 1:34	669938	1
1400	2191028A_80.d	QC	10/29/2019 1:45		1
21910222812	2191028A_81.d	Sample	10/29/2019 1:56	669938	1
21910222813	2191028A_82.d	Sample	10/29/2019 2:08	669938	1
21910222814	2191028A_83.d	Sample	10/29/2019 2:19	669938	1
21910222816	2191028A_84.d	Sample	10/29/2019 2:31	669938	1
21910223601	2191028A_85.d	Sample	10/29/2019 2:42	669938	1
21910226001	2191028A_86.d	Sample	10/29/2019 2:53	669938	5
MeOH Shot	2191028A_87.d	MeOH shot	10/29/2019 3:05	Instrument Idle/MeOH shot	1
21910210302	2191028A_88.d	Sample	10/29/2019 3:15	669804 RR	1
21910171513 x10	2191028A_89.d	Sample	10/29/2019 3:27	669627 DIA	1
21910171514 x10	2191028A_90.d	Sample	10/29/2019 3:38	669627 DIA	1

1400	2191028A_91.d	QC	10/29/2019 3:49		1
MeOH Shot	2191028A_92.d	MeOH shot	10/29/2019 4:00	Instrument Idle/MeOH shot	1
1973864	2191028A_93.d	Sample	10/29/2019 4:11	669806	1
1973865	2191028A_94.d	QC	10/29/2019 4:23	669806	1
1973866	2191028A_95.d	QC	10/29/2019 4:34	669806	1
1400	2191028A_96.d	QC	10/29/2019 4:45		1

4I

ORGANICS INSTRUMENT BLANK

Report No:	219102326	Instrument ID:	QQQ1
Analysis Date:	10/28/2019 08:41	Lab File ID:	2191028A_02.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	670389

ANALYTE	UNITS	RESULT	Q	DL	LOD	LOQ	#
6:2 Fluorotelomer sulfonate	ng/L	4.00	U	1.79	4.00	10.0	
8:2 Fluorotelomer sulfonate	ng/L	4.00	U	1.63	4.00	10.0	
NEtFOSAA	ng/L	8.00	U	5.38	8.00	10.0	
NMeFOSAA	ng/L	8.00	U	4.60	8.00	10.0	
Perfluorobutanesulfonic acid	ng/L	4.00	U	1.47	4.00	10.0	
Perfluorobutanoic acid	ng/L	4.00	U	2.13	4.00	10.0	
Perfluorodecanoic acid	ng/L	4.00	U	1.65	4.00	10.0	
Perfluorododecanoic acid	ng/L	4.00	U	2.45	4.00	10.0	
Perfluoroheptanoic acid	ng/L	4.00	U	1.85	4.00	10.0	
Perfluorohexanesulfonic acid	ng/L	4.00	U	1.64	4.00	10.0	
Perfluorohexanoic acid	ng/L	4.00	U	1.94	4.00	10.0	
Perfluorononanoic acid	ng/L	4.00	U	1.68	4.00	10.0	
Perfluorooctane Sulfonate	ng/L	4.00	U	1.70	4.00	10.0	
Perfluorooctanoic acid	ng/L	4.00	U	1.80	4.00	10.0	
Perfluoropentanoic acid	ng/L	4.00	U	2.35	4.00	10.0	
Perfluorotetradecanoic acid	ng/L	4.00	U	2.76	4.00	10.0	
Perfluorotridecanoic acid	ng/L	4.00	U	2.56	4.00	10.0	
Perfluoroundecanoic acid	ng/L	4.00	U	1.86	4.00	10.0	

* - Result greater than 1/2 LOQ

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ORGANICS INSTRUMENT SENSITIVITY CHECK

Report No:	219102326	Instrument ID:	QQQ1
Analysis Date:	10/28/2019 08:52	Lab File ID:	2191028A_03.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	670389

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	7.93	8.00	101	70	130	
8:2 Fluorotelomer sulfonate	ng/L	8.00	7.53	94	70	130	
NEtFOSAA	ng/L	8.33	10.1	121	70	130	
NMeFOSAA	ng/L	8.33	7.40	88	70	130	
Perfluorobutanoic acid	ng/L	8.33	7.67	92	70	130	
Perfluorobutanesulfonic acid	ng/L	7.40	5.99	81	70	130	
Perfluorodecanoic acid	ng/L	8.33	6.93	83	70	130	
Perfluorododecanoic acid	ng/L	8.33	7.47	90	70	130	
Perfluoroheptanoic acid	ng/L	8.33	7.87	94	70	130	
Perfluorohexanoic acid	ng/L	8.33	7.47	89	70	130	
Perfluorohexanesulfonic acid	ng/L	7.60	8.33	110	70	130	
Perfluorononanoic acid	ng/L	8.33	6.87	82	70	130	
Perfluorooctanoic acid	ng/L	8.33	6.48	78	70	130	
Perfluorooctane Sulfonate	ng/L	7.73	7.27	94	70	130	
Perfluoropentanoic acid	ng/L	8.33	6.73	81	70	130	
Perfluorotetradecanoic acid	ng/L	8.33	7.73	93	70	130	
Perfluorotridecanoic acid	ng/L	8.33	7.20	87	70	130	
Perfluoroundecanoic acid	ng/L	8.33	6.51	78	70	130	

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ORGANICS CALIBRATION VERIFICATION

Report No:	219102326	Instrument ID:	QQQ1
Analysis Date:	10/28/2019 09:37	Lab File ID:	2191028A_07.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	670389

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	47500	45100	95	70	130	
8:2 Fluorotelomer sulfonate	ng/L	48000	49000	102	70	130	
NEtFOSAA	ng/L	50000	48400	97	70	130	
NMeFOSAA	ng/L	50000	50800	102	70	130	
Perfluorobutanoic acid	ng/L	50000	46200	92	70	130	
Perfluorobutanesulfonic acid	ng/L	44300	41000	93	70	130	
Perfluorodecanoic acid	ng/L	50000	46800	94	70	130	
Perfluorododecanoic acid	ng/L	50000	50200	100	70	130	
Perfluoroheptanoic acid	ng/L	50000	45200	90	70	130	
Perfluorohexanoic acid	ng/L	50000	47700	95	70	130	
Perfluorohexanesulfonic acid	ng/L	45600	50300	110	70	130	
Perfluorononanoic acid	ng/L	50000	49900	100	70	130	
Perfluorooctanoic acid	ng/L	50000	47500	95	70	130	
Perfluorooctane Sulfonate	ng/L	46300	48700	105	70	130	
Perfluoropentanoic acid	ng/L	50000	45800	92	70	130	
Perfluorotetradecanoic acid	ng/L	50000	52700	105	70	130	
Perfluorotridecanoic acid	ng/L	50000	50500	101	70	130	
Perfluoroundecanoic acid	ng/L	50000	46100	92	70	130	

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ORGANICS CALIBRATION VERIFICATION

Report No:	219102326	Instrument ID:	QQQ1
Analysis Date:	10/28/2019 16:51	Lab File ID:	2191028A_33.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	670389

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	47500	44000	93	70	130	
8:2 Fluorotelomer sulfonate	ng/L	48000	47900	100	70	130	
NEtFOSAA	ng/L	50000	58000	116	70	130	
NMeFOSAA	ng/L	50000	53600	107	70	130	
Perfluorobutanoic acid	ng/L	50000	46700	93	70	130	
Perfluorobutanesulfonic acid	ng/L	44300	42000	95	70	130	
Perfluorodecanoic acid	ng/L	50000	49000	98	70	130	
Perfluorododecanoic acid	ng/L	50000	49800	100	70	130	
Perfluoroheptanoic acid	ng/L	50000	45400	91	70	130	
Perfluorohexanoic acid	ng/L	50000	48700	97	70	130	
Perfluorohexanesulfonic acid	ng/L	45600	49400	108	70	130	
Perfluorononanoic acid	ng/L	50000	51800	104	70	130	
Perfluorooctanoic acid	ng/L	50000	46100	92	70	130	
Perfluorooctane Sulfonate	ng/L	46300	48500	105	70	130	
Perfluoropentanoic acid	ng/L	50000	44900	90	70	130	
Perfluorotetradecanoic acid	ng/L	50000	53800	108	70	130	
Perfluorotridecanoic acid	ng/L	50000	49600	99	70	130	
Perfluoroundecanoic acid	ng/L	50000	46200	92	70	130	

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ORGANICS CALIBRATION VERIFICATION

Report No:	219102326	Instrument ID:	QQQ1
Analysis Date:	10/28/2019 18:56	Lab File ID:	2191028A_44.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	670389

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	47500	41600	88	70	130	
8:2 Fluorotelomer sulfonate	ng/L	48000	46700	97	70	130	
NEtFOSAA	ng/L	50000	59400	119	70	130	
NMeFOSAA	ng/L	50000	52000	104	70	130	
Perfluorobutanoic acid	ng/L	50000	46500	93	70	130	
Perfluorobutanesulfonic acid	ng/L	44300	41400	93	70	130	
Perfluorodecanoic acid	ng/L	50000	48500	97	70	130	
Perfluorododecanoic acid	ng/L	50000	54200	108	70	130	
Perfluoroheptanoic acid	ng/L	50000	44900	90	70	130	
Perfluorohexanoic acid	ng/L	50000	48900	98	70	130	
Perfluorohexanesulfonic acid	ng/L	45600	53700	118	70	130	
Perfluorononanoic acid	ng/L	50000	48400	97	70	130	
Perfluorooctanoic acid	ng/L	50000	46300	93	70	130	
Perfluorooctane Sulfonate	ng/L	46300	49700	107	70	130	
Perfluoropentanoic acid	ng/L	50000	45100	90	70	130	
Perfluorotetradecanoic acid	ng/L	50000	52600	105	70	130	
Perfluorotridecanoic acid	ng/L	50000	50900	102	70	130	
Perfluoroundecanoic acid	ng/L	50000	43900	88	70	130	

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ORGANICS CALIBRATION VERIFICATION

Report No:	219102541	Instrument ID:	QQQ1
Analysis Date:	10/28/2019 21:35	Lab File ID:	2191028A_58.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	670389

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	47500	45600	96	70	130	
8:2 Fluorotelomer sulfonate	ng/L	48000	44200	92	70	130	
NEtFOSAA	ng/L	50000	56500	113	70	130	
NMeFOSAA	ng/L	50000	50200	100	70	130	
Perfluorobutanoic acid	ng/L	50000	46500	93	70	130	
Perfluorobutanesulfonic acid	ng/L	44300	42600	96	70	130	
Perfluorodecanoic acid	ng/L	50000	47500	95	70	130	
Perfluorododecanoic acid	ng/L	50000	52500	105	70	130	
Perfluoroheptanoic acid	ng/L	50000	44100	88	70	130	
Perfluorohexanoic acid	ng/L	50000	47500	95	70	130	
Perfluorohexanesulfonic acid	ng/L	45600	49400	108	70	130	
Perfluorononanoic acid	ng/L	50000	50600	101	70	130	
Perfluorooctanoic acid	ng/L	50000	49700	99	70	130	
Perfluorooctane Sulfonate	ng/L	46300	50800	110	70	130	
Perfluoropentanoic acid	ng/L	50000	45000	90	70	130	
Perfluorotetradecanoic acid	ng/L	50000	50200	100	70	130	
Perfluorotridecanoic acid	ng/L	50000	48600	97	70	130	
Perfluoroundecanoic acid	ng/L	50000	45600	91	70	130	

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ORGANICS CALIBRATION VERIFICATION

Report No:	219102541	Instrument ID:	QQQ1
Analysis Date:	10/28/2019 22:43	Lab File ID:	2191028A_64.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	670389

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	47500	44100	93	70	130	
8:2 Fluorotelomer sulfonate	ng/L	48000	42300	88	70	130	
NEtFOSAA	ng/L	50000	52600	105	70	130	
NMeFOSAA	ng/L	50000	51800	104	70	130	
Perfluorobutanoic acid	ng/L	50000	46800	94	70	130	
Perfluorobutanesulfonic acid	ng/L	44300	42000	95	70	130	
Perfluorodecanoic acid	ng/L	50000	46700	93	70	130	
Perfluorododecanoic acid	ng/L	50000	49900	100	70	130	
Perfluoroheptanoic acid	ng/L	50000	46200	92	70	130	
Perfluorohexanoic acid	ng/L	50000	48500	97	70	130	
Perfluorohexanesulfonic acid	ng/L	45600	48300	106	70	130	
Perfluorononanoic acid	ng/L	50000	50300	101	70	130	
Perfluorooctanoic acid	ng/L	50000	49900	100	70	130	
Perfluorooctane Sulfonate	ng/L	46300	50700	110	70	130	
Perfluoropentanoic acid	ng/L	50000	44900	90	70	130	
Perfluorotetradecanoic acid	ng/L	50000	52600	105	70	130	
Perfluorotridecanoic acid	ng/L	50000	50000	100	70	130	
Perfluoroundecanoic acid	ng/L	50000	45500	91	70	130	

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INJECTION INTERNAL STANDARD AREA SUMMARY

Report No:	219102326	Standard ID:	1450 (ISC)
Analyst:	BMH	Instrument ID:	QQQ1
Analysis Date:	10/28/19 08:52	Lab File ID:	2191028A_03.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	670389

	M2PFDA	M2PFHxA	M2PFOA	M4PFOS
	Area	*Area*	*Area*	*Area*
STANDARD	215378	567231	194635	164180

CLIENT SAMPLE ID	*GCAL SAMP ID*		#		#		#		#
MB1974706	1974706	221230		587379		203692		178150	
LCS1974707	1974707	225676		591509		205736		176042	
LCSD1974708	1974708	241905		635350		220898		185238	
AOI6-1-SB-1.5-2-102219	21910232602	228790		589026		211162		166023	
AOI6-1-SB-1.5-2-102219-MS	21910232603	221028		574816		201420		158426	
AOI6-1-SB-1.5-2-102219-MSD	21910232604	222680		584762		206047		167410	
AOI6-1-SB-7-7.5-102219	21910232605	226346		583584		208455		167618	
AOI6-1-SB-18.5-19-102219	21910232606	234427		590334		215716		169337	

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 8I - ORG

8I

INJECTION INTERNAL STANDARD AREA SUMMARY

Report No:	219102541	Standard ID:	1450 (ISC)
Analyst:	BMH	Instrument ID:	QQQ1
Analysis Date:	10/28/19 08:52	Lab File ID:	2191028A_03.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	670389

	M2PFDA	M2PFHxA	M2PFOA	M4PFOS
	Area	*Area*	*Area*	*Area*
STANDARD	215378	567231	194635	164180

CLIENT SAMPLE ID	*GCAL SAMP ID*		#		#		#		#
MB1975549	1975549	216240		576690		183441		165875	
LCS1975550	1975550	219378		579978		211211		167241	
LCSD1975551	1975551	208511		563773		196382		160349	
JFTBLA-EB-B-102319	21910254105	194268		573470		198927		158942	
JFTBLA-EB-HA-02319	21910254106	206497		582956		199009		158013	
JFTBLA-EB-WM-102319	21910254108	204387		584326		199550		169969	
AOI1-5-GW-102319	21910254111	178627		340155		94204	*	154260	
AOI1-SA-GW-102319	21910254112	193345		459514		110490		159733	
AOI1-6-GW-102319	21910254115	161722		563319		104301		135992	
AOI1-4-GW-102319	21910254117	211560		538208		149123		163795	
AOI1-2-GW-102319	21910254121	169629		504419		107375		120959	

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

*for monitoring only

FORM 8I - ORG

LCMS1 Run Log

Analyst:	BMH	Expiration
Batch:	2191031A	Date
Current ICAL Bath:	21910231ACAL/2191031ACALDW	Date
20mM Amm Acetate	010-10-2	11/2/2019
Methanol	2128445	7/31/2024
Calibration Std	010-9-3	4/23/2020
ICV Std	010-6-5	4/9/2020
EIS Mix	010-9-9	4/30/2020

Name	Data File	Type	Acq. Date-Time	Comment	Dil.
MeOH Shot	2191031A_01.d	Method Blank	10/31/2019 10:58	Instrument Idle/MeOH shot	1
1201	2191031A_02.d	Cal	10/31/2019 11:08		1
1202	2191031A_03.d	Cal	10/31/2019 11:20	RR ACCURACY FAIL	1
1203	2191031A_04.d	Cal	10/31/2019 11:31		1
1204	2191031A_05.d	Cal	10/31/2019 11:42		1
1205	2191031A_06.d	Cal	10/31/2019 11:53		1
1206	2191031A_07.d	Cal	10/31/2019 12:05		1
1207	2191031A_08.d	Cal	10/31/2019 12:16		1
MeOH Shot	2191031A_09.d	Method Blank	10/31/2019 12:46	Instrument Idle/MeOH shot	1
1202	2191031A_10.d	Cal	10/31/2019 12:57		1
MeOH Shot	2191031A_11.d	Method Blank	10/31/2019 13:29	Instrument Idle/MeOH shot	1
1600	2191031A_12.d	QC	10/31/2019 13:39		1
1450	2191031A_13.d	QC	10/31/2019 13:51	RR ACCURACY FAIL	1
1500	2191031A_14.d	Sample	10/31/2019 14:02		1
MeOH Shot	2191031A_15.d	Method Blank	10/31/2019 14:16	Instrument Idle/MeOH shot	1
1450	2191031A_16.d	QC	10/31/2019 14:27		1
MeOH Shot	2191031A_17.d	Method Blank	10/31/2019 14:38	Instrument Idle/MeOH shot	1
MeOH Shot	2191031A_18.d	Method Blank	10/31/2019 14:50	Instrument Idle/MeOH shot	1
1974715	2191031A_19.d	Sample	10/31/2019 15:00	669972	1
1974716	2191031A_20.d	QC	10/31/2019 15:12	669972	1
1974717	2191031A_21.d	QC	10/31/2019 15:23	669972	1
1976627	2191031A_22.d	Sample	10/31/2019 15:34	670307	1

1976628	2191031A_23.d	QC	10/31/2019 15:46	670307	1
1976629	2191031A_24.d	QC	10/31/2019 15:57	670307	1
21910171513	2191031A_25.d	Sample	10/31/2019 16:08	669627	100
21910171514	2191031A_26.d	Sample	10/31/2019 16:20	669627	100
21910121406	2191031A_27.d	Sample	10/31/2019 16:31	669220	1
21910121408	2191031A_28.d	Sample	10/31/2019 16:43	669220	1
21910173801	2191031A_29.d	Sample	10/31/2019 16:54	669968 IIS is double spiked	1
21910254112	2191031A_30.d	Sample	10/31/2019 17:05	670127	50
21910254115	2191031A_31.d	Sample	10/31/2019 17:16	670127	50
21910254121	2191031A_32.d	Sample	10/31/2019 17:28	670127	50
MeOH Shot	2191031A_33.d	Method Blank	10/31/2019 17:39	Instrument Idle/MeOH shot	1
1400	2191031A_34.d	QC	10/31/2019 17:50		1
21910291501	2191031A_35.d	Sample	10/31/2019 18:01	670307	1
21910291502	2191031A_36.d	Sample	10/31/2019 18:13	670307	1
21910291503	2191031A_37.d	Sample	10/31/2019 18:24	670307	1
21910291503 10X	2191031A_38.d	Sample	10/31/2019 18:35	670307	10
21910291504	2191031A_39.d	Sample	10/31/2019 18:46	670307	1
21910254111	2191031A_40.d	Sample	10/31/2019 18:58	670127	20
21910254117	2191031A_41.d	Sample	10/31/2019 19:09	670127	10
MeOH Shot	2191031A_42.d	Method Blank	10/31/2019 19:20	Instrument Idle/MeOH shot	1
21910232602	2191031A_43.d	Sample	10/31/2019 19:31	669968	5
21910232603	2191031A_44.d	Sample	10/31/2019 19:43	669968	5
21910232604	2191031A_45.d	Sample	10/31/2019 19:54	669968	5
MeOH Shot	2191031A_46.d	Method Blank	10/31/2019 20:05	Instrument Idle/MeOH shot	1
1977423	2191031A_47.d	Sample	10/31/2019 20:16		1
1977424	2191031A_48.d	QC	10/31/2019 20:27		1
1977425	2191031A_49.d	QC	10/31/2019 20:39		1
1400	2191031A_50.d	QC	10/31/2019 20:50		1
1974523	2191031A_51.d	Sample	10/31/2019 21:01		1
1974524	2191031A_52.d	QC	10/31/2019 21:13		1
1974525	2191031A_53.d	QC	10/31/2019 21:24		1
21910222815	2191031A_54.d	Sample	10/31/2019 21:35		1
21910222801	2191031A_55.d	Sample	10/31/2019 21:47		1
21910222802	2191031A_56.d	Sample	10/31/2019 21:58		1

21910222803	2191031A_57.d	Sample	10/31/2019 22:10		1
21910222804	2191031A_58.d	Sample	10/31/2019 22:21		1
21910222805	2191031A_59.d	Sample	10/31/2019 22:32		1
21910222806	2191031A_60.d	QC	10/31/2019 22:44		1
21910222807	2191031A_61.d	QC	10/31/2019 22:55		1
21910222808	2191031A_62.d	Sample	10/31/2019 23:06		5
21910222809	2191031A_63.d	Sample	10/31/2019 23:18		1
21910222810	2191031A_64.d	Sample	10/31/2019 23:29		1
21910222811	2191031A_65.d	Sample	10/31/2019 23:40		1
1400	2191031A_66.d	QC	10/31/2019 23:52		1
21910222812	2191031A_67.d	Sample	11/1/2019 0:03		5
21910222813	2191031A_68.d	Sample	11/1/2019 0:14		1
21910222814	2191031A_69.d	Sample	11/1/2019 0:26		5
21910222816	2191031A_70.d	Sample	11/1/2019 0:37		1
21910223601	2191031A_71.d	Sample	11/1/2019 0:49		1
21910222808	2191031A_72.d	Sample	11/1/2019 1:00		1
21910222812	2191031A_73.d	Sample	11/1/2019 1:11		1
21910222814	2191031A_74.d	Sample	11/1/2019 1:23		1
21910226001	2191031A_75.d	Sample	11/1/2019 1:34		10
1400	2191031A_76.d	QC	11/1/2019 1:46		1
MeOH Shot	2191031A_77.d	Method Blank	11/1/2019 1:57	Instrument Idle/MeOH shot	1
1973864	2191031A_78.d	Sample	11/1/2019 2:08	669806	1
1973865	2191031A_79.d	QC	11/1/2019 2:19	669806	1
1973866	2191031A_80.d	QC	11/1/2019 2:30	669806	1
21910210414	2191031A_81.d	Sample	11/1/2019 2:42	669806	1
21910210401	2191031A_82.d	Sample	11/1/2019 2:53	669806	1
21910210402	2191031A_83.d	Sample	11/1/2019 3:04	669806	1
21910210403	2191031A_84.d	Sample	11/1/2019 3:16	669806	1
21910210404	2191031A_85.d	Sample	11/1/2019 3:27	669806	1
21910210405	2191031A_86.d	Sample	11/1/2019 3:39	669806	1
21910210406	2191031A_87.d	Sample	11/1/2019 3:50	669806	1
21910210407	2191031A_88.d	Sample	11/1/2019 4:01	669806	1
21910210408	2191031A_89.d	Sample	11/1/2019 4:13	669806	1
21910210409	2191031A_90.d	Sample	11/1/2019 4:24	669806	1

1400	2191031A_91.d	QC	11/1/2019 4:35		1
21910210410	2191031A_92.d	Sample	11/1/2019 4:47	669806	1
21910210411	2191031A_93.d	Sample	11/1/2019 4:58	669806	1
21910210412	2191031A_94.d	QC	11/1/2019 5:09	669806	1
21910210413	2191031A_95.d	QC	11/1/2019 5:21	669806	1
1400	2191031A_96.d	QC	11/1/2019 5:32		1
MeOH Shot	2191031A_97.d	Method Blank	11/1/2019 5:44	Instrument Idle/MeOH shot	1
1974526	2191031A_98.d	Sample	11/1/2019 5:54	Will RR on Worklist 2191101A	1
1974527	2191031A_99.d	QC	11/1/2019 6:06	Will RR on Worklist 2191101A	1
1974528	2191031A_100.d	QC	11/1/2019 6:17	Will RR on Worklist 2191101A	1
21910110423	2191031A_101.d	Sample	11/1/2019 6:28	Will RR on Worklist 2191101A	1
21910110424	2191031A_102.d	Sample	11/1/2019 6:40	Will RR on Worklist 2191101A	1
21910110425	2191031A_103.d	Sample	11/1/2019 6:51	Will RR on Worklist 2191101A	1
21910110426	2191031A_104.d	Sample	11/1/2019 7:02	Will RR on Worklist 2191101A	1
21910110427	2191031A_105.d	Sample	11/1/2019 7:13	Will RR on Worklist 2191101A	1
21910110428	2191031A_106.d	Sample	11/1/2019 7:25	Will RR on Worklist 2191101A	1
21910110429	2191031A_107.d	Sample	11/1/2019 7:36	Will RR on Worklist 2191101A	1
21910110430	2191031A_108.d	Sample	11/1/2019 7:47	Will RR on Worklist 2191101A	1
21910110413	2191031A_109.d	Sample	11/1/2019 7:59	Will RR on Worklist 2191101A	1
21910225101	2191031A_110.d	Sample	11/1/2019 8:10	Will RR on Worklist 2191101A	1
1400	2191031A_111.d	QC	11/1/2019 8:21		1
21910225102	2191031A_112.d	Sample	11/1/2019 8:33	Will RR on Worklist 2191101A	1
21910225103	2191031A_113.d	Sample	11/1/2019 8:44	Will RR on Worklist 2191101A	1
21910225104	2191031A_114.d	Sample	11/1/2019 8:55	Will RR on Worklist 2191101A	1
21910225105	2191031A_115.d	Sample	11/1/2019 9:07	Will RR on Worklist 2191101A	1
21910225106	2191031A_116.d	Sample	11/1/2019 9:18	Will RR on Worklist 2191101A	1
21910225107	2191031A_117.d	Sample	11/1/2019 9:29	Will RR on Worklist 2191101A	1
21910225108	2191031A_118.d	Sample	11/1/2019 9:41	Will RR on Worklist 2191101A	1
1400	2191031A_119.d	QC	11/1/2019 9:52		1

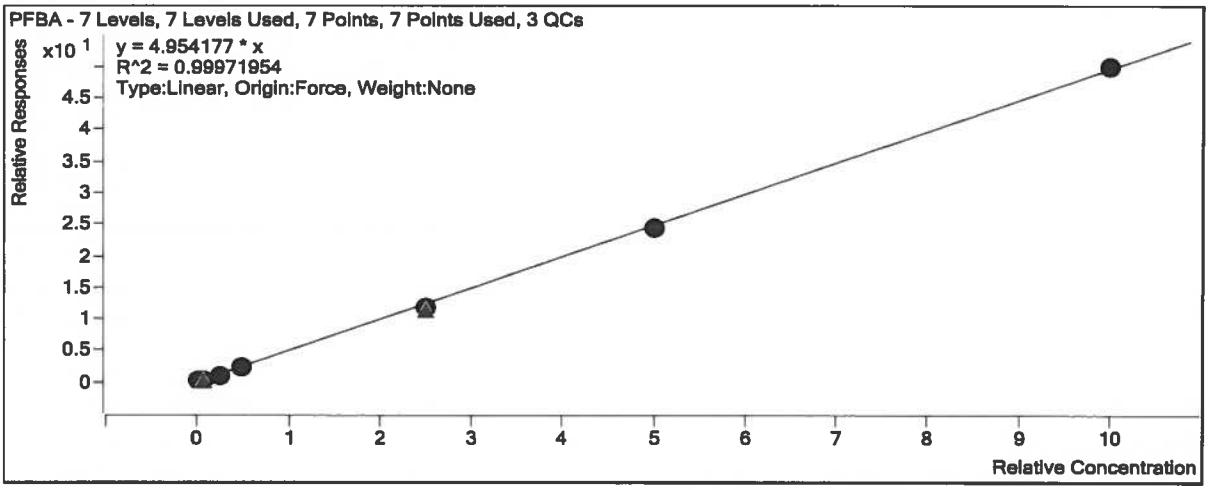
Quantitative Analysis Calibration Report

Batch Data Path	D:\MassHunter\Data\2191031ACAL\QuantResults\2191031A.batch.bin		
Analysis Time	11/17/2019 8:52 AM	**Analyst Name**	GCAL\lcms
Report Time	11/17/2019 8:55 AM	**Reporter Name**	GCAL\lcms
Last Calib Update	10/31/2019 2:46 PM	**Batch State**	Processed

Calibration Info

Target Compound *PFBA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191031ACAL\2191031A_02.d	Calibration	1	☑	8792	0.5000	5.3061
D:\MassHunter\Data\2191031ACAL\2191031A_10.d	Calibration	2	☑	20081	1.2500	4.7039
D:\MassHunter\Data\2191031ACAL\2191031A_04.d	Calibration	3	☑	71526	5.0000	4.2729
D:\MassHunter\Data\2191031ACAL\2191031A_05.d	Calibration	4	☑	150229	10.0000	4.4320
D:\MassHunter\Data\2191031ACAL\2191031A_06.d	Calibration	5	☑	822393	50.0000	4.7365
D:\MassHunter\Data\2191031ACAL\2191031A_07.d	Calibration	6	☑	1646334	100.0000	4.8927
D:\MassHunter\Data\2191031ACAL\2191031A_08.d	Calibration	7	☑	3293110	200.0000	4.9849



Extracted ISTD *MPFBA*

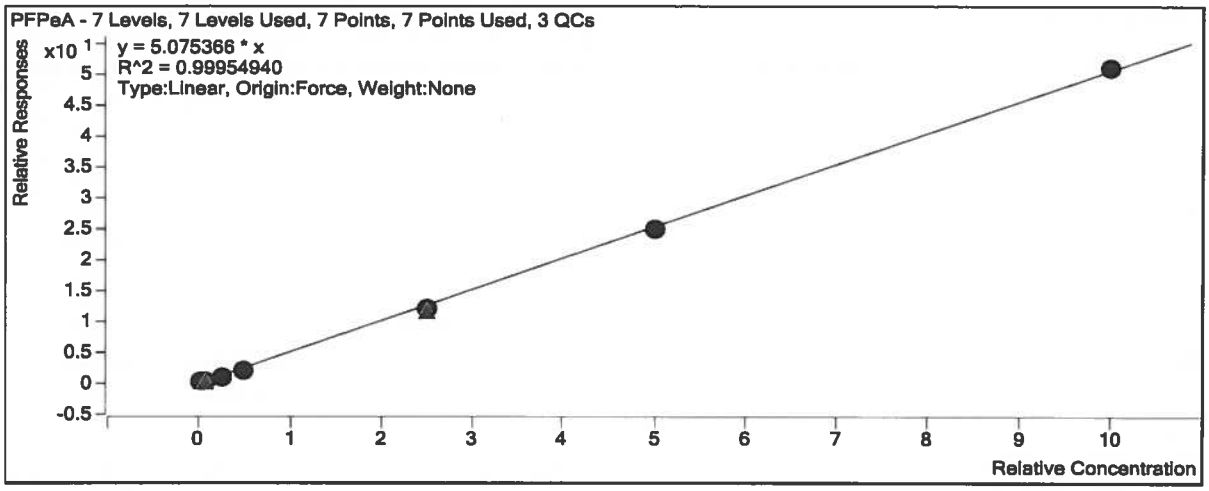
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191031ACAL\2191031A_02.d	Calibration	1	☑	66282	20.0000	3314.1096
D:\MassHunter\Data\2191031ACAL\2191031A_10.d	Calibration	2	☑	68305	20.0000	3415.2327
D:\MassHunter\Data\2191031ACAL\2191031A_04.d	Calibration	3	☑	66958	20.0000	3347.8973
D:\MassHunter\Data\2191031ACAL\2191031A_05.d	Calibration	4	☑	67792	20.0000	3389.6232
D:\MassHunter\Data\2191031ACAL\2191031A_06.d	Calibration	5	☑	69451	20.0000	3472.5423
D:\MassHunter\Data\2191031ACAL\2191031A_07.d	Calibration	6	☑	67297	20.0000	3364.8720
D:\MassHunter\Data\2191031ACAL\2191031A_08.d	Calibration	7	☑	66062	20.0000	3303.0957

Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191031ACAL\2191031A_05.d	Calibration	4	☑	33767	20.0000	1688.3709
D:\MassHunter\Data\2191031ACAL\2191031A_06.d	Calibration	5	☑	34626	20.0000	1731.3199
D:\MassHunter\Data\2191031ACAL\2191031A_07.d	Calibration	6	☑	33743	20.0000	1687.1589
D:\MassHunter\Data\2191031ACAL\2191031A_08.d	Calibration	7	☑	33426	20.0000	1671.3191

Target Compound *PFPeA*

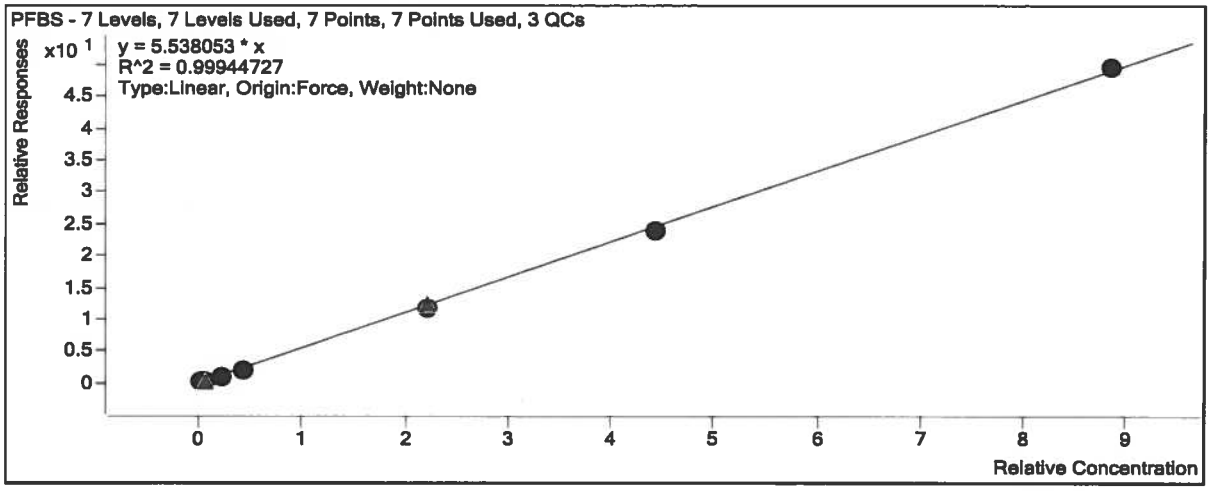
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191031ACAL\2191031A_02.d	Calibration	1	☑	3486	0.5000	4.2008
D:\MassHunter\Data\2191031ACAL\2191031A_10.d	Calibration	2	☑	9099	1.2500	4.2329
D:\MassHunter\Data\2191031ACAL\2191031A_04.d	Calibration	3	☑	35076	5.0000	4.1917
D:\MassHunter\Data\2191031ACAL\2191031A_05.d	Calibration	4	☑	72099	10.0000	4.2704
D:\MassHunter\Data\2191031ACAL\2191031A_06.d	Calibration	5	☑	415305	50.0000	4.7976
D:\MassHunter\Data\2191031ACAL\2191031A_07.d	Calibration	6	☑	843657	100.0000	5.0005
D:\MassHunter\Data\2191031ACAL\2191031A_08.d	Calibration	7	☑	1709445	200.0000	5.1141



Target Compound *PFBS*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191031ACAL\2191031A_02.d	Calibration	1	☑	2526	0.4425	4.6043
D:\MassHunter\Data\2191031ACAL\2191031A_10.d	Calibration	2	☑	6726	1.1100	4.5983
D:\MassHunter\Data\2191031ACAL\2191031A_04.d	Calibration	3	☑	25172	4.4250	4.5381
D:\MassHunter\Data\2191031ACAL\2191031A_05.d	Calibration	4	☑	54831	8.8500	4.8536

D:\MassHunter\Data\2191031ACAL\2191031A_06.d	Calibration	5	☑	299236	44.2500	5.2699
D:\MassHunter\Data\2191031ACAL\2191031A_07.d	Calibration	6	☑	602614	88.5000	5.3955
D:\MassHunter\Data\2191031ACAL\2191031A_08.d	Calibration	7	☑	1201054	177.0000	5.5928



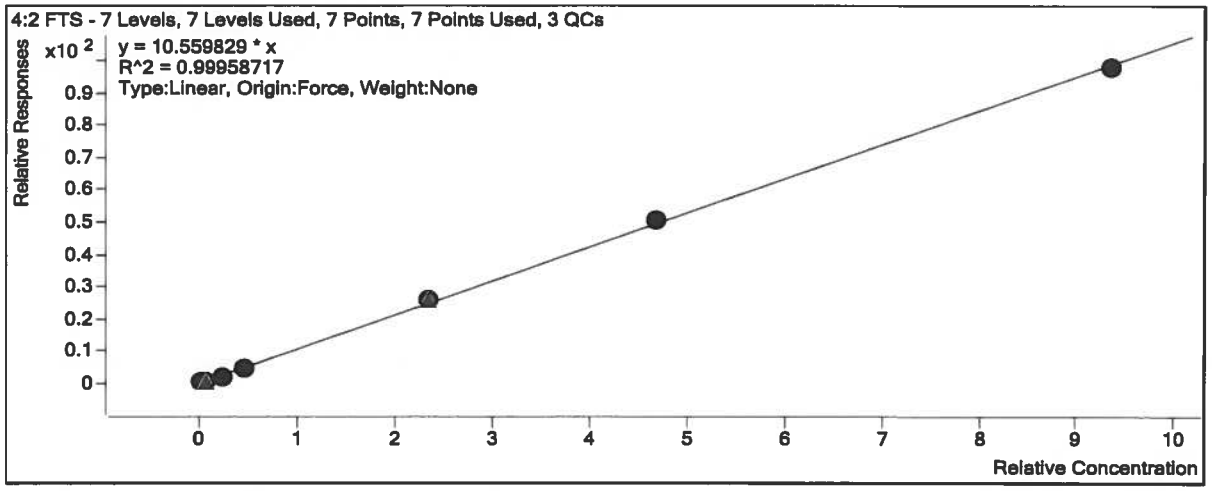
Extracted ISTD ***M3PFBS***

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191031ACAL\2191031A_02.d	Calibration	1	☑	24800	20.0000	1240.0138
D:\MassHunter\Data\2191031ACAL\2191031A_10.d	Calibration	2	☑	26356	20.0000	1317.8184
D:\MassHunter\Data\2191031ACAL\2191031A_04.d	Calibration	3	☑	25070	20.0000	1253.5172
D:\MassHunter\Data\2191031ACAL\2191031A_05.d	Calibration	4	☑	25529	20.0000	1276.4720
D:\MassHunter\Data\2191031ACAL\2191031A_06.d	Calibration	5	☑	25664	20.0000	1283.2012
D:\MassHunter\Data\2191031ACAL\2191031A_07.d	Calibration	6	☑	25240	20.0000	1262.0127
D:\MassHunter\Data\2191031ACAL\2191031A_08.d	Calibration	7	☑	24265	20.0000	1213.2714

Target Compound ***4:2 FTS***

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191031ACAL\2191031A_02.d	Calibration	1	☑	1549	0.4675	10.4125
D:\MassHunter\Data\2191031ACAL\2191031A_10.d	Calibration	2	☑	4031	1.1700	9.7275
D:\MassHunter\Data\2191031ACAL\2191031A_04.d	Calibration	3	☑	14837	4.6700	9.3372
D:\MassHunter\Data\2191031ACAL\2191031A_05.d	Calibration	4	☑	31801	9.3500	10.5520
D:\MassHunter\Data\2191031ACAL\2191031A_06.d	Calibration	5	☑	172686	46.7500	11.0169
D:\MassHunter\Data\2191031ACAL\2191031A_07.d	Calibration	6	☑	334322	93.5000	10.8123
D:\MassHunter\Data\2191031ACAL\2191031A_08.d	Calibration	7	☑	622631	187.0000	10.4690

Quantitative Analysis Calibration Report



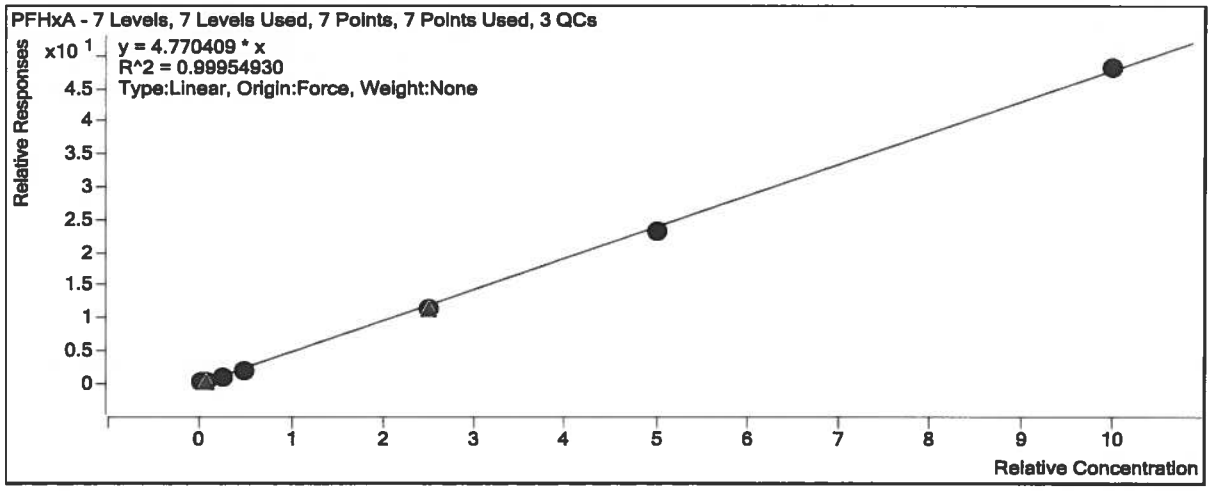
Extracted ISTD *M2 4:2 FTS*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191031ACAL\2191031A_02.d	Calibration	1	☑	6364	20.0000	318.1867
D:\MassHunter\Data\2191031ACAL\2191031A_10.d	Calibration	2	☑	7084	20.0000	354.1844
D:\MassHunter\Data\2191031ACAL\2191031A_04.d	Calibration	3	☑	6805	20.0000	340.2524
D:\MassHunter\Data\2191031ACAL\2191031A_05.d	Calibration	4	☑	6447	20.0000	322.3257
D:\MassHunter\Data\2191031ACAL\2191031A_06.d	Calibration	5	☑	6706	20.0000	335.2854
D:\MassHunter\Data\2191031ACAL\2191031A_07.d	Calibration	6	☑	6614	20.0000	330.7011
D:\MassHunter\Data\2191031ACAL\2191031A_08.d	Calibration	7	☑	6361	20.0000	318.0428

Instrument ISTD *M2PFHxA*

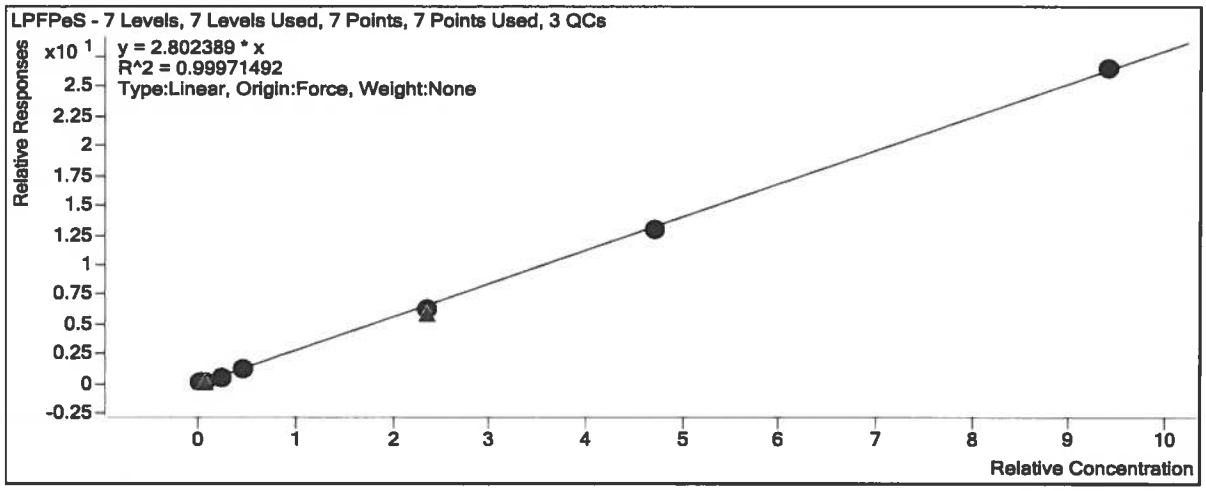
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191031ACAL\2191031A_02.d	Calibration	1	☑	548681	40.0000	13717.0192
D:\MassHunter\Data\2191031ACAL\2191031A_10.d	Calibration	2	☑	561686	40.0000	14042.1466
D:\MassHunter\Data\2191031ACAL\2191031A_04.d	Calibration	3	☑	557227	40.0000	13930.6786
D:\MassHunter\Data\2191031ACAL\2191031A_05.d	Calibration	4	☑	559441	40.0000	13986.0160
D:\MassHunter\Data\2191031ACAL\2191031A_06.d	Calibration	5	☑	560156	40.0000	14003.8956
D:\MassHunter\Data\2191031ACAL\2191031A_07.d	Calibration	6	☑	533661	40.0000	13341.5137
D:\MassHunter\Data\2191031ACAL\2191031A_08.d	Calibration	7	☑	534314	40.0000	13357.8407

Quantitative Analysis Calibration Report



Target Compound *LPFPeS*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191031ACAL\2191031A_02.d	Calibration	1	☑	3246	0.4700	2.4917
D:\MassHunter\Data\2191031ACAL\2191031A_10.d	Calibration	2	☑	7830	1.1800	2.3565
D:\MassHunter\Data\2191031ACAL\2191031A_04.d	Calibration	3	☑	30412	4.7000	2.2962
D:\MassHunter\Data\2191031ACAL\2191031A_05.d	Calibration	4	☑	65831	9.4000	2.4752
D:\MassHunter\Data\2191031ACAL\2191031A_06.d	Calibration	5	☑	351292	47.0000	2.6780
D:\MassHunter\Data\2191031ACAL\2191031A_07.d	Calibration	6	☑	704315	94.0000	2.7725
D:\MassHunter\Data\2191031ACAL\2191031A_08.d	Calibration	7	☑	1370053	188.0000	2.8188

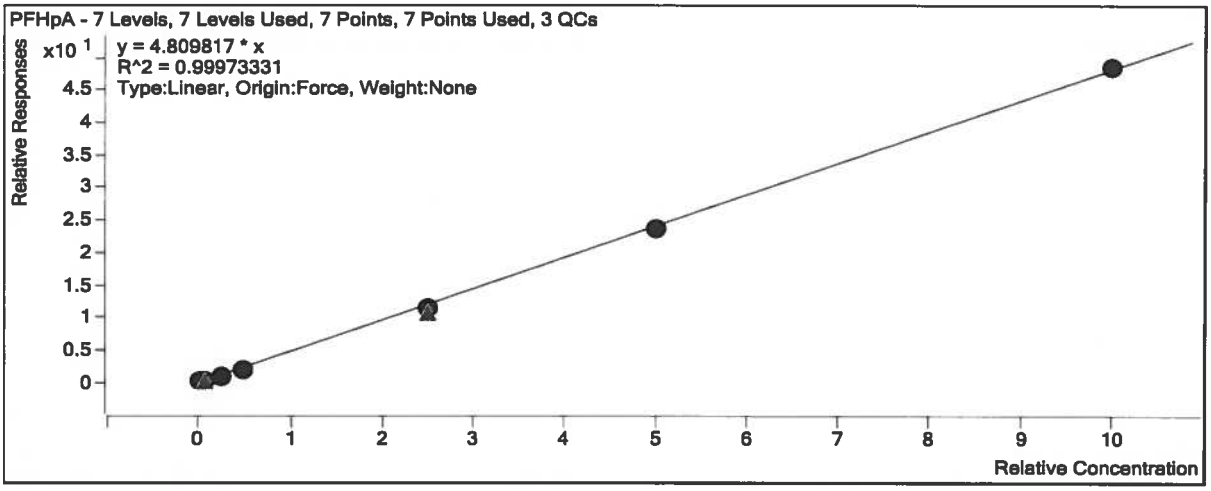


Extracted ISTD *M3HFPODA*

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

Quantitative Analysis Calibration Report

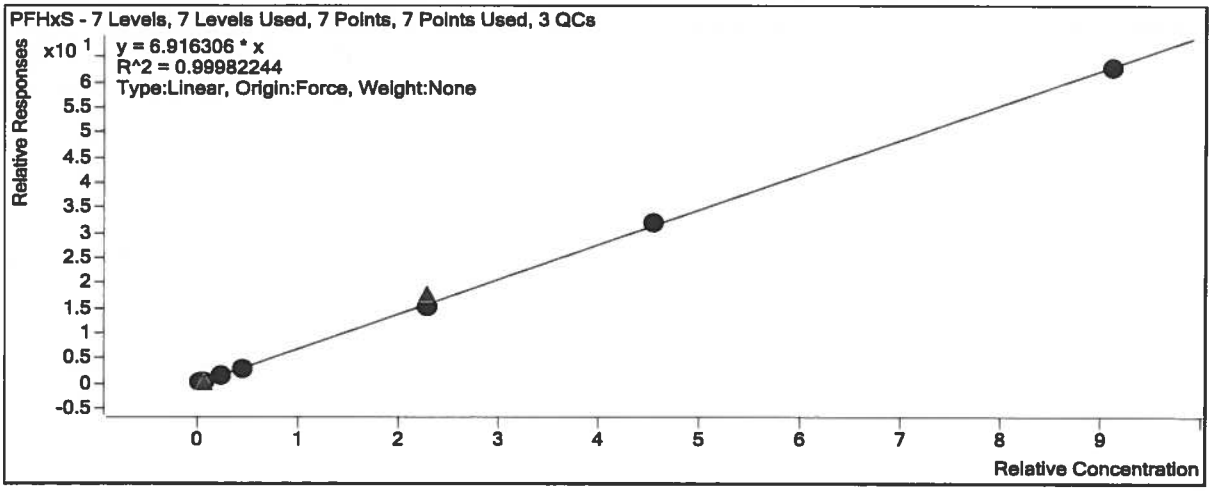
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191031ACAL\2191031A_05.d	Calibration	4	☑	115079	10.0000	4.1513
D:\MassHunter\Data\2191031ACAL\2191031A_06.d	Calibration	5	☑	645253	50.0000	4.6500
D:\MassHunter\Data\2191031ACAL\2191031A_07.d	Calibration	6	☑	1259515	100.0000	4.7408
D:\MassHunter\Data\2191031ACAL\2191031A_08.d	Calibration	7	☑	2447871	200.0000	4.8393



Target Compound *PFHxS*

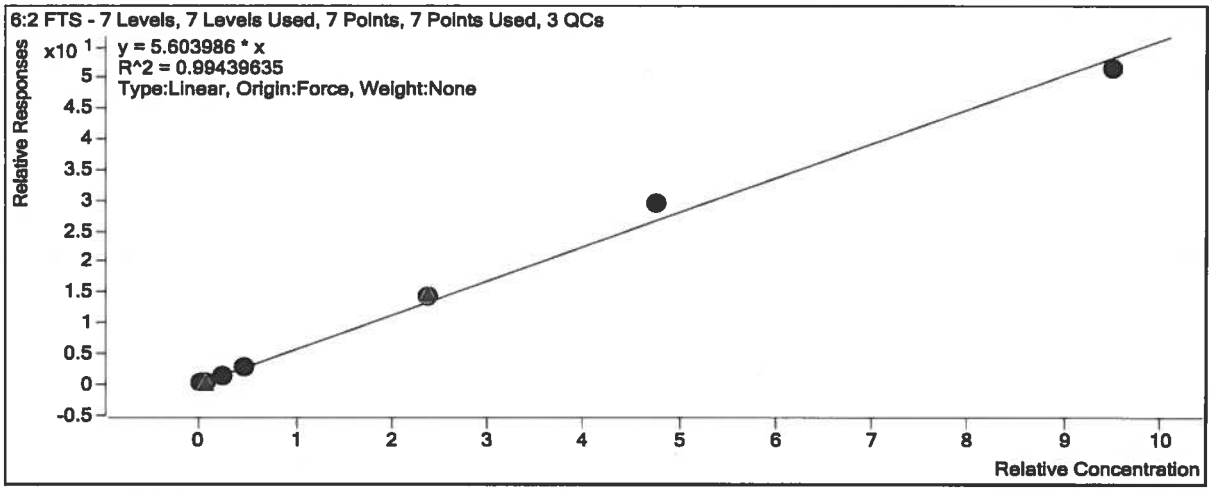
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191031ACAL\2191031A_02.d	Calibration	1	☑	2949	0.4560	5.9462
D:\MassHunter\Data\2191031ACAL\2191031A_10.d	Calibration	2	☑	8000	1.1400	6.6176
D:\MassHunter\Data\2191031ACAL\2191031A_04.d	Calibration	3	☑	31807	4.5600	6.5250
D:\MassHunter\Data\2191031ACAL\2191031A_05.d	Calibration	4	☑	63912	9.1200	6.5825
D:\MassHunter\Data\2191031ACAL\2191031A_06.d	Calibration	5	☑	362405	45.6000	6.7733
D:\MassHunter\Data\2191031ACAL\2191031A_07.d	Calibration	6	☑	717001	91.2000	7.0554
D:\MassHunter\Data\2191031ACAL\2191031A_08.d	Calibration	7	☑	1400234	182.4000	6.8916

Quantitative Analysis Calibration Report



Quantitative Analysis Calibration Report

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



Extracted ISTD *M2 6:2 FTS*

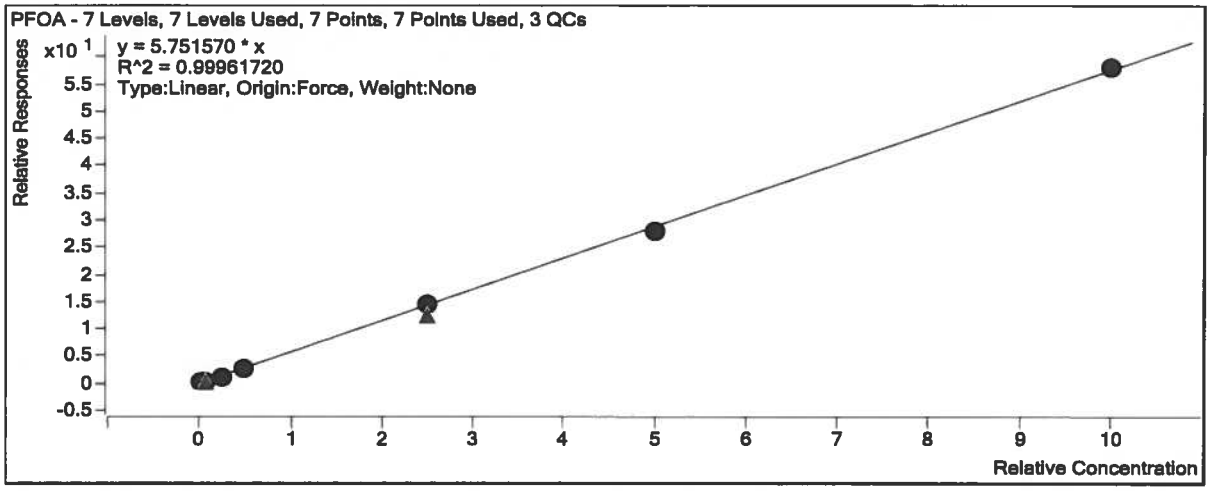
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191031ACAL\2191031A_02.d	Calibration	1	☑	12811	20.0000	640.5386
D:\MassHunter\Data\2191031ACAL\2191031A_10.d	Calibration	2	☑	11883	20.0000	594.1473
D:\MassHunter\Data\2191031ACAL\2191031A_04.d	Calibration	3	☑	11627	20.0000	581.3530
D:\MassHunter\Data\2191031ACAL\2191031A_05.d	Calibration	4	☑	12105	20.0000	605.2279
D:\MassHunter\Data\2191031ACAL\2191031A_06.d	Calibration	5	☑	11824	20.0000	591.2198
D:\MassHunter\Data\2191031ACAL\2191031A_07.d	Calibration	6	☑	11222	20.0000	561.0994
D:\MassHunter\Data\2191031ACAL\2191031A_08.d	Calibration	7	☑	11820	20.0000	591.0111

Extracted ISTD *M8PFOA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191031ACAL\2191031A_02.d	Calibration	1	☑	34689	20.0000	1734.4637
D:\MassHunter\Data\2191031ACAL\2191031A_10.d	Calibration	2	☑	36835	20.0000	1841.7502
D:\MassHunter\Data\2191031ACAL\2191031A_04.d	Calibration	3	☑	35901	20.0000	1795.0746
D:\MassHunter\Data\2191031ACAL\2191031A_05.d	Calibration	4	☑	34894	20.0000	1744.6921
D:\MassHunter\Data\2191031ACAL\2191031A_06.d	Calibration	5	☑	33779	20.0000	1688.9279
D:\MassHunter\Data\2191031ACAL\2191031A_07.d	Calibration	6	☑	34043	20.0000	1702.1725
D:\MassHunter\Data\2191031ACAL\2191031A_08.d	Calibration	7	☑	32551	20.0000	1627.5383

Instrument ISTD *M2PFOA*

Quantitative Analysis Calibration Report

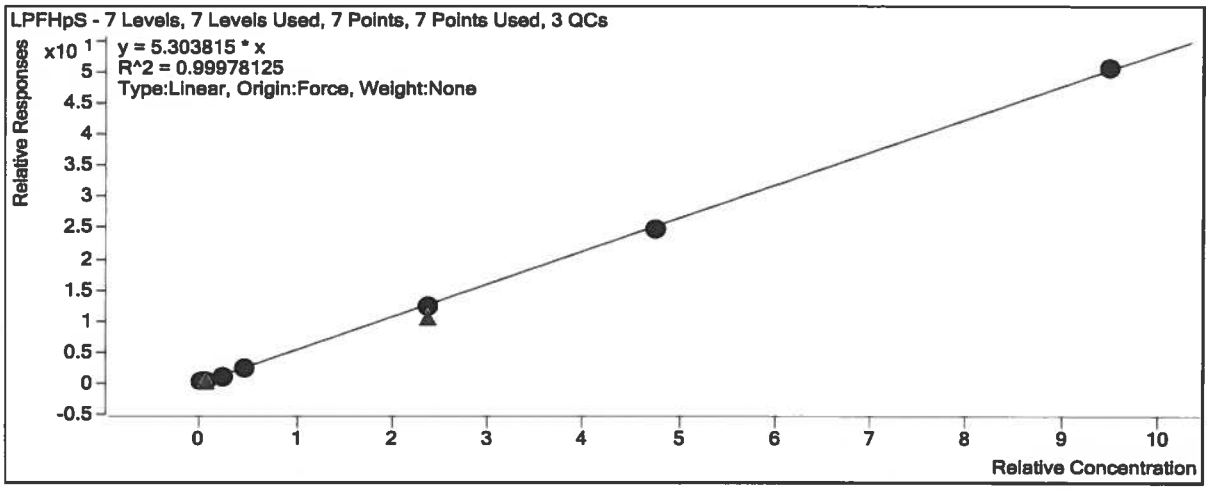


Target Compound *LPFHpS*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191031ACAL\2191031A_02.d	Calibration	1	☑	3579	0.4750	4.3444

Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191031ACAL\2191031A_10.d	Calibration	2	☑	9881	1.1900	4.5082
D:\MassHunter\Data\2191031ACAL\2191031A_04.d	Calibration	3	☑	37537	4.7500	4.4024
D:\MassHunter\Data\2191031ACAL\2191031A_05.d	Calibration	4	☑	79350	9.5000	4.7874
D:\MassHunter\Data\2191031ACAL\2191031A_06.d	Calibration	5	☑	422841	47.5000	5.2708
D:\MassHunter\Data\2191031ACAL\2191031A_07.d	Calibration	6	☑	840089	95.0000	5.1952
D:\MassHunter\Data\2191031ACAL\2191031A_08.d	Calibration	7	☑	1649735	190.0000	5.3349



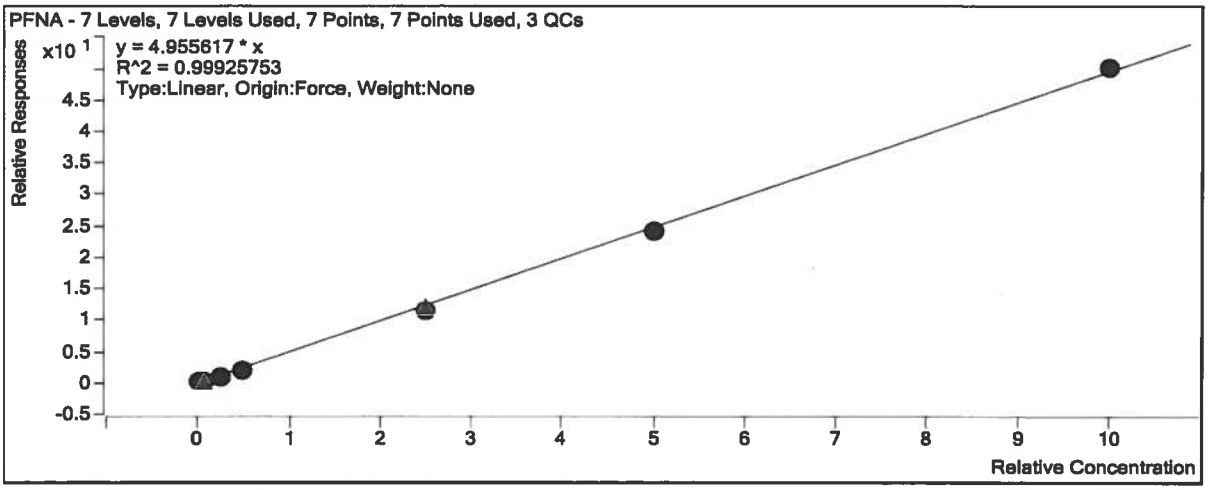
Extracted ISTD *M9PFNA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191031ACAL\2191031A_02.d	Calibration	1	☑	40388	20.0000	2019.3872
D:\MassHunter\Data\2191031ACAL\2191031A_10.d	Calibration	2	☑	40463	20.0000	2023.1589
D:\MassHunter\Data\2191031ACAL\2191031A_04.d	Calibration	3	☑	38153	20.0000	1907.6525
D:\MassHunter\Data\2191031ACAL\2191031A_05.d	Calibration	4	☑	40300	20.0000	2014.9985
D:\MassHunter\Data\2191031ACAL\2191031A_06.d	Calibration	5	☑	40186	20.0000	2009.2981
D:\MassHunter\Data\2191031ACAL\2191031A_07.d	Calibration	6	☑	39203	20.0000	1960.1705
D:\MassHunter\Data\2191031ACAL\2191031A_08.d	Calibration	7	☑	37297	20.0000	1864.8323

Target Compound *PFNA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191031ACAL\2191031A_02.d	Calibration	1	☑	4498	0.5000	4.4551
D:\MassHunter\Data\2191031ACAL\2191031A_10.d	Calibration	2	☑	10459	1.2500	4.1359

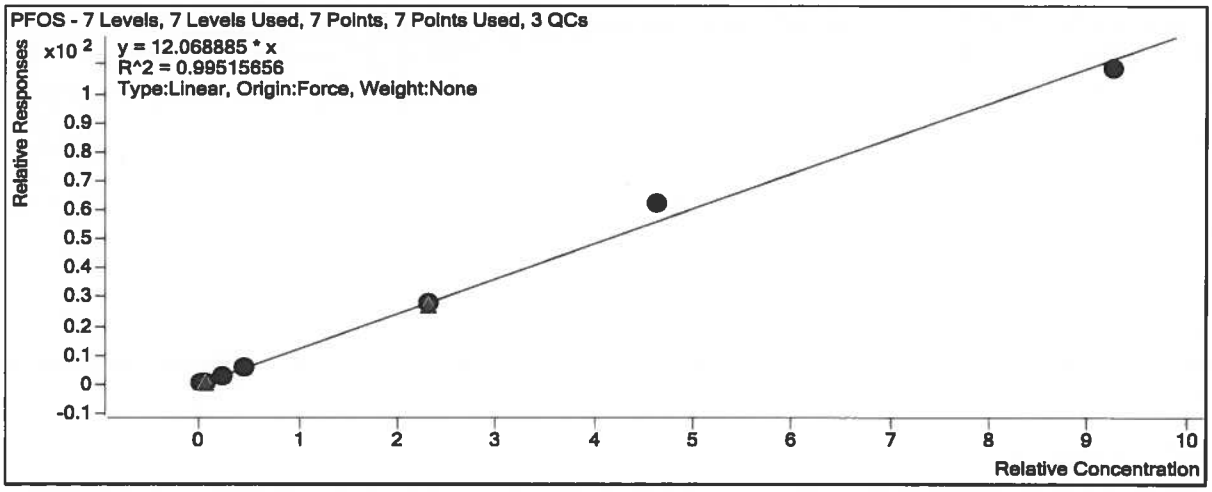
D:\MassHunter\Data\2191031ACAL\2191031A_04.d	Calibration	3	☑	40293	5.0000	4.2243
D:\MassHunter\Data\2191031ACAL\2191031A_05.d	Calibration	4	☑	88554	10.0000	4.3947
D:\MassHunter\Data\2191031ACAL\2191031A_06.d	Calibration	5	☑	467515	50.0000	4.6535
D:\MassHunter\Data\2191031ACAL\2191031A_07.d	Calibration	6	☑	942660	100.0000	4.8091
D:\MassHunter\Data\2191031ACAL\2191031A_08.d	Calibration	7	☑	1869692	200.0000	5.0130



Target Compound ***PFOS***

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191031ACAL\2191031A_02.d	Calibration	1	☑	3760	0.4628	13.0240
D:\MassHunter\Data\2191031ACAL\2191031A_10.d	Calibration	2	☑	9234	1.1600	12.9606
D:\MassHunter\Data\2191031ACAL\2191031A_04.d	Calibration	3	☑	32312	4.6280	11.0015
D:\MassHunter\Data\2191031ACAL\2191031A_05.d	Calibration	4	☑	70140	9.2550	12.3112
D:\MassHunter\Data\2191031ACAL\2191031A_06.d	Calibration	5	☑	376486	46.2800	11.9917
D:\MassHunter\Data\2191031ACAL\2191031A_07.d	Calibration	6	☑	759791	92.5500	13.4362
D:\MassHunter\Data\2191031ACAL\2191031A_08.d	Calibration	7	☑	1489689	185.1000	11.7319

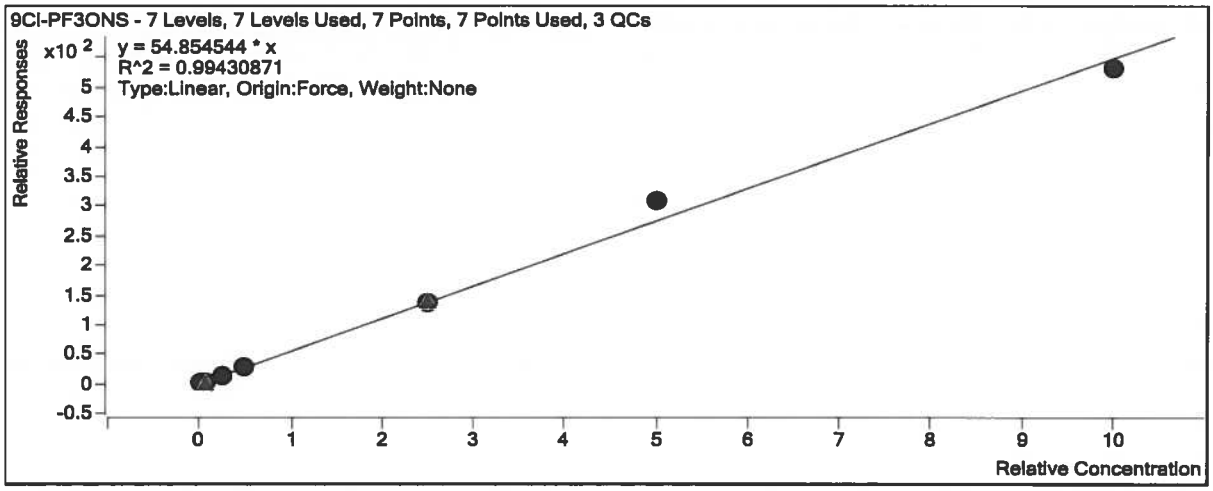
Quantitative Analysis Calibration Report



Extracted ISTD *M8PFOS*

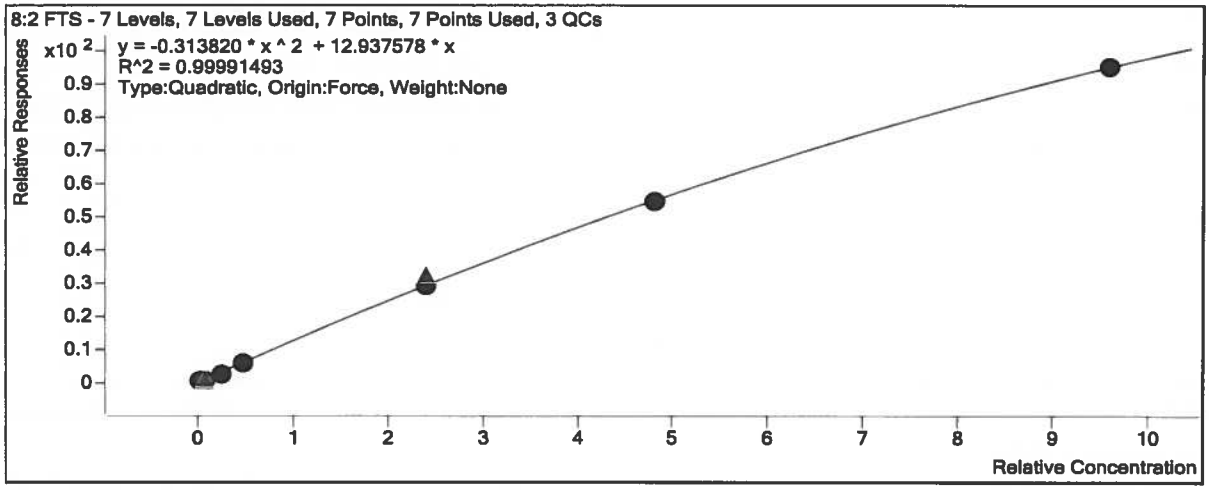
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191031ACAL\2191031A_02.d	Calibration	1	☑	12479	20.0000	623.9462
D:\MassHunter\Data\2191031ACAL\2191031A_10.d	Calibration	2	☑	12285	20.0000	614.2262
D:\MassHunter\Data\2191031ACAL\2191031A_04.d	Calibration	3	☑	12692	20.0000	634.6235
D:\MassHunter\Data\2191031ACAL\2191031A_05.d	Calibration	4	☑	12312	20.0000	615.5824
D:\MassHunter\Data\2191031ACAL\2191031A_06.d	Calibration	5	☑	13568	20.0000	678.3827
D:\MassHunter\Data\2191031ACAL\2191031A_07.d	Calibration	6	☑	12220	20.0000	611.0004

Quantitative Analysis Calibration Report



Target Compound *8:2 FTS*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191031ACAL\2191031A_02.d	Calibration	1	☑	2074	0.4800	11.5749
D:\MassHunter\Data\2191031ACAL\2191031A_10.d	Calibration	2	☑	5724	1.2000	12.3691
D:\MassHunter\Data\2191031ACAL\2191031A_04.d	Calibration	3	☑	20068	4.8000	10.6925
D:\MassHunter\Data\2191031ACAL\2191031A_05.d	Calibration	4	☑	42486	9.6000	11.5398
D:\MassHunter\Data\2191031ACAL\2191031A_06.d	Calibration	5	☑	213865	48.0000	12.2681
D:\MassHunter\Data\2191031ACAL\2191031A_07.d	Calibration	6	☑	399000	96.0000	11.4344
D:\MassHunter\Data\2191031ACAL\2191031A_08.d	Calibration	7	☑	710574	192.0000	9.9234

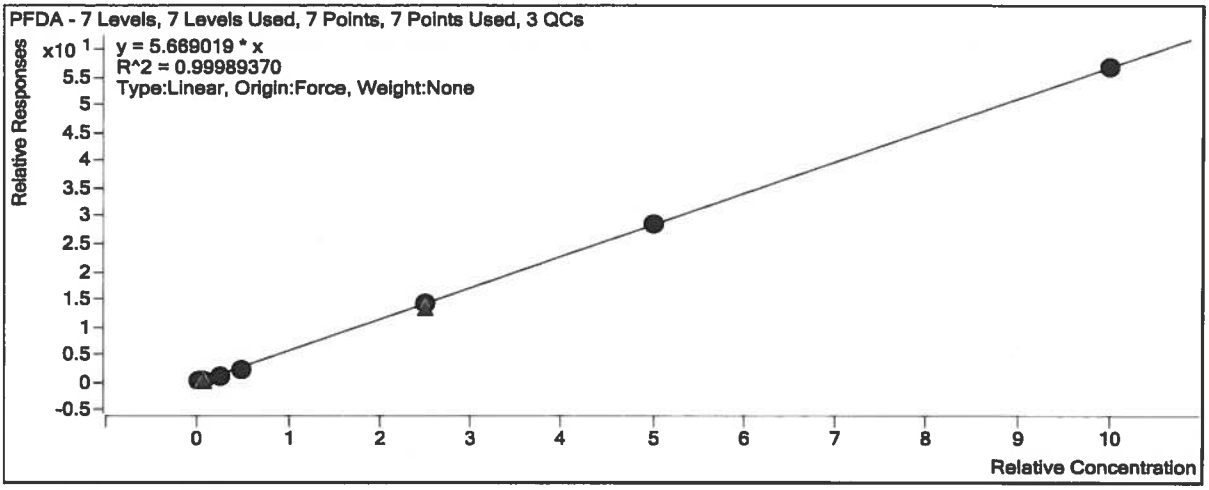


Extracted ISTD *M2 8:2 FTS*

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

Quantitative Analysis Calibration Report

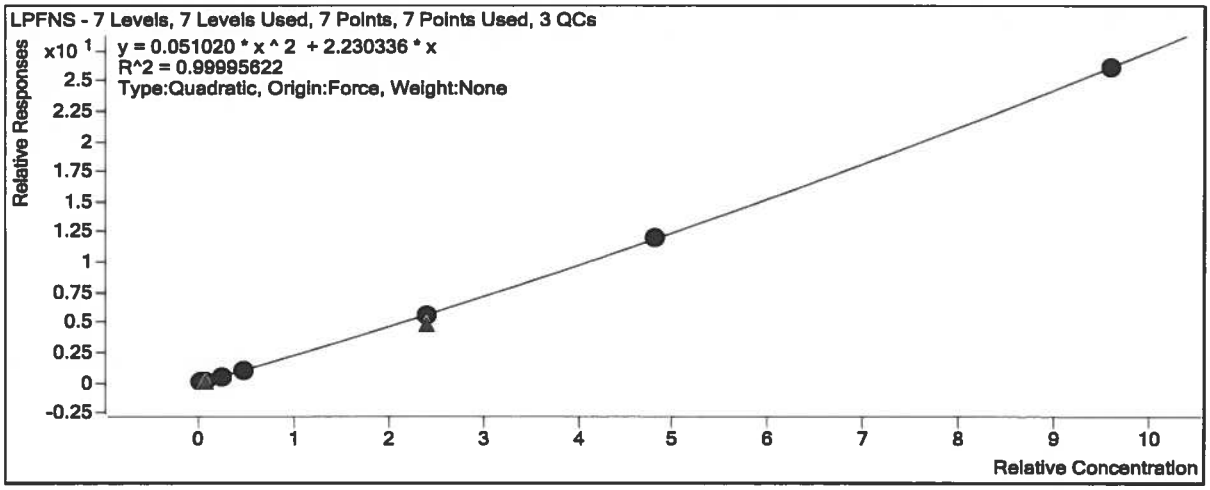
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191031ACAL\2191031A_05.d	Calibration	4	☑	87897	10.0000	4.7424
D:\MassHunter\Data\2191031ACAL\2191031A_06.d	Calibration	5	☑	485760	50.0000	5.6393
D:\MassHunter\Data\2191031ACAL\2191031A_07.d	Calibration	6	☑	935842	100.0000	5.6742
D:\MassHunter\Data\2191031ACAL\2191031A_08.d	Calibration	7	☑	1802752	200.0000	5.6726



Target Compound *LPFNS*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191031ACAL\2191031A_02.d	Calibration	1	☑	1908	0.4800	1.9684
D:\MassHunter\Data\2191031ACAL\2191031A_10.d	Calibration	2	☑	5115	1.2000	2.1069
D:\MassHunter\Data\2191031ACAL\2191031A_04.d	Calibration	3	☑	19120	4.8000	2.0881
D:\MassHunter\Data\2191031ACAL\2191031A_05.d	Calibration	4	☑	40555	9.6000	2.0965
D:\MassHunter\Data\2191031ACAL\2191031A_06.d	Calibration	5	☑	223087	48.0000	2.3131
D:\MassHunter\Data\2191031ACAL\2191031A_07.d	Calibration	6	☑	469300	96.0000	2.4939
D:\MassHunter\Data\2191031ACAL\2191031A_08.d	Calibration	7	☑	973329	192.0000	2.7184

Quantitative Analysis Calibration Report



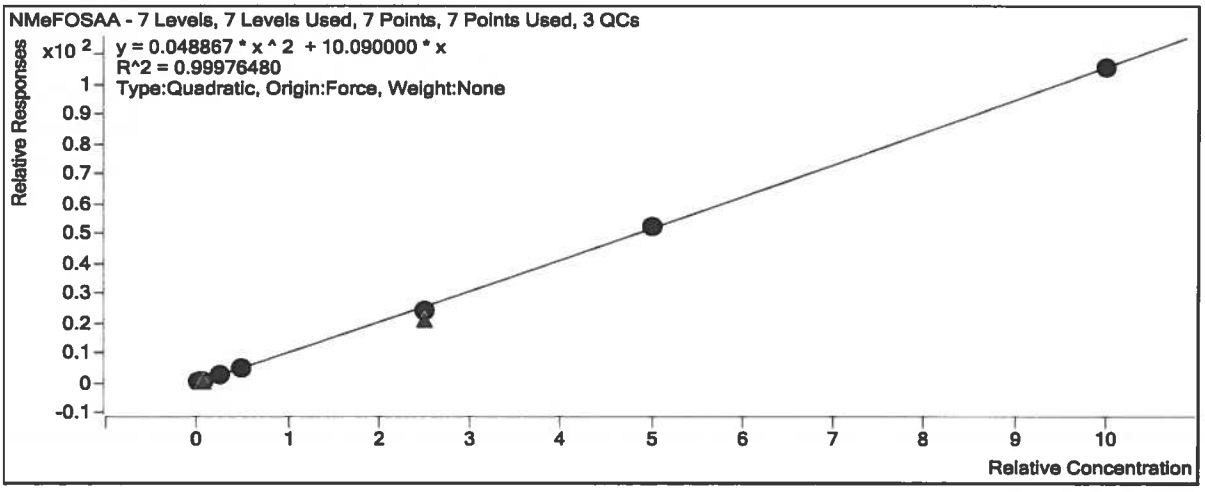
Quantitative Analysis Calibration Report

Extracted ISTD *d3-NMeFOSAA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191031ACAL\2191031A_02.d	Calibration	1	☑	6132	20.0000	306.6146
D:\MassHunter\Data\2191031ACAL\2191031A_10.d	Calibration	2	☑	6909	20.0000	345.4588
D:\MassHunter\Data\2191031ACAL\2191031A_04.d	Calibration	3	☑	6241	20.0000	312.0570
D:\MassHunter\Data\2191031ACAL\2191031A_05.d	Calibration	4	☑	6335	20.0000	316.7388
D:\MassHunter\Data\2191031ACAL\2191031A_06.d	Calibration	5	☑	7400	20.0000	370.0236
D:\MassHunter\Data\2191031ACAL\2191031A_07.d	Calibration	6	☑	6871	20.0000	343.5671
D:\MassHunter\Data\2191031ACAL\2191031A_08.d	Calibration	7	☑	6869	20.0000	343.4436

Target Compound *NMeFOSAA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191031ACAL\2191031A_02.d	Calibration	1	☑	1439	0.5000	9.3888
D:\MassHunter\Data\2191031ACAL\2191031A_10.d	Calibration	2	☑	4483	1.2500	10.3809
D:\MassHunter\Data\2191031ACAL\2191031A_04.d	Calibration	3	☑	15628	5.0000	10.0163
D:\MassHunter\Data\2191031ACAL\2191031A_05.d	Calibration	4	☑	30723	10.0000	9.6997
D:\MassHunter\Data\2191031ACAL\2191031A_06.d	Calibration	5	☑	180444	50.0000	9.7531
D:\MassHunter\Data\2191031ACAL\2191031A_07.d	Calibration	6	☑	361251	100.0000	10.5147
D:\MassHunter\Data\2191031ACAL\2191031A_08.d	Calibration	7	☑	725583	200.0000	10.5633

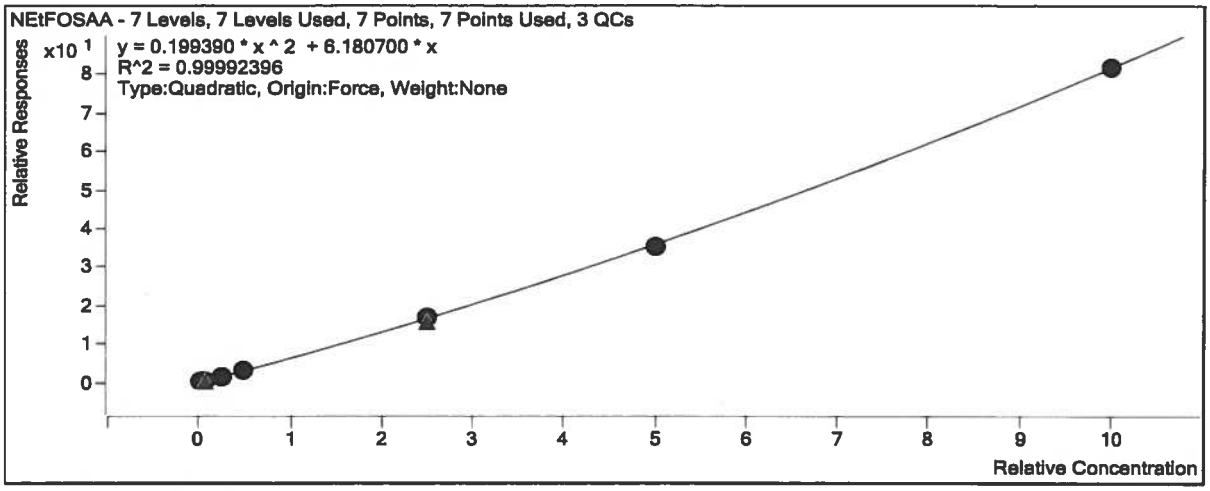


Extracted ISTD *M8FOSA*

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

Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191031ACAL\2191031A_06.d	Calibration	5	☑	153499	50.0000	6.8719
D:\MassHunter\Data\2191031ACAL\2191031A_07.d	Calibration	6	☑	307601	100.0000	7.1020
D:\MassHunter\Data\2191031ACAL\2191031A_08.d	Calibration	7	☑	604350	200.0000	8.1810



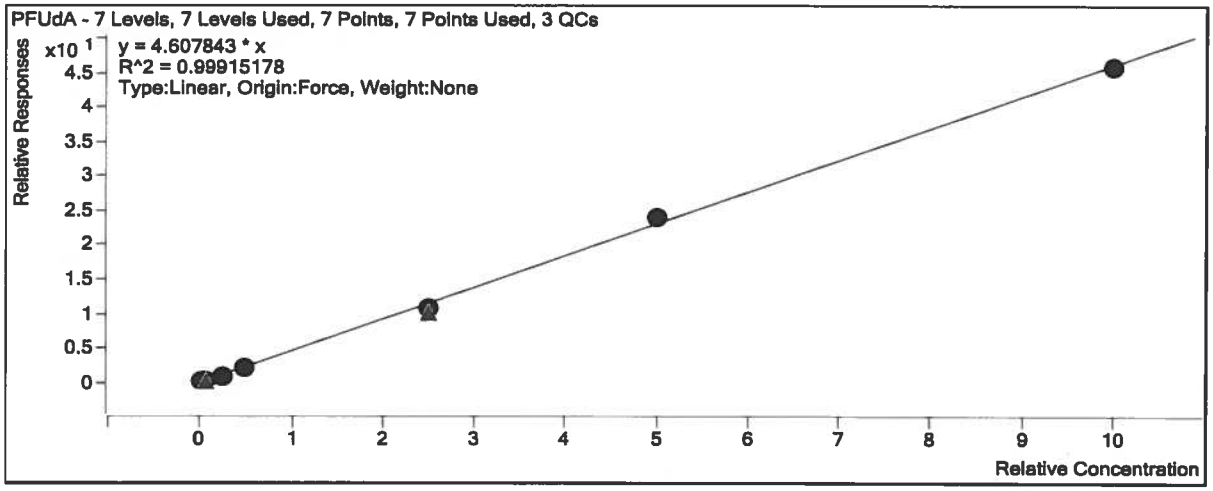
Extracted ISTD *M7PFUdA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191031ACAL\2191031A_02.d	Calibration	1	☑	37156	20.0000	1857.7834
D:\MassHunter\Data\2191031ACAL\2191031A_10.d	Calibration	2	☑	39408	20.0000	1970.3962
D:\MassHunter\Data\2191031ACAL\2191031A_04.d	Calibration	3	☑	37919	20.0000	1895.9492
D:\MassHunter\Data\2191031ACAL\2191031A_05.d	Calibration	4	☑	38117	20.0000	1905.8746
D:\MassHunter\Data\2191031ACAL\2191031A_06.d	Calibration	5	☑	38317	20.0000	1915.8663
D:\MassHunter\Data\2191031ACAL\2191031A_07.d	Calibration	6	☑	34876	20.0000	1743.7766
D:\MassHunter\Data\2191031ACAL\2191031A_08.d	Calibration	7	☑	34336	20.0000	1716.7898

Target Compound *PFUdA*

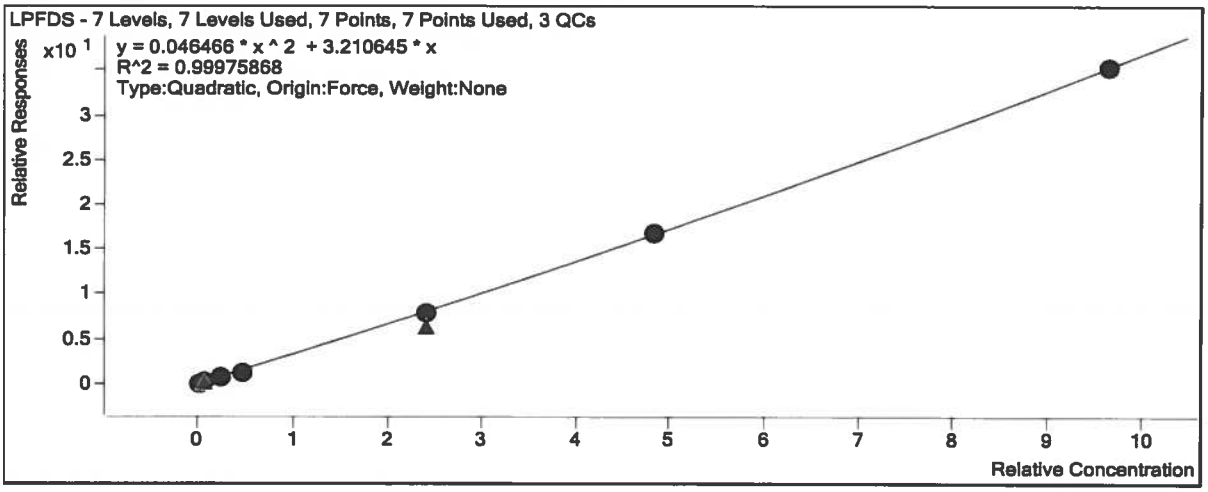
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191031ACAL\2191031A_02.d	Calibration	1	☑	3472	0.5000	3.7376
D:\MassHunter\Data\2191031ACAL\2191031A_10.d	Calibration	2	☑	10305	1.2500	4.1838
D:\MassHunter\Data\2191031ACAL\2191031A_04.d	Calibration	3	☑	36643	5.0000	3.8654
D:\MassHunter\Data\2191031ACAL\2191031A_05.d	Calibration	4	☑	80018	10.0000	4.1985
D:\MassHunter\Data\2191031ACAL\2191031A_06.d	Calibration	5	☑	418989	50.0000	4.3739

D:\MassHunter\Data\2191031ACAL\2191031A_07.d	Calibration	6	☑	838063	100.0000	4.8060
D:\MassHunter\Data\2191031ACAL\2191031A_08.d	Calibration	7	☑	1570667	200.0000	4.5744



Target Compound *LPFDS*

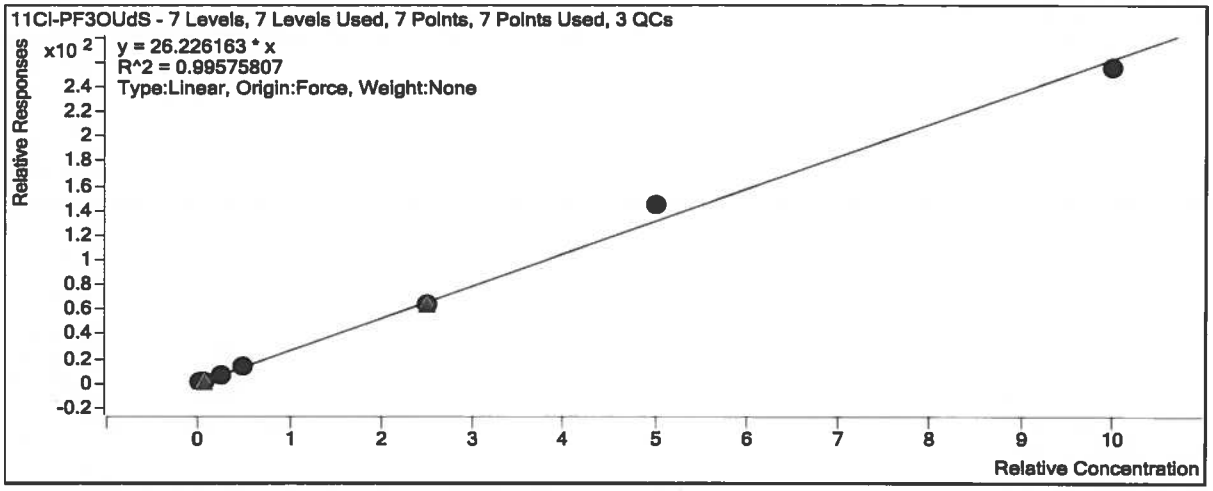
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191031ACAL\2191031A_02.d	Calibration	1	☑	2089	0.4825	2.1665
D:\MassHunter\Data\2191031ACAL\2191031A_10.d	Calibration	2	☑	5342	1.2100	2.4130
D:\MassHunter\Data\2191031ACAL\2191031A_04.d	Calibration	3	☑	22325	4.8250	2.5967
D:\MassHunter\Data\2191031ACAL\2191031A_05.d	Calibration	4	☑	47913	9.6500	2.6788
D:\MassHunter\Data\2191031ACAL\2191031A_06.d	Calibration	5	☑	266683	48.2500	3.2083
D:\MassHunter\Data\2191031ACAL\2191031A_07.d	Calibration	6	☑	555722	96.5000	3.4916
D:\MassHunter\Data\2191031ACAL\2191031A_08.d	Calibration	7	☑	1120546	193.0000	3.6538



Target Compound *11Cl-PF3OUdS*

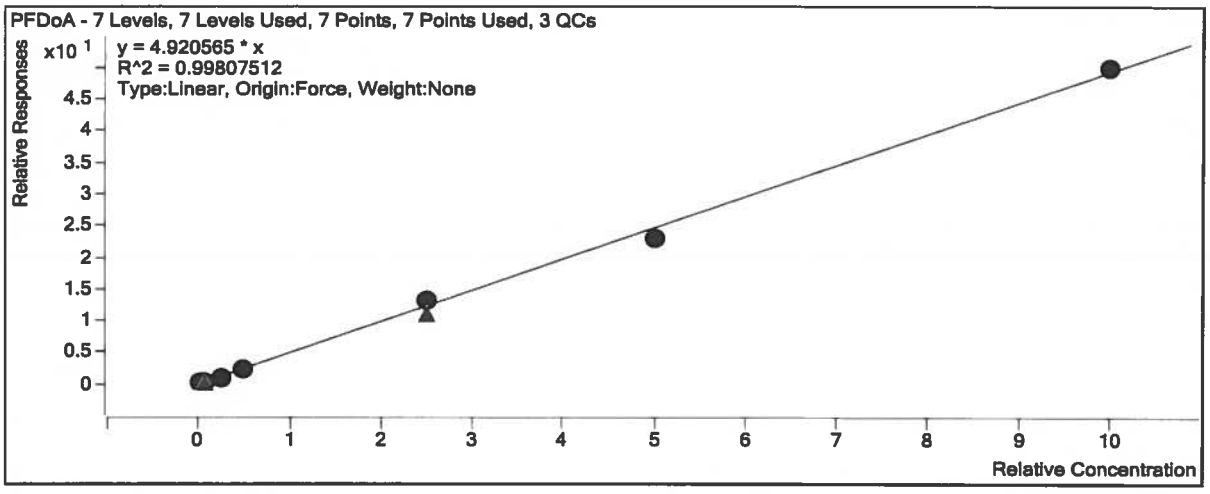
Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191031ACAL\2191031A_08.d	Calibration	7	☑	3506296	200.0000	25.5563



Target Compound *PFDoA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191031ACAL\2191031A_02.d	Calibration	1	☑	2684	0.5000	4.1335
D:\MassHunter\Data\2191031ACAL\2191031A_10.d	Calibration	2	☑	7962	1.2500	4.9798
D:\MassHunter\Data\2191031ACAL\2191031A_04.d	Calibration	3	☑	28099	5.0000	4.4552
D:\MassHunter\Data\2191031ACAL\2191031A_05.d	Calibration	4	☑	58872	10.0000	4.4473
D:\MassHunter\Data\2191031ACAL\2191031A_06.d	Calibration	5	☑	333645	50.0000	5.3058
D:\MassHunter\Data\2191031ACAL\2191031A_07.d	Calibration	6	☑	651983	100.0000	4.5987
D:\MassHunter\Data\2191031ACAL\2191031A_08.d	Calibration	7	☑	1306086	200.0000	4.9784

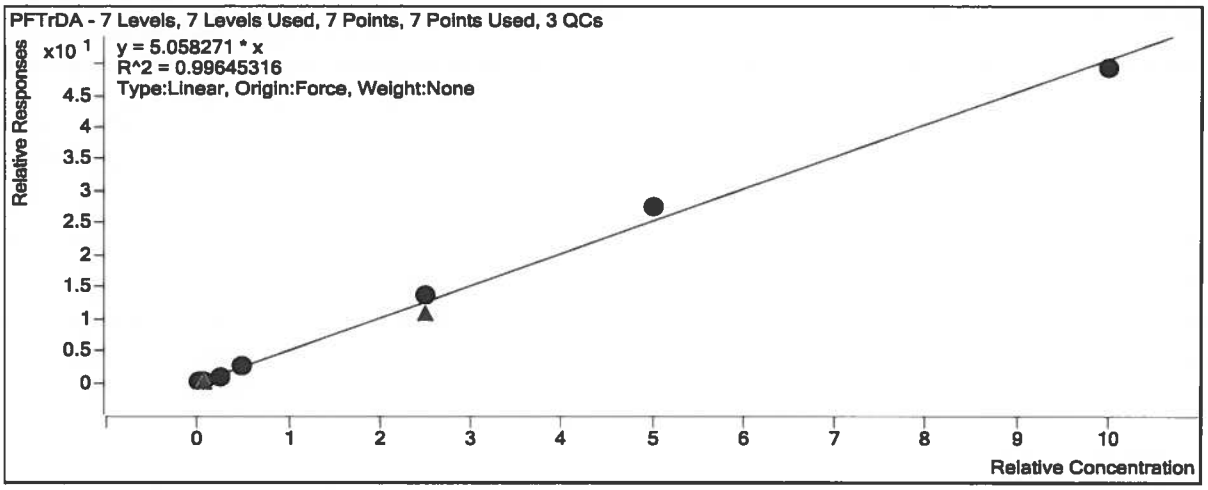


Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191031ACAL\2191031A_05.d	Calibration	4	☑	26476	20.0000	1323.7848
D:\MassHunter\Data\2191031ACAL\2191031A_06.d	Calibration	5	☑	25153	20.0000	1257.6497
D:\MassHunter\Data\2191031ACAL\2191031A_07.d	Calibration	6	☑	28355	20.0000	1417.7490
D:\MassHunter\Data\2191031ACAL\2191031A_08.d	Calibration	7	☑	26235	20.0000	1311.7470

Target Compound *PFTrDA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191031ACAL\2191031A_02.d	Calibration	1	☑	2400	0.5000	4.8814
D:\MassHunter\Data\2191031ACAL\2191031A_10.d	Calibration	2	☑	6075	1.2500	5.0316
D:\MassHunter\Data\2191031ACAL\2191031A_04.d	Calibration	3	☑	22491	5.0000	4.4349
D:\MassHunter\Data\2191031ACAL\2191031A_05.d	Calibration	4	☑	48796	10.0000	5.0380
D:\MassHunter\Data\2191031ACAL\2191031A_06.d	Calibration	5	☑	273916	50.0000	5.4801
D:\MassHunter\Data\2191031ACAL\2191031A_07.d	Calibration	6	☑	554635	100.0000	5.4850
D:\MassHunter\Data\2191031ACAL\2191031A_08.d	Calibration	7	☑	1058400	200.0000	4.9257



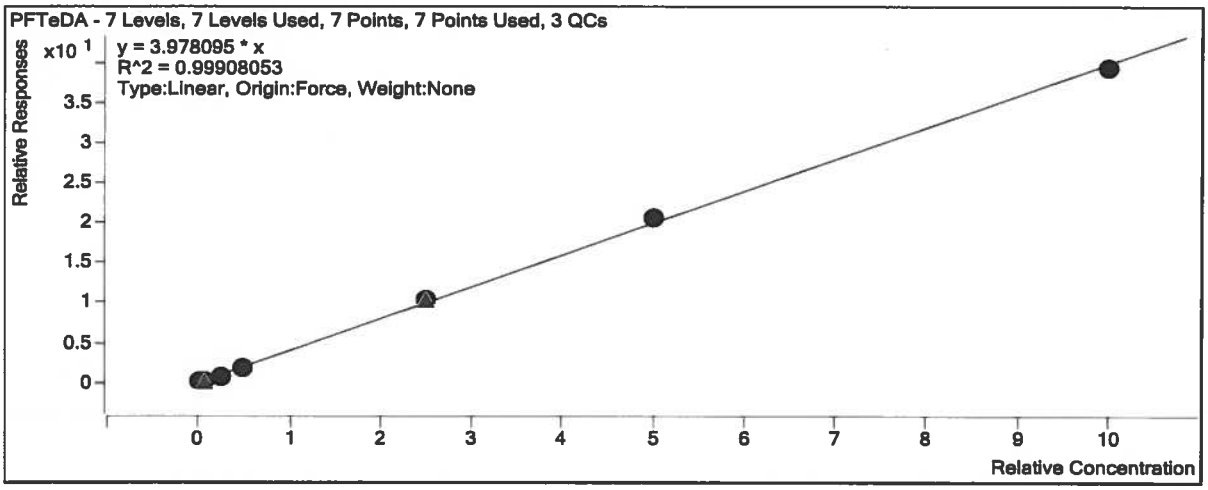
Extracted ISTD *M2PFTeDA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191031ACAL\2191031A_02.d	Calibration	1	☑	19665	20.0000	983.2353
D:\MassHunter\Data\2191031ACAL\2191031A_10.d	Calibration	2	☑	19318	20.0000	965.8932
D:\MassHunter\Data\2191031ACAL\2191031A_04.d	Calibration	3	☑	20286	20.0000	1014.3023
D:\MassHunter\Data\2191031ACAL\2191031A_05.d	Calibration	4	☑	19371	20.0000	968.5598

Quantitative Analysis Calibration Report

Target Compound *PFTeDA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191031ACAL\2191031A_02.d	Calibration	1	☑	1829	0.5000	3.7210
D:\MassHunter\Data\2191031ACAL\2191031A_10.d	Calibration	2	☑	4867	1.2500	4.0310
D:\MassHunter\Data\2191031ACAL\2191031A_04.d	Calibration	3	☑	17136	5.0000	3.3789
D:\MassHunter\Data\2191031ACAL\2191031A_05.d	Calibration	4	☑	36850	10.0000	3.8046
D:\MassHunter\Data\2191031ACAL\2191031A_06.d	Calibration	5	☑	208365	50.0000	4.1687
D:\MassHunter\Data\2191031ACAL\2191031A_07.d	Calibration	6	☑	418895	100.0000	4.1426
D:\MassHunter\Data\2191031ACAL\2191031A_08.d	Calibration	7	☑	843567	200.0000	3.9259



6I

ORGANICS INITIAL CALIBRATION VERIFICATION

Report No:	219102326	Instrument ID:	QQQ1
Analysis Date:	10/31/2019 13:39	Lab File ID:	2191031A_12.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	670526

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	50000	52500	105	70	130	
8:2 Fluorotelomer sulfonate	ng/L	50000	53900	108	70	130	
NEtFOSAA	ng/L	50000	47100	94	70	130	
NMeFOSAA	ng/L	50000	42300	85	70	130	
Perfluorobutanoic acid	ng/L	50000	46200	92	70	130	
Perfluorobutanesulfonic acid	ng/L	50000	45200	90	70	130	
Perfluorodecanoic acid	ng/L	50000	47100	94	70	130	
Perfluorododecanoic acid	ng/L	50000	44900	90	70	130	
Perfluoroheptanoic acid	ng/L	50000	45000	90	70	130	
Perfluorohexanoic acid	ng/L	50000	47300	95	70	130	
Perfluorohexanesulfonic acid	ng/L	50000	51700	103	70	130	
Perfluorononanoic acid	ng/L	50000	49600	99	70	130	
Perfluorooctanoic acid	ng/L	50000	43200	86	70	130	
Perfluorooctane Sulfonate	ng/L	50000	44800	90	70	130	
Perfluoropentanoic acid	ng/L	50000	45700	91	70	130	
Perfluorotetradecanoic acid	ng/L	50000	51800	104	70	130	
Perfluorotridecanoic acid	ng/L	50000	43800	88	70	130	
Perfluoroundecanoic acid	ng/L	50000	44700	89	70	130	

4I

ORGANICS INSTRUMENT BLANK

Report No:	219102326	Instrument ID:	QQQ1
Analysis Date:	10/31/2019 14:02	Lab File ID:	2191031A_14.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	670526

ANALYTE	UNITS	RESULT	Q	DL	LOD	LOQ	#
6:2 Fluorotelomer sulfonate	ng/L	4.00	U	1.79	4.00	10.0	
8:2 Fluorotelomer sulfonate	ng/L	4.00	U	1.63	4.00	10.0	
NEtFOSAA	ng/L	8.00	U	5.38	8.00	10.0	
NMeFOSAA	ng/L	8.00	U	4.60	8.00	10.0	
Perfluorobutanesulfonic acid	ng/L	4.00	U	1.47	4.00	10.0	
Perfluorobutanoic acid	ng/L	4.00	U	2.13	4.00	10.0	
Perfluorodecanoic acid	ng/L	4.00	U	1.65	4.00	10.0	
Perfluorododecanoic acid	ng/L	4.00	U	2.45	4.00	10.0	
Perfluoroheptanoic acid	ng/L	4.00	U	1.85	4.00	10.0	
Perfluorohexanesulfonic acid	ng/L	4.00	U	1.64	4.00	10.0	
Perfluorohexanoic acid	ng/L	4.00	U	1.94	4.00	10.0	
Perfluorononanoic acid	ng/L	4.00	U	1.68	4.00	10.0	
Perfluorooctane Sulfonate	ng/L	4.00	U	1.70	4.00	10.0	
Perfluorooctanoic acid	ng/L	4.00	U	1.80	4.00	10.0	
Perfluoropentanoic acid	ng/L	4.00	U	2.35	4.00	10.0	
Perfluorotetradecanoic acid	ng/L	4.00	U	2.76	4.00	10.0	
Perfluorotridecanoic acid	ng/L	4.00	U	2.56	4.00	10.0	
Perfluoroundecanoic acid	ng/L	4.00	U	1.86	4.00	10.0	

* - Result greater than 1/2 LOQ

7S

ORGANICS INSTRUMENT SENSITIVITY CHECK

Report No:	219102326	Instrument ID:	QQQ1
Analysis Date:	10/31/2019 14:27	Lab File ID:	2191031A_16.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	670526

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	7.93	9.20	116	70	130	
8:2 Fluorotelomer sulfonate	ng/L	8.00	8.73	109	70	130	
NEtFOSAA	ng/L	8.33	7.40	89	70	130	
NMeFOSAA	ng/L	8.33	6.06	73	70	130	
Perfluorobutanoic acid	ng/L	8.33	7.80	94	70	130	
Perfluorobutanesulfonic acid	ng/L	7.40	6.31	86	70	130	
Perfluorodecanoic acid	ng/L	8.33	6.93	83	70	130	
Perfluorododecanoic acid	ng/L	8.33	8.07	97	70	130	
Perfluoroheptanoic acid	ng/L	8.33	7.07	85	70	130	
Perfluorohexanoic acid	ng/L	8.33	7.27	87	70	130	
Perfluorohexanesulfonic acid	ng/L	7.60	6.93	91	70	130	
Perfluorononanoic acid	ng/L	8.33	7.47	89	70	130	
Perfluorooctanoic acid	ng/L	8.33	6.93	83	70	130	
Perfluorooctane Sulfonate	ng/L	7.73	9.13	119	70	130	
Perfluoropentanoic acid	ng/L	8.33	6.80	82	70	130	
Perfluorotetradecanoic acid	ng/L	8.33	8.20	98	70	130	
Perfluorotridecanoic acid	ng/L	8.33	7.33	88	70	130	
Perfluoroundecanoic acid	ng/L	8.33	7.33	88	70	130	

FORM 7S - ORG

7E

ORGANICS CALIBRATION VERIFICATION

Report No:	219102326	Instrument ID:	QQQ1
Analysis Date:	10/31/2019 17:50	Lab File ID:	2191031A_34.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	670526

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	47500	52800	111	70	130	
8:2 Fluorotelomer sulfonate	ng/L	48000	47300	98	70	130	
NEtFOSAA	ng/L	50000	54100	108	70	130	
NMeFOSAA	ng/L	50000	49200	98	70	130	
Perfluorobutanoic acid	ng/L	50000	47500	95	70	130	
Perfluorobutanesulfonic acid	ng/L	44300	41600	94	70	130	
Perfluorodecanoic acid	ng/L	50000	47900	96	70	130	
Perfluorododecanoic acid	ng/L	50000	52700	105	70	130	
Perfluoroheptanoic acid	ng/L	50000	49700	99	70	130	
Perfluorohexanoic acid	ng/L	50000	46300	93	70	130	
Perfluorohexanesulfonic acid	ng/L	45600	52300	115	70	130	
Perfluorononanoic acid	ng/L	50000	45600	91	70	130	
Perfluorooctanoic acid	ng/L	50000	47900	96	70	130	
Perfluorooctane Sulfonate	ng/L	46300	46500	100	70	130	
Perfluoropentanoic acid	ng/L	50000	47500	95	70	130	
Perfluorotetradecanoic acid	ng/L	50000	51000	102	70	130	
Perfluorotridecanoic acid	ng/L	50000	49600	99	70	130	
Perfluoroundecanoic acid	ng/L	50000	48900	98	70	130	

FORM 7E - ORG

7E

ORGANICS CALIBRATION VERIFICATION

Report No:	219102326	Instrument ID:	QQQ1
Analysis Date:	10/31/2019 20:50	Lab File ID:	2191031A_50.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	670526

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	47500	51200	108	70	130	
8:2 Fluorotelomer sulfonate	ng/L	48000	47600	99	70	130	
NEtFOSAA	ng/L	50000	50200	100	70	130	
NMeFOSAA	ng/L	50000	49900	100	70	130	
Perfluorobutanoic acid	ng/L	50000	47900	96	70	130	
Perfluorobutanesulfonic acid	ng/L	44300	41900	95	70	130	
Perfluorodecanoic acid	ng/L	50000	49300	99	70	130	
Perfluorododecanoic acid	ng/L	50000	50000	100	70	130	
Perfluoroheptanoic acid	ng/L	50000	46100	92	70	130	
Perfluorohexanoic acid	ng/L	50000	47500	95	70	130	
Perfluorohexanesulfonic acid	ng/L	45600	49400	108	70	130	
Perfluorononanoic acid	ng/L	50000	48400	97	70	130	
Perfluorooctanoic acid	ng/L	50000	46400	93	70	130	
Perfluorooctane Sulfonate	ng/L	46300	48800	105	70	130	
Perfluoropentanoic acid	ng/L	50000	47600	95	70	130	
Perfluorotetradecanoic acid	ng/L	50000	52000	104	70	130	
Perfluorotridecanoic acid	ng/L	50000	51400	103	70	130	
Perfluoroundecanoic acid	ng/L	50000	47400	95	70	130	

FORM 7E - ORG

8I

INJECTION INTERNAL STANDARD AREA SUMMARY

Report No:	219102326	Standard ID:	1205 (ICAL Midpoint)
Analyst:	BMH	Instrument ID:	QQQ1
Analysis Date:	10/31/19 11:53	Lab File ID:	2191031A_06.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	670526

	M2PFDA	M2PFHxA	M2PFOA	M4PFOS
	Area	*Area*	*Area*	*Area*
STANDARD	193536	560156	192205	155069

CLIENT SAMPLE ID	*GCAL SAMP ID*		#		#		#		#
AOI6-1-SB-1.5-2-102219DL	21910232602DL	225037		578568		198850		143711	
AOI6-1-SB-1.5-2-102219-MSDL	21910232603DL	218413		588780		200956		147078	
AOI6-1-SB-1.5-2-102219-MSDDL	21910232604DL	215651		585407		199281		141211	

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 8I - ORG

8I

INJECTION INTERNAL STANDARD AREA SUMMARY

Report No:	219102541	Standard ID:	1205 (ICAL Midpoint)
Analyst:	BMH	Instrument ID:	QQQ1
Analysis Date:	10/31/19 11:53	Lab File ID:	2191031A_06.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	670526

	M2PFDA	M2PFHxA	M2PFOA	M4PFOS
	Area	*Area*	*Area*	*Area*
STANDARD	193536	560156	192205	155069

CLIENT SAMPLE ID	*GCAL SAMP ID*		#		#		#		#
AOI1-5-GW-102319DL	21910254111DL	210913		563780		154754		146951	
AOI1-SA-GW-102319DL	21910254112DL	227167		587181		194621		153096	
AOI1-6-GW-102319DL	21910254115DL	228044		595919		199617		149975	
AOI1-4-GW-102319DL	21910254117DL	211959		578666		191498		150955	
AOI1-2-GW-102319DL1	21910254121DL1	224758		598856		198669		152427	

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 8I - ORG

LCMS1 Run Log

Analyst:	BMH	Expiration
Batch:	2191104A	Date
Current ICAL Bath:	2191104ACAL/21	Date
20mM Amm Acetate	010-11-6	11/6/2019
Methanol	2128497	8/31/2024
Calibration Std	010-11-1	5/1/2020
ICV Std	010-6-5	4/9/2020
EIS Mix	010-9-9	4/30/2020

Name	Data File	Type	Acq. Date-Time	Comment	Dil.
MeOH Shot	2191104A_01.d	MeOH Shot	11/4/2019 19:22	Instrument idle/MeOH Shot	1
1400 Test	2191104A_02.d	QC	11/4/2019 19:32		1
1201	2191104A_03.d	Cal	11/4/2019 19:44		1
1202	2191104A_04.d	Cal	11/4/2019 19:55		1
1203	2191104A_05.d	Cal	11/4/2019 20:06		1
1204	2191104A_06.d	Cal	11/4/2019 20:18		1
1205	2191104A_07.d	Cal	11/4/2019 20:29		1
1206	2191104A_08.d	Cal	11/4/2019 20:40		1
1207	2191104A_09.d	Cal	11/4/2019 20:52		1
1600	2191104A_10.d	QC	11/4/2019 21:03		1
1450	2191104A_11.d	QC	11/4/2019 21:14		1
1500	2191104A_12.d	Sample	11/4/2019 21:26		1
MeOH Shot	2191104A_13.d	MeOH Shot	11/4/2019 22:27	Instrument idle/MeOH Shot	1
1973864	2191104A_14.d	Sample	11/4/2019 22:38	669806	1
1973865	2191104A_15.d	QC	11/4/2019 22:49	669806	1
1973866	2191104A_16.d	QC	11/4/2019 23:00	669806	1
21910210414	2191104A_17.d	Sample	11/4/2019 23:12	669806	1
21910210401	2191104A_18.d	Sample	11/4/2019 23:23	669806	1
21910210402	2191104A_19.d	Sample	11/4/2019 23:34	669806	1
21910210403	2191104A_20.d	Sample	11/4/2019 23:46	669806	1
21910210404	2191104A_21.d	Sample	11/4/2019 23:57	669806	1

21910210405	2191104A_22.d	Sample	11/5/2019 0:08	669806	1
21910210406	2191104A_23.d	Sample	11/5/2019 0:20	669806	1
21910210407	2191104A_24.d	Sample	11/5/2019 0:31	669806	1
21910210408	2191104A_25.d	Sample	11/5/2019 0:42	669806	1
21910210409	2191104A_26.d	Sample	11/5/2019 0:54	669806	1
1400	2191104A_27.d	QC	11/5/2019 1:05		1
21910210410	2191104A_28.d	Sample	11/5/2019 1:16	669806	1
21910210411	2191104A_29.d	Sample	11/5/2019 1:28	669806	1
21910210412	2191104A_30.d	QC	11/5/2019 1:39	669806	1
21910210413	2191104A_31.d	QC	11/5/2019 1:50	669806	1
21910254111 x100	2191104A_32.d	Sample	11/5/2019 2:02	670127	1
21910222804	2191104A_33.d	Sample	11/5/2019 2:13	669938	1
21910222806	2191104A_34.d	QC	11/5/2019 2:24	669938	1
21910222807	2191104A_35.d	QC	11/5/2019 2:36	669938	1
21910171513 x100	2191104A_36.d	Sample	11/5/2019 2:47	670127	100
1400	2191104A_37.d	QC	11/5/2019 2:58		1
1974715	2191104A_38.d	Sample	11/5/2019 3:10	669972	1
1974716	2191104A_39.d	QC	11/5/2019 3:21	669972	1
1974717	2191104A_40.d	QC	11/5/2019 3:33	669972	1
21910225109	2191104A_41.d	Sample	11/5/2019 3:44	669972	1
21910233305	2191104A_42.d	Sample	11/5/2019 3:55	669972	1
21910232601	2191104A_43.d	Sample	11/5/2019 4:07	669972	1
21910232607	2191104A_44.d	Sample	11/5/2019 4:18	669972	1
21910232621	2191104A_45.d	Sample	11/5/2019 4:29	669972	1
21910232626	2191104A_46.d	Sample	11/5/2019 4:41	669972	1
21910232629	2191104A_47.d	Sample	11/5/2019 4:52	669972	1
21910233308	2191104A_48.d	Sample	11/5/2019 5:03	669972	1
21910233314	2191104A_49.d	Sample	11/5/2019 5:15	669972	1
21910233316	2191104A_50.d	Sample	11/5/2019 5:26	669972	1
1400	2191104A_51.d	QC	11/5/2019 5:37		1
21910233321	2191104A_52.d	Sample	11/5/2019 5:49	669972	1
1400	2191104A_53.d	QC	11/5/2019 6:00		1

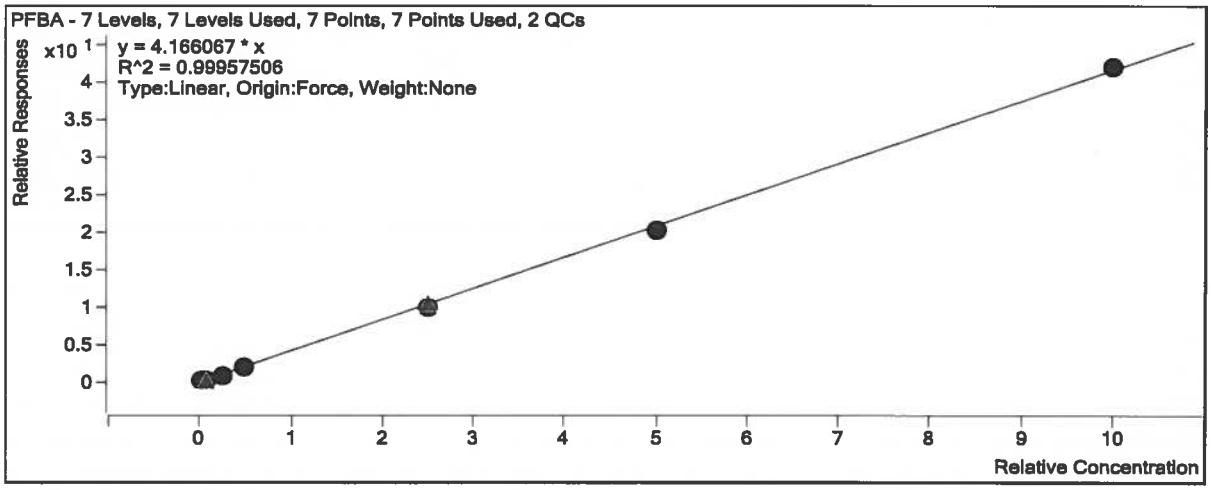
Quantitative Analysis Calibration Report

Batch Data Path	D:\MassHunter\Data\2191104ACAL\QuantResults\2191104A.batch.bin		
Analysis Time	11/17/2019 9:21 AM	**Analyst Name**	GCAL\lcms
Report Time	11/17/2019 9:23 AM	**Reporter Name**	GCAL\lcms
Last Calib Update	11/4/2019 9:57 PM	**Batch State**	Processed

Calibration Info

Target Compound *PFBA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191104ACAL\2191104A_03.d	Calibration	1	☑	5473	0.5000	4.0167
D:\MassHunter\Data\2191104ACAL\2191104A_04.d	Calibration	2	☑	12746	1.2500	3.5986
D:\MassHunter\Data\2191104ACAL\2191104A_05.d	Calibration	3	☑	51448	5.0000	3.6565
D:\MassHunter\Data\2191104ACAL\2191104A_06.d	Calibration	4	☑	107571	10.0000	3.7837
D:\MassHunter\Data\2191104ACAL\2191104A_07.d	Calibration	5	☑	582559	50.0000	4.0293
D:\MassHunter\Data\2191104ACAL\2191104A_08.d	Calibration	6	☑	1141416	100.0000	4.0545
D:\MassHunter\Data\2191104ACAL\2191104A_09.d	Calibration	7	☑	2230675	200.0000	4.2038



Extracted ISTD *MPFBA*

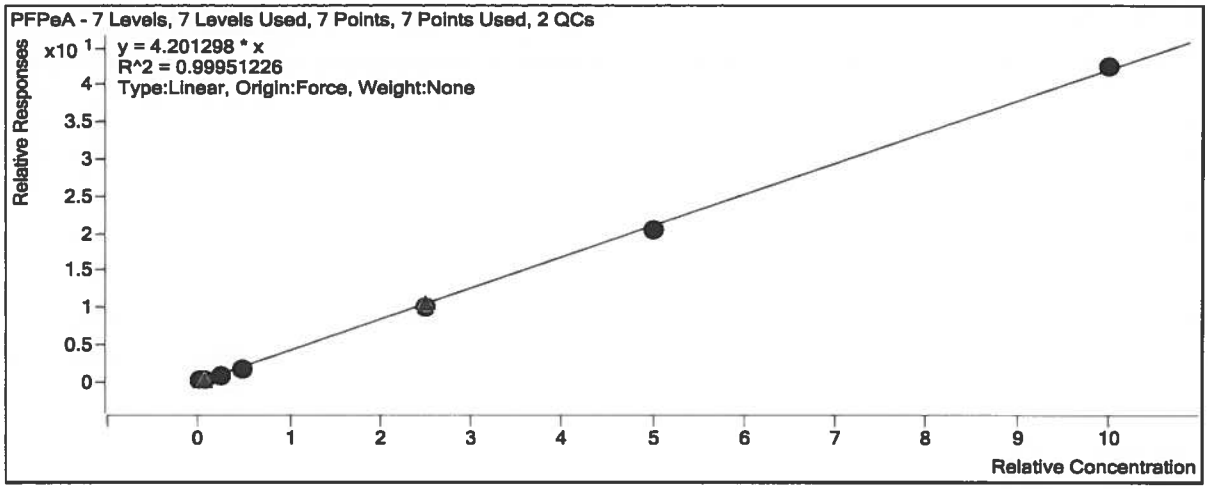
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191104ACAL\2191104A_03.d	Calibration	1	☑	54504	20.0000	2725.1901
D:\MassHunter\Data\2191104ACAL\2191104A_04.d	Calibration	2	☑	56669	20.0000	2833.4432
D:\MassHunter\Data\2191104ACAL\2191104A_05.d	Calibration	3	☑	56280	20.0000	2814.0151
D:\MassHunter\Data\2191104ACAL\2191104A_06.d	Calibration	4	☑	56861	20.0000	2843.0398
D:\MassHunter\Data\2191104ACAL\2191104A_07.d	Calibration	5	☑	57832	20.0000	2891.6171
D:\MassHunter\Data\2191104ACAL\2191104A_08.d	Calibration	6	☑	56303	20.0000	2815.1726
D:\MassHunter\Data\2191104ACAL\2191104A_09.d	Calibration	7	☑	53063	20.0000	2653.1650

Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191104ACAL\2191104A_06.d	Calibration	4	☑	30227	20.0000	1511.3747
D:\MassHunter\Data\2191104ACAL\2191104A_07.d	Calibration	5	☑	30118	20.0000	1505.9230
D:\MassHunter\Data\2191104ACAL\2191104A_08.d	Calibration	6	☑	29679	20.0000	1483.9351
D:\MassHunter\Data\2191104ACAL\2191104A_09.d	Calibration	7	☑	28226	20.0000	1411.3226

Target Compound ***PFPeA***

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191104ACAL\2191104A_03.d	Calibration	1	☑	2643	0.5000	3.7283
D:\MassHunter\Data\2191104ACAL\2191104A_04.d	Calibration	2	☑	6466	1.2500	3.5328
D:\MassHunter\Data\2191104ACAL\2191104A_05.d	Calibration	3	☑	25940	5.0000	3.4865
D:\MassHunter\Data\2191104ACAL\2191104A_06.d	Calibration	4	☑	55697	10.0000	3.6852
D:\MassHunter\Data\2191104ACAL\2191104A_07.d	Calibration	5	☑	306418	50.0000	4.0695
D:\MassHunter\Data\2191104ACAL\2191104A_08.d	Calibration	6	☑	605613	100.0000	4.0811
D:\MassHunter\Data\2191104ACAL\2191104A_09.d	Calibration	7	☑	1197181	200.0000	4.2413

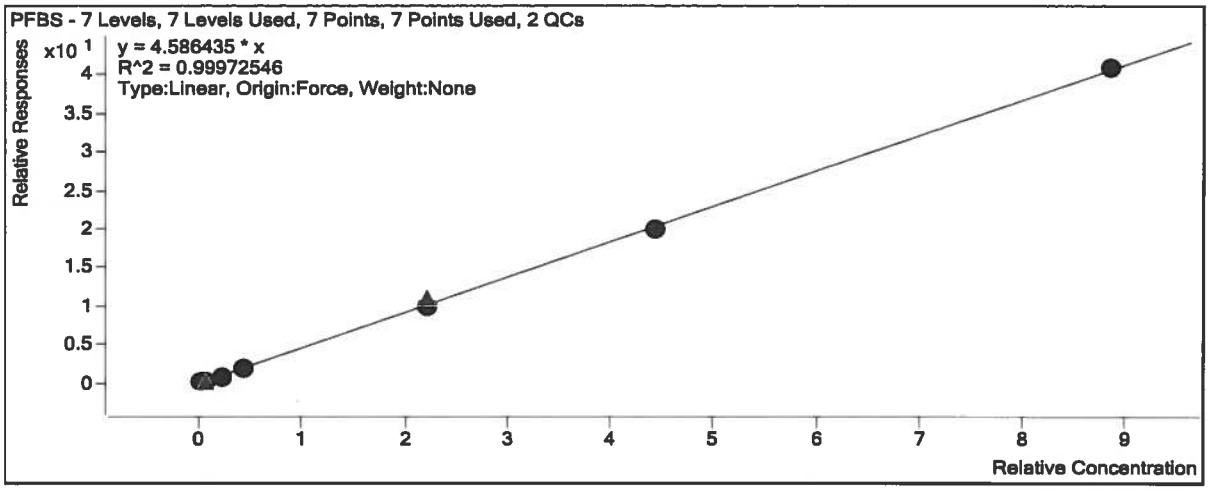


Target Compound ***PFBS***

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191104ACAL\2191104A_03.d	Calibration	1	☑	1785	0.4425	4.0787
D:\MassHunter\Data\2191104ACAL\2191104A_04.d	Calibration	2	☑	4292	1.1100	3.6884
D:\MassHunter\Data\2191104ACAL\2191104A_05.d	Calibration	3	☑	18280	4.4250	3.9738
D:\MassHunter\Data\2191104ACAL\2191104A_06.d	Calibration	4	☑	37730	8.8500	4.0605

Quantitative Analysis Calibration Report

D:\MassHunter\Data\2191104ACAL\2191104A_07.d	Calibration	5	☑	209381	44.2500	4.4660
D:\MassHunter\Data\2191104ACAL\2191104A_08.d	Calibration	6	☑	413786	88.5000	4.4967
D:\MassHunter\Data\2191104ACAL\2191104A_09.d	Calibration	7	☑	809179	177.0000	4.6181



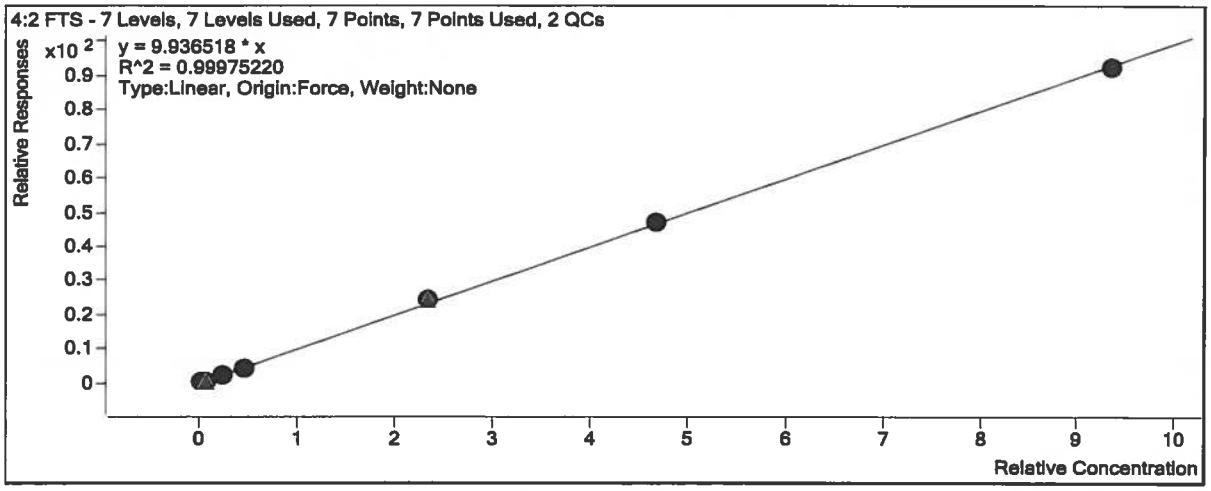
Extracted ISTD *M3PFBS*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191104ACAL\2191104A_03.d	Calibration	1	☑	19785	20.0000	989.2551
D:\MassHunter\Data\2191104ACAL\2191104A_04.d	Calibration	2	☑	20968	20.0000	1048.4237
D:\MassHunter\Data\2191104ACAL\2191104A_05.d	Calibration	3	☑	20791	20.0000	1039.5684
D:\MassHunter\Data\2191104ACAL\2191104A_06.d	Calibration	4	☑	20999	20.0000	1049.9359
D:\MassHunter\Data\2191104ACAL\2191104A_07.d	Calibration	5	☑	21190	20.0000	1059.5018
D:\MassHunter\Data\2191104ACAL\2191104A_08.d	Calibration	6	☑	20796	20.0000	1039.7829
D:\MassHunter\Data\2191104ACAL\2191104A_09.d	Calibration	7	☑	19799	20.0000	989.9300

Target Compound *4:2 FTS*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191104ACAL\2191104A_03.d	Calibration	1	☑	794	0.4675	9.0569
D:\MassHunter\Data\2191104ACAL\2191104A_04.d	Calibration	2	☑	2071	1.1700	9.1675
D:\MassHunter\Data\2191104ACAL\2191104A_05.d	Calibration	3	☑	8420	4.6700	9.4224
D:\MassHunter\Data\2191104ACAL\2191104A_06.d	Calibration	4	☑	16940	9.3500	9.3084
D:\MassHunter\Data\2191104ACAL\2191104A_07.d	Calibration	5	☑	93960	46.7500	10.3287
D:\MassHunter\Data\2191104ACAL\2191104A_08.d	Calibration	6	☑	181443	93.5000	10.0897
D:\MassHunter\Data\2191104ACAL\2191104A_09.d	Calibration	7	☑	345719	187.0000	9.8756

Quantitative Analysis Calibration Report



Extracted ISTD *M2 4:2 FTS*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191104ACAL\2191104A_03.d	Calibration	1	☑	3751	20.0000	187.5461
D:\MassHunter\Data\2191104ACAL\2191104A_04.d	Calibration	2	☑	3862	20.0000	193.1132
D:\MassHunter\Data\2191104ACAL\2191104A_05.d	Calibration	3	☑	3827	20.0000	191.3619
D:\MassHunter\Data\2191104ACAL\2191104A_06.d	Calibration	4	☑	3893	20.0000	194.6391
D:\MassHunter\Data\2191104ACAL\2191104A_07.d	Calibration	5	☑	3892	20.0000	194.5882
D:\MassHunter\Data\2191104ACAL\2191104A_08.d	Calibration	6	☑	3847	20.0000	192.3323
D:\MassHunter\Data\2191104ACAL\2191104A_09.d	Calibration	7	☑	3744	20.0000	187.2041

Extracted ISTD *M5PFHxA*

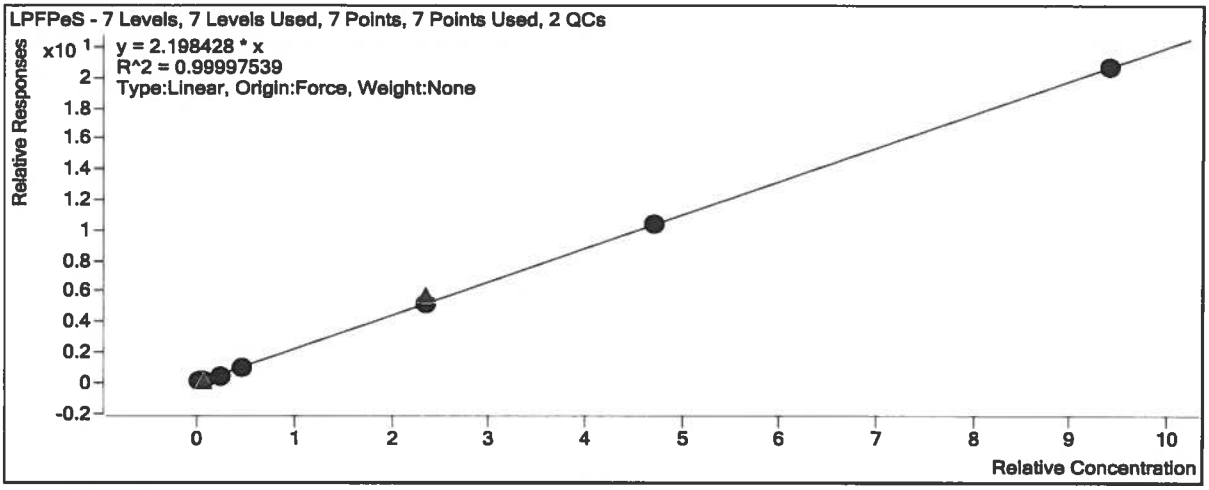
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191104ACAL\2191104A_03.d	Calibration	1	☑	43967	20.0000	2198.3622
D:\MassHunter\Data\2191104ACAL\2191104A_04.d	Calibration	2	☑	47364	20.0000	2368.2138
D:\MassHunter\Data\2191104ACAL\2191104A_05.d	Calibration	3	☑	48215	20.0000	2410.7340
D:\MassHunter\Data\2191104ACAL\2191104A_06.d	Calibration	4	☑	47540	20.0000	2376.9993
D:\MassHunter\Data\2191104ACAL\2191104A_07.d	Calibration	5	☑	49011	20.0000	2450.5552
D:\MassHunter\Data\2191104ACAL\2191104A_08.d	Calibration	6	☑	46990	20.0000	2349.5178
D:\MassHunter\Data\2191104ACAL\2191104A_09.d	Calibration	7	☑	45514	20.0000	2275.7072

Target Compound *PFHxA*

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

Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191104ACAL\2191104A_06.d	Calibration	4	☑	47044	9.4000	2.1055
D:\MassHunter\Data\2191104ACAL\2191104A_07.d	Calibration	5	☑	250936	47.0000	2.1787
D:\MassHunter\Data\2191104ACAL\2191104A_08.d	Calibration	6	☑	486932	94.0000	2.2048
D:\MassHunter\Data\2191104ACAL\2191104A_09.d	Calibration	7	☑	940582	188.0000	2.1985



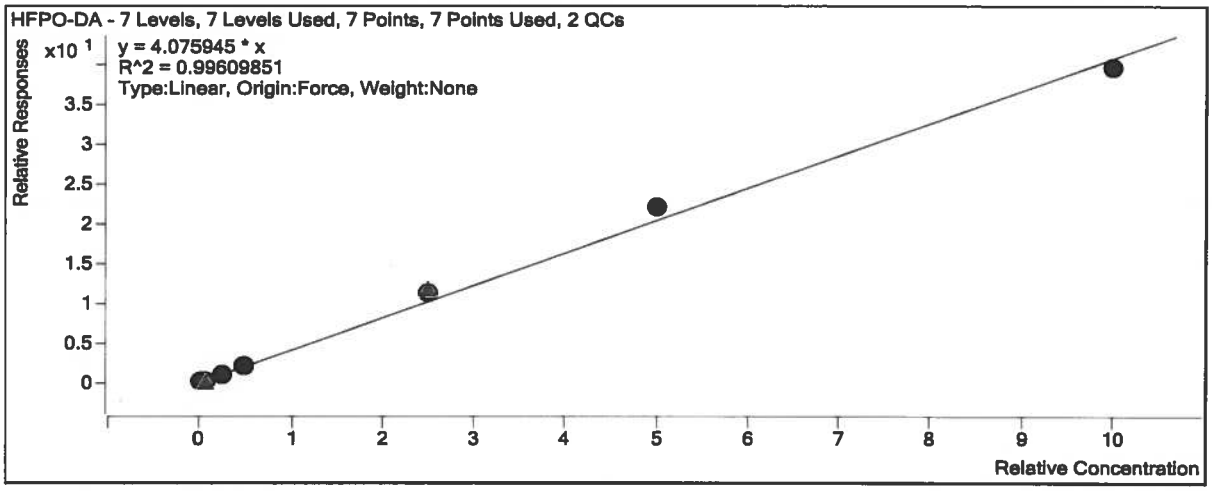
Extracted ISTD *M3HFPODA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191104ACAL\2191104A_03.d	Calibration	1	☑	2075	20.0000	103.7619
D:\MassHunter\Data\2191104ACAL\2191104A_04.d	Calibration	2	☑	1678	20.0000	83.9029
D:\MassHunter\Data\2191104ACAL\2191104A_05.d	Calibration	3	☑	1997	20.0000	99.8313
D:\MassHunter\Data\2191104ACAL\2191104A_06.d	Calibration	4	☑	2175	20.0000	108.7278
D:\MassHunter\Data\2191104ACAL\2191104A_07.d	Calibration	5	☑	1998	20.0000	99.8979
D:\MassHunter\Data\2191104ACAL\2191104A_08.d	Calibration	6	☑	2017	20.0000	100.8460
D:\MassHunter\Data\2191104ACAL\2191104A_09.d	Calibration	7	☑	2262	20.0000	113.1109

Target Compound *HFPO-DA*

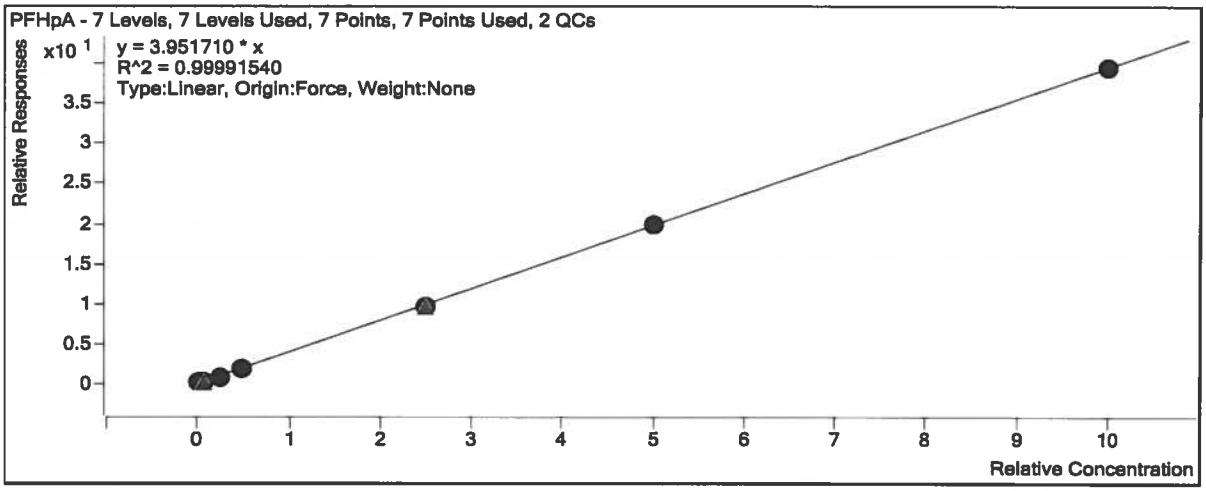
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191104ACAL\2191104A_03.d	Calibration	1	☑	245	0.5000	4.7282
D:\MassHunter\Data\2191104ACAL\2191104A_04.d	Calibration	2	☑	500	1.2500	4.7702
D:\MassHunter\Data\2191104ACAL\2191104A_05.d	Calibration	3	☑	2039	5.0000	4.0850
D:\MassHunter\Data\2191104ACAL\2191104A_06.d	Calibration	4	☑	4463	10.0000	4.1045

D:\MassHunter\Data\2191104ACAL\2191104A_07.d	Calibration	5	☑	22531	50.0000	4.5109
D:\MassHunter\Data\2191104ACAL\2191104A_08.d	Calibration	6	☑	44512	100.0000	4.4139
D:\MassHunter\Data\2191104ACAL\2191104A_09.d	Calibration	7	☑	89678	200.0000	3.9642



Target Compound *PFHpA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191104ACAL\2191104A_03.d	Calibration	1	☑	3425	0.5000	3.0157
D:\MassHunter\Data\2191104ACAL\2191104A_04.d	Calibration	2	☑	9403	1.2500	3.1756
D:\MassHunter\Data\2191104ACAL\2191104A_05.d	Calibration	3	☑	42459	5.0000	3.5414
D:\MassHunter\Data\2191104ACAL\2191104A_06.d	Calibration	4	☑	87277	10.0000	3.7129
D:\MassHunter\Data\2191104ACAL\2191104A_07.d	Calibration	5	☑	465968	50.0000	3.8760
D:\MassHunter\Data\2191104ACAL\2191104A_08.d	Calibration	6	☑	916256	100.0000	3.9941
D:\MassHunter\Data\2191104ACAL\2191104A_09.d	Calibration	7	☑	1719141	200.0000	3.9467

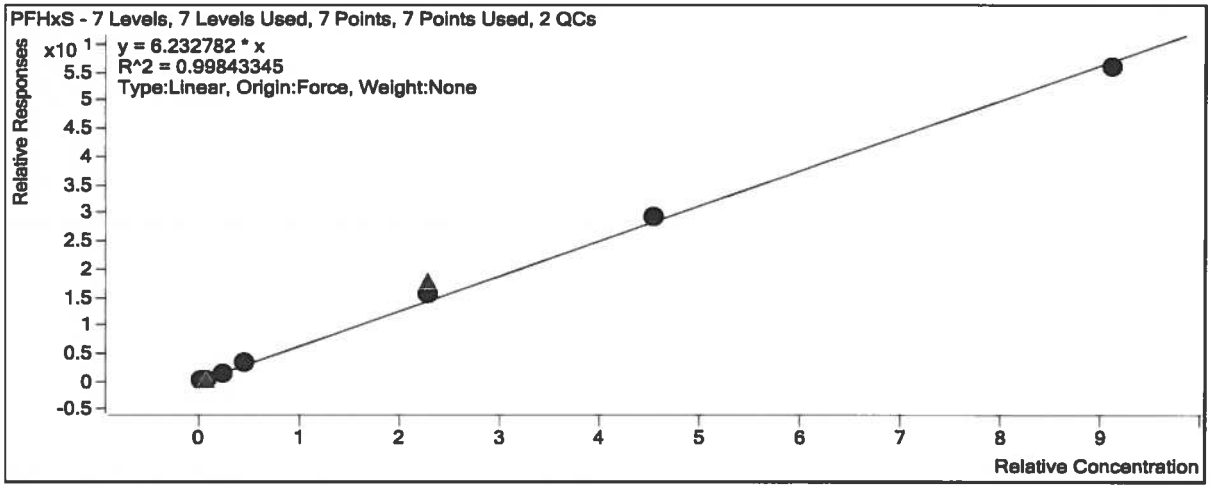


Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191104ACAL\2191104A_09.d	Calibration	7	☑	43559	20.0000	2177.9314

Target Compound *PFHxS*

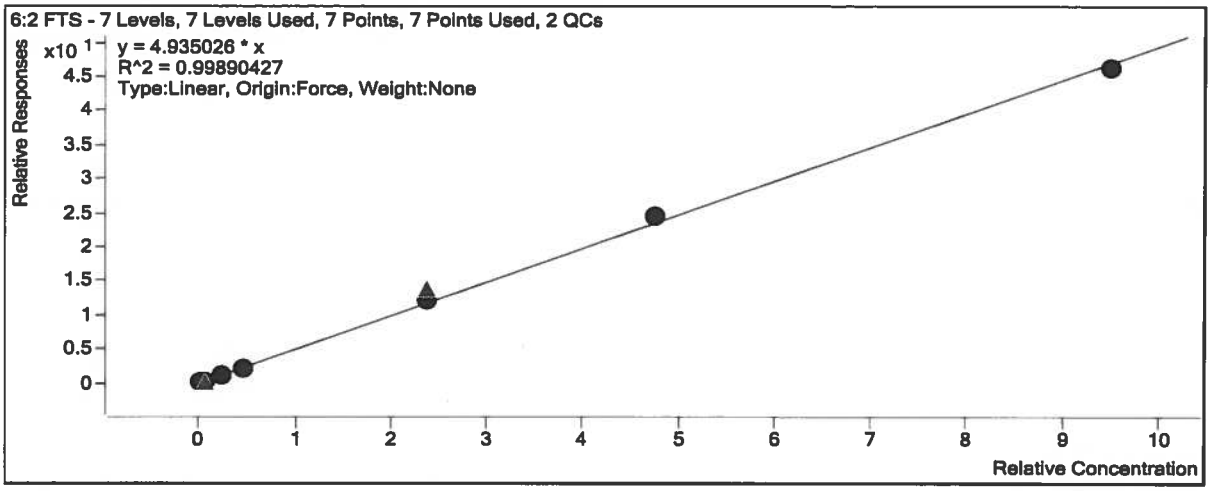
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191104ACAL\2191104A_03.d	Calibration	1	☑	2318	0.4560	6.7239
D:\MassHunter\Data\2191104ACAL\2191104A_04.d	Calibration	2	☑	5437	1.1400	6.0104
D:\MassHunter\Data\2191104ACAL\2191104A_05.d	Calibration	3	☑	22145	4.5600	6.6621
D:\MassHunter\Data\2191104ACAL\2191104A_06.d	Calibration	4	☑	45501	9.1200	7.1939
D:\MassHunter\Data\2191104ACAL\2191104A_07.d	Calibration	5	☑	252875	45.6000	6.8460
D:\MassHunter\Data\2191104ACAL\2191104A_08.d	Calibration	6	☑	484220	91.2000	6.4680
D:\MassHunter\Data\2191104ACAL\2191104A_09.d	Calibration	7	☑	927758	182.4000	6.1330



Extracted ISTD *M3PFHxS*

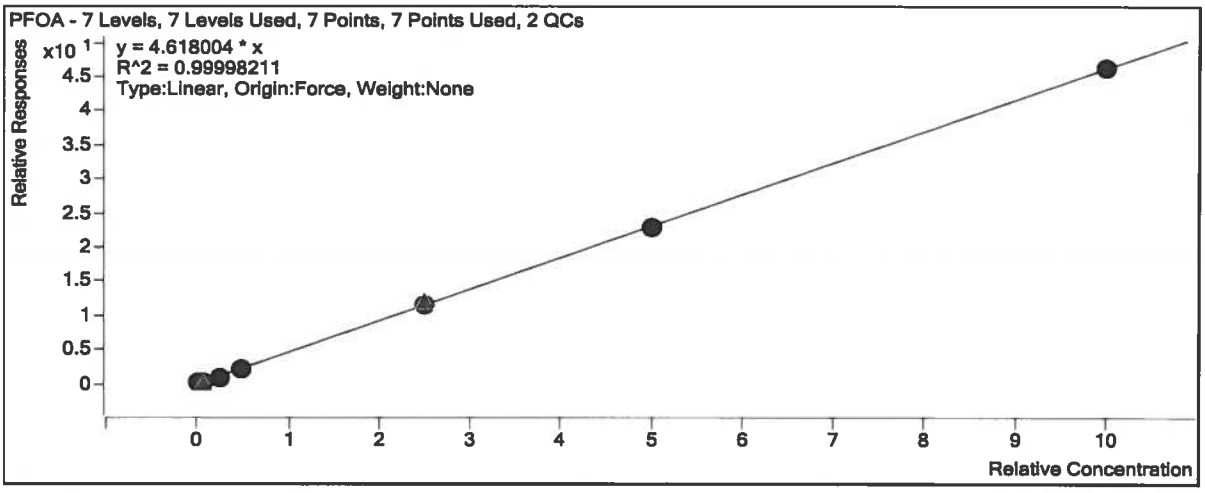
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191104ACAL\2191104A_03.d	Calibration	1	☑	15119	20.0000	755.9731
D:\MassHunter\Data\2191104ACAL\2191104A_04.d	Calibration	2	☑	15870	20.0000	793.5213
D:\MassHunter\Data\2191104ACAL\2191104A_05.d	Calibration	3	☑	14579	20.0000	728.9537
D:\MassHunter\Data\2191104ACAL\2191104A_06.d	Calibration	4	☑	13871	20.0000	693.5266
D:\MassHunter\Data\2191104ACAL\2191104A_07.d	Calibration	5	☑	16201	20.0000	810.0368
D:\MassHunter\Data\2191104ACAL\2191104A_08.d	Calibration	6	☑	16417	20.0000	820.8742
D:\MassHunter\Data\2191104ACAL\2191104A_09.d	Calibration	7	☑	16587	20.0000	829.3502

D:\MassHunter\Data\2191104ACAL\2191104A_07.d	Calibration	5	☑	99954	47.5000	5.1094
D:\MassHunter\Data\2191104ACAL\2191104A_08.d	Calibration	6	☑	195376	95.0000	5.1794
D:\MassHunter\Data\2191104ACAL\2191104A_09.d	Calibration	7	☑	367142	190.0000	4.8637

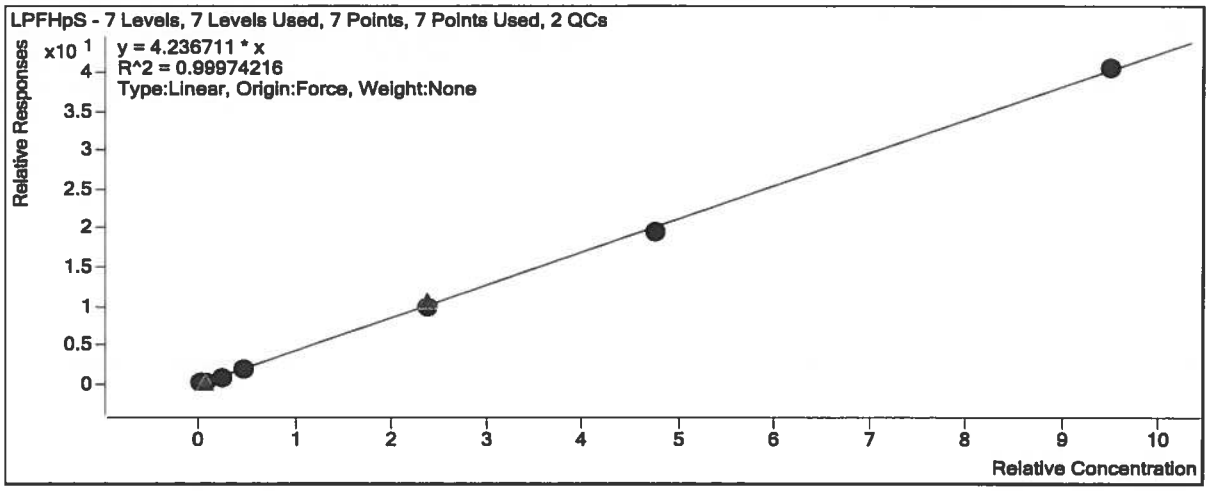


Target Compound *PFOA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191104ACAL\2191104A_03.d	Calibration	1	☑	2872	0.5000	3.9341
D:\MassHunter\Data\2191104ACAL\2191104A_04.d	Calibration	2	☑	7503	1.2500	3.9663
D:\MassHunter\Data\2191104ACAL\2191104A_05.d	Calibration	3	☑	31404	5.0000	4.1154
D:\MassHunter\Data\2191104ACAL\2191104A_06.d	Calibration	4	☑	65550	10.0000	4.3978
D:\MassHunter\Data\2191104ACAL\2191104A_07.d	Calibration	5	☑	347139	50.0000	4.6184
D:\MassHunter\Data\2191104ACAL\2191104A_08.d	Calibration	6	☑	678724	100.0000	4.6105
D:\MassHunter\Data\2191104ACAL\2191104A_09.d	Calibration	7	☑	1271780	200.0000	4.6207



Quantitative Analysis Calibration Report



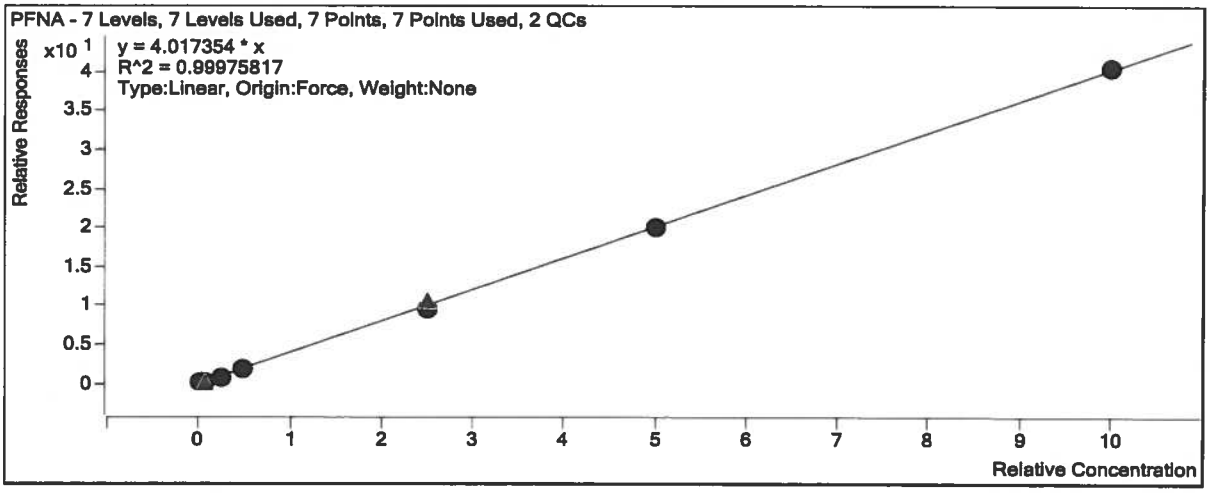
Extracted ISTD *M9PFNA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191104ACAL\2191104A_03.d	Calibration	1	☑	33705	20.0000	1685.2544
D:\MassHunter\Data\2191104ACAL\2191104A_04.d	Calibration	2	☑	35981	20.0000	1799.0535
D:\MassHunter\Data\2191104ACAL\2191104A_05.d	Calibration	3	☑	35109	20.0000	1755.4373
D:\MassHunter\Data\2191104ACAL\2191104A_06.d	Calibration	4	☑	33942	20.0000	1697.0781
D:\MassHunter\Data\2191104ACAL\2191104A_07.d	Calibration	5	☑	37044	20.0000	1852.1819
D:\MassHunter\Data\2191104ACAL\2191104A_08.d	Calibration	6	☑	32864	20.0000	1643.2227
D:\MassHunter\Data\2191104ACAL\2191104A_09.d	Calibration	7	☑	31820	20.0000	1590.9845

Target Compound *PFNA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191104ACAL\2191104A_03.d	Calibration	1	☑	2941	0.5000	3.4901
D:\MassHunter\Data\2191104ACAL\2191104A_04.d	Calibration	2	☑	7916	1.2500	3.5200
D:\MassHunter\Data\2191104ACAL\2191104A_05.d	Calibration	3	☑	31358	5.0000	3.5727
D:\MassHunter\Data\2191104ACAL\2191104A_06.d	Calibration	4	☑	64351	10.0000	3.7919
D:\MassHunter\Data\2191104ACAL\2191104A_07.d	Calibration	5	☑	353811	50.0000	3.8205
D:\MassHunter\Data\2191104ACAL\2191104A_08.d	Calibration	6	☑	655479	100.0000	3.9890
D:\MassHunter\Data\2191104ACAL\2191104A_09.d	Calibration	7	☑	1284756	200.0000	4.0376

Quantitative Analysis Calibration Report



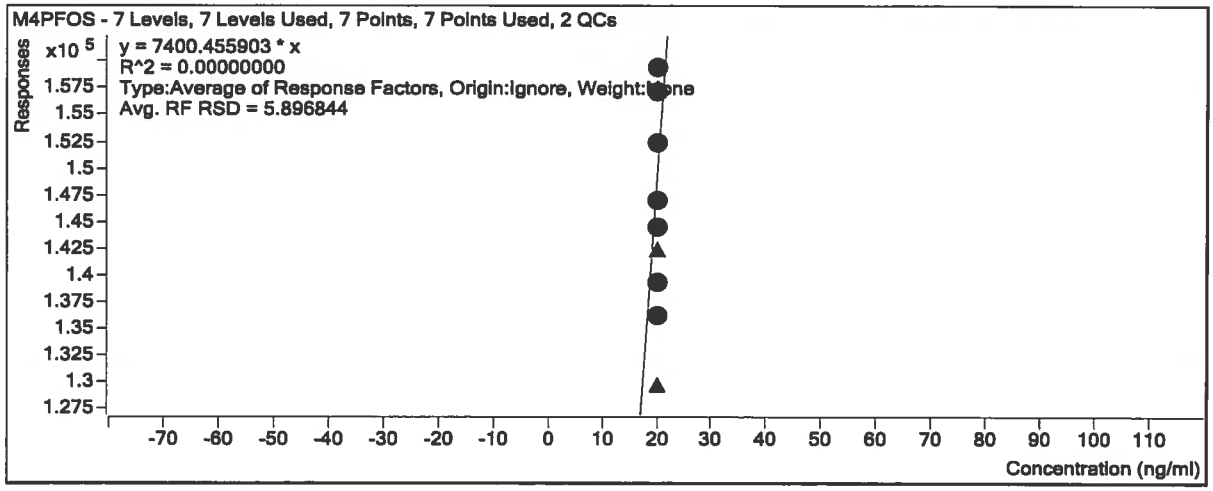
Extracted ISTD *M8PFOS*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191104ACAL\2191104A_03.d	Calibration	1	☑	14940	20.0000	746.9756
D:\MassHunter\Data\2191104ACAL\2191104A_04.d	Calibration	2	☑	15817	20.0000	790.8541
D:\MassHunter\Data\2191104ACAL\2191104A_05.d	Calibration	3	☑	15665	20.0000	783.2611
D:\MassHunter\Data\2191104ACAL\2191104A_06.d	Calibration	4	☑	15396	20.0000	769.7863
D:\MassHunter\Data\2191104ACAL\2191104A_07.d	Calibration	5	☑	15270	20.0000	763.4856
D:\MassHunter\Data\2191104ACAL\2191104A_08.d	Calibration	6	☑	15487	20.0000	774.3543
D:\MassHunter\Data\2191104ACAL\2191104A_09.d	Calibration	7	☑	14644	20.0000	732.2027

Instrument ISTD *M4PFOS*

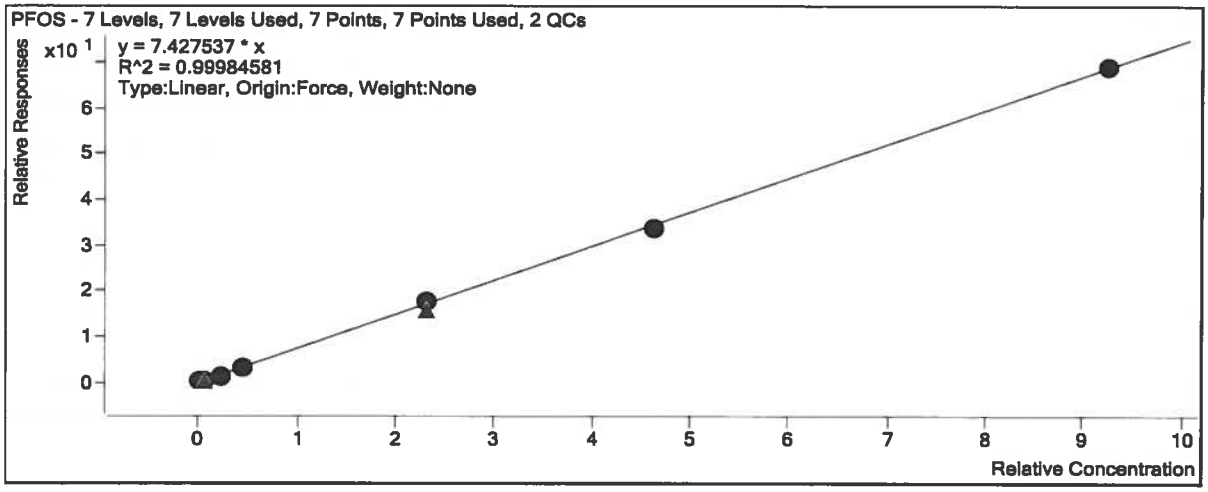
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191104ACAL\2191104A_03.d	Calibration	1	☑	144539	20.0000	7226.9532
D:\MassHunter\Data\2191104ACAL\2191104A_04.d	Calibration	2	☑	146968	20.0000	7348.4063
D:\MassHunter\Data\2191104ACAL\2191104A_05.d	Calibration	3	☑	157107	20.0000	7855.3496
D:\MassHunter\Data\2191104ACAL\2191104A_06.d	Calibration	4	☑	159373	20.0000	7968.6627
D:\MassHunter\Data\2191104ACAL\2191104A_07.d	Calibration	5	☑	152451	20.0000	7622.5475
D:\MassHunter\Data\2191104ACAL\2191104A_08.d	Calibration	6	☑	139288	20.0000	6964.3858
D:\MassHunter\Data\2191104ACAL\2191104A_09.d	Calibration	7	☑	136338	20.0000	6816.8863

Quantitative Analysis Calibration Report



Target Compound *PFOS*

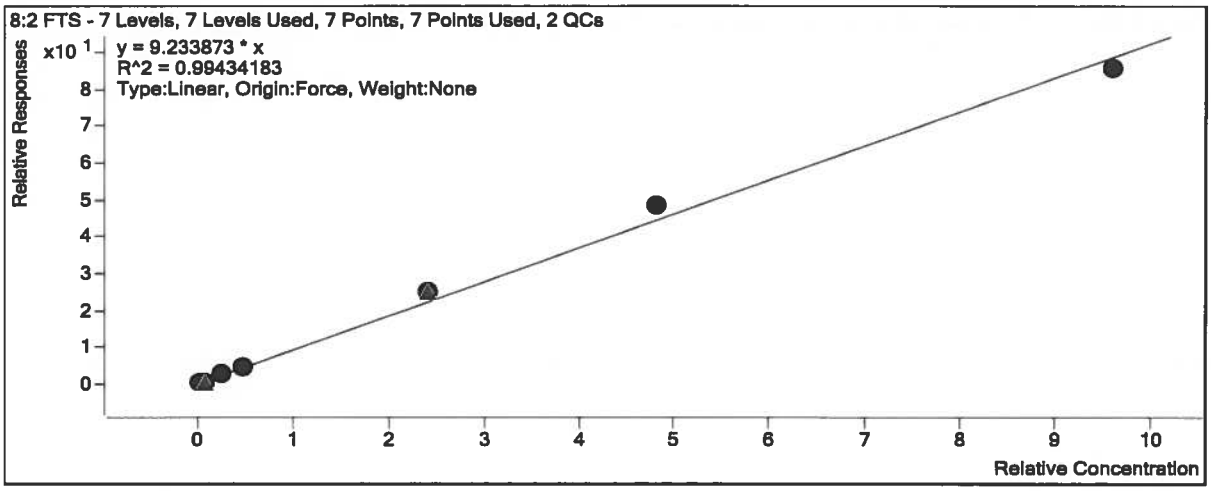
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191104ACAL\2191104A_03.d	Calibration	1	☑	2732	0.4628	7.9035
D:\MassHunter\Data\2191104ACAL\2191104A_04.d	Calibration	2	☑	6520	1.1600	7.1067
D:\MassHunter\Data\2191104ACAL\2191104A_05.d	Calibration	3	☑	24487	4.6280	6.7552
D:\MassHunter\Data\2191104ACAL\2191104A_06.d	Calibration	4	☑	50513	9.2550	7.0902
D:\MassHunter\Data\2191104ACAL\2191104A_07.d	Calibration	5	☑	271263	46.2800	7.6771
D:\MassHunter\Data\2191104ACAL\2191104A_08.d	Calibration	6	☑	525095	92.5500	7.3269
D:\MassHunter\Data\2191104ACAL\2191104A_09.d	Calibration	7	☑	1008127	185.1000	7.4384



Target Compound *9Cl-PF3ONS*

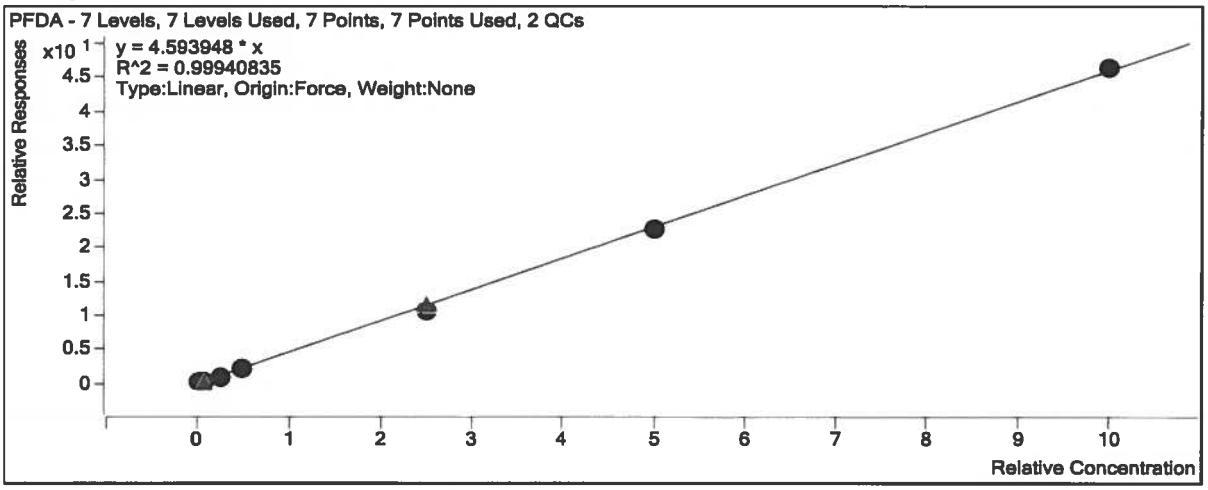
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF

Quantitative Analysis Calibration Report



Target Compound *PFDA*

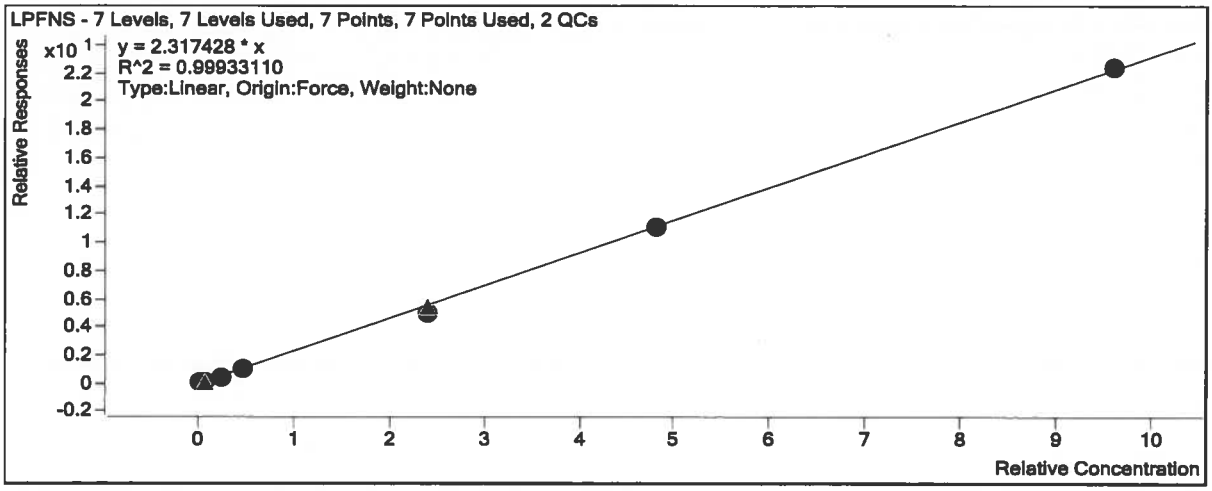
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191104ACAL\2191104A_03.d	Calibration	1	☑	3576	0.5000	4.6914
D:\MassHunter\Data\2191104ACAL\2191104A_04.d	Calibration	2	☑	7244	1.2500	3.5687
D:\MassHunter\Data\2191104ACAL\2191104A_05.d	Calibration	3	☑	31879	5.0000	4.1240
D:\MassHunter\Data\2191104ACAL\2191104A_06.d	Calibration	4	☑	63834	10.0000	4.1127
D:\MassHunter\Data\2191104ACAL\2191104A_07.d	Calibration	5	☑	342193	50.0000	4.2682
D:\MassHunter\Data\2191104ACAL\2191104A_08.d	Calibration	6	☑	661196	100.0000	4.5163
D:\MassHunter\Data\2191104ACAL\2191104A_09.d	Calibration	7	☑	1226777	200.0000	4.6353



Extracted ISTD *M6PFDA*

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

Quantitative Analysis Calibration Report



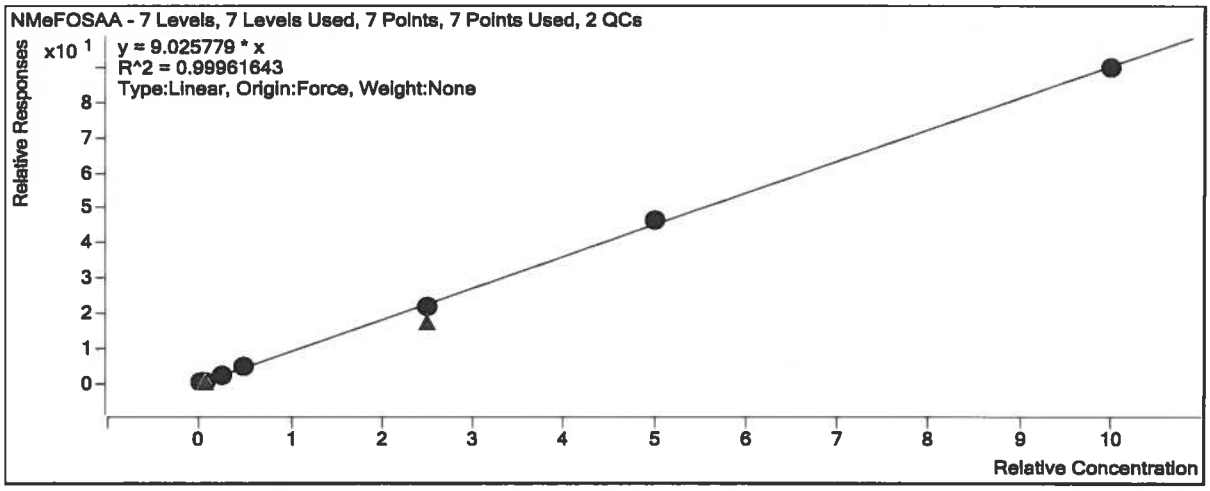
Extracted ISTD *d3-NMeFOSAA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191104ACAL\2191104A_03.d	Calibration	1	☑	5062	20.0000	253.1247
D:\MassHunter\Data\2191104ACAL\2191104A_04.d	Calibration	2	☑	4323	20.0000	216.1279
D:\MassHunter\Data\2191104ACAL\2191104A_05.d	Calibration	3	☑	5331	20.0000	266.5658
D:\MassHunter\Data\2191104ACAL\2191104A_06.d	Calibration	4	☑	4877	20.0000	243.8444
D:\MassHunter\Data\2191104ACAL\2191104A_07.d	Calibration	5	☑	5768	20.0000	288.4226
D:\MassHunter\Data\2191104ACAL\2191104A_08.d	Calibration	6	☑	5397	20.0000	269.8278
D:\MassHunter\Data\2191104ACAL\2191104A_09.d	Calibration	7	☑	5424	20.0000	271.1797

Target Compound *NMeFOSAA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191104ACAL\2191104A_03.d	Calibration	1	☑	1124	0.5000	8.8841
D:\MassHunter\Data\2191104ACAL\2191104A_04.d	Calibration	2	☑	2715	1.2500	10.0514
D:\MassHunter\Data\2191104ACAL\2191104A_05.d	Calibration	3	☑	11419	5.0000	8.5678
D:\MassHunter\Data\2191104ACAL\2191104A_06.d	Calibration	4	☑	22529	10.0000	9.2392
D:\MassHunter\Data\2191104ACAL\2191104A_07.d	Calibration	5	☑	125135	50.0000	8.6772
D:\MassHunter\Data\2191104ACAL\2191104A_08.d	Calibration	6	☑	250454	100.0000	9.2820
D:\MassHunter\Data\2191104ACAL\2191104A_09.d	Calibration	7	☑	487214	200.0000	8.9832

Quantitative Analysis Calibration Report



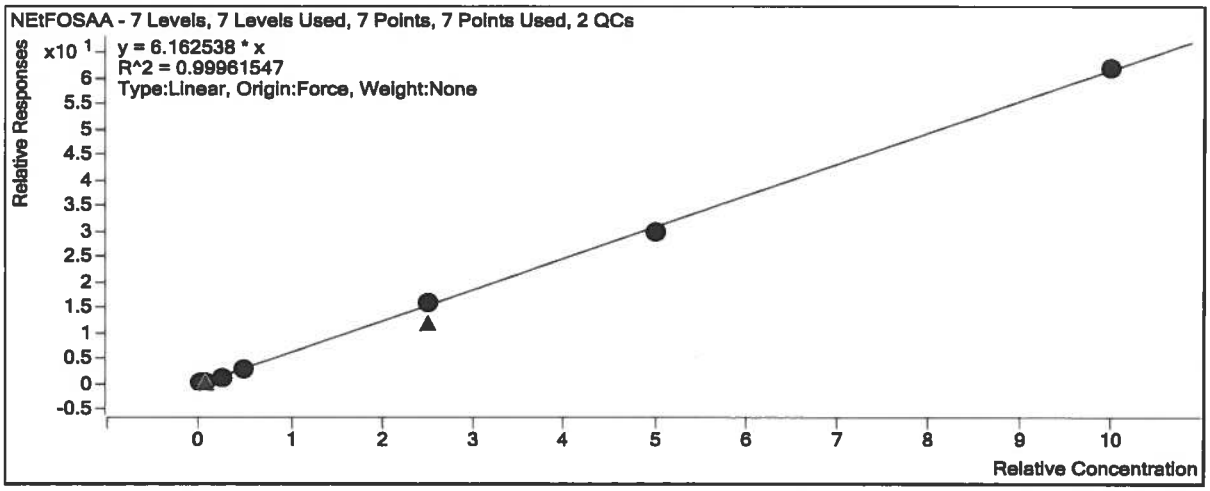
Extracted ISTD *M8FOSA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191104ACAL\2191104A_03.d	Calibration	1	☑	41675	20.0000	2083.7626
D:\MassHunter\Data\2191104ACAL\2191104A_04.d	Calibration	2	☑	44628	20.0000	2231.4242
D:\MassHunter\Data\2191104ACAL\2191104A_05.d	Calibration	3	☑	43440	20.0000	2172.0144
D:\MassHunter\Data\2191104ACAL\2191104A_06.d	Calibration	4	☑	42617	20.0000	2130.8744
D:\MassHunter\Data\2191104ACAL\2191104A_07.d	Calibration	5	☑	43051	20.0000	2152.5680
D:\MassHunter\Data\2191104ACAL\2191104A_08.d	Calibration	6	☑	41269	20.0000	2063.4331
D:\MassHunter\Data\2191104ACAL\2191104A_09.d	Calibration	7	☑	40819	20.0000	2040.9656

Target Compound *FOSA-I*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191104ACAL\2191104A_03.d	Calibration	1	☑	5091	0.5000	4.8863
D:\MassHunter\Data\2191104ACAL\2191104A_04.d	Calibration	2	☑	13089	1.2500	4.6927
D:\MassHunter\Data\2191104ACAL\2191104A_05.d	Calibration	3	☑	54678	5.0000	5.0348
D:\MassHunter\Data\2191104ACAL\2191104A_06.d	Calibration	4	☑	112424	10.0000	5.2760
D:\MassHunter\Data\2191104ACAL\2191104A_07.d	Calibration	5	☑	584726	50.0000	5.4328
D:\MassHunter\Data\2191104ACAL\2191104A_08.d	Calibration	6	☑	1126233	100.0000	5.4581
D:\MassHunter\Data\2191104ACAL\2191104A_09.d	Calibration	7	☑	2123445	200.0000	5.2021

Quantitative Analysis Calibration Report



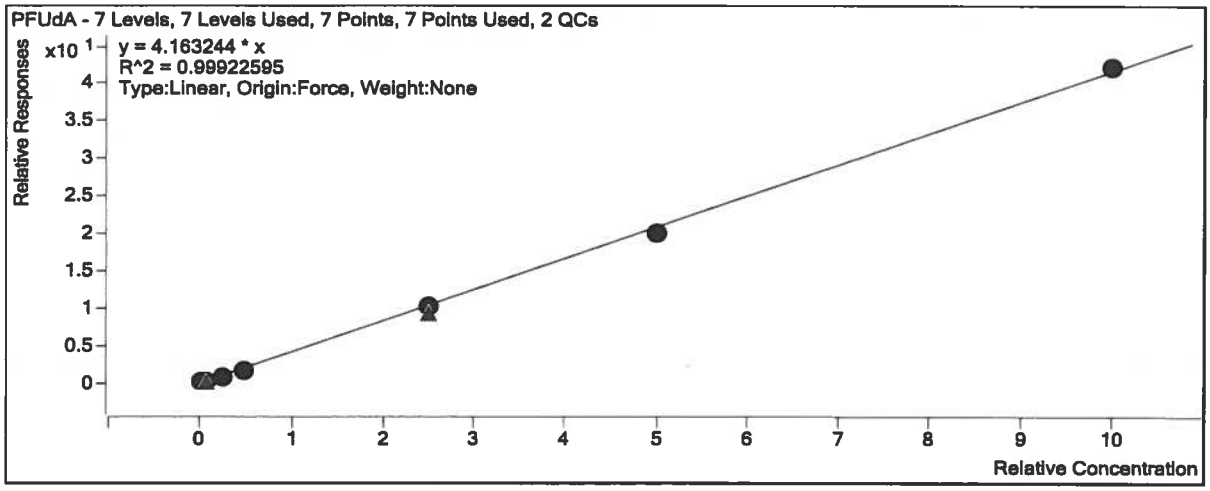
Extracted ISTD *M7PFUdA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191104ACAL\2191104A_03.d	Calibration	1	☑	29815	20.0000	1490.7439
D:\MassHunter\Data\2191104ACAL\2191104A_04.d	Calibration	2	☑	31158	20.0000	1557.8804
D:\MassHunter\Data\2191104ACAL\2191104A_05.d	Calibration	3	☑	29571	20.0000	1478.5600
D:\MassHunter\Data\2191104ACAL\2191104A_06.d	Calibration	4	☑	30327	20.0000	1516.3568
D:\MassHunter\Data\2191104ACAL\2191104A_07.d	Calibration	5	☑	28445	20.0000	1422.2529
D:\MassHunter\Data\2191104ACAL\2191104A_08.d	Calibration	6	☑	27653	20.0000	1382.6643
D:\MassHunter\Data\2191104ACAL\2191104A_09.d	Calibration	7	☑	24806	20.0000	1240.3161

Target Compound *PFUdA*

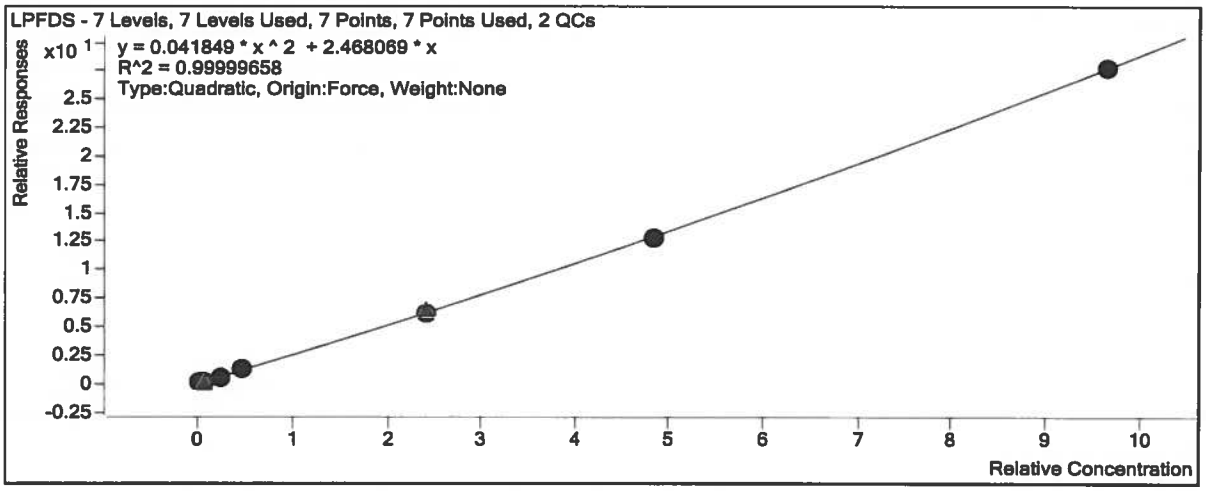
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191104ACAL\2191104A_03.d	Calibration	1	☑	2639	0.5000	3.5409
D:\MassHunter\Data\2191104ACAL\2191104A_04.d	Calibration	2	☑	6248	1.2500	3.2084
D:\MassHunter\Data\2191104ACAL\2191104A_05.d	Calibration	3	☑	26242	5.0000	3.5497
D:\MassHunter\Data\2191104ACAL\2191104A_06.d	Calibration	4	☑	52076	10.0000	3.4343
D:\MassHunter\Data\2191104ACAL\2191104A_07.d	Calibration	5	☑	288622	50.0000	4.0587
D:\MassHunter\Data\2191104ACAL\2191104A_08.d	Calibration	6	☑	553059	100.0000	4.0000
D:\MassHunter\Data\2191104ACAL\2191104A_09.d	Calibration	7	☑	1045053	200.0000	4.2129

Quantitative Analysis Calibration Report



Target Compound *LPFDS*

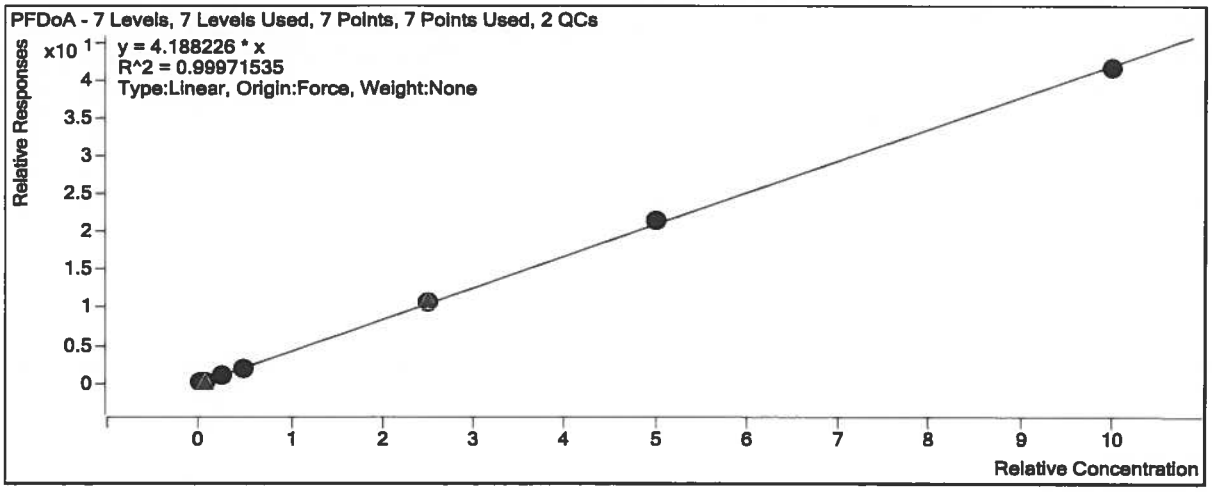
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191104ACAL\2191104A_03.d	Calibration	1	☑	1812	0.4825	2.4631
D:\MassHunter\Data\2191104ACAL\2191104A_04.d	Calibration	2	☑	4429	1.2100	2.2538
D:\MassHunter\Data\2191104ACAL\2191104A_05.d	Calibration	3	☑	19036	4.8250	2.5519
D:\MassHunter\Data\2191104ACAL\2191104A_06.d	Calibration	4	☑	38473	9.6500	2.5687
D:\MassHunter\Data\2191104ACAL\2191104A_07.d	Calibration	5	☑	198903	48.2500	2.5709
D:\MassHunter\Data\2191104ACAL\2191104A_08.d	Calibration	6	☑	376858	96.5000	2.6675
D:\MassHunter\Data\2191104ACAL\2191104A_09.d	Calibration	7	☑	733552	193.0000	2.8722



Target Compound *11Cl-PF3OUdS*

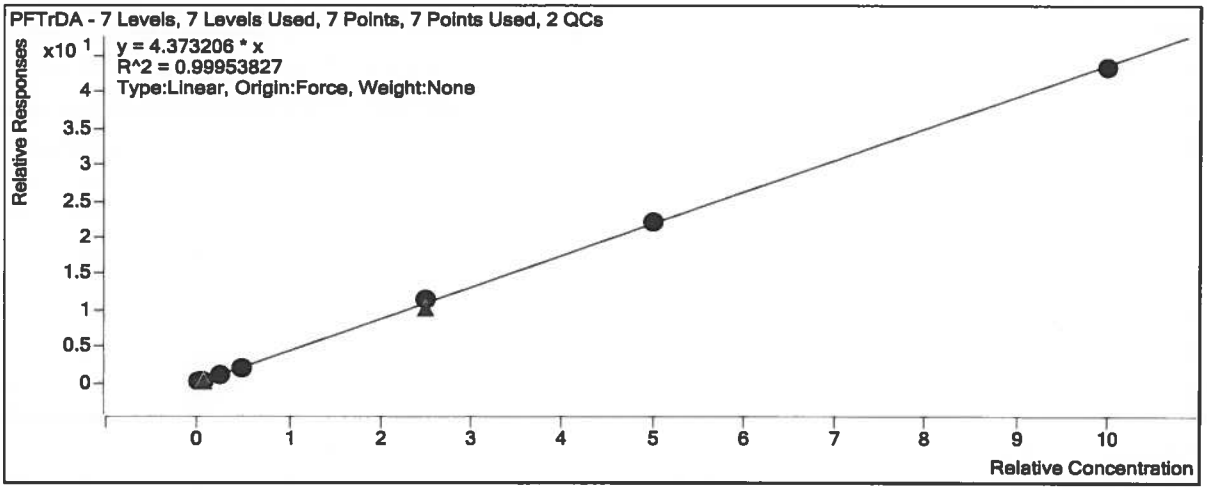
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF

Quantitative Analysis Calibration Report



Target Compound *PFTrDA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191104ACAL\2191104A_03.d	Calibration	1	☑	1613	0.5000	4.0088
D:\MassHunter\Data\2191104ACAL\2191104A_04.d	Calibration	2	☑	3958	1.2500	4.0074
D:\MassHunter\Data\2191104ACAL\2191104A_05.d	Calibration	3	☑	16223	5.0000	4.0231
D:\MassHunter\Data\2191104ACAL\2191104A_06.d	Calibration	4	☑	33893	10.0000	4.3982
D:\MassHunter\Data\2191104ACAL\2191104A_07.d	Calibration	5	☑	191613	50.0000	4.6554
D:\MassHunter\Data\2191104ACAL\2191104A_08.d	Calibration	6	☑	357896	100.0000	4.4395
D:\MassHunter\Data\2191104ACAL\2191104A_09.d	Calibration	7	☑	702523	200.0000	4.3392

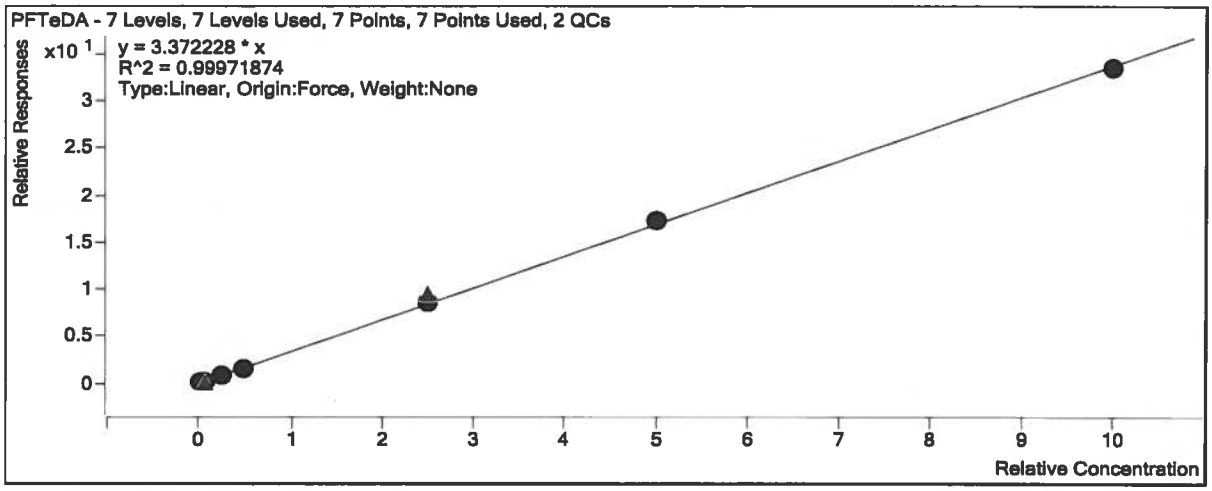


Target Compound *PFTeDA*

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

Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191104ACAL\2191104A_09.d	Calibration	7	☑	542003	200.0000	3.3477



Extracted ISTD *M2PFTeDA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191104ACAL\2191104A_03.d	Calibration	1	☑	16092	20.0000	804.6006
D:\MassHunter\Data\2191104ACAL\2191104A_04.d	Calibration	2	☑	15803	20.0000	790.1563
D:\MassHunter\Data\2191104ACAL\2191104A_05.d	Calibration	3	☑	16130	20.0000	806.4758
D:\MassHunter\Data\2191104ACAL\2191104A_06.d	Calibration	4	☑	15412	20.0000	770.6052
D:\MassHunter\Data\2191104ACAL\2191104A_07.d	Calibration	5	☑	16464	20.0000	823.1908
D:\MassHunter\Data\2191104ACAL\2191104A_08.d	Calibration	6	☑	16123	20.0000	806.1667
D:\MassHunter\Data\2191104ACAL\2191104A_09.d	Calibration	7	☑	16190	20.0000	809.5121

6I

ORGANICS INITIAL CALIBRATION VERIFICATION

Report No:	219102326	Instrument ID:	QQQ1
Analysis Date:	11/04/2019 21:03	Lab File ID:	2191104A_10.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	670675

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	50000	56700	113	70	130	
8:2 Fluorotelomer sulfonate	ng/L	50000	54700	109	70	130	
NEtFOSAA	ng/L	50000	43000	86	70	130	
NMeFOSAA	ng/L	50000	43100	86	70	130	
Perfluorobutanoic acid	ng/L	50000	50000	100	70	130	
Perfluorobutanesulfonic acid	ng/L	50000	49100	98	70	130	
Perfluorodecanoic acid	ng/L	50000	51200	102	70	130	
Perfluorododecanoic acid	ng/L	50000	52100	104	70	130	
Perfluoroheptanoic acid	ng/L	50000	48100	96	70	130	
Perfluorohexanoic acid	ng/L	50000	56000	112	70	130	
Perfluorohexanesulfonic acid	ng/L	50000	57500	115	70	130	
Perfluorononanoic acid	ng/L	50000	53100	106	70	130	
Perfluorooctanoic acid	ng/L	50000	53000	106	70	130	
Perfluorooctane Sulfonate	ng/L	50000	42400	85	70	130	
Perfluoropentanoic acid	ng/L	50000	50100	100	70	130	
Perfluorotetradecanoic acid	ng/L	50000	57100	114	70	130	
Perfluorotridecanoic acid	ng/L	50000	47300	95	70	130	
Perfluoroundecanoic acid	ng/L	50000	45600	91	70	130	

FORM 6I - ORG

7S

ORGANICS INSTRUMENT SENSITIVITY CHECK

Report No:	219102326	Instrument ID:	QQQ1
Analysis Date:	11/04/2019 21:14	Lab File ID:	2191104A_11.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	670675

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	7.93	6.93	87	70	130	
8:2 Fluorotelomer sulfonate	ng/L	8.00	8.27	103	70	130	
NEtFOSAA	ng/L	8.33	6.93	83	70	130	
NMeFOSAA	ng/L	8.33	7.20	86	70	130	
Perfluorobutanoic acid	ng/L	8.33	7.53	90	70	130	
Perfluorobutanesulfonic acid	ng/L	7.40	6.27	85	70	130	
Perfluorodecanoic acid	ng/L	8.33	7.87	94	70	130	
Perfluorododecanoic acid	ng/L	8.33	7.40	89	70	130	
Perfluoroheptanoic acid	ng/L	8.33	7.27	87	70	130	
Perfluorohexanoic acid	ng/L	8.33	7.87	94	70	130	
Perfluorohexanesulfonic acid	ng/L	7.60	7.27	96	70	130	
Perfluorononanoic acid	ng/L	8.33	7.60	91	70	130	
Perfluorooctanoic acid	ng/L	8.33	7.47	90	70	130	
Perfluorooctane Sulfonate	ng/L	7.73	8.27	107	70	130	
Perfluoropentanoic acid	ng/L	8.33	7.00	84	70	130	
Perfluorotetradecanoic acid	ng/L	8.33	7.93	95	70	130	
Perfluorotridecanoic acid	ng/L	8.33	8.60	103	70	130	
Perfluoroundecanoic acid	ng/L	8.33	6.87	82	70	130	

4I

ORGANICS INSTRUMENT BLANK

Report No:	219102326	Instrument ID:	QQQ1
Analysis Date:	11/04/2019 21:26	Lab File ID:	2191104A_12.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	670675

ANALYTE	UNITS	RESULT	Q	DL	LOD	LOQ	#
6:2 Fluorotelomer sulfonate	ng/L	4.00	U	1.79	4.00	10.0	
8:2 Fluorotelomer sulfonate	ng/L	4.00	U	1.63	4.00	10.0	
NEtFOSAA	ng/L	8.00	U	5.38	8.00	10.0	
NMeFOSAA	ng/L	8.00	U	4.60	8.00	10.0	
Perfluorobutanesulfonic acid	ng/L	4.00	U	1.47	4.00	10.0	
Perfluorobutanoic acid	ng/L	4.00	U	2.13	4.00	10.0	
Perfluorodecanoic acid	ng/L	4.00	U	1.65	4.00	10.0	
Perfluorododecanoic acid	ng/L	4.00	U	2.45	4.00	10.0	
Perfluoroheptanoic acid	ng/L	4.00	U	1.85	4.00	10.0	
Perfluorohexanesulfonic acid	ng/L	4.00	U	1.64	4.00	10.0	
Perfluorohexanoic acid	ng/L	4.00	U	1.94	4.00	10.0	
Perfluorononanoic acid	ng/L	4.00	U	1.68	4.00	10.0	
Perfluorooctane Sulfonate	ng/L	4.00	U	1.70	4.00	10.0	
Perfluorooctanoic acid	ng/L	4.00	U	1.80	4.00	10.0	
Perfluoropentanoic acid	ng/L	4.00	U	2.35	4.00	10.0	
Perfluorotetradecanoic acid	ng/L	4.00	U	2.76	4.00	10.0	
Perfluorotridecanoic acid	ng/L	4.00	U	2.56	4.00	10.0	
Perfluoroundecanoic acid	ng/L	4.00	U	1.86	4.00	10.0	

* - Result greater than 1/2 LOQ

FORM 4I - ORG

7E

ORGANICS CALIBRATION VERIFICATION

Report No:	219102326	Instrument ID:	QQQ1
Analysis Date:	11/05/2019 02:58	Lab File ID:	2191104A_37.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	670675

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	47500	51500	108	70	130	
8:2 Fluorotelomer sulfonate	ng/L	48000	57600	120	70	130	
NEtFOSAA	ng/L	50000	45800	92	70	130	
NMeFOSAA	ng/L	50000	52300	105	70	130	
Perfluorobutanoic acid	ng/L	50000	48600	97	70	130	
Perfluorobutanesulfonic acid	ng/L	44300	43400	98	70	130	
Perfluorodecanoic acid	ng/L	50000	50100	100	70	130	
Perfluorododecanoic acid	ng/L	50000	49600	99	70	130	
Perfluoroheptanoic acid	ng/L	50000	49100	98	70	130	
Perfluorohexanoic acid	ng/L	50000	47900	96	70	130	
Perfluorohexanesulfonic acid	ng/L	45600	46900	103	70	130	
Perfluorononanoic acid	ng/L	50000	49500	99	70	130	
Perfluorooctanoic acid	ng/L	50000	52700	105	70	130	
Perfluorooctane Sulfonate	ng/L	46300	57400	124	70	130	
Perfluoropentanoic acid	ng/L	50000	47700	95	70	130	
Perfluorotetradecanoic acid	ng/L	50000	52500	105	70	130	
Perfluorotridecanoic acid	ng/L	50000	52100	104	70	130	
Perfluoroundecanoic acid	ng/L	50000	45200	90	70	130	

FORM 7E - ORG

7E

ORGANICS CALIBRATION VERIFICATION

Report No:	219102326	Instrument ID:	QQQ1
Analysis Date:	11/05/2019 05:37	Lab File ID:	2191104A_51.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	670675

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	47500	53600	113	70	130	
8:2 Fluorotelomer sulfonate	ng/L	48000	58400	122	70	130	
NEtFOSAA	ng/L	50000	50700	101	70	130	
NMeFOSAA	ng/L	50000	57200	114	70	130	
Perfluorobutanoic acid	ng/L	50000	47900	96	70	130	
Perfluorobutanesulfonic acid	ng/L	44300	43200	98	70	130	
Perfluorodecanoic acid	ng/L	50000	50100	100	70	130	
Perfluorododecanoic acid	ng/L	50000	53600	107	70	130	
Perfluoroheptanoic acid	ng/L	50000	50200	100	70	130	
Perfluorohexanoic acid	ng/L	50000	50800	102	70	130	
Perfluorohexanesulfonic acid	ng/L	45600	47500	104	70	130	
Perfluorononanoic acid	ng/L	50000	51100	102	70	130	
Perfluorooctanoic acid	ng/L	50000	49200	98	70	130	
Perfluorooctane Sulfonate	ng/L	46300	59800	129	70	130	
Perfluoropentanoic acid	ng/L	50000	47200	94	70	130	
Perfluorotetradecanoic acid	ng/L	50000	53200	106	70	130	
Perfluorotridecanoic acid	ng/L	50000	52500	105	70	130	
Perfluoroundecanoic acid	ng/L	50000	45500	91	70	130	

FORM 7E - ORG

7E

ORGANICS CALIBRATION VERIFICATION

Report No:	219102333	Instrument ID:	QQQ1
Analysis Date:	11/05/2019 06:00	Lab File ID:	2191104A_53.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	670675

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	47500	47600	100	70	130	
8:2 Fluorotelomer sulfonate	ng/L	48000	54100	113	70	130	
NEtFOSAA	ng/L	50000	49000	98	70	130	
NMeFOSAA	ng/L	50000	50300	101	70	130	
Perfluorobutanoic acid	ng/L	50000	48100	96	70	130	
Perfluorobutanesulfonic acid	ng/L	44300	43200	98	70	130	
Perfluorodecanoic acid	ng/L	50000	49600	99	70	130	
Perfluorododecanoic acid	ng/L	50000	53200	106	70	130	
Perfluoroheptanoic acid	ng/L	50000	50800	102	70	130	
Perfluorohexanoic acid	ng/L	50000	49100	98	70	130	
Perfluorohexanesulfonic acid	ng/L	45600	48200	106	70	130	
Perfluorononanoic acid	ng/L	50000	51800	104	70	130	
Perfluorooctanoic acid	ng/L	50000	49700	99	70	130	
Perfluorooctane Sulfonate	ng/L	46300	58200	126	70	130	
Perfluoropentanoic acid	ng/L	50000	48000	96	70	130	
Perfluorotetradecanoic acid	ng/L	50000	50900	102	70	130	
Perfluorotridecanoic acid	ng/L	50000	50300	101	70	130	
Perfluoroundecanoic acid	ng/L	50000	45200	90	70	130	

8I

INJECTION INTERNAL STANDARD AREA SUMMARY

Report No:	219102326	Standard ID:	1205 (ICAL Midpoint)
Analyst:	BMH	Instrument ID:	QQQ1
Analysis Date:	11/04/19 20:29	Lab File ID:	2191104A_07.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	670675

	M2PFDA	M2PFHxA	M2PFOA	M4PFOS
	Area	*Area*	*Area*	*Area*
STANDARD	169008	479349	161894	152451

CLIENT SAMPLE ID	*GCAL SAMP ID*		#		#		#		#
MB1974715	1974715	152573		456847		152979		124690	
LCS1974716	1974716	160642		459908		157573		126795	
LCSD1974717	1974717	154531		458725		155657		121360	
JFTBLA-EB-PW-102219	21910232601	153830		451613		155333		121790	
AOI6-1-GW-102219	21910232607	161001		487278		166778		127665	
AOI5-1-GW-102219	21910232621	150971		248337		88840		105845	
AOI1-3-GW-102219	21910232626	162605		384422		84032		88930	
AOI1-1-GW-102219	21910232629	154613		390380		81621		106316	

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 8I - ORG

8I

INJECTION INTERNAL STANDARD AREA SUMMARY

Report No:	219102333	Standard ID:	1205 (ICAL Midpoint)
Analyst:	BMH	Instrument ID:	QQQ1
Analysis Date:	11/04/19 20:29	Lab File ID:	2191104A_07.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	670675

	M2PFDA	M2PFHxA	M2PFOA	M4PFOS
	Area	*Area*	*Area*	*Area*
STANDARD	169008	479349	161894	152451

CLIENT SAMPLE ID	*GCAL SAMP ID*		#		#		#		#
MB1974715	1974715	152573		456847		152979		124690	
LCS1974716	1974716	160642		459908		157573		126795	
LCSD1974717	1974717	154531		458725		155657		121360	
JFTBLA-EB-HA-102119	21910233305	159374		464816		156755		121747	
AOI7-10-GW-102119	21910233308	167917		464959		154680		113136	
AOI7-7-11-GW-102119	21910233314	157336		460119		149959		115784	
JFTBLA-FRB-102119	21910233316	149766		450954		152394		116009	
AOI7-9-GW-102119	21910233321	164443		476389		159260		116285	

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 8I - ORG

LCMS1 Run Log

Analyst:	BMH	Expiration
Batch:	2191105A	Date
Current ICAL Bath:	2191105ACAL/2191105ACALDW	Date
20mM Amm Acetate	010-11-7	11/7/2019
Methanol	2128497	8/31/2024
Calibration Std	010-11-1	5/1/2020
ICV Std	010-6-5	4/9/2020
EIS Mix	010-11-9	5/5/2020

Name	Data File	Type	Acq. Date-Time	Comment	Dil.
MeOH Shot	2191105A_01.d	MeOH Shot	11/5/2019 10:24	Instrument idle/MeOH Shot	1
1450	2191105A_02.d	QC	11/5/2019 10:35	RR ACCURACY FAIL	1
1500	2191105A_03.d	Sample	11/5/2019 10:47	RR ACCURACY FAIL	1
MeOH Shot	2191105A_04.d	MeOH Shot	11/5/2019 11:07	Instrument idle/MeOH Shot	1
1400	2191105A_05.d	QC	11/5/2019 11:18		1
MeOH Shot	2191105A_06.d	MeOH Shot	11/5/2019 12:07	Instrument idle/MeOH Shot	1
1450	2191105A_07.d	QC	11/5/2019 12:17	recalibrate accuracy fail	1
1500	2191105A_08.d	Sample	11/5/2019 12:29		1
MeOH Shot	2191105A_09.d	MeOH Shot	11/5/2019 12:46		1
1201	2191105A_10.d	Cal	11/5/2019 12:56	recalibrate accuracy fail	1
1202	2191105A_11.d	Cal	11/5/2019 13:08	recalibrate accuracy fail	1
1203	2191105A_12.d	Cal	11/5/2019 13:19	recalibrate accuracy fail	1
1204	2191105A_13.d	Cal	11/5/2019 13:30	recalibrate accuracy fail	1
1205	2191105A_14.d	Cal	11/5/2019 13:41	recalibrate accuracy fail	1
1206	2191105A_15.d	Cal	11/5/2019 13:53	recalibrate accuracy fail	1
1207	2191105A_16.d	Cal	11/5/2019 14:04	recalibrate accuracy fail	1
MeOH Shot	2191105A_17.d	MeOH Shot	11/5/2019 14:49		1
1201	2191105A_18.d	Cal	11/5/2019 15:00		1
1202	2191105A_19.d	Cal	11/5/2019 15:11		1
1203	2191105A_20.d	Cal	11/5/2019 15:22		1

1204	2191105A_21.d	Cal	11/5/2019 15:33		1
1205	2191105A_22.d	Cal	11/5/2019 15:45		1
1206	2191105A_23.d	Cal	11/5/2019 15:56		1
1207	2191105A_24.d	Cal	11/5/2019 16:07		1
MeOH Shot	2191105A_25.d	MeOH Shot	11/5/2019 16:23	Instrument idle/MeOH Shot	1
1600	2191105A_26.d	Sample	11/5/2019 16:34		1
1450	2191105A_27.d	Sample	11/5/2019 16:45		1
1500	2191105A_28.d	Sample	11/5/2019 16:57		1
blank test	2191105A_29.d	MeOH Shot	11/5/2019 17:17	Instrument idle/MeOH Shot	1
1974709	2191105A_30.d	Sample	11/5/2019 17:28	669969	1
1974710	2191105A_31.d	QC	11/5/2019 17:39	669969 cancel-extraction error	1
1974711	2191105A_32.d	QC	11/5/2019 17:51	669969	1
21910232608	2191105A_33.d	Sample	11/5/2019 18:02	669969	1
21910232609	2191105A_34.d	QC	11/5/2019 18:13	669969	1
21910232610	2191105A_35.d	QC	11/5/2019 18:25	669969	1
21910232611	2191105A_36.d	Sample	11/5/2019 18:36	669969	1
21910232612	2191105A_37.d	QC	11/5/2019 18:48	669969	1
21910232613	2191105A_38.d	QC	11/5/2019 18:59	669969	1
21910232614	2191105A_39.d	Sample	11/5/2019 19:10	669969	1
21910232615	2191105A_40.d	QC	11/5/2019 19:22	669969	1
21910232616	2191105A_41.d	QC	11/5/2019 19:33	669969	1
21910232617	2191105A_42.d	Sample	11/5/2019 19:44	669969	1
21910232618	2191105A_43.d	Sample	11/5/2019 19:55	669969	1
21910232619	2191105A_44.d	Sample	11/5/2019 20:07	669969	1
21910232620	2191105A_45.d	Sample	11/5/2019 20:18	669969	1
21910232622	2191105A_46.d	Sample	11/5/2019 20:30	669969	1
21910232623	2191105A_47.d	Sample	11/5/2019 20:41	669969	1
21910232624	2191105A_48.d	Sample	11/5/2019 20:52	669969	1
1400	2191105A_49.d	QC	11/5/2019 21:04	669969	1
21910232625	2191105A_50.d	Sample	11/5/2019 21:15	669969	1
21910232627	2191105A_51.d	Sample	11/5/2019 21:26	669969	1
21910232628	2191105A_52.d	Sample	11/5/2019 21:38	669969	1
21910171521	2191105A_53.d	Sample	11/5/2019 21:49	669969	1
1974526	2191105A_54.d	Sample	11/5/2019 22:00	669939	1

1974527	2191105A_55.d	QC	11/5/2019 22:12	669939	1
1974528	2191105A_56.d	QC	11/5/2019 22:23	669939	1
21910114713	2191105A_57.d	Sample	11/5/2019 22:34	669939	1
21910114713	2191105A_58.d	Sample	11/5/2019 22:46	669939	10
21910114723	2191105A_59.d	Sample	11/5/2019 22:57	669939	1
21910114724	2191105A_60.d	Sample	11/5/2019 23:08	669939	1
21910114725	2191105A_61.d	Sample	11/5/2019 23:20	669939	1
1400	2191105A_62.d	QC	11/5/2019 23:31	669939	1
21910114726	2191105A_63.d	Sample	11/5/2019 23:42	669939	1
21910114727	2191105A_64.d	Sample	11/5/2019 23:54	669939	1
21910114728	2191105A_65.d	Sample	11/6/2019 0:05	669939	1
21910114729	2191105A_66.d	Sample	11/6/2019 0:17	669939	1
21910114730	2191105A_67.d	Sample	11/6/2019 0:28	669939	1
21910225101	2191105A_68.d	Sample	11/6/2019 0:39	669939	1
21910225101	2191105A_69.d	Sample	11/6/2019 0:51	669939	5
21910225102	2191105A_70.d	Sample	11/6/2019 1:02	669939	1
21910225102	2191105A_71.d	Sample	11/6/2019 1:13	669939	10
21910225103	2191105A_72.d	Sample	11/6/2019 1:25	669939	1
1400	2191105A_73.d	QC	11/6/2019 1:36	669939	1
21910225103	2191105A_74.d	Sample	11/6/2019 1:47	669939	5
21910225104	2191105A_75.d	Sample	11/6/2019 1:59	669939	1
21910225104	2191105A_76.d	Sample	11/6/2019 2:10	669939	5
21910225105	2191105A_77.d	Sample	11/6/2019 2:21	669939	1
21910225105	2191105A_78.d	Sample	11/6/2019 2:33	669939	5
21910225106	2191105A_79.d	Sample	11/6/2019 2:44	669939	1
21910225107	2191105A_80.d	Sample	11/6/2019 2:56	669939	1
21910225108	2191105A_81.d	Sample	11/6/2019 3:07	669939	1
21910121401	2191105A_82.d	Sample	11/6/2019 3:18	670456	1
21910121402	2191105A_83.d	Sample	11/6/2019 3:30	670456	1
1400	2191105A_84.d	QC	11/6/2019 3:41	670456	1
21910121405	2191105A_85.d	Sample	11/6/2019 3:52	670456	5
21910121407	2191105A_86.d	Sample	11/6/2019 4:04	670456	1
21910121409	2191105A_87.d	Sample	11/6/2019 4:15	670456	5
21910121410	2191105A_88.d	Sample	11/6/2019 4:27	670456	1

1974527	2191105A_55.d	QC	11/5/2019 22:12	669939	1
1974528	2191105A_56.d	QC	11/5/2019 22:23	669939	1
21910114713	2191105A_57.d	Sample	11/5/2019 22:34	669939	1
21910114713	2191105A_58.d	Sample	11/5/2019 22:46	669939	10
21910114723	2191105A_59.d	Sample	11/5/2019 22:57	669939	1
21910114724	2191105A_60.d	Sample	11/5/2019 23:08	669939	1
21910114725	2191105A_61.d	Sample	11/5/2019 23:20	669939	1
1400	2191105A_62.d	QC	11/5/2019 23:31	669939	1
21910114726	2191105A_63.d	Sample	11/5/2019 23:42	669939	1
21910114727	2191105A_64.d	Sample	11/5/2019 23:54	669939	1
21910114728	2191105A_65.d	Sample	11/6/2019 0:05	669939	1
21910114729	2191105A_66.d	Sample	11/6/2019 0:17	669939	1
21910114730	2191105A_67.d	Sample	11/6/2019 0:28	669939	1
21910225101	2191105A_68.d	Sample	11/6/2019 0:39	669939	1
21910225101	2191105A_69.d	Sample	11/6/2019 0:51	669939	5
21910225102	2191105A_70.d	Sample	11/6/2019 1:02	669939	1
21910225102	2191105A_71.d	Sample	11/6/2019 1:13	669939	10
21910225103	2191105A_72.d	Sample	11/6/2019 1:25	669939	1
1400	2191105A_73.d	QC	11/6/2019 1:36	669939	1
21910225103	2191105A_74.d	Sample	11/6/2019 1:47	669939	5
21910225104	2191105A_75.d	Sample	11/6/2019 1:59	669939	1
21910225104	2191105A_76.d	Sample	11/6/2019 2:10	669939	5
21910225105	2191105A_77.d	Sample	11/6/2019 2:21	669939	1
21910225105	2191105A_78.d	Sample	11/6/2019 2:33	669939	5
21910225106	2191105A_79.d	Sample	11/6/2019 2:44	669939	1
21910225107	2191105A_80.d	Sample	11/6/2019 2:56	669939	1
21910225108	2191105A_81.d	Sample	11/6/2019 3:07	669939	1
21910121401	2191105A_82.d	Sample	11/6/2019 3:18	670456	1
21910121402	2191105A_83.d	Sample	11/6/2019 3:30	670456	1
1400	2191105A_84.d	QC	11/6/2019 3:41	670456	1
21910121405	2191105A_85.d	Sample	11/6/2019 3:52	670456	5
21910121407	2191105A_86.d	Sample	11/6/2019 4:04	670456	1
21910121409	2191105A_87.d	Sample	11/6/2019 4:15	670456	5
21910121410	2191105A_88.d	Sample	11/6/2019 4:27	670456	1

21910121411	2191105A_89.d	Sample	11/6/2019 4:38	670456	5
21910121412	2191105A_90.d	Sample	11/6/2019 4:49	670456	1
21910291301	2191105A_91.d	Sample	11/6/2019 5:01	670456	1
21910305101	2191105A_92.d	Sample	11/6/2019 5:12	670456	1
21910305102	2191105A_93.d	Sample	11/6/2019 5:23	670456	1
21910223601	2191105A_94.d	Sample	11/6/2019 5:35	670456	1
1400	2191105A_95.d	QC	11/6/2019 5:46	670456	1
21910226001	2191105A_96.d	Sample	11/6/2019 5:58	670456	10
1977423	2191105A_97.d	Sample	11/6/2019 6:09	670456 RR EIS FAILURE	1
1977425	2191105A_98.d	QC	11/6/2019 6:20	670456 RR EIS FAILURE	1
1977424	2191105A_99.d	QC	11/6/2019 6:31	670456 - cancel extraction failure	1
1974712	2191105A_100.d	Sample	11/6/2019 6:43	669971	1
1974713	2191105A_101.d	QC	11/6/2019 6:54	669971	1
1974714	2191105A_102.d	QC	11/6/2019 7:06	669971	1
21910233301	2191105A_103.d	Sample	11/6/2019 7:17	669971	1
21910233302	2191105A_104.d	Sample	11/6/2019 7:28	669971	1
21910233303	2191105A_105.d	Sample	11/6/2019 7:40	669971	1
21910233304	2191105A_106.d	Sample	11/6/2019 7:51	669971	1
21910233306	2191105A_107.d	Sample	11/6/2019 8:03	669971	1
21910233307	2191105A_108.d	Sample	11/6/2019 8:14	669971	1
21910233309	2191105A_109.d	Sample	11/6/2019 8:25	669971	1
1400	2191105A_110.d	QC	11/6/2019 8:36	669971	1
21910233310	2191105A_111.d	Sample	11/6/2019 8:48	669971	1
21910233311	2191105A_112.d	Sample	11/6/2019 8:59	669971	1
21910233312	2191105A_113.d	Sample	11/6/2019 9:10	669971	1
21910233313	2191105A_114.d	Sample	11/6/2019 9:21	669971	1
21910233315	2191105A_115.d	Sample	11/6/2019 9:33	669971	1
21910233317	2191105A_116.d	Sample	11/6/2019 9:44	669971	1
21910233318	2191105A_117.d	Sample	11/6/2019 9:56	669971	1
21910233319	2191105A_118.d	Sample	11/6/2019 10:07	669971	1
21910233320	2191105A_119.d	Sample	11/6/2019 10:18	669971	1
21910233322	2191105A_120.d	Sample	11/6/2019 10:29	669971	1
1400	2191105A_121.d	QC	11/6/2019 10:41	669971	1
21910210323	2191105A_122.d	Sample	11/6/2019 10:52	669971	1

21910210325	2191105A_123.d	Sample	11/6/2019 11:03	669971	1
21910210326	2191105A_124.d	Sample	11/6/2019 11:15	669971	1
MeOH Shot	2191105A_125.d	MeOH Shot	11/6/2019 11:32	Instrument idle/MeOH Shot	1
1977423	2191105A_126.d	Sample	11/6/2019 11:43	670456	1
1977424	2191105A_127.d	QC	11/6/2019 11:55	670456 - cancel extraction failure	1
1977425	2191105A_128.d	QC	11/6/2019 12:06	670456	1
21910121402	2191105A_129.d	Sample	11/6/2019 12:17	670456	1
21910121405	2191105A_130.d	Sample	11/6/2019 12:29	670456	1
21910121407	2191105A_131.d	Sample	11/6/2019 12:40	670456	1
21910121409	2191105A_132.d	Sample	11/6/2019 12:51	670456	1
21910121410	2191105A_133.d	Sample	11/6/2019 13:03	670456	1
21910121411	2191105A_134.d	Sample	11/6/2019 13:14	670456	1
1400	2191105A_135.d	QC	11/6/2019 13:25	669971	1

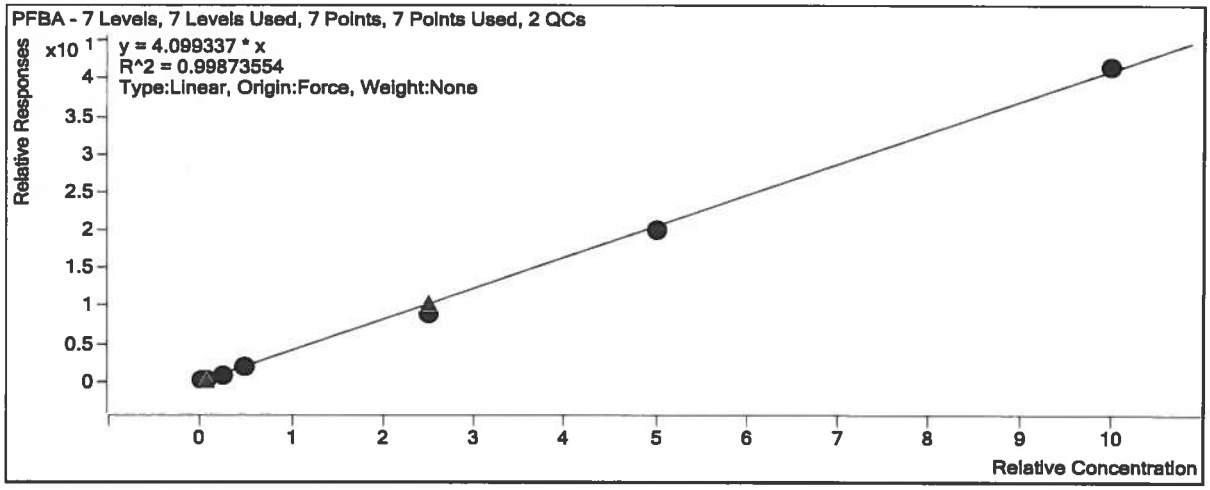
Quantitative Analysis Calibration Report

Batch Data Path	D:\MassHunter\Data\2191105ACAL\QuantResults\2191105A.batch.bin		
Analysis Time	11/8/2019 4:50 PM	**Analyst Name**	GCAL\lcms
Report Time	11/8/2019 5:04 PM	**Reporter Name**	GCAL\lcms
Last Calib Update	11/5/2019 5:07 PM	**Batch State**	Processed

Calibration Info

Target Compound *PFBA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191105ACAL\2191105A_18.d	Calibration	1	☑	6629	0.5000	4.1608
D:\MassHunter\Data\2191105ACAL\2191105A_19.d	Calibration	2	☑	13491	1.2500	3.1752
D:\MassHunter\Data\2191105ACAL\2191105A_20.d	Calibration	3	☑	57918	5.0000	3.6209
D:\MassHunter\Data\2191105ACAL\2191105A_21.d	Calibration	4	☑	117909	10.0000	3.7424
D:\MassHunter\Data\2191105ACAL\2191105A_22.d	Calibration	5	☑	619031	50.0000	3.6247
D:\MassHunter\Data\2191105ACAL\2191105A_23.d	Calibration	6	☑	1261093	100.0000	4.0292
D:\MassHunter\Data\2191105ACAL\2191105A_24.d	Calibration	7	☑	2421478	200.0000	4.1478



Extracted ISTD *MPFBA*

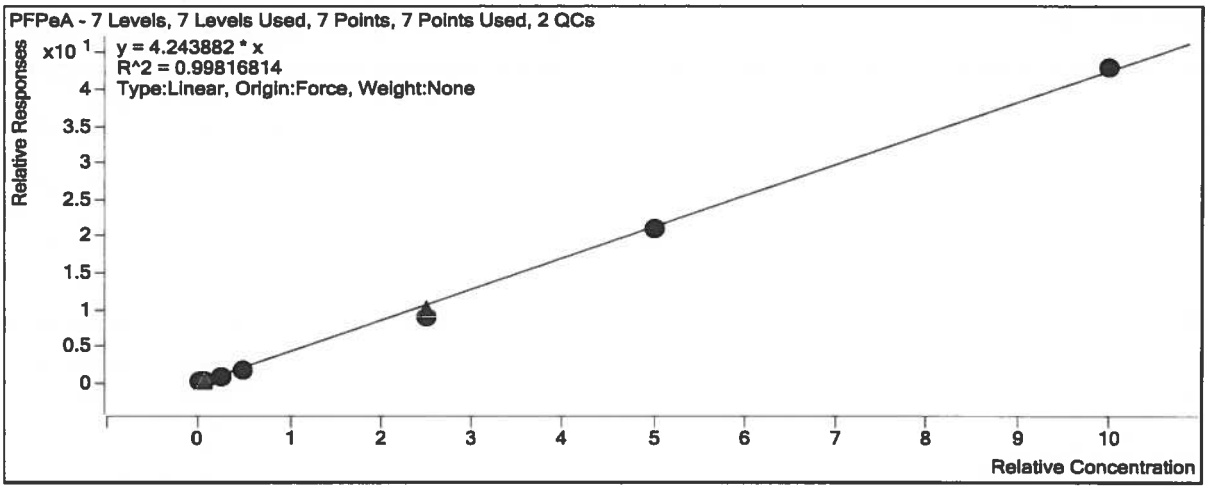
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191105ACAL\2191105A_18.d	Calibration	1	☑	63732	20.0000	3186.6120
D:\MassHunter\Data\2191105ACAL\2191105A_19.d	Calibration	2	☑	67981	20.0000	3399.0384
D:\MassHunter\Data\2191105ACAL\2191105A_20.d	Calibration	3	☑	63982	20.0000	3199.1247
D:\MassHunter\Data\2191105ACAL\2191105A_21.d	Calibration	4	☑	63012	20.0000	3150.5948
D:\MassHunter\Data\2191105ACAL\2191105A_22.d	Calibration	5	☑	68313	20.0000	3415.6416
D:\MassHunter\Data\2191105ACAL\2191105A_23.d	Calibration	6	☑	62598	20.0000	3129.8768
D:\MassHunter\Data\2191105ACAL\2191105A_24.d	Calibration	7	☑	58380	20.0000	2919.0180

Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191105ACAL\2191105A_21.d	Calibration	4	☑	33534	20.0000	1676.7102
D:\MassHunter\Data\2191105ACAL\2191105A_22.d	Calibration	5	☑	35929	20.0000	1796.4346
D:\MassHunter\Data\2191105ACAL\2191105A_23.d	Calibration	6	☑	32394	20.0000	1619.6762
D:\MassHunter\Data\2191105ACAL\2191105A_24.d	Calibration	7	☑	30788	20.0000	1539.4105

Target Compound ***PFPeA***

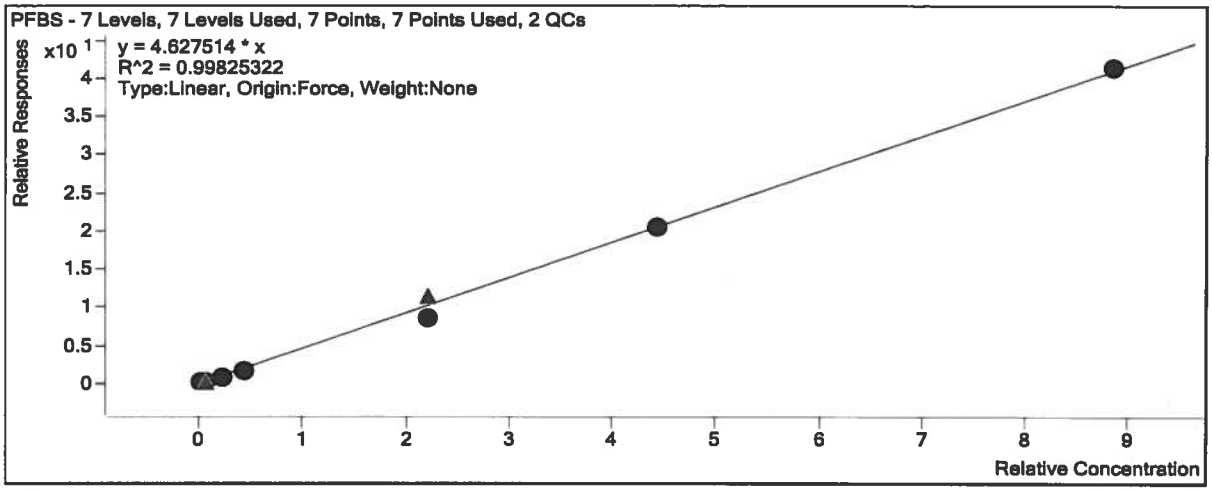
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191105ACAL\2191105A_18.d	Calibration	1	☑	3358	0.5000	3.8716
D:\MassHunter\Data\2191105ACAL\2191105A_19.d	Calibration	2	☑	6950	1.2500	3.0775
D:\MassHunter\Data\2191105ACAL\2191105A_20.d	Calibration	3	☑	28914	5.0000	3.3922
D:\MassHunter\Data\2191105ACAL\2191105A_21.d	Calibration	4	☑	60546	10.0000	3.6110
D:\MassHunter\Data\2191105ACAL\2191105A_22.d	Calibration	5	☑	324882	50.0000	3.6170
D:\MassHunter\Data\2191105ACAL\2191105A_23.d	Calibration	6	☑	684031	100.0000	4.2233
D:\MassHunter\Data\2191105ACAL\2191105A_24.d	Calibration	7	☑	1320932	200.0000	4.2904



Target Compound ***PFBS***

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191105ACAL\2191105A_18.d	Calibration	1	☑	2259	0.4425	4.2816
D:\MassHunter\Data\2191105ACAL\2191105A_19.d	Calibration	2	☑	5079	1.1100	3.5140
D:\MassHunter\Data\2191105ACAL\2191105A_20.d	Calibration	3	☑	21865	4.4250	3.9453
D:\MassHunter\Data\2191105ACAL\2191105A_21.d	Calibration	4	☑	43977	8.8500	4.0231

D:\MassHunter\Data\2191105ACAL\2191105A_22.d	Calibration	5	☑	235727	44.2500	3.9470
D:\MassHunter\Data\2191105ACAL\2191105A_23.d	Calibration	6	☑	486340	88.5000	4.6339
D:\MassHunter\Data\2191105ACAL\2191105A_24.d	Calibration	7	☑	948862	177.0000	4.6704



Extracted ISTD ***M3PFBS***

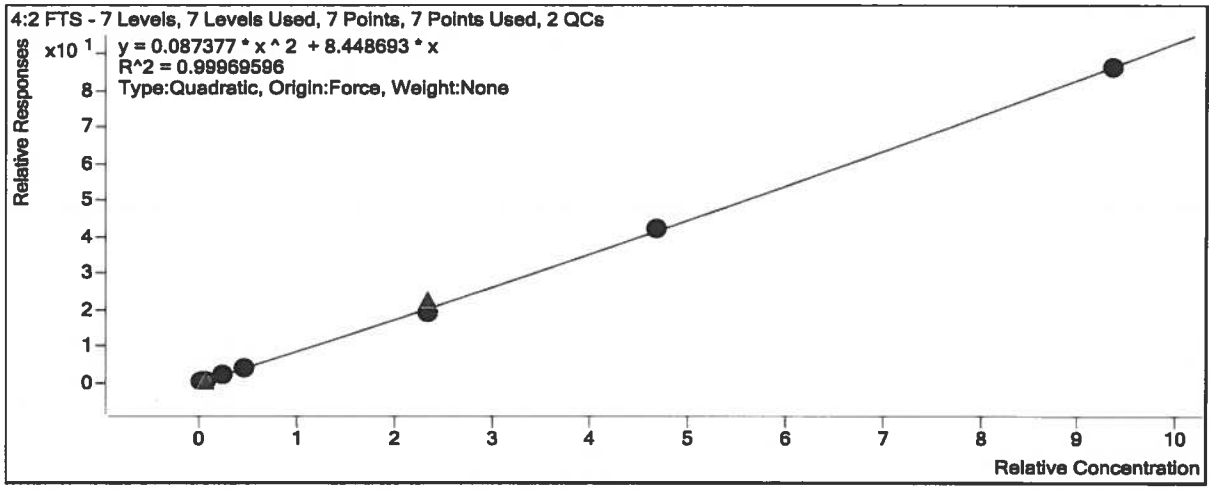
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191105ACAL\2191105A_18.d	Calibration	1	☑	23845	20.0000	1192.2313
D:\MassHunter\Data\2191105ACAL\2191105A_19.d	Calibration	2	☑	26041	20.0000	1302.0560
D:\MassHunter\Data\2191105ACAL\2191105A_20.d	Calibration	3	☑	25049	20.0000	1252.4702
D:\MassHunter\Data\2191105ACAL\2191105A_21.d	Calibration	4	☑	24703	20.0000	1235.1657
D:\MassHunter\Data\2191105ACAL\2191105A_22.d	Calibration	5	☑	26994	20.0000	1349.6779
D:\MassHunter\Data\2191105ACAL\2191105A_23.d	Calibration	6	☑	23718	20.0000	1185.9044
D:\MassHunter\Data\2191105ACAL\2191105A_24.d	Calibration	7	☑	22956	20.0000	1147.8172

Extracted ISTD ***M2 4:2 FTS***

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191105ACAL\2191105A_18.d	Calibration	1	☑	5648	20.0000	282.3800
D:\MassHunter\Data\2191105ACAL\2191105A_19.d	Calibration	2	☑	5933	20.0000	296.6577
D:\MassHunter\Data\2191105ACAL\2191105A_20.d	Calibration	3	☑	5355	20.0000	267.7361
D:\MassHunter\Data\2191105ACAL\2191105A_21.d	Calibration	4	☑	5573	20.0000	278.6645
D:\MassHunter\Data\2191105ACAL\2191105A_22.d	Calibration	5	☑	6123	20.0000	306.1251
D:\MassHunter\Data\2191105ACAL\2191105A_23.d	Calibration	6	☑	5589	20.0000	279.4440
D:\MassHunter\Data\2191105ACAL\2191105A_24.d	Calibration	7	☑	5033	20.0000	251.6610

Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191105ACAL\2191105A_24.d	Calibration	7	☑	435381	187.0000	9.2515



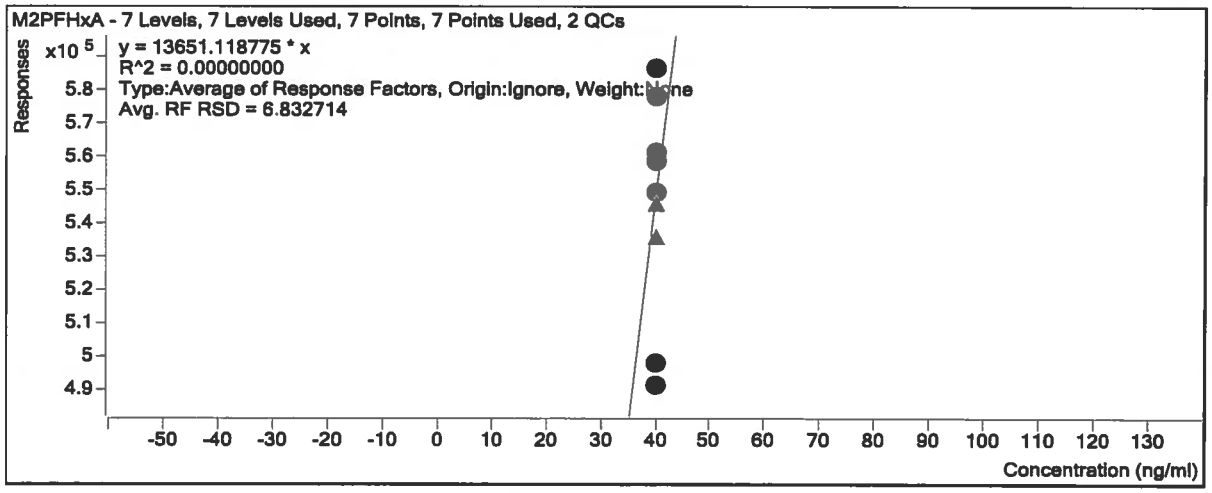
Extracted ISTD *M5PFHxA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191105ACAL\2191105A_18.d	Calibration	1	☑	59492	20.0000	2974.5889
D:\MassHunter\Data\2191105ACAL\2191105A_19.d	Calibration	2	☑	57506	20.0000	2875.3236
D:\MassHunter\Data\2191105ACAL\2191105A_20.d	Calibration	3	☑	55187	20.0000	2759.3640
D:\MassHunter\Data\2191105ACAL\2191105A_21.d	Calibration	4	☑	54290	20.0000	2714.5222
D:\MassHunter\Data\2191105ACAL\2191105A_22.d	Calibration	5	☑	58732	20.0000	2936.6013
D:\MassHunter\Data\2191105ACAL\2191105A_23.d	Calibration	6	☑	51507	20.0000	2575.3640
D:\MassHunter\Data\2191105ACAL\2191105A_24.d	Calibration	7	☑	47168	20.0000	2358.4225

Instrument ISTD *M2PFHxA*

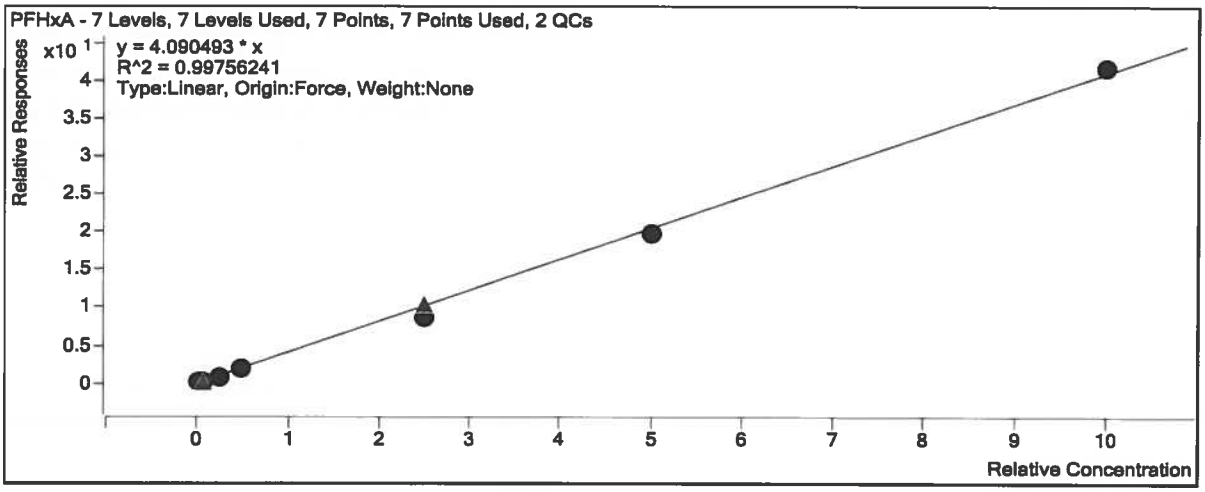
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191105ACAL\2191105A_18.d	Calibration	1	☑	558769	40.0000	13969.2313
D:\MassHunter\Data\2191105ACAL\2191105A_19.d	Calibration	2	☑	586306	40.0000	14657.6429
D:\MassHunter\Data\2191105ACAL\2191105A_20.d	Calibration	3	☑	561444	40.0000	14036.0910
D:\MassHunter\Data\2191105ACAL\2191105A_21.d	Calibration	4	☑	549115	40.0000	13727.8661
D:\MassHunter\Data\2191105ACAL\2191105A_22.d	Calibration	5	☑	577611	40.0000	14440.2835
D:\MassHunter\Data\2191105ACAL\2191105A_23.d	Calibration	6	☑	491407	40.0000	12285.1632
D:\MassHunter\Data\2191105ACAL\2191105A_24.d	Calibration	7	☑	497662	40.0000	12441.5533

Quantitative Analysis Calibration Report



Target Compound *PFHxA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191105ACAL\2191105A_18.d	Calibration	1	☑	6419	0.5000	4.3158
D:\MassHunter\Data\2191105ACAL\2191105A_19.d	Calibration	2	☑	12216	1.2500	3.3989
D:\MassHunter\Data\2191105ACAL\2191105A_20.d	Calibration	3	☑	49817	5.0000	3.6107
D:\MassHunter\Data\2191105ACAL\2191105A_21.d	Calibration	4	☑	101352	10.0000	3.7337
D:\MassHunter\Data\2191105ACAL\2191105A_22.d	Calibration	5	☑	504190	50.0000	3.4338
D:\MassHunter\Data\2191105ACAL\2191105A_23.d	Calibration	6	☑	1025780	100.0000	3.9830
D:\MassHunter\Data\2191105ACAL\2191105A_24.d	Calibration	7	☑	1962025	200.0000	4.1596

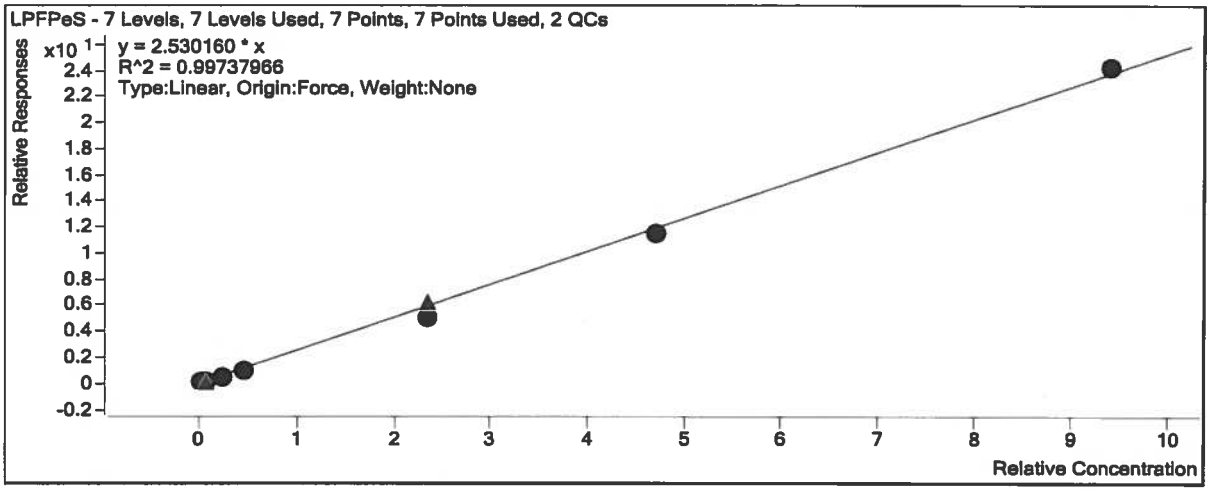


Target Compound *LPFPeS*

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

Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191105ACAL\2191105A_24.d	Calibration	7	☑	1142379	188.0000	2.5765



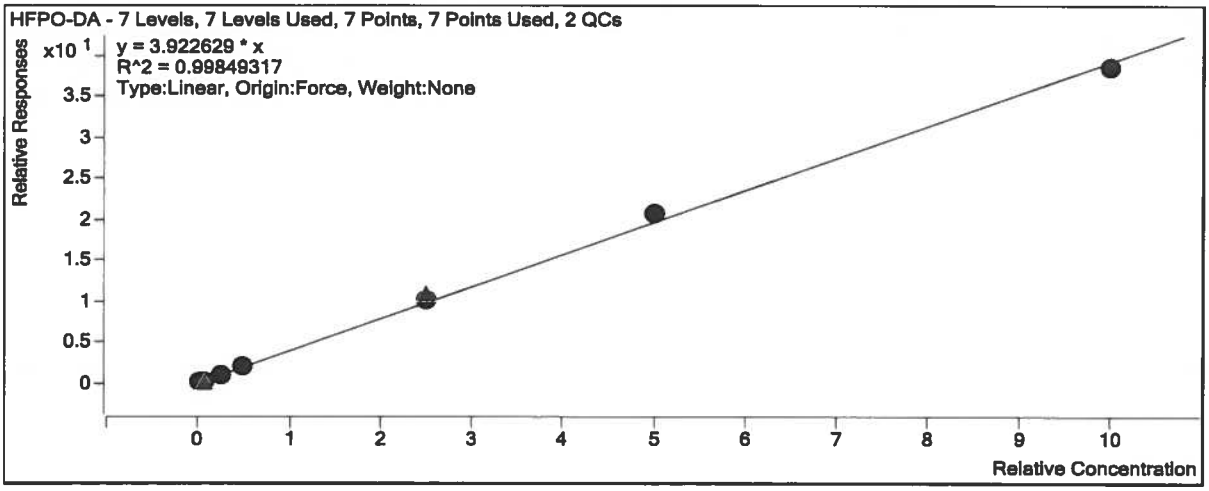
Extracted ISTD *M3HFPODA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191105ACAL\2191105A_18.d	Calibration	1	☑	3174	20.0000	158.6864
D:\MassHunter\Data\2191105ACAL\2191105A_19.d	Calibration	2	☑	3142	20.0000	157.1225
D:\MassHunter\Data\2191105ACAL\2191105A_20.d	Calibration	3	☑	2903	20.0000	145.1319
D:\MassHunter\Data\2191105ACAL\2191105A_21.d	Calibration	4	☑	2672	20.0000	133.5908
D:\MassHunter\Data\2191105ACAL\2191105A_22.d	Calibration	5	☑	2759	20.0000	137.9425
D:\MassHunter\Data\2191105ACAL\2191105A_23.d	Calibration	6	☑	2675	20.0000	133.7709
D:\MassHunter\Data\2191105ACAL\2191105A_24.d	Calibration	7	☑	2820	20.0000	141.0083

Target Compound *HFPO-DA*

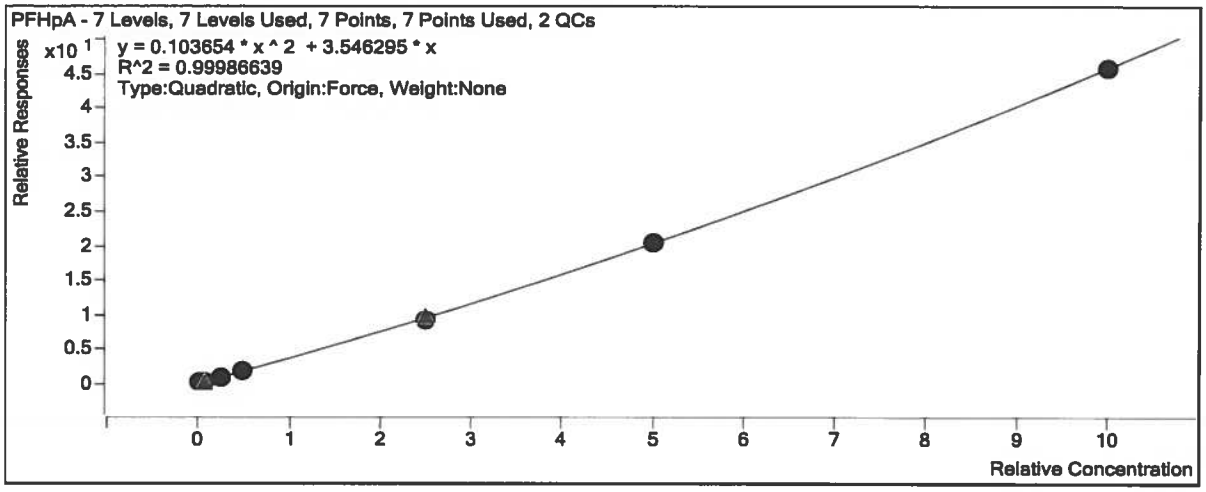
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191105ACAL\2191105A_18.d	Calibration	1	☑	368	0.5000	4.6373
D:\MassHunter\Data\2191105ACAL\2191105A_19.d	Calibration	2	☑	541	1.2500	2.7563
D:\MassHunter\Data\2191105ACAL\2191105A_20.d	Calibration	3	☑	2626	5.0000	3.6194
D:\MassHunter\Data\2191105ACAL\2191105A_21.d	Calibration	4	☑	5655	10.0000	4.2331
D:\MassHunter\Data\2191105ACAL\2191105A_22.d	Calibration	5	☑	28244	50.0000	4.0950
D:\MassHunter\Data\2191105ACAL\2191105A_23.d	Calibration	6	☑	55454	100.0000	4.1454
D:\MassHunter\Data\2191105ACAL\2191105A_24.d	Calibration	7	☑	108734	200.0000	3.8556

Quantitative Analysis Calibration Report



Target Compound *PFHpA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191105ACAL\2191105A_18.d	Calibration	1	☑	5373	0.5000	3.6653
D:\MassHunter\Data\2191105ACAL\2191105A_19.d	Calibration	2	☑	11149	1.2500	2.9577
D:\MassHunter\Data\2191105ACAL\2191105A_20.d	Calibration	3	☑	50178	5.0000	3.7127
D:\MassHunter\Data\2191105ACAL\2191105A_21.d	Calibration	4	☑	102332	10.0000	3.9120
D:\MassHunter\Data\2191105ACAL\2191105A_22.d	Calibration	5	☑	524250	50.0000	3.6558
D:\MassHunter\Data\2191105ACAL\2191105A_23.d	Calibration	6	☑	1048397	100.0000	4.1142
D:\MassHunter\Data\2191105ACAL\2191105A_24.d	Calibration	7	☑	2003999	200.0000	4.5789



Extracted ISTD *M4PFHpA*

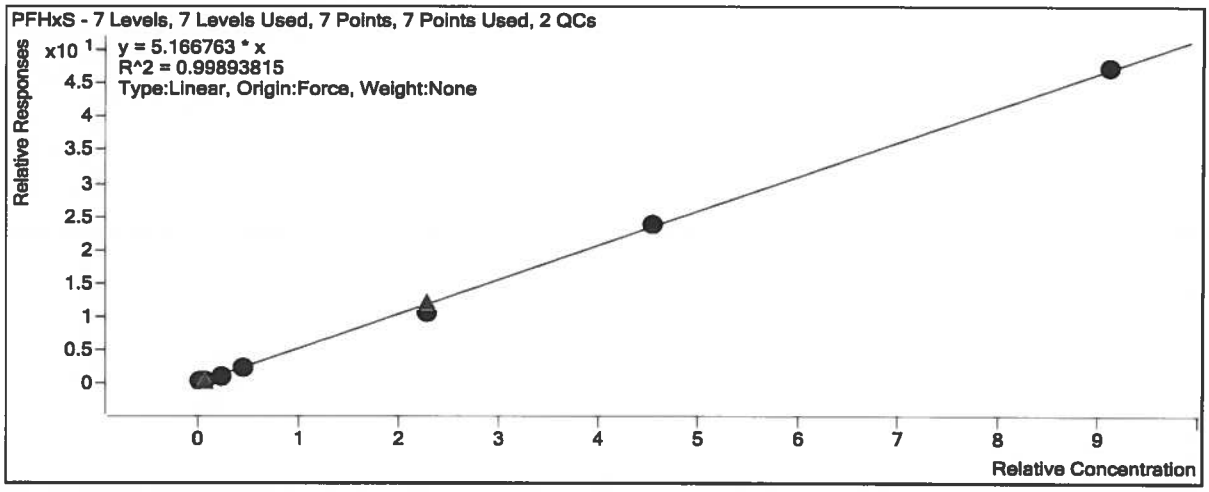
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF

Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191105ACAL\2191105A_24.d	Calibration	7	☑	43766	20.0000	2188.2842

Target Compound *PFHxS*

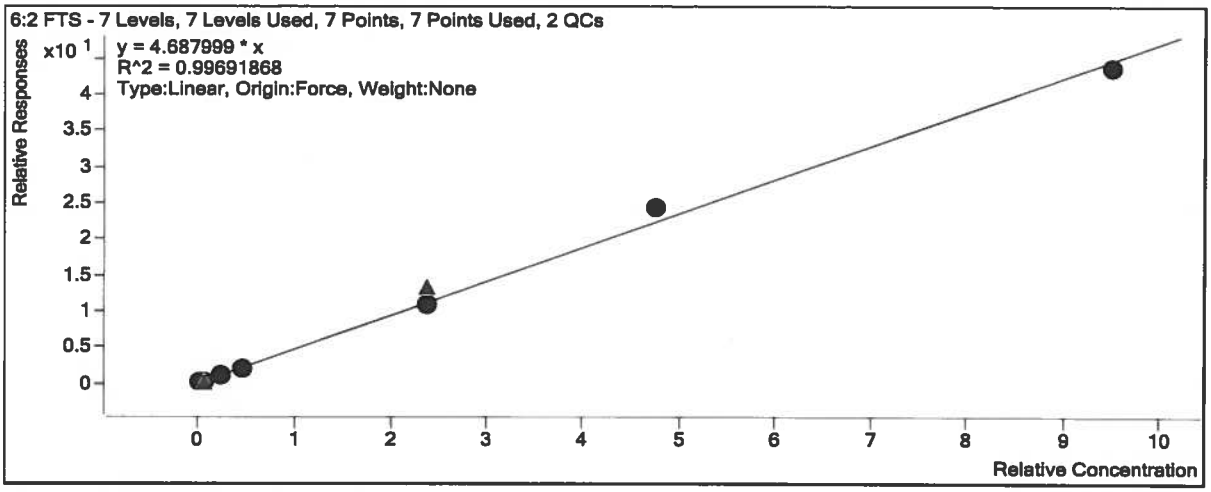
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191105ACAL\2191105A_18.d	Calibration	1	☑	2941	0.4560	4.8953
D:\MassHunter\Data\2191105ACAL\2191105A_19.d	Calibration	2	☑	6525	1.1400	3.9120
D:\MassHunter\Data\2191105ACAL\2191105A_20.d	Calibration	3	☑	29294	4.5600	4.6315
D:\MassHunter\Data\2191105ACAL\2191105A_21.d	Calibration	4	☑	59623	9.1200	5.0003
D:\MassHunter\Data\2191105ACAL\2191105A_22.d	Calibration	5	☑	312917	45.6000	4.5662
D:\MassHunter\Data\2191105ACAL\2191105A_23.d	Calibration	6	☑	637017	91.2000	5.2104
D:\MassHunter\Data\2191105ACAL\2191105A_24.d	Calibration	7	☑	1218469	182.4000	5.1942



Extracted ISTD *M3PFHxS*

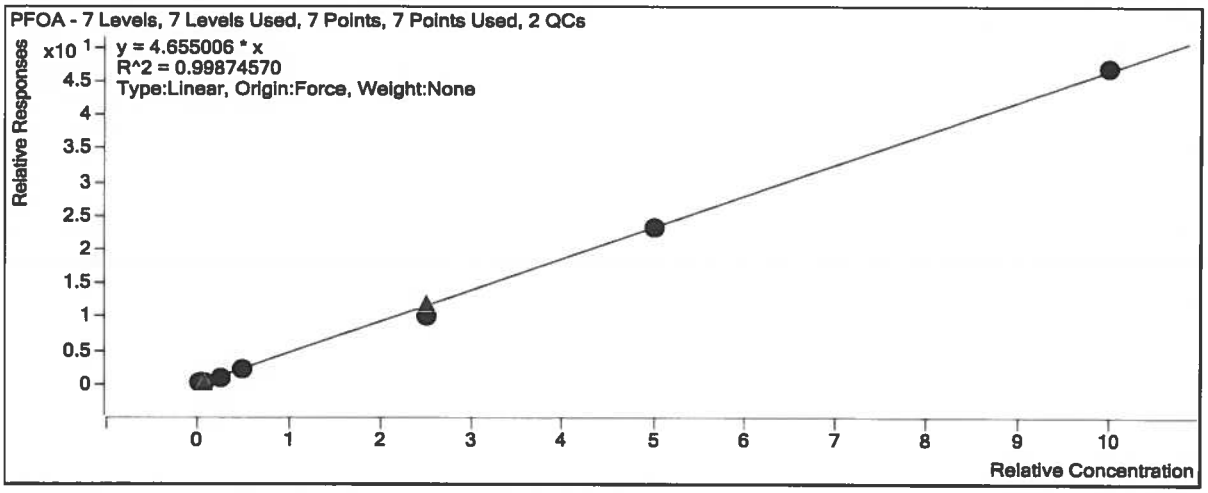
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191105ACAL\2191105A_18.d	Calibration	1	☑	26350	20.0000	1317.4979
D:\MassHunter\Data\2191105ACAL\2191105A_19.d	Calibration	2	☑	29260	20.0000	1463.0241
D:\MassHunter\Data\2191105ACAL\2191105A_20.d	Calibration	3	☑	27741	20.0000	1387.0463
D:\MassHunter\Data\2191105ACAL\2191105A_21.d	Calibration	4	☑	26149	20.0000	1307.4302
D:\MassHunter\Data\2191105ACAL\2191105A_22.d	Calibration	5	☑	30056	20.0000	1502.8129
D:\MassHunter\Data\2191105ACAL\2191105A_23.d	Calibration	6	☑	26811	20.0000	1340.5444
D:\MassHunter\Data\2191105ACAL\2191105A_24.d	Calibration	7	☑	25722	20.0000	1286.0949

D:\MassHunter\Data\2191105ACAL\2191105A_22.d	Calibration	5	☑	127240	47.5000	4.6158
D:\MassHunter\Data\2191105ACAL\2191105A_23.d	Calibration	6	☑	252972	95.0000	5.1141
D:\MassHunter\Data\2191105ACAL\2191105A_24.d	Calibration	7	☑	475232	190.0000	4.5864

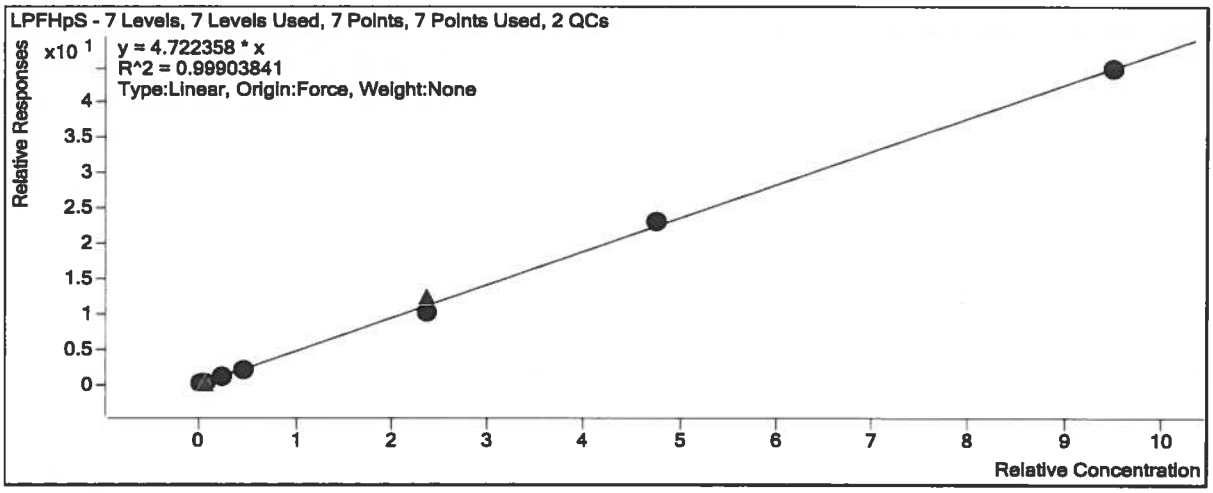


Target Compound *PFOA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191105ACAL\2191105A_18.d	Calibration	1	☑	4152	0.5000	4.2847
D:\MassHunter\Data\2191105ACAL\2191105A_19.d	Calibration	2	☑	9026	1.2500	3.6862
D:\MassHunter\Data\2191105ACAL\2191105A_20.d	Calibration	3	☑	37799	5.0000	4.2535
D:\MassHunter\Data\2191105ACAL\2191105A_21.d	Calibration	4	☑	76629	10.0000	4.4083
D:\MassHunter\Data\2191105ACAL\2191105A_22.d	Calibration	5	☑	380436	50.0000	4.0673
D:\MassHunter\Data\2191105ACAL\2191105A_23.d	Calibration	6	☑	763503	100.0000	4.6643
D:\MassHunter\Data\2191105ACAL\2191105A_24.d	Calibration	7	☑	1506385	200.0000	4.6903



Quantitative Analysis Calibration Report



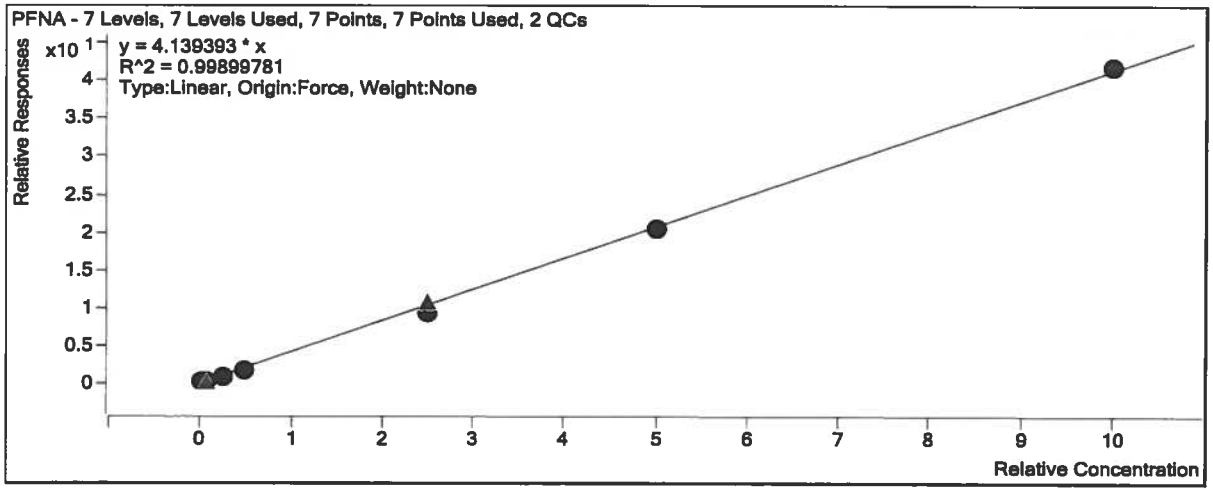
Extracted ISTD *M9PFNA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191105ACAL\2191105A_18.d	Calibration	1	☑	46886	20.0000	2344.3028
D:\MassHunter\Data\2191105ACAL\2191105A_19.d	Calibration	2	☑	46552	20.0000	2327.6214
D:\MassHunter\Data\2191105ACAL\2191105A_20.d	Calibration	3	☑	43858	20.0000	2192.8951
D:\MassHunter\Data\2191105ACAL\2191105A_21.d	Calibration	4	☑	43503	20.0000	2175.1293
D:\MassHunter\Data\2191105ACAL\2191105A_22.d	Calibration	5	☑	43188	20.0000	2159.4000
D:\MassHunter\Data\2191105ACAL\2191105A_23.d	Calibration	6	☑	39832	20.0000	1991.5830
D:\MassHunter\Data\2191105ACAL\2191105A_24.d	Calibration	7	☑	36135	20.0000	1806.7477

Target Compound *PFNA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191105ACAL\2191105A_18.d	Calibration	1	☑	4062	0.5000	3.4651
D:\MassHunter\Data\2191105ACAL\2191105A_19.d	Calibration	2	☑	9023	1.2500	3.1013
D:\MassHunter\Data\2191105ACAL\2191105A_20.d	Calibration	3	☑	38647	5.0000	3.5247
D:\MassHunter\Data\2191105ACAL\2191105A_21.d	Calibration	4	☑	77999	10.0000	3.5859
D:\MassHunter\Data\2191105ACAL\2191105A_22.d	Calibration	5	☑	401166	50.0000	3.7155
D:\MassHunter\Data\2191105ACAL\2191105A_23.d	Calibration	6	☑	814011	100.0000	4.0873
D:\MassHunter\Data\2191105ACAL\2191105A_24.d	Calibration	7	☑	1510705	200.0000	4.1807

Quantitative Analysis Calibration Report



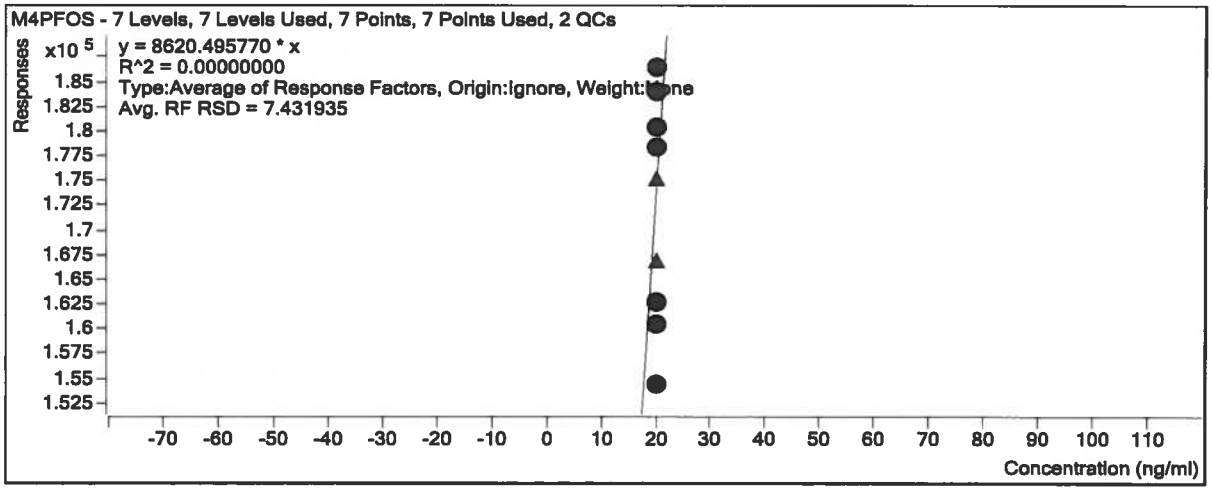
Extracted ISTD *M8PFOS*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191105ACAL\2191105A_18.d	Calibration	1	☑	17195	20.0000	859.7536
D:\MassHunter\Data\2191105ACAL\2191105A_19.d	Calibration	2	☑	18567	20.0000	928.3542
D:\MassHunter\Data\2191105ACAL\2191105A_20.d	Calibration	3	☑	17279	20.0000	863.9417
D:\MassHunter\Data\2191105ACAL\2191105A_21.d	Calibration	4	☑	17362	20.0000	868.1147
D:\MassHunter\Data\2191105ACAL\2191105A_22.d	Calibration	5	☑	18126	20.0000	906.3047
D:\MassHunter\Data\2191105ACAL\2191105A_23.d	Calibration	6	☑	15857	20.0000	792.8462
D:\MassHunter\Data\2191105ACAL\2191105A_24.d	Calibration	7	☑	15505	20.0000	775.2640

Instrument ISTD *M4PFOS*

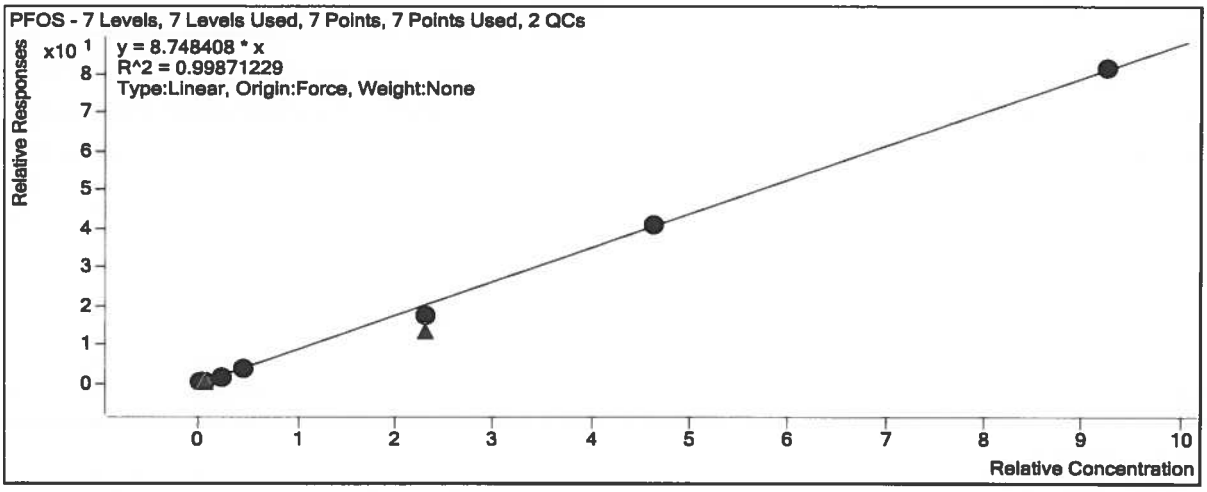
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191105ACAL\2191105A_18.d	Calibration	1	☑	162701	20.0000	8135.0575
D:\MassHunter\Data\2191105ACAL\2191105A_19.d	Calibration	2	☑	183899	20.0000	9194.9559
D:\MassHunter\Data\2191105ACAL\2191105A_20.d	Calibration	3	☑	180471	20.0000	9023.5440
D:\MassHunter\Data\2191105ACAL\2191105A_21.d	Calibration	4	☑	178380	20.0000	8919.0057
D:\MassHunter\Data\2191105ACAL\2191105A_22.d	Calibration	5	☑	186407	20.0000	9320.3373
D:\MassHunter\Data\2191105ACAL\2191105A_23.d	Calibration	6	☑	154503	20.0000	7725.1544
D:\MassHunter\Data\2191105ACAL\2191105A_24.d	Calibration	7	☑	160508	20.0000	8025.4156

Quantitative Analysis Calibration Report



Target Compound *PFOS*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191105ACAL\2191105A_18.d	Calibration	1	☑	3359	0.4628	8.4417
D:\MassHunter\Data\2191105ACAL\2191105A_19.d	Calibration	2	☑	7061	1.1600	6.5570
D:\MassHunter\Data\2191105ACAL\2191105A_20.d	Calibration	3	☑	29903	4.6280	7.4789
D:\MassHunter\Data\2191105ACAL\2191105A_21.d	Calibration	4	☑	63253	9.2550	7.8728
D:\MassHunter\Data\2191105ACAL\2191105A_22.d	Calibration	5	☑	320927	46.2800	7.6514
D:\MassHunter\Data\2191105ACAL\2191105A_23.d	Calibration	6	☑	651230	92.5500	8.8750
D:\MassHunter\Data\2191105ACAL\2191105A_24.d	Calibration	7	☑	1261149	185.1000	8.7884

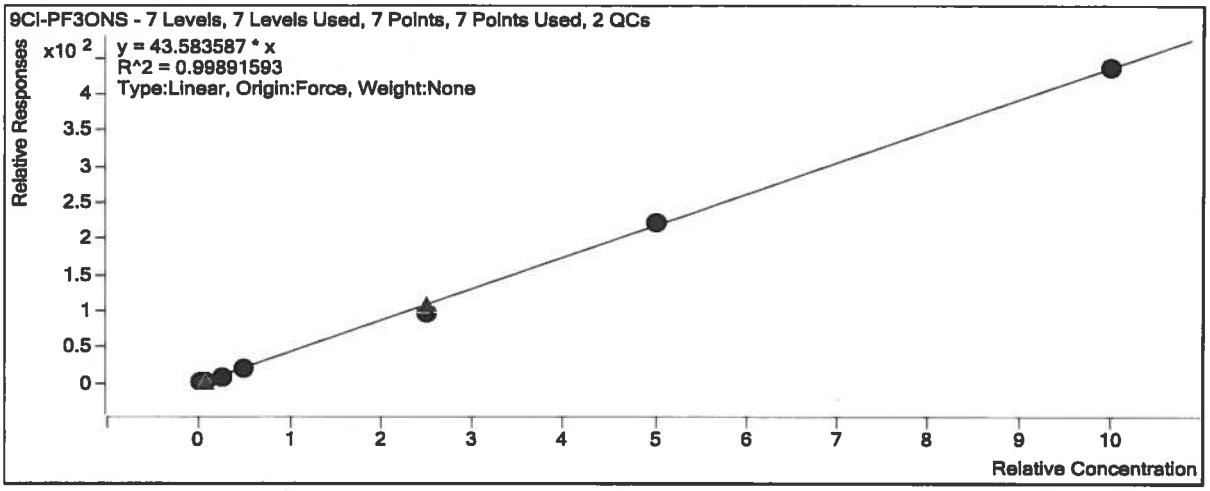


Target Compound *9Cl-PF3ONS*

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

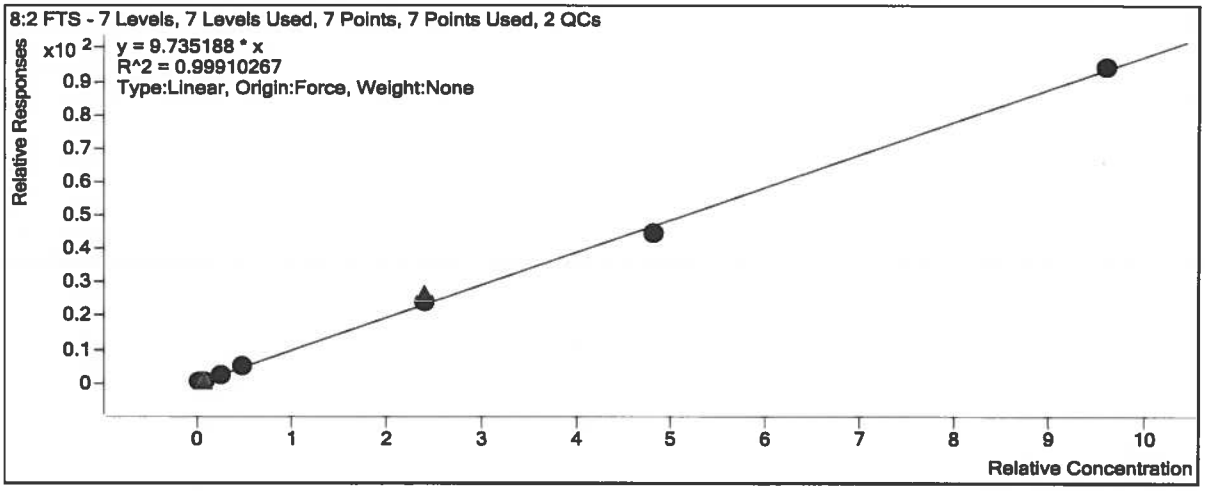
Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191105ACAL\2191105A_24.d	Calibration	7	☑	6758617	200.0000	43.5891



Target Compound ***8:2 FTS***

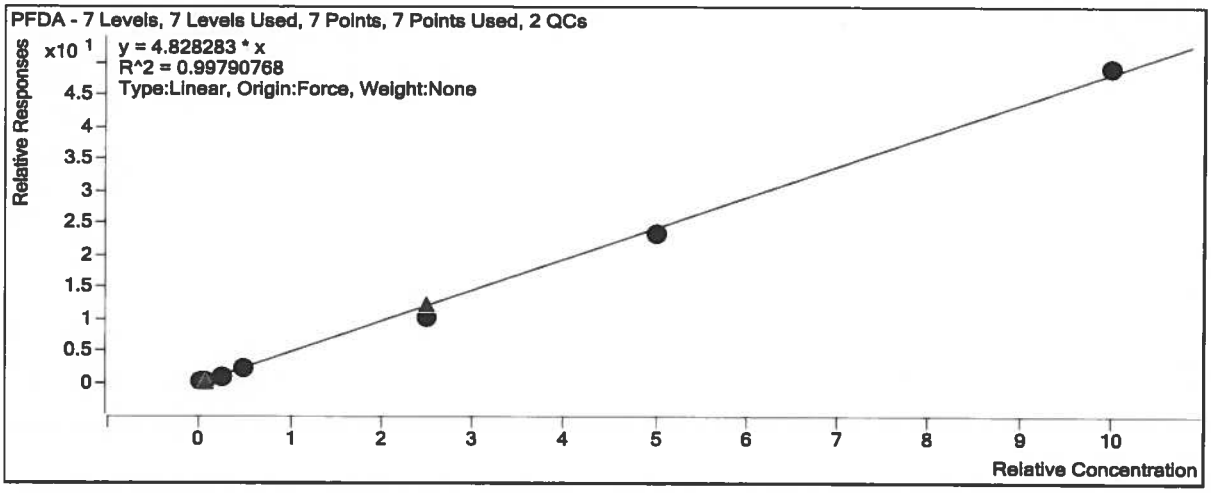
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191105ACAL\2191105A_18.d	Calibration	1	☑	1933	0.4800	10.6396
D:\MassHunter\Data\2191105ACAL\2191105A_19.d	Calibration	2	☑	4054	1.2000	7.8827
D:\MassHunter\Data\2191105ACAL\2191105A_20.d	Calibration	3	☑	19061	4.8000	10.2977
D:\MassHunter\Data\2191105ACAL\2191105A_21.d	Calibration	4	☑	36316	9.6000	10.6920
D:\MassHunter\Data\2191105ACAL\2191105A_22.d	Calibration	5	☑	185518	48.0000	10.2162
D:\MassHunter\Data\2191105ACAL\2191105A_23.d	Calibration	6	☑	354098	96.0000	9.2971
D:\MassHunter\Data\2191105ACAL\2191105A_24.d	Calibration	7	☑	608315	192.0000	9.8120



Quantitative Analysis Calibration Report

Target Compound *PFDA*

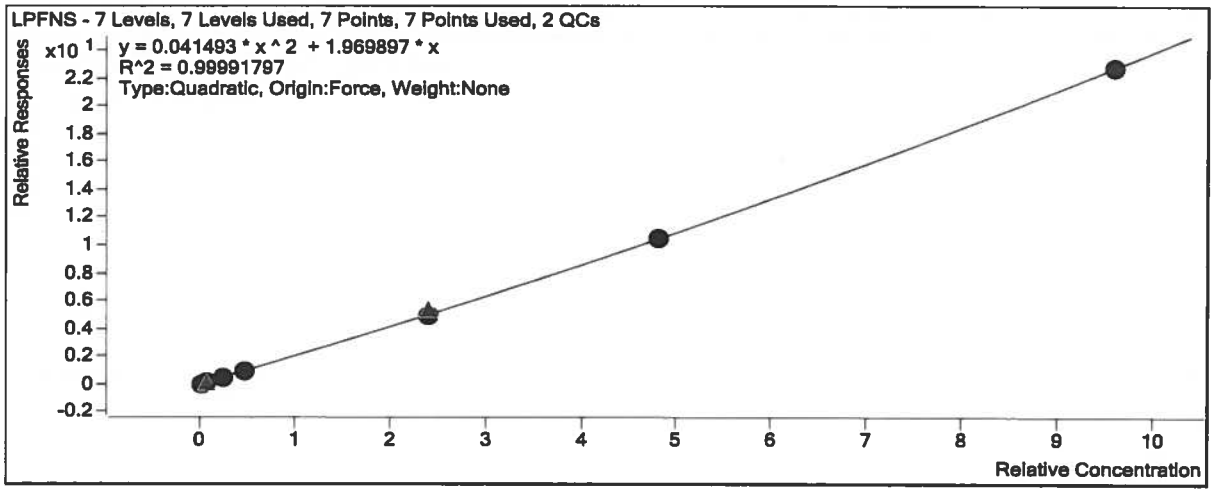
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191105ACAL\2191105A_18.d	Calibration	1	☑	4338	0.5000	3.9009
D:\MassHunter\Data\2191105ACAL\2191105A_19.d	Calibration	2	☑	9472	1.2500	3.5016
D:\MassHunter\Data\2191105ACAL\2191105A_20.d	Calibration	3	☑	39366	5.0000	4.0047
D:\MassHunter\Data\2191105ACAL\2191105A_21.d	Calibration	4	☑	78580	10.0000	4.3726
D:\MassHunter\Data\2191105ACAL\2191105A_22.d	Calibration	5	☑	402461	50.0000	4.1503
D:\MassHunter\Data\2191105ACAL\2191105A_23.d	Calibration	6	☑	816795	100.0000	4.6788
D:\MassHunter\Data\2191105ACAL\2191105A_24.d	Calibration	7	☑	1497740	200.0000	4.9097



Target Compound *LPFNS*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191105ACAL\2191105A_18.d	Calibration	1	☑	1651	0.4800	1.4668
D:\MassHunter\Data\2191105ACAL\2191105A_19.d	Calibration	2	☑	4220	1.2000	1.5108
D:\MassHunter\Data\2191105ACAL\2191105A_20.d	Calibration	3	☑	18508	4.8000	1.7583
D:\MassHunter\Data\2191105ACAL\2191105A_21.d	Calibration	4	☑	38630	9.6000	1.8500
D:\MassHunter\Data\2191105ACAL\2191105A_22.d	Calibration	5	☑	209294	48.0000	2.0192
D:\MassHunter\Data\2191105ACAL\2191105A_23.d	Calibration	6	☑	419058	96.0000	2.1918
D:\MassHunter\Data\2191105ACAL\2191105A_24.d	Calibration	7	☑	820821	192.0000	2.3662

Quantitative Analysis Calibration Report



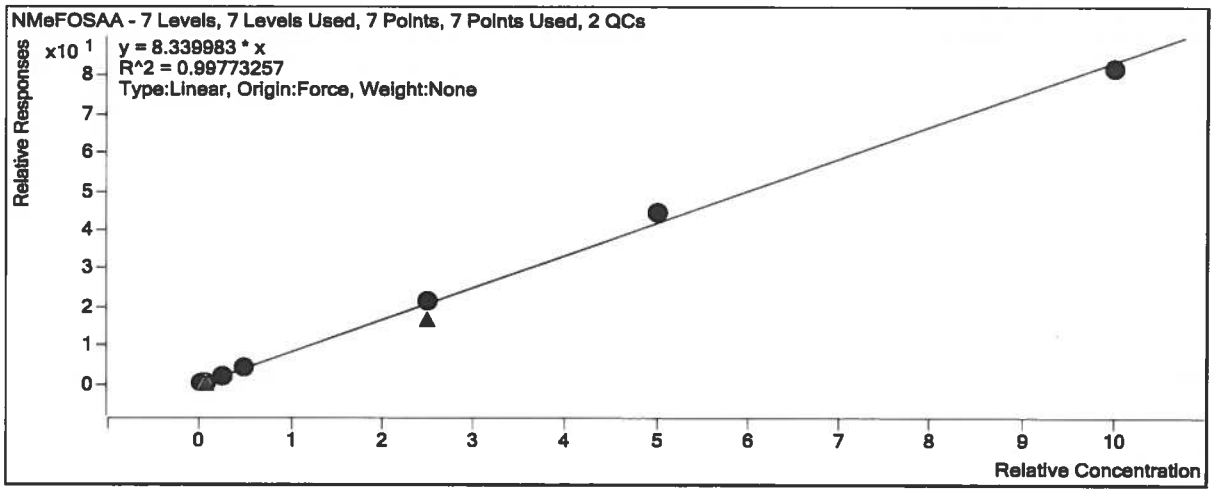
Extracted ISTD *d3-NMeFOSAA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191105ACAL\2191105A_18.d	Calibration	1	☑	7208	20.0000	360.3895
D:\MassHunter\Data\2191105ACAL\2191105A_19.d	Calibration	2	☑	6740	20.0000	336.9786
D:\MassHunter\Data\2191105ACAL\2191105A_20.d	Calibration	3	☑	6244	20.0000	312.1851
D:\MassHunter\Data\2191105ACAL\2191105A_21.d	Calibration	4	☑	6297	20.0000	314.8473
D:\MassHunter\Data\2191105ACAL\2191105A_22.d	Calibration	5	☑	6905	20.0000	345.2597
D:\MassHunter\Data\2191105ACAL\2191105A_23.d	Calibration	6	☑	6748	20.0000	337.4114
D:\MassHunter\Data\2191105ACAL\2191105A_24.d	Calibration	7	☑	7197	20.0000	359.8293

Target Compound *NMeFOSAA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191105ACAL\2191105A_18.d	Calibration	1	☑	1843	0.5000	10.2285
D:\MassHunter\Data\2191105ACAL\2191105A_19.d	Calibration	2	☑	2671	1.2500	6.3404
D:\MassHunter\Data\2191105ACAL\2191105A_20.d	Calibration	3	☑	12736	5.0000	8.1595
D:\MassHunter\Data\2191105ACAL\2191105A_21.d	Calibration	4	☑	26852	10.0000	8.5287
D:\MassHunter\Data\2191105ACAL\2191105A_22.d	Calibration	5	☑	149216	50.0000	8.6437
D:\MassHunter\Data\2191105ACAL\2191105A_23.d	Calibration	6	☑	302101	100.0000	8.9535
D:\MassHunter\Data\2191105ACAL\2191105A_24.d	Calibration	7	☑	587769	200.0000	8.1673

Quantitative Analysis Calibration Report

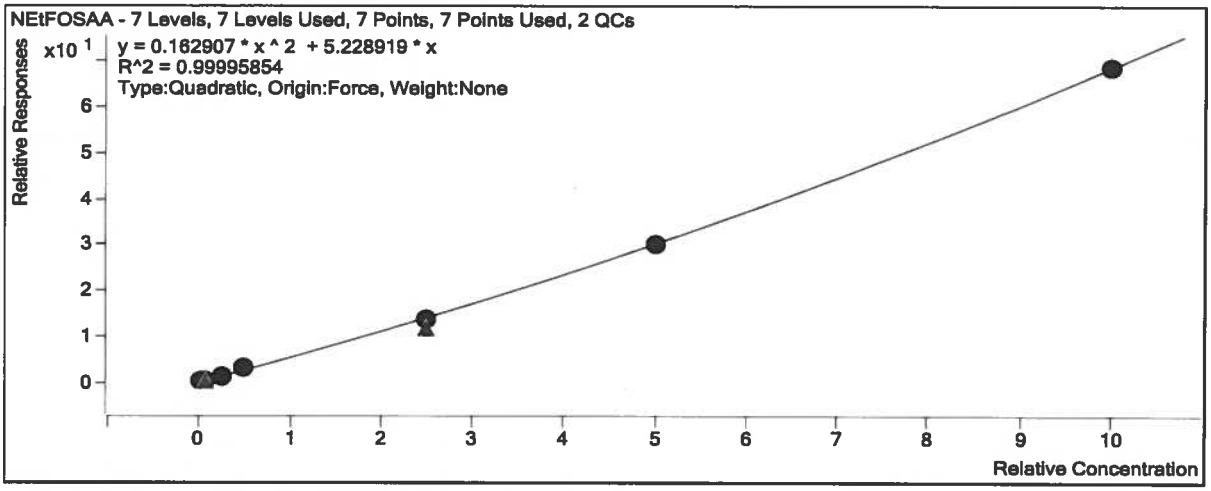


Target Compound *FOSA-I*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191105ACAL\2191105A_18.d	Calibration	1	☑	5921	0.5000	4.2092
D:\MassHunter\Data\2191105ACAL\2191105A_19.d	Calibration	2	☑	14409	1.2500	3.9198
D:\MassHunter\Data\2191105ACAL\2191105A_20.d	Calibration	3	☑	66512	5.0000	5.0706
D:\MassHunter\Data\2191105ACAL\2191105A_21.d	Calibration	4	☑	131075	10.0000	4.5025
D:\MassHunter\Data\2191105ACAL\2191105A_22.d	Calibration	5	☑	683011	50.0000	4.3668

Quantitative Analysis Calibration Report

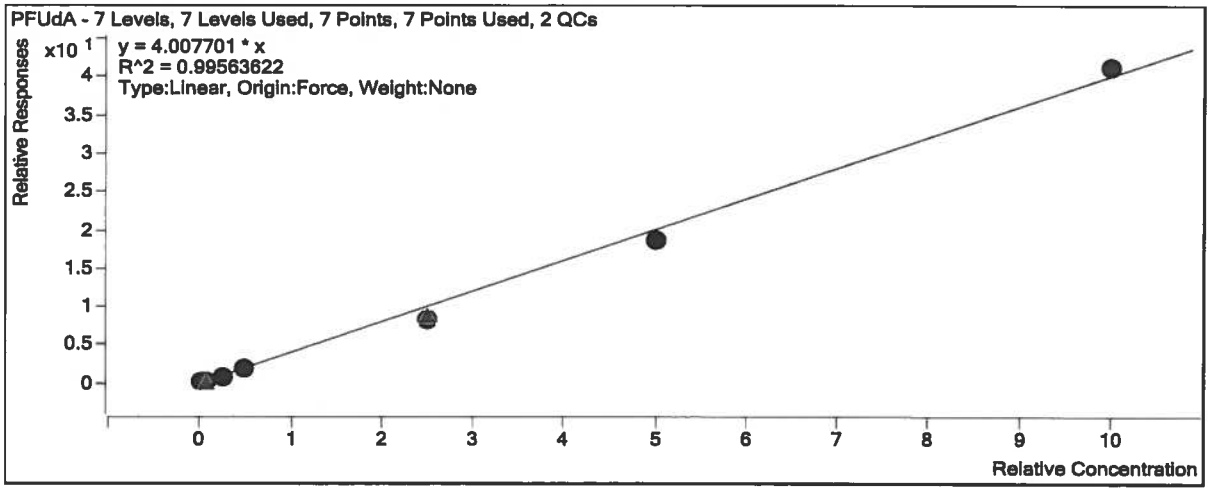
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191105ACAL\2191105A_20.d	Calibration	3	☑	12059	5.0000	5.4546
D:\MassHunter\Data\2191105ACAL\2191105A_21.d	Calibration	4	☑	25302	10.0000	6.0795
D:\MassHunter\Data\2191105ACAL\2191105A_22.d	Calibration	5	☑	132730	50.0000	5.6248
D:\MassHunter\Data\2191105ACAL\2191105A_23.d	Calibration	6	☑	268369	100.0000	6.0326
D:\MassHunter\Data\2191105ACAL\2191105A_24.d	Calibration	7	☑	510771	200.0000	6.8594



Target Compound *PFUdA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191105ACAL\2191105A_18.d	Calibration	1	☑	4115	0.5000	3.7514
D:\MassHunter\Data\2191105ACAL\2191105A_19.d	Calibration	2	☑	7514	1.2500	2.8188
D:\MassHunter\Data\2191105ACAL\2191105A_20.d	Calibration	3	☑	32551	5.0000	3.1936
D:\MassHunter\Data\2191105ACAL\2191105A_21.d	Calibration	4	☑	69766	10.0000	3.8080
D:\MassHunter\Data\2191105ACAL\2191105A_22.d	Calibration	5	☑	345330	50.0000	3.2733
D:\MassHunter\Data\2191105ACAL\2191105A_23.d	Calibration	6	☑	713206	100.0000	3.7630
D:\MassHunter\Data\2191105ACAL\2191105A_24.d	Calibration	7	☑	1306656	200.0000	4.1158

Quantitative Analysis Calibration Report



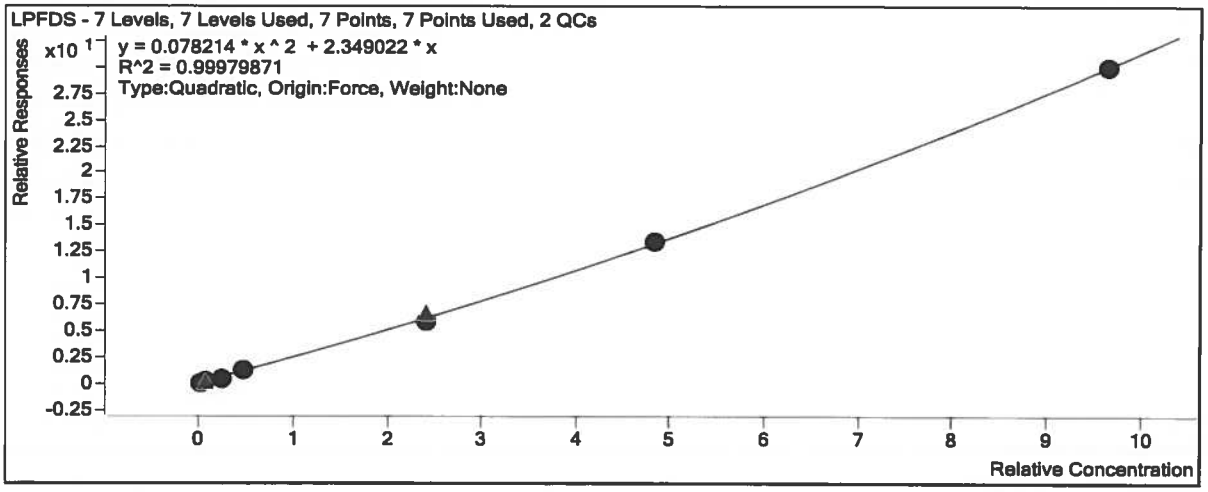
Quantitative Analysis Calibration Report

Extracted ISTD *M7PFUdA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191105ACAL\2191105A_18.d	Calibration	1	☑	43879	20.0000	2193.9584
D:\MassHunter\Data\2191105ACAL\2191105A_19.d	Calibration	2	☑	42651	20.0000	2132.5285
D:\MassHunter\Data\2191105ACAL\2191105A_20.d	Calibration	3	☑	40770	20.0000	2038.5042
D:\MassHunter\Data\2191105ACAL\2191105A_21.d	Calibration	4	☑	36641	20.0000	1832.0661
D:\MassHunter\Data\2191105ACAL\2191105A_22.d	Calibration	5	☑	42199	20.0000	2109.9561
D:\MassHunter\Data\2191105ACAL\2191105A_23.d	Calibration	6	☑	37907	20.0000	1895.3250
D:\MassHunter\Data\2191105ACAL\2191105A_24.d	Calibration	7	☑	31747	20.0000	1587.3519

Target Compound *LPFDS*

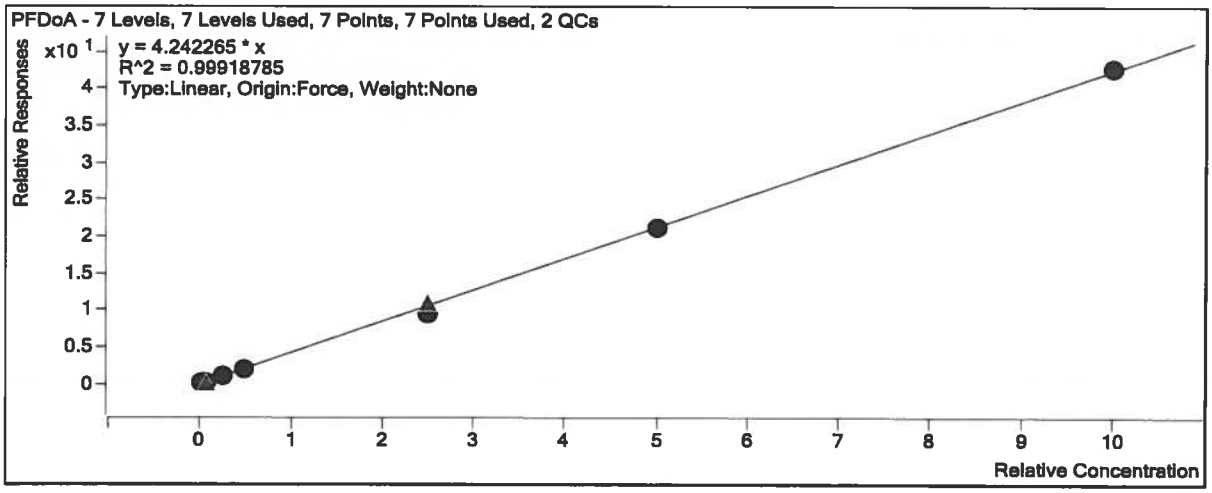
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191105ACAL\2191105A_18.d	Calibration	1	☑	2183	0.4825	2.0342
D:\MassHunter\Data\2191105ACAL\2191105A_19.d	Calibration	2	☑	4604	1.2100	1.7582
D:\MassHunter\Data\2191105ACAL\2191105A_20.d	Calibration	3	☑	18426	4.8250	1.9425
D:\MassHunter\Data\2191105ACAL\2191105A_21.d	Calibration	4	☑	41775	9.6500	2.4089
D:\MassHunter\Data\2191105ACAL\2191105A_22.d	Calibration	5	☑	226225	48.2500	2.4175
D:\MassHunter\Data\2191105ACAL\2191105A_23.d	Calibration	6	☑	467204	96.5000	2.7733
D:\MassHunter\Data\2191105ACAL\2191105A_24.d	Calibration	7	☑	912515	193.0000	3.0998



Target Compound *11Cl-PF3OUdS*

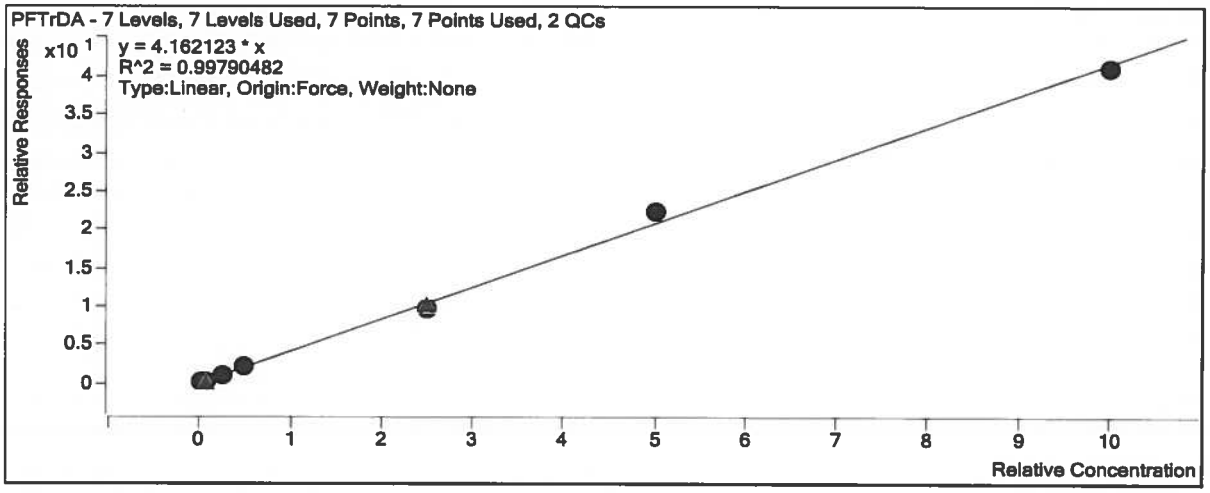
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF

Quantitative Analysis Calibration Report



Target Compound *PFTrDA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191105ACAL\2191105A_18.d	Calibration	1	☑	2719	0.5000	4.3709
D:\MassHunter\Data\2191105ACAL\2191105A_19.d	Calibration	2	☑	5182	1.2500	3.5262
D:\MassHunter\Data\2191105ACAL\2191105A_20.d	Calibration	3	☑	20150	5.0000	3.8235
D:\MassHunter\Data\2191105ACAL\2191105A_21.d	Calibration	4	☑	41891	10.0000	4.2465
D:\MassHunter\Data\2191105ACAL\2191105A_22.d	Calibration	5	☑	225812	50.0000	3.9071
D:\MassHunter\Data\2191105ACAL\2191105A_23.d	Calibration	6	☑	462033	100.0000	4.4629
D:\MassHunter\Data\2191105ACAL\2191105A_24.d	Calibration	7	☑	875719	200.0000	4.1029



Extracted ISTD *M2PFTeDA*

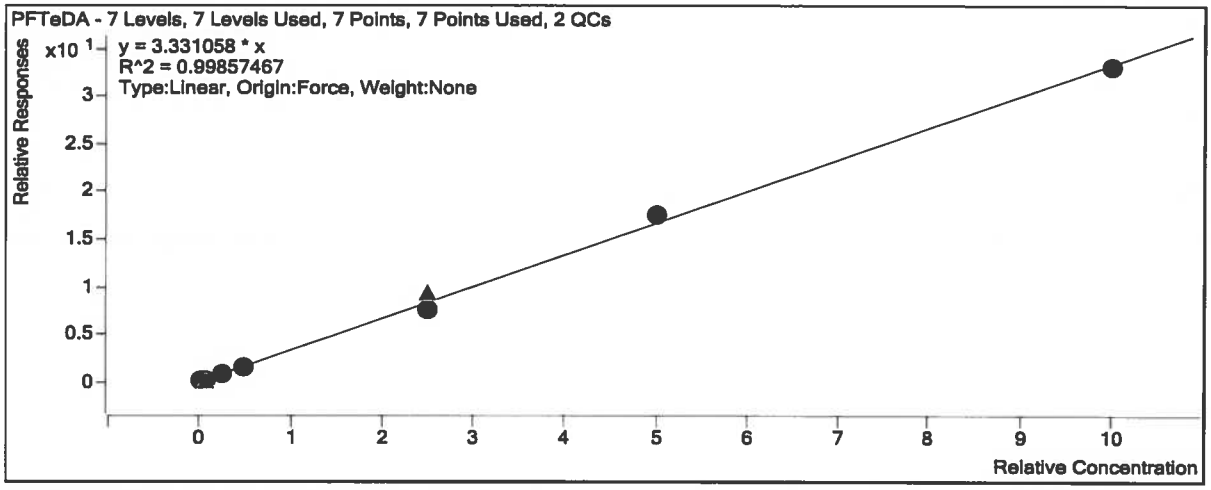
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF

Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191105ACAL\2191105A_24.d	Calibration	7	☑	21344	20.0000	1067.1941

Target Compound *PFTeDA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191105ACAL\2191105A_18.d	Calibration	1	☑	2037	0.5000	3.2753
D:\MassHunter\Data\2191105ACAL\2191105A_19.d	Calibration	2	☑	4160	1.2500	2.8312
D:\MassHunter\Data\2191105ACAL\2191105A_20.d	Calibration	3	☑	16776	5.0000	3.1832
D:\MassHunter\Data\2191105ACAL\2191105A_21.d	Calibration	4	☑	32445	10.0000	3.2890
D:\MassHunter\Data\2191105ACAL\2191105A_22.d	Calibration	5	☑	177551	50.0000	3.0720
D:\MassHunter\Data\2191105ACAL\2191105A_23.d	Calibration	6	☑	363614	100.0000	3.5122
D:\MassHunter\Data\2191105ACAL\2191105A_24.d	Calibration	7	☑	704813	200.0000	3.3022



6I

ORGANICS INITIAL CALIBRATION VERIFICATION

Report No:	219102326	Instrument ID:	QQQ1
Analysis Date:	11/05/2019 16:34	Lab File ID:	2191105A_26.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	670959

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	50000	57400	115	70	130	
8:2 Fluorotelomer sulfonate	ng/L	50000	55000	110	70	130	
NEtFOSAA	ng/L	50000	42900	86	70	130	
NMeFOSAA	ng/L	50000	41500	83	70	130	
Perfluorobutanoic acid	ng/L	50000	50600	101	70	130	
Perfluorobutanesulfonic acid	ng/L	50000	49200	98	70	130	
Perfluorodecanoic acid	ng/L	50000	50600	101	70	130	
Perfluorododecanoic acid	ng/L	50000	52200	104	70	130	
Perfluoroheptanoic acid	ng/L	50000	52500	105	70	130	
Perfluorohexanoic acid	ng/L	50000	51300	103	70	130	
Perfluorohexanesulfonic acid	ng/L	50000	54100	108	70	130	
Perfluorononanoic acid	ng/L	50000	52400	105	70	130	
Perfluorooctanoic acid	ng/L	50000	51500	103	70	130	
Perfluorooctane Sulfonate	ng/L	50000	44100	88	70	130	
Perfluoropentanoic acid	ng/L	50000	48600	97	70	130	
Perfluorotetradecanoic acid	ng/L	50000	56400	113	70	130	
Perfluorotridecanoic acid	ng/L	50000	49100	98	70	130	
Perfluoroundecanoic acid	ng/L	50000	44900	90	70	130	

FORM 6I - ORG

7S

ORGANICS INSTRUMENT SENSITIVITY CHECK

Report No:	219102326	Instrument ID:	QQQ1
Analysis Date:	11/05/2019 16:45	Lab File ID:	2191105A_27.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	670959

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	7.93	7.00	88	70	130	
8:2 Fluorotelomer sulfonate	ng/L	8.00	8.13	102	70	130	
NEtFOSAA	ng/L	8.33	7.20	87	70	130	
NMeFOSAA	ng/L	8.33	7.93	95	70	130	
Perfluorobutanoic acid	ng/L	8.33	6.87	83	70	130	
Perfluorobutanesulfonic acid	ng/L	7.40	5.63	76	70	130	
Perfluorodecanoic acid	ng/L	8.33	6.61	79	70	130	
Perfluorododecanoic acid	ng/L	8.33	7.67	92	70	130	
Perfluoroheptanoic acid	ng/L	8.33	7.20	86	70	130	
Perfluorohexanoic acid	ng/L	8.33	6.73	81	70	130	
Perfluorohexanesulfonic acid	ng/L	7.60	5.73	75	70	130	
Perfluorononanoic acid	ng/L	8.33	6.73	81	70	130	
Perfluorooctanoic acid	ng/L	8.33	7.07	85	70	130	
Perfluorooctane Sulfonate	ng/L	7.73	6.16	80	70	130	
Perfluoropentanoic acid	ng/L	8.33	6.57	79	70	130	
Perfluorotetradecanoic acid	ng/L	8.33	7.53	91	70	130	
Perfluorotridecanoic acid	ng/L	8.33	7.27	87	70	130	
Perfluoroundecanoic acid	ng/L	8.33	6.47	78	70	130	

4I

ORGANICS INSTRUMENT BLANK

Report No:	219102326	Instrument ID:	QQQ1
Analysis Date:	11/05/2019 16:57	Lab File ID:	2191105A_28.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	670959

ANALYTE	UNITS	RESULT	Q	DL	LOD	LOQ	#
6:2 Fluorotelomer sulfonate	ng/L	4.00	U	1.79	4.00	10.0	
8:2 Fluorotelomer sulfonate	ng/L	4.00	U	1.63	4.00	10.0	
NEtFOSAA	ng/L	8.00	U	5.38	8.00	10.0	
NMeFOSAA	ng/L	8.00	U	4.60	8.00	10.0	
Perfluorobutanesulfonic acid	ng/L	4.00	U	1.47	4.00	10.0	
Perfluorobutanoic acid	ng/L	4.00	U	2.13	4.00	10.0	
Perfluorodecanoic acid	ng/L	4.00	U	1.65	4.00	10.0	
Perfluorododecanoic acid	ng/L	4.00	U	2.45	4.00	10.0	
Perfluoroheptanoic acid	ng/L	4.00	U	1.85	4.00	10.0	
Perfluorohexanesulfonic acid	ng/L	4.00	U	1.64	4.00	10.0	
Perfluorohexanoic acid	ng/L	4.00	U	1.94	4.00	10.0	
Perfluorononanoic acid	ng/L	4.00	U	1.68	4.00	10.0	
Perfluorooctane Sulfonate	ng/L	4.00	U	1.70	4.00	10.0	
Perfluorooctanoic acid	ng/L	4.00	U	1.80	4.00	10.0	
Perfluoropentanoic acid	ng/L	4.00	U	2.35	4.00	10.0	
Perfluorotetradecanoic acid	ng/L	4.00	U	2.76	4.00	10.0	
Perfluorotridecanoic acid	ng/L	4.00	U	2.56	4.00	10.0	
Perfluoroundecanoic acid	ng/L	4.00	U	1.86	4.00	10.0	

* - Result greater than 1/2 LOQ

7E

ORGANICS CALIBRATION VERIFICATION

Report No:	219102326	Instrument ID:	QQQ1
Analysis Date:	11/05/2019 21:04	Lab File ID:	2191105A_49.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	670959

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	47500	47100	99	70	130	
8:2 Fluorotelomer sulfonate	ng/L	48000	46600	97	70	130	
NEtFOSAA	ng/L	50000	48700	97	70	130	
NMeFOSAA	ng/L	50000	49300	99	70	130	
Perfluorobutanoic acid	ng/L	50000	44200	88	70	130	
Perfluorobutanesulfonic acid	ng/L	44300	38100	86	70	130	
Perfluorodecanoic acid	ng/L	50000	43100	86	70	130	
Perfluorododecanoic acid	ng/L	50000	46200	92	70	130	
Perfluoroheptanoic acid	ng/L	50000	47400	95	70	130	
Perfluorohexanoic acid	ng/L	50000	42900	86	70	130	
Perfluorohexanesulfonic acid	ng/L	45600	40500	89	70	130	
Perfluorononanoic acid	ng/L	50000	42500	85	70	130	
Perfluorooctanoic acid	ng/L	50000	43800	88	70	130	
Perfluorooctane Sulfonate	ng/L	46300	40300	87	70	130	
Perfluoropentanoic acid	ng/L	50000	43200	86	70	130	
Perfluorotetradecanoic acid	ng/L	50000	48300	97	70	130	
Perfluorotridecanoic acid	ng/L	50000	48200	96	70	130	
Perfluoroundecanoic acid	ng/L	50000	42100	84	70	130	

FORM 7E - ORG

7E

ORGANICS CALIBRATION VERIFICATION

Report No:	219102326	Instrument ID:	QQQ1
Analysis Date:	11/05/2019 23:31	Lab File ID:	2191105A_62.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	670959

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	47500	45500	96	70	130	
8:2 Fluorotelomer sulfonate	ng/L	48000	42000	88	70	130	
NEtFOSAA	ng/L	50000	50700	101	70	130	
NMeFOSAA	ng/L	50000	46200	92	70	130	
Perfluorobutanoic acid	ng/L	50000	44400	89	70	130	
Perfluorobutanesulfonic acid	ng/L	44300	38600	87	70	130	
Perfluorodecanoic acid	ng/L	50000	40900	82	70	130	
Perfluorododecanoic acid	ng/L	50000	48100	96	70	130	
Perfluoroheptanoic acid	ng/L	50000	47900	96	70	130	
Perfluorohexanoic acid	ng/L	50000	43000	86	70	130	
Perfluorohexanesulfonic acid	ng/L	45600	40700	89	70	130	
Perfluorononanoic acid	ng/L	50000	45000	90	70	130	
Perfluorooctanoic acid	ng/L	50000	45200	90	70	130	
Perfluorooctane Sulfonate	ng/L	46300	39500	85	70	130	
Perfluoropentanoic acid	ng/L	50000	42900	86	70	130	
Perfluorotetradecanoic acid	ng/L	50000	47400	95	70	130	
Perfluorotridecanoic acid	ng/L	50000	47700	95	70	130	
Perfluoroundecanoic acid	ng/L	50000	44300	89	70	130	

FORM 7E - ORG

7E

ORGANICS CALIBRATION VERIFICATION

Report No:	219102333	Instrument ID:	QQQ1
Analysis Date:	11/06/2019 05:46	Lab File ID:	2191105A_95.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	670959

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	47500	44400	93	70	130	
8:2 Fluorotelomer sulfonate	ng/L	48000	46700	97	70	130	
NEtFOSAA	ng/L	50000	59600	119	70	130	
NMeFOSAA	ng/L	50000	51100	102	70	130	
Perfluorobutanoic acid	ng/L	50000	44300	89	70	130	
Perfluorobutanesulfonic acid	ng/L	44300	38500	87	70	130	
Perfluorodecanoic acid	ng/L	50000	44400	89	70	130	
Perfluorododecanoic acid	ng/L	50000	47300	95	70	130	
Perfluoroheptanoic acid	ng/L	50000	48400	97	70	130	
Perfluorohexanoic acid	ng/L	50000	45100	90	70	130	
Perfluorohexanesulfonic acid	ng/L	45600	40000	88	70	130	
Perfluorononanoic acid	ng/L	50000	42900	86	70	130	
Perfluorooctanoic acid	ng/L	50000	43700	87	70	130	
Perfluorooctane Sulfonate	ng/L	46300	40100	87	70	130	
Perfluoropentanoic acid	ng/L	50000	43000	86	70	130	
Perfluorotetradecanoic acid	ng/L	50000	47700	95	70	130	
Perfluorotridecanoic acid	ng/L	50000	48300	97	70	130	
Perfluoroundecanoic acid	ng/L	50000	41400	83	70	130	

7E

ORGANICS CALIBRATION VERIFICATION

Report No:	219102333	Instrument ID:	QQQ1
Analysis Date:	11/06/2019 08:36	Lab File ID:	2191105A_110.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	670959

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	47500	43400	91	70	130	
8:2 Fluorotelomer sulfonate	ng/L	48000	47700	99	70	130	
NEtFOSAA	ng/L	50000	48400	97	70	130	
NMeFOSAA	ng/L	50000	48200	96	70	130	
Perfluorobutanoic acid	ng/L	50000	44000	88	70	130	
Perfluorobutanesulfonic acid	ng/L	44300	38700	87	70	130	
Perfluorodecanoic acid	ng/L	50000	44700	89	70	130	
Perfluorododecanoic acid	ng/L	50000	48900	98	70	130	
Perfluoroheptanoic acid	ng/L	50000	48000	96	70	130	
Perfluorohexanoic acid	ng/L	50000	43600	87	70	130	
Perfluorohexanesulfonic acid	ng/L	45600	39500	87	70	130	
Perfluorononanoic acid	ng/L	50000	43500	87	70	130	
Perfluorooctanoic acid	ng/L	50000	46800	94	70	130	
Perfluorooctane Sulfonate	ng/L	46300	38800	84	70	130	
Perfluoropentanoic acid	ng/L	50000	43500	87	70	130	
Perfluorotetradecanoic acid	ng/L	50000	49700	99	70	130	
Perfluorotridecanoic acid	ng/L	50000	48100	96	70	130	
Perfluoroundecanoic acid	ng/L	50000	42000	84	70	130	

7E

ORGANICS CALIBRATION VERIFICATION

Report No:	219102333	Instrument ID:	QQQ1
Analysis Date:	11/06/2019 10:41	Lab File ID:	2191105A_121.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	670959

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	47500	46000	97	70	130	
8:2 Fluorotelomer sulfonate	ng/L	48000	47200	98	70	130	
NEtFOSAA	ng/L	50000	49900	100	70	130	
NMeFOSAA	ng/L	50000	51300	103	70	130	
Perfluorobutanoic acid	ng/L	50000	44400	89	70	130	
Perfluorobutanesulfonic acid	ng/L	44300	38500	87	70	130	
Perfluorodecanoic acid	ng/L	50000	43600	87	70	130	
Perfluorododecanoic acid	ng/L	50000	45600	91	70	130	
Perfluoroheptanoic acid	ng/L	50000	47000	94	70	130	
Perfluorohexanoic acid	ng/L	50000	42900	86	70	130	
Perfluorohexanesulfonic acid	ng/L	45600	42300	93	70	130	
Perfluorononanoic acid	ng/L	50000	43500	87	70	130	
Perfluorooctanoic acid	ng/L	50000	44900	90	70	130	
Perfluorooctane Sulfonate	ng/L	46300	39000	84	70	130	
Perfluoropentanoic acid	ng/L	50000	42700	85	70	130	
Perfluorotetradecanoic acid	ng/L	50000	47500	95	70	130	
Perfluorotridecanoic acid	ng/L	50000	46600	93	70	130	
Perfluoroundecanoic acid	ng/L	50000	42300	85	70	130	

FORM 7E - ORG

8I

INJECTION INTERNAL STANDARD AREA SUMMARY

Report No:	219102326	Standard ID:	1205 (ICAL Midpoint)
Analyst:	BMH	Instrument ID:	QQQ1
Analysis Date:	11/05/19 15:45	Lab File ID:	2191105A_22.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	670959

	M2PFDA	M2PFHxA	M2PFOA	M4PFOS
	Area	*Area*	*Area*	*Area*
STANDARD	212949	577611	191329	186407

CLIENT SAMPLE ID	*GCAL SAMP ID*		#		#		#		#
MB1974709	1974709	208154		528708		181386		149818	
LCS1974711	1974711	199243		522962		177577		158501	
AOI6-3-SB-1.5-2-102219	21910232608	201174		471297		165068		159985	
AOI6-3-SB-1.5-2-102219-MS	21910232609	191690		475294		165051		158484	
AOI6-3-SB-1.5-2-102219-MSD	21910232610	194259		464301		163167		155614	
AOI6-2-SB-1.5-2-102219	21910232611	197849		486842		165553		147108	
AOI6-2-SB-1.5-2-102219-MS	21910232612	193808		484124		164208		160034	
AOI6-2-SB-1.5-2-102219-MSD	21910232613	192392		471575		159078		153735	
AOI6-4-SB-1.5-2-102219	21910232614	195360		493641		173626		157651	
AOI6-4-SB-1.5-2-102219-MS	21910232615	193076		499461		170185		163625	
AOI6-4-SB-1.5-2-102219-MSD	21910232616	196686		497003		171343		159911	
AOI5-1-SB-1.5-2-102219	21910232617	195150		506788		153158		136481	
AOI5-1-SB-1.5-2-102219-D	21910232618	186725		499407		151578		130913	
AOI5-1-SB-8-8.5-102219	21910232619	197100		438170		166563		154316	
AOI5-1-SB-19-19.5-102219	21910232620	186921		477145		161697		163115	
AOI1-3-SB-4.5-5-102219	21910232622	208713		523596		182300		169604	
AOI1-3-SB-9.5-10-102219	21910232623	192686		484023		164511		154490	
AOI1-3-SB-16-16.5-102219	21910232624	184721		484870		163773		160355	
AOI1-1-SB-4.5-5-102219	21910232625	184676		480181		165521		155777	
AOI1-1-SB-10-10.5-102219	21910232627	191678		484523		166094		160072	
AOI1-1-SB-17-17.5-102219	21910232628	200056		500529		169580		162440	

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 8I - ORG

8I

INJECTION INTERNAL STANDARD AREA SUMMARY

Report No:	219102333	Standard ID:	1205 (ICAL Midpoint)
Analyst:	BMH	Instrument ID:	QQQ1
Analysis Date:	11/05/19 15:45	Lab File ID:	2191105A_22.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	670959

	M2PFDA	M2PFHxA	M2PFOA	M4PFOS
	Area	*Area*	*Area*	*Area*
STANDARD	212949	577611	191329	186407

CLIENT SAMPLE ID	*GCAL SAMP ID*		#		#		#		#
MB1974712	1974712	214507		547889		191251		183826	
LCS1974713	1974713	213589		555521		191315		183115	
LCSD1974714	1974714	216946		569601		194878		184900	
AOI7-10-SB-1.5-2-102119	21910233301	210356		548807		190252		185005	
AOI7-10-SB-7.5-8-102119	21910233302	201026		519068		178860		173855	
AOI7-5-SB-1.5-2-102119	21910233303	201578		539346		181934		176132	
AOI7-10-SB-17-17.5-102119	21910233304	204665		554255		191389		186761	
AOI7-6-SB-1.5-2-102119	21910233306	228130		580916		203036		195209	
AOI7-7-SB-1.5-2-102119	21910233307	219296		590771		202449		197622	
AOI7-11-SB-1.5-2-102119	21910233309	208487		552430		193795		180351	
AOI7-8-SB-1.5-2-102119	21910233311	213903		572594		195819		193274	
AOI7-11-SB-18-18.5-102119	21910233312	221074		565755		193099		192649	
AOI7-9-SB-1.5-2-102119	21910233313	216359		579384		201410		197459	
AOI7-9-SB-7.5-8-102119	21910233315	211955		551886		189466		187892	
AOI7-1-SB-1.5-2-102119	21910233317	203545		536910		187306		180461	
AOI7-9-SB-17-17.5-102119	21910233318	208075		559864		192619		194349	
AOI7-2-SB-1.5-2-102119	21910233319	220435		585871		205174		204396	
AOI7-3-SB-1.5-2-102119	21910233320	228341		595087		206488		200818	
AOI7-4-1.5-2-102119	21910233322	225307		593119		199783		201506	

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 8I - ORG

LCMS1 Run Log

Analyst:	BMH	Expiration
Batch:	2191106A	Date
Current ICAL Bath:	2191105ACAL/2191105ACALDW	Date
20mM Amm Acetate	010-13-4	11/8/2019
Methanol	2128497	8/31/2024
Calibration Std	010-11-1	5/1/2020
ICV Std	010-6-5	4/9/2020
EIS Mix	010-11-9	5/5/2020

Name	Data File	Type	Acq. Date-Time	Comment	Dil.
MeOH Shot	2191106A_01.d	Method Blank	11/6/2019 15:34	Instrument idle/MeOH Shot	1
1450	2191106A_02.d	QC	11/6/2019 15:45		1
1500	2191106A_03.d	Sample	11/6/2019 15:56		1
MeOH Shot	2191106A_04.d	Method Blank	11/6/2019 16:09	Instrument idle/MeOH Shot	1
1450	2191106A_05.d	QC	11/6/2019 16:20		1
MeOH Shot	2191106A_06.d	Method Blank	11/6/2019 16:43	Instrument idle/MeOH Shot	1
1976206	2191106A_07.d	Sample	11/6/2019 16:54	670211	1
1976207	2191106A_08.d	QC	11/6/2019 17:05	670211	1
1976208	2191106A_09.d	QC	11/6/2019 17:17	670211	1
21910255818	2191106A_10.d	Sample	11/6/2019 17:28	670211	1
21910255817	2191106A_11.d	Sample	11/6/2019 17:39	670211	1
21910255801	2191106A_12.d	Sample	11/6/2019 17:51	670211	1
21910255802	2191106A_13.d	Sample	11/6/2019 18:02	670211	1
21910255803	2191106A_14.d	Sample	11/6/2019 18:13	670211	1
21910255804	2191106A_15.d	Sample	11/6/2019 18:25	670211	1
21910255805	2191106A_16.d	Sample	11/6/2019 18:36	670211	1
21910255806	2191106A_17.d	Sample	11/6/2019 18:47	670211	1
21910255807	2191106A_18.d	Sample	11/6/2019 18:59	670211	1
21910255808	2191106A_19.d	QC	11/6/2019 19:10	670211	1
21910255809	2191106A_20.d	QC	11/6/2019 19:21	670211	1
1400	2191106A_21.d	QC	11/6/2019 19:33		1
21910255810	2191106A_22.d	Sample	11/6/2019 19:44	670211	1

21910255811	2191106A_23.d	Sample	11/6/2019 19:55	670211	1
21910255812	2191106A_24.d	Sample	11/6/2019 20:07	670211	1
21910255813	2191106A_25.d	Sample	11/6/2019 20:18	670211	1
21910255814	2191106A_26.d	Sample	11/6/2019 20:29	670211	1
21910255815	2191106A_27.d	Sample	11/6/2019 20:41	670211	1
21910255816	2191106A_28.d	Sample	11/6/2019 20:52	670211	1
1400	2191106A_29.d	QC	11/6/2019 21:03		1
1976185	2191106A_30.d	Sample	11/6/2019 21:15	670205	1
1976186	2191106A_31.d	QC	11/6/2019 21:26	670205	1
1976187	2191106A_32.d	QC	11/6/2019 21:37	670205	1
21910261301	2191106A_33.d	Sample	11/6/2019 21:49	670205	1
21910261302	2191106A_34.d	Sample	11/6/2019 22:00	670205	1
21910261303	2191106A_35.d	Sample	11/6/2019 22:11	670205	1
21910261304	2191106A_36.d	Sample	11/6/2019 22:23	670205	1
21910261305	2191106A_37.d	Sample	11/6/2019 22:34	670205	1
21910261306	2191106A_38.d	Sample	11/6/2019 22:45	670205	1
21910261307	2191106A_39.d	Sample	11/6/2019 22:57	670205	1
21910261308	2191106A_40.d	Sample	11/6/2019 23:08	670205	1
21910261309	2191106A_41.d	Sample	11/6/2019 23:19	670205	1
21910261310	2191106A_42.d	Sample	11/6/2019 23:31	670205	1
1400	2191106A_43.d	QC	11/6/2019 23:42		1
21910261312	2191106A_44.d	Sample	11/6/2019 23:54	670205	1
21910261314	2191106A_45.d	Sample	11/7/2019 0:05	670205	1
21910261315	2191106A_46.d	Sample	11/7/2019 0:16	670205	1
21910261317	2191106A_47.d	Sample	11/7/2019 0:28	670205	1
21910261318	2191106A_48.d	Sample	11/7/2019 0:39	670205	1
21910232602	2191106A_49.d	Sample	11/7/2019 0:50	670205	1
21910232603	2191106A_50.d	QC	11/7/2019 1:02	670205	1
21910232604	2191106A_51.d	QC	11/7/2019 1:13	670205	1
21910291201	2191106A_52.d	Sample	11/7/2019 1:24	670205	1
1400	2191106A_53.d	QC	11/7/2019 1:36		1
1974715	2191106A_54.d	Sample	11/7/2019 1:47	669972	1
1974716	2191106A_55.d	QC	11/7/2019 1:58	669972	1
1974717	2191106A_56.d	QC	11/7/2019 2:10	669972	1

21910225109	2191106A_57.d	Sample	11/7/2019 2:21	669972	1
21910232601	2191106A_58.d	Sample	11/7/2019 2:33	669972	1
21910232607	2191106A_59.d	Sample	11/7/2019 2:44	669972	1
21910232621	2191106A_60.d	Sample	11/7/2019 2:55	669972	1
21910232621	2191106A_61.d	Sample	11/7/2019 3:07	669972	50
21910232626	2191106A_62.d	Sample	11/7/2019 3:18	669972	1
21910232626	2191106A_63.d	Sample	11/7/2019 3:29	669972	50
1400	2191106A_64.d	QC	11/7/2019 3:41		1
21910232629	2191106A_65.d	Sample	11/7/2019 3:52		1
21910232629	2191106A_66.d	Sample	11/7/2019 4:04		50
21910233305	2191106A_67.d	Sample	11/7/2019 4:15	669972	1
21910233308	2191106A_68.d	Sample	11/7/2019 4:26	669972	1
21910233314	2191106A_69.d	Sample	11/7/2019 4:38	669972	1
21910233316	2191106A_70.d	Sample	11/7/2019 4:49	669972	1
21910233321	2191106A_71.d	Sample	11/7/2019 5:00	679972	1
21910254111	2191106A_72.d	Sample	11/7/2019 5:12	670127	100
1400	2191106A_73.d	QC	11/7/2019 5:23		1
MeOH Shot	2191106A_74.d	Method Blank	11/7/2019 11:49	Instrument idle/MeOH Shot	1
1400	2191106A_75.d	QC	11/7/2019 11:59		1
1976210	2191106A_77.d	Sample	11/7/2019 12:25	670213	1
1976211	2191106A_78.d	QC	11/7/2019 12:36	670213	1
1976212	2191106A_79.d	QC	11/7/2019 12:47	670213	1
21911052501	2191106A_80.d	Sample	11/7/2019 12:58	670213	1
21911052502	2191106A_81.d	Sample	11/7/2019 13:10	670213	1
21911052503	2191106A_82.d	Sample	11/7/2019 13:21	670213	1
21911052503	2191106A_83.d	Sample	11/7/2019 13:32	670213	10
21911052504	2191106A_84.d	Sample	11/7/2019 13:44	670213	1
1976210	2191106A_86.d	Sample	11/7/2019 14:08	670213	1
1400	2191106A_87.d	QC	11/7/2019 14:19		1

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ORGANICS INSTRUMENT BLANK

Report No:	219102326	Instrument ID:	QQQ1
Analysis Date:	11/06/2019 15:56	Lab File ID:	2191106A_03.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	671080

ANALYTE	UNITS	RESULT	Q	DL	LOD	LOQ	#
6:2 Fluorotelomer sulfonate	ng/L	4.00	U	1.79	4.00	10.0	
8:2 Fluorotelomer sulfonate	ng/L	4.00	U	1.63	4.00	10.0	
NEtFOSAA	ng/L	8.00	U	5.38	8.00	10.0	
NMeFOSAA	ng/L	8.00	U	4.60	8.00	10.0	
Perfluorobutanesulfonic acid	ng/L	4.00	U	1.47	4.00	10.0	
Perfluorobutanoic acid	ng/L	4.00	U	2.13	4.00	10.0	
Perfluorodecanoic acid	ng/L	4.00	U	1.65	4.00	10.0	
Perfluorododecanoic acid	ng/L	4.00	U	2.45	4.00	10.0	
Perfluoroheptanoic acid	ng/L	4.00	U	1.85	4.00	10.0	
Perfluorohexanesulfonic acid	ng/L	4.00	U	1.64	4.00	10.0	
Perfluorohexanoic acid	ng/L	4.00	U	1.94	4.00	10.0	
Perfluorononanoic acid	ng/L	4.00	U	1.68	4.00	10.0	
Perfluorooctane Sulfonate	ng/L	4.00	U	1.70	4.00	10.0	
Perfluorooctanoic acid	ng/L	4.00	U	1.80	4.00	10.0	
Perfluoropentanoic acid	ng/L	4.00	U	2.35	4.00	10.0	
Perfluorotetradecanoic acid	ng/L	4.00	U	2.76	4.00	10.0	
Perfluorotridecanoic acid	ng/L	4.00	U	2.56	4.00	10.0	
Perfluoroundecanoic acid	ng/L	4.00	U	1.86	4.00	10.0	

* - Result greater than 1/2 LOQ

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ORGANICS INSTRUMENT SENSITIVITY CHECK

Report No:	219102326	Instrument ID:	QQQ1
Analysis Date:	11/06/2019 16:20	Lab File ID:	2191106A_05.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	671080

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	7.93	10.2	129	70	130	
8:2 Fluorotelomer sulfonate	ng/L	8.00	8.40	105	70	130	
NEtFOSAA	ng/L	8.33	6.60	79	70	130	
NMeFOSAA	ng/L	8.33	8.53	102	70	130	
Perfluorobutanoic acid	ng/L	8.33	7.73	93	70	130	
Perfluorobutanesulfonic acid	ng/L	7.40	6.43	87	70	130	
Perfluorodecanoic acid	ng/L	8.33	6.15	74	70	130	
Perfluorododecanoic acid	ng/L	8.33	7.33	88	70	130	
Perfluoroheptanoic acid	ng/L	8.33	8.67	104	70	130	
Perfluorohexanoic acid	ng/L	8.33	7.33	88	70	130	
Perfluorohexanesulfonic acid	ng/L	7.60	6.73	88	70	130	
Perfluorononanoic acid	ng/L	8.33	6.38	77	70	130	
Perfluorooctanoic acid	ng/L	8.33	7.40	89	70	130	
Perfluorooctane Sulfonate	ng/L	7.73	8.33	108	70	130	
Perfluoropentanoic acid	ng/L	8.33	7.07	84	70	130	
Perfluorotetradecanoic acid	ng/L	8.33	7.93	95	70	130	
Perfluorotridecanoic acid	ng/L	8.33	7.93	95	70	130	
Perfluoroundecanoic acid	ng/L	8.33	6.67	80	70	130	

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ORGANICS CALIBRATION VERIFICATION

Report No:	219102326	Instrument ID:	QQQ1
Analysis Date:	11/06/2019 21:03	Lab File ID:	2191106A_29.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	671080

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	47500	49200	104	70	130	
8:2 Fluorotelomer sulfonate	ng/L	48000	43000	90	70	130	
NEtFOSAA	ng/L	50000	49200	98	70	130	
NMeFOSAA	ng/L	50000	50800	102	70	130	
Perfluorobutanoic acid	ng/L	50000	43400	87	70	130	
Perfluorobutanesulfonic acid	ng/L	44300	38500	87	70	130	
Perfluorodecanoic acid	ng/L	50000	45200	90	70	130	
Perfluorododecanoic acid	ng/L	50000	48300	97	70	130	
Perfluoroheptanoic acid	ng/L	50000	48500	97	70	130	
Perfluorohexanoic acid	ng/L	50000	44100	88	70	130	
Perfluorohexanesulfonic acid	ng/L	45600	40300	88	70	130	
Perfluorononanoic acid	ng/L	50000	44300	89	70	130	
Perfluorooctanoic acid	ng/L	50000	43400	87	70	130	
Perfluorooctane Sulfonate	ng/L	46300	51700	112	70	130	
Perfluoropentanoic acid	ng/L	50000	43100	86	70	130	
Perfluorotetradecanoic acid	ng/L	50000	48500	97	70	130	
Perfluorotridecanoic acid	ng/L	50000	49500	99	70	130	
Perfluoroundecanoic acid	ng/L	50000	44600	89	70	130	

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ORGANICS CALIBRATION VERIFICATION

Report No:	219102326	Instrument ID:	QQQ1
Analysis Date:	11/06/2019 23:42	Lab File ID:	2191106A_43.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	671080

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	47500	45800	96	70	130	
8:2 Fluorotelomer sulfonate	ng/L	48000	46700	97	70	130	
NEtFOSAA	ng/L	50000	50600	101	70	130	
NMeFOSAA	ng/L	50000	51100	102	70	130	
Perfluorobutanoic acid	ng/L	50000	43800	88	70	130	
Perfluorobutanesulfonic acid	ng/L	44300	38600	87	70	130	
Perfluorodecanoic acid	ng/L	50000	43100	86	70	130	
Perfluorododecanoic acid	ng/L	50000	45500	91	70	130	
Perfluoroheptanoic acid	ng/L	50000	48000	96	70	130	
Perfluorohexanoic acid	ng/L	50000	41900	84	70	130	
Perfluorohexanesulfonic acid	ng/L	45600	41700	91	70	130	
Perfluorononanoic acid	ng/L	50000	45700	91	70	130	
Perfluorooctanoic acid	ng/L	50000	45100	90	70	130	
Perfluorooctane Sulfonate	ng/L	46300	55800	121	70	130	
Perfluoropentanoic acid	ng/L	50000	43100	86	70	130	
Perfluorotetradecanoic acid	ng/L	50000	47100	94	70	130	
Perfluorotridecanoic acid	ng/L	50000	48000	96	70	130	
Perfluoroundecanoic acid	ng/L	50000	41700	83	70	130	

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ORGANICS CALIBRATION VERIFICATION

Report No:	219102326	Instrument ID:	QQQ1
Analysis Date:	11/07/2019 01:36	Lab File ID:	2191106A_53.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	671080

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	47500	47900	101	70	130	
8:2 Fluorotelomer sulfonate	ng/L	48000	52100	109	70	130	
NEtFOSAA	ng/L	50000	54000	108	70	130	
NMeFOSAA	ng/L	50000	48000	96	70	130	
Perfluorobutanoic acid	ng/L	50000	43600	87	70	130	
Perfluorobutanesulfonic acid	ng/L	44300	39000	88	70	130	
Perfluorodecanoic acid	ng/L	50000	44200	88	70	130	
Perfluorododecanoic acid	ng/L	50000	49600	99	70	130	
Perfluoroheptanoic acid	ng/L	50000	48500	97	70	130	
Perfluorohexanoic acid	ng/L	50000	42100	84	70	130	
Perfluorohexanesulfonic acid	ng/L	45600	40800	89	70	130	
Perfluorononanoic acid	ng/L	50000	44300	89	70	130	
Perfluorooctanoic acid	ng/L	50000	47800	96	70	130	
Perfluorooctane Sulfonate	ng/L	46300	53600	116	70	130	
Perfluoropentanoic acid	ng/L	50000	43000	86	70	130	
Perfluorotetradecanoic acid	ng/L	50000	50800	102	70	130	
Perfluorotridecanoic acid	ng/L	50000	49700	99	70	130	
Perfluoroundecanoic acid	ng/L	50000	42500	85	70	130	

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ORGANICS CALIBRATION VERIFICATION

Report No:	219102326	Instrument ID:	QQQ1
Analysis Date:	11/07/2019 03:41	Lab File ID:	2191106A_64.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	671080

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	47500	46100	97	70	130	
8:2 Fluorotelomer sulfonate	ng/L	48000	49500	103	70	130	
NEtFOSAA	ng/L	50000	47400	95	70	130	
NMeFOSAA	ng/L	50000	47000	94	70	130	
Perfluorobutanoic acid	ng/L	50000	43500	87	70	130	
Perfluorobutanesulfonic acid	ng/L	44300	38000	86	70	130	
Perfluorodecanoic acid	ng/L	50000	45500	91	70	130	
Perfluorododecanoic acid	ng/L	50000	47900	96	70	130	
Perfluoroheptanoic acid	ng/L	50000	48800	98	70	130	
Perfluorohexanoic acid	ng/L	50000	42600	85	70	130	
Perfluorohexanesulfonic acid	ng/L	45600	40600	89	70	130	
Perfluorononanoic acid	ng/L	50000	45600	91	70	130	
Perfluorooctanoic acid	ng/L	50000	48100	96	70	130	
Perfluorooctane Sulfonate	ng/L	46300	58400	126	70	130	
Perfluoropentanoic acid	ng/L	50000	42400	85	70	130	
Perfluorotetradecanoic acid	ng/L	50000	48200	96	70	130	
Perfluorotridecanoic acid	ng/L	50000	48200	96	70	130	
Perfluoroundecanoic acid	ng/L	50000	43600	87	70	130	

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ORGANICS CALIBRATION VERIFICATION

Report No:	219102326	Instrument ID:	QQQ1
Analysis Date:	11/07/2019 05:23	Lab File ID:	2191106A_73.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	671080

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	47500	47600	100	70	130	
8:2 Fluorotelomer sulfonate	ng/L	48000	45500	95	70	130	
NEtFOSAA	ng/L	50000	50800	102	70	130	
NMeFOSAA	ng/L	50000	51700	103	70	130	
Perfluorobutanoic acid	ng/L	50000	43600	87	70	130	
Perfluorobutanesulfonic acid	ng/L	44300	38000	86	70	130	
Perfluorodecanoic acid	ng/L	50000	44800	90	70	130	
Perfluorododecanoic acid	ng/L	50000	47900	96	70	130	
Perfluoroheptanoic acid	ng/L	50000	48400	97	70	130	
Perfluorohexanoic acid	ng/L	50000	43000	86	70	130	
Perfluorohexanesulfonic acid	ng/L	45600	40700	89	70	130	
Perfluorononanoic acid	ng/L	50000	45200	90	70	130	
Perfluorooctanoic acid	ng/L	50000	46600	93	70	130	
Perfluorooctane Sulfonate	ng/L	46300	55800	121	70	130	
Perfluoropentanoic acid	ng/L	50000	42300	85	70	130	
Perfluorotetradecanoic acid	ng/L	50000	47600	95	70	130	
Perfluorotridecanoic acid	ng/L	50000	48700	97	70	130	
Perfluoroundecanoic acid	ng/L	50000	45500	91	70	130	

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ORGANICS CALIBRATION VERIFICATION

Report No:	219102326	Instrument ID:	QQQ1
Analysis Date:	11/07/2019 05:23	Lab File ID:	2191106A_73.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	671080

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	47500	47600	100	70	130	
8:2 Fluorotelomer sulfonate	ng/L	48000	45500	95	70	130	
NEtFOSAA	ng/L	50000	50800	102	70	130	
NMeFOSAA	ng/L	50000	51700	103	70	130	
Perfluorobutanoic acid	ng/L	50000	43600	87	70	130	
Perfluorobutanesulfonic acid	ng/L	44300	38000	86	70	130	
Perfluorodecanoic acid	ng/L	50000	44800	90	70	130	
Perfluorododecanoic acid	ng/L	50000	47900	96	70	130	
Perfluoroheptanoic acid	ng/L	50000	48400	97	70	130	
Perfluorohexanoic acid	ng/L	50000	43000	86	70	130	
Perfluorohexanesulfonic acid	ng/L	45600	40700	89	70	130	
Perfluorononanoic acid	ng/L	50000	45200	90	70	130	
Perfluorooctanoic acid	ng/L	50000	46600	93	70	130	
Perfluorooctane Sulfonate	ng/L	46300	55800	121	70	130	
Perfluoropentanoic acid	ng/L	50000	42300	85	70	130	
Perfluorotetradecanoic acid	ng/L	50000	47600	95	70	130	
Perfluorotridecanoic acid	ng/L	50000	48700	97	70	130	
Perfluoroundecanoic acid	ng/L	50000	45500	91	70	130	

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ORGANICS CALIBRATION VERIFICATION

Report No:	219102613	Instrument ID:	QQQ1
Analysis Date:	11/07/2019 11:59	Lab File ID:	2191106A_75.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	671080

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	47500	47400	100	70	130	
8:2 Fluorotelomer sulfonate	ng/L	48000	44600	93	70	130	
NEtFOSAA	ng/L	50000	47100	94	70	130	
NMeFOSAA	ng/L	50000	49800	100	70	130	
Perfluorobutanoic acid	ng/L	50000	45000	90	70	130	
Perfluorobutanesulfonic acid	ng/L	44300	39000	88	70	130	
Perfluorodecanoic acid	ng/L	50000	40400	81	70	130	
Perfluorododecanoic acid	ng/L	50000	46400	93	70	130	
Perfluoroheptanoic acid	ng/L	50000	48300	97	70	130	
Perfluorohexanoic acid	ng/L	50000	42600	85	70	130	
Perfluorohexanesulfonic acid	ng/L	45600	39700	87	70	130	
Perfluorononanoic acid	ng/L	50000	43800	88	70	130	
Perfluorooctanoic acid	ng/L	50000	44600	89	70	130	
Perfluorooctane Sulfonate	ng/L	46300	42300	92	70	130	
Perfluoropentanoic acid	ng/L	50000	43800	88	70	130	
Perfluorotetradecanoic acid	ng/L	50000	48700	97	70	130	
Perfluorotridecanoic acid	ng/L	50000	48600	97	70	130	
Perfluoroundecanoic acid	ng/L	50000	41300	83	70	130	

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ORGANICS CALIBRATION VERIFICATION

Report No:	219102613	Instrument ID:	QQQ1
Analysis Date:	11/07/2019 14:19	Lab File ID:	2191106A_87.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	671080

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	47500	48300	102	70	130	
8:2 Fluorotelomer sulfonate	ng/L	48000	43200	90	70	130	
NEtFOSAA	ng/L	50000	49600	99	70	130	
NMeFOSAA	ng/L	50000	48300	97	70	130	
Perfluorobutanoic acid	ng/L	50000	43800	88	70	130	
Perfluorobutanesulfonic acid	ng/L	44300	38600	87	70	130	
Perfluorodecanoic acid	ng/L	50000	44500	89	70	130	
Perfluorododecanoic acid	ng/L	50000	45300	91	70	130	
Perfluoroheptanoic acid	ng/L	50000	48100	96	70	130	
Perfluorohexanoic acid	ng/L	50000	42200	84	70	130	
Perfluorohexanesulfonic acid	ng/L	45600	40300	88	70	130	
Perfluorononanoic acid	ng/L	50000	43400	87	70	130	
Perfluorooctanoic acid	ng/L	50000	45300	91	70	130	
Perfluorooctane Sulfonate	ng/L	46300	48600	105	70	130	
Perfluoropentanoic acid	ng/L	50000	42400	85	70	130	
Perfluorotetradecanoic acid	ng/L	50000	48900	98	70	130	
Perfluorotridecanoic acid	ng/L	50000	50900	102	70	130	
Perfluoroundecanoic acid	ng/L	50000	42600	85	70	130	

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INJECTION INTERNAL STANDARD AREA SUMMARY

Report No:	219102326	Standard ID:	1450 (ISC)
Analyst:	BMH	Instrument ID:	QQQ1
Analysis Date:	11/06/19 16:20	Lab File ID:	2191106A_05.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	671080

	M2PFDA	M2PFHxA	M2PFOA	M4PFOS
	Area	*Area*	*Area*	*Area*
STANDARD	171496	421304	153712	129312

CLIENT SAMPLE ID	*GCAL SAMP ID*		*#*		*#*		*#*		*#*
MB1976185	1976185	216091		518189		193034		142844	
LCS1976186	1976186	198589		508469		187160		141407	
LCSD1976187	1976187	203826		528212		190381		142676	
AOI6-1-SB-1.5-2-102219RE	21910232602RE	197761		500658		179894		132811	
AOI6-1-SB-1.5-2-102219-MSRE	21910232603RE	181704		450573		164070		118867	
AOI6-1-SB-1.5-2-102219-MSDRE	21910232604RE	197111		489220		173613		131731	
AOI5-1-GW-102219DL	21910232621DL	203266		513303		183386		143334	
AOI1-3-GW-102219DL	21910232626DL	214434		539056		186132		152888	
AOI1-1-GW-102219DL	21910232629DL	215741		547612		185104		150760	

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 8I - ORG

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INJECTION INTERNAL STANDARD AREA SUMMARY

Report No:	219102541	Standard ID:	1450 (ISC)
Analyst:	BMH	Instrument ID:	QQQ1
Analysis Date:	11/06/19 16:20	Lab File ID:	2191106A_05.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	671080

	M2PFDA	M2PFHxA	M2PFOA	M4PFOS
	Area	*Area*	*Area*	*Area*
STANDARD	171496	421304	153712	129312

CLIENT SAMPLE ID	*GCAL SAMP ID*		#		#		#		#
MB1976210	1976210	198072		528200		182050		158279	
LCS1976211	1976211	206666		539251		189124		177183	
LCSD1976212	1976212	199569		517686		180942		170538	

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 8I - ORG

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INJECTION INTERNAL STANDARD AREA SUMMARY

Report No:	219102613	Standard ID:	1450 (ISC)
Analyst:	BMH	Instrument ID:	QQQ1
Analysis Date:	11/06/19 16:20	Lab File ID:	2191106A_05.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	671080

	M2PFDA	M2PFHxA	M2PFOA	M4PFOS
	Area	*Area*	*Area*	*Area*
STANDARD	171496	421304	153712	129312

CLIENT SAMPLE ID	*GCAL SAMP ID*		#		#		#		#
MB1976185	1976185	216091		518189		193034		142844	
LCS1976186	1976186	198589		508469		187160		141407	
LCSD1976187	1976187	203826		528212		190381		142676	
MB1976210	1976210	198072		528200		182050		158279	
LCS1976211	1976211	206666		539251		189124		177183	
LCSD1976212	1976212	199569		517686		180942		170538	
AOI3-8-SB-1.5-2-102419	21910261301	230755		524469		199862		134231	
AOI3-8-SB-1.5-2-102419-D	21910261302	227616		532656		196395		136464	
AOI3-8-SB-9-9.5-102419	21910261303	194058		490867		179101		132101	
AOI3-8-SB-13-13.5-102419	21910261304	189884		493382		178448		132956	
AOI3-11-SB-1.5-2-102419	21910261305	205607		531223		195977		90480	
AOI3-11-SB-8.5-9-102419	21910261306	202993		488056		178922		114598	
AOI3-11-SB-11-11.5-102419	21910261307	194304		497064		184933		139022	
AOI3-12-SB-1.5-2-102419	21910261308	200762		437635		142357		96440	
AOI3-12-SB-7-7.5-102419	21910261309	196132		437778		173622		141211	
AOI3-12-SB-19-19.5-102419	21910261310	195822		491057		179140		131073	
AOI3-9-SB-1.5-2-102419	21910261312	210073		524887		187255		141163	
AOI3-9-SB-8.5-9-102419	21910261314	205966		502518		186319		142686	
AOI3-9-SB-14-14.5-102419	21910261315	208002		514981		187486		141231	
AOI3-10-SB-1.5-2-102419	21910261317	221960		518751		196117		129419	
AOI3-10-SB-10.5-11-102419	21910261318	191664		478858		170938		126671	

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 8I - ORG

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INJECTION INTERNAL STANDARD AREA SUMMARY

Report No:	219102717	Standard ID:	1450 (ISC)
Analyst:	BMH	Instrument ID:	QQQ1
Analysis Date:	11/06/19 16:20	Lab File ID:	2191106A_05.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	671080

	M2PFDA	M2PFHxA	M2PFOA	M4PFOS
	Area	*Area*	*Area*	*Area*
STANDARD	171496	421304	153712	129312

CLIENT SAMPLE ID	*GCAL SAMP ID*		#		#		#		#
MB1976210	1976210	198072		528200		182050		158279	
LCS1976211	1976211	206666		539251		189124		177183	
LCSD1976212	1976212	199569		517686		180942		170538	

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

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LCMS1 Run Log

Analyst:	BMH	Expiration
Batch:	2191107A	Date
Current ICAL Bath:	2191105ACAL/2191105ACALDW	Date
20mM Amm Acetate	010-13-5	11/9/2019
Methanol	2128497	8/31/2024
Calibration Std	010-11-1	5/1/2020
ICV Std	010-6-5	4/9/2020
EIS Mix	010-11-9	5/5/2020

Name	Data File	Type	Acq. Date-Time	Comment	Dil.
MeOH Shot	2191107A_01.d	MeOH Shot	11/7/2019 15:25	Instrument idle/MeOH Shot	1
1450	2191107A_02.d	QC	11/7/2019 15:36		1
1500	2191107A_03.d	Sample	11/7/2019 15:47		1
MeOH Shot	2191107A_04.d	MeOH Shot	11/7/2019 16:29	Instrument idle/MeOH Shot	1
1450	2191107A_05.d	QC	11/7/2019 16:40		1
1500	2191107A_06.d	Sample	11/7/2019 16:51		1
MeOH Shot	2191107A_07.d	MeOH Shot	11/7/2019 17:59	Instrument idle/MeOH Shot	1
21910261311	2191107A_08.d	Sample	11/7/2019 18:10	670211	1
21910261313	2191107A_09.d	Sample	11/7/2019 18:21	670211	1
21910261316	2191107A_10.d	Sample	11/7/2019 18:33	670211	1
21910261319	2191107A_11.d	Sample	11/7/2019 18:44	670211	1
21910261320	2191107A_12.d	Sample	11/7/2019 18:55	670211	1
21910271704	2191107A_13.d	Sample	11/7/2019 19:07	670211	1
21910271713	2191107A_14.d	Sample	11/7/2019 19:18	670211	1
21910271719	2191107A_15.d	Sample	11/7/2019 19:29	670211	1
1400	2191107A_16.d	QC	11/7/2019 19:41	670211	1
21910254105	2191107A_17.d	Sample	11/7/2019 19:52	670211	1
21910254106	2191107A_18.d	Sample	11/7/2019 20:03	670211	1
21910254108	2191107A_19.d	Sample	11/7/2019 20:15	670211	1
21910254111	2191107A_20.d	Sample	11/7/2019 20:26	670211	1
21910254112	2191107A_21.d	Sample	11/7/2019 20:37	670211	1
21910254115	2191107A_22.d	Sample	11/7/2019 20:49	670211	1

21910254117	2191107A_23.d	Sample	11/7/2019 21:00	670211	1
21910254121	2191107A_24.d	Sample	11/7/2019 21:12	670211	1
1400	2191107A_25.d	QC	11/7/2019 21:23		1
1975542	2191107A_26.d	Sample	11/7/2019 21:34	670126	1
1975543	2191107A_27.d	QC	11/7/2019 21:46	670126	1
1975546	2191107A_28.d	QC	11/7/2019 21:57	670126	1
21910254101	2191107A_29.d	Sample	11/7/2019 22:08	670126	1
21910254102	2191107A_30.d	Sample	11/7/2019 22:19	670126	1
21910254103	2191107A_31.d	Sample	11/7/2019 22:31	670126	1
21910254104	2191107A_32.d	Sample	11/7/2019 22:42	670126	1
21910254107	2191107A_33.d	Sample	11/7/2019 22:54	670126	1
21910254109	2191107A_34.d	Sample	11/7/2019 23:05	670126	1
21910254110	2191107A_35.d	Sample	11/7/2019 23:16	670126	1
21910254113	2191107A_36.d	Sample	11/7/2019 23:28	670126	1
21910254114	2191107A_37.d	Sample	11/7/2019 23:39	670126	1
21910254116	2191107A_38.d	Sample	11/7/2019 23:50	670126	1
1400	2191107A_39.d	QC	11/8/2019 0:02	670126	1
21910254118	2191107A_40.d	Sample	11/8/2019 0:13	670126	1
21910254119	2191107A_41.d	Sample	11/8/2019 0:24	670126	1
21910254120	2191107A_42.d	Sample	11/8/2019 0:36	670126	1
21910254122	2191107A_43.d	Sample	11/8/2019 0:47	670126	1
21910254123	2191107A_44.d	Sample	11/8/2019 0:58	670126	1
21910254124	2191107A_45.d	Sample	11/8/2019 1:10	670126	1
21910254125	2191107A_46.d	Sample	11/8/2019 1:21	670126	1
MeOH Shot	2191107A_47.d	MeOH Shot	11/8/2019 1:33	Instrument idle/MeOH Shot	1
MB Test	2191107A_48.d	Sample	11/8/2019 1:43	Test	1
LCS Test	2191107A_49.d	QC	11/8/2019 1:55	Test	1
LCSD Test	2191107A_50.d	QC	11/8/2019 2:06	Test	1
1400	2191107A_51.d	QC	11/8/2019 2:17		1

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ORGANICS INSTRUMENT SENSITIVITY CHECK

Report No:	219102541	Instrument ID:	QQQ1
Analysis Date:	11/07/2019 16:40	Lab File ID:	2191107A_05.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	671082

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	7.93	10.1	128	70	130	
8:2 Fluorotelomer sulfonate	ng/L	8.00	7.47	93	70	130	
NEtFOSAA	ng/L	8.33	8.13	97	70	130	
NMeFOSAA	ng/L	8.33	8.40	101	70	130	
Perfluorobutanoic acid	ng/L	8.33	7.60	91	70	130	
Perfluorobutanesulfonic acid	ng/L	7.40	6.29	85	70	130	
Perfluorodecanoic acid	ng/L	8.33	6.93	83	70	130	
Perfluorododecanoic acid	ng/L	8.33	7.80	94	70	130	
Perfluoroheptanoic acid	ng/L	8.33	7.60	91	70	130	
Perfluorohexanoic acid	ng/L	8.33	7.00	84	70	130	
Perfluorohexanesulfonic acid	ng/L	7.60	6.73	89	70	130	
Perfluorononanoic acid	ng/L	8.33	6.64	80	70	130	
Perfluorooctanoic acid	ng/L	8.33	7.93	95	70	130	
Perfluorooctane Sulfonate	ng/L	7.73	8.00	104	70	130	
Perfluoropentanoic acid	ng/L	8.33	7.27	87	70	130	
Perfluorotetradecanoic acid	ng/L	8.33	8.00	96	70	130	
Perfluorotridecanoic acid	ng/L	8.33	7.20	87	70	130	
Perfluoroundecanoic acid	ng/L	8.33	6.80	82	70	130	

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ORGANICS INSTRUMENT BLANK

Report No:	219102541	Instrument ID:	QQQ1
Analysis Date:	11/07/2019 16:51	Lab File ID:	2191107A_06.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	671082

ANALYTE	UNITS	RESULT	Q	DL	LOD	LOQ	#
6:2 Fluorotelomer sulfonate	ng/L	4.00	U	1.79	4.00	10.0	
8:2 Fluorotelomer sulfonate	ng/L	4.00	U	1.63	4.00	10.0	
NEtFOSAA	ng/L	8.00	U	5.38	8.00	10.0	
NMeFOSAA	ng/L	8.00	U	4.60	8.00	10.0	
Perfluorobutanesulfonic acid	ng/L	4.00	U	1.47	4.00	10.0	
Perfluorobutanoic acid	ng/L	4.00	U	2.13	4.00	10.0	
Perfluorodecanoic acid	ng/L	4.00	U	1.65	4.00	10.0	
Perfluorododecanoic acid	ng/L	4.00	U	2.45	4.00	10.0	
Perfluoroheptanoic acid	ng/L	4.00	U	1.85	4.00	10.0	
Perfluorohexanesulfonic acid	ng/L	4.00	U	1.64	4.00	10.0	
Perfluorohexanoic acid	ng/L	4.00	U	1.94	4.00	10.0	
Perfluorononanoic acid	ng/L	4.00	U	1.68	4.00	10.0	
Perfluorooctane Sulfonate	ng/L	4.00	U	1.70	4.00	10.0	
Perfluorooctanoic acid	ng/L	4.00	U	1.80	4.00	10.0	
Perfluoropentanoic acid	ng/L	4.00	U	2.35	4.00	10.0	
Perfluorotetradecanoic acid	ng/L	4.00	U	2.76	4.00	10.0	
Perfluorotridecanoic acid	ng/L	4.00	U	2.56	4.00	10.0	
Perfluoroundecanoic acid	ng/L	4.00	U	1.86	4.00	10.0	

* - Result greater than 1/2 LOQ

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ORGANICS CALIBRATION VERIFICATION

Report No:	219102541	Instrument ID:	QQQ1
Analysis Date:	11/07/2019 11:59	Lab File ID:	2191106A_75.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	671080

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	47500	47400	100	70	130	
8:2 Fluorotelomer sulfonate	ng/L	48000	44600	93	70	130	
NEtFOSAA	ng/L	50000	47100	94	70	130	
NMeFOSAA	ng/L	50000	49800	100	70	130	
Perfluorobutanoic acid	ng/L	50000	45000	90	70	130	
Perfluorobutanesulfonic acid	ng/L	44300	39000	88	70	130	
Perfluorodecanoic acid	ng/L	50000	40400	81	70	130	
Perfluorododecanoic acid	ng/L	50000	46400	93	70	130	
Perfluoroheptanoic acid	ng/L	50000	48300	97	70	130	
Perfluorohexanoic acid	ng/L	50000	42600	85	70	130	
Perfluorohexanesulfonic acid	ng/L	45600	39700	87	70	130	
Perfluorononanoic acid	ng/L	50000	43800	88	70	130	
Perfluorooctanoic acid	ng/L	50000	44600	89	70	130	
Perfluorooctane Sulfonate	ng/L	46300	42300	92	70	130	
Perfluoropentanoic acid	ng/L	50000	43800	88	70	130	
Perfluorotetradecanoic acid	ng/L	50000	48700	97	70	130	
Perfluorotridecanoic acid	ng/L	50000	48600	97	70	130	
Perfluoroundecanoic acid	ng/L	50000	41300	83	70	130	

FORM 7E - ORG

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ORGANICS CALIBRATION VERIFICATION

Report No:	219102541	Instrument ID:	QQQ1
Analysis Date:	11/07/2019 14:19	Lab File ID:	2191106A_87.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	671080

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	47500	48300	102	70	130	
8:2 Fluorotelomer sulfonate	ng/L	48000	43200	90	70	130	
NEtFOSAA	ng/L	50000	49600	99	70	130	
NMeFOSAA	ng/L	50000	48300	97	70	130	
Perfluorobutanoic acid	ng/L	50000	43800	88	70	130	
Perfluorobutanesulfonic acid	ng/L	44300	38600	87	70	130	
Perfluorodecanoic acid	ng/L	50000	44500	89	70	130	
Perfluorododecanoic acid	ng/L	50000	45300	91	70	130	
Perfluoroheptanoic acid	ng/L	50000	48100	96	70	130	
Perfluorohexanoic acid	ng/L	50000	42200	84	70	130	
Perfluorohexanesulfonic acid	ng/L	45600	40300	88	70	130	
Perfluorononanoic acid	ng/L	50000	43400	87	70	130	
Perfluorooctanoic acid	ng/L	50000	45300	91	70	130	
Perfluorooctane Sulfonate	ng/L	46300	48600	105	70	130	
Perfluoropentanoic acid	ng/L	50000	42400	85	70	130	
Perfluorotetradecanoic acid	ng/L	50000	48900	98	70	130	
Perfluorotridecanoic acid	ng/L	50000	50900	102	70	130	
Perfluoroundecanoic acid	ng/L	50000	42600	85	70	130	

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ORGANICS CALIBRATION VERIFICATION

Report No:	219102541	Instrument ID:	QQQ1
Analysis Date:	11/07/2019 19:41	Lab File ID:	2191107A_16.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	671082

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	47500	53100	112	70	130	
8:2 Fluorotelomer sulfonate	ng/L	48000	53800	112	70	130	
NEtFOSAA	ng/L	50000	55700	111	70	130	
NMeFOSAA	ng/L	50000	58300	117	70	130	
Perfluorobutanoic acid	ng/L	50000	49800	100	70	130	
Perfluorobutanesulfonic acid	ng/L	44300	43200	98	70	130	
Perfluorodecanoic acid	ng/L	50000	49600	99	70	130	
Perfluorododecanoic acid	ng/L	50000	50600	101	70	130	
Perfluoroheptanoic acid	ng/L	50000	52200	104	70	130	
Perfluorohexanoic acid	ng/L	50000	49500	99	70	130	
Perfluorohexanesulfonic acid	ng/L	45600	44400	97	70	130	
Perfluorononanoic acid	ng/L	50000	48100	96	70	130	
Perfluorooctanoic acid	ng/L	50000	50100	100	70	130	
Perfluorooctane Sulfonate	ng/L	46300	53000	115	70	130	
Perfluoropentanoic acid	ng/L	50000	47400	95	70	130	
Perfluorotetradecanoic acid	ng/L	50000	53700	107	70	130	
Perfluorotridecanoic acid	ng/L	50000	56600	113	70	130	
Perfluoroundecanoic acid	ng/L	50000	49900	100	70	130	

FORM 7E - ORG

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ORGANICS CALIBRATION VERIFICATION

Report No:	219102541	Instrument ID:	QQQ1
Analysis Date:	11/07/2019 21:23	Lab File ID:	2191107A_25.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	671082

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	47500	54200	114	70	130	
8:2 Fluorotelomer sulfonate	ng/L	48000	51400	107	70	130	
NEtFOSAA	ng/L	50000	59700	119	70	130	
NMeFOSAA	ng/L	50000	61400	123	70	130	
Perfluorobutanoic acid	ng/L	50000	49400	99	70	130	
Perfluorobutanesulfonic acid	ng/L	44300	43600	99	70	130	
Perfluorodecanoic acid	ng/L	50000	47800	96	70	130	
Perfluorododecanoic acid	ng/L	50000	49900	100	70	130	
Perfluoroheptanoic acid	ng/L	50000	54700	109	70	130	
Perfluorohexanoic acid	ng/L	50000	49300	99	70	130	
Perfluorohexanesulfonic acid	ng/L	45600	48700	107	70	130	
Perfluorononanoic acid	ng/L	50000	51500	103	70	130	
Perfluorooctanoic acid	ng/L	50000	58400	117	70	130	
Perfluorooctane Sulfonate	ng/L	46300	56200	121	70	130	
Perfluoropentanoic acid	ng/L	50000	48000	96	70	130	
Perfluorotetradecanoic acid	ng/L	50000	54000	108	70	130	
Perfluorotridecanoic acid	ng/L	50000	54500	109	70	130	
Perfluoroundecanoic acid	ng/L	50000	49400	99	70	130	

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ORGANICS CALIBRATION VERIFICATION

Report No:	219102541	Instrument ID:	QQQ1
Analysis Date:	11/08/2019 00:02	Lab File ID:	2191107A_39.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	671082

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	47500	51900	109	70	130	
8:2 Fluorotelomer sulfonate	ng/L	48000	51600	107	70	130	
NEtFOSAA	ng/L	50000	54500	109	70	130	
NMeFOSAA	ng/L	50000	48800	98	70	130	
Perfluorobutanoic acid	ng/L	50000	49500	99	70	130	
Perfluorobutanesulfonic acid	ng/L	44300	43300	98	70	130	
Perfluorodecanoic acid	ng/L	50000	51500	103	70	130	
Perfluorododecanoic acid	ng/L	50000	50700	101	70	130	
Perfluoroheptanoic acid	ng/L	50000	54100	108	70	130	
Perfluorohexanoic acid	ng/L	50000	49300	99	70	130	
Perfluorohexanesulfonic acid	ng/L	45600	47700	105	70	130	
Perfluorononanoic acid	ng/L	50000	51900	104	70	130	
Perfluorooctanoic acid	ng/L	50000	51200	102	70	130	
Perfluorooctane Sulfonate	ng/L	46300	54900	119	70	130	
Perfluoropentanoic acid	ng/L	50000	47400	95	70	130	
Perfluorotetradecanoic acid	ng/L	50000	54000	108	70	130	
Perfluorotridecanoic acid	ng/L	50000	53800	108	70	130	
Perfluoroundecanoic acid	ng/L	50000	46700	93	70	130	

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ORGANICS CALIBRATION VERIFICATION

Report No:	219102541	Instrument ID:	QQQ1
Analysis Date:	11/08/2019 02:17	Lab File ID:	2191107A_51.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	671082

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	47500	54100	114	70	130	
8:2 Fluorotelomer sulfonate	ng/L	48000	55200	115	70	130	
NEtFOSAA	ng/L	50000	60300	121	70	130	
NMeFOSAA	ng/L	50000	56500	113	70	130	
Perfluorobutanoic acid	ng/L	50000	49700	99	70	130	
Perfluorobutanesulfonic acid	ng/L	44300	43500	98	70	130	
Perfluorodecanoic acid	ng/L	50000	50900	102	70	130	
Perfluorododecanoic acid	ng/L	50000	52700	105	70	130	
Perfluoroheptanoic acid	ng/L	50000	53500	107	70	130	
Perfluorohexanoic acid	ng/L	50000	47100	94	70	130	
Perfluorohexanesulfonic acid	ng/L	45600	45900	101	70	130	
Perfluorononanoic acid	ng/L	50000	52200	104	70	130	
Perfluorooctanoic acid	ng/L	50000	49200	98	70	130	
Perfluorooctane Sulfonate	ng/L	46300	61500	133	70	130	*
Perfluoropentanoic acid	ng/L	50000	47600	95	70	130	
Perfluorotetradecanoic acid	ng/L	50000	56000	112	70	130	
Perfluorotridecanoic acid	ng/L	50000	57200	114	70	130	
Perfluoroundecanoic acid	ng/L	50000	48800	98	70	130	

FORM 7E - ORG

8I

INJECTION INTERNAL STANDARD AREA SUMMARY

Report No:	219102541	Standard ID:	1450 (ISC)
Analyst:	BMH	Instrument ID:	QQQ1
Analysis Date:	11/07/19 16:40	Lab File ID:	2191107A_05.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	671082

	M2PFDA	M2PFHxA	M2PFOA	M4PFOS
	Area	*Area*	*Area*	*Area*
STANDARD	199184	498635	176628	147352

CLIENT SAMPLE ID	*GCAL SAMP ID*		#		#		#		#
MB1975542	1975542	222707		595139		208686		168883	
LCS1975543	1975543	194444		501302		173383		145123	
LCSD1975546	1975546	220510		606382		204650		173771	
AOI1-5-SB-4.5-5-102319	21910254101	206891		530155		124611		153867	
AOI1-5-SB-4.5-5-102319-D	21910254102	213444		542760		126671		157176	
AOI1-4-SB-4.5-5-102319-D	21910254103	200515		537028		167018		152044	
AOI1-4-SB-4.5-5-102319	21910254104	218683		566120		177269		166236	
JFTBLA-EB-B-102319RE	21910254105RE	206331		541829		185211		160093	
JFTBLA-EB-HA-02319RE	21910254106RE	172594		540481		190364		158350	
AOI1-6-SB-4.5-5-102319	21910254107	199136		529536		157064		154753	
JFTBLA-EB-WM-102319RE	21910254108RE	211174		556052		198479		158685	
AOI1-5-SB-7-7.5-102319	21910254109	178870		443958		117892		131051	
AOI1-5-SB-17.5-18-102319	21910254110	211009		555976		185893		156108	
AOI1-5-GW-102319RE	21910254111RE	199809		308456		81053	*	149159	
AOI1-6-SB-9-9.5-102319	21910254113	205377		564021		180625		155828	
AOI1-6-SB-12.5-13-102319	21910254114	203367		533342		183803		152075	
AOI1-6-GW-102319RE	21910254115RE	201327		538740		96552		148662	
AOI1-4-SB-9.5-10-102319	21910254116	211497		548731		191640		156593	
AOI1-4-GW-102319RE	21910254117RE	206970		522574		144877		150781	
AOI1-2-SB-4.5-5-102319	21910254118	213388		552609		148462		159196	
AOI1-2-SB-9.5-10-102319	21910254119	217629		555639		192149		154068	
AOI1-2-SB-12.5-13-102319	21910254120	182468		541866		186046		137900	
AOI1-2-GW-102319RE	21910254121RE	208707		492412		101611		133837	
AOI2-3-SB-4.5-5-102319	21910254122	208318		494230		188716		157928	
AOI2-3-SB-4.5-5-102319-D	21910254123	208998		497565		194661		153424	

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 8I - ORG

*for monitoring only

8I

INJECTION INTERNAL STANDARD AREA SUMMARY

Report No:	219102541	Standard ID:	1450 (ISC)
Analyst:	BMH	Instrument ID:	QQQ1
Analysis Date:	11/07/19 16:40	Lab File ID:	2191107A_05.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	671082

	M2PFDA	M2PFHxA	M2PFOA	M4PFOS
	Area	*Area*	*Area*	*Area*
STANDARD	199184	498635	176628	147352

CLIENT SAMPLE ID	*GCAL SAMP ID*		#		#		#		#
AOI2-2-SB-4.5-5-102319	21910254124	228717		583634		200666		79770	
AOI2-2-SB-4.5-5-102319-D	21910254125	212600		538396		196106		60133	*

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

*for monitoring only

FORM 8I - ORG

8I

INJECTION INTERNAL STANDARD AREA SUMMARY

Report No:	219102613	Standard ID:	1450 (ISC)
Analyst:	BMH	Instrument ID:	QQQ1
Analysis Date:	11/07/19 16:40	Lab File ID:	2191107A_05.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	671082

	M2PFDA	M2PFHxA	M2PFOA	M4PFOS
	Area	*Area*	*Area*	*Area*
STANDARD	199184	498635	176628	147352

CLIENT SAMPLE ID	*GCAL SAMP ID*		#		#		#		#
AOI3-8-GW-102419	21910261311	174400		373073		159014		171816	
AOI3-11-GW-102419	21910261313	179211		293412		138252		100212	
AOI3-12-GW-102419	21910261316	183433		495180		172928		161518	
AOI3-9-GW-102419	21910261319	204999		563806		185661		152664	
AOI3-10-GW-102419	21910261320	223447		527754		168734		150300	

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 8I - ORG

8I

INJECTION INTERNAL STANDARD AREA SUMMARY

Report No:	219102717	Standard ID:	1450 (ISC)
Analyst:	BMH	Instrument ID:	QQQ1
Analysis Date:	11/07/19 16:40	Lab File ID:	2191107A_05.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	671082

	M2PFDA	M2PFHxA	M2PFOA	M4PFOS
	Area	*Area*	*Area*	*Area*
STANDARD	199184	498635	176628	147352

CLIENT SAMPLE ID	*GCAL SAMP ID*		*#*		*#*		*#*		*#*
JFTBLA-EB-HA-102519	21910271704	212143		562029		188261		163652	
AOI4-1-GW-102519	21910271713	201391		531596		184857		156592	
AOI2-5-GW-102519	21910271719	205274		369428		94326		162018	

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 8I - ORG

LCMS1 Run Log

Analyst:	BMH	Expiration
Batch:	2191111A	Date
Current ICAL Bath:	2191111ACAL/2191111ACALDW	Date
20mM Amm Acetate	010-13-9	11/13/2019
Methanol	2128497	8/31/2024
Calibration Std	010-11-1	5/1/2020
ICV Std	010-6-5	4/9/2020
EIS Mix	010-11-9	5/5/2020

Name	Data File	Type	Acq. Date-Time	Comment	Dil.
MeOH Shot	2191111A_01.d	MeOH Shot	11/11/2019 8:09	Instrument idle/MeOH Shot	1
1500	2191111A_02.d	Sample	11/11/2019 8:20		1
1450	2191111A_03.d	QC	11/11/2019 8:32		1
1977961 No IIS	2191111A_04.d	Sample	11/11/2019 8:43	IIS Contamination Test	1
1977961 W/IIS	2191111A_05.d	Sample	11/11/2019 8:54	IIS Contamination Test	1
MeOH Shot	2191111A_06.d	MeOH Shot	11/11/2019 9:27	Instrument idle/MeOH Shot	1
1201	2191111A_07.d	Cal	11/11/2019 9:38		1
1202	2191111A_08.d	Cal	11/11/2019 9:49		1
1203	2191111A_09.d	Cal	11/11/2019 10:00		1
1204	2191111A_10.d	Cal	11/11/2019 10:12		1
1205	2191111A_11.d	Cal	11/11/2019 10:23		1
1206	2191111A_12.d	Cal	11/11/2019 10:34		1
1207	2191111A_13.d	Cal	11/11/2019 10:46		1
1600	2191111A_14.d	QC	11/11/2019 10:57		1
1450	2191111A_15.d	QC	11/11/2019 11:08		1
1500	2191111A_16.d	Sample	11/11/2019 11:20		1
MeOH Shot	2191111A_17.d	MeOH Shot	11/11/2019 12:38	Instrument idle/MeOH Shot	1
1977429	2191111A_18.d	Sample	11/11/2019 12:49	670458	1
1977430	2191111A_19.d	QC	11/11/2019 13:00	670458	1
1977431	2191111A_20.d	QC	11/11/2019 13:12	670458	1
21911052504	2191111A_21.d	Sample	11/11/2019 13:23	670213	1

21911052502	2191111A_22.d	Sample	11/11/2019 13:34	670458	1
21911052503	2191111A_23.d	Sample	11/11/2019 13:46	670458	1
21910114701 x100	2191111A_24.d	Sample	11/11/2019 13:57		100
21910114701 x10	2191111A_25.d	Sample	11/11/2019 14:09		10
MeOH Shot	2191111A_26.d	MeOH Shot	11/11/2019 14:20	Instrument idle/MeOH Shot	1
MeOH Shot	2191111A_27.d	MeOH Shot	11/11/2019 14:32	Instrument idle/MeOH Shot	1
21910114713 x100	2191111A_28.d	Sample	11/11/2019 14:43		100
21910114713 x10	2191111A_29.d	Sample	11/11/2019 14:54		10
MeOH Shot	2191111A_30.d	MeOH Shot	11/11/2019 15:05	Instrument idle/MeOH Shot	1
1400	2191111A_31.d	QC	11/11/2019 15:16		1
21910291001	2191111A_32.d	Sample	11/11/2019 15:28	670458	1
MeOH Shot	2191111A_33.d	MeOH Shot	11/11/2019 15:55	Instrument idle/MeOH Shot	1
21910291002	2191111A_34.d	Sample	11/11/2019 16:06	670458	1
21910291003	2191111A_35.d	Sample	11/11/2019 16:17	670458	1
21910291004	2191111A_36.d	Sample	11/11/2019 16:28	670458	1
21910291005	2191111A_37.d	Sample	11/11/2019 16:39	670458	1
21910308501	2191111A_38.d	Sample	11/11/2019 16:51	670458	1
21910308502	2191111A_39.d	Sample	11/11/2019 17:02	670458	1
21910308503	2191111A_40.d	Sample	11/11/2019 17:14	670458	1
21910308504	2191111A_41.d	QC	11/11/2019 17:25	670458	1
21910308505	2191111A_42.d	QC	11/11/2019 17:36	670458	1
1400	2191111A_43.d	QC	11/11/2019 17:47		1
21910308506	2191111A_44.d	Sample	11/11/2019 17:59	670458	1
21910308507	2191111A_45.d	QC	11/11/2019 18:10	670458	1
21910308508	2191111A_46.d	QC	11/11/2019 18:21	670458	1
21910308509	2191111A_47.d	Sample	11/11/2019 18:33	670458	1
21910308510	2191111A_48.d	Sample	11/11/2019 18:44	670458	1
21910308511	2191111A_49.d	Sample	11/11/2019 18:56	670458	1
21910308512	2191111A_50.d	Sample	11/11/2019 19:07	670458	1
21910308515	2191111A_51.d	Sample	11/11/2019 19:18	670458	1
21910308516	2191111A_52.d	Sample	11/11/2019 19:30	670458	1
1400	2191111A_53.d	QC	11/11/2019 19:41		1
MeOH Shot	2191111A_54.d	MeOH Shot	11/11/2019 19:52	Instrument idle/MeOH Shot	1
1978236	2191111A_55.d	Sample	11/11/2019 20:03	670641	1

1978237	2191111A_56.d	QC	11/11/2019 20:14	670641		1
1978238	2191111A_57.d	QC	11/11/2019 20:26	670641		1
21910222815	2191111A_58.d	Sample	11/11/2019 20:37	670641		1
21910222801	2191111A_59.d	Sample	11/11/2019 20:49	670641		1
21910222802	2191111A_60.d	Sample	11/11/2019 21:00	670641		1
21910222803	2191111A_61.d	Sample	11/11/2019 21:11	670641		1
21910222804	2191111A_62.d	Sample	11/11/2019 21:23	670641		1
21910222805	2191111A_63.d	Sample	11/11/2019 21:34	670641		1
21910222806	2191111A_64.d	QC	11/11/2019 21:45	670641		1
21910222807	2191111A_65.d	QC	11/11/2019 21:57	670641		1
21910222808	2191111A_66.d	Sample	11/11/2019 22:08	670641		1
21910222809	2191111A_67.d	Sample	11/11/2019 22:19	670641		1
21910222810	2191111A_68.d	Sample	11/11/2019 22:31	670641		1
21910222811	2191111A_69.d	Sample	11/11/2019 22:42	670641		1
1400	2191111A_70.d	QC	11/11/2019 22:54			1
21910222812	2191111A_71.d	Sample	11/11/2019 23:05	670641		1
21910222813	2191111A_72.d	Sample	11/11/2019 23:16	670641	Power outage	1

Quantitative Analysis Calibration Report

Batch Data Path	D:\MassHunter\Data\2191111ACAL\QuantResults\2191111A.batch.bin		
Analysis Time	11/13/2019 12:26 PM	**Analyst Name**	GCAL\lcms
Report Time	11/13/2019 1:53 PM	**Reporter Name**	GCAL\lcms
Last Calib Update	11/11/2019 11:12 AM	**Batch State**	Processed

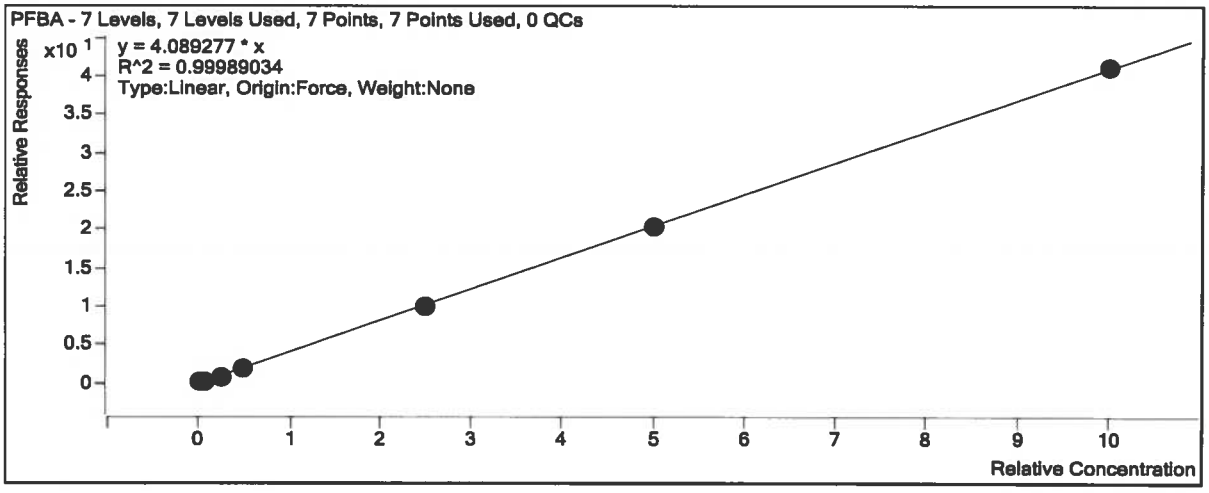
Calibration Info

Extracted ISTD ***MPFBA***

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191111ACAL\2191111A_07.d	Calibration	1	☑	54670	20.0000	2733.5248
D:\MassHunter\Data\2191111ACAL\2191111A_08.d	Calibration	2	☑	54733	20.0000	2736.6406
D:\MassHunter\Data\2191111ACAL\2191111A_09.d	Calibration	3	☑	56043	20.0000	2802.1291
D:\MassHunter\Data\2191111ACAL\2191111A_10.d	Calibration	4	☑	55510	20.0000	2775.5011
D:\MassHunter\Data\2191111ACAL\2191111A_11.d	Calibration	5	☑	53638	20.0000	2681.9019
D:\MassHunter\Data\2191111ACAL\2191111A_12.d	Calibration	6	☑	54707	20.0000	2735.3315
D:\MassHunter\Data\2191111ACAL\2191111A_13.d	Calibration	7	☑	52500	20.0000	2624.9771

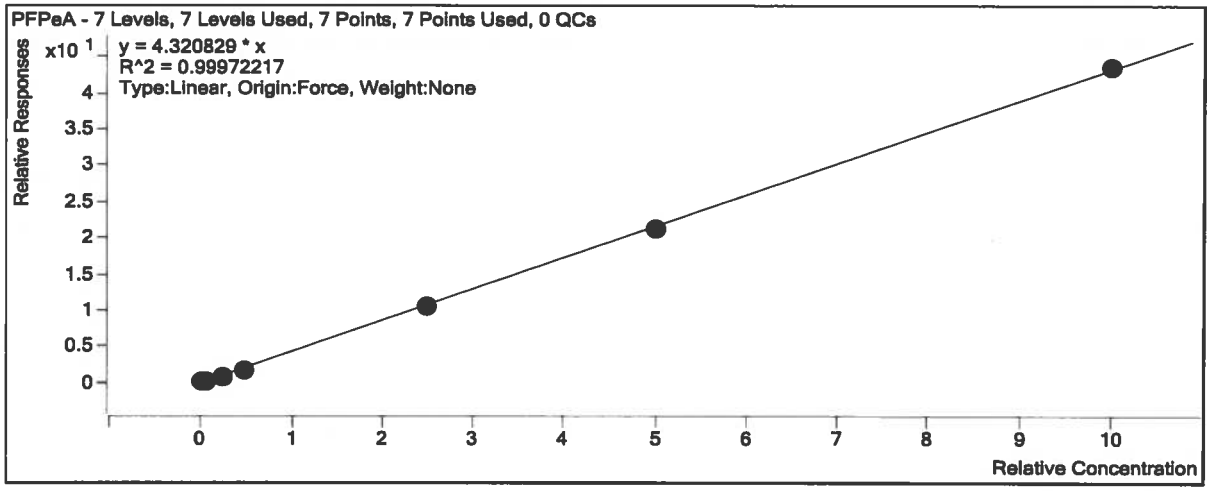
Target Compound ***PFBA***

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191111ACAL\2191111A_07.d	Calibration	1	☑	5928	0.5000	4.3369
D:\MassHunter\Data\2191111ACAL\2191111A_08.d	Calibration	2	☑	12632	1.2500	3.6927
D:\MassHunter\Data\2191111ACAL\2191111A_09.d	Calibration	3	☑	49283	5.0000	3.5176
D:\MassHunter\Data\2191111ACAL\2191111A_10.d	Calibration	4	☑	101831	10.0000	3.6689
D:\MassHunter\Data\2191111ACAL\2191111A_11.d	Calibration	5	☑	537697	50.0000	4.0098
D:\MassHunter\Data\2191111ACAL\2191111A_12.d	Calibration	6	☑	1109390	100.0000	4.0558
D:\MassHunter\Data\2191111ACAL\2191111A_13.d	Calibration	7	☑	2154602	200.0000	4.1040



Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191111ACAL\2191111A_10.d	Calibration	4	☑	56592	10.0000	3.7204
D:\MassHunter\Data\2191111ACAL\2191111A_11.d	Calibration	5	☑	310210	50.0000	4.1806
D:\MassHunter\Data\2191111ACAL\2191111A_12.d	Calibration	6	☑	651876	100.0000	4.2563
D:\MassHunter\Data\2191111ACAL\2191111A_13.d	Calibration	7	☑	1269838	200.0000	4.3478



Extracted ISTD *M5PFPeA*

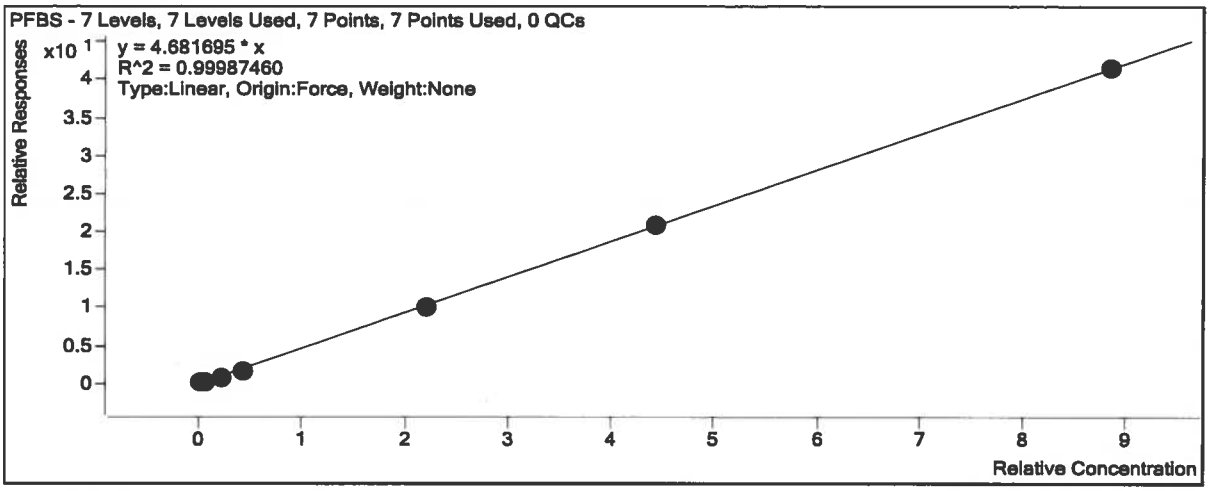
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191111ACAL\2191111A_07.d	Calibration	1	☑	30977	20.0000	1548.8483
D:\MassHunter\Data\2191111ACAL\2191111A_08.d	Calibration	2	☑	31324	20.0000	1566.1913
D:\MassHunter\Data\2191111ACAL\2191111A_09.d	Calibration	3	☑	31029	20.0000	1551.4485
D:\MassHunter\Data\2191111ACAL\2191111A_10.d	Calibration	4	☑	30423	20.0000	1521.1366
D:\MassHunter\Data\2191111ACAL\2191111A_11.d	Calibration	5	☑	29681	20.0000	1484.0519
D:\MassHunter\Data\2191111ACAL\2191111A_12.d	Calibration	6	☑	30631	20.0000	1531.5575
D:\MassHunter\Data\2191111ACAL\2191111A_13.d	Calibration	7	☑	29206	20.0000	1460.3206

Target Compound *PFBS*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191111ACAL\2191111A_07.d	Calibration	1	☑	2268	0.4425	3.6970
D:\MassHunter\Data\2191111ACAL\2191111A_08.d	Calibration	2	☑	5889	1.1100	3.8747
D:\MassHunter\Data\2191111ACAL\2191111A_09.d	Calibration	3	☑	23883	4.4250	3.9282
D:\MassHunter\Data\2191111ACAL\2191111A_10.d	Calibration	4	☑	49569	8.8500	4.0833

Quantitative Analysis Calibration Report

D:\MassHunter\Data\2191111ACAL\2191111A_11.d	Calibration	5	☑	265454	44.2500	4.5597
D:\MassHunter\Data\2191111ACAL\2191111A_12.d	Calibration	6	☑	550327	88.5000	4.6995
D:\MassHunter\Data\2191111ACAL\2191111A_13.d	Calibration	7	☑	1072103	177.0000	4.6869



Extracted ISTD ***M3PFBS***

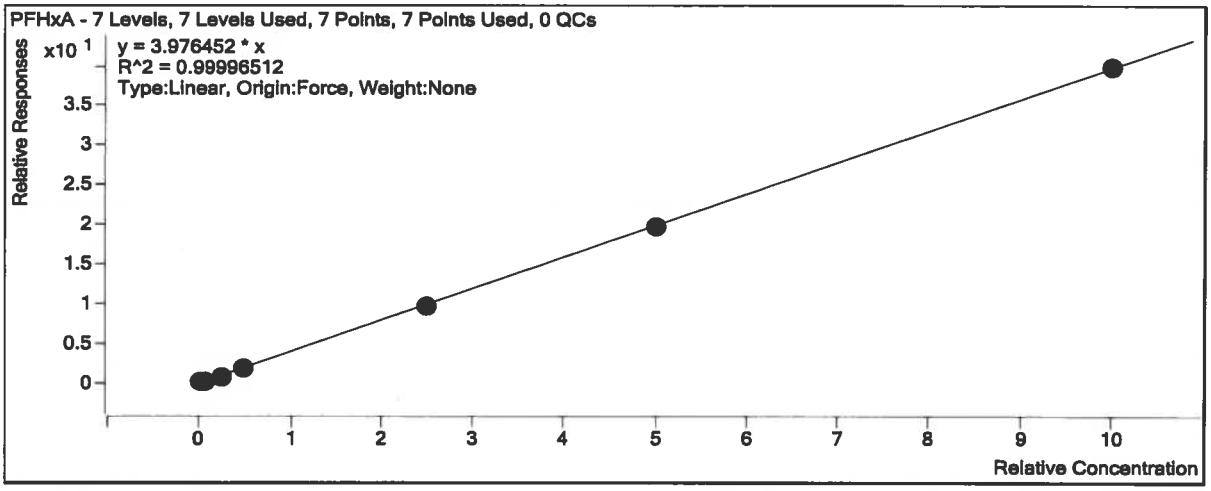
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191111ACAL\2191111A_07.d	Calibration	1	☑	27728	20.0000	1386.4020
D:\MassHunter\Data\2191111ACAL\2191111A_08.d	Calibration	2	☑	27383	20.0000	1369.1653
D:\MassHunter\Data\2191111ACAL\2191111A_09.d	Calibration	3	☑	27480	20.0000	1374.0203
D:\MassHunter\Data\2191111ACAL\2191111A_10.d	Calibration	4	☑	27434	20.0000	1371.7052
D:\MassHunter\Data\2191111ACAL\2191111A_11.d	Calibration	5	☑	26313	20.0000	1315.6611
D:\MassHunter\Data\2191111ACAL\2191111A_12.d	Calibration	6	☑	26464	20.0000	1323.2129
D:\MassHunter\Data\2191111ACAL\2191111A_13.d	Calibration	7	☑	25847	20.0000	1292.3459

Target Compound ***4:2 FTS***

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191111ACAL\2191111A_07.d	Calibration	1	☑	1902	0.4675	8.2133
D:\MassHunter\Data\2191111ACAL\2191111A_08.d	Calibration	2	☑	4580	1.1700	8.4234
D:\MassHunter\Data\2191111ACAL\2191111A_09.d	Calibration	3	☑	16780	4.6700	7.6431
D:\MassHunter\Data\2191111ACAL\2191111A_10.d	Calibration	4	☑	36152	9.3500	8.7868
D:\MassHunter\Data\2191111ACAL\2191111A_11.d	Calibration	5	☑	184215	46.7500	9.0187
D:\MassHunter\Data\2191111ACAL\2191111A_12.d	Calibration	6	☑	362808	93.5000	9.7349
D:\MassHunter\Data\2191111ACAL\2191111A_13.d	Calibration	7	☑	661429	187.0000	9.2173

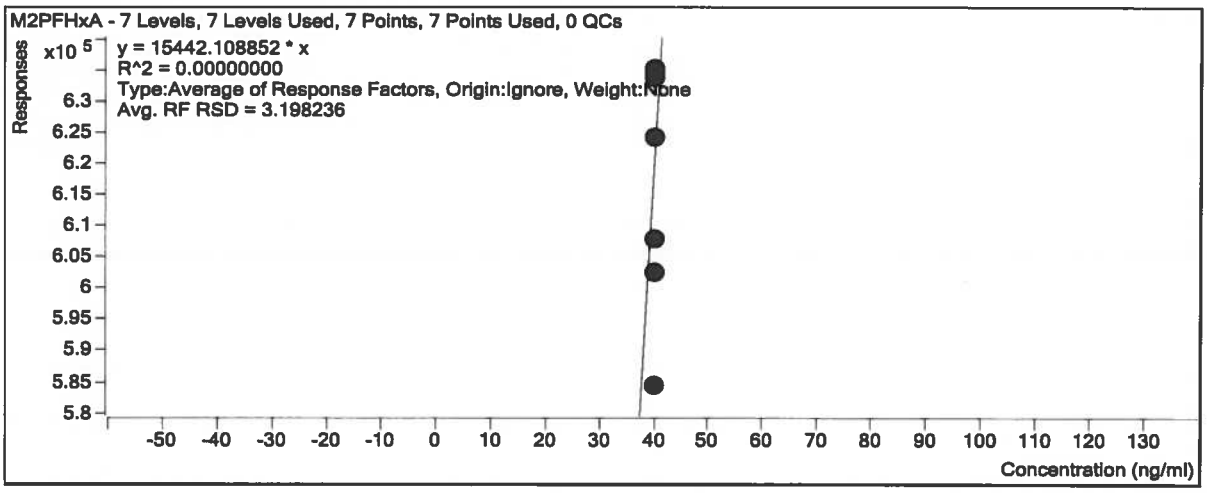
Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191111ACAL\2191111A_13.d	Calibration	7	☑	1914690	200.0000	3.9815



Instrument ISTD *M2PFHxA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191111ACAL\2191111A_07.d	Calibration	1	☑	635274	40.0000	15881.8406
D:\MassHunter\Data\2191111ACAL\2191111A_08.d	Calibration	2	☑	634076	40.0000	15851.8907
D:\MassHunter\Data\2191111ACAL\2191111A_09.d	Calibration	3	☑	634930	40.0000	15873.2431
D:\MassHunter\Data\2191111ACAL\2191111A_10.d	Calibration	4	☑	624418	40.0000	15610.4458
D:\MassHunter\Data\2191111ACAL\2191111A_11.d	Calibration	5	☑	602457	40.0000	15061.4212
D:\MassHunter\Data\2191111ACAL\2191111A_12.d	Calibration	6	☑	608063	40.0000	15201.5792
D:\MassHunter\Data\2191111ACAL\2191111A_13.d	Calibration	7	☑	584574	40.0000	14614.3414

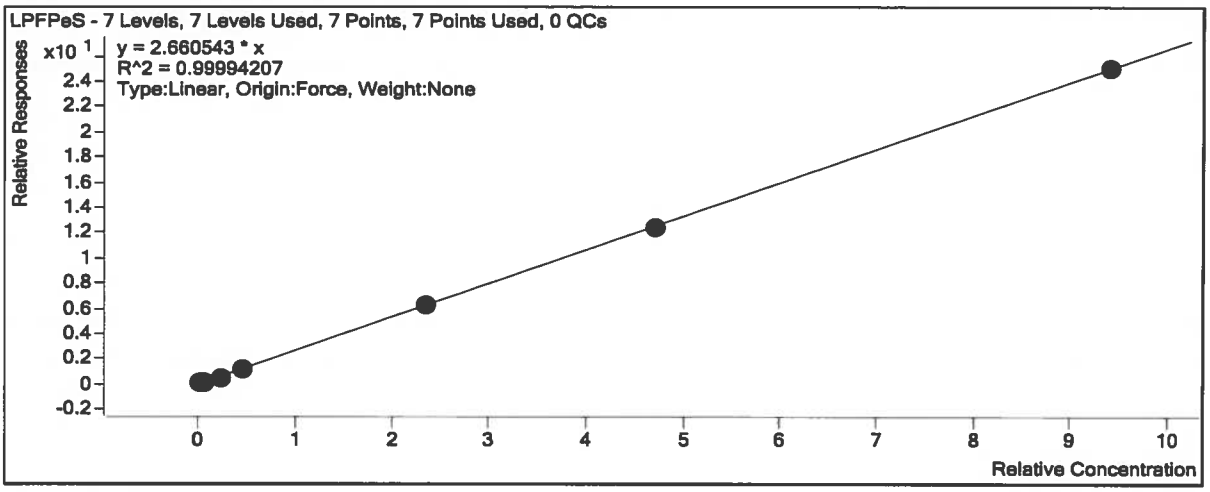


Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191111ACAL\2191111A_10.d	Calibration	4	☑	29	20.0000	1.4489
D:\MassHunter\Data\2191111ACAL\2191111A_11.d	Calibration	5	☑	136	20.0000	6.8011
D:\MassHunter\Data\2191111ACAL\2191111A_12.d	Calibration	6	☑	153	20.0000	7.6552
D:\MassHunter\Data\2191111ACAL\2191111A_13.d	Calibration	7	☑	292	20.0000	14.5904

Target Compound *LPFPeS*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191111ACAL\2191111A_07.d	Calibration	1	☑	2569	0.4700	2.0455
D:\MassHunter\Data\2191111ACAL\2191111A_08.d	Calibration	2	☑	6711	1.1800	2.2175
D:\MassHunter\Data\2191111ACAL\2191111A_09.d	Calibration	3	☑	27922	4.7000	2.2247
D:\MassHunter\Data\2191111ACAL\2191111A_10.d	Calibration	4	☑	58204	9.4000	2.4708
D:\MassHunter\Data\2191111ACAL\2191111A_11.d	Calibration	5	☑	310439	47.0000	2.7043
D:\MassHunter\Data\2191111ACAL\2191111A_12.d	Calibration	6	☑	624387	94.0000	2.6562
D:\MassHunter\Data\2191111ACAL\2191111A_13.d	Calibration	7	☑	1202280	188.0000	2.6597

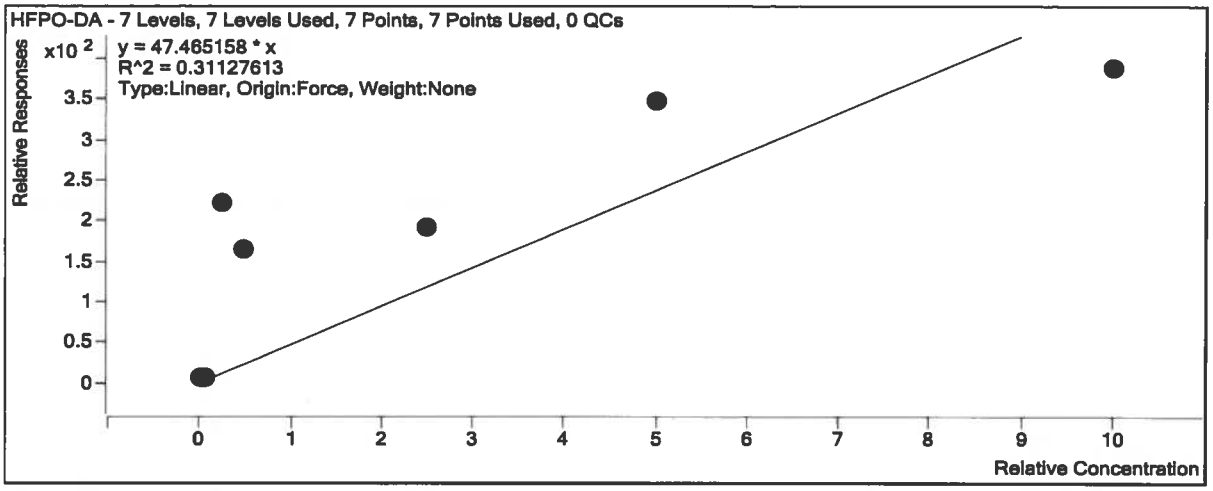


Target Compound *HFPO-DA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191111ACAL\2191111A_07.d	Calibration	1	☑	284	0.5000	329.5944
D:\MassHunter\Data\2191111ACAL\2191111A_08.d	Calibration	2	☑	565	1.2500	141.4660
D:\MassHunter\Data\2191111ACAL\2191111A_09.d	Calibration	3	☑	2415	5.0000	896.0898
D:\MassHunter\Data\2191111ACAL\2191111A_10.d	Calibration	4	☑	4824	10.0000	332.9611

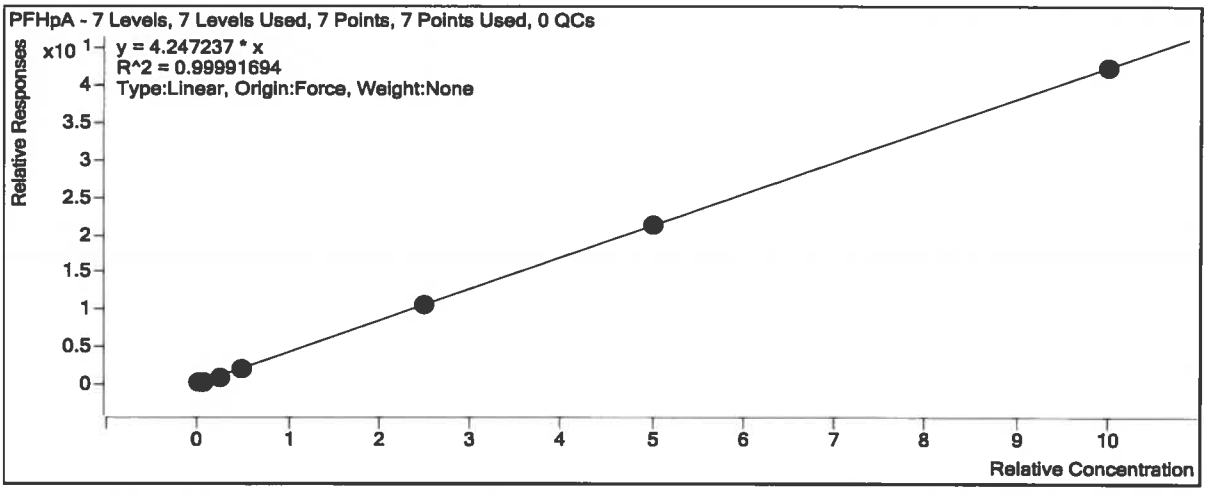
Quantitative Analysis Calibration Report

D:\MassHunter\Data\2191111ACAL\2191111A_11.d	Calibration	5	☑	26296	50.0000	77.3287
D:\MassHunter\Data\2191111ACAL\2191111A_12.d	Calibration	6	☑	53278	100.0000	69.5973
D:\MassHunter\Data\2191111ACAL\2191111A_13.d	Calibration	7	☑	113269	200.0000	38.8161



Target Compound *PFHpA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191111ACAL\2191111A_07.d	Calibration	1	☑	4332	0.5000	3.3853
D:\MassHunter\Data\2191111ACAL\2191111A_08.d	Calibration	2	☑	10931	1.2500	3.3656
D:\MassHunter\Data\2191111ACAL\2191111A_09.d	Calibration	3	☑	44466	5.0000	3.4111
D:\MassHunter\Data\2191111ACAL\2191111A_10.d	Calibration	4	☑	97830	10.0000	3.8767
D:\MassHunter\Data\2191111ACAL\2191111A_11.d	Calibration	5	☑	509522	50.0000	4.2495
D:\MassHunter\Data\2191111ACAL\2191111A_12.d	Calibration	6	☑	1053658	100.0000	4.2859
D:\MassHunter\Data\2191111ACAL\2191111A_13.d	Calibration	7	☑	2048972	200.0000	4.2389



Quantitative Analysis Calibration Report

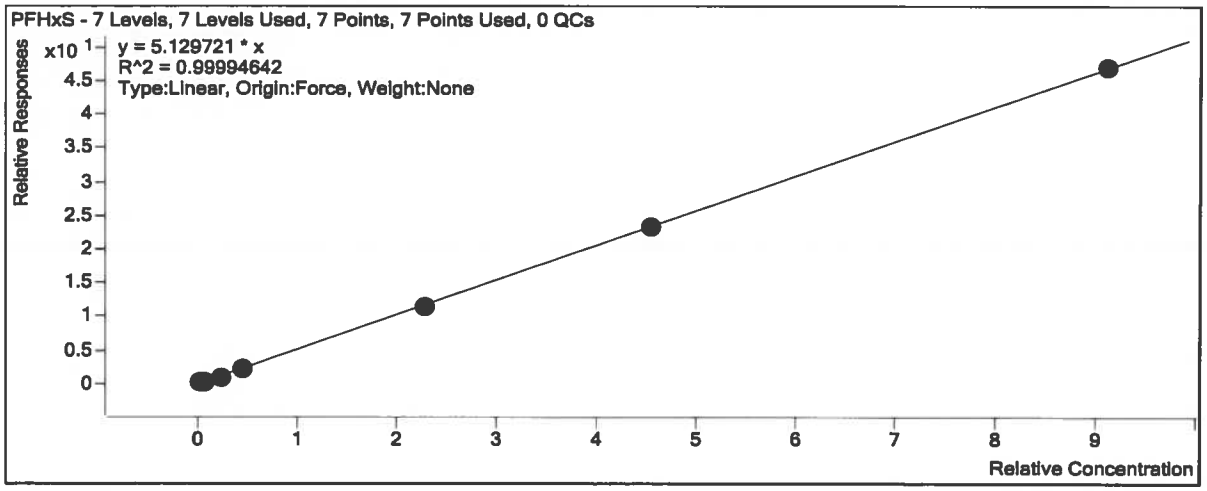
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191111ACAL\2191111A_13.d	Calibration	7	☑	48337	20.0000	2416.8566

Extracted ISTD *M3PFHxS*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191111ACAL\2191111A_07.d	Calibration	1	☑	30856	20.0000	1542.8036
D:\MassHunter\Data\2191111ACAL\2191111A_08.d	Calibration	2	☑	30400	20.0000	1519.9936
D:\MassHunter\Data\2191111ACAL\2191111A_09.d	Calibration	3	☑	30902	20.0000	1545.1072
D:\MassHunter\Data\2191111ACAL\2191111A_10.d	Calibration	4	☑	30144	20.0000	1507.2020
D:\MassHunter\Data\2191111ACAL\2191111A_11.d	Calibration	5	☑	29230	20.0000	1461.5172
D:\MassHunter\Data\2191111ACAL\2191111A_12.d	Calibration	6	☑	29373	20.0000	1468.6307
D:\MassHunter\Data\2191111ACAL\2191111A_13.d	Calibration	7	☑	28627	20.0000	1431.3726

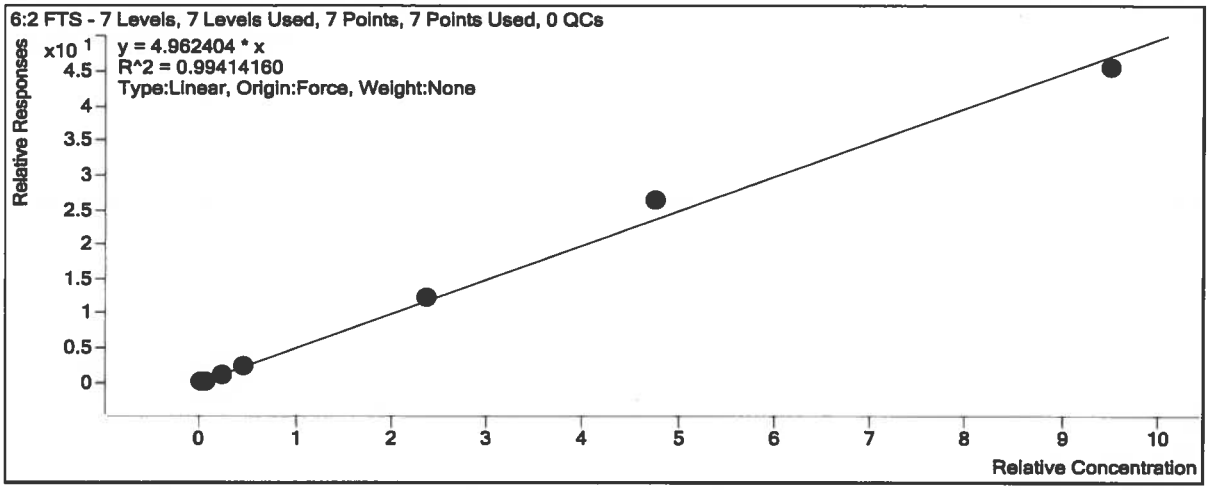
Target Compound *PFHxS*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191111ACAL\2191111A_07.d	Calibration	1	☑	3066	0.4560	4.3575
D:\MassHunter\Data\2191111ACAL\2191111A_08.d	Calibration	2	☑	7617	1.1400	4.3955
D:\MassHunter\Data\2191111ACAL\2191111A_09.d	Calibration	3	☑	31095	4.5600	4.4133
D:\MassHunter\Data\2191111ACAL\2191111A_10.d	Calibration	4	☑	64330	9.1200	4.6800
D:\MassHunter\Data\2191111ACAL\2191111A_11.d	Calibration	5	☑	337674	45.6000	5.0667
D:\MassHunter\Data\2191111ACAL\2191111A_12.d	Calibration	6	☑	685769	91.2000	5.1200
D:\MassHunter\Data\2191111ACAL\2191111A_13.d	Calibration	7	☑	1341361	182.4000	5.1377



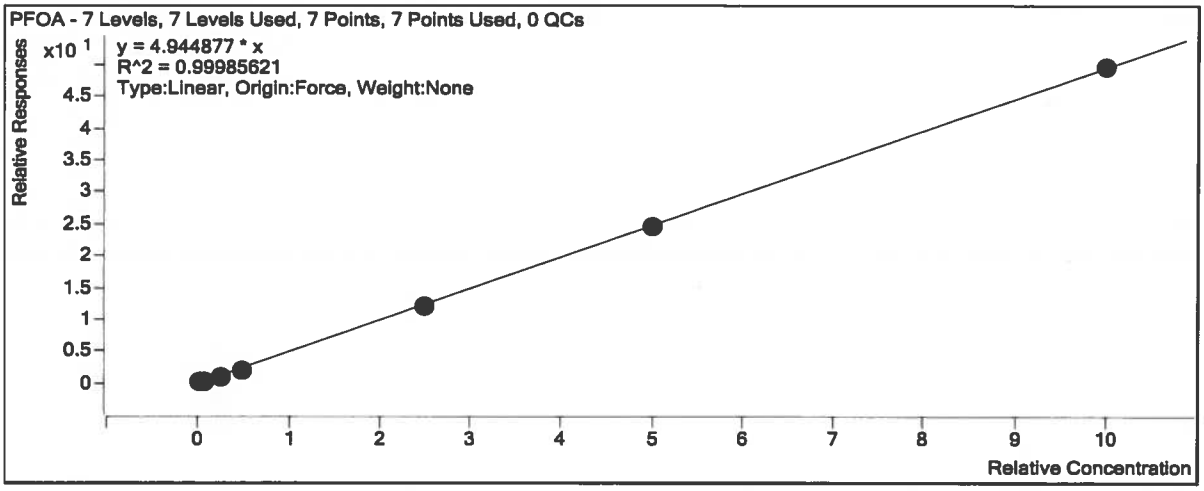
Quantitative Analysis Calibration Report

D:\MassHunter\Data\2191111ACAL\2191111A_11.d	Calibration	5	☑	232816	47.5000	5.2787
D:\MassHunter\Data\2191111ACAL\2191111A_12.d	Calibration	6	☑	446477	95.0000	5.5434
D:\MassHunter\Data\2191111ACAL\2191111A_13.d	Calibration	7	☑	764751	190.0000	4.7972

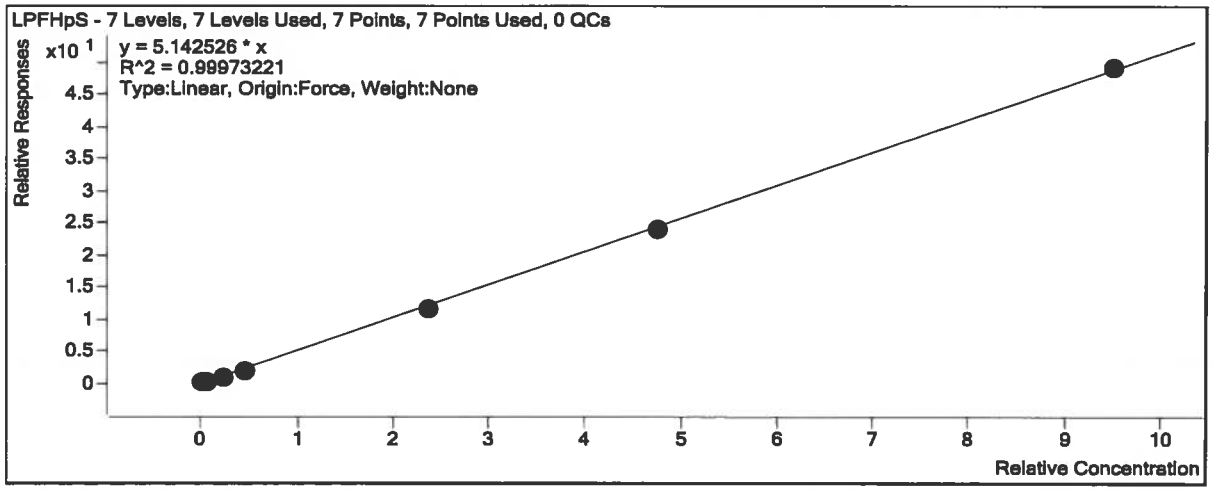


Target Compound *PFOA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191111ACAL\2191111A_07.d	Calibration	1	☑	3718	0.5000	4.2189
D:\MassHunter\Data\2191111ACAL\2191111A_08.d	Calibration	2	☑	9045	1.2500	4.1656
D:\MassHunter\Data\2191111ACAL\2191111A_09.d	Calibration	3	☑	35747	5.0000	4.0833
D:\MassHunter\Data\2191111ACAL\2191111A_10.d	Calibration	4	☑	73283	10.0000	4.1688
D:\MassHunter\Data\2191111ACAL\2191111A_11.d	Calibration	5	☑	393868	50.0000	4.8258
D:\MassHunter\Data\2191111ACAL\2191111A_12.d	Calibration	6	☑	783661	100.0000	4.9479
D:\MassHunter\Data\2191111ACAL\2191111A_13.d	Calibration	7	☑	1500279	200.0000	4.9541



Quantitative Analysis Calibration Report



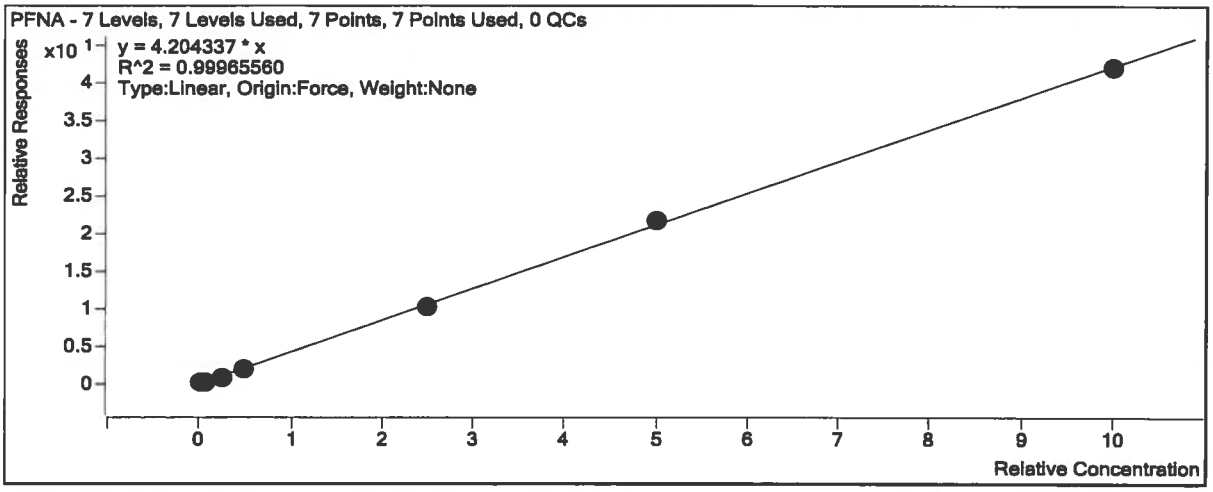
Extracted ISTD *M9PFNA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191111ACAL\2191111A_07.d	Calibration	1	☑	42226	20.0000	2111.3199
D:\MassHunter\Data\2191111ACAL\2191111A_08.d	Calibration	2	☑	40832	20.0000	2041.5792
D:\MassHunter\Data\2191111ACAL\2191111A_09.d	Calibration	3	☑	41601	20.0000	2080.0392
D:\MassHunter\Data\2191111ACAL\2191111A_10.d	Calibration	4	☑	38182	20.0000	1909.1206
D:\MassHunter\Data\2191111ACAL\2191111A_11.d	Calibration	5	☑	37549	20.0000	1877.4466
D:\MassHunter\Data\2191111ACAL\2191111A_12.d	Calibration	6	☑	36303	20.0000	1815.1678
D:\MassHunter\Data\2191111ACAL\2191111A_13.d	Calibration	7	☑	36264	20.0000	1813.2056

Target Compound *PFNA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191111ACAL\2191111A_07.d	Calibration	1	☑	3895	0.5000	3.6892
D:\MassHunter\Data\2191111ACAL\2191111A_08.d	Calibration	2	☑	8738	1.2500	3.4240
D:\MassHunter\Data\2191111ACAL\2191111A_09.d	Calibration	3	☑	36645	5.0000	3.5235
D:\MassHunter\Data\2191111ACAL\2191111A_10.d	Calibration	4	☑	74372	10.0000	3.8956
D:\MassHunter\Data\2191111ACAL\2191111A_11.d	Calibration	5	☑	382850	50.0000	4.0784
D:\MassHunter\Data\2191111ACAL\2191111A_12.d	Calibration	6	☑	783691	100.0000	4.3175
D:\MassHunter\Data\2191111ACAL\2191111A_13.d	Calibration	7	☑	1517710	200.0000	4.1852

Quantitative Analysis Calibration Report



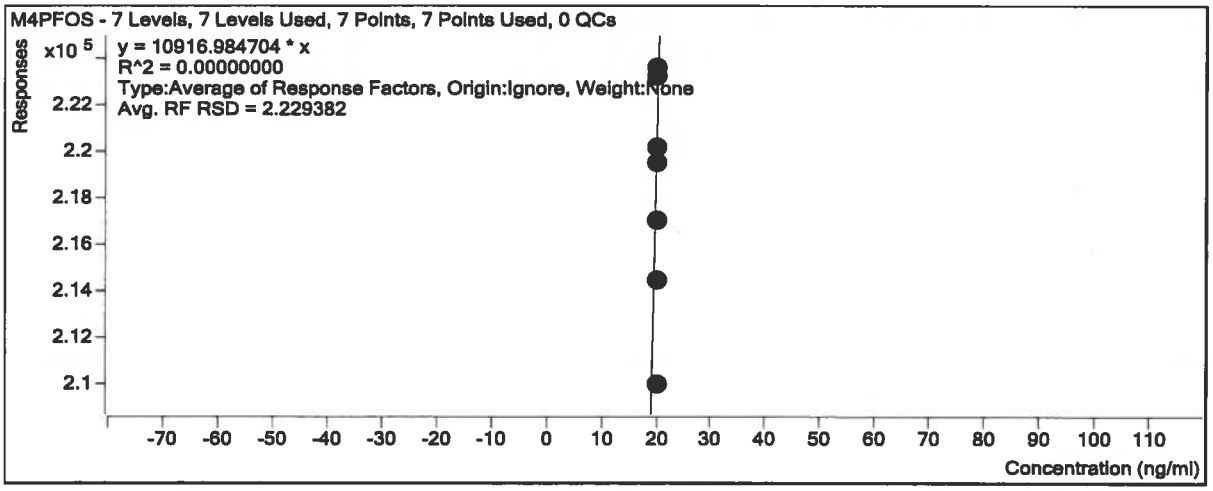
Extracted ISTD *M8PFOS*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191111ACAL\2191111A_07.d	Calibration	1	☑	16065	20.0000	803.2579
D:\MassHunter\Data\2191111ACAL\2191111A_08.d	Calibration	2	☑	16365	20.0000	818.2599
D:\MassHunter\Data\2191111ACAL\2191111A_09.d	Calibration	3	☑	15586	20.0000	779.3224
D:\MassHunter\Data\2191111ACAL\2191111A_10.d	Calibration	4	☑	16230	20.0000	811.4756
D:\MassHunter\Data\2191111ACAL\2191111A_11.d	Calibration	5	☑	14551	20.0000	727.5644
D:\MassHunter\Data\2191111ACAL\2191111A_12.d	Calibration	6	☑	16886	20.0000	844.2889
D:\MassHunter\Data\2191111ACAL\2191111A_13.d	Calibration	7	☑	17948	20.0000	897.3993

Instrument ISTD *M4PFOS*

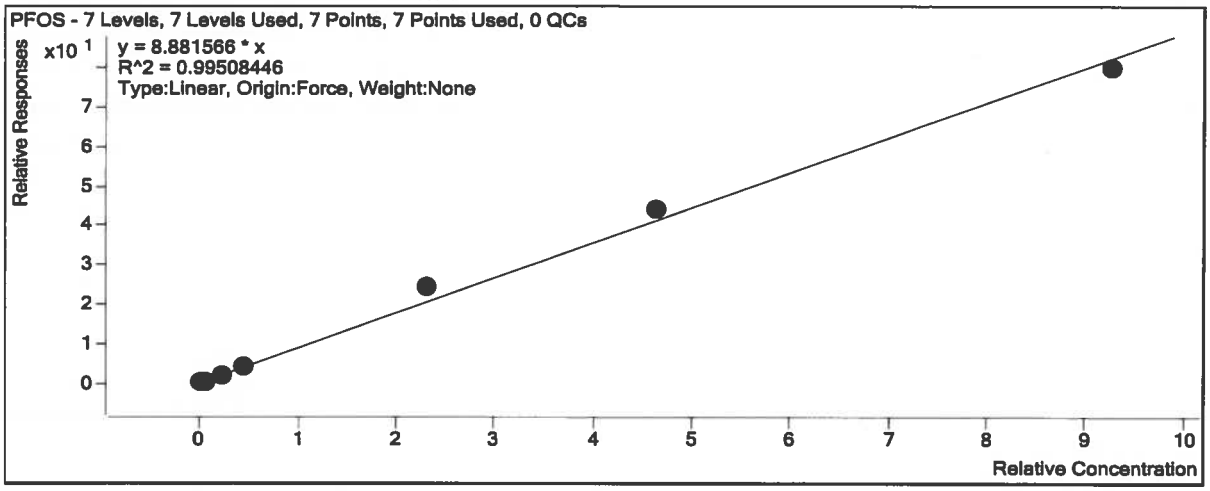
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191111ACAL\2191111A_07.d	Calibration	1	☑	219582	20.0000	10979.0784
D:\MassHunter\Data\2191111ACAL\2191111A_08.d	Calibration	2	☑	220216	20.0000	11010.8021
D:\MassHunter\Data\2191111ACAL\2191111A_09.d	Calibration	3	☑	223273	20.0000	11163.6670
D:\MassHunter\Data\2191111ACAL\2191111A_10.d	Calibration	4	☑	214535	20.0000	10726.7700
D:\MassHunter\Data\2191111ACAL\2191111A_11.d	Calibration	5	☑	210051	20.0000	10502.5354
D:\MassHunter\Data\2191111ACAL\2191111A_12.d	Calibration	6	☑	223632	20.0000	11181.6215
D:\MassHunter\Data\2191111ACAL\2191111A_13.d	Calibration	7	☑	217088	20.0000	10854.4186

Quantitative Analysis Calibration Report



Target Compound *PFOS*

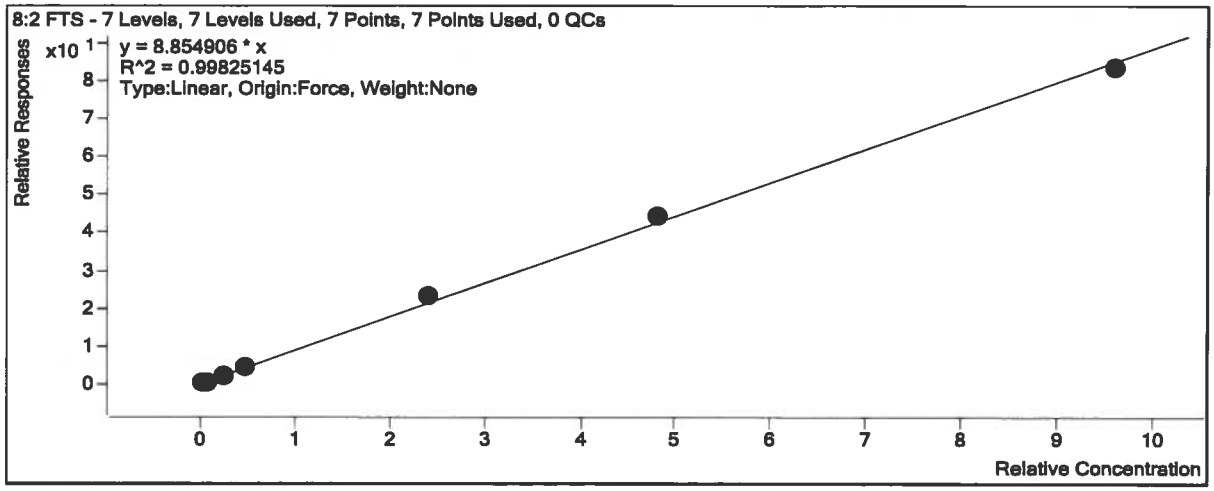
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191111ACAL\2191111A_07.d	Calibration	1	☑	3663	0.4628	9.8559
D:\MassHunter\Data\2191111ACAL\2191111A_08.d	Calibration	2	☑	7719	1.1600	8.1325
D:\MassHunter\Data\2191111ACAL\2191111A_09.d	Calibration	3	☑	33038	4.6280	9.1601
D:\MassHunter\Data\2191111ACAL\2191111A_10.d	Calibration	4	☑	67048	9.2550	8.9275
D:\MassHunter\Data\2191111ACAL\2191111A_11.d	Calibration	5	☑	352893	46.2800	10.4804
D:\MassHunter\Data\2191111ACAL\2191111A_12.d	Calibration	6	☑	741303	92.5500	9.4870
D:\MassHunter\Data\2191111ACAL\2191111A_13.d	Calibration	7	☑	1433517	185.1000	8.6300



Target Compound *9Cl-PF3ONS*

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

Quantitative Analysis Calibration Report



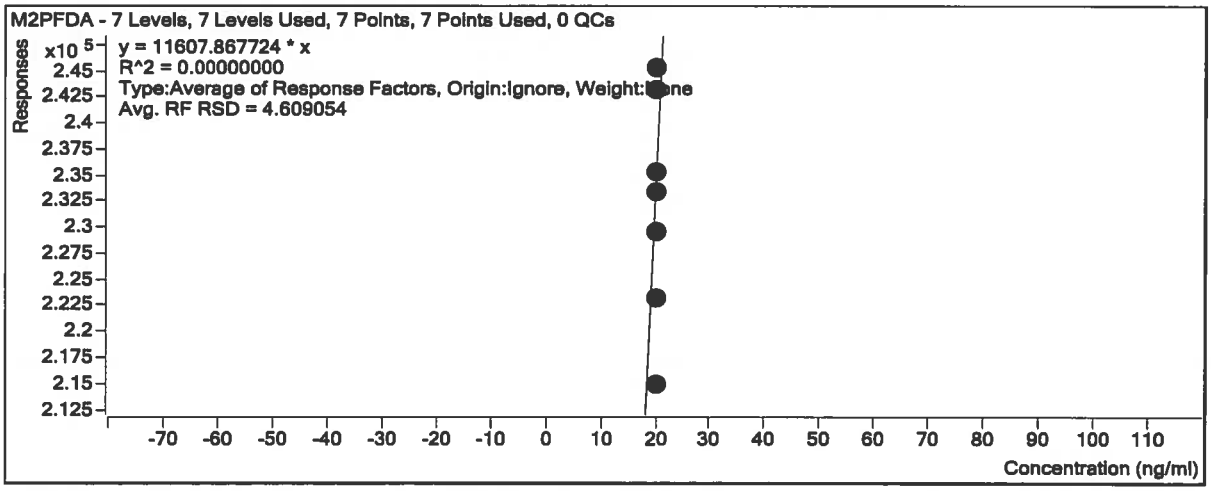
Extracted ISTD *M6PFDA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191111ACAL\2191111A_07.d	Calibration	1	☑	38881	20.0000	1944.0478
D:\MassHunter\Data\2191111ACAL\2191111A_08.d	Calibration	2	☑	38913	20.0000	1945.6265
D:\MassHunter\Data\2191111ACAL\2191111A_09.d	Calibration	3	☑	36152	20.0000	1807.6040
D:\MassHunter\Data\2191111ACAL\2191111A_10.d	Calibration	4	☑	35308	20.0000	1765.3776
D:\MassHunter\Data\2191111ACAL\2191111A_11.d	Calibration	5	☑	34398	20.0000	1719.9059
D:\MassHunter\Data\2191111ACAL\2191111A_12.d	Calibration	6	☑	30980	20.0000	1549.0128
D:\MassHunter\Data\2191111ACAL\2191111A_13.d	Calibration	7	☑	30610	20.0000	1530.4775

Instrument ISTD *M2PFDA*

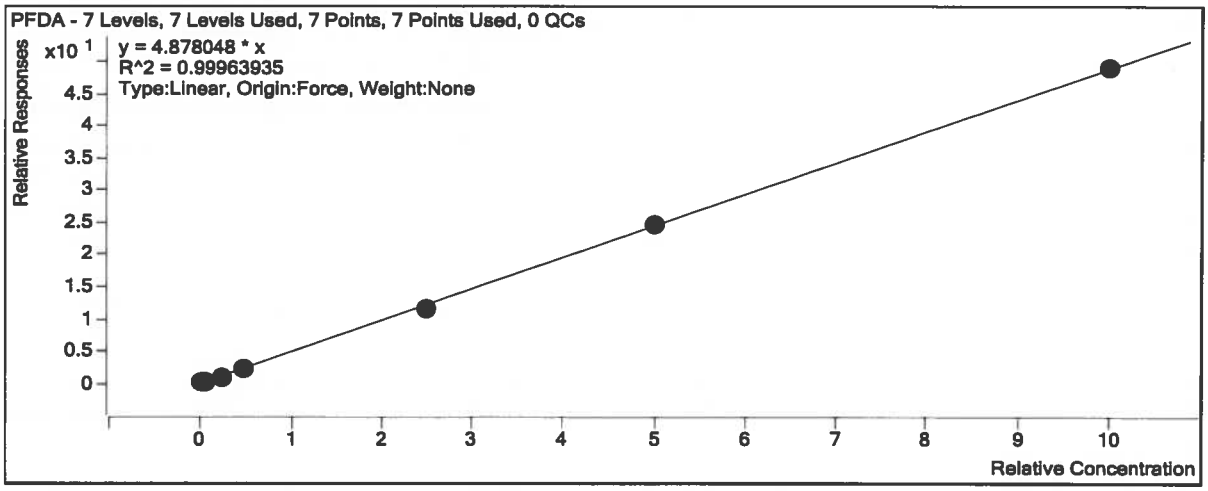
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191111ACAL\2191111A_07.d	Calibration	1	☑	245267	20.0000	12263.3323
D:\MassHunter\Data\2191111ACAL\2191111A_08.d	Calibration	2	☑	243224	20.0000	12161.1979
D:\MassHunter\Data\2191111ACAL\2191111A_09.d	Calibration	3	☑	233408	20.0000	11670.3909
D:\MassHunter\Data\2191111ACAL\2191111A_10.d	Calibration	4	☑	235359	20.0000	11767.9664
D:\MassHunter\Data\2191111ACAL\2191111A_11.d	Calibration	5	☑	229632	20.0000	11481.5919
D:\MassHunter\Data\2191111ACAL\2191111A_12.d	Calibration	6	☑	223216	20.0000	11160.7752
D:\MassHunter\Data\2191111ACAL\2191111A_13.d	Calibration	7	☑	214996	20.0000	10749.8196

Quantitative Analysis Calibration Report



Target Compound *PFDA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191111ACAL\2191111A_07.d	Calibration	1	☑	5000	0.5000	5.1440
D:\MassHunter\Data\2191111ACAL\2191111A_08.d	Calibration	2	☑	10021	1.2500	4.1203
D:\MassHunter\Data\2191111ACAL\2191111A_09.d	Calibration	3	☑	38401	5.0000	4.2488
D:\MassHunter\Data\2191111ACAL\2191111A_10.d	Calibration	4	☑	76020	10.0000	4.3061
D:\MassHunter\Data\2191111ACAL\2191111A_11.d	Calibration	5	☑	393303	50.0000	4.5735
D:\MassHunter\Data\2191111ACAL\2191111A_12.d	Calibration	6	☑	759661	100.0000	4.9042
D:\MassHunter\Data\2191111ACAL\2191111A_13.d	Calibration	7	☑	1497542	200.0000	4.8924

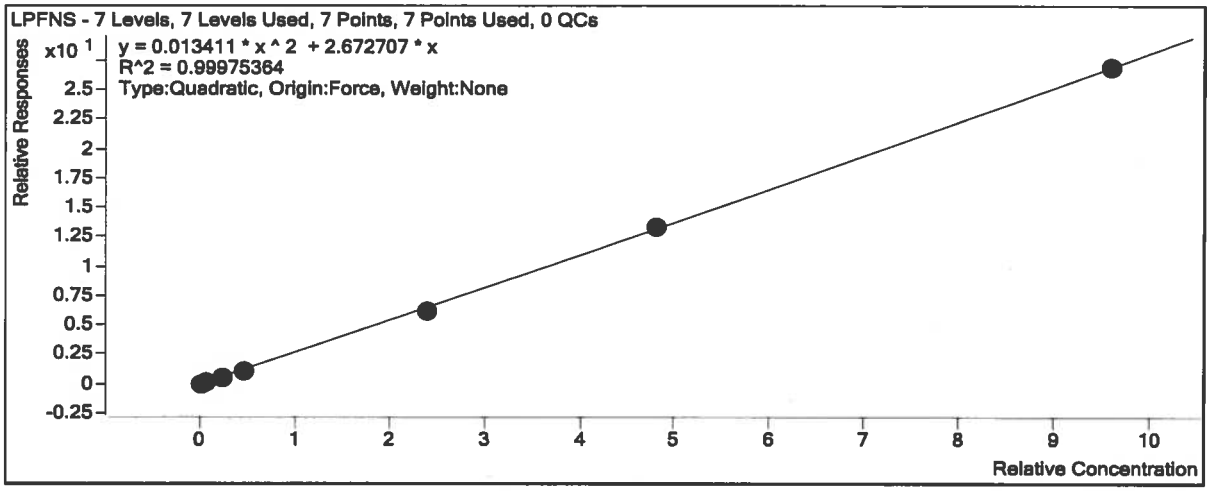


Target Compound *LPFNS*

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

Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191111ACAL\2191111A_13.d	Calibration	7	☑	973850	192.0000	2.7973



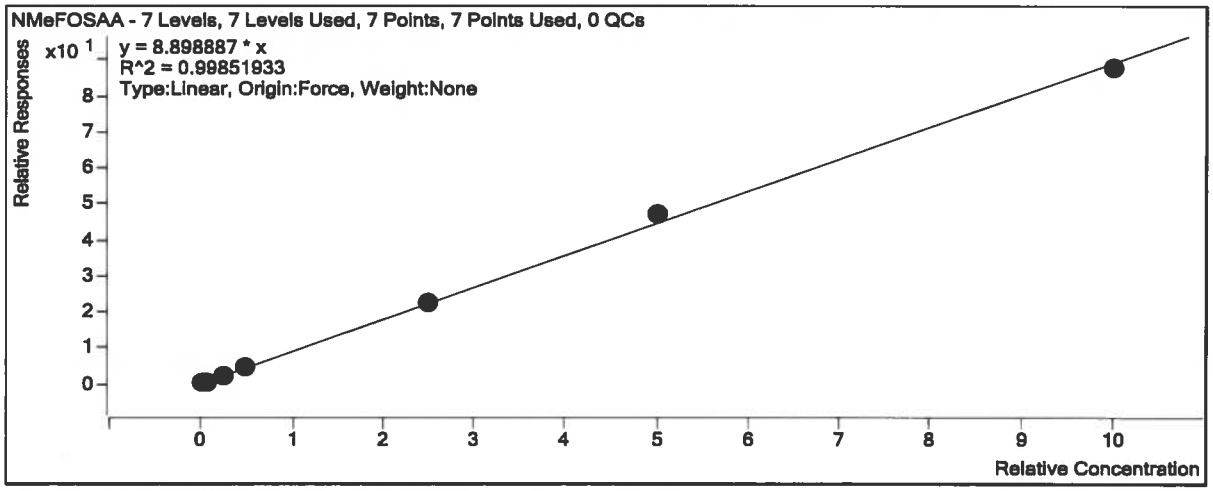
Extracted ISTD *d3-NMeFOSAA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191111ACAL\2191111A_07.d	Calibration	1	☑	6529	20.0000	326.4354
D:\MassHunter\Data\2191111ACAL\2191111A_08.d	Calibration	2	☑	7007	20.0000	350.3747
D:\MassHunter\Data\2191111ACAL\2191111A_09.d	Calibration	3	☑	6712	20.0000	335.5975
D:\MassHunter\Data\2191111ACAL\2191111A_10.d	Calibration	4	☑	6304	20.0000	315.1903
D:\MassHunter\Data\2191111ACAL\2191111A_11.d	Calibration	5	☑	7186	20.0000	359.2843
D:\MassHunter\Data\2191111ACAL\2191111A_12.d	Calibration	6	☑	7012	20.0000	350.5778
D:\MassHunter\Data\2191111ACAL\2191111A_13.d	Calibration	7	☑	7569	20.0000	378.4276

Target Compound *NMeFOSAA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191111ACAL\2191111A_07.d	Calibration	1	☑	1353	0.5000	8.2870
D:\MassHunter\Data\2191111ACAL\2191111A_08.d	Calibration	2	☑	3313	1.2500	7.5653
D:\MassHunter\Data\2191111ACAL\2191111A_09.d	Calibration	3	☑	15253	5.0000	9.0900
D:\MassHunter\Data\2191111ACAL\2191111A_10.d	Calibration	4	☑	31183	10.0000	9.8933
D:\MassHunter\Data\2191111ACAL\2191111A_11.d	Calibration	5	☑	160160	50.0000	8.9155
D:\MassHunter\Data\2191111ACAL\2191111A_12.d	Calibration	6	☑	331126	100.0000	9.4451
D:\MassHunter\Data\2191111ACAL\2191111A_13.d	Calibration	7	☑	662910	200.0000	8.7587

Quantitative Analysis Calibration Report



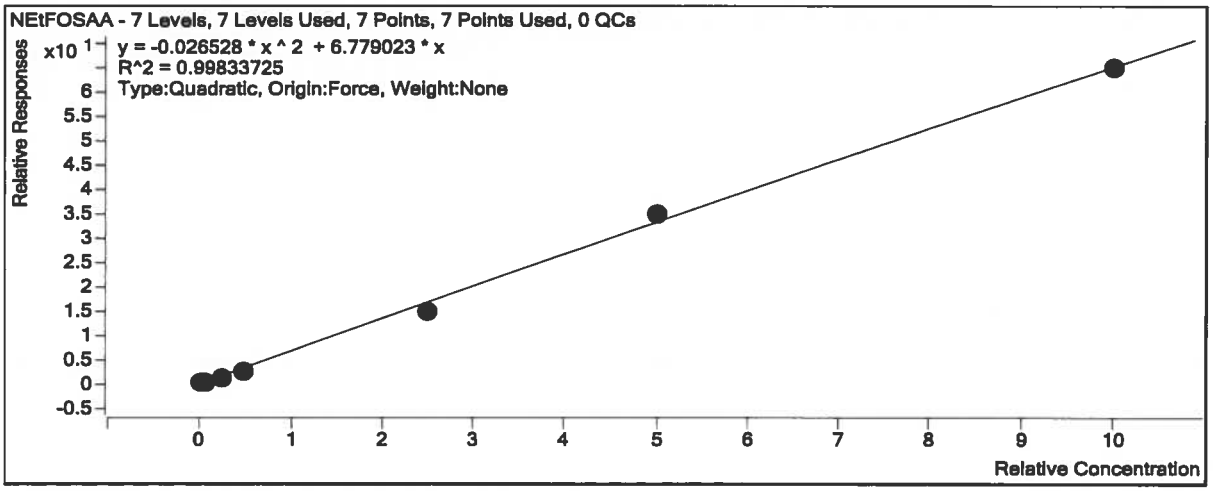
Extracted ISTD *M8FOSA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191111ACAL\2191111A_07.d	Calibration	1	☑	52023	20.0000	2601.1671
D:\MassHunter\Data\2191111ACAL\2191111A_08.d	Calibration	2	☑	49028	20.0000	2451.4187
D:\MassHunter\Data\2191111ACAL\2191111A_09.d	Calibration	3	☑	51353	20.0000	2567.6457
D:\MassHunter\Data\2191111ACAL\2191111A_10.d	Calibration	4	☑	51698	20.0000	2584.8953
D:\MassHunter\Data\2191111ACAL\2191111A_11.d	Calibration	5	☑	51732	20.0000	2586.6084
D:\MassHunter\Data\2191111ACAL\2191111A_12.d	Calibration	6	☑	49390	20.0000	2469.4769
D:\MassHunter\Data\2191111ACAL\2191111A_13.d	Calibration	7	☑	50914	20.0000	2545.6778

Target Compound *FOSA-I*

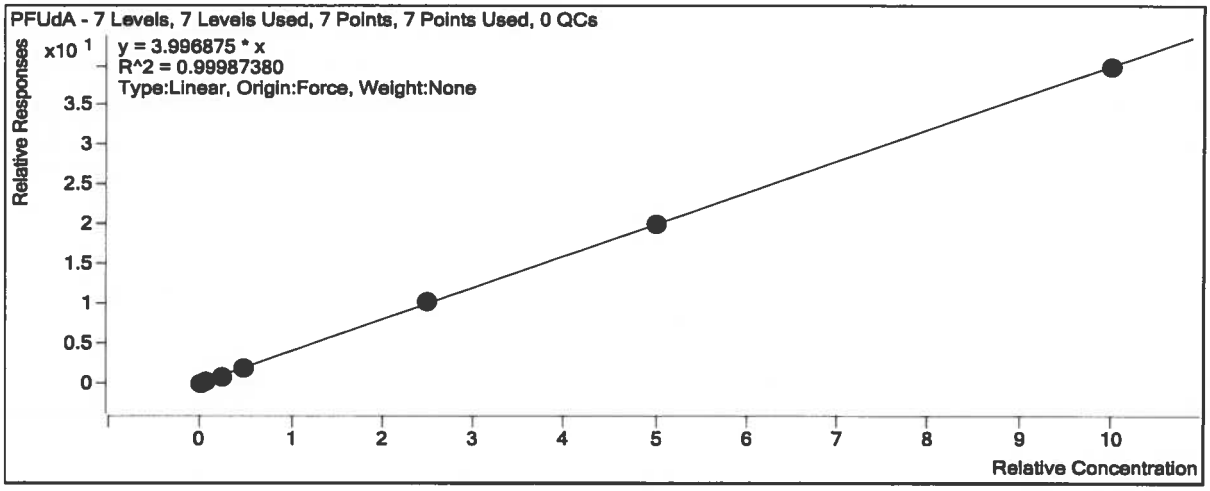
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191111ACAL\2191111A_07.d	Calibration	1	☑	4872	0.5000	3.7464
D:\MassHunter\Data\2191111ACAL\2191111A_08.d	Calibration	2	☑	12637	1.2500	4.1239
D:\MassHunter\Data\2191111ACAL\2191111A_09.d	Calibration	3	☑	53224	5.0000	4.1457
D:\MassHunter\Data\2191111ACAL\2191111A_10.d	Calibration	4	☑	110436	10.0000	4.2723
D:\MassHunter\Data\2191111ACAL\2191111A_11.d	Calibration	5	☑	575787	50.0000	4.4521
D:\MassHunter\Data\2191111ACAL\2191111A_12.d	Calibration	6	☑	1161817	100.0000	4.7047
D:\MassHunter\Data\2191111ACAL\2191111A_13.d	Calibration	7	☑	2256852	200.0000	4.4327

Quantitative Analysis Calibration Report



Target Compound *PFUdA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191111ACAL\2191111A_07.d	Calibration	1	☑	2581	0.5000	2.6789
D:\MassHunter\Data\2191111ACAL\2191111A_08.d	Calibration	2	☑	7867	1.2500	3.2314
D:\MassHunter\Data\2191111ACAL\2191111A_09.d	Calibration	3	☑	30704	5.0000	3.4031
D:\MassHunter\Data\2191111ACAL\2191111A_10.d	Calibration	4	☑	68690	10.0000	3.9696
D:\MassHunter\Data\2191111ACAL\2191111A_11.d	Calibration	5	☑	339453	50.0000	4.1122
D:\MassHunter\Data\2191111ACAL\2191111A_12.d	Calibration	6	☑	690079	100.0000	4.0338
D:\MassHunter\Data\2191111ACAL\2191111A_13.d	Calibration	7	☑	1302092	200.0000	3.9809



Extracted ISTD *M7PFUdA*

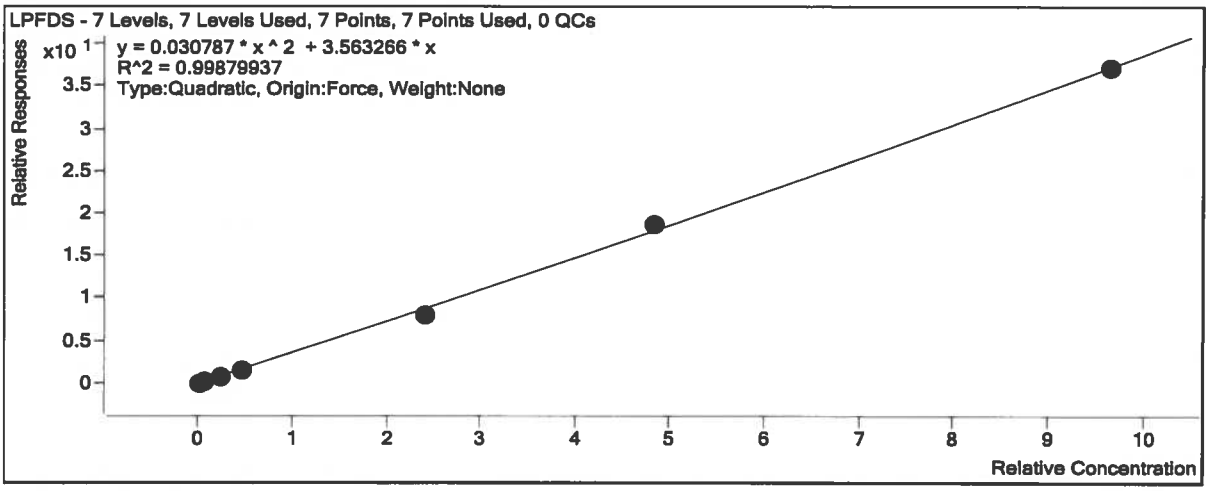
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF

Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191111ACAL\2191111A_13.d	Calibration	7	☑	32708	20.0000	1635.4150

Target Compound *LPFDS*

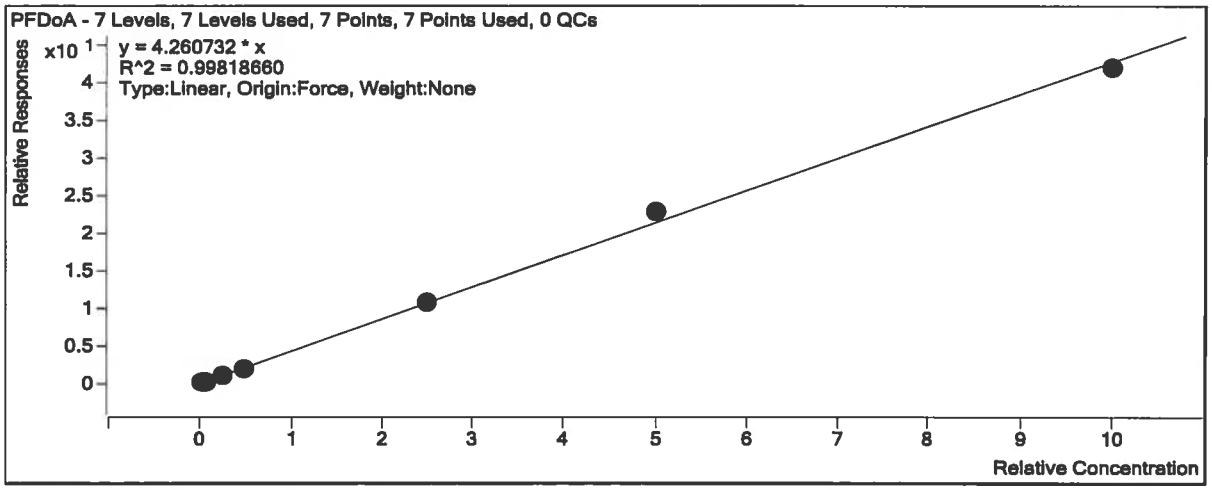
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191111ACAL\2191111A_07.d	Calibration	1	☑	2486	0.4825	2.6508
D:\MassHunter\Data\2191111ACAL\2191111A_08.d	Calibration	2	☑	6044	1.2100	2.5672
D:\MassHunter\Data\2191111ACAL\2191111A_09.d	Calibration	3	☑	24181	4.8250	2.7725
D:\MassHunter\Data\2191111ACAL\2191111A_10.d	Calibration	4	☑	50715	9.6500	2.9769
D:\MassHunter\Data\2191111ACAL\2191111A_11.d	Calibration	5	☑	272245	48.2500	3.2806
D:\MassHunter\Data\2191111ACAL\2191111A_12.d	Calibration	6	☑	577189	96.5000	3.8613
D:\MassHunter\Data\2191111ACAL\2191111A_13.d	Calibration	7	☑	1136434	193.0000	3.8473



Target Compound *11Cl-PF3OUdS*

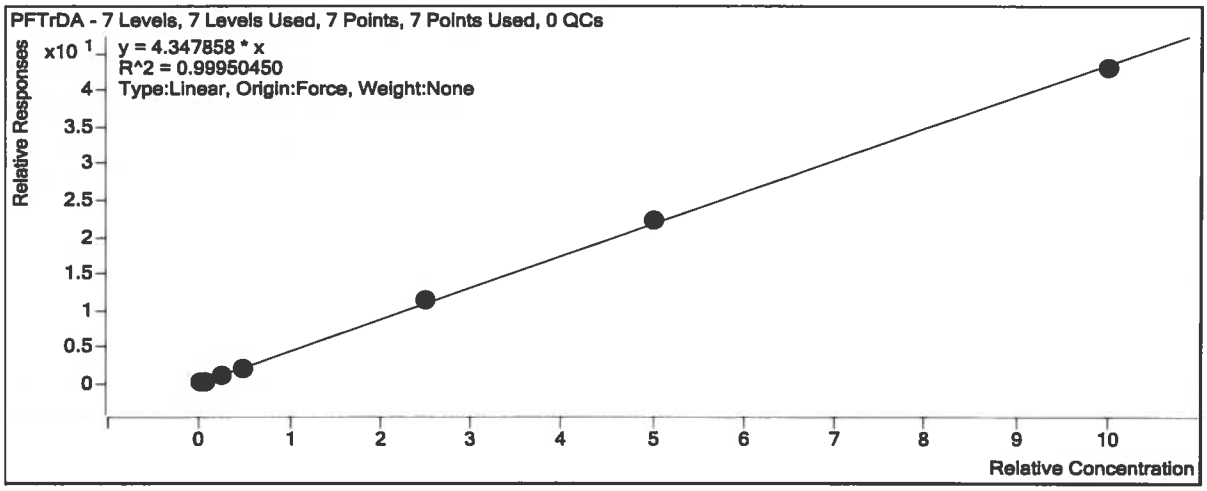
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191111ACAL\2191111A_07.d	Calibration	1	☑	6252	0.5000	15.5664
D:\MassHunter\Data\2191111ACAL\2191111A_08.d	Calibration	2	☑	16431	1.2500	16.0646
D:\MassHunter\Data\2191111ACAL\2191111A_09.d	Calibration	3	☑	69984	5.0000	17.9602
D:\MassHunter\Data\2191111ACAL\2191111A_10.d	Calibration	4	☑	143262	10.0000	17.6546
D:\MassHunter\Data\2191111ACAL\2191111A_11.d	Calibration	5	☑	740387	50.0000	20.3525
D:\MassHunter\Data\2191111ACAL\2191111A_12.d	Calibration	6	☑	1526535	100.0000	18.0807
D:\MassHunter\Data\2191111ACAL\2191111A_13.d	Calibration	7	☑	3009150	200.0000	16.7659

Quantitative Analysis Calibration Report



Target Compound *PFTrDA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191111ACAL\2191111A_07.d	Calibration	1	☑	1883	0.5000	3.8367
D:\MassHunter\Data\2191111ACAL\2191111A_08.d	Calibration	2	☑	4659	1.2500	3.7683
D:\MassHunter\Data\2191111ACAL\2191111A_09.d	Calibration	3	☑	19399	5.0000	3.9928
D:\MassHunter\Data\2191111ACAL\2191111A_10.d	Calibration	4	☑	41213	10.0000	4.3368
D:\MassHunter\Data\2191111ACAL\2191111A_11.d	Calibration	5	☑	216259	50.0000	4.5214
D:\MassHunter\Data\2191111ACAL\2191111A_12.d	Calibration	6	☑	449912	100.0000	4.4745
D:\MassHunter\Data\2191111ACAL\2191111A_13.d	Calibration	7	☑	883870	200.0000	4.3056



Extracted ISTD *M2PFTeDA*

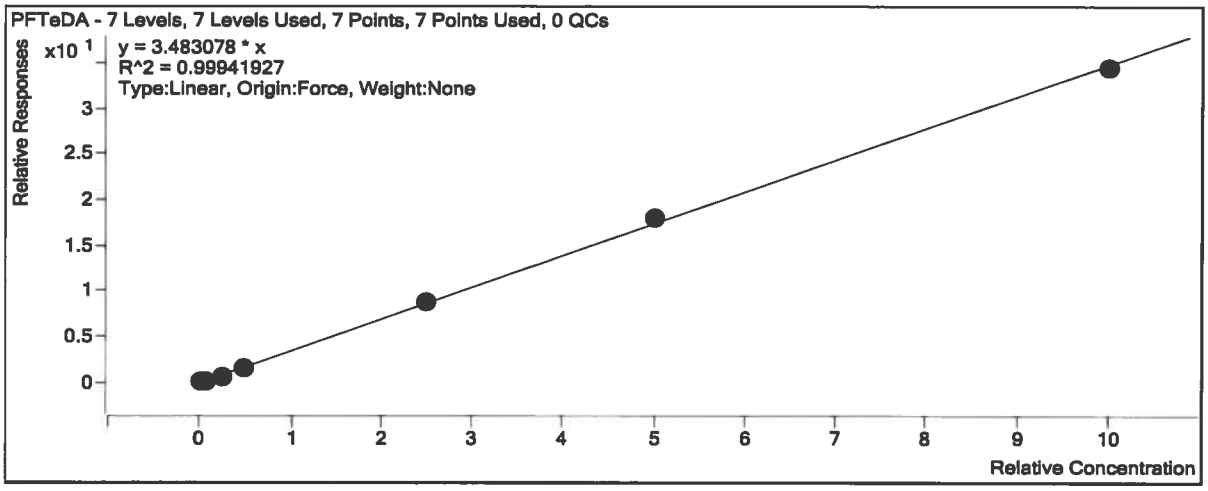
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF

Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191111ACAL\2191111A_13.d	Calibration	7	☑	20528	20.0000	1026.4139

Target Compound *PFTeDA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191111ACAL\2191111A_07.d	Calibration	1	☑	1579	0.5000	3.2171
D:\MassHunter\Data\2191111ACAL\2191111A_08.d	Calibration	2	☑	3901	1.2500	3.1552
D:\MassHunter\Data\2191111ACAL\2191111A_09.d	Calibration	3	☑	15252	5.0000	3.1393
D:\MassHunter\Data\2191111ACAL\2191111A_10.d	Calibration	4	☑	31274	10.0000	3.2910
D:\MassHunter\Data\2191111ACAL\2191111A_11.d	Calibration	5	☑	171502	50.0000	3.5857
D:\MassHunter\Data\2191111ACAL\2191111A_12.d	Calibration	6	☑	362486	100.0000	3.6050
D:\MassHunter\Data\2191111ACAL\2191111A_13.d	Calibration	7	☑	707586	200.0000	3.4469



6I

ORGANICS INITIAL CALIBRATION VERIFICATION

Report No:	219103085	Instrument ID:	QQQ1
Analysis Date:	11/11/2019 10:57	Lab File ID:	2191111A_14.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	671157

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	50000	56500	113	70	130	
8:2 Fluorotelomer sulfonate	ng/L	50000	52900	106	70	130	
NEtFOSAA	ng/L	50000	41000	82	70	130	
NMeFOSAA	ng/L	50000	50400	101	70	130	
Perfluorobutanoic acid	ng/L	50000	49700	99	70	130	
Perfluorobutanesulfonic acid	ng/L	50000	47800	96	70	130	
Perfluorodecanoic acid	ng/L	50000	49100	98	70	130	
Perfluorododecanoic acid	ng/L	50000	49600	99	70	130	
Perfluoroheptanoic acid	ng/L	50000	47900	96	70	130	
Perfluorohexanoic acid	ng/L	50000	52900	106	70	130	
Perfluorohexanesulfonic acid	ng/L	50000	50600	101	70	130	
Perfluorononanoic acid	ng/L	50000	52600	105	70	130	
Perfluorooctanoic acid	ng/L	50000	48100	96	70	130	
Perfluorooctane Sulfonate	ng/L	50000	51300	103	70	130	
Perfluoropentanoic acid	ng/L	50000	47300	95	70	130	
Perfluorotetradecanoic acid	ng/L	50000	55300	111	70	130	
Perfluorotridecanoic acid	ng/L	50000	47300	95	70	130	
Perfluoroundecanoic acid	ng/L	50000	44500	89	70	130	

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7S

ORGANICS INSTRUMENT SENSITIVITY CHECK

Report No:	219103085	Instrument ID:	QQQ1
Analysis Date:	11/11/2019 11:08	Lab File ID:	2191111A_15.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	671157

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	7.93	8.07	102	70	130	
8:2 Fluorotelomer sulfonate	ng/L	8.00	8.93	112	70	130	
NEtFOSAA	ng/L	8.33	6.36	76	70	130	
NMeFOSAA	ng/L	8.33	8.33	100	70	130	
Perfluorobutanoic acid	ng/L	8.33	9.27	111	70	130	
Perfluorobutanesulfonic acid	ng/L	7.40	6.15	83	70	130	
Perfluorodecanoic acid	ng/L	8.33	8.27	99	70	130	
Perfluorododecanoic acid	ng/L	8.33	7.20	87	70	130	
Perfluoroheptanoic acid	ng/L	8.33	7.60	92	70	130	
Perfluorohexanoic acid	ng/L	8.33	8.47	102	70	130	
Perfluorohexanesulfonic acid	ng/L	7.60	6.67	88	70	130	
Perfluorononanoic acid	ng/L	8.33	8.13	98	70	130	
Perfluorooctanoic acid	ng/L	8.33	7.40	89	70	130	
Perfluorooctane Sulfonate	ng/L	7.73	8.80	114	70	130	
Perfluoropentanoic acid	ng/L	8.33	6.65	80	70	130	
Perfluorotetradecanoic acid	ng/L	8.33	8.33	100	70	130	
Perfluorotridecanoic acid	ng/L	8.33	8.47	102	70	130	
Perfluoroundecanoic acid	ng/L	8.33	8.60	103	70	130	

FORM 7S - ORG

4I

ORGANICS INSTRUMENT BLANK

Report No:	219103085	Instrument ID:	QQQ1
Analysis Date:	11/11/2019 11:20	Lab File ID:	2191111A_16.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	671157

ANALYTE	UNITS	RESULT	Q	DL	LOD	LOQ	#
6:2 Fluorotelomer sulfonate	ng/L	4.00	U	1.79	4.00	10.0	
8:2 Fluorotelomer sulfonate	ng/L	4.00	U	1.63	4.00	10.0	
NEtFOSAA	ng/L	8.00	U	5.38	8.00	10.0	
NMeFOSAA	ng/L	8.00	U	4.60	8.00	10.0	
Perfluorobutanesulfonic acid	ng/L	4.00	U	1.47	4.00	10.0	
Perfluorobutanoic acid	ng/L	4.00	U	2.13	4.00	10.0	
Perfluorodecanoic acid	ng/L	4.00	U	1.65	4.00	10.0	
Perfluorododecanoic acid	ng/L	4.00	U	2.45	4.00	10.0	
Perfluoroheptanoic acid	ng/L	4.00	U	1.85	4.00	10.0	
Perfluorohexanesulfonic acid	ng/L	4.00	U	1.64	4.00	10.0	
Perfluorohexanoic acid	ng/L	4.00	U	1.94	4.00	10.0	
Perfluorononanoic acid	ng/L	4.00	U	1.68	4.00	10.0	
Perfluorooctane Sulfonate	ng/L	4.00	U	1.70	4.00	10.0	
Perfluorooctanoic acid	ng/L	4.00	U	1.80	4.00	10.0	
Perfluoropentanoic acid	ng/L	4.00	U	2.35	4.00	10.0	
Perfluorotetradecanoic acid	ng/L	4.00	U	2.76	4.00	10.0	
Perfluorotridecanoic acid	ng/L	4.00	U	2.56	4.00	10.0	
Perfluoroundecanoic acid	ng/L	4.00	U	1.86	4.00	10.0	

* - Result greater than 1/2 LOQ

7E

ORGANICS CALIBRATION VERIFICATION

Report No:	219103085	Instrument ID:	QQQ1
Analysis Date:	11/11/2019 15:16	Lab File ID:	2191111A_31.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	671157

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	47500	50400	106	70	130	
8:2 Fluorotelomer sulfonate	ng/L	48000	55700	116	70	130	
NEtFOSAA	ng/L	50000	44500	89	70	130	
NMeFOSAA	ng/L	50000	56500	113	70	130	
Perfluorobutanoic acid	ng/L	50000	49700	99	70	130	
Perfluorobutanesulfonic acid	ng/L	44300	42600	96	70	130	
Perfluorodecanoic acid	ng/L	50000	46800	94	70	130	
Perfluorododecanoic acid	ng/L	50000	50600	101	70	130	
Perfluoroheptanoic acid	ng/L	50000	48200	96	70	130	
Perfluorohexanoic acid	ng/L	50000	48800	98	70	130	
Perfluorohexanesulfonic acid	ng/L	45600	43400	95	70	130	
Perfluorononanoic acid	ng/L	50000	50300	101	70	130	
Perfluorooctanoic acid	ng/L	50000	46300	93	70	130	
Perfluorooctane Sulfonate	ng/L	46300	54900	119	70	130	
Perfluoropentanoic acid	ng/L	50000	46500	93	70	130	
Perfluorotetradecanoic acid	ng/L	50000	51500	103	70	130	
Perfluorotridecanoic acid	ng/L	50000	49200	98	70	130	
Perfluoroundecanoic acid	ng/L	50000	51100	102	70	130	

FORM 7E - ORG

7E

ORGANICS CALIBRATION VERIFICATION

Report No:	219103085	Instrument ID:	QQQ1
Analysis Date:	11/11/2019 17:48	Lab File ID:	2191111A_43.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	671157

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	47500	50600	106	70	130	
8:2 Fluorotelomer sulfonate	ng/L	48000	54500	114	70	130	
NEtFOSAA	ng/L	50000	46500	93	70	130	
NMeFOSAA	ng/L	50000	54300	109	70	130	
Perfluorobutanoic acid	ng/L	50000	49000	98	70	130	
Perfluorobutanesulfonic acid	ng/L	44300	42700	97	70	130	
Perfluorodecanoic acid	ng/L	50000	48700	97	70	130	
Perfluorododecanoic acid	ng/L	50000	49100	98	70	130	
Perfluoroheptanoic acid	ng/L	50000	50100	100	70	130	
Perfluorohexanoic acid	ng/L	50000	50700	101	70	130	
Perfluorohexanesulfonic acid	ng/L	45600	44700	98	70	130	
Perfluorononanoic acid	ng/L	50000	49000	98	70	130	
Perfluorooctanoic acid	ng/L	50000	46700	93	70	130	
Perfluorooctane Sulfonate	ng/L	46300	58400	126	70	130	
Perfluoropentanoic acid	ng/L	50000	44200	88	70	130	
Perfluorotetradecanoic acid	ng/L	50000	52800	106	70	130	
Perfluorotridecanoic acid	ng/L	50000	52000	104	70	130	
Perfluoroundecanoic acid	ng/L	50000	52100	104	70	130	

FORM 7E - ORG

7E

ORGANICS CALIBRATION VERIFICATION

Report No:	219103085	Instrument ID:	QQQ1
Analysis Date:	11/11/2019 19:41	Lab File ID:	2191111A_53.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	671157

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	47500	49600	104	70	130	
8:2 Fluorotelomer sulfonate	ng/L	48000	57900	121	70	130	
NEtFOSAA	ng/L	50000	46200	92	70	130	
NMeFOSAA	ng/L	50000	50800	102	70	130	
Perfluorobutanoic acid	ng/L	50000	49200	98	70	130	
Perfluorobutanesulfonic acid	ng/L	44300	42700	97	70	130	
Perfluorodecanoic acid	ng/L	50000	49300	99	70	130	
Perfluorododecanoic acid	ng/L	50000	52000	104	70	130	
Perfluoroheptanoic acid	ng/L	50000	48100	96	70	130	
Perfluorohexanoic acid	ng/L	50000	48800	98	70	130	
Perfluorohexanesulfonic acid	ng/L	45600	45500	100	70	130	
Perfluorononanoic acid	ng/L	50000	53400	107	70	130	
Perfluorooctanoic acid	ng/L	50000	48200	96	70	130	
Perfluorooctane Sulfonate	ng/L	46300	59800	129	70	130	
Perfluoropentanoic acid	ng/L	50000	46100	92	70	130	
Perfluorotetradecanoic acid	ng/L	50000	51300	103	70	130	
Perfluorotridecanoic acid	ng/L	50000	51800	104	70	130	
Perfluoroundecanoic acid	ng/L	50000	52300	105	70	130	

FORM 7E - ORG

8I

INJECTION INTERNAL STANDARD AREA SUMMARY

Report No:	219103085	Standard ID:	1205 (ICAL Midpoint)
Analyst:	BMH	Instrument ID:	QQQ1
Analysis Date:	11/11/19 10:23	Lab File ID:	2191111A_11.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	671157

	M2PFDA	M2PFHxA	M2PFOA	M4PFOS
	Area	*Area*	*Area*	*Area*
STANDARD	229632	602457	217679	210051

CLIENT SAMPLE ID	*GCAL SAMP ID*		#		#		#		#
MB1977429	1977429	145051		350683		129480		120564	
LCS1977430	1977430	152349		364834		133642		126380	
LCSD1977431	1977431	145357		368722		134999		112921	
AOI 8-X3-1-102919	21910308501	126722		346224		118897		112712	
AOI 8-X3-1-102919-D	21910308502	131308		342269		118708		115592	
AOI 8-5-SW-102919	21910308503	110575	*	356650		126846		97920	*
AOI 8-5-SW-102919-MS	21910308504	131907		357569		130417		108312	
AOI 8-5-SW-102919-MSD	21910308505	133664		361586		132349		108212	
AOI 8-6-SW-102919	21910308506	136345		359041		132448		107159	
AOI 8-6-SW-102919-MS	21910308507	94013	*	361968		124576		87318	*
AOI 8-6-SW-102919-MSD	21910308508	127649		354033		126116		104172	*
AOI 8-7-SW-102919	21910308509	137213		365032		136206		108422	
AOI 8-7-SW-102919-D	21910308510	136235		368516		128384		96095	*
AOI 8-4-SW-102919	21910308511	137552		364060		128846		100316	*
AOI 8-3-SW-102919	21910308512	101546	*	324702		113284		82601	*
AOI 5-N19-3-102919	21910308515	134964		301064	*	120948		114571	
AOI 5-N19-3-102919-D	21910308516	136613		288393	*	114713		114069	

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

*for monitoring only

FORM 8I - ORG

LCMS1 Run Log

Analyst:	BMH	Expiration
Batch:	2191112A	Date
Current ICAL Bath:	2191112ACAL/2191112ACALDW	Date
20mM Amm Acetate	010-14-5	11/14/2019
Methanol	2128497	8/31/2024
Calibration Std	010-11-1	5/1/2020
ICV Std	010-6-5	4/9/2020
EIS Mix	010-14-2	5/11/2020

Name	Data File	Type	Acq. Date-Time	Comment	Dil.
MeOH Shot	2191112B_01.d	Method Blank	11/12/2019 13:10	Instrument idle/MeOH Shot	1
1201	2191112B_02.d	Cal	11/12/2019 13:21		1
1202	2191112B_03.d	Cal	11/12/2019 13:32		1
1203	2191112B_04.d	Cal	11/12/2019 13:44		1
1204	2191112B_05.d	Cal	11/12/2019 13:55		1
1205	2191112B_06.d	Cal	11/12/2019 14:06		1
1206	2191112B_07.d	Cal	11/12/2019 14:18		1
1207	2191112B_08.d	Cal	11/12/2019 14:29		1
MeOH Shot	2191112B_09.d	Method Blank	11/12/2019 15:09	Instrument idle/MeOH Shot	1
1202	2191112B_10.d	Cal	11/12/2019 15:20		1
MeOH Shot	2191112B_11.d	Method Blank	11/12/2019 15:48	Instrument idle/MeOH Shot	1
1600	2191112B_12.d	QC	11/12/2019 15:59		1
1450	2191112B_13.d	QC	11/12/2019 16:10		1
1500	2191112B_14.d	Sample	11/12/2019 16:22		1
MeOH Shot	2191112B_15.d	Method Blank	11/12/2019 16:50	Instrument idle/MeOH Shot	1
21910222812	2191112B_16.d	Sample	11/12/2019 17:01	670641	1
21910222813	2191112B_17.d	Sample	11/12/2019 17:12	670641	1
21910222814	2191112B_18.d	Sample	11/12/2019 17:24	670641	1
21910222816	2191112B_19.d	Sample	11/12/2019 17:35	670641	1
1400	2191112B_20.d	QC	11/12/2019 17:46		1
MeOH Shot	2191112B_21.d	Method Blank	11/12/2019 17:58	Instrument idle/MeOH Shot	1
1976203	2191112B_22.d	Sample	11/12/2019 18:09	670210	1

1976204	2191112B_23.d	QC	11/12/2019 18:20	670210	1
1976205	2191112B_24.d	QC	11/12/2019 18:31	670210	1
21910271701	2191112B_25.d	Sample	11/12/2019 18:43	670210	1
21910271702	2191112B_26.d	Sample	11/12/2019 18:54	670210	1
21910271703	2191112B_27.d	Sample	11/12/2019 19:05	670210	1
21910271705	2191112B_28.d	Sample	11/12/2019 19:16	670210	1
21910271706	2191112B_29.d	Sample	11/12/2019 19:28	670210	1
21910271707	2191112B_30.d	Sample	11/12/2019 19:39	670210	1
21910271708	2191112B_31.d	Sample	11/12/2019 19:51	670210	1
21910271709	2191112B_32.d	Sample	11/12/2019 20:02	670210	1
21910271710	2191112B_33.d	Sample	11/12/2019 20:13	670210	1
21910271711	2191112B_34.d	Sample	11/12/2019 20:25	670210	1
1400	2191112B_35.d	QC	11/12/2019 20:36		1
21910271712	2191112B_36.d	Sample	11/12/2019 20:47	670210	1
21910271714	2191112B_37.d	Sample	11/12/2019 20:59	670210	1
21910271715	2191112B_38.d	Sample	11/12/2019 21:10	670210	1
21910271716	2191112B_39.d	Sample	11/12/2019 21:21	670210	1
21910271717	2191112B_40.d	Sample	11/12/2019 21:32	670210	1
21910271718	2191112B_41.d	Sample	11/12/2019 21:44	670210	1
21910271720	2191112B_42.d	Sample	11/12/2019 21:55	670210	1
21910271721	2191112B_43.d	Sample	11/12/2019 22:06	670210	1
21910308513	2191112B_44.d	Sample	11/12/2019 22:18	670210	1
21910308514	2191112B_45.d	Sample	11/12/2019 22:29	670210	1
1400	2191112B_46.d	QC	11/12/2019 22:40		1
MeOH Shot	2191112B_47.d	Method Blank	11/12/2019 22:52	Instrument idle/MeOH Shot	1
1977961	2191112B_48.d	Sample	11/12/2019 23:02	670574	1
1977962	2191112B_49.d	QC	11/12/2019 23:14	670574	1
1977963	2191112B_50.d	QC	11/12/2019 23:25	670574	1
21911011601	2191112B_51.d	Sample	11/12/2019 23:36	670574	1
21911011603	2191112B_52.d	Sample	11/12/2019 23:48	670574	1
21911011604	2191112B_53.d	Sample	11/12/2019 23:59	670574	1
21911011605	2191112B_54.d	Sample	11/13/2019 0:10	670574	1
21911011606	2191112B_55.d	Sample	11/13/2019 0:22	670574	1
21911011607	2191112B_56.d	Sample	11/13/2019 0:33	670574	1

21911011608	2191112B_57.d	Sample	11/13/2019 0:44	670574	1
21911011609	2191112B_58.d	Sample	11/13/2019 0:56	670574	1
21911011701	2191112B_59.d	Sample	11/13/2019 1:07	670574	1
21910308517	2191112B_60.d	Sample	11/13/2019 1:18	670574	1
1400	2191112B_61.d	QC	11/13/2019 1:30		1
21911011501	2191112B_62.d	Sample	11/13/2019 1:41	670574	1
21911011101	2191112B_63.d	Sample	11/13/2019 1:52	670574	1
21911011702	2191112B_64.d	Sample	11/13/2019 2:04	670574	1
21911011703	2191112B_65.d	Sample	11/13/2019 2:15	670574	1
21911011704	2191112B_66.d	Sample	11/13/2019 2:26	670574	1
21911011705	2191112B_67.d	Sample	11/13/2019 2:38	670574	1
21911040701	2191112B_68.d	Sample	11/13/2019 2:49	670574	1
21911040702	2191112B_69.d	Sample	11/13/2019 3:00	670574	1
21911040703	2191112B_70.d	Sample	11/13/2019 3:12	670574	1
21911040704	2191112B_71.d	Sample	11/13/2019 3:23	670574	1
1400	2191112B_72.d	QC	11/13/2019 3:34		1
MeOH Shot	2191112B_73.d	Method Blank	11/13/2019 3:46	Instrument idle/MeOH Shot	1
1974712	2191112B_74.d	Sample	11/13/2019 3:57	669971	1
1974713	2191112B_75.d	QC	11/13/2019 4:08	669971	1
1974714	2191112B_76.d	QC	11/13/2019 4:19	669971	1
21910233302	2191112B_77.d	Sample	11/13/2019 4:31	669971	1
21910233303	2191112B_78.d	Sample	11/13/2019 4:42	669971	1
21910233307	2191112B_79.d	Sample	11/13/2019 4:53	669971	1
21910233310	2191112B_80.d	Sample	11/13/2019 5:04	669971	1
21910233312	2191112B_81.d	Sample	11/13/2019 5:16	669971	1
21910233318	2191112B_82.d	Sample	11/13/2019 5:27	669971	1
21910255804	2191112B_83.d	Sample	11/13/2019 5:38	670211	5
21910255805	2191112B_84.d	Sample	11/13/2019 5:50	670211	5
21910255814	2191112B_85.d	Sample	11/13/2019 6:01	670211	5
1400	2191112B_86.d	QC	11/13/2019 6:13		1
MeOH Shot	2191112B_87.d	Method Blank	11/13/2019 6:24	Instrument idle/MeOH Shot	1
1976630	2191112B_88.d	Sample	11/13/2019 6:35	670308	1
1976631	2191112B_89.d	QC	11/13/2019 6:46	670308	1
1976632	2191112B_90.d	QC	11/13/2019 6:57	670308	1

MeOH Shot	2191112B_91.d	Method Blank	11/13/2019 9:32	Instrument idle/MeOH Shot	1
MeOH Shot	2191112B_92.d	Method Blank	11/13/2019 9:43	Instrument idle/MeOH Shot	1
1500	2191112B_93.d	Sample	11/13/2019 9:54		1
1400	2191112B_94.d	QC	11/13/2019 10:05		1
1976630	2191112B_95.d	Sample	11/13/2019 10:17	670308	1
1976631	2191112B_96.d	QC	11/13/2019 10:28	670308	1
1976632	2191112B_97.d	QC	11/13/2019 10:39	670308	1
21910225105	2191112B_98.d	Sample	11/13/2019 10:51	669971	1
21911091502	2191112B_99.d	Sample	11/13/2019 11:02	669971	1
1400	2191112B_100.d	QC	11/13/2019 11:13		1

Quantitative Analysis Calibration Report

Batch Data Path	D:\MassHunter\Data\2191112BCAL\QuantResults\2191112B.batch.bin		
Analysis Time	11/17/2019 12:33 PM	**Analyst Name**	GCAL\lcms
Report Time	11/17/2019 12:35 PM	**Reporter Name**	GCAL\lcms
Last Calib Update	11/12/2019 3:42 PM	**Batch State**	Processed

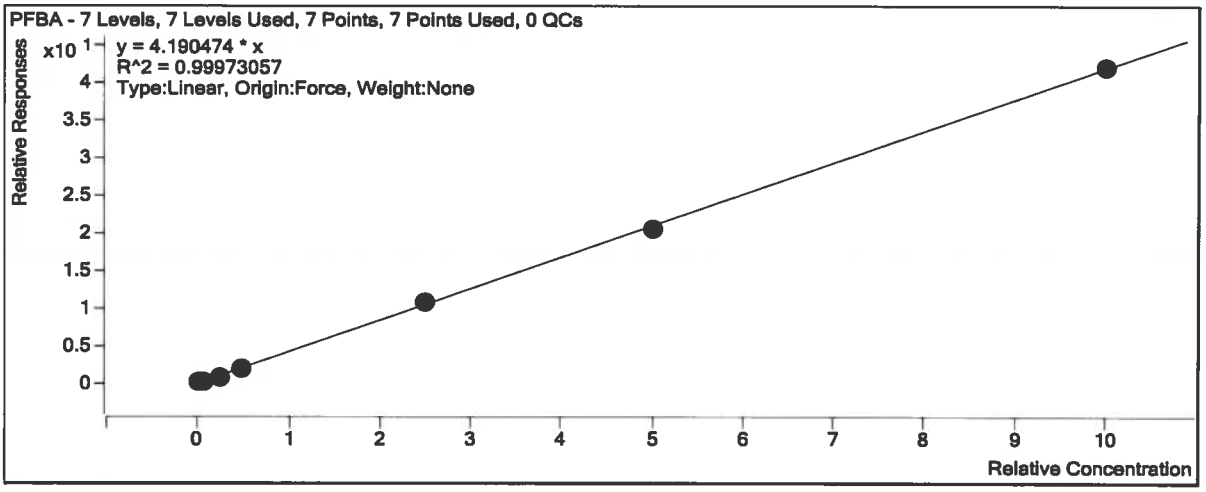
Calibration Info

Extracted ISTD ***MPFBA***

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191112BCAL\2191112B_02.d	Calibration	1	☑	66197	20.0000	3309.8377
D:\MassHunter\Data\2191112BCAL\2191112B_10.d	Calibration	2	☑	58871	20.0000	2943.5584
D:\MassHunter\Data\2191112BCAL\2191112B_04.d	Calibration	3	☑	60112	20.0000	3005.5826
D:\MassHunter\Data\2191112BCAL\2191112B_05.d	Calibration	4	☑	63369	20.0000	3168.4384
D:\MassHunter\Data\2191112BCAL\2191112B_06.d	Calibration	5	☑	55906	20.0000	2795.3098
D:\MassHunter\Data\2191112BCAL\2191112B_07.d	Calibration	6	☑	61884	20.0000	3094.2173
D:\MassHunter\Data\2191112BCAL\2191112B_08.d	Calibration	7	☑	59264	20.0000	2963.1883

Target Compound ***PFBA***

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191112BCAL\2191112B_02.d	Calibration	1	☑	6721	0.5000	4.0615
D:\MassHunter\Data\2191112BCAL\2191112B_10.d	Calibration	2	☑	16240	1.2500	4.4136
D:\MassHunter\Data\2191112BCAL\2191112B_04.d	Calibration	3	☑	54375	5.0000	3.6183
D:\MassHunter\Data\2191112BCAL\2191112B_05.d	Calibration	4	☑	118305	10.0000	3.7339
D:\MassHunter\Data\2191112BCAL\2191112B_06.d	Calibration	5	☑	610978	50.0000	4.3715
D:\MassHunter\Data\2191112BCAL\2191112B_07.d	Calibration	6	☑	1275741	100.0000	4.1230
D:\MassHunter\Data\2191112BCAL\2191112B_08.d	Calibration	7	☑	2487612	200.0000	4.1975

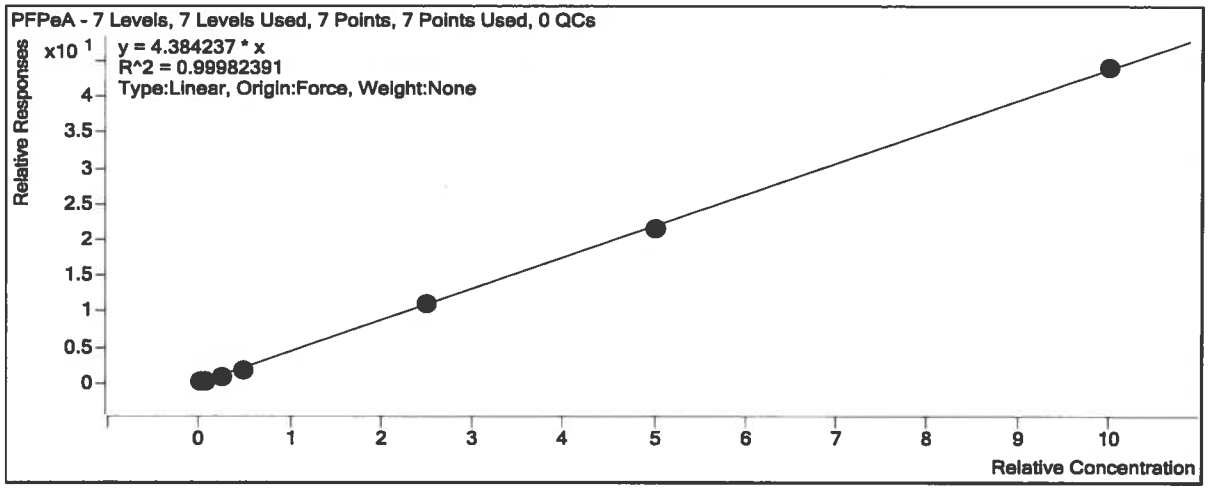


Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191112BCAL\2191112B_05.d	Calibration	4	☑	34704	20.0000	1735.2213
D:\MassHunter\Data\2191112BCAL\2191112B_06.d	Calibration	5	☑	29235	20.0000	1461.7451
D:\MassHunter\Data\2191112BCAL\2191112B_07.d	Calibration	6	☑	32583	20.0000	1629.1749
D:\MassHunter\Data\2191112BCAL\2191112B_08.d	Calibration	7	☑	31586	20.0000	1579.3082

Target Compound ***PFPeA***

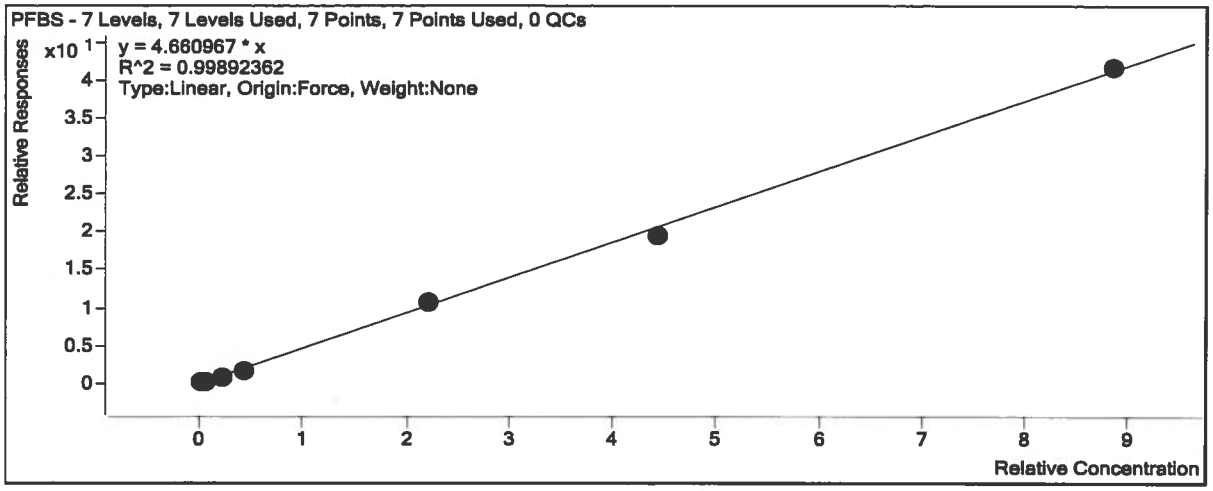
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191112BCAL\2191112B_02.d	Calibration	1	☑	2912	0.5000	3.1781
D:\MassHunter\Data\2191112BCAL\2191112B_10.d	Calibration	2	☑	8204	1.2500	3.9893
D:\MassHunter\Data\2191112BCAL\2191112B_04.d	Calibration	3	☑	27947	5.0000	3.3547
D:\MassHunter\Data\2191112BCAL\2191112B_05.d	Calibration	4	☑	65930	10.0000	3.7995
D:\MassHunter\Data\2191112BCAL\2191112B_06.d	Calibration	5	☑	320514	50.0000	4.3854
D:\MassHunter\Data\2191112BCAL\2191112B_07.d	Calibration	6	☑	703942	100.0000	4.3208
D:\MassHunter\Data\2191112BCAL\2191112B_08.d	Calibration	7	☑	1390467	200.0000	4.4021



Target Compound ***PFBS***

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191112BCAL\2191112B_02.d	Calibration	1	☑	2399	0.4425	3.7467
D:\MassHunter\Data\2191112BCAL\2191112B_10.d	Calibration	2	☑	6386	1.1100	4.4916
D:\MassHunter\Data\2191112BCAL\2191112B_04.d	Calibration	3	☑	23579	4.4250	3.9662
D:\MassHunter\Data\2191112BCAL\2191112B_05.d	Calibration	4	☑	50897	8.8500	4.0988

D:\MassHunter\Data\2191112BCAL\2191112B_06.d	Calibration	5	☑	265694	44.2500	4.8729
D:\MassHunter\Data\2191112BCAL\2191112B_07.d	Calibration	6	☑	532960	88.5000	4.4276
D:\MassHunter\Data\2191112BCAL\2191112B_08.d	Calibration	7	☑	1075143	177.0000	4.7079



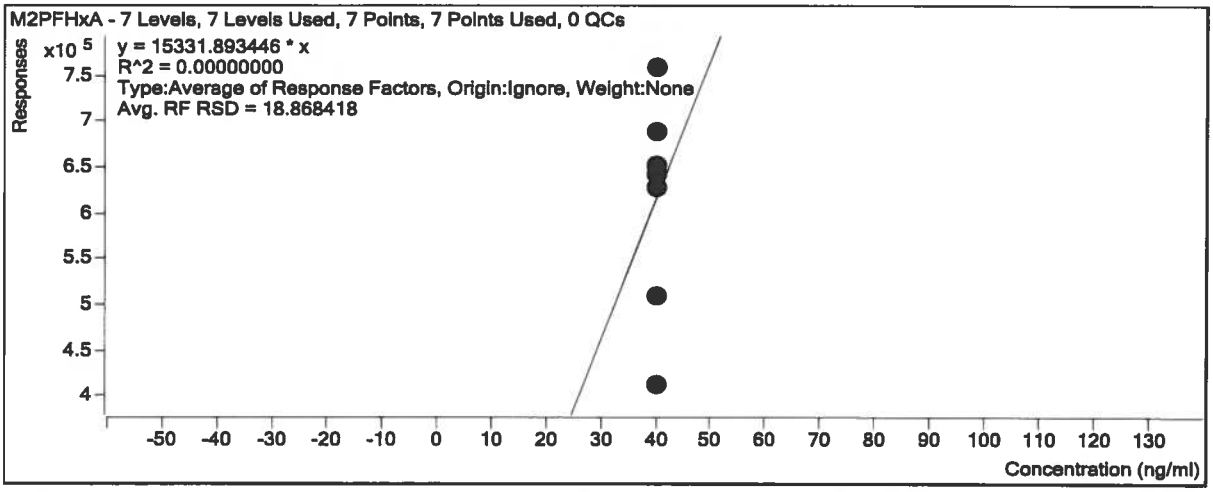
Extracted ISTD ***M3PFBS***

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191112BCAL\2191112B_02.d	Calibration	1	☑	28937	20.0000	1446.8545
D:\MassHunter\Data\2191112BCAL\2191112B_10.d	Calibration	2	☑	25617	20.0000	1280.8739
D:\MassHunter\Data\2191112BCAL\2191112B_04.d	Calibration	3	☑	26870	20.0000	1343.5007
D:\MassHunter\Data\2191112BCAL\2191112B_05.d	Calibration	4	☑	28062	20.0000	1403.0895
D:\MassHunter\Data\2191112BCAL\2191112B_06.d	Calibration	5	☑	24644	20.0000	1232.2123
D:\MassHunter\Data\2191112BCAL\2191112B_07.d	Calibration	6	☑	27203	20.0000	1360.1415
D:\MassHunter\Data\2191112BCAL\2191112B_08.d	Calibration	7	☑	25804	20.0000	1290.2204

Extracted ISTD ***M2 4:2 FTS***

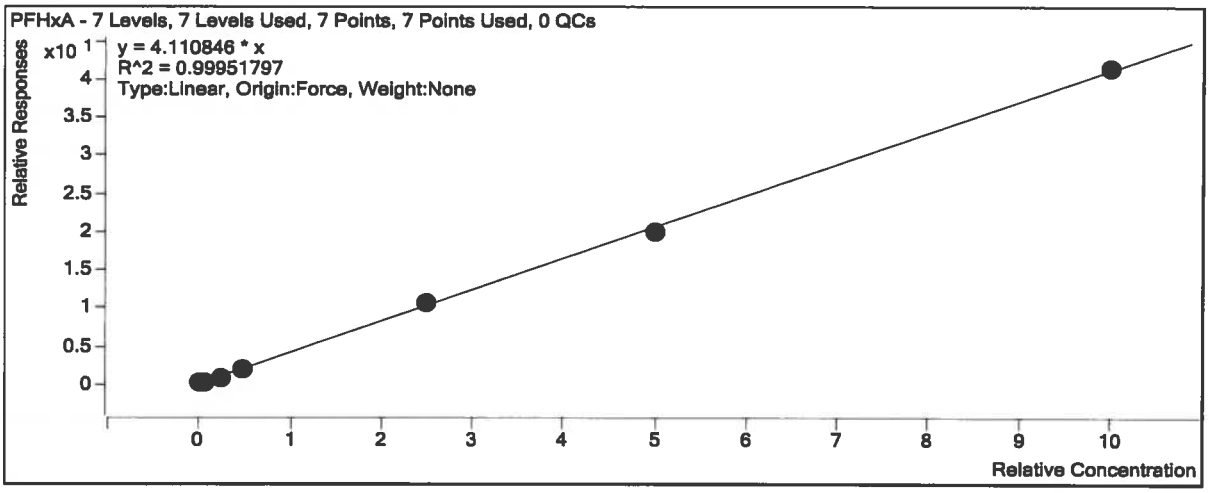
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191112BCAL\2191112B_02.d	Calibration	1	☑	8352	20.0000	417.6002
D:\MassHunter\Data\2191112BCAL\2191112B_10.d	Calibration	2	☑	7042	20.0000	352.1190
D:\MassHunter\Data\2191112BCAL\2191112B_04.d	Calibration	3	☑	7680	20.0000	383.9910
D:\MassHunter\Data\2191112BCAL\2191112B_05.d	Calibration	4	☑	7862	20.0000	393.1040
D:\MassHunter\Data\2191112BCAL\2191112B_06.d	Calibration	5	☑	6441	20.0000	322.0655
D:\MassHunter\Data\2191112BCAL\2191112B_07.d	Calibration	6	☑	7217	20.0000	360.8388
D:\MassHunter\Data\2191112BCAL\2191112B_08.d	Calibration	7	☑	6746	20.0000	337.2826

Quantitative Analysis Calibration Report



Target Compound *PFHxA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191112BCAL\2191112B_02.d	Calibration	1	☑	6976	0.5000	4.4136
D:\MassHunter\Data\2191112BCAL\2191112B_10.d	Calibration	2	☑	15148	1.2500	4.2434
D:\MassHunter\Data\2191112BCAL\2191112B_04.d	Calibration	3	☑	47213	5.0000	3.4680
D:\MassHunter\Data\2191112BCAL\2191112B_05.d	Calibration	4	☑	102600	10.0000	3.7035
D:\MassHunter\Data\2191112BCAL\2191112B_06.d	Calibration	5	☑	523166	50.0000	4.2667
D:\MassHunter\Data\2191112BCAL\2191112B_07.d	Calibration	6	☑	1075560	100.0000	3.9829
D:\MassHunter\Data\2191112BCAL\2191112B_08.d	Calibration	7	☑	2071076	200.0000	4.1345

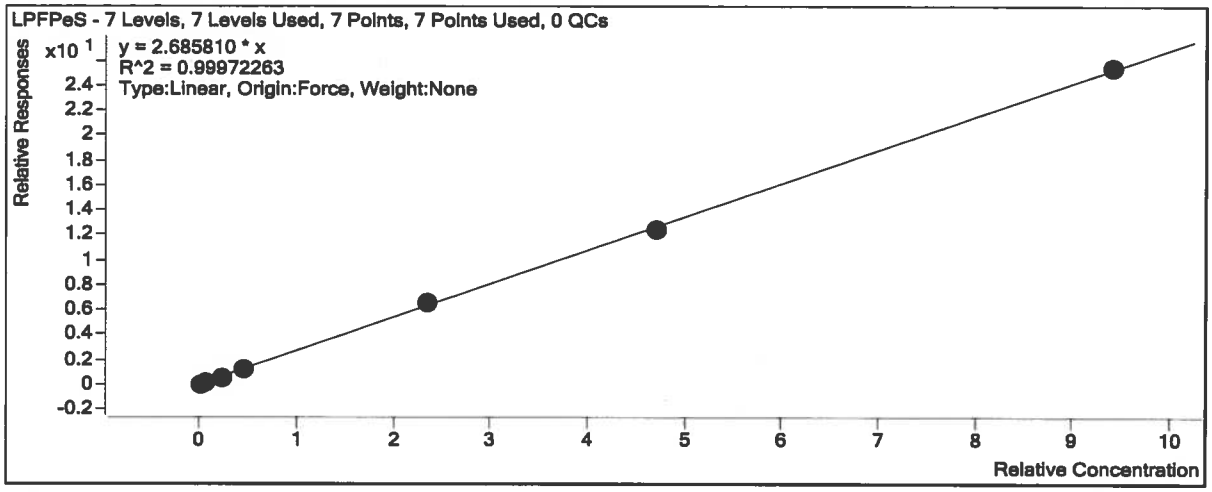


Target Compound *LPFPeS*

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

Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191112BCAL\2191112B_08.d	Calibration	7	☑	1269963	188.0000	2.6971



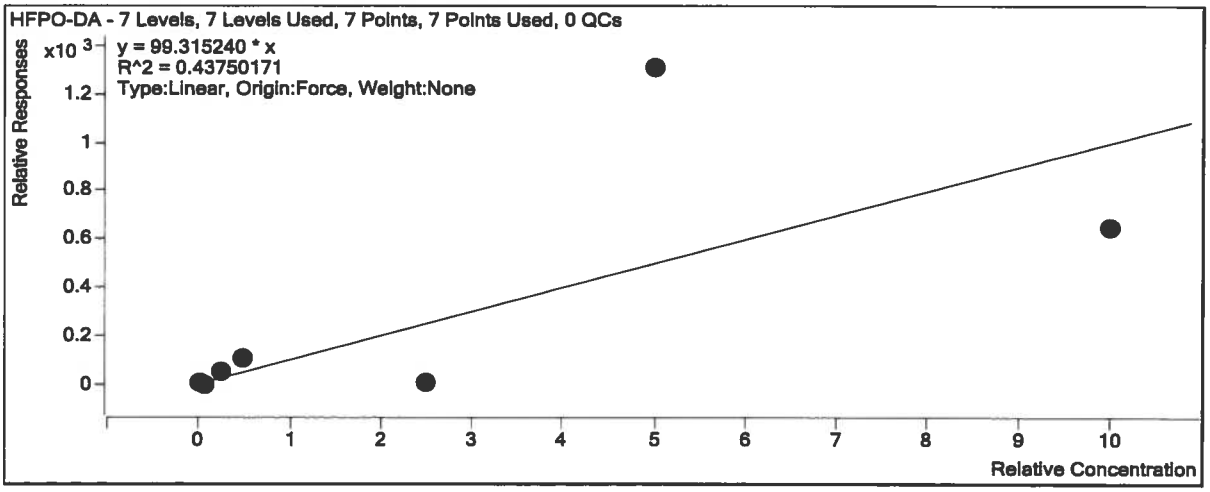
Extracted ISTD *M3HFPODA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191112BCAL\2191112B_02.d	Calibration	1	☑	34	20.0000	1.6762
D:\MassHunter\Data\2191112BCAL\2191112B_10.d	Calibration	2	☑	3218	20.0000	160.9022
D:\MassHunter\Data\2191112BCAL\2191112B_04.d	Calibration	3	☑	51	20.0000	2.5398
D:\MassHunter\Data\2191112BCAL\2191112B_05.d	Calibration	4	☑	49	20.0000	2.4631
D:\MassHunter\Data\2191112BCAL\2191112B_06.d	Calibration	5	☑	2732	20.0000	136.5825
D:\MassHunter\Data\2191112BCAL\2191112B_07.d	Calibration	6	☑	48	20.0000	2.3999
D:\MassHunter\Data\2191112BCAL\2191112B_08.d	Calibration	7	☑	192	20.0000	9.5830

Target Compound *HFPO-DA*

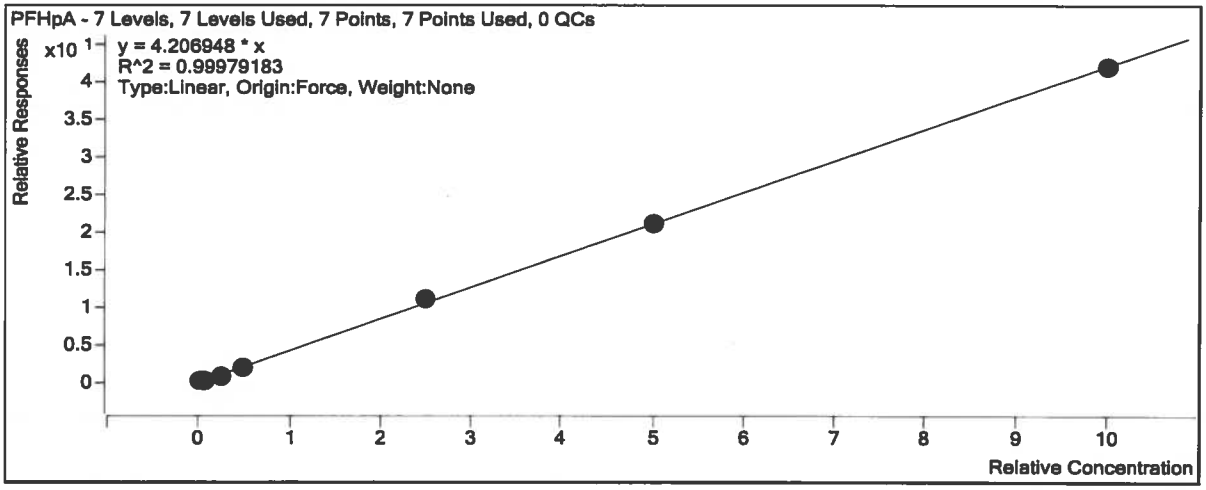
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191112BCAL\2191112B_02.d	Calibration	1	☑	282	0.5000	336.4940
D:\MassHunter\Data\2191112BCAL\2191112B_10.d	Calibration	2	☑	830	1.2500	4.1261
D:\MassHunter\Data\2191112BCAL\2191112B_04.d	Calibration	3	☑	2524	5.0000	198.7905
D:\MassHunter\Data\2191112BCAL\2191112B_05.d	Calibration	4	☑	5479	10.0000	222.4324
D:\MassHunter\Data\2191112BCAL\2191112B_06.d	Calibration	5	☑	27948	50.0000	4.0925
D:\MassHunter\Data\2191112BCAL\2191112B_07.d	Calibration	6	☑	62625	100.0000	260.9516
D:\MassHunter\Data\2191112BCAL\2191112B_08.d	Calibration	7	☑	123602	200.0000	64.4898

Quantitative Analysis Calibration Report



Target Compound *PFHpA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191112BCAL\2191112B_02.d	Calibration	1	☑	5790	0.5000	3.5778
D:\MassHunter\Data\2191112BCAL\2191112B_10.d	Calibration	2	☑	14729	1.2500	4.0121
D:\MassHunter\Data\2191112BCAL\2191112B_04.d	Calibration	3	☑	50810	5.0000	3.6494
D:\MassHunter\Data\2191112BCAL\2191112B_05.d	Calibration	4	☑	107993	10.0000	3.8211
D:\MassHunter\Data\2191112BCAL\2191112B_06.d	Calibration	5	☑	553857	50.0000	4.4012
D:\MassHunter\Data\2191112BCAL\2191112B_07.d	Calibration	6	☑	1157627	100.0000	4.2115
D:\MassHunter\Data\2191112BCAL\2191112B_08.d	Calibration	7	☑	2210580	200.0000	4.1950



Extracted ISTD *M4PFHpA*

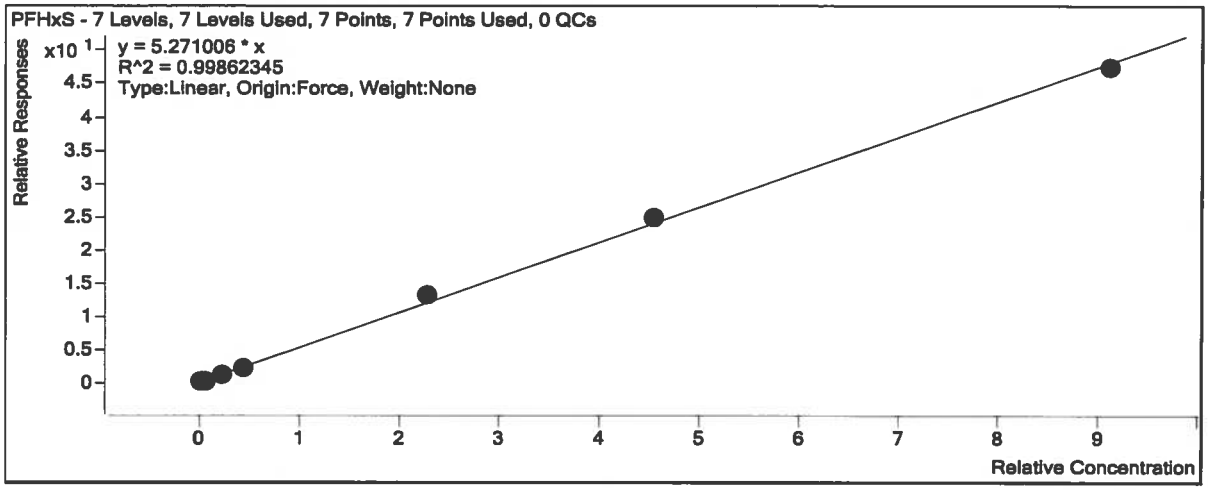
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF

Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191112BCAL\2191112B_08.d	Calibration	7	☑	52696	20.0000	2634.7847

Target Compound *PFHxS*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191112BCAL\2191112B_02.d	Calibration	1	☑	3316	0.4560	4.6911
D:\MassHunter\Data\2191112BCAL\2191112B_10.d	Calibration	2	☑	8093	1.1400	5.2031
D:\MassHunter\Data\2191112BCAL\2191112B_04.d	Calibration	3	☑	31953	4.5600	4.8117
D:\MassHunter\Data\2191112BCAL\2191112B_05.d	Calibration	4	☑	69590	9.1200	5.0621
D:\MassHunter\Data\2191112BCAL\2191112B_06.d	Calibration	5	☑	357577	45.6000	5.8340
D:\MassHunter\Data\2191112BCAL\2191112B_07.d	Calibration	6	☑	732678	91.2000	5.4270
D:\MassHunter\Data\2191112BCAL\2191112B_08.d	Calibration	7	☑	1399209	182.4000	5.1976

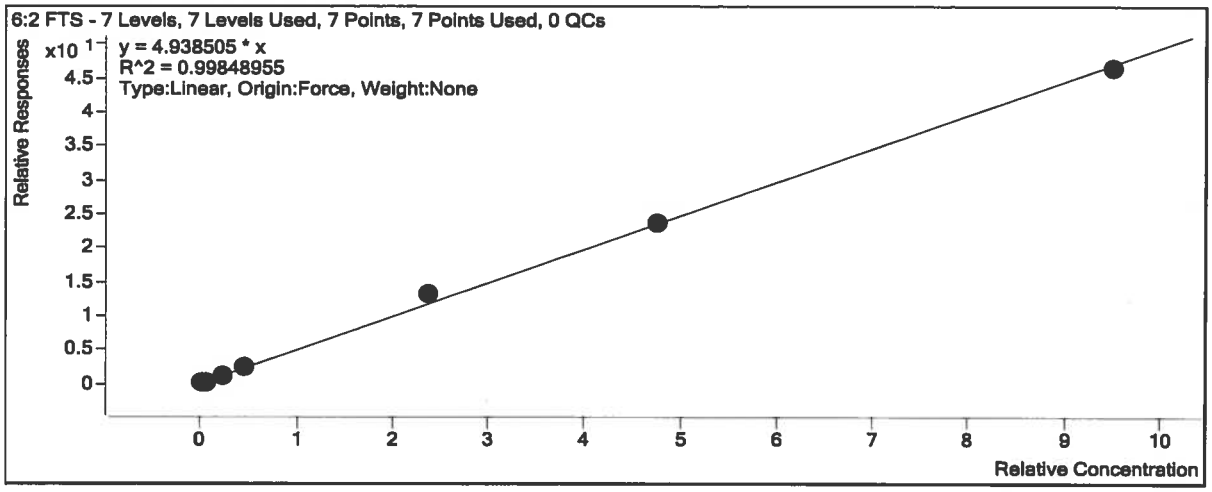


Extracted ISTD *M3PFHxS*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191112BCAL\2191112B_02.d	Calibration	1	☑	31001	20.0000	1550.0286
D:\MassHunter\Data\2191112BCAL\2191112B_10.d	Calibration	2	☑	27287	20.0000	1364.3590
D:\MassHunter\Data\2191112BCAL\2191112B_04.d	Calibration	3	☑	29126	20.0000	1456.2831
D:\MassHunter\Data\2191112BCAL\2191112B_05.d	Calibration	4	☑	30148	20.0000	1507.3875
D:\MassHunter\Data\2191112BCAL\2191112B_06.d	Calibration	5	☑	26882	20.0000	1344.1190
D:\MassHunter\Data\2191112BCAL\2191112B_07.d	Calibration	6	☑	29606	20.0000	1480.3216
D:\MassHunter\Data\2191112BCAL\2191112B_08.d	Calibration	7	☑	29518	20.0000	1475.8853

Quantitative Analysis Calibration Report

D:\MassHunter\Data\2191112BCAL\2191112B_06.d	Calibration	5	☑	186562	47.5000	5.5798
D:\MassHunter\Data\2191112BCAL\2191112B_07.d	Calibration	6	☑	368997	95.0000	4.9946
D:\MassHunter\Data\2191112BCAL\2191112B_08.d	Calibration	7	☑	661127	190.0000	4.8832



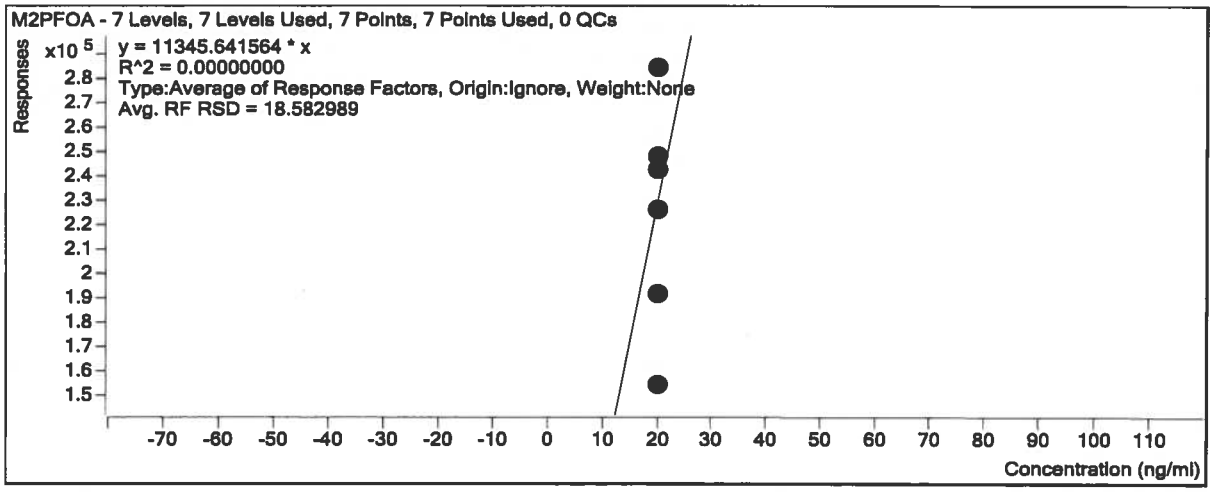
Extracted ISTD *M8PFOA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191112BCAL\2191112B_02.d	Calibration	1	☑	43034	20.0000	2151.7211
D:\MassHunter\Data\2191112BCAL\2191112B_10.d	Calibration	2	☑	38801	20.0000	1940.0471
D:\MassHunter\Data\2191112BCAL\2191112B_04.d	Calibration	3	☑	37049	20.0000	1852.4557
D:\MassHunter\Data\2191112BCAL\2191112B_05.d	Calibration	4	☑	38171	20.0000	1908.5410
D:\MassHunter\Data\2191112BCAL\2191112B_06.d	Calibration	5	☑	33266	20.0000	1663.3072
D:\MassHunter\Data\2191112BCAL\2191112B_07.d	Calibration	6	☑	35698	20.0000	1784.8928
D:\MassHunter\Data\2191112BCAL\2191112B_08.d	Calibration	7	☑	32241	20.0000	1612.0689

Instrument ISTD *M2PFOA*

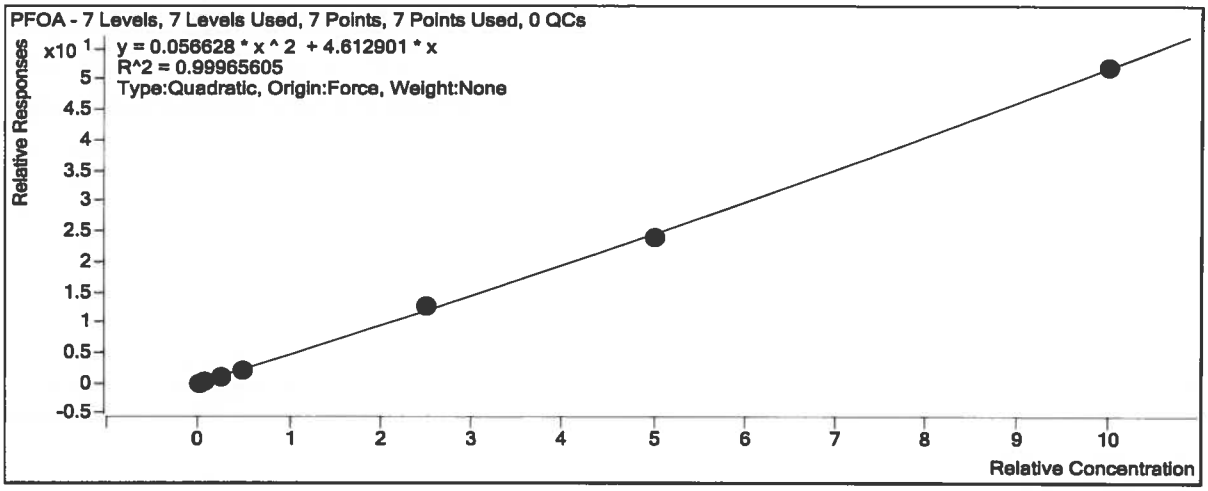
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191112BCAL\2191112B_02.d	Calibration	1	☑	283883	20.0000	14194.1258
D:\MassHunter\Data\2191112BCAL\2191112B_10.d	Calibration	2	☑	191590	20.0000	9579.4919
D:\MassHunter\Data\2191112BCAL\2191112B_04.d	Calibration	3	☑	242196	20.0000	12109.7829
D:\MassHunter\Data\2191112BCAL\2191112B_05.d	Calibration	4	☑	248106	20.0000	12405.3210
D:\MassHunter\Data\2191112BCAL\2191112B_06.d	Calibration	5	☑	154412	20.0000	7720.6044
D:\MassHunter\Data\2191112BCAL\2191112B_07.d	Calibration	6	☑	242248	20.0000	12112.3932
D:\MassHunter\Data\2191112BCAL\2191112B_08.d	Calibration	7	☑	225955	20.0000	11297.7717

Quantitative Analysis Calibration Report



Target Compound *PFOA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191112BCAL\2191112B_02.d	Calibration	1	☑	3771	0.5000	3.5051
D:\MassHunter\Data\2191112BCAL\2191112B_10.d	Calibration	2	☑	12820	1.2500	5.2864
D:\MassHunter\Data\2191112BCAL\2191112B_04.d	Calibration	3	☑	38177	5.0000	4.1218
D:\MassHunter\Data\2191112BCAL\2191112B_05.d	Calibration	4	☑	85841	10.0000	4.4977
D:\MassHunter\Data\2191112BCAL\2191112B_06.d	Calibration	5	☑	418582	50.0000	5.0331
D:\MassHunter\Data\2191112BCAL\2191112B_07.d	Calibration	6	☑	856138	100.0000	4.7966
D:\MassHunter\Data\2191112BCAL\2191112B_08.d	Calibration	7	☑	1672452	200.0000	5.1873

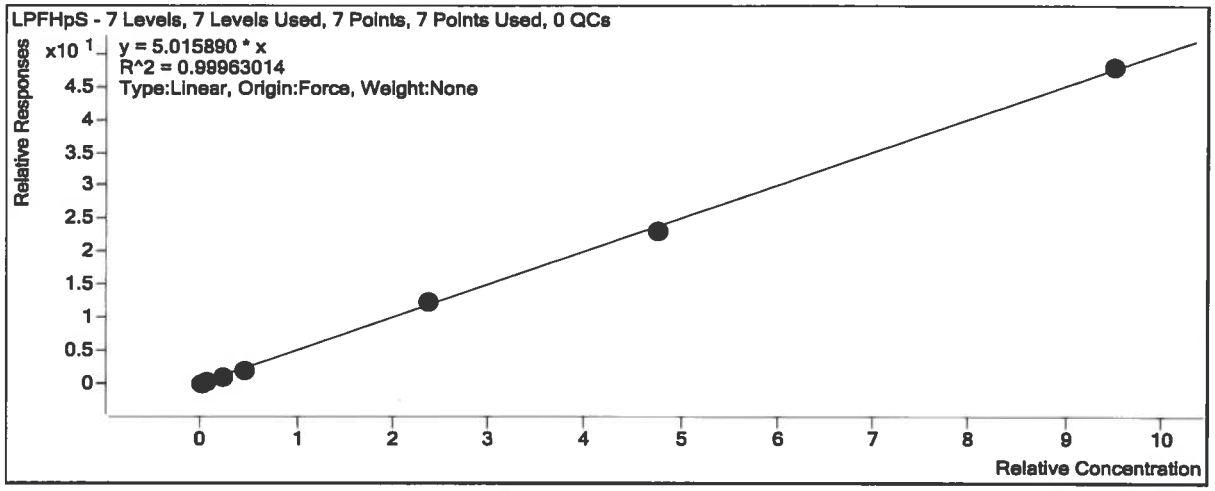


Target Compound *LPFHpS*

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

Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191112BCAL\2191112B_08.d	Calibration	7	☑	1543908	190.0000	5.0406



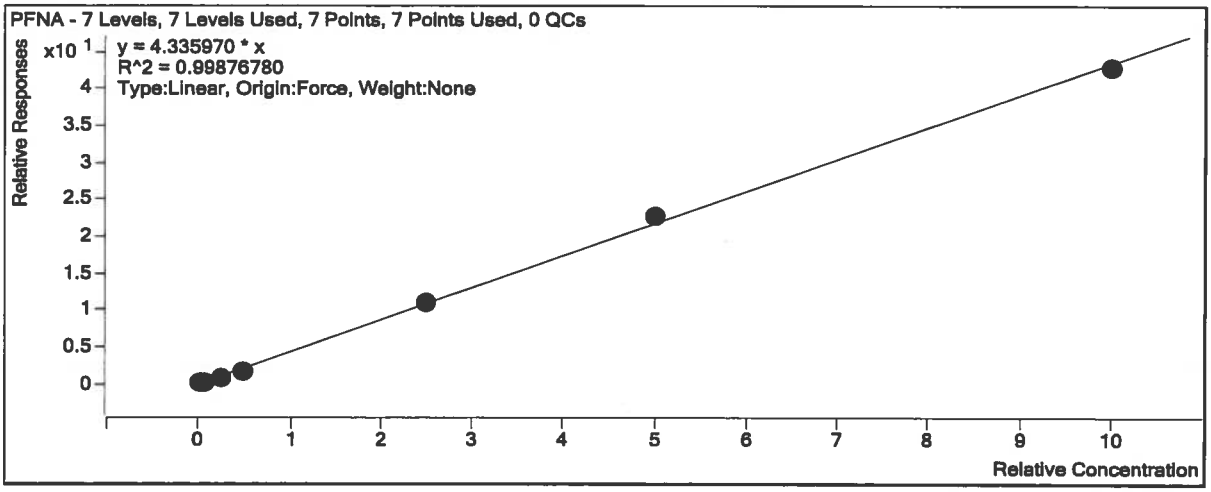
Extracted ISTD *M9PFNA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191112BCAL\2191112B_02.d	Calibration	1	☑	52430	20.0000	2621.4834
D:\MassHunter\Data\2191112BCAL\2191112B_10.d	Calibration	2	☑	48280	20.0000	2414.0210
D:\MassHunter\Data\2191112BCAL\2191112B_04.d	Calibration	3	☑	43481	20.0000	2174.0416
D:\MassHunter\Data\2191112BCAL\2191112B_05.d	Calibration	4	☑	45559	20.0000	2277.9506
D:\MassHunter\Data\2191112BCAL\2191112B_06.d	Calibration	5	☑	39857	20.0000	1992.8330
D:\MassHunter\Data\2191112BCAL\2191112B_07.d	Calibration	6	☑	38782	20.0000	1939.1148
D:\MassHunter\Data\2191112BCAL\2191112B_08.d	Calibration	7	☑	38899	20.0000	1944.9599

Target Compound *PFNA*

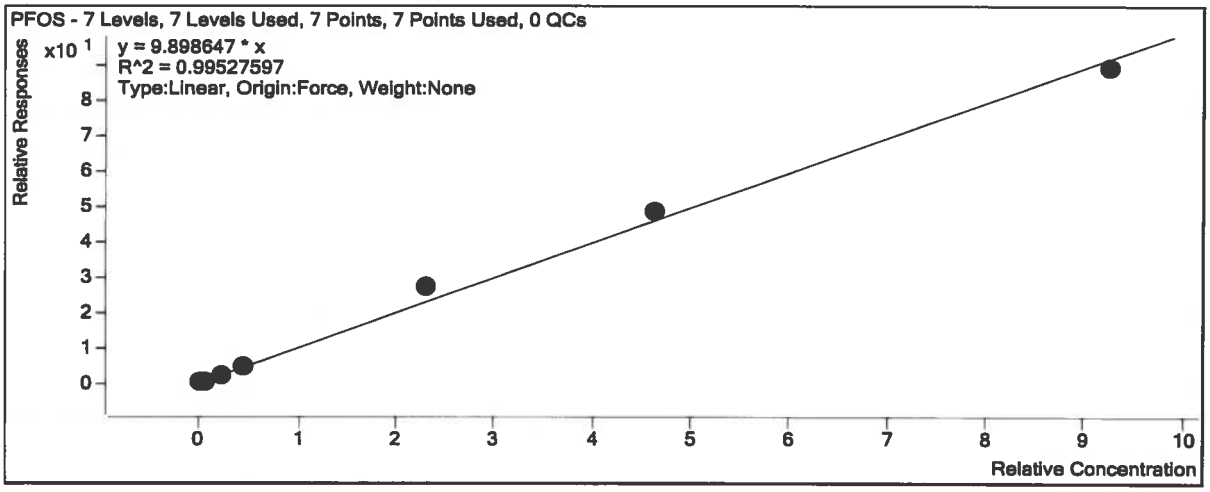
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191112BCAL\2191112B_02.d	Calibration	1	☑	4419	0.5000	3.3714
D:\MassHunter\Data\2191112BCAL\2191112B_10.d	Calibration	2	☑	11489	1.2500	3.8074
D:\MassHunter\Data\2191112BCAL\2191112B_04.d	Calibration	3	☑	38334	5.0000	3.5265
D:\MassHunter\Data\2191112BCAL\2191112B_05.d	Calibration	4	☑	85209	10.0000	3.7406
D:\MassHunter\Data\2191112BCAL\2191112B_06.d	Calibration	5	☑	438055	50.0000	4.3963
D:\MassHunter\Data\2191112BCAL\2191112B_07.d	Calibration	6	☑	886782	100.0000	4.5731
D:\MassHunter\Data\2191112BCAL\2191112B_08.d	Calibration	7	☑	1662914	200.0000	4.2749

Quantitative Analysis Calibration Report



Target Compound *PFOS*

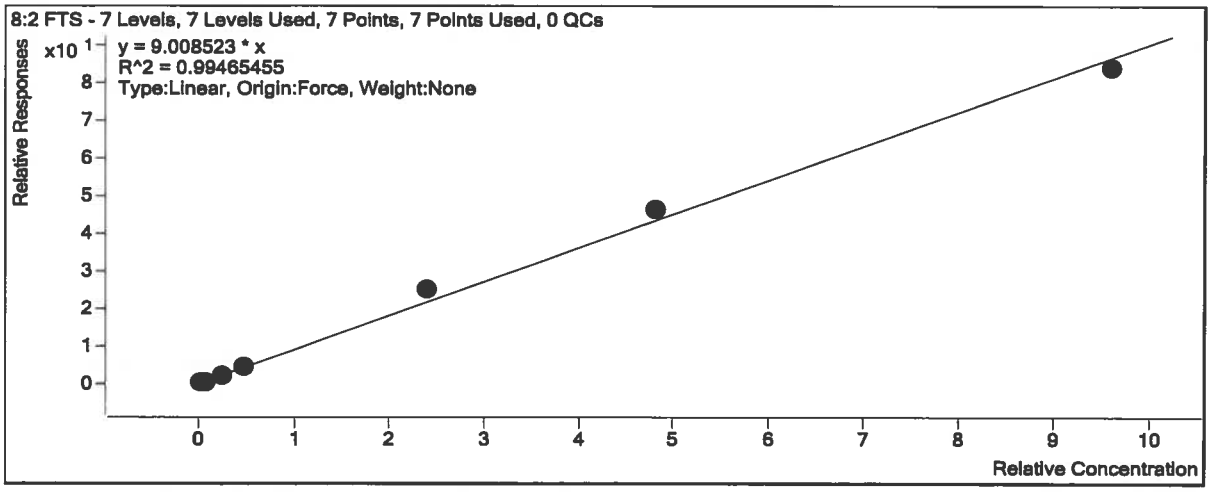
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191112BCAL\2191112B_02.d	Calibration	1	☑	3908	0.4628	10.7656
D:\MassHunter\Data\2191112BCAL\2191112B_10.d	Calibration	2	☑	8789	1.1600	11.1077
D:\MassHunter\Data\2191112BCAL\2191112B_04.d	Calibration	3	☑	32277	4.6280	10.2853
D:\MassHunter\Data\2191112BCAL\2191112B_05.d	Calibration	4	☑	71734	9.2550	10.2906
D:\MassHunter\Data\2191112BCAL\2191112B_06.d	Calibration	5	☑	361242	46.2800	11.7595
D:\MassHunter\Data\2191112BCAL\2191112B_07.d	Calibration	6	☑	757751	92.5500	10.4905
D:\MassHunter\Data\2191112BCAL\2191112B_08.d	Calibration	7	☑	1400072	185.1000	9.6331



Instrument ISTD *M4PFOS*

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

Quantitative Analysis Calibration Report



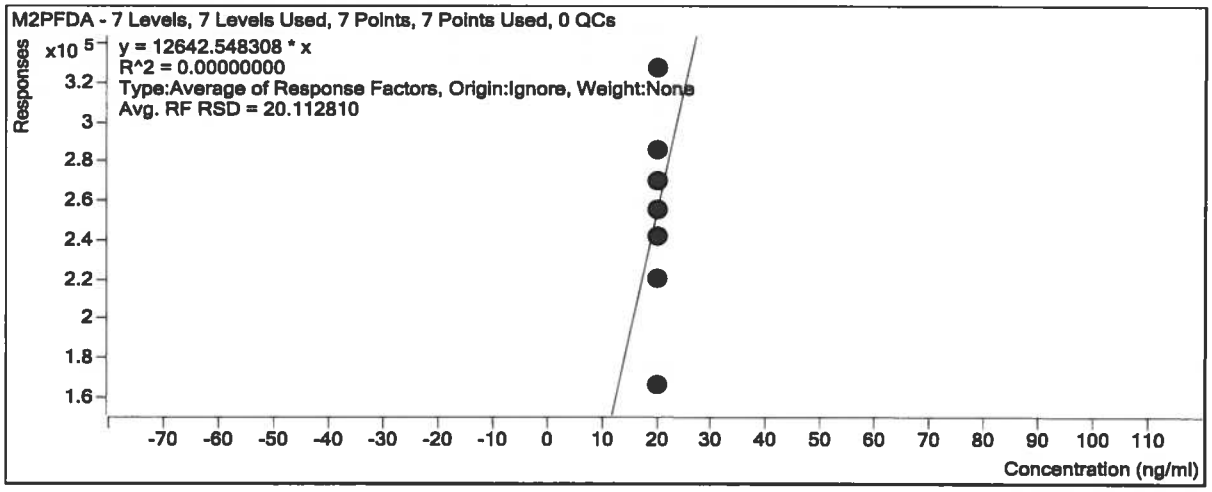
Extracted ISTD *M6PFDA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191112BCAL\2191112B_02.d	Calibration	1	☑	47653	20.0000	2382.6454
D:\MassHunter\Data\2191112BCAL\2191112B_10.d	Calibration	2	☑	43634	20.0000	2181.7023
D:\MassHunter\Data\2191112BCAL\2191112B_04.d	Calibration	3	☑	40999	20.0000	2049.9605
D:\MassHunter\Data\2191112BCAL\2191112B_05.d	Calibration	4	☑	41065	20.0000	2053.2636
D:\MassHunter\Data\2191112BCAL\2191112B_06.d	Calibration	5	☑	34848	20.0000	1742.4197
D:\MassHunter\Data\2191112BCAL\2191112B_07.d	Calibration	6	☑	34945	20.0000	1747.2357
D:\MassHunter\Data\2191112BCAL\2191112B_08.d	Calibration	7	☑	31975	20.0000	1598.7459

Instrument ISTD *M2PFDA*

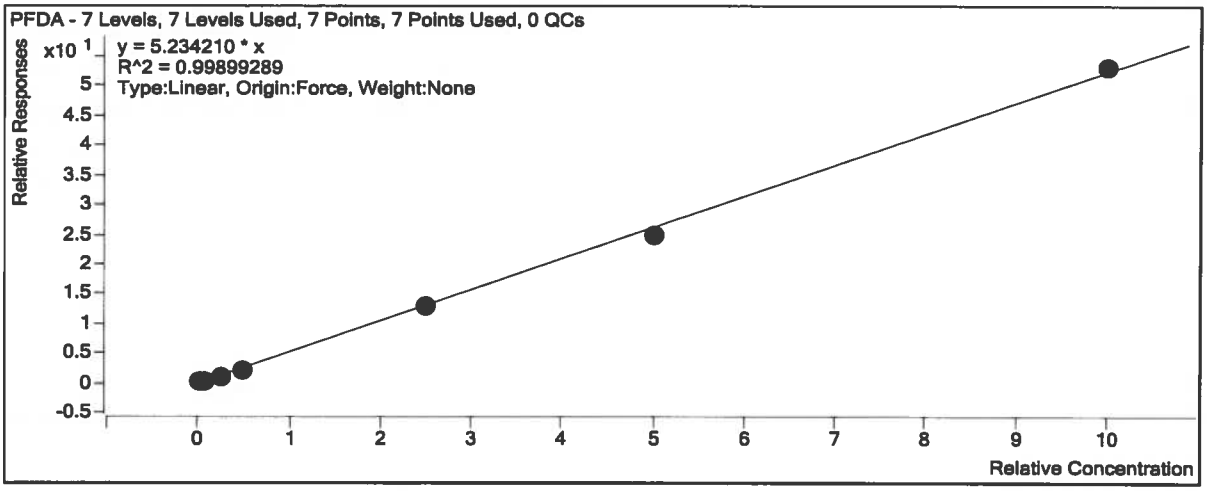
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191112BCAL\2191112B_02.d	Calibration	1	☑	327608	20.0000	16380.3878
D:\MassHunter\Data\2191112BCAL\2191112B_10.d	Calibration	2	☑	221128	20.0000	11056.3849
D:\MassHunter\Data\2191112BCAL\2191112B_04.d	Calibration	3	☑	270848	20.0000	13542.3794
D:\MassHunter\Data\2191112BCAL\2191112B_05.d	Calibration	4	☑	285852	20.0000	14292.5777
D:\MassHunter\Data\2191112BCAL\2191112B_06.d	Calibration	5	☑	166883	20.0000	8344.1711
D:\MassHunter\Data\2191112BCAL\2191112B_07.d	Calibration	6	☑	255410	20.0000	12770.4852
D:\MassHunter\Data\2191112BCAL\2191112B_08.d	Calibration	7	☑	242229	20.0000	12111.4520

Quantitative Analysis Calibration Report



Target Compound *PFDA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191112BCAL\2191112B_02.d	Calibration	1	☑	4733	0.5000	3.9726
D:\MassHunter\Data\2191112BCAL\2191112B_10.d	Calibration	2	☑	14101	1.2500	5.1707
D:\MassHunter\Data\2191112BCAL\2191112B_04.d	Calibration	3	☑	41493	5.0000	4.0482
D:\MassHunter\Data\2191112BCAL\2191112B_05.d	Calibration	4	☑	86144	10.0000	4.1955
D:\MassHunter\Data\2191112BCAL\2191112B_06.d	Calibration	5	☑	446981	50.0000	5.1306
D:\MassHunter\Data\2191112BCAL\2191112B_07.d	Calibration	6	☑	872630	100.0000	4.9943
D:\MassHunter\Data\2191112BCAL\2191112B_08.d	Calibration	7	☑	1695950	200.0000	5.3040

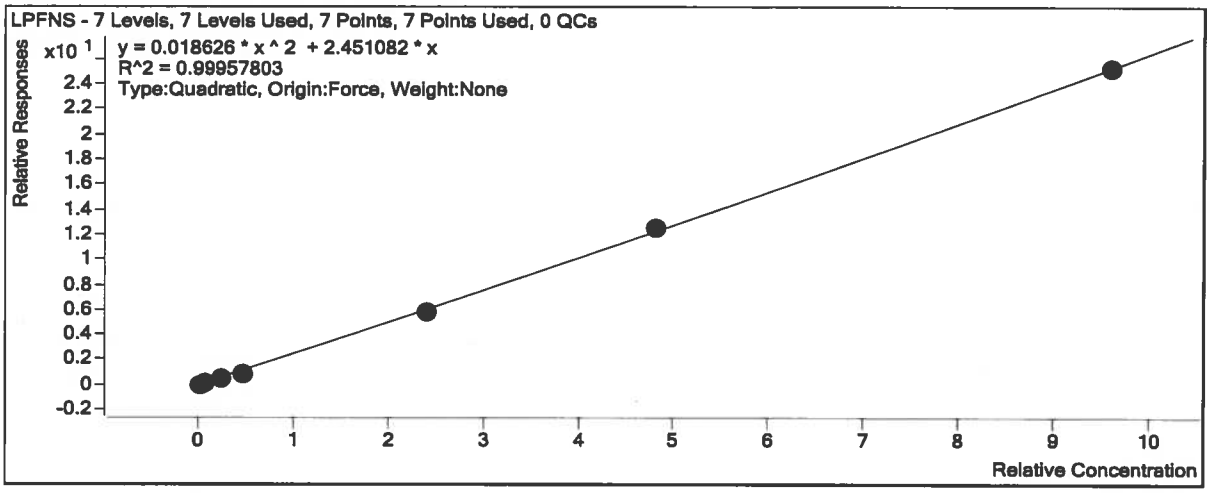


Target Compound *LPFNS*

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

Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191112BCAL\2191112B_08.d	Calibration	7	☑	980285	192.0000	2.6251



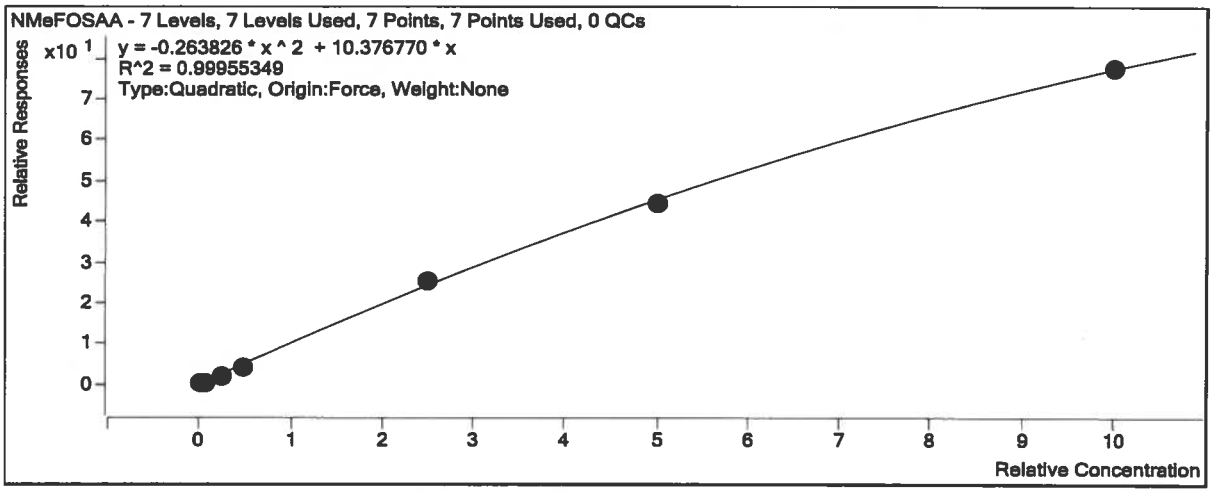
Extracted ISTD *d3-NMeFOSAA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191112BCAL\2191112B_02.d	Calibration	1	☑	6930	20.0000	346.5157
D:\MassHunter\Data\2191112BCAL\2191112B_10.d	Calibration	2	☑	7008	20.0000	350.4067
D:\MassHunter\Data\2191112BCAL\2191112B_04.d	Calibration	3	☑	6881	20.0000	344.0407
D:\MassHunter\Data\2191112BCAL\2191112B_05.d	Calibration	4	☑	7549	20.0000	377.4388
D:\MassHunter\Data\2191112BCAL\2191112B_06.d	Calibration	5	☑	6817	20.0000	340.8466
D:\MassHunter\Data\2191112BCAL\2191112B_07.d	Calibration	6	☑	8027	20.0000	401.3450
D:\MassHunter\Data\2191112BCAL\2191112B_08.d	Calibration	7	☑	8902	20.0000	445.1182

Target Compound *NMeFOSAA*

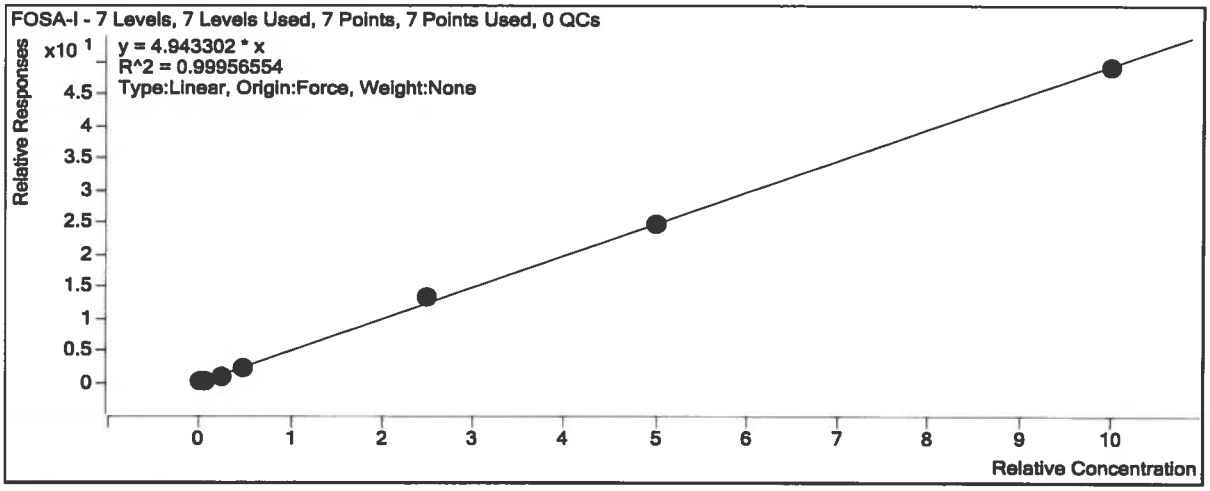
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191112BCAL\2191112B_02.d	Calibration	1	☑	1465	0.5000	8.4553
D:\MassHunter\Data\2191112BCAL\2191112B_10.d	Calibration	2	☑	4189	1.2500	9.5631
D:\MassHunter\Data\2191112BCAL\2191112B_04.d	Calibration	3	☑	14275	5.0000	8.2982
D:\MassHunter\Data\2191112BCAL\2191112B_05.d	Calibration	4	☑	32542	10.0000	8.6219
D:\MassHunter\Data\2191112BCAL\2191112B_06.d	Calibration	5	☑	172710	50.0000	10.1342
D:\MassHunter\Data\2191112BCAL\2191112B_07.d	Calibration	6	☑	358894	100.0000	8.9423
D:\MassHunter\Data\2191112BCAL\2191112B_08.d	Calibration	7	☑	689635	200.0000	7.7467

Quantitative Analysis Calibration Report



Target Compound *FOSA-I*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191112BCAL\2191112B_02.d	Calibration	1	☑	6193	0.5000	4.1767
D:\MassHunter\Data\2191112BCAL\2191112B_10.d	Calibration	2	☑	15659	1.2500	4.7744
D:\MassHunter\Data\2191112BCAL\2191112B_04.d	Calibration	3	☑	59348	5.0000	4.4652
D:\MassHunter\Data\2191112BCAL\2191112B_05.d	Calibration	4	☑	136313	10.0000	4.6777
D:\MassHunter\Data\2191112BCAL\2191112B_06.d	Calibration	5	☑	681897	50.0000	5.3003
D:\MassHunter\Data\2191112BCAL\2191112B_07.d	Calibration	6	☑	1402636	100.0000	4.9496
D:\MassHunter\Data\2191112BCAL\2191112B_08.d	Calibration	7	☑	2728426	200.0000	4.9204



Extracted ISTD *M8FOSA*

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

Quantitative Analysis Calibration Report

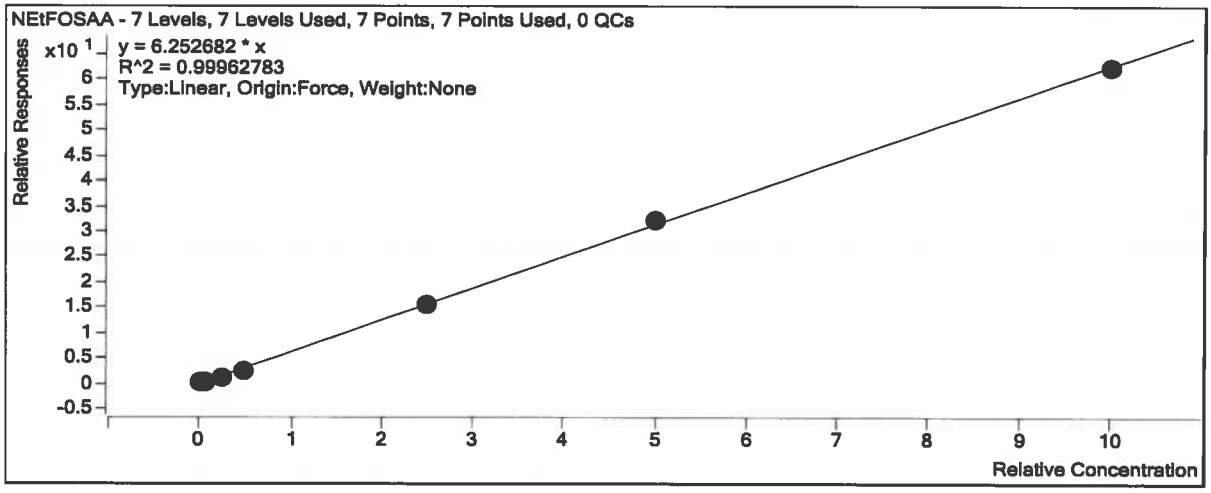
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191112BCAL\2191112B_08.d	Calibration	7	☑	55451	20.0000	2772.5699

Extracted ISTD *d5-NEtFOSAA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191112BCAL\2191112B_02.d	Calibration	1	☑	12214	20.0000	610.6922
D:\MassHunter\Data\2191112BCAL\2191112B_10.d	Calibration	2	☑	10688	20.0000	534.4051
D:\MassHunter\Data\2191112BCAL\2191112B_04.d	Calibration	3	☑	11077	20.0000	553.8629
D:\MassHunter\Data\2191112BCAL\2191112B_05.d	Calibration	4	☑	11659	20.0000	582.9676
D:\MassHunter\Data\2191112BCAL\2191112B_06.d	Calibration	5	☑	9358	20.0000	467.9206
D:\MassHunter\Data\2191112BCAL\2191112B_07.d	Calibration	6	☑	9521	20.0000	476.0583
D:\MassHunter\Data\2191112BCAL\2191112B_08.d	Calibration	7	☑	9207	20.0000	460.3691

Target Compound *NEtFOSAA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191112BCAL\2191112B_02.d	Calibration	1	☑	1437	0.5000	4.7050
D:\MassHunter\Data\2191112BCAL\2191112B_10.d	Calibration	2	☑	3652	1.2500	5.4665
D:\MassHunter\Data\2191112BCAL\2191112B_04.d	Calibration	3	☑	13874	5.0000	5.0100
D:\MassHunter\Data\2191112BCAL\2191112B_05.d	Calibration	4	☑	28407	10.0000	4.8728
D:\MassHunter\Data\2191112BCAL\2191112B_06.d	Calibration	5	☑	146486	50.0000	6.2612
D:\MassHunter\Data\2191112BCAL\2191112B_07.d	Calibration	6	☑	304651	100.0000	6.3994
D:\MassHunter\Data\2191112BCAL\2191112B_08.d	Calibration	7	☑	572674	200.0000	6.2197

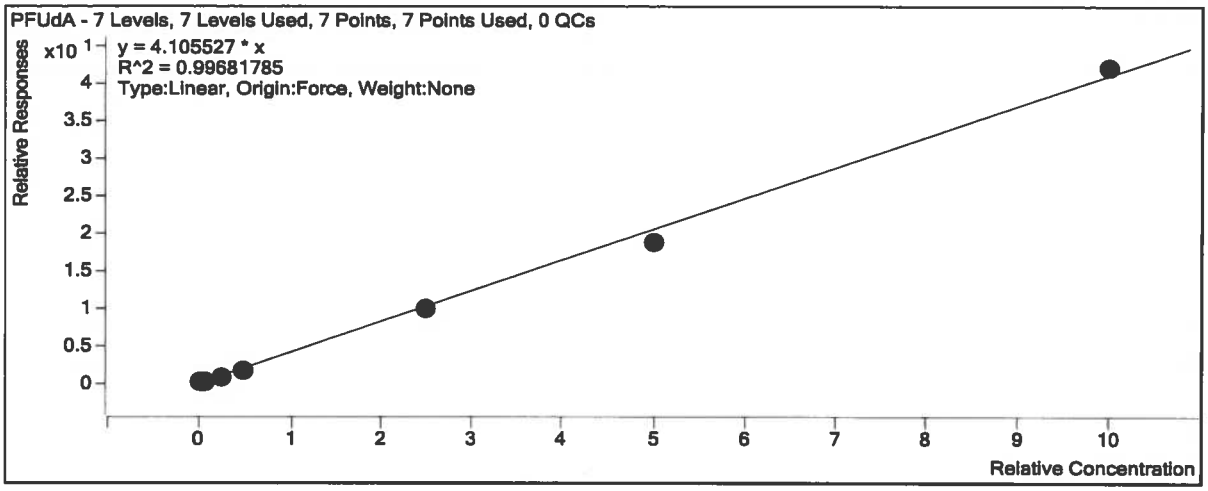


Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191112BCAL\2191112B_05.d	Calibration	4	☑	44200	20.0000	2210.0019
D:\MassHunter\Data\2191112BCAL\2191112B_06.d	Calibration	5	☑	37769	20.0000	1888.4648
D:\MassHunter\Data\2191112BCAL\2191112B_07.d	Calibration	6	☑	41623	20.0000	2081.1251
D:\MassHunter\Data\2191112BCAL\2191112B_08.d	Calibration	7	☑	35652	20.0000	1782.5794

Target Compound *PFUdA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191112BCAL\2191112B_02.d	Calibration	1	☑	4786	0.5000	3.6134
D:\MassHunter\Data\2191112BCAL\2191112B_10.d	Calibration	2	☑	11664	1.2500	3.8386
D:\MassHunter\Data\2191112BCAL\2191112B_04.d	Calibration	3	☑	35634	5.0000	3.4329
D:\MassHunter\Data\2191112BCAL\2191112B_05.d	Calibration	4	☑	74217	10.0000	3.3582
D:\MassHunter\Data\2191112BCAL\2191112B_06.d	Calibration	5	☑	379269	50.0000	4.0167
D:\MassHunter\Data\2191112BCAL\2191112B_07.d	Calibration	6	☑	777780	100.0000	3.7373
D:\MassHunter\Data\2191112BCAL\2191112B_08.d	Calibration	7	☑	1499305	200.0000	4.2054

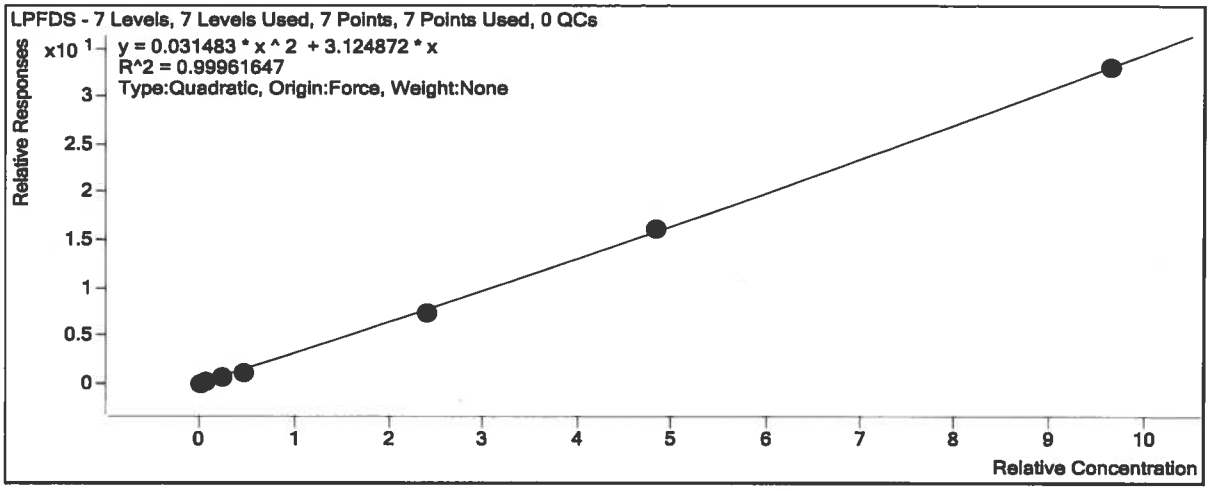


Target Compound *LPFDS*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191112BCAL\2191112B_02.d	Calibration	1	☑	1983	0.4825	1.7245
D:\MassHunter\Data\2191112BCAL\2191112B_10.d	Calibration	2	☑	6045	1.2100	2.2899
D:\MassHunter\Data\2191112BCAL\2191112B_04.d	Calibration	3	☑	22713	4.8250	2.2963
D:\MassHunter\Data\2191112BCAL\2191112B_05.d	Calibration	4	☑	49177	9.6500	2.4819

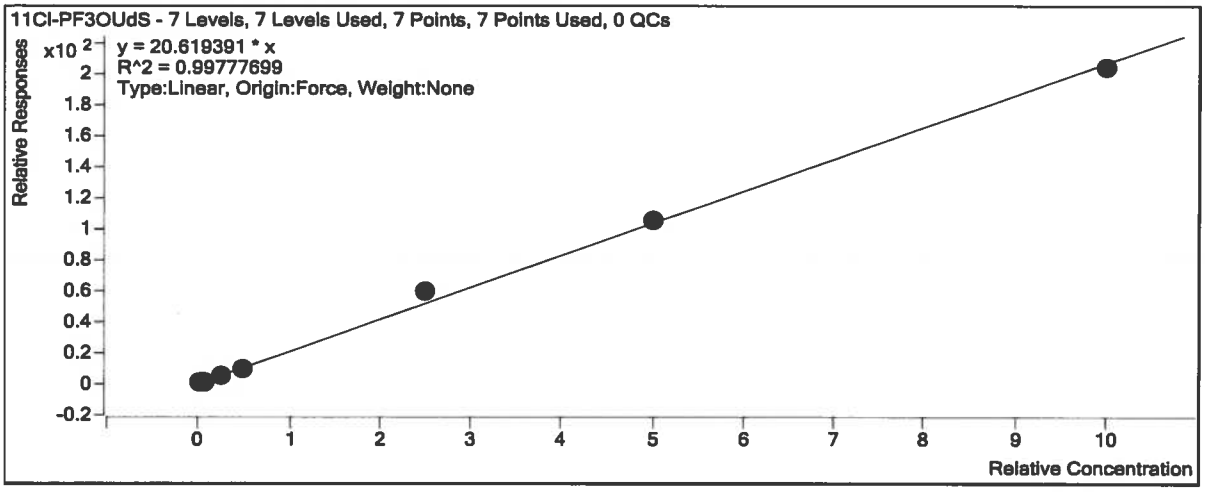
Quantitative Analysis Calibration Report

D:\MassHunter\Data\2191112BCAL\2191112B_06.d	Calibration	5	☑	258015	48.2500	3.0690
D:\MassHunter\Data\2191112BCAL\2191112B_07.d	Calibration	6	☑	563679	96.5000	3.3431
D:\MassHunter\Data\2191112BCAL\2191112B_08.d	Calibration	7	☑	1056053	193.0000	3.4225



Target Compound *11Cl-PF3OUdS*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191112BCAL\2191112B_02.d	Calibration	1	☑	6262	0.5000	15.9650
D:\MassHunter\Data\2191112BCAL\2191112B_10.d	Calibration	2	☑	17768	1.2500	20.8389
D:\MassHunter\Data\2191112BCAL\2191112B_04.d	Calibration	3	☑	68844	5.0000	20.3053
D:\MassHunter\Data\2191112BCAL\2191112B_05.d	Calibration	4	☑	152793	10.0000	20.2862
D:\MassHunter\Data\2191112BCAL\2191112B_06.d	Calibration	5	☑	793016	50.0000	23.8943
D:\MassHunter\Data\2191112BCAL\2191112B_07.d	Calibration	6	☑	1633822	100.0000	20.9340
D:\MassHunter\Data\2191112BCAL\2191112B_08.d	Calibration	7	☑	3193729	200.0000	20.3371

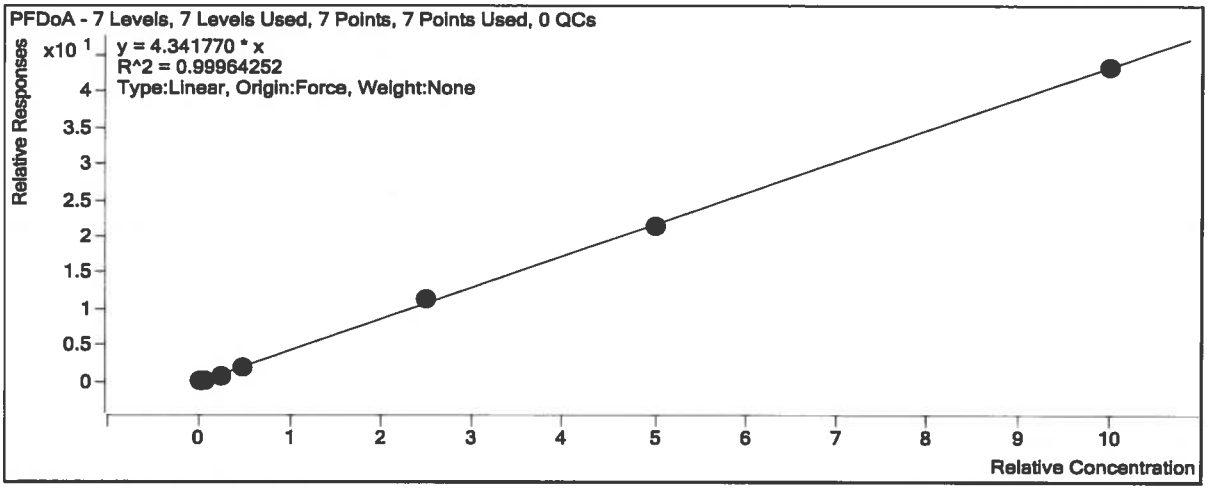


Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191112BCAL\2191112B_08.d	Calibration	7	☑	27660	20.0000	1383.0156

Target Compound *PFDoA*

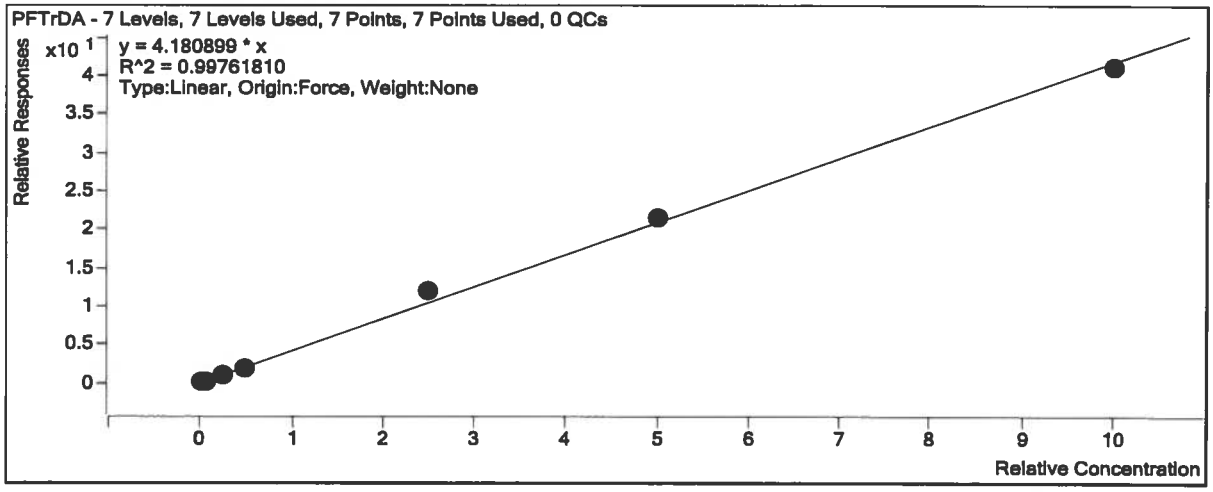
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191112BCAL\2191112B_02.d	Calibration	1	☑	3561	0.5000	4.0607
D:\MassHunter\Data\2191112BCAL\2191112B_10.d	Calibration	2	☑	9641	1.2500	4.9202
D:\MassHunter\Data\2191112BCAL\2191112B_04.d	Calibration	3	☑	27560	5.0000	3.7510
D:\MassHunter\Data\2191112BCAL\2191112B_05.d	Calibration	4	☑	64969	10.0000	4.0925
D:\MassHunter\Data\2191112BCAL\2191112B_06.d	Calibration	5	☑	312064	50.0000	4.6125
D:\MassHunter\Data\2191112BCAL\2191112B_07.d	Calibration	6	☑	634599	100.0000	4.2912
D:\MassHunter\Data\2191112BCAL\2191112B_08.d	Calibration	7	☑	1200029	200.0000	4.3384



Target Compound *PFTrDA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191112BCAL\2191112B_02.d	Calibration	1	☑	2417	0.5000	3.4223
D:\MassHunter\Data\2191112BCAL\2191112B_10.d	Calibration	2	☑	6779	1.2500	4.1405
D:\MassHunter\Data\2191112BCAL\2191112B_04.d	Calibration	3	☑	22472	5.0000	3.9124
D:\MassHunter\Data\2191112BCAL\2191112B_05.d	Calibration	4	☑	47736	10.0000	4.1094
D:\MassHunter\Data\2191112BCAL\2191112B_06.d	Calibration	5	☑	252606	50.0000	4.8273
D:\MassHunter\Data\2191112BCAL\2191112B_07.d	Calibration	6	☑	512078	100.0000	4.2951
D:\MassHunter\Data\2191112BCAL\2191112B_08.d	Calibration	7	☑	1006238	200.0000	4.1123

Quantitative Analysis Calibration Report



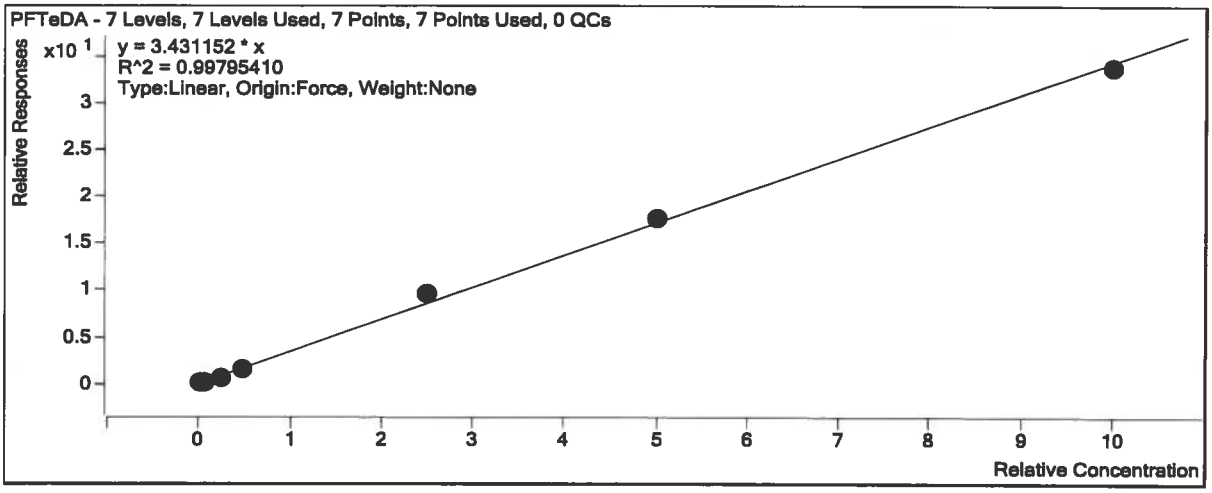
Extracted ISTD *M2PFTeDA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191112BCAL\2191112B_02.d	Calibration	1	☑	28245	20.0000	1412.2698
D:\MassHunter\Data\2191112BCAL\2191112B_10.d	Calibration	2	☑	26194	20.0000	1309.7242
D:\MassHunter\Data\2191112BCAL\2191112B_04.d	Calibration	3	☑	22975	20.0000	1148.7619
D:\MassHunter\Data\2191112BCAL\2191112B_05.d	Calibration	4	☑	23233	20.0000	1161.6402
D:\MassHunter\Data\2191112BCAL\2191112B_06.d	Calibration	5	☑	20932	20.0000	1046.5816
D:\MassHunter\Data\2191112BCAL\2191112B_07.d	Calibration	6	☑	23845	20.0000	1192.2503
D:\MassHunter\Data\2191112BCAL\2191112B_08.d	Calibration	7	☑	24469	20.0000	1223.4449

Target Compound *PFTeDA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191112BCAL\2191112B_02.d	Calibration	1	☑	2260	0.5000	3.2011
D:\MassHunter\Data\2191112BCAL\2191112B_10.d	Calibration	2	☑	5754	1.2500	3.5146
D:\MassHunter\Data\2191112BCAL\2191112B_04.d	Calibration	3	☑	17224	5.0000	2.9987
D:\MassHunter\Data\2191112BCAL\2191112B_05.d	Calibration	4	☑	37683	10.0000	3.2440
D:\MassHunter\Data\2191112BCAL\2191112B_06.d	Calibration	5	☑	202693	50.0000	3.8734
D:\MassHunter\Data\2191112BCAL\2191112B_07.d	Calibration	6	☑	424097	100.0000	3.5571
D:\MassHunter\Data\2191112BCAL\2191112B_08.d	Calibration	7	☑	825276	200.0000	3.3728

Quantitative Analysis Calibration Report



6I

ORGANICS INITIAL CALIBRATION VERIFICATION

Report No:	219103085	Instrument ID:	QQQ1
Analysis Date:	11/12/2019 15:59	Lab File ID:	2191112B_12.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	671184

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	50000	51100	102	70	130	
8:2 Fluorotelomer sulfonate	ng/L	50000	59600	119	70	130	
NEtFOSAA	ng/L	50000	39200	78	70	130	
NMeFOSAA	ng/L	50000	42300	85	70	130	
Perfluorobutanoic acid	ng/L	50000	49100	98	70	130	
Perfluorobutanesulfonic acid	ng/L	50000	49000	98	70	130	
Perfluorodecanoic acid	ng/L	50000	45500	91	70	130	
Perfluorododecanoic acid	ng/L	50000	48800	98	70	130	
Perfluoroheptanoic acid	ng/L	50000	47100	94	70	130	
Perfluorohexanoic acid	ng/L	50000	49900	100	70	130	
Perfluorohexanesulfonic acid	ng/L	50000	59200	118	70	130	
Perfluorononanoic acid	ng/L	50000	50000	100	70	130	
Perfluorooctanoic acid	ng/L	50000	49400	99	70	130	
Perfluorooctane Sulfonate	ng/L	50000	49100	98	70	130	
Perfluoropentanoic acid	ng/L	50000	47700	95	70	130	
Perfluorotetradecanoic acid	ng/L	50000	54600	109	70	130	
Perfluorotridecanoic acid	ng/L	50000	47800	96	70	130	
Perfluoroundecanoic acid	ng/L	50000	46000	92	70	130	

FORM 6I - ORG

7S

ORGANICS INSTRUMENT SENSITIVITY CHECK

Report No:	219102333	Instrument ID:	QQQ1
Analysis Date:	11/12/2019 16:10	Lab File ID:	2191112B_13.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	671184

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	7.93	8.67	110	70	130	
8:2 Fluorotelomer sulfonate	ng/L	8.00	9.27	115	70	130	
NEtFOSAA	ng/L	8.33	7.47	90	70	130	
NMeFOSAA	ng/L	8.33	8.27	99	70	130	
Perfluorobutanoic acid	ng/L	8.33	9.00	108	70	130	
Perfluorobutanesulfonic acid	ng/L	7.40	7.47	101	70	130	
Perfluorodecanoic acid	ng/L	8.33	7.20	86	70	130	
Perfluorododecanoic acid	ng/L	8.33	8.40	101	70	130	
Perfluoroheptanoic acid	ng/L	8.33	8.33	100	70	130	
Perfluorohexanoic acid	ng/L	8.33	8.20	99	70	130	
Perfluorohexanesulfonic acid	ng/L	7.60	7.93	104	70	130	
Perfluorononanoic acid	ng/L	8.33	7.27	87	70	130	
Perfluorooctanoic acid	ng/L	8.33	9.00	108	70	130	
Perfluorooctane Sulfonate	ng/L	7.73	8.60	111	70	130	
Perfluoropentanoic acid	ng/L	8.33	7.53	91	70	130	
Perfluorotetradecanoic acid	ng/L	8.33	9.47	114	70	130	
Perfluorotridecanoic acid	ng/L	8.33	8.87	106	70	130	
Perfluoroundecanoic acid	ng/L	8.33	7.47	90	70	130	

FORM 7S - ORG

4I

ORGANICS INSTRUMENT BLANK

Report No:	219102333	Instrument ID:	QQQ1
Analysis Date:	11/12/2019 16:22	Lab File ID:	2191112B_14.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	671184

ANALYTE	UNITS	RESULT	Q	DL	LOD	LOQ	#
6:2 Fluorotelomer sulfonate	ng/L	4.00	U	1.79	4.00	10.0	
8:2 Fluorotelomer sulfonate	ng/L	4.00	U	1.63	4.00	10.0	
NEtFOSAA	ng/L	8.00	U	5.38	8.00	10.0	
NMeFOSAA	ng/L	8.00	U	4.60	8.00	10.0	
Perfluorobutanesulfonic acid	ng/L	4.00	U	1.47	4.00	10.0	
Perfluorobutanoic acid	ng/L	4.00	U	2.13	4.00	10.0	
Perfluorodecanoic acid	ng/L	4.00	U	1.65	4.00	10.0	
Perfluorododecanoic acid	ng/L	4.00	U	2.45	4.00	10.0	
Perfluoroheptanoic acid	ng/L	4.00	U	1.85	4.00	10.0	
Perfluorohexanesulfonic acid	ng/L	4.00	U	1.64	4.00	10.0	
Perfluorohexanoic acid	ng/L	4.00	U	1.94	4.00	10.0	
Perfluorononanoic acid	ng/L	4.00	U	1.68	4.00	10.0	
Perfluorooctane Sulfonate	ng/L	4.00	U	1.70	4.00	10.0	
Perfluorooctanoic acid	ng/L	4.00	U	1.80	4.00	10.0	
Perfluoropentanoic acid	ng/L	4.00	U	2.35	4.00	10.0	
Perfluorotetradecanoic acid	ng/L	4.00	U	2.76	4.00	10.0	
Perfluorotridecanoic acid	ng/L	4.00	U	2.56	4.00	10.0	
Perfluoroundecanoic acid	ng/L	4.00	U	1.86	4.00	10.0	

* - Result greater than 1/2 LOQ

FORM 4I - ORG

7E

ORGANICS CALIBRATION VERIFICATION

Report No:	219103085	Instrument ID:	QQQ1
Analysis Date:	11/12/2019 17:46	Lab File ID:	2191112B_20.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	671184

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	47500	45200	95	70	130	
8:2 Fluorotelomer sulfonate	ng/L	48000	49000	102	70	130	
NEtFOSAA	ng/L	50000	46400	93	70	130	
NMeFOSAA	ng/L	50000	44200	88	70	130	
Perfluorobutanoic acid	ng/L	50000	43900	88	70	130	
Perfluorobutanesulfonic acid	ng/L	44300	39000	88	70	130	
Perfluorodecanoic acid	ng/L	50000	41700	83	70	130	
Perfluorododecanoic acid	ng/L	50000	45200	90	70	130	
Perfluoroheptanoic acid	ng/L	50000	44400	89	70	130	
Perfluorohexanoic acid	ng/L	50000	42600	85	70	130	
Perfluorohexanesulfonic acid	ng/L	45600	40800	90	70	130	
Perfluorononanoic acid	ng/L	50000	43100	86	70	130	
Perfluorooctanoic acid	ng/L	50000	45100	90	70	130	
Perfluorooctane Sulfonate	ng/L	46300	49500	107	70	130	
Perfluoropentanoic acid	ng/L	50000	43300	87	70	130	
Perfluorotetradecanoic acid	ng/L	50000	51200	102	70	130	
Perfluorotridecanoic acid	ng/L	50000	47000	94	70	130	
Perfluoroundecanoic acid	ng/L	50000	41700	83	70	130	

FORM 7E - ORG

7E

ORGANICS CALIBRATION VERIFICATION

Report No:	219103085	Instrument ID:	QQQ1
Analysis Date:	11/12/2019 20:36	Lab File ID:	2191112B_35.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	671184

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	47500	46600	98	70	130	
8:2 Fluorotelomer sulfonate	ng/L	48000	50500	105	70	130	
NEtFOSAA	ng/L	50000	45100	90	70	130	
NMeFOSAA	ng/L	50000	42600	85	70	130	
Perfluorobutanoic acid	ng/L	50000	43900	88	70	130	
Perfluorobutanesulfonic acid	ng/L	44300	39400	89	70	130	
Perfluorodecanoic acid	ng/L	50000	40900	82	70	130	
Perfluorododecanoic acid	ng/L	50000	47700	95	70	130	
Perfluoroheptanoic acid	ng/L	50000	43700	87	70	130	
Perfluorohexanoic acid	ng/L	50000	44100	88	70	130	
Perfluorohexanesulfonic acid	ng/L	45600	40300	88	70	130	
Perfluorononanoic acid	ng/L	50000	43200	86	70	130	
Perfluorooctanoic acid	ng/L	50000	43200	86	70	130	
Perfluorooctane Sulfonate	ng/L	46300	42300	91	70	130	
Perfluoropentanoic acid	ng/L	50000	41400	83	70	130	
Perfluorotetradecanoic acid	ng/L	50000	47900	96	70	130	
Perfluorotridecanoic acid	ng/L	50000	48300	97	70	130	
Perfluoroundecanoic acid	ng/L	50000	44500	89	70	130	

FORM 7E - ORG

7E

ORGANICS CALIBRATION VERIFICATION

Report No:	219103085	Instrument ID:	QQQ1
Analysis Date:	11/12/2019 22:40	Lab File ID:	2191112B_46.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	671184

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	47500	45200	95	70	130	
8:2 Fluorotelomer sulfonate	ng/L	48000	49100	102	70	130	
NEtFOSAA	ng/L	50000	48100	96	70	130	
NMeFOSAA	ng/L	50000	49200	98	70	130	
Perfluorobutanoic acid	ng/L	50000	43800	88	70	130	
Perfluorobutanesulfonic acid	ng/L	44300	39000	88	70	130	
Perfluorodecanoic acid	ng/L	50000	39900	80	70	130	
Perfluorododecanoic acid	ng/L	50000	45900	92	70	130	
Perfluoroheptanoic acid	ng/L	50000	44700	89	70	130	
Perfluorohexanoic acid	ng/L	50000	43800	88	70	130	
Perfluorohexanesulfonic acid	ng/L	45600	40300	88	70	130	
Perfluorononanoic acid	ng/L	50000	42800	86	70	130	
Perfluorooctanoic acid	ng/L	50000	44200	88	70	130	
Perfluorooctane Sulfonate	ng/L	46300	46700	101	70	130	
Perfluoropentanoic acid	ng/L	50000	43200	86	70	130	
Perfluorotetradecanoic acid	ng/L	50000	49200	98	70	130	
Perfluorotridecanoic acid	ng/L	50000	50100	100	70	130	
Perfluoroundecanoic acid	ng/L	50000	41500	83	70	130	

FORM 7E - ORG

7E

ORGANICS CALIBRATION VERIFICATION

Report No:	219103085	Instrument ID:	QQQ1
Analysis Date:	11/13/2019 01:30	Lab File ID:	2191112B_61.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	671184

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	47500	45200	95	70	130	
8:2 Fluorotelomer sulfonate	ng/L	48000	52600	110	70	130	
NEtFOSAA	ng/L	50000	43100	86	70	130	
NMeFOSAA	ng/L	50000	44600	89	70	130	
Perfluorobutanoic acid	ng/L	50000	43600	87	70	130	
Perfluorobutanesulfonic acid	ng/L	44300	38200	86	70	130	
Perfluorodecanoic acid	ng/L	50000	39400	79	70	130	
Perfluorododecanoic acid	ng/L	50000	44900	90	70	130	
Perfluoroheptanoic acid	ng/L	50000	45600	91	70	130	
Perfluorohexanoic acid	ng/L	50000	44500	89	70	130	
Perfluorohexanesulfonic acid	ng/L	45600	41100	90	70	130	
Perfluorononanoic acid	ng/L	50000	44200	88	70	130	
Perfluorooctanoic acid	ng/L	50000	46800	94	70	130	
Perfluorooctane Sulfonate	ng/L	46300	54000	117	70	130	
Perfluoropentanoic acid	ng/L	50000	42100	84	70	130	
Perfluorotetradecanoic acid	ng/L	50000	48500	97	70	130	
Perfluorotridecanoic acid	ng/L	50000	48700	97	70	130	
Perfluoroundecanoic acid	ng/L	50000	44400	89	70	130	

FORM 7E - ORG

7E

ORGANICS CALIBRATION VERIFICATION

Report No:	219102333	Instrument ID:	QQQ1
Analysis Date:	11/13/2019 03:34	Lab File ID:	2191112B_72.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	671184

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	47500	44700	94	70	130	
8:2 Fluorotelomer sulfonate	ng/L	48000	51900	108	70	130	
NEtFOSAA	ng/L	50000	44600	89	70	130	
NMeFOSAA	ng/L	50000	41600	83	70	130	
Perfluorobutanoic acid	ng/L	50000	44300	89	70	130	
Perfluorobutanesulfonic acid	ng/L	44300	39500	89	70	130	
Perfluorodecanoic acid	ng/L	50000	39400	79	70	130	
Perfluorododecanoic acid	ng/L	50000	45800	92	70	130	
Perfluoroheptanoic acid	ng/L	50000	43700	87	70	130	
Perfluorohexanoic acid	ng/L	50000	42800	86	70	130	
Perfluorohexanesulfonic acid	ng/L	45600	40200	88	70	130	
Perfluorononanoic acid	ng/L	50000	45200	90	70	130	
Perfluorooctanoic acid	ng/L	50000	45400	91	70	130	
Perfluorooctane Sulfonate	ng/L	46300	49600	107	70	130	
Perfluoropentanoic acid	ng/L	50000	41300	83	70	130	
Perfluorotetradecanoic acid	ng/L	50000	47300	95	70	130	
Perfluorotridecanoic acid	ng/L	50000	48400	97	70	130	
Perfluoroundecanoic acid	ng/L	50000	43100	86	70	130	

FORM 7E - ORG

7E

ORGANICS CALIBRATION VERIFICATION

Report No:	219102333	Instrument ID:	QQQ1
Analysis Date:	11/13/2019 06:13	Lab File ID:	2191112B_86.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	671184

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	47500	43300	91	70	130	
8:2 Fluorotelomer sulfonate	ng/L	48000	51600	108	70	130	
NEtFOSAA	ng/L	50000	45200	90	70	130	
NMeFOSAA	ng/L	50000	44400	89	70	130	
Perfluorobutanoic acid	ng/L	50000	44300	89	70	130	
Perfluorobutanesulfonic acid	ng/L	44300	39500	89	70	130	
Perfluorodecanoic acid	ng/L	50000	41600	83	70	130	
Perfluorododecanoic acid	ng/L	50000	44500	89	70	130	
Perfluoroheptanoic acid	ng/L	50000	43900	88	70	130	
Perfluorohexanoic acid	ng/L	50000	43500	87	70	130	
Perfluorohexanesulfonic acid	ng/L	45600	42800	94	70	130	
Perfluorononanoic acid	ng/L	50000	45300	91	70	130	
Perfluorooctanoic acid	ng/L	50000	45700	91	70	130	
Perfluorooctane Sulfonate	ng/L	46300	59500	129	70	130	
Perfluoropentanoic acid	ng/L	50000	43800	88	70	130	
Perfluorotetradecanoic acid	ng/L	50000	46900	94	70	130	
Perfluorotridecanoic acid	ng/L	50000	46700	93	70	130	
Perfluoroundecanoic acid	ng/L	50000	41600	83	70	130	

FORM 7E - ORG

8I

INJECTION INTERNAL STANDARD AREA SUMMARY

Report No:	219102333	Standard ID:	1205 (ICAL Midpoint)
Analyst:	BMH	Instrument ID:	QQQ1
Analysis Date:	11/12/19 14:06	Lab File ID:	2191112B_06.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	671184

	M2PFDA	M2PFHxA	M2PFOA	M4PFOS
	Area	*Area*	*Area*	*Area*
STANDARD	166883	413066	154412	133412

CLIENT SAMPLE ID	*GCAL SAMP ID*		*#*		*#*		*#*		*#*
MB1974712RE	1974712RE	265035	*	673737	*	242526	*	192920	
LCS1974713RE	1974713RE	252291	*	652360	*	229419		179680	
LCSD1974714RE	1974714RE	249795		631737	*	234263	*	177711	
AOI7-11-SB-7.5-8-102119	21910233310	216627		544479		199593		146156	

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

*for monitoring only

FORM 8I - ORG

8I

INJECTION INTERNAL STANDARD AREA SUMMARY

Report No:	219102717	Standard ID:	1205 (ICAL Midpoint)
Analyst:	BMH	Instrument ID:	QQQ1
Analysis Date:	11/12/19 14:06	Lab File ID:	2191112B_06.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	671184

	M2PFDA	M2PFHxA	M2PFOA	M4PFOS
	Area	*Area*	*Area*	*Area*
STANDARD	166883	413066	154412	133412

CLIENT SAMPLE ID	*GCAL SAMP ID*		#		#		#		#
MB1976203	1976203	172327		420266		152532		121961	
LCS1976204	1976204	178605		432167		155223		131570	
LCSD1976205	1976205	172256		418391		154424		125771	
AOI3-1-SB-1.5-2-102519	21910271701	178263		415296		148157		108164	
AOI3-2-SB-1.5-2-102519	21910271702	170285		310852		134559		46195	*
AOI3-2-SB-1.5-2-102519-D	21910271703	167248		314883		135807		56678	*
AOI3-5-SB-1.5-2-102519	21910271705	184369		350890		145230		129064	
AOI3-3-SB-1.5-2-102519	21910271706	164906		314324		98720		127720	
AOI3-6-SB-1.5-2-102519	21910271707	162289		413400		151089		56535	*
AOI3-4-SB-1.5-2-102519	21910271708	155082		416777		153794		77666	
AOI3-4-SB-1.5-2-102519-D	21910271709	162834		409150		145301		89295	
AOI4-1-SB-0-0.5-102519	21910271710	169873		414413		148371		121456	
AOI4-1-SB-5.5-6-102519	21910271711	170332		413348		151319		121014	
AOI4-1-SB-9.5-10-102519	21910271712	177503		438249		162052		125497	
AOI3-7-SB-1.5-2-102519	21910271714	184619		448047		160579		136013	
AOI3-7-SB-1.5-2-102519-D	21910271715	174663		443382		163038		133172	
AOI2-5-SB-4.5-5-102519	21910271716	174694		361457		152402		140943	
AOI2-5-SB-9.5-10-102519	21910271717	165478		378748		149929		109260	
AOI2-5-SB-13-13.5-102519	21910271718	168164		413873		149022		119517	
AOI2-4-SB-4.5-5-102519	21910271720	172048		423880		154869		83429	
AOI2-1-SB-4.5-5-102519	21910271721	169969		384842		151205		123932	

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

*for monitoring only

FORM 8I - ORG

8I

INJECTION INTERNAL STANDARD AREA SUMMARY

Report No:	219103085	Standard ID:	1205 (ICAL Midpoint)
Analyst:	BMH	Instrument ID:	QQQ1
Analysis Date:	11/12/19 14:06	Lab File ID:	2191112B_06.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	671184

	M2PFDA	M2PFHxA	M2PFOA	M4PFOS
	Area	*Area*	*Area*	*Area*
STANDARD	166883	413066	154412	133412

CLIENT SAMPLE ID	*GCAL SAMP ID*		#		#		#		#
MB1976203	1976203	172327		420266		152532		121961	
LCS1976204	1976204	178605		432167		155223		131570	
LCSD1976205	1976205	172256		418391		154424		125771	
MB1977961	1977961	157114		396469		144630		118800	
LCS1977962	1977962	170390		428644		153688		126932	
LCSD1977963	1977963	171383		432138		159237		129022	
AOI 8-2-SB-0-0.5-102919	21910308513	168033		406552		149578		118684	
AOI 8-1-SB-0-0.5-102919	21910308514	187269		467411		172713		136651	
JFTBLA-EB-102919	21910308517	166086		408564		153245		122783	

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 8I - ORG

LCMS1 Run Log

Analyst:	BMH	Expiration
Batch:	2191115A	Date
Current ICAL Bath:	2191115ACAL/2191115ACALDW	Date
20mM Amm Acetate	010-15-1	11/17/2019
Methanol	2128497	8/31/2024
Calibration Std	010-14-7	5/13/2020
ICV Std	010-6-5	4/9/2020
EIS Mix	010-15-3	5/15/2020

Name	Data File	Type	Acq. Date-Time	Comment	Dil.
MeOH Shot	2191115A_01.d	MeOH Shot	11/15/2019 7:43	Instrument idle/MeOH Shot	1
1201	2191115A_02.d	Cal	11/15/2019 7:54		1
1202	2191115A_03.d	Cal	11/15/2019 8:06		1
1203	2191115A_04.d	Cal	11/15/2019 8:17		1
1204	2191115A_05.d	Cal	11/15/2019 8:28		1
1205	2191115A_06.d	Cal	11/15/2019 8:40		1
1206	2191115A_07.d	Cal	11/15/2019 8:51		1
1207	2191115A_08.d	Cal	11/15/2019 9:02		1
1600	2191115A_10.d	QC	11/15/2019 9:32		1
1450	2191115A_11.d	QC	11/15/2019 9:43		1
1500	2191115A_12.d	Sample	11/15/2019 9:54		1
MeOH Shot	2191115A_13.d	MeOH Shot	11/15/2019 17:40	Instrument idle/MeOH Shot	1
1977432	2191115A_14.d	Sample	11/15/2019 17:51	670460	1
1977433	2191115A_15.d	QC	11/15/2019 18:02	670460	1
1977434	2191115A_16.d	QC	11/15/2019 18:14	670460	1
21910305701	2191115A_17.d	Sample	11/15/2019 18:25	670460	1
21910305702	2191115A_18.d	Sample	11/15/2019 18:36	670460	1
21910305703	2191115A_19.d	Sample	11/15/2019 18:48	670460	1
21910305704	2191115A_20.d	Sample	11/15/2019 18:59	670460	1
21910305705	2191115A_21.d	Sample	11/15/2019 19:10	670460	1
21910305706	2191115A_22.d	Sample	11/15/2019 19:22	670460	1

21910305707	2191115A_23.d	Sample	11/15/2019 19:33	670460	1
21910305708	2191115A_24.d	Sample	11/15/2019 19:44	670460	1
21910305709	2191115A_25.d	Sample	11/15/2019 19:56	670460	1
21910305710	2191115A_26.d	Sample	11/15/2019 20:07	670460	1
1400	2191115A_27.d	QC	11/15/2019 20:18		1
21910305711	2191115A_28.d	Sample	11/15/2019 20:29	670460	1
21910305712	2191115A_29.d	Sample	11/15/2019 20:41	670460	1
21910305713	2191115A_30.d	Sample	11/15/2019 20:52	670460	1
21911040601	2191115A_31.d	Sample	11/15/2019 21:04	670460	1
21911040602	2191115A_32.d	Sample	11/15/2019 21:15	670460	1
21911040603	2191115A_33.d	Sample	11/15/2019 21:26	670460	1
21911040604	2191115A_34.d	QC	11/15/2019 21:38	670460	1
21911040605	2191115A_35.d	QC	11/15/2019 21:49	670460	1
21911040606	2191115A_36.d	Sample	11/15/2019 22:00	670460	1
21911040607	2191115A_37.d	Sample	11/15/2019 22:12	670460	1
21911040608	2191115A_38.d	Sample	11/15/2019 22:23	670460	1
1400	2191115A_39.d	QC	11/15/2019 22:34		1
MeOH Shot	2191115A_40.d	MeOH Shot	11/15/2019 22:46	Instrument idle/MeOH Shot	1
1977686	2191115A_41.d	Sample	11/15/2019 22:56	670523	1
1977687	2191115A_42.d	Sample	11/15/2019 23:08	670523	1
1977688	2191115A_43.d	Sample	11/15/2019 23:19	670523	1
21910313001	2191115A_44.d	Sample	11/15/2019 23:30	670523	1
21910313002	2191115A_45.d	QC	11/15/2019 23:42	670523	1
21910313003	2191115A_46.d	QC	11/15/2019 23:53	670523	1
21910313004	2191115A_47.d	Sample	11/16/2019 0:04	670523	1
21910313005	2191115A_48.d	Sample	11/16/2019 0:16	670523	1
21910313006	2191115A_49.d	Sample	11/16/2019 0:27	670523	1
21910313007	2191115A_50.d	Sample	11/16/2019 0:39	670523	1
21910313008	2191115A_51.d	Sample	11/16/2019 0:50	670523	1
21910313009	2191115A_52.d	Sample	11/16/2019 1:01	670523	1
21910313010	2191115A_53.d	QC	11/16/2019 1:13	670523	1
21910313011	2191115A_54.d	QC	11/16/2019 1:24	670523	1
1400	2191115A_55.d	QC	11/16/2019 1:35		1
21910313012	2191115A_56.d	Sample	11/16/2019 1:47	670523	1

21910313013	2191115A_57.d	Sample	11/16/2019 1:58	670523	1
21910313014	2191115A_58.d	Sample	11/16/2019 2:09	670523	1
21910313015	2191115A_59.d	Sample	11/16/2019 2:21	670523	1
21910313016	2191115A_60.d	Sample	11/16/2019 2:32	670523	1
21910313017	2191115A_61.d	Sample	11/16/2019 2:43	670523	1
21910313018	2191115A_62.d	Sample	11/16/2019 2:55	670523	1
21911110501	2191115A_63.d	Sample	11/16/2019 3:06	670523	1
21911110502	2191115A_64.d	QC	11/16/2019 3:17	670523	1
21911110503	2191115A_65.d	QC	11/16/2019 3:29	670523	1
1400	2191115A_66.d	QC	11/16/2019 3:40		1
MeOH Shot	2191115A_67.d	MeOH Shot	11/16/2019 3:52	Instrument idle/MeOH Shot	1
1979407	2191115A_68.d	Sample	11/16/2019 4:02	670856	1
1979408	2191115A_69.d	QC	11/16/2019 4:14	670856	1
1979409	2191115A_70.d	QC	11/16/2019 4:25	670856	1
21911072306	2191115A_71.d	Sample	11/16/2019 4:36	670856	1
21910225109	2191115A_72.d	Sample	11/16/2019 4:48	670856	1
21910210401	2191115A_73.d	Sample	11/16/2019 4:59	670856	1
21910210403	2191115A_74.d	Sample	11/16/2019 5:11	670856	1
21910210404	2191115A_75.d	Sample	11/16/2019 5:22	670856	1
21910210405	2191115A_76.d	Sample	11/16/2019 5:33	670856	1
21910210406	2191115A_77.d	Sample	11/16/2019 5:45	670856	1
21910210407	2191115A_78.d	Sample	11/16/2019 5:56	670856	1
21910210408	2191115A_79.d	Sample	11/16/2019 6:07	670856	1
21910210409	2191115A_80.d	Sample	11/16/2019 6:19	670856	1
1400	2191115A_81.d	QC	11/16/2019 6:30		1
21910210410	2191115A_82.d	Sample	11/16/2019 6:42	670856	1
21910210411	2191115A_83.d	Sample	11/16/2019 6:53	670856	1
21910210412	2191115A_84.d	QC	11/16/2019 7:04	670856	1
21910210413	2191115A_85.d	QC	11/16/2019 7:16	670856	1
21911072301	2191115A_86.d	Sample	11/16/2019 7:27	670856	1
21911072302	2191115A_87.d	Sample	11/16/2019 7:38	670856	1
21911072303	2191115A_88.d	Sample	11/16/2019 7:49	670856	1
21911072304	2191115A_89.d	Sample	11/16/2019 8:01	670856	1
21911072305	2191115A_90.d	Sample	11/16/2019 8:12	670856	1

21911072306	2191115A_91.d	Sample	11/16/2019 8:24	670856	1
21911080701	2191115A_92.d	Sample	11/16/2019 8:35	670856	1
1400	2191115A_93.d	QC	11/16/2019 8:47		1
MB Test 225	2191115A_94.d	Sample	11/16/2019 8:58	TEST	1
LCS Test 226	2191115A_95.d	QC	11/16/2019 9:09	TEST	1
LCSD Test 227	2191115A_96.d	QC	11/16/2019 9:20	TEST	1
21910308501	2191115A_97.d	Sample	11/16/2019 9:32	670458	10
21910308502	2191115A_98.d	Sample	11/16/2019 9:43	670458	10
21910308515	2191115A_99.d	Sample	11/16/2019 9:54	670458	10
21910308516	2191115A_100.d	Sample	11/16/2019 10:06	670458	10
21910261316	2191115A_101.d	Sample	11/16/2019 10:17	670213	5
21910261319	2191115A_102.d	Sample	11/16/2019 10:28	670213	5
21910261320	2191115A_103.d	Sample	11/16/2019 10:40	670213	5
21910261311	2191115A_104.d	Sample	11/16/2019 10:51	670213	20
21910261313 x100	2191115A_105.d	Sample	11/16/2019 11:02	670213	100
21910261313	2191115A_106.d	Sample	11/16/2019 11:13	670213	10
MeOH Shot	2191115A_107.d	MeOH Shot	11/16/2019 11:25	Instrument idle/MeOH Shot	1
1400	2191115A_108.d	QC	11/16/2019 11:36		1
21910271719 x100	2191115A_109.d	Sample	11/16/2019 11:47	670213	100
21910271719	2191115A_110.d	Sample	11/16/2019 11:58	670213	10
MeOH Shot	2191115A_111.d	MeOH Shot	11/16/2019 12:09	Instrument idle/MeOH Shot	1
21910254111 X200	2191115A_112.d	Sample	11/16/2019 12:20	670213 DIA	1
21910254121	2191115A_113.d	Sample	11/16/2019 12:32	670213	20
1400	2191115A_114.d	QC	11/16/2019 12:43		1

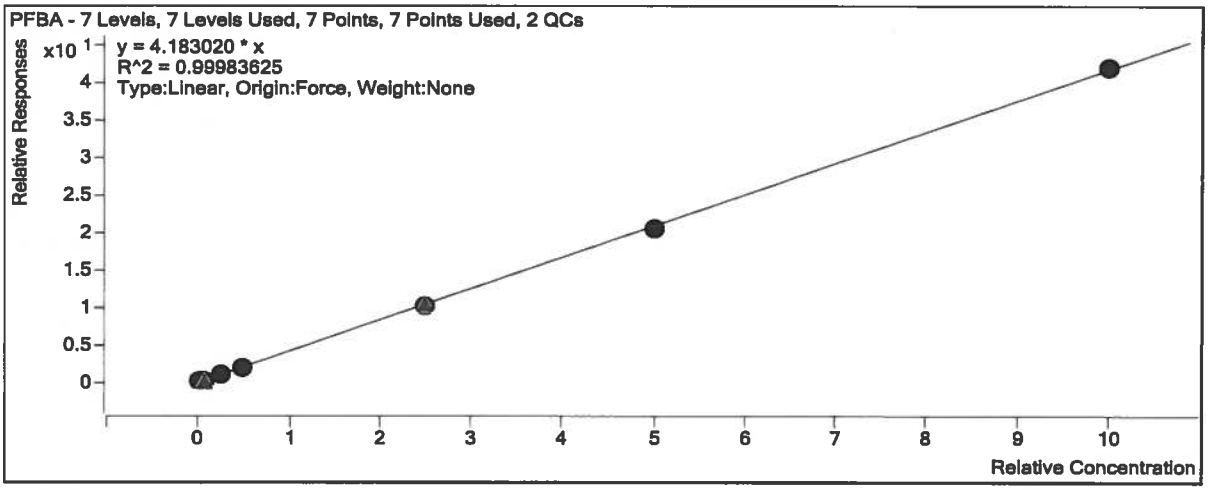
Quantitative Analysis Calibration Report

Batch Data Path	D:\MassHunter\Data\2191115ACAL\QuantResults\2191117A.batch.bin		
Analysis Time	11/26/2019 5:47 PM	**Analyst Name**	GCAL\lcms
Report Time	11/26/2019 5:49 PM	**Reporter Name**	GCAL\lcms
Last Calib Update	11/15/2019 10:08 AM	**Batch State**	Processed

Calibration Info

Target Compound *PFBA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191115ACAL\2191115A_02.d	Calibration	1	☑	4997	0.5000	4.0110
D:\MassHunter\Data\2191115ACAL\2191115A_03.d	Calibration	2	☑	11163	1.2500	3.7545
D:\MassHunter\Data\2191115ACAL\2191115A_04.d	Calibration	3	☑	45333	5.0000	3.9965
D:\MassHunter\Data\2191115ACAL\2191115A_05.d	Calibration	4	☑	91548	10.0000	4.0289
D:\MassHunter\Data\2191115ACAL\2191115A_06.d	Calibration	5	☑	461560	50.0000	4.0453
D:\MassHunter\Data\2191115ACAL\2191115A_07.d	Calibration	6	☑	921462	100.0000	4.1317
D:\MassHunter\Data\2191115ACAL\2191115A_08.d	Calibration	7	☑	1810911	200.0000	4.2050



Extracted ISTD *MPFBA*

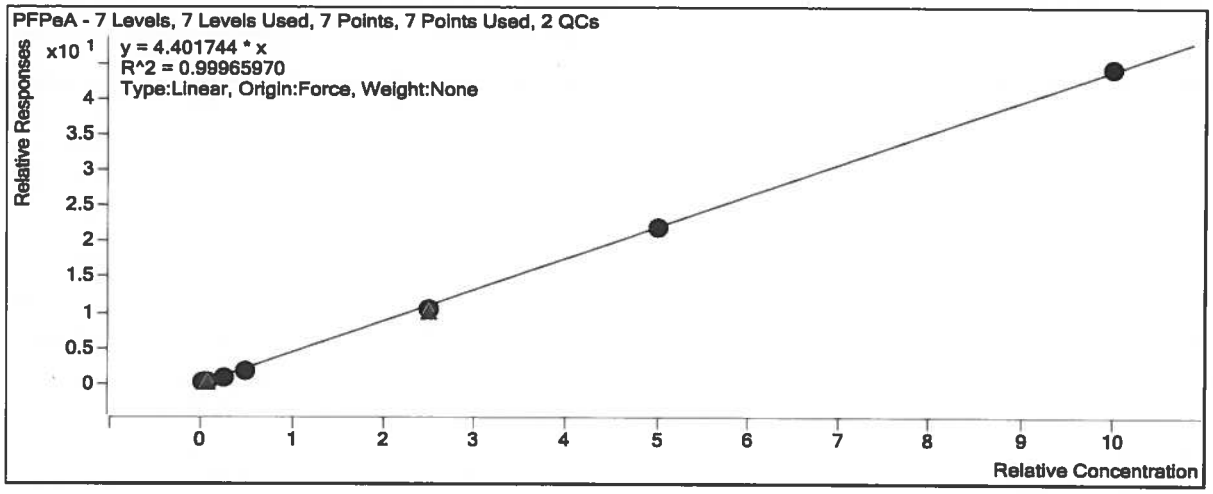
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191115ACAL\2191115A_02.d	Calibration	1	☑	49831	20.0000	2491.5422
D:\MassHunter\Data\2191115ACAL\2191115A_03.d	Calibration	2	☑	47572	20.0000	2378.5766
D:\MassHunter\Data\2191115ACAL\2191115A_04.d	Calibration	3	☑	45374	20.0000	2268.6768
D:\MassHunter\Data\2191115ACAL\2191115A_05.d	Calibration	4	☑	45446	20.0000	2272.3100
D:\MassHunter\Data\2191115ACAL\2191115A_06.d	Calibration	5	☑	45639	20.0000	2281.9493
D:\MassHunter\Data\2191115ACAL\2191115A_07.d	Calibration	6	☑	44604	20.0000	2230.2052
D:\MassHunter\Data\2191115ACAL\2191115A_08.d	Calibration	7	☑	43066	20.0000	2153.2995

Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191115ACAL\2191115A_05.d	Calibration	4	☑	25444	20.0000	1272.2171
D:\MassHunter\Data\2191115ACAL\2191115A_06.d	Calibration	5	☑	25523	20.0000	1276.1702
D:\MassHunter\Data\2191115ACAL\2191115A_07.d	Calibration	6	☑	24657	20.0000	1232.8412
D:\MassHunter\Data\2191115ACAL\2191115A_08.d	Calibration	7	☑	24160	20.0000	1207.9911

Target Compound ***PFPeA***

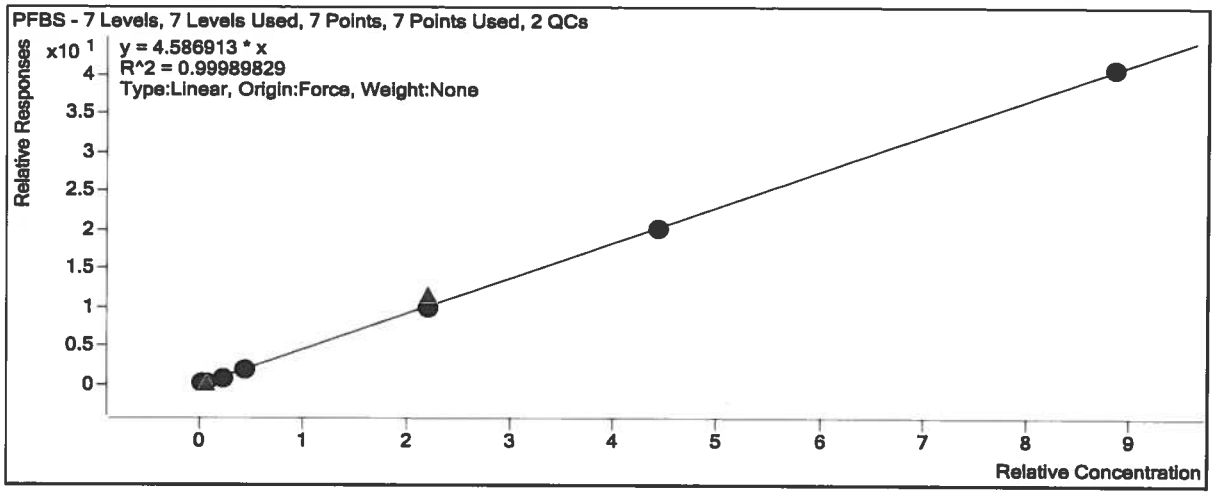
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191115ACAL\2191115A_02.d	Calibration	1	☑	2010	0.5000	3.2034
D:\MassHunter\Data\2191115ACAL\2191115A_03.d	Calibration	2	☑	5334	1.2500	3.3832
D:\MassHunter\Data\2191115ACAL\2191115A_04.d	Calibration	3	☑	23220	5.0000	3.7253
D:\MassHunter\Data\2191115ACAL\2191115A_05.d	Calibration	4	☑	46416	10.0000	3.6485
D:\MassHunter\Data\2191115ACAL\2191115A_06.d	Calibration	5	☑	266596	50.0000	4.1781
D:\MassHunter\Data\2191115ACAL\2191115A_07.d	Calibration	6	☑	539339	100.0000	4.3748
D:\MassHunter\Data\2191115ACAL\2191115A_08.d	Calibration	7	☑	1069029	200.0000	4.4248



Target Compound ***PFBS***

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191115ACAL\2191115A_02.d	Calibration	1	☑	1872	0.4425	3.9190
D:\MassHunter\Data\2191115ACAL\2191115A_03.d	Calibration	2	☑	4684	1.1100	3.7457
D:\MassHunter\Data\2191115ACAL\2191115A_04.d	Calibration	3	☑	20029	4.4250	4.0685
D:\MassHunter\Data\2191115ACAL\2191115A_05.d	Calibration	4	☑	42179	8.8500	4.3232

D:\MassHunter\Data\2191115ACAL\2191115A_06.d	Calibration	5	☑	224595	44.2500	4.4524
D:\MassHunter\Data\2191115ACAL\2191115A_07.d	Calibration	6	☑	449265	88.5000	4.5674
D:\MassHunter\Data\2191115ACAL\2191115A_08.d	Calibration	7	☑	882271	177.0000	4.6012



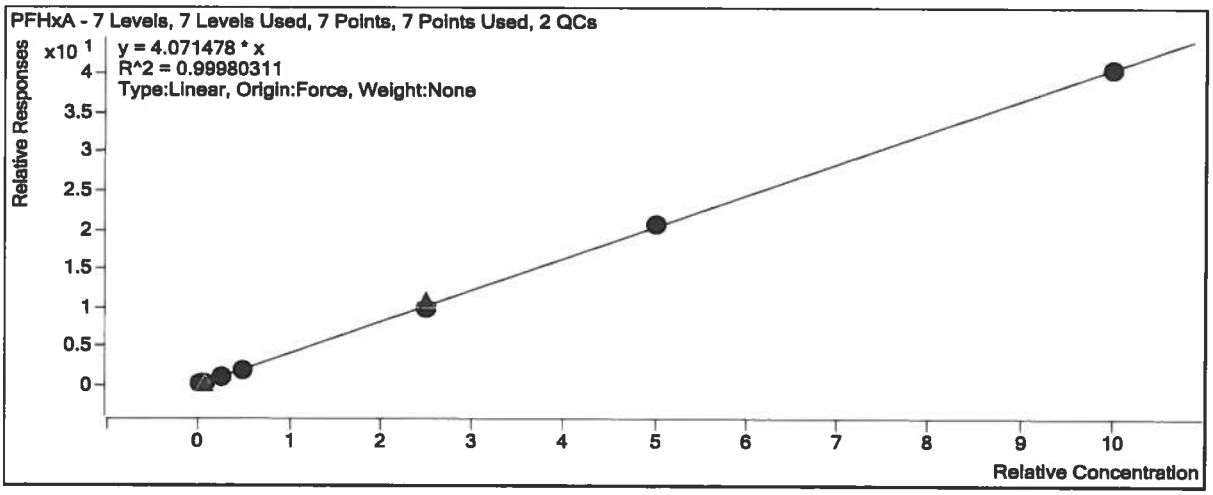
Extracted ISTD ***M3PFBS***

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191115ACAL\2191115A_02.d	Calibration	1	☑	21591	20.0000	1079.5422
D:\MassHunter\Data\2191115ACAL\2191115A_03.d	Calibration	2	☑	22532	20.0000	1126.6011
D:\MassHunter\Data\2191115ACAL\2191115A_04.d	Calibration	3	☑	22251	20.0000	1112.5385
D:\MassHunter\Data\2191115ACAL\2191115A_05.d	Calibration	4	☑	22048	20.0000	1102.4209
D:\MassHunter\Data\2191115ACAL\2191115A_06.d	Calibration	5	☑	22799	20.0000	1139.9599
D:\MassHunter\Data\2191115ACAL\2191115A_07.d	Calibration	6	☑	22229	20.0000	1111.4515
D:\MassHunter\Data\2191115ACAL\2191115A_08.d	Calibration	7	☑	21666	20.0000	1083.3186

Target Compound ***4:2 FTS***

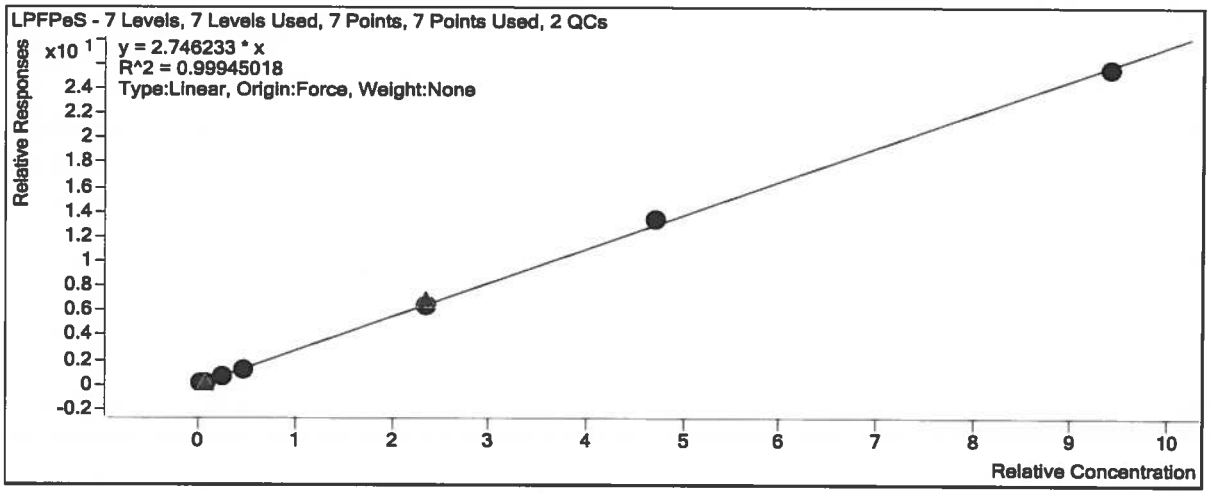
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191115ACAL\2191115A_02.d	Calibration	1	☑	1045	0.4675	6.9992
D:\MassHunter\Data\2191115ACAL\2191115A_03.d	Calibration	2	☑	2786	1.1700	7.8574
D:\MassHunter\Data\2191115ACAL\2191115A_04.d	Calibration	3	☑	12404	4.6700	8.3153
D:\MassHunter\Data\2191115ACAL\2191115A_05.d	Calibration	4	☑	26665	9.3500	8.9798
D:\MassHunter\Data\2191115ACAL\2191115A_06.d	Calibration	5	☑	130622	46.7500	9.3527
D:\MassHunter\Data\2191115ACAL\2191115A_07.d	Calibration	6	☑	257256	93.5000	9.1989
D:\MassHunter\Data\2191115ACAL\2191115A_08.d	Calibration	7	☑	482390	187.0000	9.3809

Quantitative Analysis Calibration Report



Target Compound *LPFPeS*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191115ACAL\2191115A_02.d	Calibration	1	☑	2242	0.4700	2.3735
D:\MassHunter\Data\2191115ACAL\2191115A_03.d	Calibration	2	☑	5330	1.1800	2.1836
D:\MassHunter\Data\2191115ACAL\2191115A_04.d	Calibration	3	☑	25348	4.7000	2.6155
D:\MassHunter\Data\2191115ACAL\2191115A_05.d	Calibration	4	☑	50772	9.4000	2.6493
D:\MassHunter\Data\2191115ACAL\2191115A_06.d	Calibration	5	☑	264620	47.0000	2.7237
D:\MassHunter\Data\2191115ACAL\2191115A_07.d	Calibration	6	☑	528480	94.0000	2.8516
D:\MassHunter\Data\2191115ACAL\2191115A_08.d	Calibration	7	☑	1026459	188.0000	2.7217

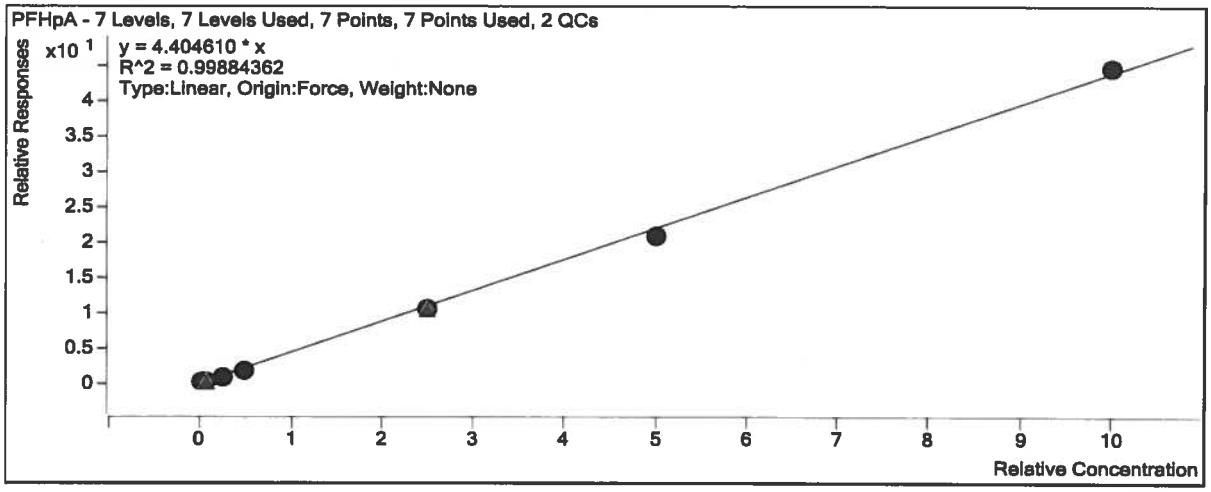


Extracted ISTD *M3HFPODA*

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

Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191115ACAL\2191115A_05.d	Calibration	4	☑	85026	10.0000	3.9103
D:\MassHunter\Data\2191115ACAL\2191115A_06.d	Calibration	5	☑	443611	50.0000	4.2009
D:\MassHunter\Data\2191115ACAL\2191115A_07.d	Calibration	6	☑	883444	100.0000	4.1935
D:\MassHunter\Data\2191115ACAL\2191115A_08.d	Calibration	7	☑	1760360	200.0000	4.4718



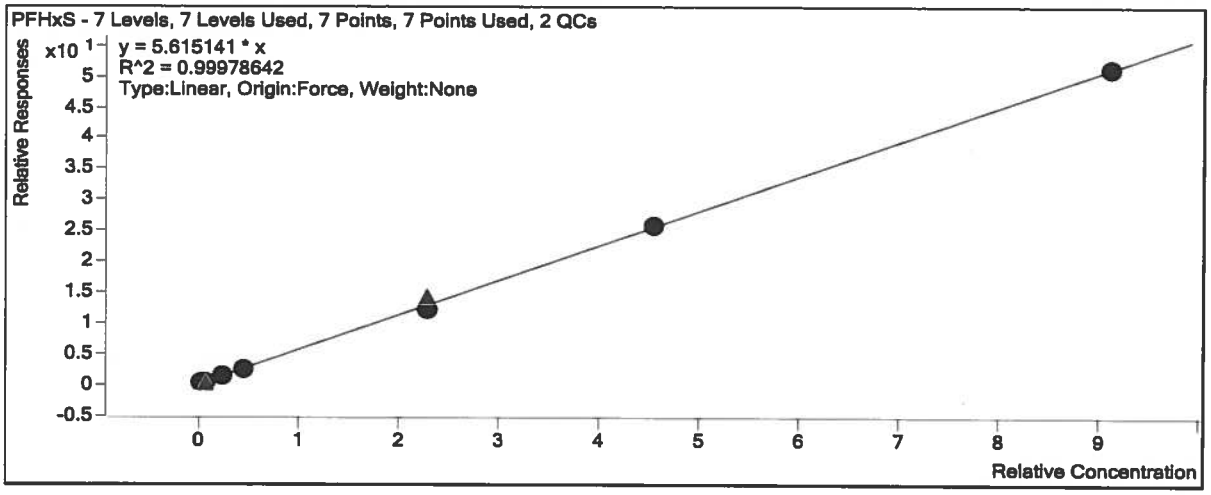
Extracted ISTD *M3PFHxS*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191115ACAL\2191115A_02.d	Calibration	1	☑	23864	20.0000	1193.1980
D:\MassHunter\Data\2191115ACAL\2191115A_03.d	Calibration	2	☑	23739	20.0000	1186.9332
D:\MassHunter\Data\2191115ACAL\2191115A_04.d	Calibration	3	☑	22174	20.0000	1108.6786
D:\MassHunter\Data\2191115ACAL\2191115A_05.d	Calibration	4	☑	22236	20.0000	1111.7859
D:\MassHunter\Data\2191115ACAL\2191115A_06.d	Calibration	5	☑	23701	20.0000	1185.0551
D:\MassHunter\Data\2191115ACAL\2191115A_07.d	Calibration	6	☑	22503	20.0000	1125.1529
D:\MassHunter\Data\2191115ACAL\2191115A_08.d	Calibration	7	☑	21885	20.0000	1094.2593

Target Compound *PFHxS*

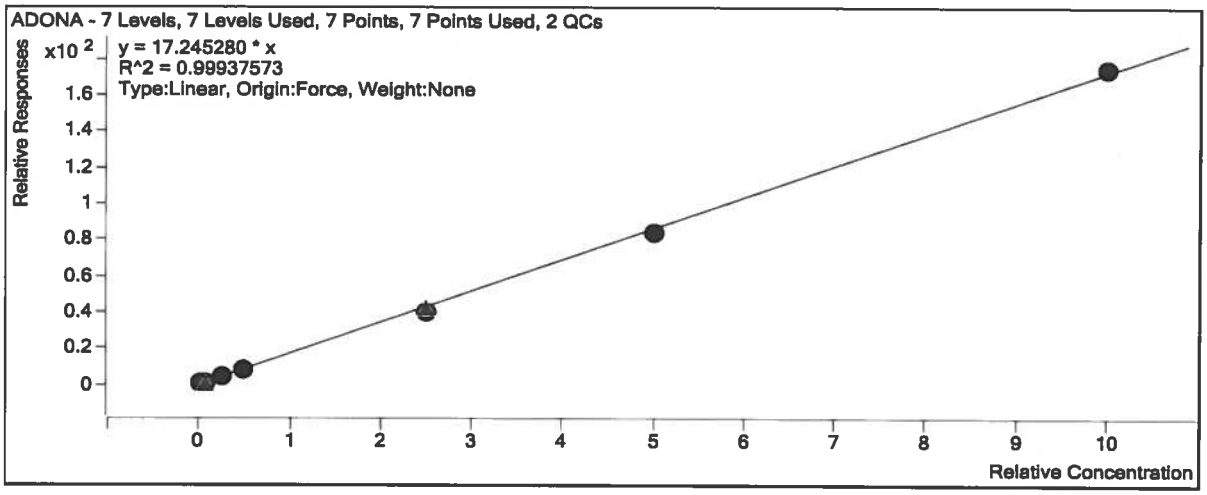
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191115ACAL\2191115A_02.d	Calibration	1	☑	2275	0.4560	4.1810
D:\MassHunter\Data\2191115ACAL\2191115A_03.d	Calibration	2	☑	6399	1.1400	4.7293
D:\MassHunter\Data\2191115ACAL\2191115A_04.d	Calibration	3	☑	26569	4.5600	5.2554
D:\MassHunter\Data\2191115ACAL\2191115A_05.d	Calibration	4	☑	55619	9.1200	5.4854

D:\MassHunter\Data\2191115ACAL\2191115A_06.d	Calibration	5	☑	288846	45.6000	5.3452
D:\MassHunter\Data\2191115ACAL\2191115A_07.d	Calibration	6	☑	582476	91.2000	5.6764
D:\MassHunter\Data\2191115ACAL\2191115A_08.d	Calibration	7	☑	1121173	182.4000	5.6173



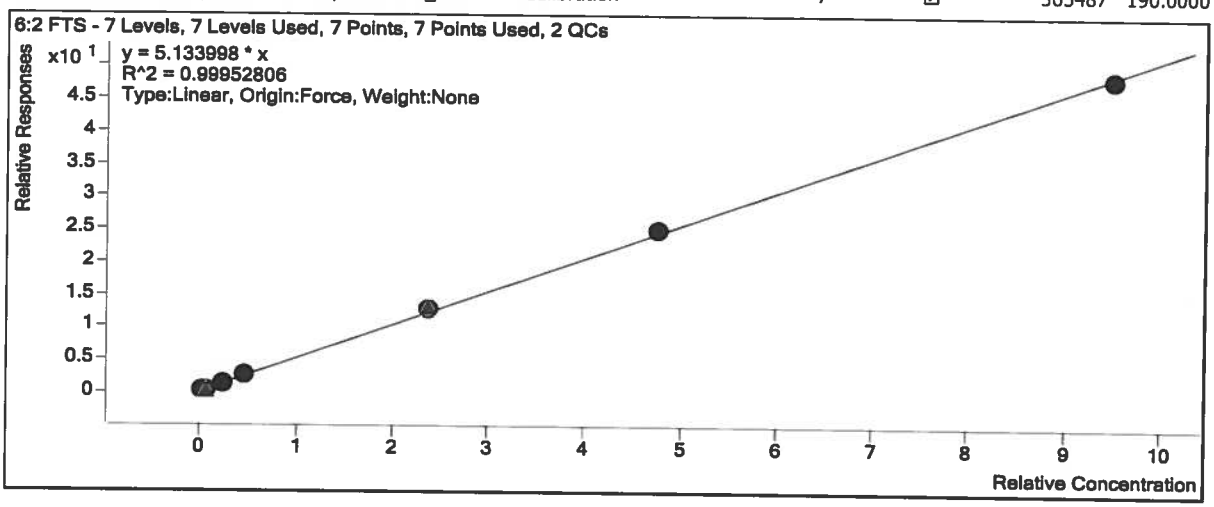
Target Compound *ADONA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191115ACAL\2191115A_02.d	Calibration	1	☑	9038	0.5000	13.6101
D:\MassHunter\Data\2191115ACAL\2191115A_03.d	Calibration	2	☑	23873	1.2500	13.4649
D:\MassHunter\Data\2191115ACAL\2191115A_04.d	Calibration	3	☑	109510	5.0000	16.2036
D:\MassHunter\Data\2191115ACAL\2191115A_05.d	Calibration	4	☑	226862	10.0000	16.5255
D:\MassHunter\Data\2191115ACAL\2191115A_06.d	Calibration	5	☑	1139462	50.0000	16.0735
D:\MassHunter\Data\2191115ACAL\2191115A_07.d	Calibration	6	☑	2306821	100.0000	16.8519
D:\MassHunter\Data\2191115ACAL\2191115A_08.d	Calibration	7	☑	4562293	200.0000	17.4195



Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191115ACAL\2191115A_08.d	Calibration	7	☑	565487	190.0000	5.0865



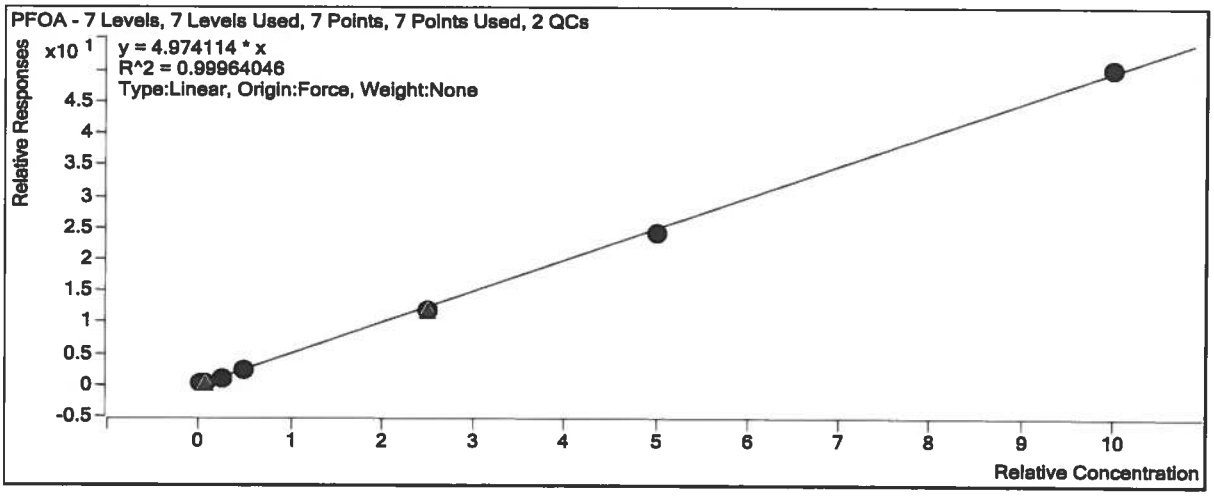
Extracted ISTD *M2 6:2 FTS*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191115ACAL\2191115A_02.d	Calibration	1	☑	13220	20.0000	660.9827
D:\MassHunter\Data\2191115ACAL\2191115A_03.d	Calibration	2	☑	13564	20.0000	678.2054
D:\MassHunter\Data\2191115ACAL\2191115A_04.d	Calibration	3	☑	13713	20.0000	685.6679
D:\MassHunter\Data\2191115ACAL\2191115A_05.d	Calibration	4	☑	12849	20.0000	642.4515
D:\MassHunter\Data\2191115ACAL\2191115A_06.d	Calibration	5	☑	13083	20.0000	654.1654
D:\MassHunter\Data\2191115ACAL\2191115A_07.d	Calibration	6	☑	12507	20.0000	625.3525
D:\MassHunter\Data\2191115ACAL\2191115A_08.d	Calibration	7	☑	11703	20.0000	585.1262

Instrument ISTD *M2PFOA*

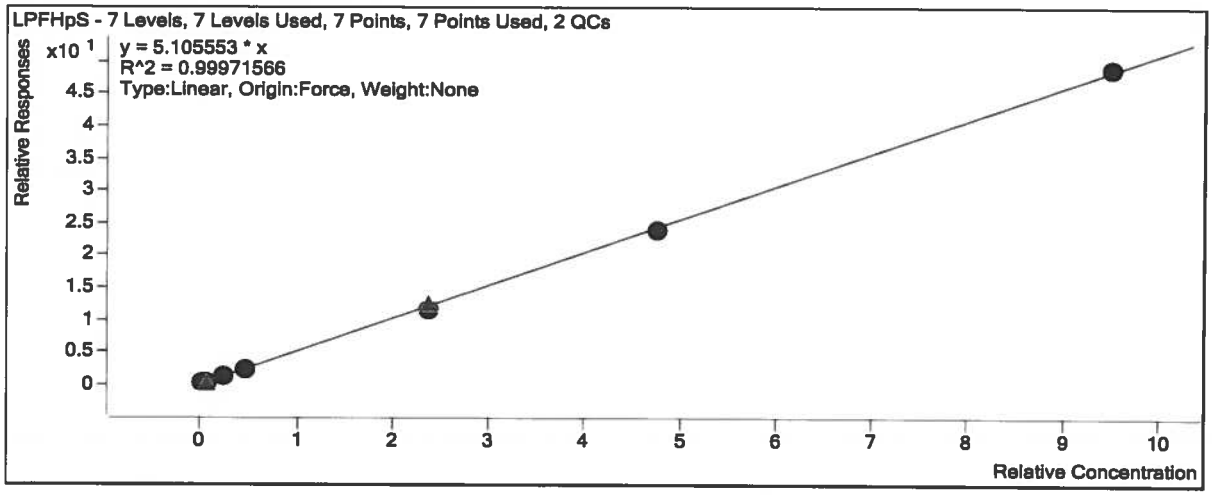
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191115ACAL\2191115A_02.d	Calibration	1	☑	151182	20.0000	7559.0822
D:\MassHunter\Data\2191115ACAL\2191115A_03.d	Calibration	2	☑	156056	20.0000	7802.7983
D:\MassHunter\Data\2191115ACAL\2191115A_04.d	Calibration	3	☑	134187	20.0000	6709.3737
D:\MassHunter\Data\2191115ACAL\2191115A_05.d	Calibration	4	☑	135428	20.0000	6771.4151
D:\MassHunter\Data\2191115ACAL\2191115A_06.d	Calibration	5	☑	139065	20.0000	6953.2483
D:\MassHunter\Data\2191115ACAL\2191115A_07.d	Calibration	6	☑	131350	20.0000	6567.5150
D:\MassHunter\Data\2191115ACAL\2191115A_08.d	Calibration	7	☑	124454	20.0000	6222.7108

Quantitative Analysis Calibration Report



Target Compound *LPFHpS*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191115ACAL\2191115A_02.d	Calibration	1	☑	2809	0.4750	4.4518
D:\MassHunter\Data\2191115ACAL\2191115A_03.d	Calibration	2	☑	7049	1.1900	4.1760
D:\MassHunter\Data\2191115ACAL\2191115A_04.d	Calibration	3	☑	30708	4.7500	4.7828
D:\MassHunter\Data\2191115ACAL\2191115A_05.d	Calibration	4	☑	63977	9.5000	4.9056
D:\MassHunter\Data\2191115ACAL\2191115A_06.d	Calibration	5	☑	326272	47.5000	4.8447
D:\MassHunter\Data\2191115ACAL\2191115A_07.d	Calibration	6	☑	656495	95.0000	5.0483
D:\MassHunter\Data\2191115ACAL\2191115A_08.d	Calibration	7	☑	1278128	190.0000	5.1369



Extracted ISTD *M9PFNA*

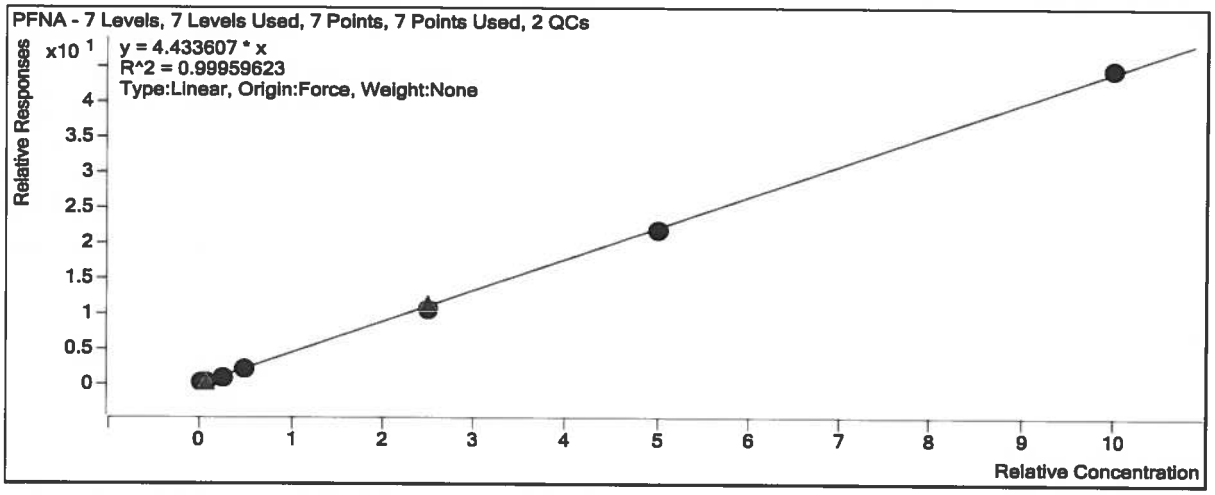
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF

Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191115ACAL\2191115A_08.d	Calibration	7	☑	30178	20.0000	1508.8786

Target Compound *PFNA*

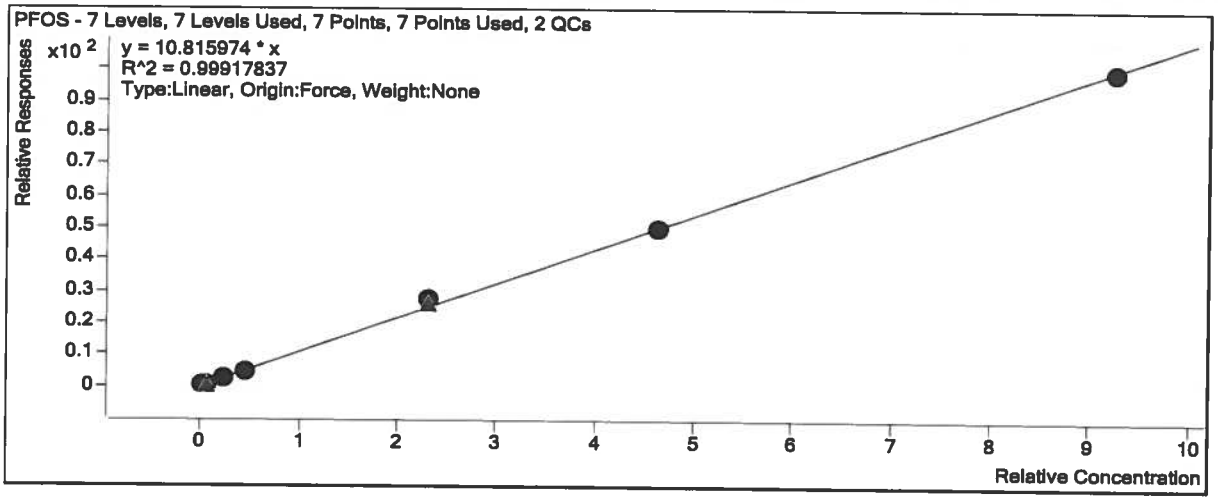
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191115ACAL\2191115A_02.d	Calibration	1	☑	2763	0.5000	3.5480
D:\MassHunter\Data\2191115ACAL\2191115A_03.d	Calibration	2	☑	6902	1.2500	3.5283
D:\MassHunter\Data\2191115ACAL\2191115A_04.d	Calibration	3	☑	29304	5.0000	3.6991
D:\MassHunter\Data\2191115ACAL\2191115A_05.d	Calibration	4	☑	63724	10.0000	4.1505
D:\MassHunter\Data\2191115ACAL\2191115A_06.d	Calibration	5	☑	344233	50.0000	4.2188
D:\MassHunter\Data\2191115ACAL\2191115A_07.d	Calibration	6	☑	667007	100.0000	4.3458
D:\MassHunter\Data\2191115ACAL\2191115A_08.d	Calibration	7	☑	1348998	200.0000	4.4702



Instrument ISTD *M4PFOS*

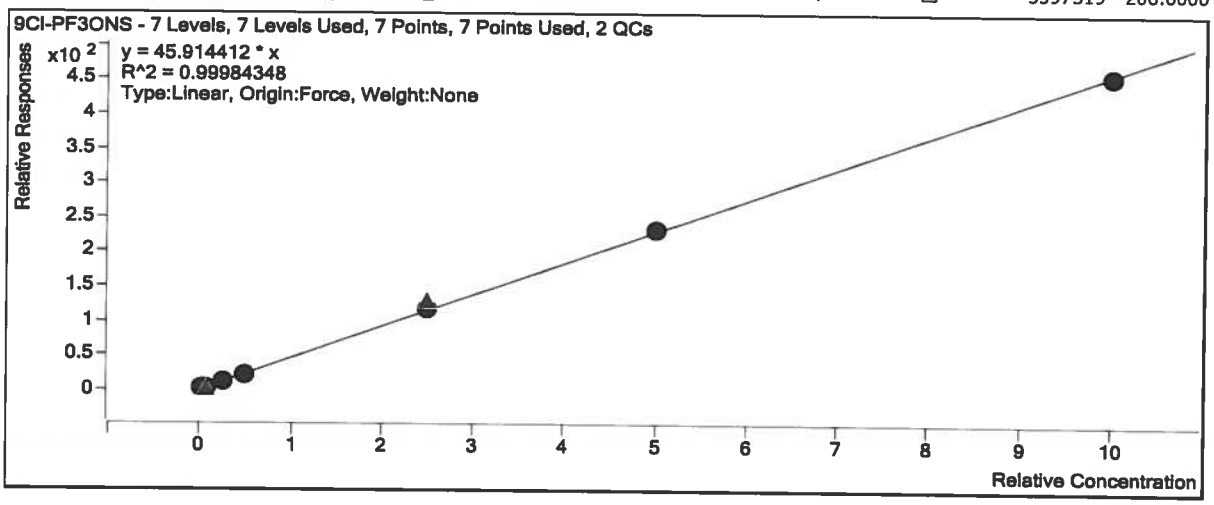
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191115ACAL\2191115A_02.d	Calibration	1	☑	144361	20.0000	7218.0649
D:\MassHunter\Data\2191115ACAL\2191115A_03.d	Calibration	2	☑	144820	20.0000	7241.0212
D:\MassHunter\Data\2191115ACAL\2191115A_04.d	Calibration	3	☑	118877	20.0000	5943.8583
D:\MassHunter\Data\2191115ACAL\2191115A_05.d	Calibration	4	☑	123177	20.0000	6158.8710
D:\MassHunter\Data\2191115ACAL\2191115A_06.d	Calibration	5	☑	129422	20.0000	6471.0885
D:\MassHunter\Data\2191115ACAL\2191115A_07.d	Calibration	6	☑	125637	20.0000	6281.8388
D:\MassHunter\Data\2191115ACAL\2191115A_08.d	Calibration	7	☑	127486	20.0000	6374.3089

Quantitative Analysis Calibration Report



Target Compound *9Cl-PF3ONS*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191115ACAL\2191115A_02.d	Calibration	1	☑	11853	0.5000	35.7842
D:\MassHunter\Data\2191115ACAL\2191115A_03.d	Calibration	2	☑	30041	1.2500	37.5456
D:\MassHunter\Data\2191115ACAL\2191115A_04.d	Calibration	3	☑	137748	5.0000	44.8741
D:\MassHunter\Data\2191115ACAL\2191115A_05.d	Calibration	4	☑	283946	10.0000	45.7658
D:\MassHunter\Data\2191115ACAL\2191115A_06.d	Calibration	5	☑	1447199	50.0000	46.8088
D:\MassHunter\Data\2191115ACAL\2191115A_07.d	Calibration	6	☑	2863268	100.0000	46.7065
D:\MassHunter\Data\2191115ACAL\2191115A_08.d	Calibration	7	☑	5597319	200.0000	45.6619



Extracted ISTD *M2 8:2 FTS*

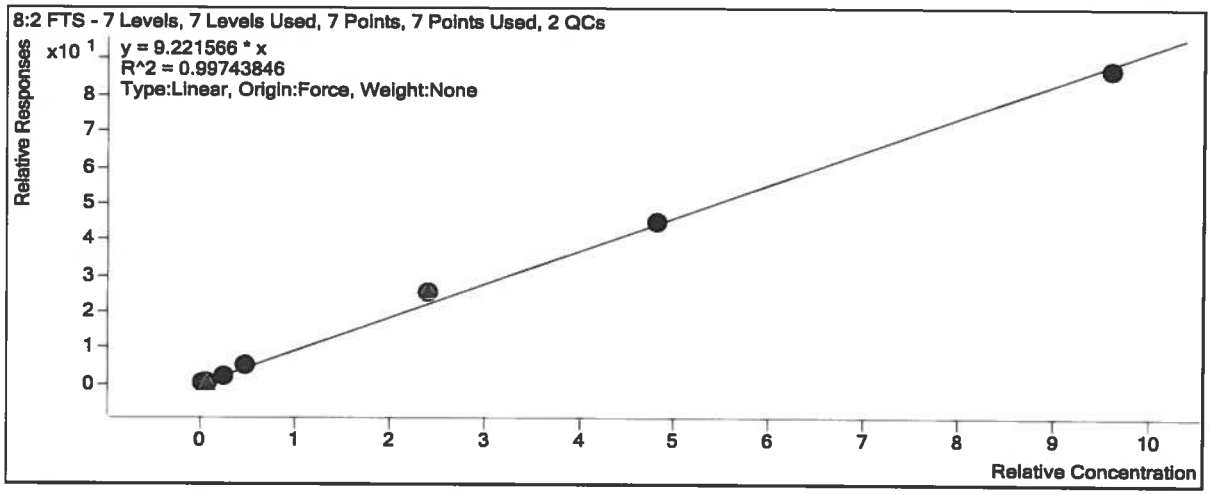
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF

Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191115ACAL\2191115A_08.d	Calibration	7	☑	8590	20.0000	429.4825

Target Compound *8:2 FTS*

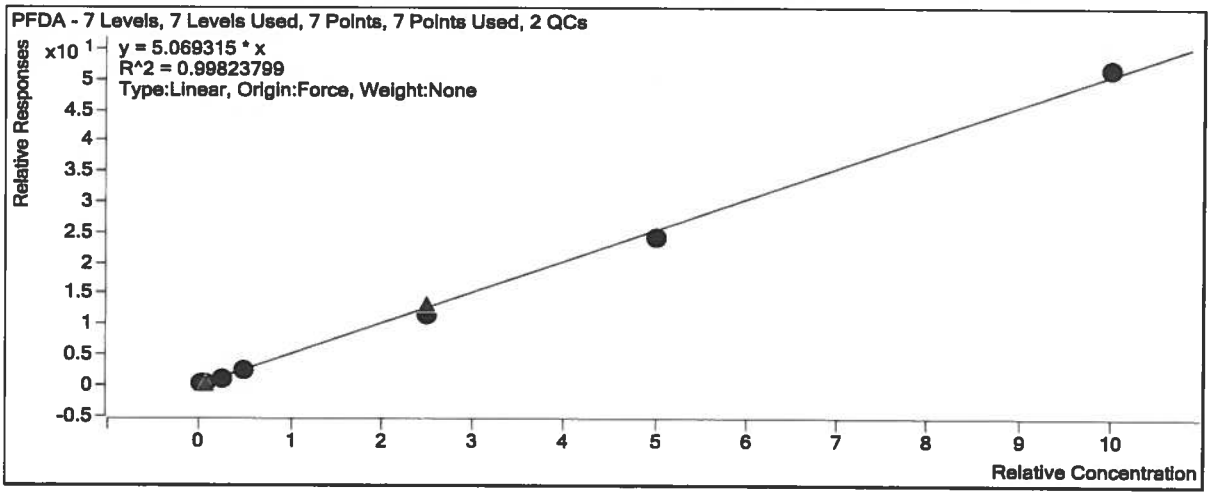
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191115ACAL\2191115A_02.d	Calibration	1	☑	2058	0.4800	7.8507
D:\MassHunter\Data\2191115ACAL\2191115A_03.d	Calibration	2	☑	5289	1.2000	8.5165
D:\MassHunter\Data\2191115ACAL\2191115A_04.d	Calibration	3	☑	23471	4.8000	10.2357
D:\MassHunter\Data\2191115ACAL\2191115A_05.d	Calibration	4	☑	50122	9.6000	10.8126
D:\MassHunter\Data\2191115ACAL\2191115A_06.d	Calibration	5	☑	234110	48.0000	10.7003
D:\MassHunter\Data\2191115ACAL\2191115A_07.d	Calibration	6	☑	429217	96.0000	9.4319
D:\MassHunter\Data\2191115ACAL\2191115A_08.d	Calibration	7	☑	748081	192.0000	9.0720



Extracted ISTD *M6PFDA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191115ACAL\2191115A_02.d	Calibration	1	☑	28336	20.0000	1416.8060
D:\MassHunter\Data\2191115ACAL\2191115A_03.d	Calibration	2	☑	31443	20.0000	1572.1693
D:\MassHunter\Data\2191115ACAL\2191115A_04.d	Calibration	3	☑	29096	20.0000	1454.8245
D:\MassHunter\Data\2191115ACAL\2191115A_05.d	Calibration	4	☑	28398	20.0000	1419.8833
D:\MassHunter\Data\2191115ACAL\2191115A_06.d	Calibration	5	☑	29987	20.0000	1499.3250
D:\MassHunter\Data\2191115ACAL\2191115A_07.d	Calibration	6	☑	27184	20.0000	1359.2123
D:\MassHunter\Data\2191115ACAL\2191115A_08.d	Calibration	7	☑	25435	20.0000	1271.7686

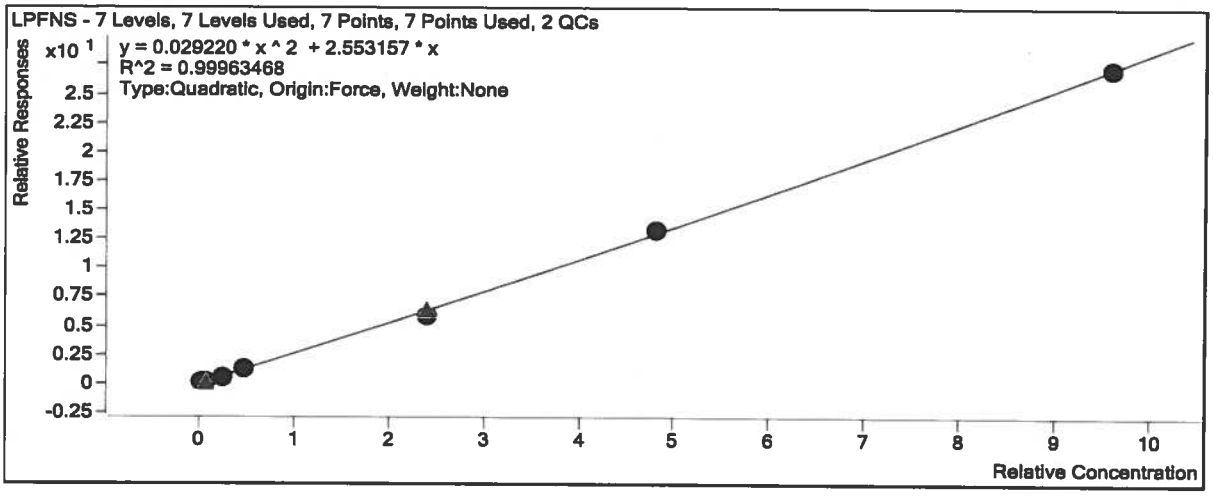
Quantitative Analysis Calibration Report



Quantitative Analysis Calibration Report

Target Compound *LPFNS*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191115ACAL\2191115A_02.d	Calibration	1	☑	1654	0.4800	2.2126
D:\MassHunter\Data\2191115ACAL\2191115A_03.d	Calibration	2	☑	4181	1.2000	2.2261
D:\MassHunter\Data\2191115ACAL\2191115A_04.d	Calibration	3	☑	17389	4.8000	2.2865
D:\MassHunter\Data\2191115ACAL\2191115A_05.d	Calibration	4	☑	37299	9.6000	2.5306
D:\MassHunter\Data\2191115ACAL\2191115A_06.d	Calibration	5	☑	193466	48.0000	2.4698
D:\MassHunter\Data\2191115ACAL\2191115A_07.d	Calibration	6	☑	405657	96.0000	2.7531
D:\MassHunter\Data\2191115ACAL\2191115A_08.d	Calibration	7	☑	819464	192.0000	2.8286



Extracted ISTD *d3-NMeFOSAA*

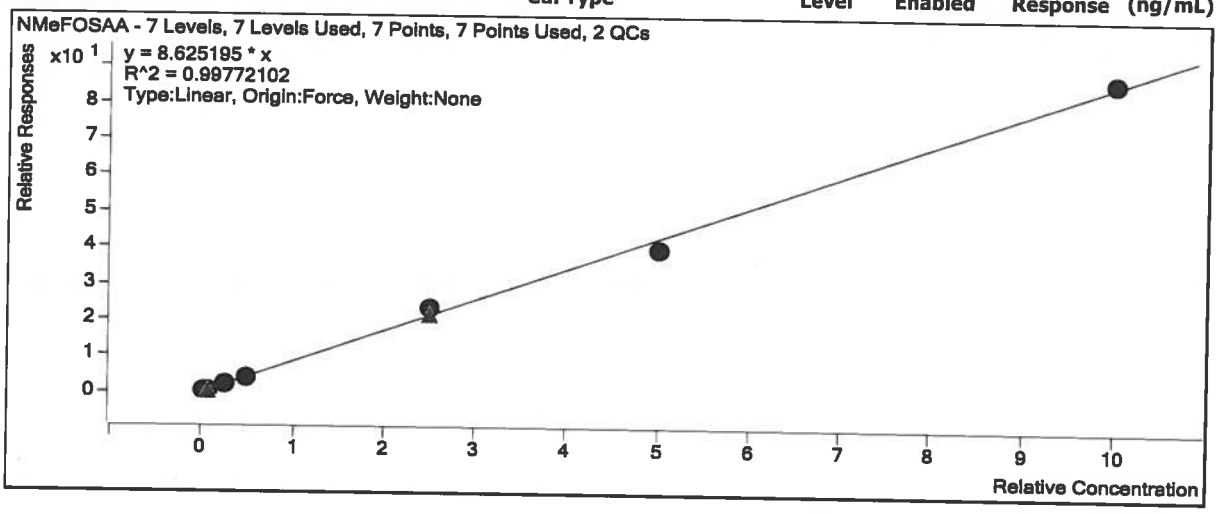
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191115ACAL\2191115A_02.d	Calibration	1	☑	6358	20.0000	317.8960
D:\MassHunter\Data\2191115ACAL\2191115A_03.d	Calibration	2	☑	5857	20.0000	292.8652
D:\MassHunter\Data\2191115ACAL\2191115A_04.d	Calibration	3	☑	4722	20.0000	236.0835
D:\MassHunter\Data\2191115ACAL\2191115A_05.d	Calibration	4	☑	5995	20.0000	299.7518
D:\MassHunter\Data\2191115ACAL\2191115A_06.d	Calibration	5	☑	6051	20.0000	302.5465
D:\MassHunter\Data\2191115ACAL\2191115A_07.d	Calibration	6	☑	7262	20.0000	363.0781
D:\MassHunter\Data\2191115ACAL\2191115A_08.d	Calibration	7	☑	6759	20.0000	337.9311

Target Compound *NMeFOSAA*

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

Quantitative Analysis Calibration Report

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



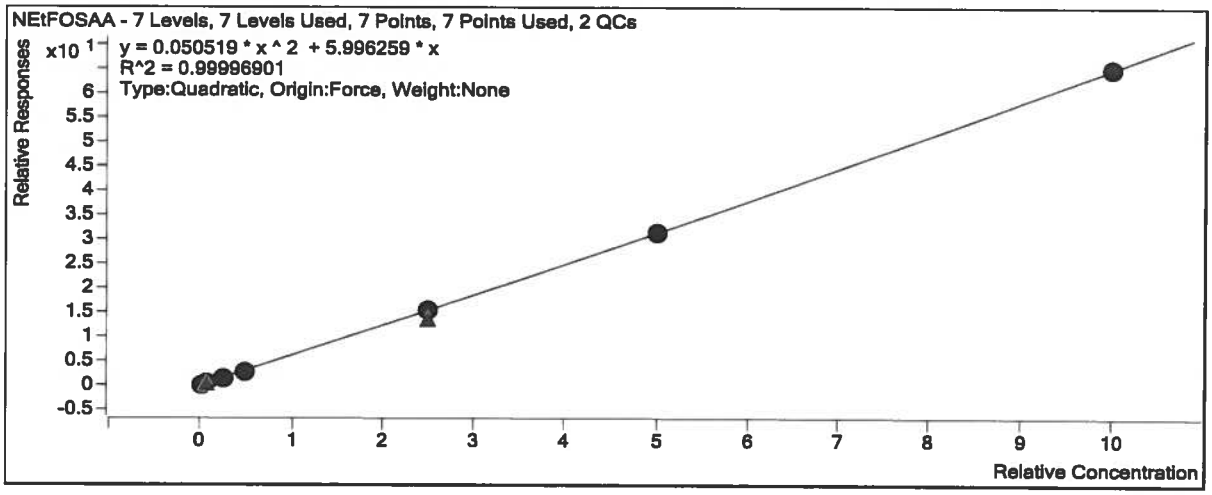
Extracted ISTD *M8FOSA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191115ACAL\2191115A_02.d	Calibration	1	☑	41273	20.0000	2063.6525
D:\MassHunter\Data\2191115ACAL\2191115A_03.d	Calibration	2	☑	42174	20.0000	2108.6756
D:\MassHunter\Data\2191115ACAL\2191115A_04.d	Calibration	3	☑	43177	20.0000	2158.8344
D:\MassHunter\Data\2191115ACAL\2191115A_05.d	Calibration	4	☑	42237	20.0000	2111.8732
D:\MassHunter\Data\2191115ACAL\2191115A_06.d	Calibration	5	☑	44436	20.0000	2221.7762
D:\MassHunter\Data\2191115ACAL\2191115A_07.d	Calibration	6	☑	44644	20.0000	2232.1970
D:\MassHunter\Data\2191115ACAL\2191115A_08.d	Calibration	7	☑	41855	20.0000	2092.7664

Target Compound *FOSA-I*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191115ACAL\2191115A_02.d	Calibration	1	☑	4446	0.5000	4.3089
D:\MassHunter\Data\2191115ACAL\2191115A_03.d	Calibration	2	☑	11589	1.2500	4.3966
D:\MassHunter\Data\2191115ACAL\2191115A_04.d	Calibration	3	☑	49298	5.0000	4.5671
D:\MassHunter\Data\2191115ACAL\2191115A_05.d	Calibration	4	☑	103724	10.0000	4.9115
D:\MassHunter\Data\2191115ACAL\2191115A_06.d	Calibration	5	☑	536521	50.0000	4.8297
D:\MassHunter\Data\2191115ACAL\2191115A_07.d	Calibration	6	☑	1071372	100.0000	4.7996
D:\MassHunter\Data\2191115ACAL\2191115A_08.d	Calibration	7	☑	2076981	200.0000	4.9623

Quantitative Analysis Calibration Report



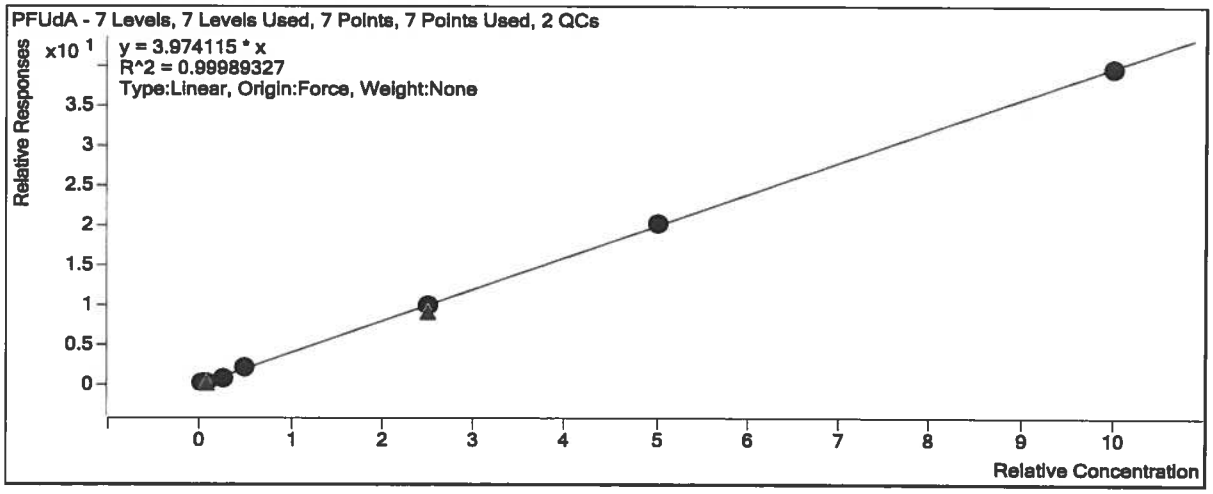
Extracted ISTD *M7PFUdA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191115ACAL\2191115A_02.d	Calibration	1	☑	30992	20.0000	1549.6070
D:\MassHunter\Data\2191115ACAL\2191115A_03.d	Calibration	2	☑	32045	20.0000	1602.2588
D:\MassHunter\Data\2191115ACAL\2191115A_04.d	Calibration	3	☑	31595	20.0000	1579.7710
D:\MassHunter\Data\2191115ACAL\2191115A_05.d	Calibration	4	☑	29948	20.0000	1497.3753
D:\MassHunter\Data\2191115ACAL\2191115A_06.d	Calibration	5	☑	30451	20.0000	1522.5619
D:\MassHunter\Data\2191115ACAL\2191115A_07.d	Calibration	6	☑	29825	20.0000	1491.2728
D:\MassHunter\Data\2191115ACAL\2191115A_08.d	Calibration	7	☑	28218	20.0000	1410.8819

Target Compound *PFUdA*

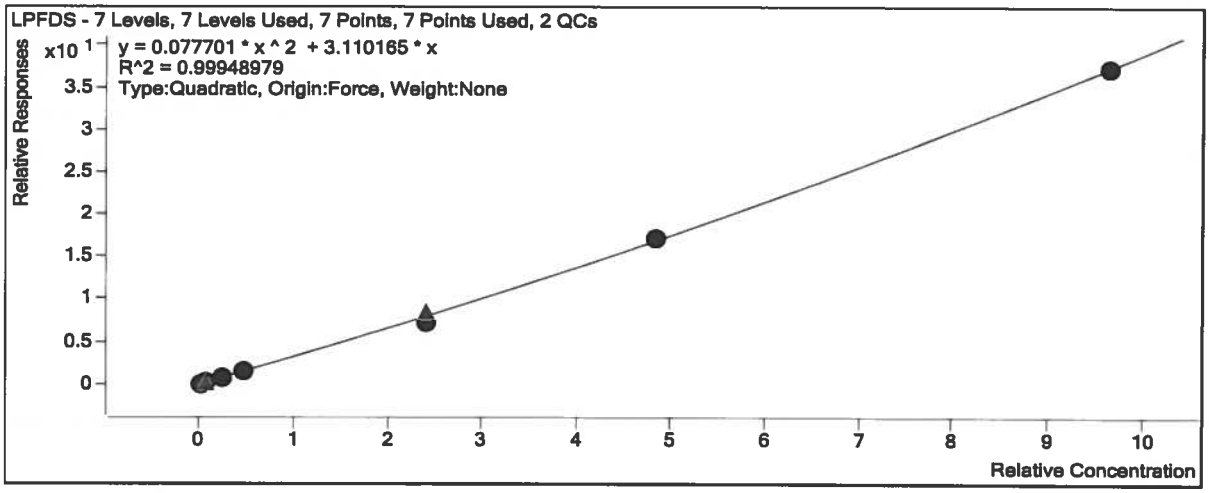
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191115ACAL\2191115A_02.d	Calibration	1	☑	2721	0.5000	3.5124
D:\MassHunter\Data\2191115ACAL\2191115A_03.d	Calibration	2	☑	6887	1.2500	3.4385
D:\MassHunter\Data\2191115ACAL\2191115A_04.d	Calibration	3	☑	27956	5.0000	3.5392
D:\MassHunter\Data\2191115ACAL\2191115A_05.d	Calibration	4	☑	60595	10.0000	4.0468
D:\MassHunter\Data\2191115ACAL\2191115A_06.d	Calibration	5	☑	300820	50.0000	3.9515
D:\MassHunter\Data\2191115ACAL\2191115A_07.d	Calibration	6	☑	602188	100.0000	4.0381
D:\MassHunter\Data\2191115ACAL\2191115A_08.d	Calibration	7	☑	1117320	200.0000	3.9597

Quantitative Analysis Calibration Report



Target Compound *LPFDS*

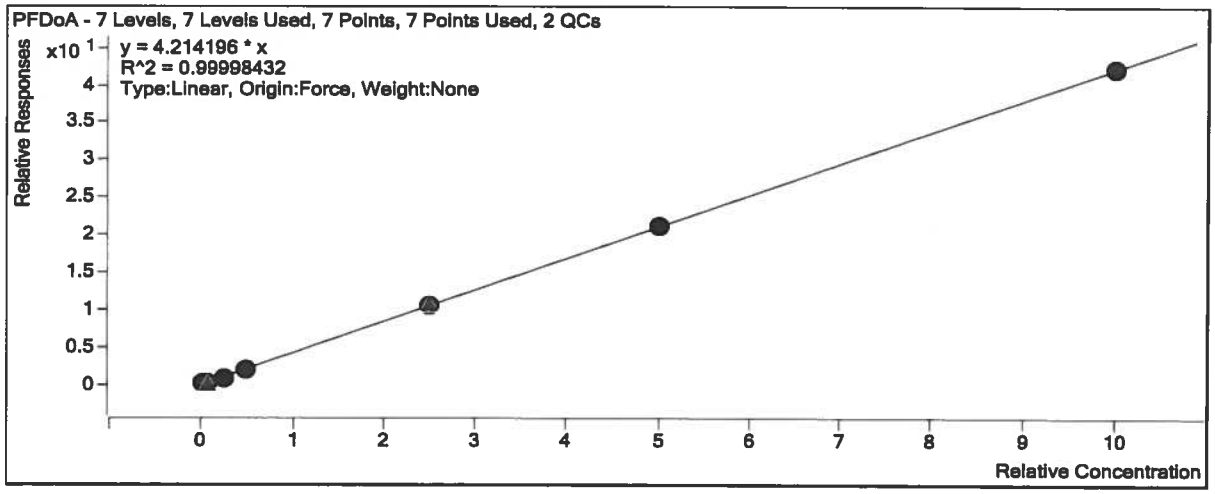
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191115ACAL\2191115A_02.d	Calibration	1	☑	1845	0.4825	2.6992
D:\MassHunter\Data\2191115ACAL\2191115A_03.d	Calibration	2	☑	4410	1.2100	2.3181
D:\MassHunter\Data\2191115ACAL\2191115A_04.d	Calibration	3	☑	19621	4.8250	2.7952
D:\MassHunter\Data\2191115ACAL\2191115A_05.d	Calibration	4	☑	42158	9.6500	3.0768
D:\MassHunter\Data\2191115ACAL\2191115A_06.d	Calibration	5	☑	220676	48.2500	3.0504
D:\MassHunter\Data\2191115ACAL\2191115A_07.d	Calibration	6	☑	469700	96.5000	3.5810
D:\MassHunter\Data\2191115ACAL\2191115A_08.d	Calibration	7	☑	945445	193.0000	3.8519



Target Compound *11Cl-PF3OUdS*

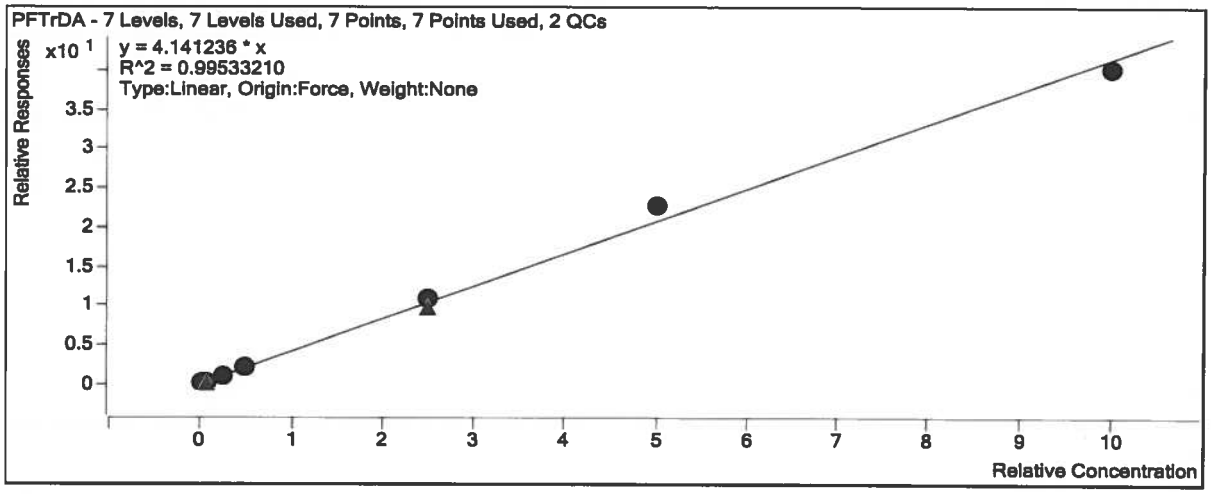
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF

Quantitative Analysis Calibration Report



Target Compound *PFTrDA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191115ACAL\2191115A_02.d	Calibration	1	☑	1571	0.5000	3.7498
D:\MassHunter\Data\2191115ACAL\2191115A_03.d	Calibration	2	☑	4014	1.2500	3.7385
D:\MassHunter\Data\2191115ACAL\2191115A_04.d	Calibration	3	☑	17696	5.0000	4.1717
D:\MassHunter\Data\2191115ACAL\2191115A_05.d	Calibration	4	☑	35970	10.0000	4.3869
D:\MassHunter\Data\2191115ACAL\2191115A_06.d	Calibration	5	☑	191121	50.0000	4.3991
D:\MassHunter\Data\2191115ACAL\2191115A_07.d	Calibration	6	☑	396726	100.0000	4.5695
D:\MassHunter\Data\2191115ACAL\2191115A_08.d	Calibration	7	☑	741379	200.0000	4.0174

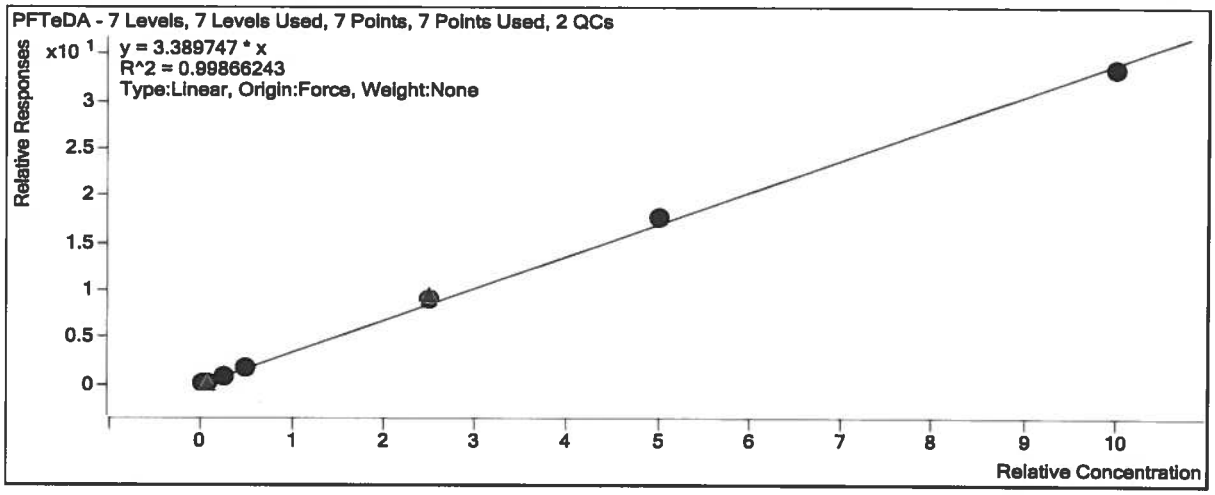


Target Compound *PFTeDA*

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

Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191115ACAL\2191115A_08.d	Calibration	7	☑	615694	200.0000	3.3364



Extracted ISTD *M2PFTeDA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191115ACAL\2191115A_02.d	Calibration	1	☑	16761	20.0000	838.0543
D:\MassHunter\Data\2191115ACAL\2191115A_03.d	Calibration	2	☑	17177	20.0000	858.8634
D:\MassHunter\Data\2191115ACAL\2191115A_04.d	Calibration	3	☑	16968	20.0000	848.3824
D:\MassHunter\Data\2191115ACAL\2191115A_05.d	Calibration	4	☑	16399	20.0000	819.9405
D:\MassHunter\Data\2191115ACAL\2191115A_06.d	Calibration	5	☑	17378	20.0000	868.9094
D:\MassHunter\Data\2191115ACAL\2191115A_07.d	Calibration	6	☑	17364	20.0000	868.2069
D:\MassHunter\Data\2191115ACAL\2191115A_08.d	Calibration	7	☑	18454	20.0000	922.7015

6I

ORGANICS INITIAL CALIBRATION VERIFICATION

Report No:	219102326	Instrument ID:	QQQ1
Analysis Date:	11/15/2019 09:32	Lab File ID:	2191115A_10.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	671540

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	50000	51300	103	70	130	
8:2 Fluorotelomer sulfonate	ng/L	50000	56600	113	70	130	
NEtFOSAA	ng/L	50000	44900	90	70	130	
NMeFOSAA	ng/L	50000	50600	101	70	130	
Perfluorobutanoic acid	ng/L	50000	50200	100	70	130	
Perfluorobutanesulfonic acid	ng/L	50000	50400	101	70	130	
Perfluorodecanoic acid	ng/L	50000	52100	104	70	130	
Perfluorododecanoic acid	ng/L	50000	52200	104	70	130	
Perfluoroheptanoic acid	ng/L	50000	48200	96	70	130	
Perfluorohexanoic acid	ng/L	50000	53800	108	70	130	
Perfluorohexanesulfonic acid	ng/L	50000	50900	102	70	130	
Perfluorononanoic acid	ng/L	50000	52500	105	70	130	
Perfluorooctanoic acid	ng/L	50000	48200	96	70	130	
Perfluorooctane Sulfonate	ng/L	50000	48100	96	70	130	
Perfluoropentanoic acid	ng/L	50000	45800	92	70	130	
Perfluorotetradecanoic acid	ng/L	50000	56300	113	70	130	
Perfluorotridecanoic acid	ng/L	50000	47900	96	70	130	
Perfluoroundecanoic acid	ng/L	50000	46200	92	70	130	

7S

ORGANICS INSTRUMENT SENSITIVITY CHECK

Report No:	219102326	Instrument ID:	QQQ1
Analysis Date:	11/15/2019 09:43	Lab File ID:	2191115A_11.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	671540

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	7.93	7.60	96	70	130	
8:2 Fluorotelomer sulfonate	ng/L	8.00	7.80	97	70	130	
NEtFOSAA	ng/L	8.33	7.87	94	70	130	
NMeFOSAA	ng/L	8.33	9.13	110	70	130	
Perfluorobutanoic acid	ng/L	8.33	6.93	83	70	130	
Perfluorobutanesulfonic acid	ng/L	7.40	6.40	87	70	130	
Perfluorodecanoic acid	ng/L	8.33	6.48	78	70	130	
Perfluorododecanoic acid	ng/L	8.33	7.27	87	70	130	
Perfluoroheptanoic acid	ng/L	8.33	6.73	81	70	130	
Perfluorohexanoic acid	ng/L	8.33	6.93	83	70	130	
Perfluorohexanesulfonic acid	ng/L	7.60	6.23	82	70	130	
Perfluorononanoic acid	ng/L	8.33	6.73	81	70	130	
Perfluorooctanoic acid	ng/L	8.33	6.80	82	70	130	
Perfluorooctane Sulfonate	ng/L	7.73	8.20	106	70	130	
Perfluoropentanoic acid	ng/L	8.33	6.24	75	70	130	
Perfluorotetradecanoic acid	ng/L	8.33	7.67	92	70	130	
Perfluorotridecanoic acid	ng/L	8.33	8.27	99	70	130	
Perfluoroundecanoic acid	ng/L	8.33	6.56	79	70	130	

FORM 7S - ORG

4I

ORGANICS INSTRUMENT BLANK

Report No:	219102326	Instrument ID:	QQQ1
Analysis Date:	11/15/2019 09:54	Lab File ID:	2191115A_12.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	671540

ANALYTE	UNITS	RESULT	Q	DL	LOD	LOQ	#
6:2 Fluorotelomer sulfonate	ng/L	4.00	U	1.79	4.00	10.0	
8:2 Fluorotelomer sulfonate	ng/L	4.00	U	1.63	4.00	10.0	
NEtFOSAA	ng/L	8.00	U	5.38	8.00	10.0	
NMeFOSAA	ng/L	8.00	U	4.60	8.00	10.0	
Perfluorobutanesulfonic acid	ng/L	4.00	U	1.47	4.00	10.0	
Perfluorobutanoic acid	ng/L	4.00	U	2.13	4.00	10.0	
Perfluorodecanoic acid	ng/L	4.00	U	1.65	4.00	10.0	
Perfluorododecanoic acid	ng/L	4.00	U	2.45	4.00	10.0	
Perfluoroheptanoic acid	ng/L	4.00	U	1.85	4.00	10.0	
Perfluorohexanesulfonic acid	ng/L	4.00	U	1.64	4.00	10.0	
Perfluorohexanoic acid	ng/L	4.00	U	1.94	4.00	10.0	
Perfluorononanoic acid	ng/L	4.00	U	1.68	4.00	10.0	
Perfluorooctane Sulfonate	ng/L	1.77	J	1.70	4.00	10.0	
Perfluorooctanoic acid	ng/L	4.00	U	1.80	4.00	10.0	
Perfluoropentanoic acid	ng/L	4.00	U	2.35	4.00	10.0	
Perfluorotetradecanoic acid	ng/L	4.00	U	2.76	4.00	10.0	
Perfluorotridecanoic acid	ng/L	4.00	U	2.56	4.00	10.0	
Perfluoroundecanoic acid	ng/L	4.00	U	1.86	4.00	10.0	

* - Result greater than 1/2 LOQ

LCMS1 Run Log

Analyst:	BMH	Expiration
Batch:	2191117A	Date
Current ICAL Bath:	2191115ACAL/2191115ACALDW	Date
20mM Amm Acetate	010-15-5	11/19/2019
Methanol	2128497	8/31/2024
Calibration Std	010-14-7	5/13/2020
ICV Std	010-6-5	4/9/2020
EIS Mix	010-15-3	5/15/2020

Name	Data File	Type	Acq. Date-Time	Comment	Dil.
MeOH Shot	2191117A_01.d	MeOH Shot	11/17/2019 15:22	Instrument idle/MeOH Shot	1
1450	2191117A_02.d	QC	11/17/2019 15:33	High EIS recovery	1
1500	2191117A_03.d	Sample	11/17/2019 15:44	High EIS recovery	1
MeOH Shot	2191117A_04.d	MeOH Shot	11/17/2019 16:14	Instrument idle/MeOH Shot	1
1500	2191117A_05.d	Sample	11/17/2019 16:25	Instrument read error	1
1450	2191117A_06.d	QC	11/17/2019 16:36	Instrument read error	1
MeOH Shot	2191117A_07.d	MeOH Shot	11/17/2019 17:28	Instrument idle/MeOH Shot	1
1450	2191117A_08.d	QC	11/17/2019 17:39		1
1500	2191117A_09.d	Sample	11/17/2019 17:50		1
MeOH Shot	2191117A_11.d	MeOH Shot	11/17/2019 19:09	Instrument idle/MeOH Shot	1
1400	2191117A_12.d	QC	11/17/2019 19:20		1
1981225	2191117A_13.d	Sample	11/17/2019 19:32	671164	1
1981226	2191117A_14.d	QC	11/17/2019 19:43	671164	1
1981227	2191117A_15.d	QC	11/17/2019 19:54	671164	1
21911091502	2191117A_16.d	Sample	11/17/2019 20:06	671164	1
MeOH Shot	2191117A_17.d	MeOH Shot	11/17/2019 20:17	Instrument idle/MeOH Shot	1
21910233305	2191117A_18.d	Sample	11/17/2019 20:28	671164	1
21911084801	2191117A_19.d	Sample	11/17/2019 20:39	671164	1
21911110612	2191117A_20.d	Sample	11/17/2019 20:50	671164	1
21910233308	2191117A_21.d	Sample	11/17/2019 21:02	671164	1
21910233314	2191117A_22.d	Sample	11/17/2019 21:13	671164	1
21910233321	2191117A_23.d	Sample	11/17/2019 21:24	671164	1

21910271704	2191117A_24.d	Sample	11/17/2019 21:36	671164	1
21911110601	2191117A_25.d	Sample	11/17/2019 21:47	671164	1
21911110602	2191117A_26.d	Sample	11/17/2019 21:58	671164	1
1400	2191117A_27.d	QC	11/17/2019 22:10		1
21911110603	2191117A_28.d	QC	11/17/2019 22:21	671164	1
21911110604	2191117A_29.d	QC	11/17/2019 22:32	671164	1
21911110605	2191117A_30.d	Sample	11/17/2019 22:44	671164	1
21911110606	2191117A_31.d	Sample	11/17/2019 22:55	671164	1
21911110607	2191117A_32.d	Sample	11/17/2019 23:06	671164	1
21911110608	2191117A_33.d	Sample	11/17/2019 23:18	671164	1
21911110609	2191117A_34.d	Sample	11/17/2019 23:29	671164	1
21911110610	2191117A_35.d	Sample	11/17/2019 23:40	671164	1
21911110611	2191117A_36.d	Sample	11/17/2019 23:52	671164	1
21911084802	2191117A_37.d	Sample	11/18/2019 0:03	671164	1
1400	2191117A_38.d	QC	11/18/2019 0:14		1
MeOH Shot	2191117A_39.d	MeOH Shot	11/18/2019 0:26	Instrument idle/MeOH Shot	1
MB Test	2191117A_40.d	Sample	11/18/2019 0:37	Test	1
LCS Test	2191117A_41.d	QC	11/18/2019 0:48	Test	1
LCSD Test	2191117A_42.d	QC	11/18/2019 0:59	Test	1
1979410	2191117A_43.d	Sample	11/18/2019 1:11	670857	1
1979411	2191117A_44.d	QC	11/18/2019 1:22	670857	1
1979412	2191117A_45.d	QC	11/18/2019 1:33	670857	1
21911062701	2191117A_46.d	Sample	11/18/2019 1:45	670857	1
21911062702	2191117A_47.d	Sample	11/18/2019 1:56	670857	1
21911062703	2191117A_48.d	Sample	11/18/2019 2:07	670857	1
21911062704	2191117A_49.d	Sample	11/18/2019 2:19	670857	1
21911062705	2191117A_50.d	Sample	11/18/2019 2:30	670857	1
21911062706	2191117A_51.d	Sample	11/18/2019 2:41	670857	1
21911062707	2191117A_52.d	Sample	11/18/2019 2:53	670857	1
21911062708	2191117A_53.d	Sample	11/18/2019 3:04	670857	1
21911062709	2191117A_54.d	Sample	11/18/2019 3:15	670857	1
21911062710	2191117A_55.d	Sample	11/18/2019 3:27	670857	1
1400	2191117A_56.d	QC	11/18/2019 3:38		1
21911070310	2191117A_57.d	Sample	11/18/2019 3:49	670857	1

21911070301	2191117A_58.d	Sample	11/18/2019 4:01	670857	1
21911070302	2191117A_59.d	Sample	11/18/2019 4:12	670857	1
21911070303	2191117A_60.d	Sample	11/18/2019 4:23	670857	1
21911070304	2191117A_61.d	Sample	11/18/2019 4:35	670857	1
21911070305	2191117A_62.d	Sample	11/18/2019 4:46	670857	1
21911070306	2191117A_63.d	QC	11/18/2019 4:58	670857	1
21911070307	2191117A_64.d	QC	11/18/2019 5:09	670857	1
21911070308	2191117A_65.d	Sample	11/18/2019 5:20	670857	1
21911070309	2191117A_66.d	Sample	11/18/2019 5:32	670857	1
21911070311	2191117A_67.d	Sample	11/18/2019 5:43	670857	1
1400	2191117A_68.d	QC	11/18/2019 5:54		1
1974709	2191117A_69.d	Sample	11/18/2019 6:06	669969	1
1974711	2191117A_70.d	QC	11/18/2019 6:17	669969	1
21910232619	2191117A_71.d	Sample	11/18/2019 6:29	669969	5
21910232608	2191117A_72.d	Sample	11/18/2019 6:40	669969	10
21910232609	2191117A_73.d	Sample	11/18/2019 6:51	669969	10
21910232610	2191117A_74.d	Sample	11/18/2019 7:03	669969	10
21910232611	2191117A_75.d	Sample	11/18/2019 7:14	669969	10
21910232612	2191117A_76.d	QC	11/18/2019 7:25	669969	10
21910232613	2191117A_77.d	QC	11/18/2019 7:37	669969	10
21910232617	2191117A_78.d	Sample	11/18/2019 7:48	669969	10
21910232618	2191117A_79.d	Sample	11/18/2019 8:00	669969	10
1400	2191117A_80.d	QC	11/18/2019 8:11		1
MeOH Shot	2191117A_81.d	MeOH Shot	11/18/2019 8:22	Instrument idle/MeOH Shot	1
21910261309	2191117A_82.d	Sample	11/18/2019 8:33	670205	5
21910261314	2191117A_83.d	Sample	11/18/2019 8:45	670205	5
21910261306	2191117A_84.d	Sample	11/18/2019 8:56	670205	20
21910261305	2191117A_85.d	Sample	11/18/2019 9:07	670205	50
21910261308	2191117A_86.d	Sample	11/18/2019 9:18	670205	50
1400	2191117A_87.d	QC	11/18/2019 9:30		1
MeOH Shot	2191117A_88.d	MeOH Shot	11/18/2019 10:31	Instrument idle/MeOH Shot	1
MeOH Shot	2191117A_89.d	MeOH Shot	11/18/2019 10:42	Instrument idle/MeOH Shot	1
21910254103	2191117A_90.d	Sample	11/18/2019 10:53	670126	5
21910254104	2191117A_91.d	Sample	11/18/2019 11:04	670126	5

21910254107	2191117A_92.d	Sample	11/18/2019 11:16	670126	5
21910254101	2191117A_93.d	Sample	11/18/2019 11:27	670126	50
21910254102	2191117A_94.d	Sample	11/18/2019 11:38	670126	50
21910254122 x5	2191117A_95.d	Sample	11/18/2019 11:50	670126	5
21910254122	2191117A_96.d	Sample	11/18/2019 12:01	670126	1
21910254123	2191117A_97.d	Sample	11/18/2019 12:12	670126	5
21910254124	2191117A_98.d	Sample	11/18/2019 12:23	670126	5
1400	2191117A_99.d	QC	11/18/2019 12:35		1
21910254125 x100	2191117A_100.d	Sample	11/18/2019 12:46	670126	100
21910254123	2191117A_101.d	Sample	11/18/2019 12:57	670126	1
21910254113	2191117A_102.d	Sample	11/18/2019 13:08	670126	5
21910254118 x10	2191117A_103.d	Sample	11/18/2019 13:20	670126	10
21910254118	2191117A_104.d	Sample	11/18/2019 13:31	670126	1
21910254119	2191117A_105.d	Sample	11/18/2019 13:43	670126	1
21910254120	2191117A_106.d	Sample	11/18/2019 13:54	670126	1
21910254125	2191117A_107.d	Sample	11/18/2019 14:05	670126	5
MeOH Shot	2191117A_108.d	MeOH Shot	11/18/2019 14:16	Instrument idle/MeOH Shot	1
MeOH Shot	2191117A_109.d	MeOH Shot	11/18/2019 14:27	Instrument idle/MeOH Shot	1
1400	2191117A_110.d	QC	11/18/2019 14:38		1

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ORGANICS INSTRUMENT SENSITIVITY CHECK

Report No:	219102326	Instrument ID:	QQQ1
Analysis Date:	11/17/2019 17:39	Lab File ID:	2191117A_08.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	671600

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	7.93	8.07	102	70	130	
8:2 Fluorotelomer sulfonate	ng/L	8.00	6.87	86	70	130	
NEtFOSAA	ng/L	8.33	7.53	90	70	130	
NMeFOSAA	ng/L	8.33	8.67	104	70	130	
Perfluorobutanoic acid	ng/L	8.33	7.20	86	70	130	
Perfluorobutanesulfonic acid	ng/L	7.40	6.44	87	70	130	
Perfluorodecanoic acid	ng/L	8.33	7.33	88	70	130	
Perfluorododecanoic acid	ng/L	8.33	7.73	93	70	130	
Perfluoroheptanoic acid	ng/L	8.33	6.87	82	70	130	
Perfluorohexanoic acid	ng/L	8.33	8.20	99	70	130	
Perfluorohexanesulfonic acid	ng/L	7.60	6.29	83	70	130	
Perfluorononanoic acid	ng/L	8.33	7.87	94	70	130	
Perfluorooctanoic acid	ng/L	8.33	6.67	80	70	130	
Perfluorooctane Sulfonate	ng/L	7.73	6.56	85	70	130	
Perfluoropentanoic acid	ng/L	8.33	6.93	83	70	130	
Perfluorotetradecanoic acid	ng/L	8.33	8.47	102	70	130	
Perfluorotridecanoic acid	ng/L	8.33	8.33	100	70	130	
Perfluoroundecanoic acid	ng/L	8.33	5.91	71	70	130	

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ORGANICS INSTRUMENT BLANK

Report No:	219102326	Instrument ID:	QQQ1
Analysis Date:	11/17/2019 17:50	Lab File ID:	2191117A_09.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	671600

ANALYTE	UNITS	RESULT	Q	DL	LOD	LOQ	#
6:2 Fluorotelomer sulfonate	ng/L	4.00	U	1.79	4.00	10.0	
8:2 Fluorotelomer sulfonate	ng/L	4.00	U	1.63	4.00	10.0	
NEtFOSAA	ng/L	8.00	U	5.38	8.00	10.0	
NMeFOSAA	ng/L	8.00	U	4.60	8.00	10.0	
Perfluorobutanesulfonic acid	ng/L	4.00	U	1.47	4.00	10.0	
Perfluorobutanoic acid	ng/L	4.00	U	2.13	4.00	10.0	
Perfluorodecanoic acid	ng/L	4.00	U	1.65	4.00	10.0	
Perfluorododecanoic acid	ng/L	4.00	U	2.45	4.00	10.0	
Perfluoroheptanoic acid	ng/L	4.00	U	1.85	4.00	10.0	
Perfluorohexanesulfonic acid	ng/L	4.00	U	1.64	4.00	10.0	
Perfluorohexanoic acid	ng/L	4.00	U	1.94	4.00	10.0	
Perfluorononanoic acid	ng/L	4.00	U	1.68	4.00	10.0	
Perfluorooctane Sulfonate	ng/L	4.00	U	1.70	4.00	10.0	
Perfluorooctanoic acid	ng/L	4.00	U	1.80	4.00	10.0	
Perfluoropentanoic acid	ng/L	4.00	U	2.35	4.00	10.0	
Perfluorotetradecanoic acid	ng/L	4.00	U	2.76	4.00	10.0	
Perfluorotridecanoic acid	ng/L	4.00	U	2.56	4.00	10.0	
Perfluoroundecanoic acid	ng/L	4.00	U	1.86	4.00	10.0	

* - Result greater than 1/2 LOQ

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ORGANICS CALIBRATION VERIFICATION

Report No:	219102333	Instrument ID:	QQQ1
Analysis Date:	11/17/2019 19:20	Lab File ID:	2191117A_12.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	671600

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	47500	52200	110	70	130	
8:2 Fluorotelomer sulfonate	ng/L	48000	58300	121	70	130	
NEtFOSAA	ng/L	50000	55700	111	70	130	
NMeFOSAA	ng/L	50000	58600	117	70	130	
Perfluorobutanoic acid	ng/L	50000	53900	108	70	130	
Perfluorobutanesulfonic acid	ng/L	44300	49100	111	70	130	
Perfluorodecanoic acid	ng/L	50000	52800	106	70	130	
Perfluorododecanoic acid	ng/L	50000	58800	118	70	130	
Perfluoroheptanoic acid	ng/L	50000	54300	109	70	130	
Perfluorohexanoic acid	ng/L	50000	53600	107	70	130	
Perfluorohexanesulfonic acid	ng/L	45600	47200	103	70	130	
Perfluorononanoic acid	ng/L	50000	53500	107	70	130	
Perfluorooctanoic acid	ng/L	50000	53800	108	70	130	
Perfluorooctane Sulfonate	ng/L	46300	54100	117	70	130	
Perfluoropentanoic acid	ng/L	50000	50400	101	70	130	
Perfluorotetradecanoic acid	ng/L	50000	59200	118	70	130	
Perfluorotridecanoic acid	ng/L	50000	58600	117	70	130	
Perfluoroundecanoic acid	ng/L	50000	59200	118	70	130	

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ORGANICS CALIBRATION VERIFICATION

Report No:	219102333	Instrument ID:	QQQ1
Analysis Date:	11/17/2019 22:10	Lab File ID:	2191117A_27.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	671600

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	47500	55600	117	70	130	
8:2 Fluorotelomer sulfonate	ng/L	48000	61200	127	70	130	
NEtFOSAA	ng/L	50000	53800	108	70	130	
NMeFOSAA	ng/L	50000	54000	108	70	130	
Perfluorobutanoic acid	ng/L	50000	55100	110	70	130	
Perfluorobutanesulfonic acid	ng/L	44300	49300	111	70	130	
Perfluorodecanoic acid	ng/L	50000	52900	106	70	130	
Perfluorododecanoic acid	ng/L	50000	59400	119	70	130	
Perfluoroheptanoic acid	ng/L	50000	54200	108	70	130	
Perfluorohexanoic acid	ng/L	50000	54100	108	70	130	
Perfluorohexanesulfonic acid	ng/L	45600	49200	108	70	130	
Perfluorononanoic acid	ng/L	50000	53500	107	70	130	
Perfluorooctanoic acid	ng/L	50000	52800	106	70	130	
Perfluorooctane Sulfonate	ng/L	46300	57400	124	70	130	
Perfluoropentanoic acid	ng/L	50000	51600	103	70	130	
Perfluorotetradecanoic acid	ng/L	50000	59000	118	70	130	
Perfluorotridecanoic acid	ng/L	50000	61800	124	70	130	
Perfluoroundecanoic acid	ng/L	50000	54300	109	70	130	

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ORGANICS CALIBRATION VERIFICATION

Report No:	219102613	Instrument ID:	QQQ1
Analysis Date:	11/18/2019 08:11	Lab File ID:	2191117A_80.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	671600

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	47500	54700	115	70	130	
8:2 Fluorotelomer sulfonate	ng/L	48000	61600	128	70	130	
NEtFOSAA	ng/L	50000	59600	119	70	130	
NMeFOSAA	ng/L	50000	64800	130	70	130	
Perfluorobutanoic acid	ng/L	50000	53900	108	70	130	
Perfluorobutanesulfonic acid	ng/L	44300	47800	108	70	130	
Perfluorodecanoic acid	ng/L	50000	54900	110	70	130	
Perfluorododecanoic acid	ng/L	50000	55200	110	70	130	
Perfluoroheptanoic acid	ng/L	50000	52400	105	70	130	
Perfluorohexanoic acid	ng/L	50000	55200	110	70	130	
Perfluorohexanesulfonic acid	ng/L	45600	49300	108	70	130	
Perfluorononanoic acid	ng/L	50000	56100	112	70	130	
Perfluorooctanoic acid	ng/L	50000	52000	104	70	130	
Perfluorooctane Sulfonate	ng/L	46300	59500	129	70	130	
Perfluoropentanoic acid	ng/L	50000	50600	101	70	130	
Perfluorotetradecanoic acid	ng/L	50000	58100	116	70	130	
Perfluorotridecanoic acid	ng/L	50000	59700	119	70	130	
Perfluoroundecanoic acid	ng/L	50000	56600	113	70	130	

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ORGANICS CALIBRATION VERIFICATION

Report No:	219102541	Instrument ID:	QQQ1
Analysis Date:	11/18/2019 09:30	Lab File ID:	2191117A_87.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	671600

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	47500	49100	103	70	130	
8:2 Fluorotelomer sulfonate	ng/L	48000	54100	113	70	130	
NEtFOSAA	ng/L	50000	56100	112	70	130	
NMeFOSAA	ng/L	50000	60200	120	70	130	
Perfluorobutanoic acid	ng/L	50000	53300	107	70	130	
Perfluorobutanesulfonic acid	ng/L	44300	47300	107	70	130	
Perfluorodecanoic acid	ng/L	50000	59700	119	70	130	
Perfluorododecanoic acid	ng/L	50000	60300	121	70	130	
Perfluoroheptanoic acid	ng/L	50000	51400	103	70	130	
Perfluorohexanoic acid	ng/L	50000	54000	108	70	130	
Perfluorohexanesulfonic acid	ng/L	45600	49600	109	70	130	
Perfluorononanoic acid	ng/L	50000	57900	116	70	130	
Perfluorooctanoic acid	ng/L	50000	54200	108	70	130	
Perfluorooctane Sulfonate	ng/L	46300	57500	124	70	130	
Perfluoropentanoic acid	ng/L	50000	50300	101	70	130	
Perfluorotetradecanoic acid	ng/L	50000	59000	118	70	130	
Perfluorotridecanoic acid	ng/L	50000	61100	122	70	130	
Perfluoroundecanoic acid	ng/L	50000	54600	109	70	130	

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ORGANICS CALIBRATION VERIFICATION

Report No:	219102541	Instrument ID:	QQQ1
Analysis Date:	11/18/2019 12:35	Lab File ID:	2191117A_99.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	671600

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	47500	51000	107	70	130	
8:2 Fluorotelomer sulfonate	ng/L	48000	61900	129	70	130	
NEtFOSAA	ng/L	50000	60900	122	70	130	
NMeFOSAA	ng/L	50000	60000	120	70	130	
Perfluorobutanoic acid	ng/L	50000	53800	108	70	130	
Perfluorobutanesulfonic acid	ng/L	44300	47600	108	70	130	
Perfluorodecanoic acid	ng/L	50000	55200	110	70	130	
Perfluorododecanoic acid	ng/L	50000	57800	116	70	130	
Perfluoroheptanoic acid	ng/L	50000	53600	107	70	130	
Perfluorohexanoic acid	ng/L	50000	56100	112	70	130	
Perfluorohexanesulfonic acid	ng/L	45600	50000	110	70	130	
Perfluorononanoic acid	ng/L	50000	59000	118	70	130	
Perfluorooctanoic acid	ng/L	50000	56000	112	70	130	
Perfluorooctane Sulfonate	ng/L	46300	59500	129	70	130	
Perfluoropentanoic acid	ng/L	50000	50700	101	70	130	
Perfluorotetradecanoic acid	ng/L	50000	58600	117	70	130	
Perfluorotridecanoic acid	ng/L	50000	59400	119	70	130	
Perfluoroundecanoic acid	ng/L	50000	55400	111	70	130	

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ORGANICS CALIBRATION VERIFICATION

Report No:	219102541	Instrument ID:	QQQ1
Analysis Date:	11/18/2019 14:38	Lab File ID:	2191117A_110.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	671600

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	47500	52300	110	70	130	
8:2 Fluorotelomer sulfonate	ng/L	48000	60800	127	70	130	
NEtFOSAA	ng/L	50000	61700	123	70	130	
NMeFOSAA	ng/L	50000	53200	106	70	130	
Perfluorobutanoic acid	ng/L	50000	54000	108	70	130	
Perfluorobutanesulfonic acid	ng/L	44300	47500	107	70	130	
Perfluorodecanoic acid	ng/L	50000	57900	116	70	130	
Perfluorododecanoic acid	ng/L	50000	57200	114	70	130	
Perfluoroheptanoic acid	ng/L	50000	52600	105	70	130	
Perfluorohexanoic acid	ng/L	50000	53900	108	70	130	
Perfluorohexanesulfonic acid	ng/L	45600	52000	114	70	130	
Perfluorononanoic acid	ng/L	50000	58000	116	70	130	
Perfluorooctanoic acid	ng/L	50000	54100	108	70	130	
Perfluorooctane Sulfonate	ng/L	46300	58800	127	70	130	
Perfluoropentanoic acid	ng/L	50000	49800	100	70	130	
Perfluorotetradecanoic acid	ng/L	50000	60100	120	70	130	
Perfluorotridecanoic acid	ng/L	50000	60300	121	70	130	
Perfluoroundecanoic acid	ng/L	50000	56000	112	70	130	

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INJECTION INTERNAL STANDARD AREA SUMMARY

Report No:	219102326	Standard ID:	1450 (ISC)
Analyst:	BMH	Instrument ID:	QQQ1
Analysis Date:	11/17/19 17:39	Lab File ID:	2191117A_08.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	671600

	M2PFDA	M2PFHxA	M2PFOA	M4PFOS
	Area	*Area*	*Area*	*Area*
STANDARD	148558	352685	129242	112618

CLIENT SAMPLE ID	*GCAL SAMP ID*		#		#		#		#
AOI6-3-SB-1.5-2-102219DL	21910232608DL	169022		412330		153090		94520	
AOI6-3-SB-1.5-2-102219-MSDL	21910232609DL	181157		428877		164081		100856	
AOI6-3-SB-1.5-2-102219-MSDDL	21910232610DL	186175		441021		162756		104464	
AOI6-2-SB-1.5-2-102219DL	21910232611DL	180939		434397		161773		102121	
AOI6-2-SB-1.5-2-102219-MSDL	21910232612DL	185811		437381		164570		99116	
AOI6-2-SB-1.5-2-102219-MSDDL	21910232613DL	186860		431893		164905		99936	
AOI5-1-SB-1.5-2-102219DL	21910232617DL	181987		420657		158121		101595	
AOI5-1-SB-1.5-2-102219-DDL	21910232618DL	181829		437289		163065		109150	
AOI5-1-SB-8-8.5-102219DL	21910232619DL	192263		437940		164888		101003	

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

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8I

INJECTION INTERNAL STANDARD AREA SUMMARY

Report No:	219102333	Standard ID:	1450 (ISC)
Analyst:	BMH	Instrument ID:	QQQ1
Analysis Date:	11/17/19 17:39	Lab File ID:	2191117A_08.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	671600

	M2PFDA	M2PFHxA	M2PFOA	M4PFOS
	Area	*Area*	*Area*	*Area*
STANDARD	148558	352685	129242	112618

CLIENT SAMPLE ID	*GCAL SAMP ID*		#		#		#		#
MB1981225	1981225	155249		368741		137415		100036	
LCS1981226	1981226	155640		370089		136977		101778	
LCSD1981227	1981227	148036		368538		138204		98064	
JFTBLA-EB-HA-102119 (RE)	21910233323	164179		374722		142584		99881	
AOI7-10-GW-102119 (RE)	21910233324	163234		378934		144044		96470	
AOI7-7-11-GW-102119 (RE)	21910233325	164673		377581		142764		97271	
AOI7-9-GW-102119 (RE)	21910233326	156894		371924		144222		95424	

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

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INJECTION INTERNAL STANDARD AREA SUMMARY

Report No:	219102541	Standard ID:	1450 (ISC)
Analyst:	BMH	Instrument ID:	QQQ1
Analysis Date:	11/17/19 17:39	Lab File ID:	2191117A_08.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	671600

	M2PFDA	M2PFHxA	M2PFOA	M4PFOS
	Area	*Area*	*Area*	*Area*
STANDARD	148558	352685	129242	112618

CLIENT SAMPLE ID	*GCAL SAMP ID*		#		#		#		#
AOI1-5-SB-4.5-5-102319DL	21910254101DL	166544		392516		147253		86186	
AOI1-5-SB-4.5-5-102319-DDL	21910254102DL	126275		391255		144514		84028	
AOI1-4-SB-4.5-5-102319-DDL	21910254103DL	174681		408596		150493		94360	
AOI1-4-SB-4.5-5-102319DL	21910254104DL	166032		396644		150441		89946	
AOI1-6-SB-4.5-5-102319DL	21910254107DL	175215		413826		148222		68223	
AOI1-6-SB-9-9.5-102319DL	21910254113DL	175525		419781		154690		93658	
AOI1-2-SB-4.5-5-102319DL	21910254118DL	167274		387869		143347		87254	
AOI1-2-SB-4.5-5-102319RE	21910254118RE	218967		527839		155010		122997	
AOI1-2-SB-9.5-10-102319RE	21910254119RE	225200	*	541873	*	193449		125147	
AOI1-2-SB-12.5-13-102319RE	21910254120RE	198585		521682		189720		121006	
AOI2-3-SB-4.5-5-102319DL	21910254122DL	156347		380763		145128		85802	
AOI2-3-SB-4.5-5-102319RE	21910254122RE	208470		479190		189228		124673	
AOI2-3-SB-4.5-5-102319-DDL	21910254123DL	175675		426503		159973		95466	
AOI2-3-SB-4.5-5-102319-DRE	21910254123RE	213222		478359		193605		123683	
AOI2-2-SB-4.5-5-102319DL	21910254124DL	170969		419932		160267		103744	
AOI2-2-SB-4.5-5-102319-DDL	21910254125DL	168085		421423		160394		93108	

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

*for monitoring only

FORM 8I - ORG

8I

INJECTION INTERNAL STANDARD AREA SUMMARY

Report No:	219102613	Standard ID:	1450 (ISC)
Analyst:	BMH	Instrument ID:	QQQ1
Analysis Date:	11/17/19 17:39	Lab File ID:	2191117A_08.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	671600

	M2PFDA	M2PFHxA	M2PFOA	M4PFOS
	Area	*Area*	*Area*	*Area*
STANDARD	148558	352685	129242	112618

CLIENT SAMPLE ID	*GCAL SAMP ID*		#		#		#		#
AOI3-11-SB-8.5-9-102419DL	21910261306DL	191391		459163		172833		112985	
AOI3-12-SB-1.5-2-102419DL	21910261308DL	182139		422807		160645		105549	
AOI3-12-SB-7-7.5-102419DL	21910261309DL	185444		423897		162953		101751	
AOI3-9-SB-8.5-9-102419DL	21910261314DL	184549		432074		160679		101458	

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 8I - ORG

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INJECTION INTERNAL STANDARD AREA SUMMARY

Report No:	219102717	Standard ID:	1450 (ISC)
Analyst:	BMH	Instrument ID:	QQQ1
Analysis Date:	11/17/19 17:39	Lab File ID:	2191117A_08.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	671600

	M2PFDA	M2PFHxA	M2PFOA	M4PFOS
	Area	*Area*	*Area*	*Area*
STANDARD	148558	352685	129242	112618

CLIENT SAMPLE ID	*GCAL SAMP ID*		#		#		#		#
MB1981225	1981225	155249		368741		137415		100036	
LCS1981226	1981226	155640		370089		136977		101778	
LCSD1981227	1981227	148036		368538		138204		98064	
JFTBLA-EB-HA-102519 (RE)	21910271722	143914		346156		132144		89889	

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 8I - ORG

LCMS1 Run Log

Analyst:	BMH	Expiration
Batch:	2191118A	Date
Current ICAL Bath:	2191115ACAL/2191115ACALDW	Date
20mM Amm Acetate	010-16-1	11/20/2019
Methanol	2128497	8/31/2024
Calibration Std	010-14-7	5/13/2020
ICV Std	010-6-5	4/9/2020
EIS Mix	010-15-3	5/15/2020

Name	Data File	Type	Acq. Date-Time	Comment	Dil.
MeOH Shot	2191118A_01.d	MeOH Shot	11/18/2019 17:11	Instrument idle/MeOH Shot	1
1500	2191118A_02.d	Sample	11/18/2019 17:22		1
1450	2191118A_03.d	QC	11/18/2019 17:33		1
MeOH Shot	2191118A_04.d	MeOH Shot	11/18/2019 17:45	Instrument idle/MeOH Shot	1
MeOH Shot	2191118A_05.d	MeOH Shot	11/18/2019 18:44	Instrument idle/MeOH Shot	1
1400	2191118A_06.d	QC	11/18/2019 18:55		1
1982275	2191118A_07.d	Sample	11/18/2019 19:06	671360 DW	1
1982276	2191118A_08.d	QC	11/18/2019 19:17	671360 DW	1
1982277	2191118A_09.d	QC	11/18/2019 19:29	671360 DW	1
21910305701	2191118A_10.d	Sample	11/18/2019 19:40	671360 DW	1
21910305702	2191118A_11.d	Sample	11/18/2019 19:51	671360 DW	1
21910305703	2191118A_12.d	Sample	11/18/2019 20:03	671360 DW	1
21910305704	2191118A_13.d	Sample	11/18/2019 20:14	671360 DW	1
21910305705	2191118A_14.d	Sample	11/18/2019 20:25	671360 DW	1
21910305706	2191118A_15.d	Sample	11/18/2019 20:37	671360 DW	1
21910305707	2191118A_16.d	Sample	11/18/2019 20:48	671360 DW	1
21910305708	2191118A_17.d	Sample	11/18/2019 20:59	671360 DW	1
21910305709	2191118A_18.d	Sample	11/18/2019 21:11	671360 DW	1
21910305710	2191118A_19.d	Sample	11/18/2019 21:22	671360 DW	1
1400	2191118A_20.d	QC	11/18/2019 21:33		1
21910305711	2191118A_21.d	Sample	11/18/2019 21:45	671360 DW	1

21910305712	2191118A_22.d	Sample	11/18/2019 21:56	671360 DW	1
21910305713	2191118A_23.d	Sample	11/18/2019 22:07	671360 DW	1
21911040601	2191118A_24.d	Sample	11/18/2019 22:19	671360 DW	1
21911040602	2191118A_25.d	Sample	11/18/2019 22:30	671360 DW	1
21911040603	2191118A_26.d	Sample	11/18/2019 22:41	671360 DW	1
21911040604	2191118A_27.d	QC	11/18/2019 22:52	671360 DW	1
21911040605	2191118A_28.d	QC	11/18/2019 23:04	671360 DW	1
21911040606	2191118A_29.d	Sample	11/18/2019 23:15	671360 DW	1
21911040607	2191118A_30.d	Sample	11/18/2019 23:26	671360 DW	1
21911040608	2191118A_31.d	Sample	11/18/2019 23:38	671360 DW	1
MB Test	2191118A_32.d	Sample	11/18/2019 23:49	Special DW Column	1
LCS Test	2191118A_33.d	QC	11/19/2019 0:01	Special DW Column	1
LCSD Test	2191118A_34.d	QC	11/19/2019 0:12	Special DW Column	1
1400	2191118A_35.d	QC	11/19/2019 0:23		1
1977958	2191118A_36.d	Sample	11/19/2019 0:35	670573	1
1977959	2191118A_37.d	QC	11/19/2019 0:46	670573	1
1977960	2191118A_38.d	QC	11/19/2019 0:57	670573	1
21911012101	2191118A_39.d	Sample	11/19/2019 1:09	670573	1
21911012102	2191118A_40.d	Sample	11/19/2019 1:20	670573	1
21911012103	2191118A_41.d	Sample	11/19/2019 1:31	670573	1
21911012104	2191118A_42.d	Sample	11/19/2019 1:43	670573	1
21911012105	2191118A_43.d	Sample	11/19/2019 1:54	670573	1
21911012106	2191118A_44.d	Sample	11/19/2019 2:06	670573	1
21911012107	2191118A_45.d	Sample	11/19/2019 2:17	670573	1
21911012108	2191118A_46.d	Sample	11/19/2019 2:28	670573	1
21911012109	2191118A_47.d	Sample	11/19/2019 2:40	670573	1
21911012110	2191118A_48.d	Sample	11/19/2019 2:51	670573	1
1400	2191118A_49.d	QC	11/19/2019 3:02		1
21911012111	2191118A_50.d	Sample	11/19/2019 3:14	671259	1
21911012112	2191118A_51.d	Sample	11/19/2019 3:25	671259	1
21911012113	2191118A_52.d	Sample	11/19/2019 3:37	671259	1
21911012114	2191118A_53.d	Sample	11/19/2019 3:48	671259	1
21911110504	2191118A_54.d	Sample	11/19/2019 3:59	671259	1
21911110505	2191118A_55.d	Sample	11/19/2019 4:11	671259	10

21911110506	2191118A_56.d	QC	11/19/2019 4:22	671259	1
21911110507	2191118A_57.d	Sample	11/19/2019 4:33	671259	1
21911110508	2191118A_58.d	Sample	11/19/2019 4:45	671259	10
21911110509	2191118A_59.d	QC	11/19/2019 4:56	671259	1
1400	2191118A_60.d	QC	11/19/2019 5:07		1
MeOH Shot	2191118A_61.d	MeOH Shot	11/19/2019 5:19	Instrument idle/MeOH Shot	1
MeOH Shot	2191118A_62.d	MeOH Shot	11/19/2019 5:30	Instrument idle/MeOH Shot	1
1981644	2191118A_63.d	Sample	11/19/2019 5:40	671259	1
1981645	2191118A_64.d	QC	11/19/2019 5:52	671259	1
1981646	2191118A_65.d	QC	11/19/2019 6:03	671259	1
21911121704	2191118A_66.d	Sample	11/19/2019 6:15	671259	1
21911151601	2191118A_67.d	Sample	11/19/2019 6:26	671259	1
21910232601	2191118A_68.d	Sample	11/19/2019 6:37	671259	1
21910232607	2191118A_69.d	Sample	11/19/2019 6:49	671259	1
21910232621	2191118A_70.d	Sample	11/19/2019 7:00	671259	1
21910232626	2191118A_71.d	Sample	11/19/2019 7:11	671259	1
21910232629	2191118A_72.d	Sample	11/19/2019 7:23	671259	1
21910255807	2191118A_73.d	Sample	11/19/2019 7:34	671259	1
21910261311	2191118A_74.d	Sample	11/19/2019 7:46	671259	10
21910261313	2191118A_75.d	Sample	11/19/2019 7:57	671259	1
1400	2191118A_76.d	QC	11/19/2019 8:08		1
21910261316	2191118A_77.d	Sample	11/19/2019 8:20	671259	10
21911121701	2191118A_78.d	Sample	11/19/2019 8:31	671259	1
21911121702	2191118A_79.d	Sample	11/19/2019 8:42	671259	1
21911121703	2191118A_80.d	Sample	11/19/2019 8:54	671259	1
MeOH Shot	2191118A_81.d	MeOH Shot	11/19/2019 9:05	Instrument idle/MeOH Shot	1
21911121601	2191118A_82.d	Sample	11/19/2019 9:16	671259	1
21911121301	2191118A_83.d	Sample	11/19/2019 9:27	671259	10
21911151602	2191118A_84.d	QC	11/19/2019 9:39	671259	1
1400	2191118A_85.d	QC	11/19/2019 9:50		1
1979407	2191118A_86.d	Sample	11/19/2019 10:01	670856	1
1979408	2191118A_87.d	QC	11/19/2019 10:13	670856	1
1979409	2191118A_88.d	QC	11/19/2019 10:24	670856	1
21910225109	2191118A_89.d	Sample	11/19/2019 10:35	670856	1

21911072306	2191118A_90.d	Sample	11/19/2019 10:47	670856	1
21911080701	2191118A_91.d	Sample	11/19/2019 10:58	670856	1
21911072301	2191118A_92.d	Sample	11/19/2019 11:09	670856	1
21911072302	2191118A_93.d	Sample	11/19/2019 11:20	670856	1
21911072303	2191118A_94.d	Sample	11/19/2019 11:32	670856	1
21911072304	2191118A_95.d	Sample	11/19/2019 11:43	670856	1
21911072305	2191118A_96.d	Sample	11/19/2019 11:55	670856	1
21911121703	2191118A_97.d	Sample	11/19/2019 12:06	671259	10
1400	2191118A_98.d	QC	11/19/2019 12:17		1
MeOH Shot	2191118A_99.d	MeOH Shot	11/19/2019 12:28	Instrument idle/MeOH Shot	1

4I

ORGANICS INSTRUMENT BLANK

Report No:	219102326	Instrument ID:	QQQ1
Analysis Date:	11/18/2019 17:22	Lab File ID:	2191118A_02.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	671739

ANALYTE	UNITS	RESULT	Q	DL	LOD	LOQ	#
6:2 Fluorotelomer sulfonate	ng/L	4.00	U	1.79	4.00	10.0	
8:2 Fluorotelomer sulfonate	ng/L	4.00	U	1.63	4.00	10.0	
NEtFOSAA	ng/L	8.00	U	5.38	8.00	10.0	
NMeFOSAA	ng/L	8.00	U	4.60	8.00	10.0	
Perfluorobutanesulfonic acid	ng/L	4.00	U	1.47	4.00	10.0	
Perfluorobutanoic acid	ng/L	4.00	U	2.13	4.00	10.0	
Perfluorodecanoic acid	ng/L	4.00	U	1.65	4.00	10.0	
Perfluorododecanoic acid	ng/L	4.00	U	2.45	4.00	10.0	
Perfluoroheptanoic acid	ng/L	4.00	U	1.85	4.00	10.0	
Perfluorohexanesulfonic acid	ng/L	4.00	U	1.64	4.00	10.0	
Perfluorohexanoic acid	ng/L	4.00	U	1.94	4.00	10.0	
Perfluorononanoic acid	ng/L	4.00	U	1.68	4.00	10.0	
Perfluorooctane Sulfonate	ng/L	4.00	U	1.70	4.00	10.0	
Perfluorooctanoic acid	ng/L	4.00	U	1.80	4.00	10.0	
Perfluoropentanoic acid	ng/L	4.00	U	2.35	4.00	10.0	
Perfluorotetradecanoic acid	ng/L	4.00	U	2.76	4.00	10.0	
Perfluorotridecanoic acid	ng/L	4.00	U	2.56	4.00	10.0	
Perfluoroundecanoic acid	ng/L	4.00	U	1.86	4.00	10.0	

* - Result greater than 1/2 LOQ

FORM 4I - ORG

7S

ORGANICS INSTRUMENT SENSITIVITY CHECK

Report No:	219102326	Instrument ID:	QQQ1
Analysis Date:	11/18/2019 17:33	Lab File ID:	2191118A_03.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	671739

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	7.93	6.80	86	70	130	
8:2 Fluorotelomer sulfonate	ng/L	8.00	9.13	114	70	130	
NEtFOSAA	ng/L	8.33	8.33	100	70	130	
NMeFOSAA	ng/L	8.33	8.73	105	70	130	
Perfluorobutanoic acid	ng/L	8.33	8.00	96	70	130	
Perfluorobutanesulfonic acid	ng/L	7.40	6.87	93	70	130	
Perfluorodecanoic acid	ng/L	8.33	6.80	82	70	130	
Perfluorododecanoic acid	ng/L	8.33	8.20	98	70	130	
Perfluoroheptanoic acid	ng/L	8.33	7.13	85	70	130	
Perfluorohexanoic acid	ng/L	8.33	7.53	91	70	130	
Perfluorohexanesulfonic acid	ng/L	7.60	6.35	84	70	130	
Perfluorononanoic acid	ng/L	8.33	7.00	84	70	130	
Perfluorooctanoic acid	ng/L	8.33	7.40	88	70	130	
Perfluorooctane Sulfonate	ng/L	7.73	7.93	103	70	130	
Perfluoropentanoic acid	ng/L	8.33	7.00	84	70	130	
Perfluorotetradecanoic acid	ng/L	8.33	7.87	94	70	130	
Perfluorotridecanoic acid	ng/L	8.33	7.80	94	70	130	
Perfluoroundecanoic acid	ng/L	8.33	7.20	86	70	130	

FORM 7S - ORG

7E

ORGANICS CALIBRATION VERIFICATION

Report No:	219102326	Instrument ID:	QQQ1
Analysis Date:	11/19/2019 05:07	Lab File ID:	2191118A_60.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	671739

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	47500	51000	107	70	130	
8:2 Fluorotelomer sulfonate	ng/L	48000	58900	123	70	130	
NEtFOSAA	ng/L	50000	59600	119	70	130	
NMeFOSAA	ng/L	50000	56000	112	70	130	
Perfluorobutanoic acid	ng/L	50000	52200	104	70	130	
Perfluorobutanesulfonic acid	ng/L	44300	46500	105	70	130	
Perfluorodecanoic acid	ng/L	50000	51000	102	70	130	
Perfluorododecanoic acid	ng/L	50000	55400	111	70	130	
Perfluoroheptanoic acid	ng/L	50000	49600	99	70	130	
Perfluorohexanoic acid	ng/L	50000	50800	102	70	130	
Perfluorohexanesulfonic acid	ng/L	45600	47800	105	70	130	
Perfluorononanoic acid	ng/L	50000	52300	105	70	130	
Perfluorooctanoic acid	ng/L	50000	63200	126	70	130	
Perfluorooctane Sulfonate	ng/L	46300	53900	116	70	130	
Perfluoropentanoic acid	ng/L	50000	47800	96	70	130	
Perfluorotetradecanoic acid	ng/L	50000	56000	112	70	130	
Perfluorotridecanoic acid	ng/L	50000	56400	113	70	130	
Perfluoroundecanoic acid	ng/L	50000	52200	104	70	130	

FORM 7E - ORG

7E

ORGANICS CALIBRATION VERIFICATION

Report No:	219102326	Instrument ID:	QQQ1
Analysis Date:	11/19/2019 08:08	Lab File ID:	2191118A_76.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	671739

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	47500	48400	102	70	130	
8:2 Fluorotelomer sulfonate	ng/L	48000	54000	112	70	130	
NEtFOSAA	ng/L	50000	56400	113	70	130	
NMeFOSAA	ng/L	50000	56900	114	70	130	
Perfluorobutanoic acid	ng/L	50000	51900	104	70	130	
Perfluorobutanesulfonic acid	ng/L	44300	46300	105	70	130	
Perfluorodecanoic acid	ng/L	50000	46900	94	70	130	
Perfluorododecanoic acid	ng/L	50000	54300	109	70	130	
Perfluoroheptanoic acid	ng/L	50000	50200	100	70	130	
Perfluorohexanoic acid	ng/L	50000	53200	106	70	130	
Perfluorohexanesulfonic acid	ng/L	45600	48900	107	70	130	
Perfluorononanoic acid	ng/L	50000	51900	104	70	130	
Perfluorooctanoic acid	ng/L	50000	52900	106	70	130	
Perfluorooctane Sulfonate	ng/L	46300	55300	120	70	130	
Perfluoropentanoic acid	ng/L	50000	47600	95	70	130	
Perfluorotetradecanoic acid	ng/L	50000	55800	112	70	130	
Perfluorotridecanoic acid	ng/L	50000	55300	111	70	130	
Perfluoroundecanoic acid	ng/L	50000	55600	111	70	130	

FORM 7E - ORG

7E

ORGANICS CALIBRATION VERIFICATION

Report No:	219102326	Instrument ID:	QQQ1
Analysis Date:	11/19/2019 12:17	Lab File ID:	2191118A_98.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	671739

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	47500	48800	103	70	130	
8:2 Fluorotelomer sulfonate	ng/L	48000	59000	123	70	130	
NEtFOSAA	ng/L	50000	58300	117	70	130	
NMeFOSAA	ng/L	50000	59900	120	70	130	
Perfluorobutanoic acid	ng/L	50000	51400	103	70	130	
Perfluorobutanesulfonic acid	ng/L	44300	46300	105	70	130	
Perfluorodecanoic acid	ng/L	50000	53600	107	70	130	
Perfluorododecanoic acid	ng/L	50000	56700	113	70	130	
Perfluoroheptanoic acid	ng/L	50000	51100	102	70	130	
Perfluorohexanoic acid	ng/L	50000	50800	102	70	130	
Perfluorohexanesulfonic acid	ng/L	45600	48600	107	70	130	
Perfluorononanoic acid	ng/L	50000	53000	106	70	130	
Perfluorooctanoic acid	ng/L	50000	52400	105	70	130	
Perfluorooctane Sulfonate	ng/L	46300	54300	117	70	130	
Perfluoropentanoic acid	ng/L	50000	46500	93	70	130	
Perfluorotetradecanoic acid	ng/L	50000	56700	113	70	130	
Perfluorotridecanoic acid	ng/L	50000	55800	112	70	130	
Perfluoroundecanoic acid	ng/L	50000	54100	108	70	130	

FORM 7E - ORG

8I

INJECTION INTERNAL STANDARD AREA SUMMARY

Report No:	219102326	Standard ID:	1450 (ISC)
Analyst:	BMH	Instrument ID:	QQQ1
Analysis Date:	11/18/19 17:33	Lab File ID:	2191118A_03.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	671739

	M2PFDA	M2PFHxA	M2PFOA	M4PFOS
	Area	*Area*	*Area*	*Area*
STANDARD	119084	278841	110486	85568

CLIENT SAMPLE ID	*GCAL SAMP ID*		#		#		#		#
JFTBLA-EB-PW-102219 (RE)	21910232630	129612		342577		129151		95619	
AOI6-1-GW-102219 (RE)	21910232631	130646		335067		128039		98592	
AOI5-1-GW-102219 (RE)	21910232632	136337		197878		80224		96415	
AOI1-3-GW-102219 (RE)	21910232633	137494		294416		80619		93317	
AOI1-1-GW-102219 (RE)	21910232634	132349		299011		78271		106628	

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 8I - ORG

LCMS1 Run Log

Analyst:	BMH	Expiration
Batch:	2191119A	Date
Current ICAL Bath:	2191119ACAL/2191119ACALDW	Date
20mM Amm Acetate	010-16-4	11/21/2019
Methanol	2128497	8/31/2024
Calibration Std	010-14-7	5/13/2020
ICV Std	010-6-5	4/9/2020
EIS Mix	010-15-3	5/15/2020

Name	Data File	Type	Acq. Date-Time	Comment	Dil.
MeOH Shot	2191119A_01.d	MeOH Shot	11/19/2019 13:53	Instrument idle/MeOH Shot	1
1201	2191119A_02.d	Cal	11/19/2019 14:04		1
1202	2191119A_03.d	Cal	11/19/2019 14:15		1
MeOH Shot	2191119A_04.d	MeOH Shot	11/19/2019 14:31	Instrument idle/MeOH Shot	1
1203	2191119A_05.d	Cal	11/19/2019 14:42		1
1204	2191119A_06.d	Cal	11/19/2019 14:53		1
1205	2191119A_07.d	Cal	11/19/2019 15:05		1
1206	2191119A_08.d	Cal	11/19/2019 15:16		1
1207	2191119A_09.d	Cal	11/19/2019 15:27		1
MeOH Shot	2191119A_10.d	MeOH Shot	11/19/2019 15:51	Instrument idle/MeOH Shot	1
1600	2191119A_11.d	QC	11/19/2019 16:02		1
1450	2191119A_12.d	QC	11/19/2019 16:13		1
1500	2191119A_13.d	Sample	11/19/2019 16:25		1
MeOH Shot	2191119A_14.d	MeOH Shot	11/19/2019 16:47	Instrument idle/MeOH Shot	1
21910254111 200x	2191119A_15.d	Sample	11/19/2019 16:58	670127 DIA	1
21910261311 20x	2191119A_16.d	Sample	11/19/2019 17:09	670213	20
21910261313 100x	2191119A_17.d	Sample	11/19/2019 17:20	670213	100
21910261313 10x	2191119A_18.d	Sample	11/19/2019 17:32	670213	10
21910261316 5x	2191119A_19.d	Sample	11/19/2019 17:43	670213	5
21910261319 5x	2191119A_20.d	Sample	11/19/2019 17:54	670213	5
21910261320 5x	2191119A_21.d	Sample	11/19/2019 18:06	670213	5

21910271719 100x	2191119A_22.d	Sample	11/19/2019 18:17	670213	100
21910271719 10x	2191119A_23.d	Sample	11/19/2019 18:29	670213	10
21910254111 200x	2191119A_24.d	Sample	11/19/2019 18:40	670213 DIA	1
1400	2191119A_25.d	QC	11/19/2019 18:51		1
21910254121 20x	2191119A_26.d	Sample	11/19/2019 19:03	670213	20
1979816	2191119A_27.d	Sample	11/19/2019 19:14	670918	1
1979817	2191119A_28.d	QC	11/19/2019 19:25	670918	1
1979818	2191119A_29.d	QC	11/19/2019 19:36	670918	1
21911073801	2191119A_30.d	Sample	11/19/2019 19:48	670918	1
21911073802	2191119A_31.d	Sample	11/19/2019 19:59	670918	1
21911073803	2191119A_32.d	Sample	11/19/2019 20:11	670918	1
21911073804	2191119A_33.d	Sample	11/19/2019 20:22	670918	1
21911073805	2191119A_34.d	QC	11/19/2019 20:33	670918	1
21911073806	2191119A_35.d	QC	11/19/2019 20:45	670918	1
21911073807	2191119A_36.d	Sample	11/19/2019 20:56	670918	1
21911073808	2191119A_37.d	Sample	11/19/2019 21:07	670918	1
21911073809	2191119A_38.d	Sample	11/19/2019 21:19	670918	1
21911073810	2191119A_39.d	Sample	11/19/2019 21:30	670918	1
1400	2191119A_40.d	QC	11/19/2019 21:41		1
21911073811	2191119A_41.d	Sample	11/19/2019 21:53	670918	1
21911073812	2191119A_42.d	Sample	11/19/2019 22:04	670918	1
21911073813	2191119A_43.d	Sample	11/19/2019 22:16	670918	1
21911073814	2191119A_44.d	Sample	11/19/2019 22:27	670918	1
21911073815	2191119A_45.d	Sample	11/19/2019 22:38	670918	1
21910254101	2191119A_46.d	Sample	11/19/2019 22:50	670918	1
21910254107	2191119A_47.d	Sample	11/19/2019 23:01	670918	1
21910254120	2191119A_48.d	Sample	11/19/2019 23:12	670918	1
21910261307	2191119A_49.d	Sample	11/19/2019 23:24	670918	1
21910261308	2191119A_50.d	Sample	11/19/2019 23:35	670918	1
1400	2191119A_51.d	QC	11/19/2019 23:46		1
1982275	2191119A_52.d	Sample	11/19/2019 23:58	671360	1
1982276	2191119A_53.d	QC	11/20/2019 0:09	671360	1
1982277	2191119A_54.d	QC	11/20/2019 0:21	671360 Extraction Error	1
21910305701	2191119A_55.d	Sample	11/20/2019 0:32	671360	1

21910305702	2191119A_56.d	Sample	11/20/2019 0:43	671360	1
21910305703	2191119A_57.d	Sample	11/20/2019 0:55	671360	1
21910305704	2191119A_58.d	Sample	11/20/2019 1:06	671360	1
21910305705	2191119A_59.d	Sample	11/20/2019 1:17	671360	1
21910305706	2191119A_60.d	Sample	11/20/2019 1:29	671360	1
21910305707	2191119A_61.d	Sample	11/20/2019 1:40	671360	1
21910305708	2191119A_62.d	Sample	11/20/2019 1:52	671360	1
21910305709	2191119A_63.d	Sample	11/20/2019 2:03	671360	1
21910305710	2191119A_64.d	Sample	11/20/2019 2:14	671360	1
1400	2191119A_65.d	QC	11/20/2019 2:26		1
21910305711	2191119A_66.d	Sample	11/20/2019 2:37	671360	1
21910305712	2191119A_67.d	Sample	11/20/2019 2:48	671360	1
21910305713	2191119A_68.d	Sample	11/20/2019 3:00	671360	1
21911040601	2191119A_69.d	Sample	11/20/2019 3:11	671360	1
21911040602	2191119A_70.d	Sample	11/20/2019 3:22	671360	1
21911040603	2191119A_71.d	Sample	11/20/2019 3:34	671360	1
21911040604	2191119A_72.d	QC	11/20/2019 3:45	671360	1
21911040605	2191119A_73.d	QC	11/20/2019 3:57	671360	1
21911040606	2191119A_74.d	Sample	11/20/2019 4:08	671360	1
21911040607	2191119A_75.d	Sample	11/20/2019 4:19	671360	1
21911040608	2191119A_76.d	Sample	11/20/2019 4:31	671360	1
1400	2191119A_77.d	Sample	11/20/2019 4:42		1
1981644	2191119A_78.d	Sample	11/20/2019 4:53	671259	1
1981645	2191119A_79.d	QC	11/20/2019 5:05	671259	1
1981646	2191119A_80.d	QC	11/20/2019 5:16	671259	1
21911121701	2191119A_81.d	Sample	11/20/2019 5:27	671259	1
21911121702	2191119A_82.d	Sample	11/20/2019 5:39	671259	1
21911121703	2191119A_83.d	Sample	11/20/2019 5:50	671259	1
21911121704	2191119A_84.d	Sample	11/20/2019 6:02	671259	10
21911121301	2191119A_85.d	Sample	11/20/2019 6:13	671259	1
21911151601	2191119A_86.d	Sample	11/20/2019 6:24	671259	1
21911151602	2191119A_87.d	Sample	11/20/2019 6:36	671259	1
1400	2191119A_88.d	QC	11/20/2019 6:47		1
21910308501	2191119A_89.d	Sample	11/20/2019 6:58	670458	10

21910308502	2191119A_90.d	Sample	11/20/2019 7:09	670458	10
21910308515	2191119A_91.d	Sample	11/20/2019 7:21	670458	10
21910308516	2191119A_92.d	Sample	11/20/2019 7:32	670458	10
21910271702 x100	2191119A_93.d	Sample	11/20/2019 7:43	670210	100
21910271703 x100	2191119A_94.d	Sample	11/20/2019 7:55	670210	100
21910271705	2191119A_95.d	Sample	11/20/2019 8:06	670210	50
21910271707	2191119A_96.d	Sample	11/20/2019 8:17	670210	50
21910271708	2191119A_97.d	Sample	11/20/2019 8:29	670210	50
21910271701	2191119A_98.d	Sample	11/20/2019 8:40	670210	20
1400	2191119A_99.d	QC	11/20/2019 8:51		1
21910271720	2191119A_100.d	Sample	11/20/2019 9:03	670210	50
21910271716	2191119A_101.d	Sample	11/20/2019 9:14	670210	20
21910271709	2191119A_102.d	Sample	11/20/2019 9:25	670210	10
21910271714	2191119A_103.d	Sample	11/20/2019 9:37	670210	10
21910271715	2191119A_104.d	Sample	11/20/2019 9:48	670210	10
21910271706	2191119A_105.d	Sample	11/20/2019 9:59	670210	10
21910271717	2191119A_106.d	Sample	11/20/2019 10:11	670210	5
21910271721	2191119A_107.d	Sample	11/20/2019 10:22	670210	5
21910271702	2191119A_108.d	Sample	11/20/2019 10:33	670210	10
21910271703	2191119A_109.d	Sample	11/20/2019 10:45	670210	10
MeOH Shot	2191119A_110.d	MeOH Shot	11/20/2019 10:56	Instrument idle/MeOH Shot	1
1400	2191119A_111.d	QC	11/20/2019 11:07		1
MeOH Shot	2191119A_112.d	MeOH Shot	11/20/2019 11:18	Instrument idle/MeOH Shot	1
21911011101	2191119A_113.d	Sample	11/20/2019 11:29	670574	5
21911011704	2191119A_114.d	Sample	11/20/2019 11:40	670574	5
21911011705	2191119A_115.d	Sample	11/20/2019 11:52	670574	5
1400	2191119A_116.d	QC	11/20/2019 12:03		1
MeOH Shot	2191119A_117.d	MeOH Shot	11/20/2019 12:14	Instrument idle/MeOH Shot	1

Quantitative Analysis Calibration Report

Batch Data Path	D:\MassHunter\Data\2191119ACAL\QuantResults\2191119A.batch.bin		
Analysis Time	11/26/2019 10:07 AM	**Analyst Name**	GCAL\lcms
Report Time	11/26/2019 10:09 AM	**Reporter Name**	GCAL\lcms
Last Calib Update	11/19/2019 4:21 PM	**Batch State**	Processed

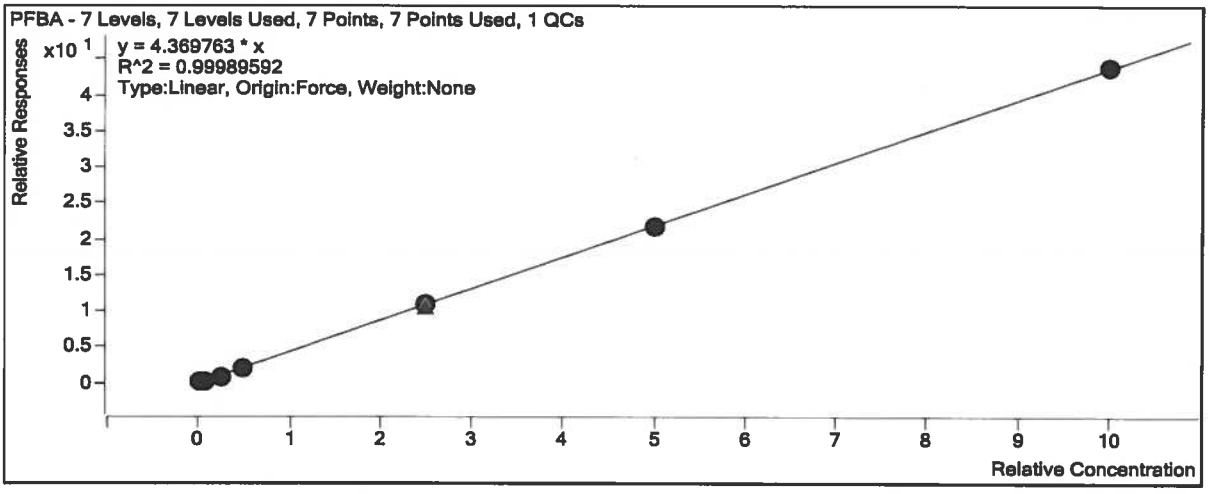
Calibration Info

Extracted ISTD *MPFBA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191119ACAL\2191119A_02.d	Calibration	1	☑	34478	20.0000	1723.8763
D:\MassHunter\Data\2191119ACAL\2191119A_03.d	Calibration	2	☑	34084	20.0000	1704.2041
D:\MassHunter\Data\2191119ACAL\2191119A_05.d	Calibration	3	☑	34167	20.0000	1708.3605
D:\MassHunter\Data\2191119ACAL\2191119A_06.d	Calibration	4	☑	34714	20.0000	1735.6996
D:\MassHunter\Data\2191119ACAL\2191119A_07.d	Calibration	5	☑	34820	20.0000	1740.9816
D:\MassHunter\Data\2191119ACAL\2191119A_08.d	Calibration	6	☑	35275	20.0000	1763.7742
D:\MassHunter\Data\2191119ACAL\2191119A_09.d	Calibration	7	☑	33898	20.0000	1694.8799

Target Compound *PFBA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191119ACAL\2191119A_02.d	Calibration	1	☑	3241	0.5000	3.7597
D:\MassHunter\Data\2191119ACAL\2191119A_03.d	Calibration	2	☑	7702	1.2500	3.6157
D:\MassHunter\Data\2191119ACAL\2191119A_05.d	Calibration	3	☑	32156	5.0000	3.7645
D:\MassHunter\Data\2191119ACAL\2191119A_06.d	Calibration	4	☑	66982	10.0000	3.8591
D:\MassHunter\Data\2191119ACAL\2191119A_07.d	Calibration	5	☑	378481	50.0000	4.3479
D:\MassHunter\Data\2191119ACAL\2191119A_08.d	Calibration	6	☑	762623	100.0000	4.3238
D:\MassHunter\Data\2191119ACAL\2191119A_09.d	Calibration	7	☑	1486174	200.0000	4.3843

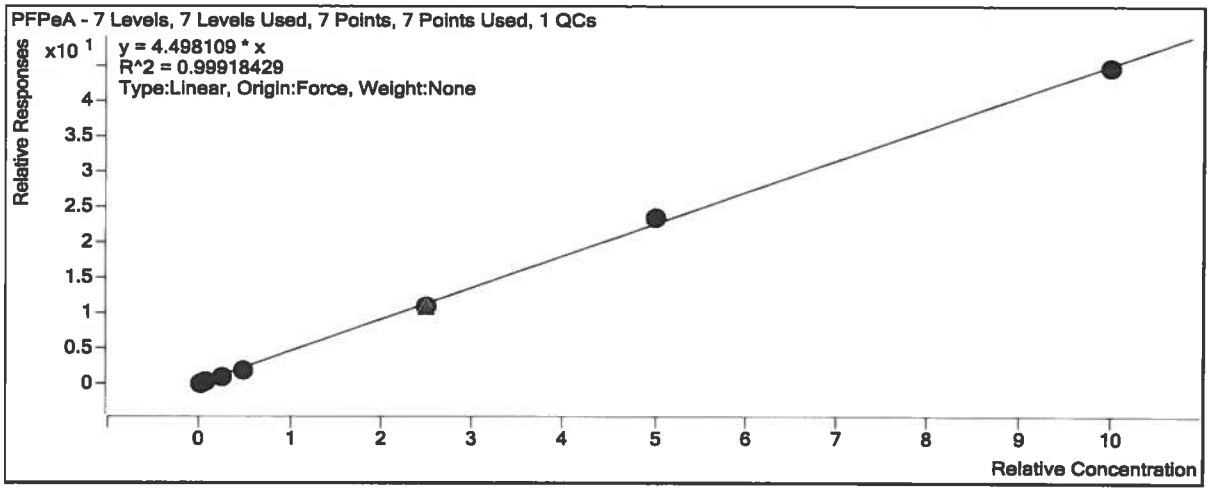


Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191119ACAL\2191119A_06.d	Calibration	4	☑	22294	20.0000	1114.7000
D:\MassHunter\Data\2191119ACAL\2191119A_07.d	Calibration	5	☑	22389	20.0000	1119.4359
D:\MassHunter\Data\2191119ACAL\2191119A_08.d	Calibration	6	☑	21298	20.0000	1064.9011
D:\MassHunter\Data\2191119ACAL\2191119A_09.d	Calibration	7	☑	21907	20.0000	1095.3746

Target Compound *PFPeA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191119ACAL\2191119A_02.d	Calibration	1	☑	1487	0.5000	2.7062
D:\MassHunter\Data\2191119ACAL\2191119A_03.d	Calibration	2	☑	4366	1.2500	3.1368
D:\MassHunter\Data\2191119ACAL\2191119A_05.d	Calibration	3	☑	19284	5.0000	3.6929
D:\MassHunter\Data\2191119ACAL\2191119A_06.d	Calibration	4	☑	40640	10.0000	3.6459
D:\MassHunter\Data\2191119ACAL\2191119A_07.d	Calibration	5	☑	244691	50.0000	4.3717
D:\MassHunter\Data\2191119ACAL\2191119A_08.d	Calibration	6	☑	499416	100.0000	4.6898
D:\MassHunter\Data\2191119ACAL\2191119A_09.d	Calibration	7	☑	977247	200.0000	4.4608

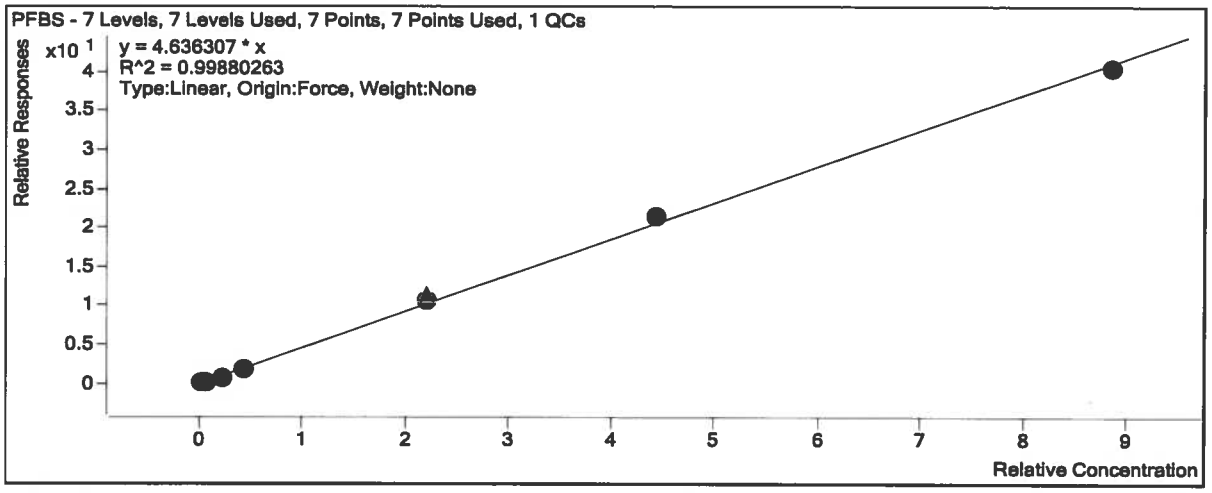


Target Compound *PFBS*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191119ACAL\2191119A_02.d	Calibration	1	☑	1580	0.4425	4.0133
D:\MassHunter\Data\2191119ACAL\2191119A_03.d	Calibration	2	☑	4102	1.1100	3.8893
D:\MassHunter\Data\2191119ACAL\2191119A_05.d	Calibration	3	☑	17598	4.4250	4.1397
D:\MassHunter\Data\2191119ACAL\2191119A_06.d	Calibration	4	☑	37257	8.8500	4.3539

Quantitative Analysis Calibration Report

D:\MassHunter\Data\2191119ACAL\2191119A_07.d	Calibration	5	☑	210153	44.2500	4.8370
D:\MassHunter\Data\2191119ACAL\2191119A_08.d	Calibration	6	☑	418971	88.5000	4.8693
D:\MassHunter\Data\2191119ACAL\2191119A_09.d	Calibration	7	☑	821505	177.0000	4.5666



Extracted ISTD *M3PFBS*

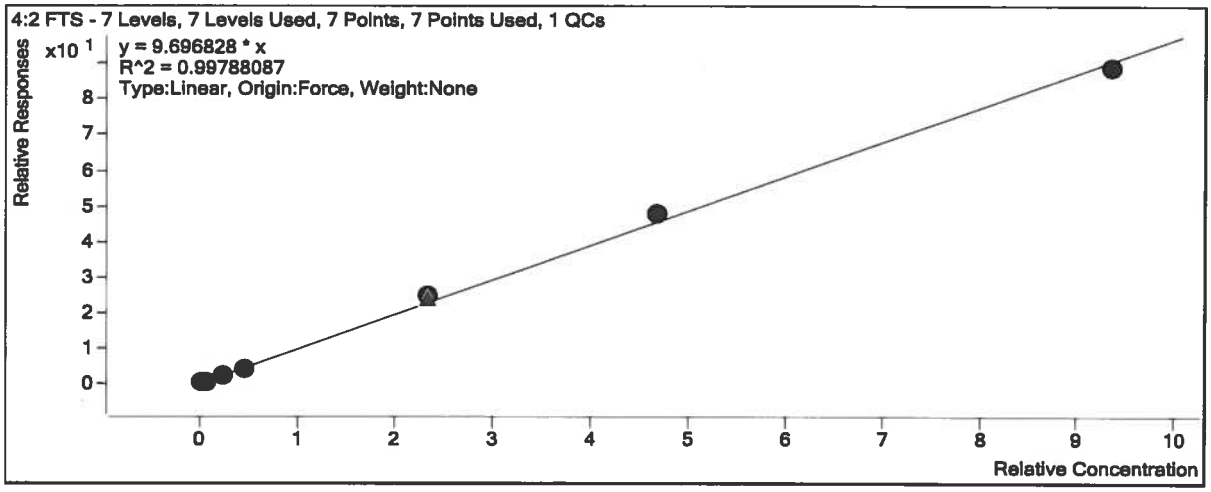
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191119ACAL\2191119A_02.d	Calibration	1	☑	17795	20.0000	889.7575
D:\MassHunter\Data\2191119ACAL\2191119A_03.d	Calibration	2	☑	19005	20.0000	950.2494
D:\MassHunter\Data\2191119ACAL\2191119A_05.d	Calibration	3	☑	19214	20.0000	960.7079
D:\MassHunter\Data\2191119ACAL\2191119A_06.d	Calibration	4	☑	19338	20.0000	966.9198
D:\MassHunter\Data\2191119ACAL\2191119A_07.d	Calibration	5	☑	19637	20.0000	981.8483
D:\MassHunter\Data\2191119ACAL\2191119A_08.d	Calibration	6	☑	19445	20.0000	972.2352
D:\MassHunter\Data\2191119ACAL\2191119A_09.d	Calibration	7	☑	20327	20.0000	1016.3612

Extracted ISTD *M2 4:2 FTS*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191119ACAL\2191119A_02.d	Calibration	1	☑	4815	20.0000	240.7515
D:\MassHunter\Data\2191119ACAL\2191119A_03.d	Calibration	2	☑	4915	20.0000	245.7610
D:\MassHunter\Data\2191119ACAL\2191119A_05.d	Calibration	3	☑	4986	20.0000	249.2910
D:\MassHunter\Data\2191119ACAL\2191119A_06.d	Calibration	4	☑	5008	20.0000	250.4126
D:\MassHunter\Data\2191119ACAL\2191119A_07.d	Calibration	5	☑	4668	20.0000	233.4182
D:\MassHunter\Data\2191119ACAL\2191119A_08.d	Calibration	6	☑	4659	20.0000	232.9306
D:\MassHunter\Data\2191119ACAL\2191119A_09.d	Calibration	7	☑	4631	20.0000	231.5599

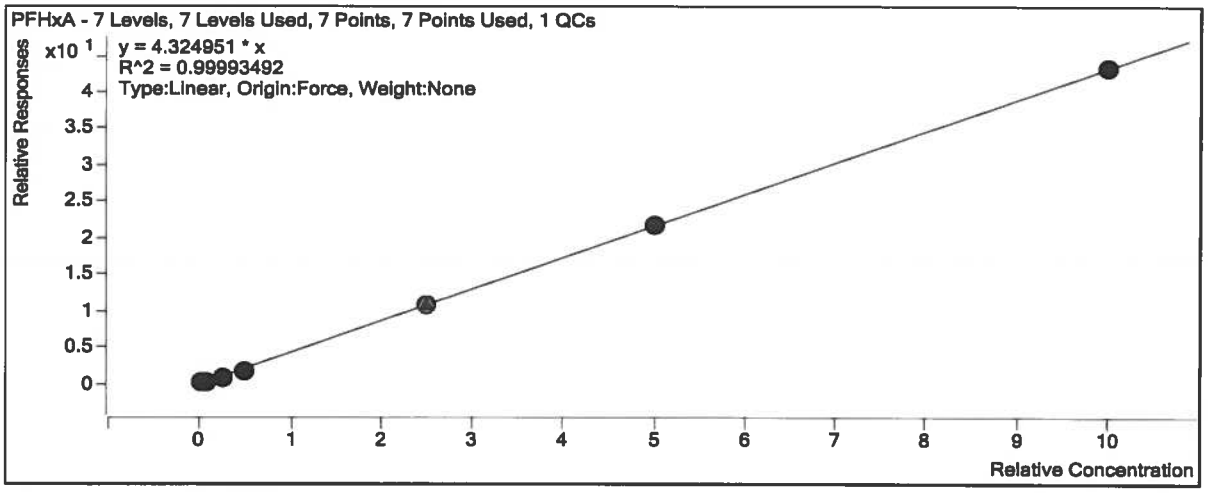
Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191119ACAL\2191119A_09.d	Calibration	7	☑	411516	187.0000	9.5035



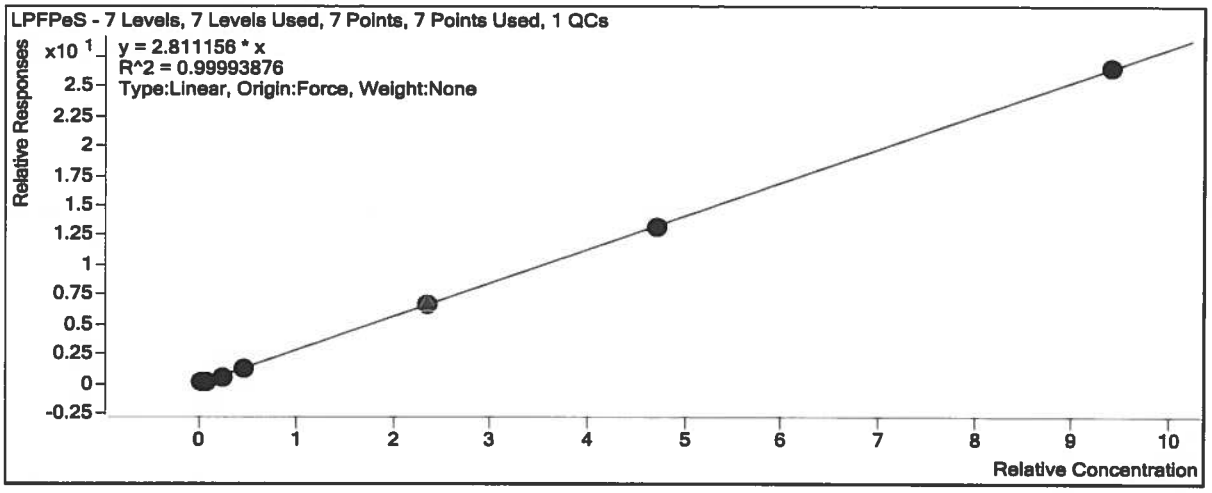
Target Compound *PFHxA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191119ACAL\2191119A_02.d	Calibration	1	☑	4205	0.5000	4.6694
D:\MassHunter\Data\2191119ACAL\2191119A_03.d	Calibration	2	☑	9068	1.2500	3.9179
D:\MassHunter\Data\2191119ACAL\2191119A_05.d	Calibration	3	☑	35790	5.0000	3.8082
D:\MassHunter\Data\2191119ACAL\2191119A_06.d	Calibration	4	☑	73270	10.0000	3.7879
D:\MassHunter\Data\2191119ACAL\2191119A_07.d	Calibration	5	☑	408141	50.0000	4.2853
D:\MassHunter\Data\2191119ACAL\2191119A_08.d	Calibration	6	☑	825905	100.0000	4.3354
D:\MassHunter\Data\2191119ACAL\2191119A_09.d	Calibration	7	☑	1579260	200.0000	4.3265



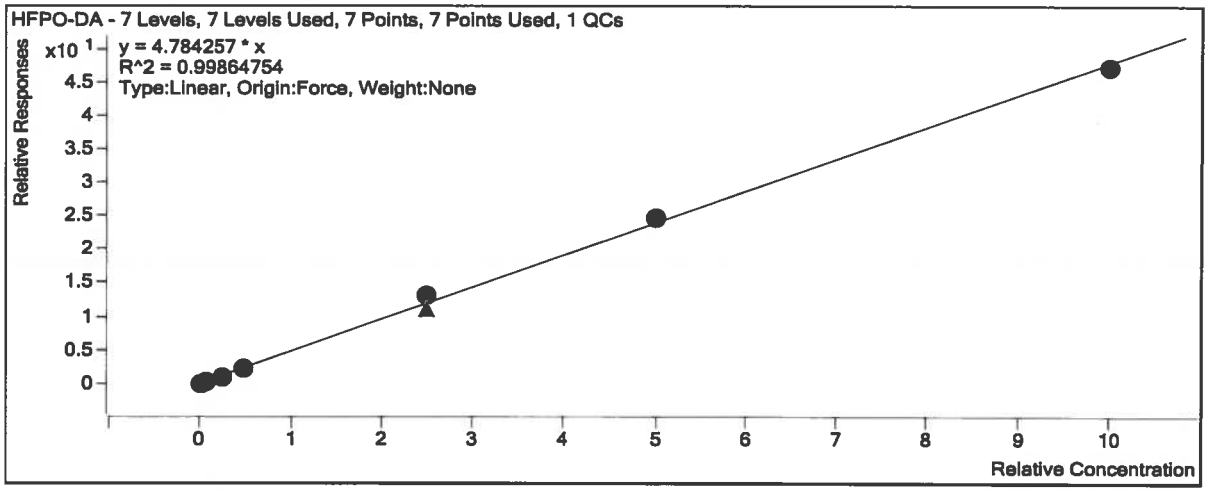
Quantitative Analysis Calibration Report

D:\MassHunter\Data\2191119ACAL\2191119A_07.d	Calibration	5	☑	251967	47.0000	2.8144
D:\MassHunter\Data\2191119ACAL\2191119A_08.d	Calibration	6	☑	500870	94.0000	2.7970
D:\MassHunter\Data\2191119ACAL\2191119A_09.d	Calibration	7	☑	966056	188.0000	2.8155



Target Compound ***HFPO-DA***

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191119ACAL\2191119A_02.d	Calibration	1	☑	174	0.5000	3.2187
D:\MassHunter\Data\2191119ACAL\2191119A_03.d	Calibration	2	☑	498	1.2500	4.0295
D:\MassHunter\Data\2191119ACAL\2191119A_05.d	Calibration	3	☑	1928	5.0000	3.7152
D:\MassHunter\Data\2191119ACAL\2191119A_06.d	Calibration	4	☑	4228	10.0000	4.6036
D:\MassHunter\Data\2191119ACAL\2191119A_07.d	Calibration	5	☑	25201	50.0000	5.2453
D:\MassHunter\Data\2191119ACAL\2191119A_08.d	Calibration	6	☑	48734	100.0000	4.9487
D:\MassHunter\Data\2191119ACAL\2191119A_09.d	Calibration	7	☑	99572	200.0000	4.7155

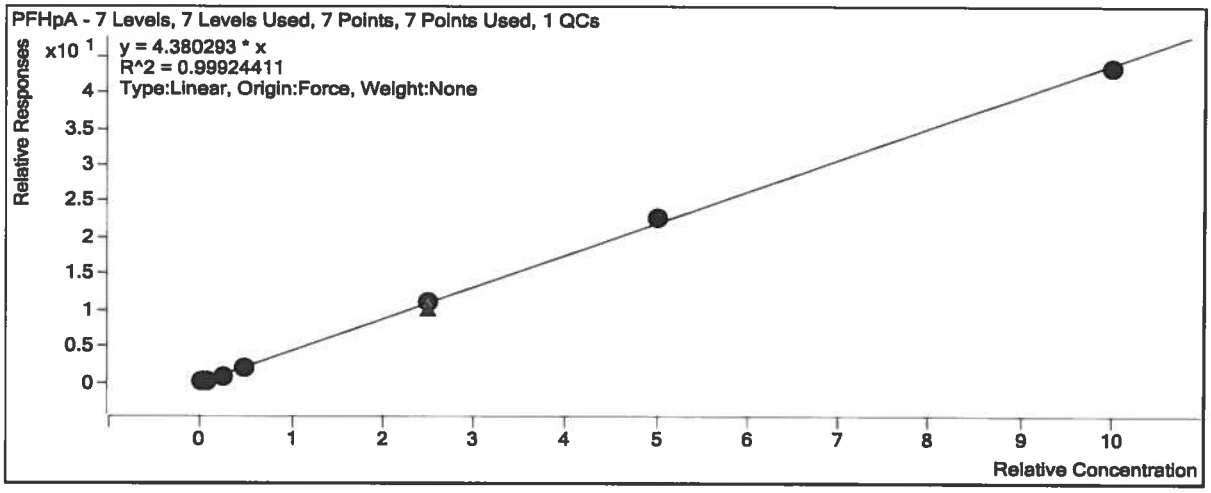


Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191119ACAL\2191119A_09.d	Calibration	7	☑	2112	20.0000	105.5798

Target Compound *PFHpA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191119ACAL\2191119A_02.d	Calibration	1	☑	3616	0.5000	3.7464
D:\MassHunter\Data\2191119ACAL\2191119A_03.d	Calibration	2	☑	9382	1.2500	3.7641
D:\MassHunter\Data\2191119ACAL\2191119A_05.d	Calibration	3	☑	38572	5.0000	3.7769
D:\MassHunter\Data\2191119ACAL\2191119A_06.d	Calibration	4	☑	83289	10.0000	4.0978
D:\MassHunter\Data\2191119ACAL\2191119A_07.d	Calibration	5	☑	451087	50.0000	4.4738
D:\MassHunter\Data\2191119ACAL\2191119A_08.d	Calibration	6	☑	903650	100.0000	4.5647
D:\MassHunter\Data\2191119ACAL\2191119A_09.d	Calibration	7	☑	1721187	200.0000	4.3295

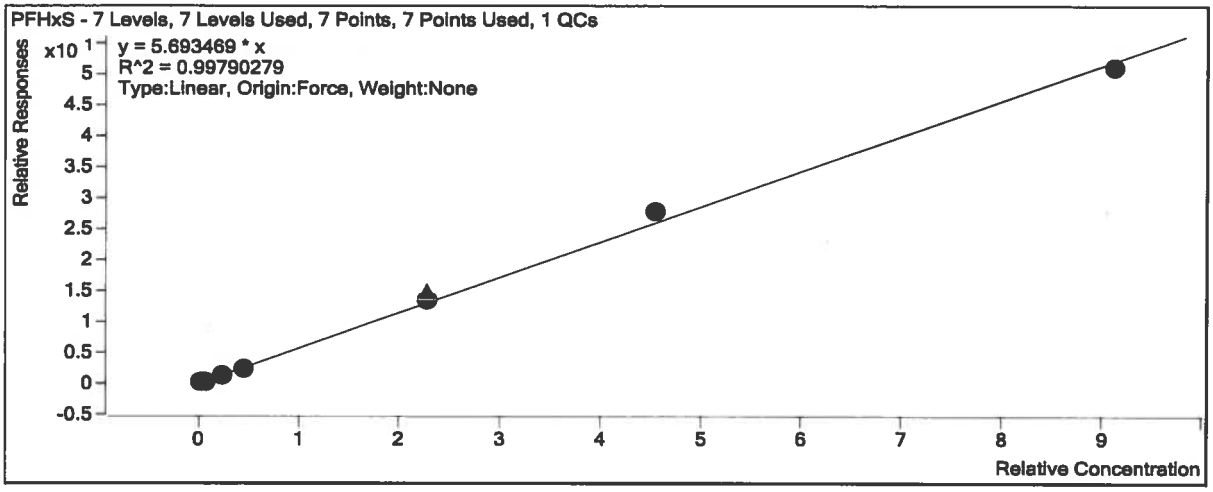


Extracted ISTD *M4PFHpA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191119ACAL\2191119A_02.d	Calibration	1	☑	38604	20.0000	1930.2052
D:\MassHunter\Data\2191119ACAL\2191119A_03.d	Calibration	2	☑	39880	20.0000	1993.9865
D:\MassHunter\Data\2191119ACAL\2191119A_05.d	Calibration	3	☑	40850	20.0000	2042.4890
D:\MassHunter\Data\2191119ACAL\2191119A_06.d	Calibration	4	☑	40650	20.0000	2032.5212
D:\MassHunter\Data\2191119ACAL\2191119A_07.d	Calibration	5	☑	40331	20.0000	2016.5685
D:\MassHunter\Data\2191119ACAL\2191119A_08.d	Calibration	6	☑	39593	20.0000	1979.6676
D:\MassHunter\Data\2191119ACAL\2191119A_09.d	Calibration	7	☑	39755	20.0000	1987.7576

Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191119ACAL\2191119A_06.d	Calibration	4	☑	48721	9.1200	5.1316
D:\MassHunter\Data\2191119ACAL\2191119A_07.d	Calibration	5	☑	273559	45.6000	5.8512
D:\MassHunter\Data\2191119ACAL\2191119A_08.d	Calibration	6	☑	524432	91.2000	6.1018
D:\MassHunter\Data\2191119ACAL\2191119A_09.d	Calibration	7	☑	1055400	182.4000	5.5833



Extracted ISTD *M3PFHxS*

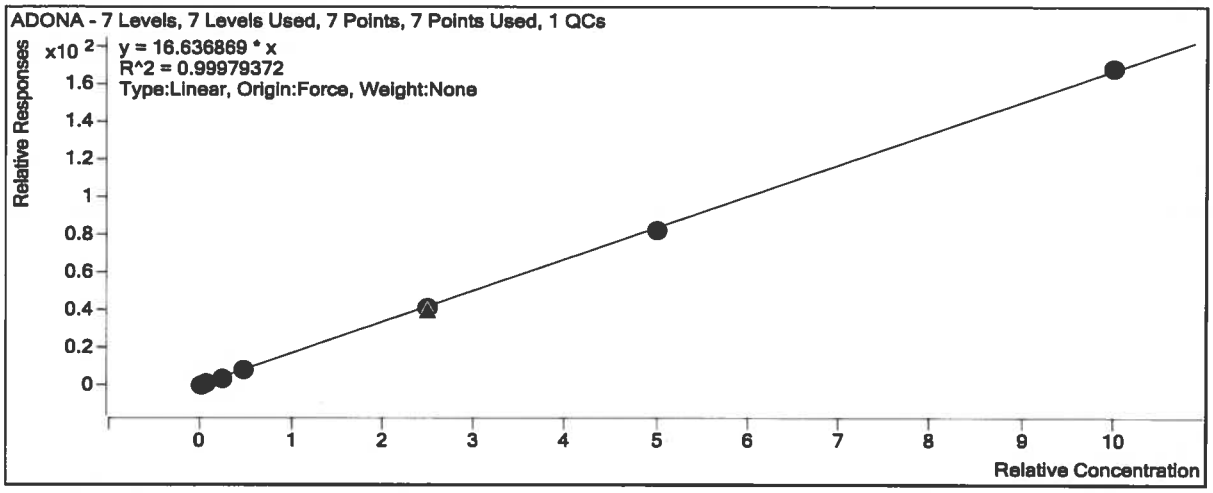
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191119ACAL\2191119A_02.d	Calibration	1	☑	19180	20.0000	958.9977
D:\MassHunter\Data\2191119ACAL\2191119A_03.d	Calibration	2	☑	19913	20.0000	995.6724
D:\MassHunter\Data\2191119ACAL\2191119A_05.d	Calibration	3	☑	20108	20.0000	1005.4202
D:\MassHunter\Data\2191119ACAL\2191119A_06.d	Calibration	4	☑	20821	20.0000	1041.0567
D:\MassHunter\Data\2191119ACAL\2191119A_07.d	Calibration	5	☑	20506	20.0000	1025.2803
D:\MassHunter\Data\2191119ACAL\2191119A_08.d	Calibration	6	☑	18848	20.0000	942.4030
D:\MassHunter\Data\2191119ACAL\2191119A_09.d	Calibration	7	☑	20727	20.0000	1036.3400

Target Compound *ADONA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191119ACAL\2191119A_02.d	Calibration	1	☑	7715	0.5000	11.3244
D:\MassHunter\Data\2191119ACAL\2191119A_03.d	Calibration	2	☑	21748	1.2500	12.3079
D:\MassHunter\Data\2191119ACAL\2191119A_05.d	Calibration	3	☑	96982	5.0000	14.9233
D:\MassHunter\Data\2191119ACAL\2191119A_06.d	Calibration	4	☑	201284	10.0000	15.1673

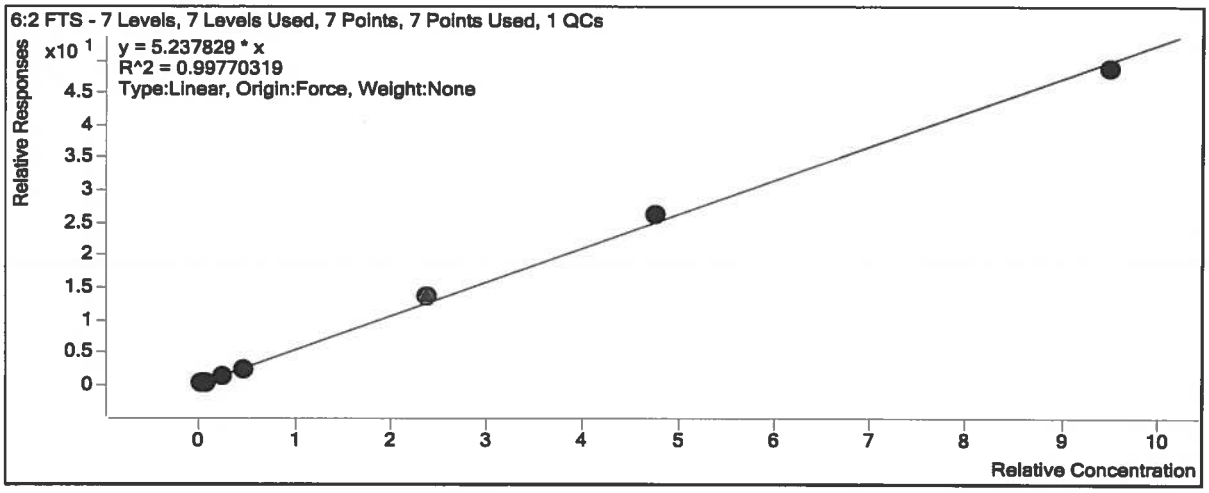
Quantitative Analysis Calibration Report

D:\MassHunter\Data\2191119ACAL\2191119A_07.d	Calibration	5	☑	1094650	50.0000	16.4019
D:\MassHunter\Data\2191119ACAL\2191119A_08.d	Calibration	6	☑	2238439	100.0000	16.3118
D:\MassHunter\Data\2191119ACAL\2191119A_09.d	Calibration	7	☑	4277379	200.0000	16.7378



Target Compound ***6:2 FTS***

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191119ACAL\2191119A_02.d	Calibration	1	☑	1358	0.4750	6.0237
D:\MassHunter\Data\2191119ACAL\2191119A_03.d	Calibration	2	☑	3158	1.1900	4.8800
D:\MassHunter\Data\2191119ACAL\2191119A_05.d	Calibration	3	☑	13710	4.7500	5.4954
D:\MassHunter\Data\2191119ACAL\2191119A_06.d	Calibration	4	☑	27325	9.5000	5.0221
D:\MassHunter\Data\2191119ACAL\2191119A_07.d	Calibration	5	☑	143597	47.5000	5.7533
D:\MassHunter\Data\2191119ACAL\2191119A_08.d	Calibration	6	☑	269919	95.0000	5.5427
D:\MassHunter\Data\2191119ACAL\2191119A_09.d	Calibration	7	☑	476634	190.0000	5.1298



Quantitative Analysis Calibration Report

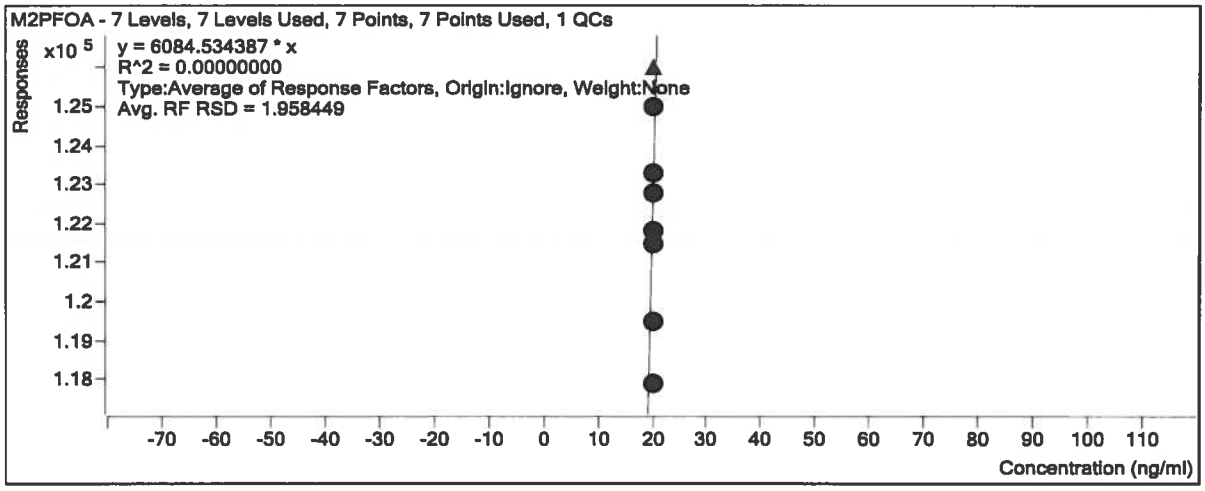
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191119ACAL\2191119A_09.d	Calibration	7	☑	9781	20.0000	489.0264

Extracted ISTD *M8PFOA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191119ACAL\2191119A_02.d	Calibration	1	☑	27249	20.0000	1362.4602
D:\MassHunter\Data\2191119ACAL\2191119A_03.d	Calibration	2	☑	28272	20.0000	1413.6049
D:\MassHunter\Data\2191119ACAL\2191119A_05.d	Calibration	3	☑	25995	20.0000	1299.7443
D:\MassHunter\Data\2191119ACAL\2191119A_06.d	Calibration	4	☑	26542	20.0000	1327.0925
D:\MassHunter\Data\2191119ACAL\2191119A_07.d	Calibration	5	☑	26696	20.0000	1334.7862
D:\MassHunter\Data\2191119ACAL\2191119A_08.d	Calibration	6	☑	27446	20.0000	1372.2839
D:\MassHunter\Data\2191119ACAL\2191119A_09.d	Calibration	7	☑	25555	20.0000	1277.7621

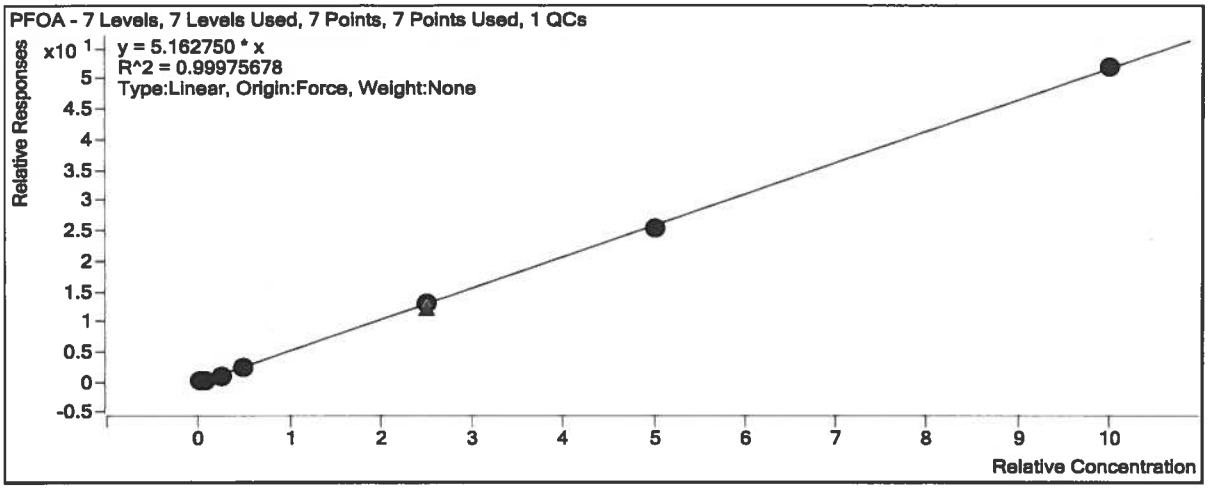
Instrument ISTD *M2PFOA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191119ACAL\2191119A_02.d	Calibration	1	☑	123304	20.0000	6165.1916
D:\MassHunter\Data\2191119ACAL\2191119A_03.d	Calibration	2	☑	121835	20.0000	6091.7515
D:\MassHunter\Data\2191119ACAL\2191119A_05.d	Calibration	3	☑	125017	20.0000	6250.8655
D:\MassHunter\Data\2191119ACAL\2191119A_06.d	Calibration	4	☑	119476	20.0000	5973.7941
D:\MassHunter\Data\2191119ACAL\2191119A_07.d	Calibration	5	☑	122810	20.0000	6140.4945
D:\MassHunter\Data\2191119ACAL\2191119A_08.d	Calibration	6	☑	121468	20.0000	6073.4059
D:\MassHunter\Data\2191119ACAL\2191119A_09.d	Calibration	7	☑	117925	20.0000	5896.2376



Quantitative Analysis Calibration Report

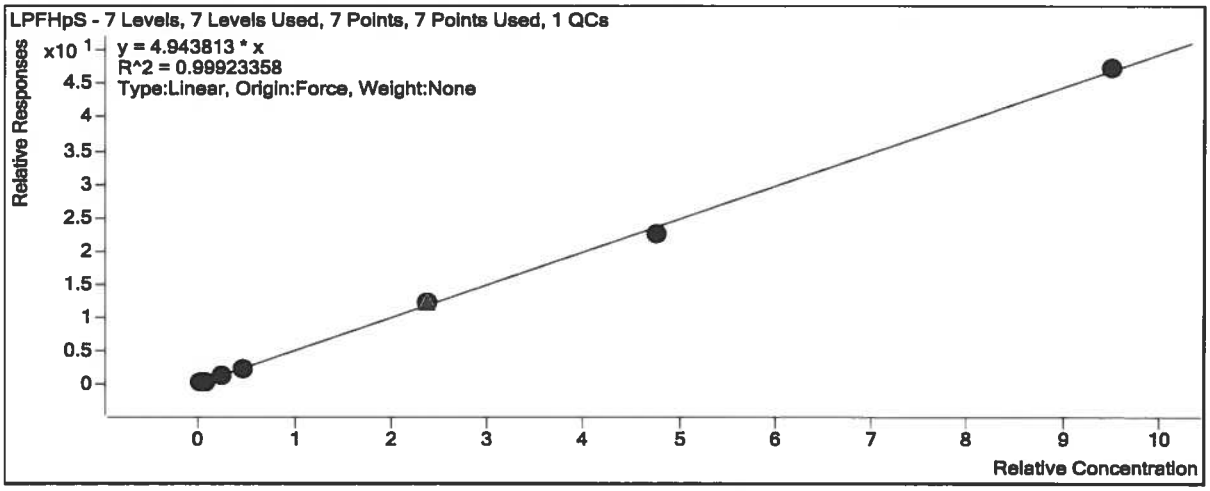
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191119ACAL\2191119A_06.d	Calibration	4	☑	61128	10.0000	4.6061
D:\MassHunter\Data\2191119ACAL\2191119A_07.d	Calibration	5	☑	352038	50.0000	5.2748
D:\MassHunter\Data\2191119ACAL\2191119A_08.d	Calibration	6	☑	692918	100.0000	5.0494
D:\MassHunter\Data\2191119ACAL\2191119A_09.d	Calibration	7	☑	1325241	200.0000	5.1858



Target Compound *LPFHpS*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191119ACAL\2191119A_02.d	Calibration	1	☑	2459	0.4750	3.7996
D:\MassHunter\Data\2191119ACAL\2191119A_03.d	Calibration	2	☑	6488	1.1900	3.8566
D:\MassHunter\Data\2191119ACAL\2191119A_05.d	Calibration	3	☑	28774	4.7500	4.6607
D:\MassHunter\Data\2191119ACAL\2191119A_06.d	Calibration	4	☑	58984	9.5000	4.6785
D:\MassHunter\Data\2191119ACAL\2191119A_07.d	Calibration	5	☑	323665	47.5000	5.1049
D:\MassHunter\Data\2191119ACAL\2191119A_08.d	Calibration	6	☑	616163	95.0000	4.7264
D:\MassHunter\Data\2191119ACAL\2191119A_09.d	Calibration	7	☑	1211201	190.0000	4.9890

Quantitative Analysis Calibration Report



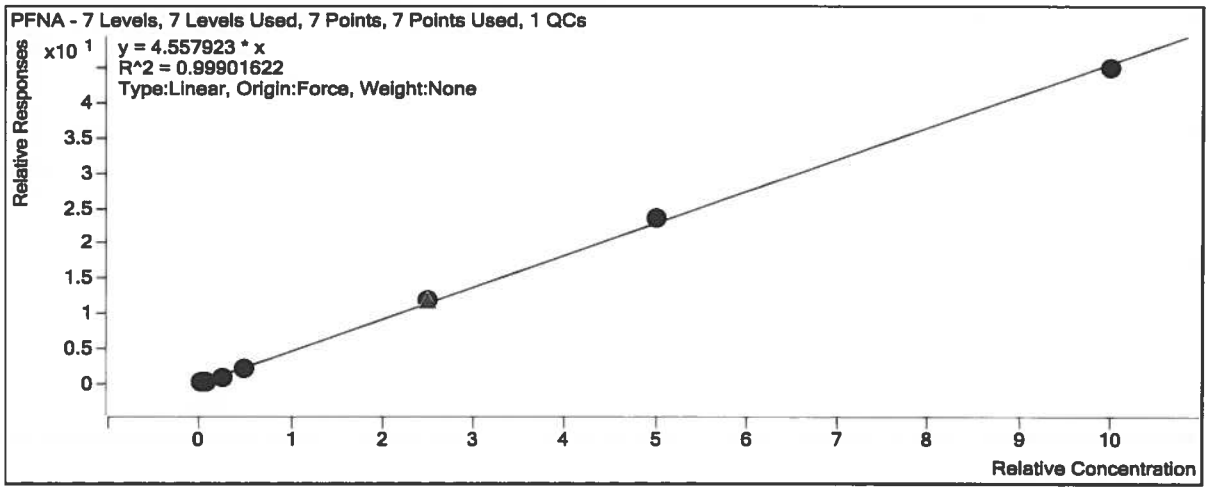
Quantitative Analysis Calibration Report

Extracted ISTD *M9PFNA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191119ACAL\2191119A_02.d	Calibration	1	☑	31180	20.0000	1558.9759
D:\MassHunter\Data\2191119ACAL\2191119A_03.d	Calibration	2	☑	32798	20.0000	1639.8863
D:\MassHunter\Data\2191119ACAL\2191119A_05.d	Calibration	3	☑	30246	20.0000	1512.2945
D:\MassHunter\Data\2191119ACAL\2191119A_06.d	Calibration	4	☑	32150	20.0000	1607.5001
D:\MassHunter\Data\2191119ACAL\2191119A_07.d	Calibration	5	☑	29179	20.0000	1458.9477
D:\MassHunter\Data\2191119ACAL\2191119A_08.d	Calibration	6	☑	30035	20.0000	1501.7706
D:\MassHunter\Data\2191119ACAL\2191119A_09.d	Calibration	7	☑	29918	20.0000	1495.8966

Target Compound *PFNA*

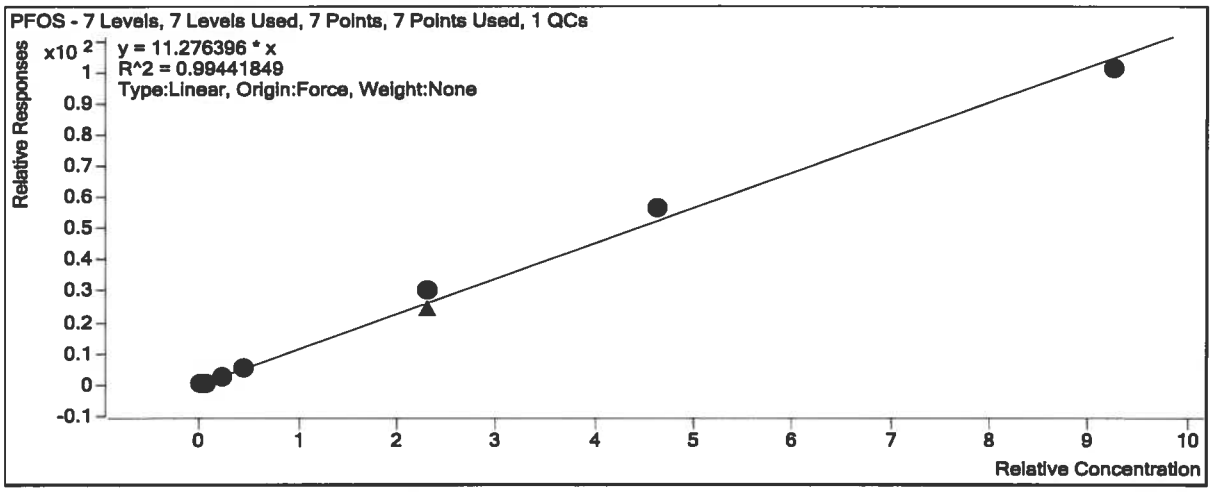
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191119ACAL\2191119A_02.d	Calibration	1	☑	2977	0.5000	3.8187
D:\MassHunter\Data\2191119ACAL\2191119A_03.d	Calibration	2	☑	6660	1.2500	3.2492
D:\MassHunter\Data\2191119ACAL\2191119A_05.d	Calibration	3	☑	30145	5.0000	3.9867
D:\MassHunter\Data\2191119ACAL\2191119A_06.d	Calibration	4	☑	64192	10.0000	3.9933
D:\MassHunter\Data\2191119ACAL\2191119A_07.d	Calibration	5	☑	351050	50.0000	4.8124
D:\MassHunter\Data\2191119ACAL\2191119A_08.d	Calibration	6	☑	711877	100.0000	4.7403
D:\MassHunter\Data\2191119ACAL\2191119A_09.d	Calibration	7	☑	1345787	200.0000	4.4983



Extracted ISTD *M8PFOS*

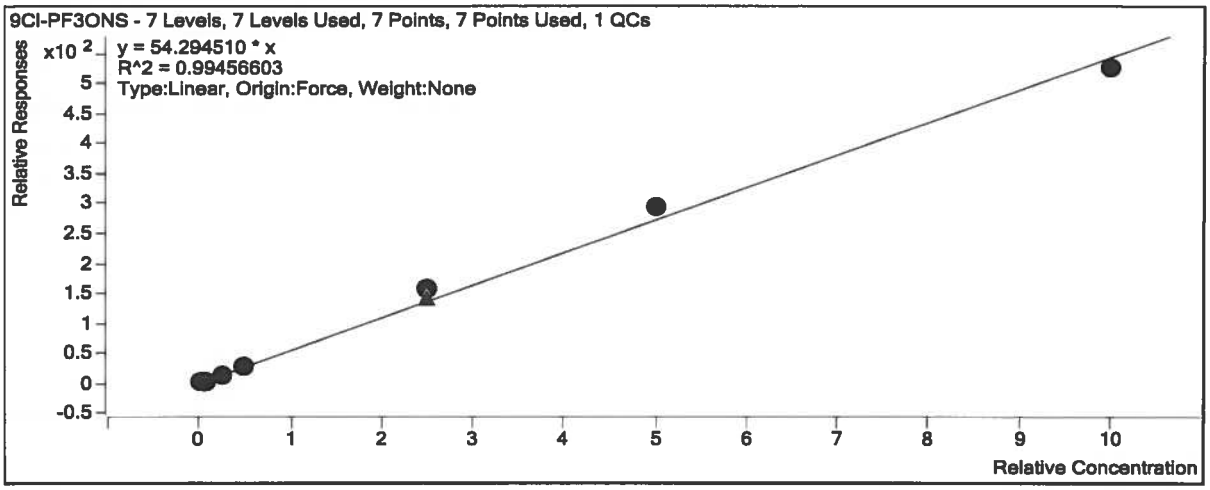
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF

Quantitative Analysis Calibration Report



Target Compound *9Cl-PF3ONS*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191119ACAL\2191119A_02.d	Calibration	1	☑	10465	0.5000	41.0365
D:\MassHunter\Data\2191119ACAL\2191119A_03.d	Calibration	2	☑	28217	1.2500	48.7968
D:\MassHunter\Data\2191119ACAL\2191119A_05.d	Calibration	3	☑	130734	5.0000	56.1052
D:\MassHunter\Data\2191119ACAL\2191119A_06.d	Calibration	4	☑	263905	10.0000	58.3462
D:\MassHunter\Data\2191119ACAL\2191119A_07.d	Calibration	5	☑	1461366	50.0000	63.4240
D:\MassHunter\Data\2191119ACAL\2191119A_08.d	Calibration	6	☑	2912175	100.0000	58.7143
D:\MassHunter\Data\2191119ACAL\2191119A_09.d	Calibration	7	☑	5659650	200.0000	52.6080



Extracted ISTD *M2 8:2 FTS*

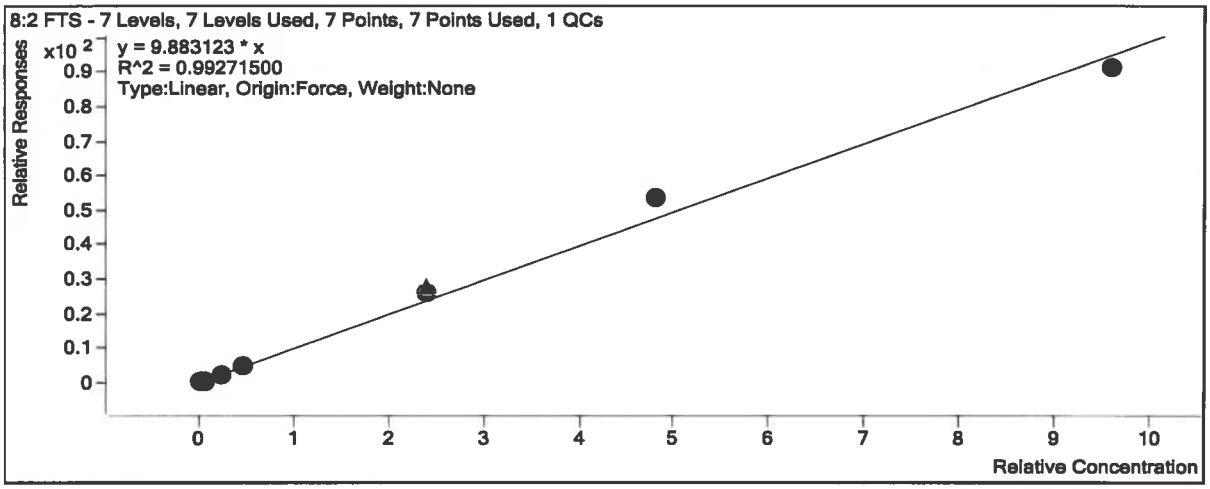
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF

Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191119ACAL\2191119A_09.d	Calibration	7	☑	6651	20.0000	332.5490

Target Compound *8:2 FTS*

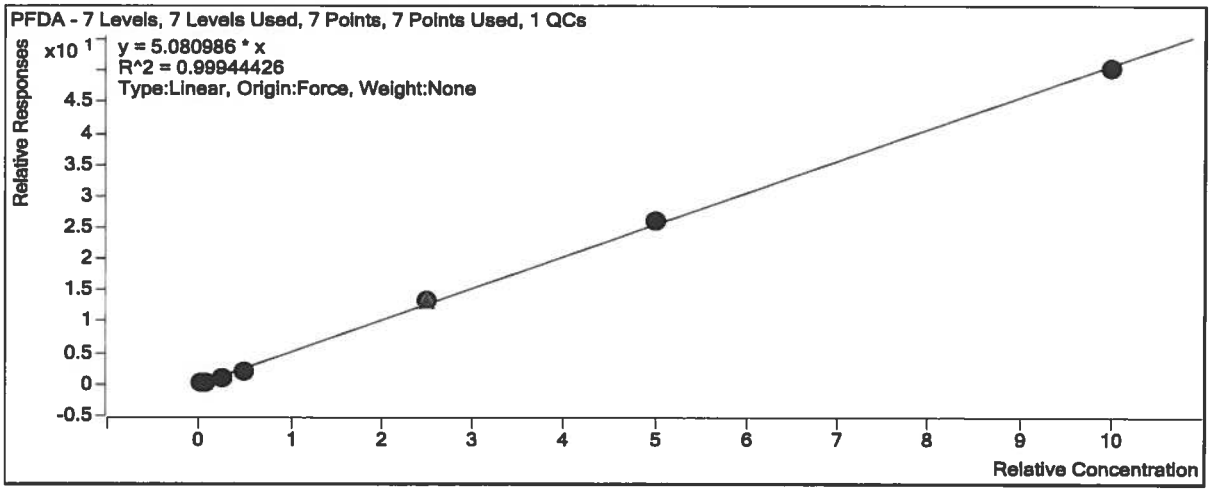
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191119ACAL\2191119A_02.d	Calibration	1	☑	1831	0.4800	10.2382
D:\MassHunter\Data\2191119ACAL\2191119A_03.d	Calibration	2	☑	4896	1.2000	10.0214
D:\MassHunter\Data\2191119ACAL\2191119A_05.d	Calibration	3	☑	20170	4.8000	10.6167
D:\MassHunter\Data\2191119ACAL\2191119A_06.d	Calibration	4	☑	41814	9.6000	9.9821
D:\MassHunter\Data\2191119ACAL\2191119A_07.d	Calibration	5	☑	198310	48.0000	10.8633
D:\MassHunter\Data\2191119ACAL\2191119A_08.d	Calibration	6	☑	362497	96.0000	11.1177
D:\MassHunter\Data\2191119ACAL\2191119A_09.d	Calibration	7	☑	607368	192.0000	9.5125



Extracted ISTD *M6PFDA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191119ACAL\2191119A_02.d	Calibration	1	☑	29871	20.0000	1493.5444
D:\MassHunter\Data\2191119ACAL\2191119A_03.d	Calibration	2	☑	29674	20.0000	1483.7174
D:\MassHunter\Data\2191119ACAL\2191119A_05.d	Calibration	3	☑	29222	20.0000	1461.0961
D:\MassHunter\Data\2191119ACAL\2191119A_06.d	Calibration	4	☑	29018	20.0000	1450.9028
D:\MassHunter\Data\2191119ACAL\2191119A_07.d	Calibration	5	☑	27028	20.0000	1351.4073
D:\MassHunter\Data\2191119ACAL\2191119A_08.d	Calibration	6	☑	27277	20.0000	1363.8523
D:\MassHunter\Data\2191119ACAL\2191119A_09.d	Calibration	7	☑	26445	20.0000	1322.2351

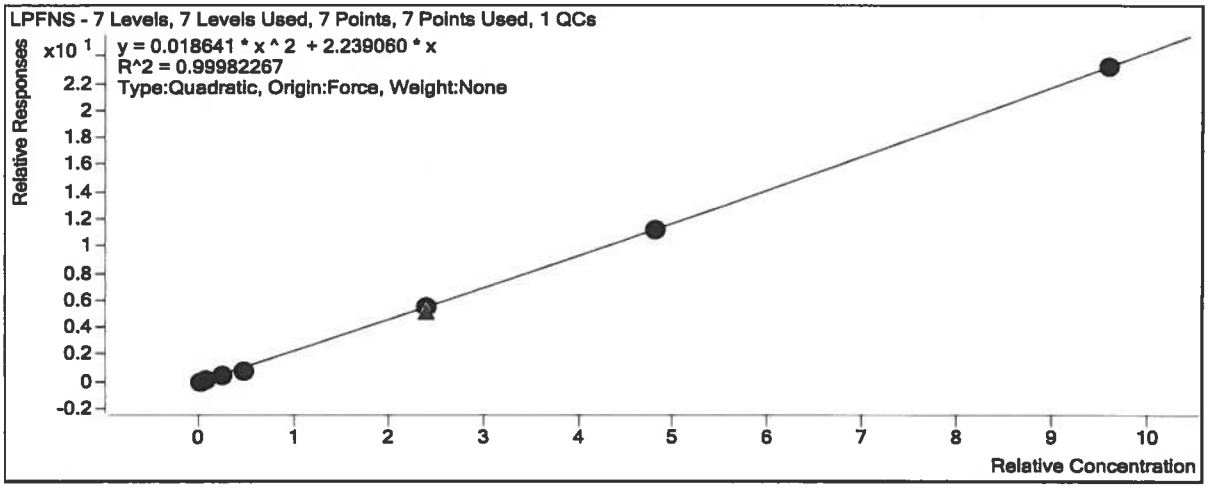
Quantitative Analysis Calibration Report



Quantitative Analysis Calibration Report

Target Compound *LPFNS*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191119ACAL\2191119A_02.d	Calibration	1	☑	1253	0.4800	1.6745
D:\MassHunter\Data\2191119ACAL\2191119A_03.d	Calibration	2	☑	3117	1.2000	1.5841
D:\MassHunter\Data\2191119ACAL\2191119A_05.d	Calibration	3	☑	13206	4.8000	1.8193
D:\MassHunter\Data\2191119ACAL\2191119A_06.d	Calibration	4	☑	26710	9.6000	1.7308
D:\MassHunter\Data\2191119ACAL\2191119A_07.d	Calibration	5	☑	159291	48.0000	2.2746
D:\MassHunter\Data\2191119ACAL\2191119A_08.d	Calibration	6	☑	337949	96.0000	2.3441
D:\MassHunter\Data\2191119ACAL\2191119A_09.d	Calibration	7	☑	693985	192.0000	2.4163



Extracted ISTD *d3-NMeFOSAA*

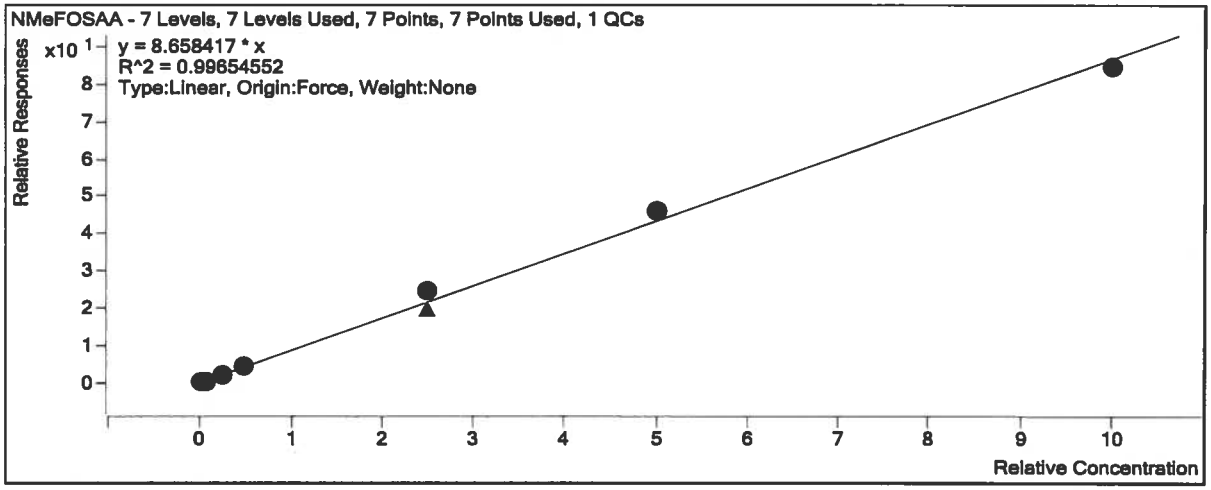
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191119ACAL\2191119A_02.d	Calibration	1	☑	5247	20.0000	262.3484
D:\MassHunter\Data\2191119ACAL\2191119A_03.d	Calibration	2	☑	5218	20.0000	260.9179
D:\MassHunter\Data\2191119ACAL\2191119A_05.d	Calibration	3	☑	4919	20.0000	245.9484
D:\MassHunter\Data\2191119ACAL\2191119A_06.d	Calibration	4	☑	5102	20.0000	255.1139
D:\MassHunter\Data\2191119ACAL\2191119A_07.d	Calibration	5	☑	5648	20.0000	282.4045
D:\MassHunter\Data\2191119ACAL\2191119A_08.d	Calibration	6	☑	6199	20.0000	309.9356
D:\MassHunter\Data\2191119ACAL\2191119A_09.d	Calibration	7	☑	6591	20.0000	329.5415

Target Compound *NMeFOSAA*

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

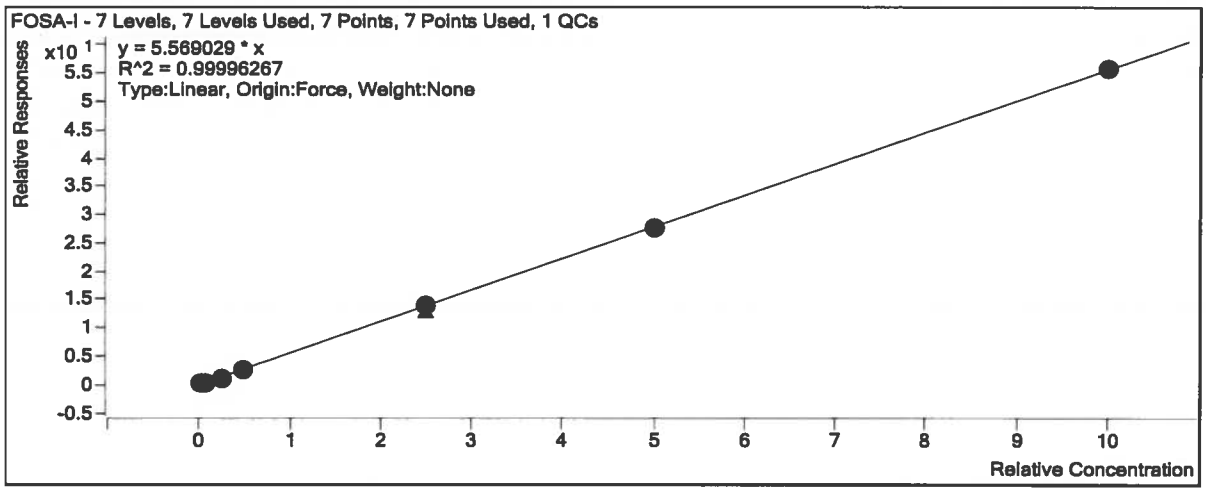
Quantitative Analysis Calibration Report

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



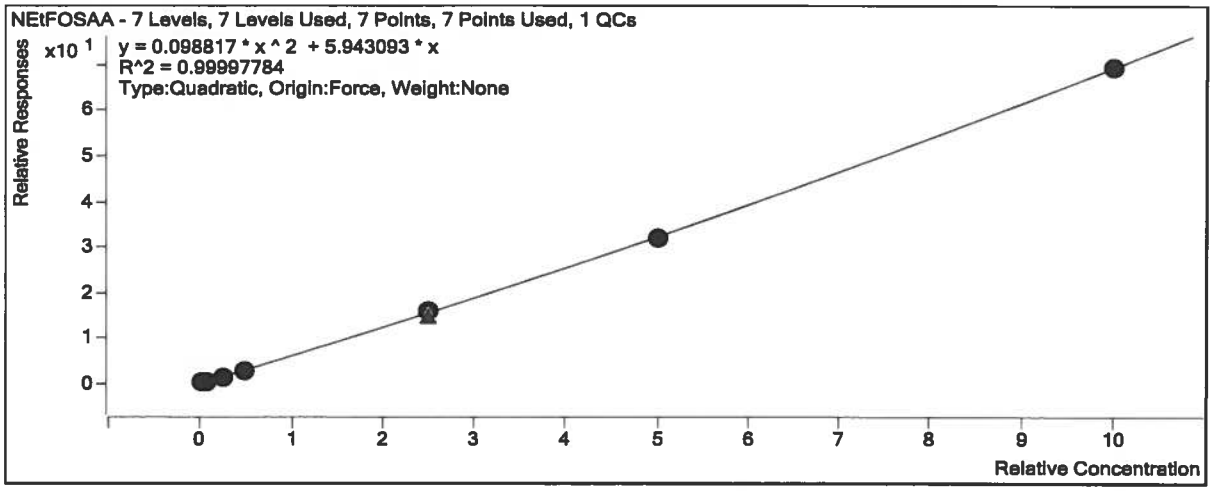
Target Compound *FOSA-I*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191119ACAL\2191119A_02.d	Calibration	1	☑	3683	0.5000	4.1025
D:\MassHunter\Data\2191119ACAL\2191119A_03.d	Calibration	2	☑	10151	1.2500	4.2885
D:\MassHunter\Data\2191119ACAL\2191119A_05.d	Calibration	3	☑	46241	5.0000	5.0153
D:\MassHunter\Data\2191119ACAL\2191119A_06.d	Calibration	4	☑	98551	10.0000	5.1259
D:\MassHunter\Data\2191119ACAL\2191119A_07.d	Calibration	5	☑	535591	50.0000	5.5523
D:\MassHunter\Data\2191119ACAL\2191119A_08.d	Calibration	6	☑	1085109	100.0000	5.5464
D:\MassHunter\Data\2191119ACAL\2191119A_09.d	Calibration	7	☑	2127130	200.0000	5.5772



Extracted ISTD *M8FOSA*

Quantitative Analysis Calibration Report



Extracted ISTD *M7PFUdA*

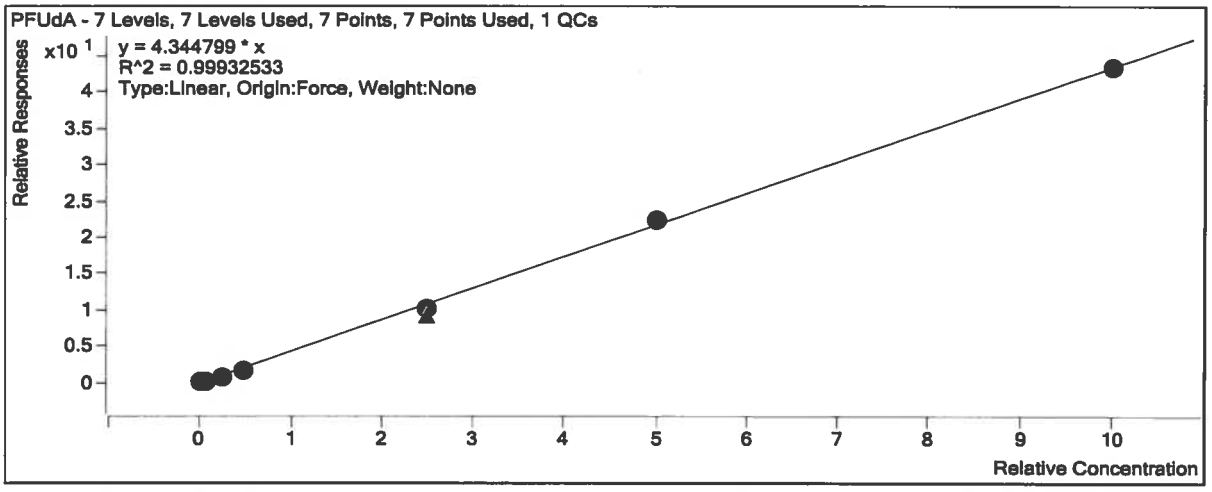
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191119ACAL\2191119A_02.d	Calibration	1	☑	31683	20.0000	1584.1492

Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191119ACAL\2191119A_03.d	Calibration	2	☑	33167	20.0000	1658.3650
D:\MassHunter\Data\2191119ACAL\2191119A_05.d	Calibration	3	☑	30170	20.0000	1508.5041
D:\MassHunter\Data\2191119ACAL\2191119A_06.d	Calibration	4	☑	30232	20.0000	1511.6148
D:\MassHunter\Data\2191119ACAL\2191119A_07.d	Calibration	5	☑	31032	20.0000	1551.5891
D:\MassHunter\Data\2191119ACAL\2191119A_08.d	Calibration	6	☑	28097	20.0000	1404.8573
D:\MassHunter\Data\2191119ACAL\2191119A_09.d	Calibration	7	☑	25827	20.0000	1291.3414

Target Compound *PFUdA*

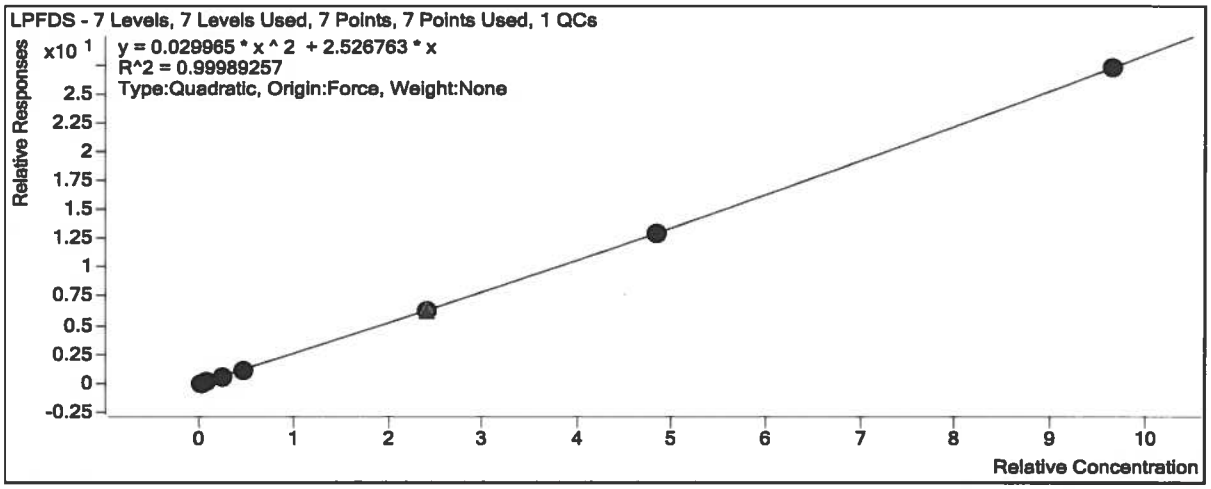
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191119ACAL\2191119A_02.d	Calibration	1	☑	3123	0.5000	3.9424
D:\MassHunter\Data\2191119ACAL\2191119A_03.d	Calibration	2	☑	7014	1.2500	3.3838
D:\MassHunter\Data\2191119ACAL\2191119A_05.d	Calibration	3	☑	27417	5.0000	3.6350
D:\MassHunter\Data\2191119ACAL\2191119A_06.d	Calibration	4	☑	54920	10.0000	3.6332
D:\MassHunter\Data\2191119ACAL\2191119A_07.d	Calibration	5	☑	314530	50.0000	4.0543
D:\MassHunter\Data\2191119ACAL\2191119A_08.d	Calibration	6	☑	627639	100.0000	4.4676
D:\MassHunter\Data\2191119ACAL\2191119A_09.d	Calibration	7	☑	1119466	200.0000	4.3345



Target Compound *LPFDS*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191119ACAL\2191119A_02.d	Calibration	1	☑	1423	0.4825	1.9750
D:\MassHunter\Data\2191119ACAL\2191119A_03.d	Calibration	2	☑	3249	1.2100	1.8095

D:\MassHunter\Data\2191119ACAL\2191119A_05.d	Calibration	3	☑	14044	4.8250	1.9922
D:\MassHunter\Data\2191119ACAL\2191119A_06.d	Calibration	4	☑	29475	9.6500	2.1052
D:\MassHunter\Data\2191119ACAL\2191119A_07.d	Calibration	5	☑	170803	48.2500	2.6195
D:\MassHunter\Data\2191119ACAL\2191119A_08.d	Calibration	6	☑	352044	96.5000	2.6749
D:\MassHunter\Data\2191119ACAL\2191119A_09.d	Calibration	7	☑	718423	193.0000	2.8152

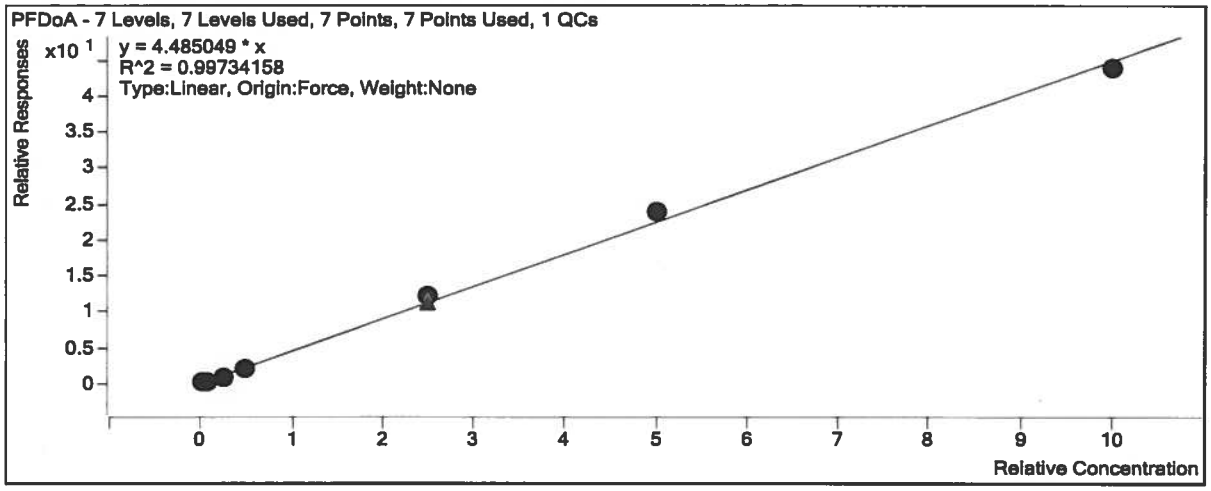


Target Compound *11Cl-PF3OUdS*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191119ACAL\2191119A_02.d	Calibration	1	☑	4366	0.5000	17.1209
D:\MassHunter\Data\2191119ACAL\2191119A_03.d	Calibration	2	☑	12078	1.2500	20.8861
D:\MassHunter\Data\2191119ACAL\2191119A_05.d	Calibration	3	☑	54212	5.0000	23.2656
D:\MassHunter\Data\2191119ACAL\2191119A_06.d	Calibration	4	☑	107403	10.0000	23.7456
D:\MassHunter\Data\2191119ACAL\2191119A_07.d	Calibration	5	☑	613960	50.0000	26.6461
D:\MassHunter\Data\2191119ACAL\2191119A_08.d	Calibration	6	☑	1270159	100.0000	25.6085
D:\MassHunter\Data\2191119ACAL\2191119A_09.d	Calibration	7	☑	2452919	200.0000	22.8006

Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191119ACAL\2191119A_09.d	Calibration	7	☑	961722	200.0000	4.3860



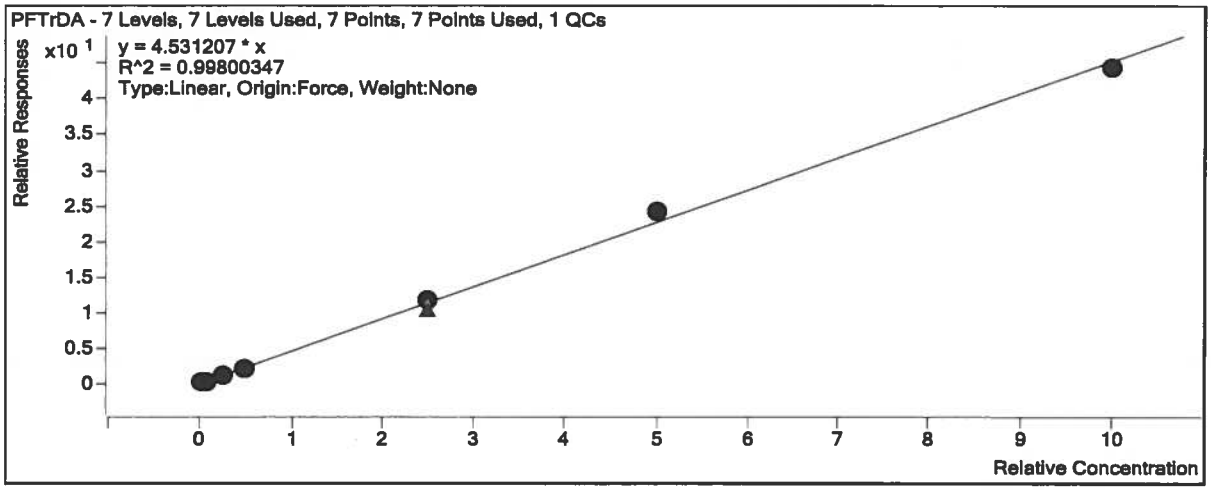
Extracted ISTD *MPFDoA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191119ACAL\2191119A_02.d	Calibration	1	☑	21734	20.0000	1086.6828
D:\MassHunter\Data\2191119ACAL\2191119A_03.d	Calibration	2	☑	22731	20.0000	1136.5586
D:\MassHunter\Data\2191119ACAL\2191119A_05.d	Calibration	3	☑	20341	20.0000	1017.0631
D:\MassHunter\Data\2191119ACAL\2191119A_06.d	Calibration	4	☑	21383	20.0000	1069.1508
D:\MassHunter\Data\2191119ACAL\2191119A_07.d	Calibration	5	☑	20389	20.0000	1019.4492
D:\MassHunter\Data\2191119ACAL\2191119A_08.d	Calibration	6	☑	20997	20.0000	1049.8642
D:\MassHunter\Data\2191119ACAL\2191119A_09.d	Calibration	7	☑	21927	20.0000	1096.3587

Target Compound *PFTrDA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191119ACAL\2191119A_02.d	Calibration	1	☑	1820	0.5000	4.2876
D:\MassHunter\Data\2191119ACAL\2191119A_03.d	Calibration	2	☑	4288	1.2500	4.0000
D:\MassHunter\Data\2191119ACAL\2191119A_05.d	Calibration	3	☑	17790	5.0000	4.2756
D:\MassHunter\Data\2191119ACAL\2191119A_06.d	Calibration	4	☑	34852	10.0000	4.2060
D:\MassHunter\Data\2191119ACAL\2191119A_07.d	Calibration	5	☑	201176	50.0000	4.7422
D:\MassHunter\Data\2191119ACAL\2191119A_08.d	Calibration	6	☑	420385	100.0000	4.8347
D:\MassHunter\Data\2191119ACAL\2191119A_09.d	Calibration	7	☑	803480	200.0000	4.4431

Quantitative Analysis Calibration Report



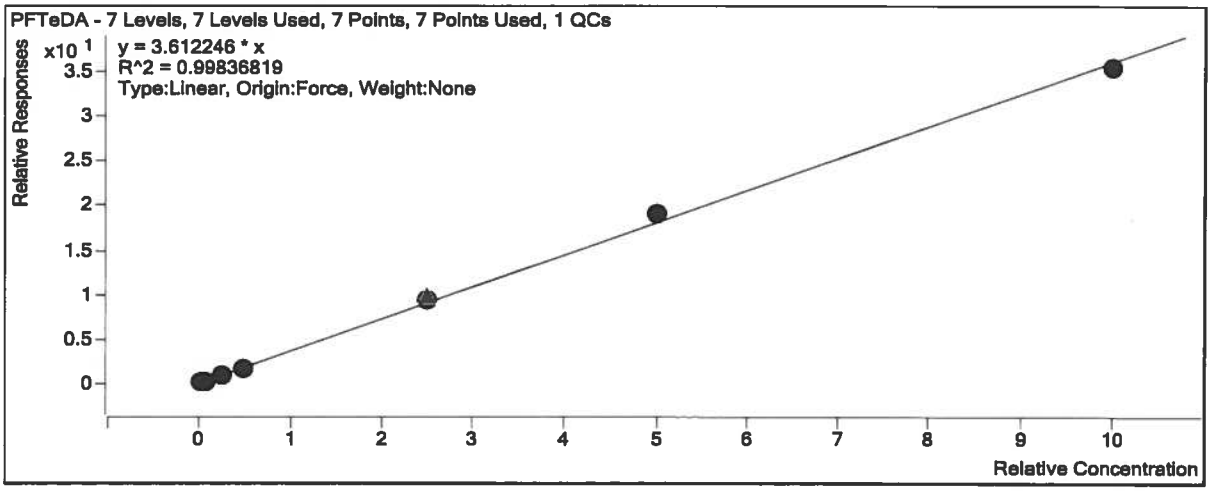
Extracted ISTD *M2PFTeDA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191119ACAL\2191119A_02.d	Calibration	1	☑	16978	20.0000	848.9000
D:\MassHunter\Data\2191119ACAL\2191119A_03.d	Calibration	2	☑	17151	20.0000	857.5335
D:\MassHunter\Data\2191119ACAL\2191119A_05.d	Calibration	3	☑	16644	20.0000	832.1796
D:\MassHunter\Data\2191119ACAL\2191119A_06.d	Calibration	4	☑	16572	20.0000	828.6170
D:\MassHunter\Data\2191119ACAL\2191119A_07.d	Calibration	5	☑	16969	20.0000	848.4506
D:\MassHunter\Data\2191119ACAL\2191119A_08.d	Calibration	6	☑	17390	20.0000	869.5169
D:\MassHunter\Data\2191119ACAL\2191119A_09.d	Calibration	7	☑	18084	20.0000	904.1796

Target Compound *PFTeDA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191119ACAL\2191119A_02.d	Calibration	1	☑	1449	0.5000	3.4127
D:\MassHunter\Data\2191119ACAL\2191119A_03.d	Calibration	2	☑	3416	1.2500	3.1865
D:\MassHunter\Data\2191119ACAL\2191119A_05.d	Calibration	3	☑	13730	5.0000	3.2997
D:\MassHunter\Data\2191119ACAL\2191119A_06.d	Calibration	4	☑	28610	10.0000	3.4528
D:\MassHunter\Data\2191119ACAL\2191119A_07.d	Calibration	5	☑	160237	50.0000	3.7772
D:\MassHunter\Data\2191119ACAL\2191119A_08.d	Calibration	6	☑	332906	100.0000	3.8286
D:\MassHunter\Data\2191119ACAL\2191119A_09.d	Calibration	7	☑	641688	200.0000	3.5485

Quantitative Analysis Calibration Report



6I

ORGANICS INITIAL CALIBRATION VERIFICATION

Report No:	219102326	Instrument ID:	QQQ1
Analysis Date:	11/19/2019 16:02	Lab File ID:	2191119A_11.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	671741

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	50000	52900	106	70	130	
8:2 Fluorotelomer sulfonate	ng/L	50000	56700	113	70	130	
NEtFOSAA	ng/L	50000	49100	98	70	130	
NMeFOSAA	ng/L	50000	46200	92	70	130	
Perfluorobutanoic acid	ng/L	50000	49000	98	70	130	
Perfluorobutanesulfonic acid	ng/L	50000	49600	99	70	130	
Perfluorodecanoic acid	ng/L	50000	52600	105	70	130	
Perfluorododecanoic acid	ng/L	50000	50200	100	70	130	
Perfluoroheptanoic acid	ng/L	50000	47200	94	70	130	
Perfluorohexanoic acid	ng/L	50000	51700	103	70	130	
Perfluorohexanesulfonic acid	ng/L	50000	52500	105	70	130	
Perfluorononanoic acid	ng/L	50000	51700	103	70	130	
Perfluorooctanoic acid	ng/L	50000	47500	95	70	130	
Perfluorooctane Sulfonate	ng/L	50000	44000	88	70	130	
Perfluoropentanoic acid	ng/L	50000	47800	96	70	130	
Perfluorotetradecanoic acid	ng/L	50000	54400	109	70	130	
Perfluorotridecanoic acid	ng/L	50000	46000	92	70	130	
Perfluoroundecanoic acid	ng/L	50000	42900	86	70	130	

7S

ORGANICS INSTRUMENT SENSITIVITY CHECK

Report No:	219102326	Instrument ID:	QQQ1
Analysis Date:	11/19/2019 16:13	Lab File ID:	2191119A_12.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	671741

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	7.93	8.27	104	70	130	
8:2 Fluorotelomer sulfonate	ng/L	8.00	7.93	99	70	130	
NEtFOSAA	ng/L	8.33	8.20	98	70	130	
NMeFOSAA	ng/L	8.33	8.13	97	70	130	
Perfluorobutanoic acid	ng/L	8.33	6.93	83	70	130	
Perfluorobutanesulfonic acid	ng/L	7.40	6.46	88	70	130	
Perfluorodecanoic acid	ng/L	8.33	7.33	88	70	130	
Perfluorododecanoic acid	ng/L	8.33	8.40	101	70	130	
Perfluoroheptanoic acid	ng/L	8.33	7.00	84	70	130	
Perfluorohexanoic acid	ng/L	8.33	7.20	86	70	130	
Perfluorohexanesulfonic acid	ng/L	7.60	6.80	89	70	130	
Perfluorononanoic acid	ng/L	8.33	7.73	93	70	130	
Perfluorooctanoic acid	ng/L	8.33	7.07	84	70	130	
Perfluorooctane Sulfonate	ng/L	7.73	7.33	95	70	130	
Perfluoropentanoic acid	ng/L	8.33	6.18	74	70	130	
Perfluorotetradecanoic acid	ng/L	8.33	7.93	95	70	130	
Perfluorotridecanoic acid	ng/L	8.33	7.93	95	70	130	
Perfluoroundecanoic acid	ng/L	8.33	7.00	84	70	130	

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4I

ORGANICS INSTRUMENT BLANK

Report No:	219102326	Instrument ID:	QQQ1
Analysis Date:	11/19/2019 16:25	Lab File ID:	2191119A_13.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	671741

ANALYTE	UNITS	RESULT	Q	DL	LOD	LOQ	#
6:2 Fluorotelomer sulfonate	ng/L	4.00	U	1.79	4.00	10.0	
8:2 Fluorotelomer sulfonate	ng/L	4.00	U	1.63	4.00	10.0	
NEtFOSAA	ng/L	8.00	U	5.38	8.00	10.0	
NMeFOSAA	ng/L	8.00	U	4.60	8.00	10.0	
Perfluorobutanesulfonic acid	ng/L	4.00	U	1.47	4.00	10.0	
Perfluorobutanoic acid	ng/L	4.00	U	2.13	4.00	10.0	
Perfluorodecanoic acid	ng/L	4.00	U	1.65	4.00	10.0	
Perfluorododecanoic acid	ng/L	4.00	U	2.45	4.00	10.0	
Perfluoroheptanoic acid	ng/L	4.00	U	1.85	4.00	10.0	
Perfluorohexanesulfonic acid	ng/L	4.00	U	1.64	4.00	10.0	
Perfluorohexanoic acid	ng/L	4.00	U	1.94	4.00	10.0	
Perfluorononanoic acid	ng/L	4.00	U	1.68	4.00	10.0	
Perfluorooctane Sulfonate	ng/L	4.00	U	1.70	4.00	10.0	
Perfluorooctanoic acid	ng/L	4.00	U	1.80	4.00	10.0	
Perfluoropentanoic acid	ng/L	4.00	U	2.35	4.00	10.0	
Perfluorotetradecanoic acid	ng/L	4.00	U	2.76	4.00	10.0	
Perfluorotridecanoic acid	ng/L	4.00	U	2.56	4.00	10.0	
Perfluoroundecanoic acid	ng/L	4.00	U	1.86	4.00	10.0	

* - Result greater than 1/2 LOQ

FORM 4I - ORG

7E

ORGANICS CALIBRATION VERIFICATION

Report No:	219102541	Instrument ID:	QQQ1
Analysis Date:	11/19/2019 18:51	Lab File ID:	2191119A_25.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	671741

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	47500	50900	107	70	130	
8:2 Fluorotelomer sulfonate	ng/L	48000	53500	112	70	130	
NEtFOSAA	ng/L	50000	52600	105	70	130	
NMeFOSAA	ng/L	50000	56100	112	70	130	
Perfluorobutanoic acid	ng/L	50000	50200	100	70	130	
Perfluorobutanesulfonic acid	ng/L	44300	45900	104	70	130	
Perfluorodecanoic acid	ng/L	50000	51600	103	70	130	
Perfluorododecanoic acid	ng/L	50000	52900	106	70	130	
Perfluoroheptanoic acid	ng/L	50000	52200	104	70	130	
Perfluorohexanoic acid	ng/L	50000	50600	101	70	130	
Perfluorohexanesulfonic acid	ng/L	45600	48100	106	70	130	
Perfluorononanoic acid	ng/L	50000	48900	98	70	130	
Perfluorooctanoic acid	ng/L	50000	52100	104	70	130	
Perfluorooctane Sulfonate	ng/L	46300	51600	112	70	130	
Perfluoropentanoic acid	ng/L	50000	45900	92	70	130	
Perfluorotetradecanoic acid	ng/L	50000	52800	106	70	130	
Perfluorotridecanoic acid	ng/L	50000	53500	107	70	130	
Perfluoroundecanoic acid	ng/L	50000	46500	93	70	130	

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7E

ORGANICS CALIBRATION VERIFICATION

Report No:	219102541	Instrument ID:	QQQ1
Analysis Date:	11/19/2019 21:41	Lab File ID:	2191119A_40.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	671741

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	47500	49300	104	70	130	
8:2 Fluorotelomer sulfonate	ng/L	48000	53600	112	70	130	
NEtFOSAA	ng/L	50000	61000	122	70	130	
NMeFOSAA	ng/L	50000	57600	115	70	130	
Perfluorobutanoic acid	ng/L	50000	49400	99	70	130	
Perfluorobutanesulfonic acid	ng/L	44300	45500	103	70	130	
Perfluorodecanoic acid	ng/L	50000	52000	104	70	130	
Perfluorododecanoic acid	ng/L	50000	53100	106	70	130	
Perfluoroheptanoic acid	ng/L	50000	51800	104	70	130	
Perfluorohexanoic acid	ng/L	50000	48000	96	70	130	
Perfluorohexanesulfonic acid	ng/L	45600	46000	101	70	130	
Perfluorononanoic acid	ng/L	50000	50400	101	70	130	
Perfluorooctanoic acid	ng/L	50000	51700	103	70	130	
Perfluorooctane Sulfonate	ng/L	46300	49300	107	70	130	
Perfluoropentanoic acid	ng/L	50000	49100	98	70	130	
Perfluorotetradecanoic acid	ng/L	50000	51900	104	70	130	
Perfluorotridecanoic acid	ng/L	50000	51900	104	70	130	
Perfluoroundecanoic acid	ng/L	50000	48600	97	70	130	

FORM 7E - ORG

7E

ORGANICS CALIBRATION VERIFICATION

Report No:	219102541	Instrument ID:	QQQ1
Analysis Date:	11/19/2019 23:46	Lab File ID:	2191119A_51.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	671741

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	47500	48700	103	70	130	
8:2 Fluorotelomer sulfonate	ng/L	48000	49600	103	70	130	
NEtFOSAA	ng/L	50000	60500	121	70	130	
NMeFOSAA	ng/L	50000	53000	106	70	130	
Perfluorobutanoic acid	ng/L	50000	49300	99	70	130	
Perfluorobutanesulfonic acid	ng/L	44300	45800	104	70	130	
Perfluorodecanoic acid	ng/L	50000	49700	99	70	130	
Perfluorododecanoic acid	ng/L	50000	53700	107	70	130	
Perfluoroheptanoic acid	ng/L	50000	51900	104	70	130	
Perfluorohexanoic acid	ng/L	50000	50000	100	70	130	
Perfluorohexanesulfonic acid	ng/L	45600	47300	104	70	130	
Perfluorononanoic acid	ng/L	50000	49600	99	70	130	
Perfluorooctanoic acid	ng/L	50000	49800	100	70	130	
Perfluorooctane Sulfonate	ng/L	46300	49800	108	70	130	
Perfluoropentanoic acid	ng/L	50000	48500	97	70	130	
Perfluorotetradecanoic acid	ng/L	50000	53200	106	70	130	
Perfluorotridecanoic acid	ng/L	50000	53700	107	70	130	
Perfluoroundecanoic acid	ng/L	50000	47900	96	70	130	

FORM 7E - ORG

7E

ORGANICS CALIBRATION VERIFICATION

Report No:	219102326	Instrument ID:	QQQ1
Analysis Date:	11/20/2019 04:42	Lab File ID:	2191119A_77.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	671741

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	47500	48500	102	70	130	
8:2 Fluorotelomer sulfonate	ng/L	48000	56300	117	70	130	
NEtFOSAA	ng/L	50000	52600	105	70	130	
NMeFOSAA	ng/L	50000	58000	116	70	130	
Perfluorobutanoic acid	ng/L	50000	50100	100	70	130	
Perfluorobutanesulfonic acid	ng/L	44300	46300	105	70	130	
Perfluorodecanoic acid	ng/L	50000	52000	104	70	130	
Perfluorododecanoic acid	ng/L	50000	56900	114	70	130	
Perfluoroheptanoic acid	ng/L	50000	51100	102	70	130	
Perfluorohexanoic acid	ng/L	50000	49100	98	70	130	
Perfluorohexanesulfonic acid	ng/L	45600	46000	101	70	130	
Perfluorononanoic acid	ng/L	50000	52800	106	70	130	
Perfluorooctanoic acid	ng/L	50000	51300	103	70	130	
Perfluorooctane Sulfonate	ng/L	46300	51500	111	70	130	
Perfluoropentanoic acid	ng/L	50000	49300	99	70	130	
Perfluorotetradecanoic acid	ng/L	50000	53700	107	70	130	
Perfluorotridecanoic acid	ng/L	50000	50900	102	70	130	
Perfluoroundecanoic acid	ng/L	50000	48500	97	70	130	

FORM 7E - ORG

7E

ORGANICS CALIBRATION VERIFICATION

Report No:	219102326	Instrument ID:	QQQ1
Analysis Date:	11/20/2019 06:47	Lab File ID:	2191119A_88.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	671741

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	47500	47000	99	70	130	
8:2 Fluorotelomer sulfonate	ng/L	48000	53000	111	70	130	
NEtFOSAA	ng/L	50000	58100	116	70	130	
NMeFOSAA	ng/L	50000	57500	115	70	130	
Perfluorobutanoic acid	ng/L	50000	49900	100	70	130	
Perfluorobutanesulfonic acid	ng/L	44300	45900	104	70	130	
Perfluorodecanoic acid	ng/L	50000	51400	103	70	130	
Perfluorododecanoic acid	ng/L	50000	54900	110	70	130	
Perfluoroheptanoic acid	ng/L	50000	50800	102	70	130	
Perfluorohexanoic acid	ng/L	50000	49600	99	70	130	
Perfluorohexanesulfonic acid	ng/L	45600	45300	99	70	130	
Perfluorononanoic acid	ng/L	50000	50000	100	70	130	
Perfluorooctanoic acid	ng/L	50000	49900	100	70	130	
Perfluorooctane Sulfonate	ng/L	46300	48100	104	70	130	
Perfluoropentanoic acid	ng/L	50000	50400	101	70	130	
Perfluorotetradecanoic acid	ng/L	50000	53800	108	70	130	
Perfluorotridecanoic acid	ng/L	50000	50100	100	70	130	
Perfluoroundecanoic acid	ng/L	50000	46100	92	70	130	

FORM 7E - ORG

7E

ORGANICS CALIBRATION VERIFICATION

Report No:	219103085	Instrument ID:	QQQ1
Analysis Date:	11/20/2019 08:51	Lab File ID:	2191119A_99.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	671741

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	47500	47200	99	70	130	
8:2 Fluorotelomer sulfonate	ng/L	48000	51900	108	70	130	
NEtFOSAA	ng/L	50000	52500	105	70	130	
NMeFOSAA	ng/L	50000	54600	109	70	130	
Perfluorobutanoic acid	ng/L	50000	49600	99	70	130	
Perfluorobutanesulfonic acid	ng/L	44300	45200	102	70	130	
Perfluorodecanoic acid	ng/L	50000	50200	100	70	130	
Perfluorododecanoic acid	ng/L	50000	52900	106	70	130	
Perfluoroheptanoic acid	ng/L	50000	51400	103	70	130	
Perfluorohexanoic acid	ng/L	50000	49500	99	70	130	
Perfluorohexanesulfonic acid	ng/L	45600	47000	103	70	130	
Perfluorononanoic acid	ng/L	50000	50300	101	70	130	
Perfluorooctanoic acid	ng/L	50000	52300	105	70	130	
Perfluorooctane Sulfonate	ng/L	46300	50300	109	70	130	
Perfluoropentanoic acid	ng/L	50000	49400	99	70	130	
Perfluorotetradecanoic acid	ng/L	50000	52800	106	70	130	
Perfluorotridecanoic acid	ng/L	50000	51500	103	70	130	
Perfluoroundecanoic acid	ng/L	50000	47700	95	70	130	

FORM 7E - ORG

7E

ORGANICS CALIBRATION VERIFICATION

Report No:	219102717	Instrument ID:	QQQ1
Analysis Date:	11/20/2019 11:07	Lab File ID:	2191119A_111.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	671741

ANALYTE	*UNITS*	*TRUE*	*FOUND*	*% REC*	*LCL*	*UCL*	*Q*
6:2 Fluorotelomer sulfonate	ng/L	47500	50000	105	70	130	
8:2 Fluorotelomer sulfonate	ng/L	48000	56200	117	70	130	
NEtFOSAA	ng/L	50000	61500	123	70	130	
NMeFOSAA	ng/L	50000	56600	113	70	130	
Perfluorobutanoic acid	ng/L	50000	49600	99	70	130	
Perfluorobutanesulfonic acid	ng/L	44300	45700	103	70	130	
Perfluorodecanoic acid	ng/L	50000	51000	102	70	130	
Perfluorododecanoic acid	ng/L	50000	51700	103	70	130	
Perfluoroheptanoic acid	ng/L	50000	51400	103	70	130	
Perfluorohexanoic acid	ng/L	50000	49700	99	70	130	
Perfluorohexanesulfonic acid	ng/L	45600	46400	102	70	130	
Perfluorononanoic acid	ng/L	50000	51500	103	70	130	
Perfluorooctanoic acid	ng/L	50000	50500	101	70	130	
Perfluorooctane Sulfonate	ng/L	46300	47400	102	70	130	
Perfluoropentanoic acid	ng/L	50000	49700	99	70	130	
Perfluorotetradecanoic acid	ng/L	50000	53800	108	70	130	
Perfluorotridecanoic acid	ng/L	50000	52900	106	70	130	
Perfluoroundecanoic acid	ng/L	50000	49100	98	70	130	

FORM 7E - ORG

8I

INJECTION INTERNAL STANDARD AREA SUMMARY

Report No:	219102326	Standard ID:	1205 (ICAL Midpoint)
Analyst:	BMH	Instrument ID:	QQQ1
Analysis Date:	11/19/19 15:05	Lab File ID:	2191119A_07.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	671741

	M2PFDA	M2PFHxA	M2PFOA	M4PFOS
	Area	*Area*	*Area*	*Area*
STANDARD	135395	326971	122810	92971

CLIENT SAMPLE ID	*GCAL SAMP ID*		#		#		#		#
MB1981644	1981644	134165		317621		119685		91757	
LCS1981645	1981645	142704		333542		125767		98770	
LCSD1981646	1981646	144897		337244		130240		101801	

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 8I - ORG

8I

INJECTION INTERNAL STANDARD AREA SUMMARY

Report No:	219102541	Standard ID:	1205 (ICAL Midpoint)
Analyst:	BMH	Instrument ID:	QQQ1
Analysis Date:	11/19/19 15:05	Lab File ID:	2191119A_07.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	671741

	M2PFDA		M2PFHxA		M2PFOA		M4PFOS	
	Area		*Area*		*Area*		*Area*	
STANDARD	135395		326971		122810		92971	
CLIENT SAMPLE ID	***GCAL SAMP ID***	*#*		*#*		*#*		*#*
MB1979816	1979816	295575	*	698370	*	263150	*	192229	*
LCS1979817	1979817	142743		351070		131663		95610	
LCSD1979818	1979818	147873		346757		132096		94301	
AOI1-2-GW-102319DL	21910254121DL	206430	*	496458	*	174293		144278	*
AOI1-6-SB-4.5-5-102319 (RE)	21910254127	153171		351972		105674		103603	
AOI1-2-SB-12.5-13-102319 (RE)	21910254128	148635		341344		126887		107717	

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 8I - ORG

8I

INJECTION INTERNAL STANDARD AREA SUMMARY

Report No:	219102613	Standard ID:	1205 (ICAL Midpoint)
Analyst:	BMH	Instrument ID:	QQQ1
Analysis Date:	11/19/19 15:05	Lab File ID:	2191119A_07.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	671741

	M2PFDA	M2PFHxA	M2PFOA	M4PFOS
	Area	*Area*	*Area*	*Area*
STANDARD	135395	326971	122810	92971

CLIENT SAMPLE ID	*GCAL SAMP ID*		#		#		#		#
MB1979816	1979816	295575	*	698370	*	263150	*	192229	*
LCS1979817	1979817	142743		351070		131663		95610	
LCSD1979818	1979818	147873		346757		132096		94301	
AOI3-8-GW-102419DL	21910261311DL	212963	*	494448	*	187988	*	132648	
AOI3-11-GW-102419DL	21910261313DL	200152		433491		171721		139493	*
AOI3-11-GW-102419DL1	21910261313DL1	214918	*	483734		188360	*	134926	
AOI3-12-GW-102419DL	21910261316DL	193118		462008		179638		131391	
AOI3-9-GW-102419DL	21910261319DL	198000		488074		181389		131599	
AOI3-10-GW-102419DL	21910261320DL	196993		470328		176737		126230	
AOI3-11-SB-11-11.5-102419 (RE)	21910261321	145671		337416		131201		101295	

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

*for monitoring only

FORM 8I - ORG

8I

INJECTION INTERNAL STANDARD AREA SUMMARY

Report No:	219102717	Standard ID:	1205 (ICAL Midpoint)
Analyst:	BMH	Instrument ID:	QQQ1
Analysis Date:	11/19/19 15:05	Lab File ID:	2191119A_07.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	671741

	M2PFDA		M2PFHxA		M2PFOA		M4PFOS	
	Area		*Area*		*Area*		*Area*	
STANDARD	135395		326971		122810		92971	
CLIENT SAMPLE ID	***GCAL SAMP ID***		*#*		*#*		*#*	
AOI3-1-SB-1.5-2-102519DL	21910271701DL	156282		376795		144946		115580	
AOI3-2-SB-1.5-2-102519DL	21910271702DL	141034		328393		128220		100705	
AOI3-2-SB-1.5-2-102519-DDL	21910271703DL	131577		303718		118955		94016	
AOI3-5-SB-1.5-2-102519DL	21910271705DL	141305		343758		127571		103127	
AOI3-3-SB-1.5-2-102519DL	21910271706DL	137091		322379		115134		97599	
AOI3-4-SB-1.5-2-102519DL	21910271708DL	148317		351240		131352		105699	
AOI3-4-SB-1.5-2-102519-DDL	21910271709DL	144522		359079		134380		112127	
AOI3-7-SB-1.5-2-102519DL	21910271714DL	151118		355832		136869		108906	
AOI3-7-SB-1.5-2-102519-DDL	21910271715DL	143617		352158		135209		109470	
AOI2-5-SB-4.5-5-102519DL	21910271716DL	155071		376980		148234		114084	
AOI2-5-SB-9.5-10-102519DL	21910271717DL	151332		363603		140885		111420	
AOI2-5-GW-102519DL	21910271719DL	200469		457426		153171		136221	
AOI2-5-GW-102519DL1	21910271719DL1	220321	*	508395	*	191291	*	141965	*
AOI2-1-SB-4.5-5-102519DL	21910271721DL	150339		354992		131783		106410	

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

*for monitoring only

FORM 8I - ORG

8I

INJECTION INTERNAL STANDARD AREA SUMMARY

Report No:	219103085	Standard ID:	1205 (ICAL Midpoint)
Analyst:	BMH	Instrument ID:	QQQ1
Analysis Date:	11/19/19 15:05	Lab File ID:	2191119A_07.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	671741

	M2PFDA	M2PFHxA	M2PFOA	M4PFOS
	Area	*Area*	*Area*	*Area*
STANDARD	135395	326971	122810	92971

CLIENT SAMPLE ID	*GCAL SAMP ID*		*#*		*#*		*#*		*#*
AOI 8-X3-1-102919DL	21910308501DL	214020	*	485653		184385	*	150771	*
AOI 8-X3-1-102919-DDL	21910308502DL	210034	*	491290	*	177752		147187	*
AOI 5-N19-3-102919DL	21910308515DL	204648	*	461148		178402		149382	*
AOI 5-N19-3-102919-DDL	21910308516DL	199363		443224		172493		142657	*

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

*for monitoring only

FORM 8I - ORG

LCMS1 Run Log

Analyst:	BMH	Expiration
Batch:	2191121A	Date
Current ICAL Bath:	2191121ACAL/2191121ACALDW	Date
20mM Amm Acetate	010-17-4	11/23/2019
Methanol	2128497	8/31/2024
Calibration Std	010-14-7	5/13/2020
ICV Std	010-6-5	4/9/2020
EIS Mix	010-15-3	5/15/2020

Name	Data File	Type	Acq. Date-Time	Comment	Dil.
MeOH Shot	2191121A_01.d	MeOH Shot	11/21/2019 10:56	Instrument idle/MeOH Shot	1
1201	2191121A_02.d	Cal	11/21/2019 11:07		1
1202	2191121A_03.d	Cal	11/21/2019 11:18		1
1203	2191121A_04.d	Cal	11/21/2019 11:29		1
1204	2191121A_05.d	Cal	11/21/2019 11:41		1
1205	2191121A_06.d	Cal	11/21/2019 11:52		1
1206	2191121A_07.d	Cal	11/21/2019 12:03		1
1207	2191121A_08.d	Cal	11/21/2019 12:15		1
1600	2191121A_10.d	QC	11/21/2019 12:54		1
1450	2191121A_11.d	QC	11/21/2019 13:05		1
1500	2191121A_12.d	Sample	11/21/2019 13:17		1
1400 test	2191121A_13.d	QC	11/21/2019 13:28		1
21910305705	2191121A_15.d	Sample	11/21/2019 14:11	671360	1
21911040608	2191121A_16.d	Sample	11/21/2019 14:22	671360	1
1977686	2191121A_17.d	Sample	11/21/2019 14:33	670523	1
1977687	2191121A_18.d	QC	11/21/2019 14:45	670523	1
1977688	2191121A_19.d	QC	11/21/2019 14:56	670523	1
21910313001	2191121A_20.d	Sample	11/21/2019 15:07	670523	1
21910313002	2191121A_21.d	Sample	11/21/2019 15:19	670523	1
21910313003	2191121A_22.d	Sample	11/21/2019 15:30	670523	1
21910313004	2191121A_23.d	Sample	11/21/2019 15:41	670523	1
21910313005	2191121A_24.d	Sample	11/21/2019 15:53	670523	1

21910313006	2191121A_25.d	Sample	11/21/2019 16:04	670523	1
21910313007	2191121A_26.d	Sample	11/21/2019 16:15	670523	1
21910313008	2191121A_27.d	Sample	11/21/2019 16:27	670523	1
1400	2191121A_28.d	QC	11/21/2019 16:38		1
21910313009	2191121A_29.d	Sample	11/21/2019 16:49	670523	1
21910313010	2191121A_30.d	QC	11/21/2019 17:01	670523	1
21910313011	2191121A_31.d	QC	11/21/2019 17:12	670523	1
21910313012	2191121A_32.d	Sample	11/21/2019 17:23	670523	1
21910313013	2191121A_33.d	Sample	11/21/2019 17:35	670523	1
21910313014	2191121A_34.d	Sample	11/21/2019 17:46	670523	1
21910313015	2191121A_35.d	Sample	11/21/2019 17:57	670523	1
21910313016	2191121A_36.d	Sample	11/21/2019 18:09	670523	1
21910313017	2191121A_37.d	Sample	11/21/2019 18:20	670523	1
21910313018	2191121A_38.d	Sample	11/21/2019 18:31	670523	1
1400	2191121A_39.d	QC	11/21/2019 18:43		1
21911110501	2191121A_40.d	Sample	11/21/2019 18:54	670523	1
21911110502	2191121A_41.d	QC	11/21/2019 19:05	670523	1
21911110503	2191121A_42.d	QC	11/21/2019 19:17	670523	1
1977958	2191121A_43.d	Sample	11/21/2019 19:28	670573	1
1977959	2191121A_44.d	QC	11/21/2019 19:40	670573	1
1977960	2191121A_45.d	QC	11/21/2019 19:51	670573	1
21911012101	2191121A_46.d	Sample	11/21/2019 20:02	670573	1
21911012102	2191121A_47.d	Sample	11/21/2019 20:13	670573	1
21911012103	2191121A_48.d	Sample	11/21/2019 20:25	670573	1
21911012104	2191121A_49.d	QC	11/21/2019 20:36	670573	1
21911012105	2191121A_50.d	QC	11/21/2019 20:48	670573	1
21911012106	2191121A_51.d	Sample	11/21/2019 20:59	670573	1
21911012107	2191121A_52.d	Sample	11/21/2019 21:10	670573	1
1400	2191121A_53.d	QC	11/21/2019 21:22		1
21911012108	2191121A_54.d	Sample	11/21/2019 21:33	670573	1
21911012109	2191121A_55.d	Sample	11/21/2019 21:44	670573	1
21911012110	2191121A_56.d	Sample	11/21/2019 21:56	670573	1
21911012111	2191121A_57.d	Sample	11/21/2019 22:07	670573	1
21911012112	2191121A_58.d	Sample	11/21/2019 22:18	670573	1

21911012113	2191121A_59.d	Sample	11/21/2019 22:30	670573	1
21911012114	2191121A_60.d	Sample	11/21/2019 22:41	670573	1
1400	2191121A_61.d	QC	11/21/2019 22:53		1
21911110504	2191121A_62.d	Sample	11/21/2019 23:04	670573	1
21911110505	2191121A_63.d	Sample	11/21/2019 23:15	670573	1
21911110506	2191121A_64.d	Sample	11/21/2019 23:27	670573	1
21911110507	2191121A_65.d	Sample	11/21/2019 23:38	670573	1
21911110508	2191121A_66.d	Sample	11/21/2019 23:49	670573	1
21911110509	2191121A_67.d	Sample	11/22/2019 0:01	670573	1
1400	2191121A_68.d	QC	11/22/2019 0:12		1
21910290501	2191121A_69.d	Sample	11/22/2019 0:23	670308 DIA 200X	1
21910290502	2191121A_70.d	Sample	11/22/2019 0:35	670308 DIA 200X	1
21910290503	2191121A_71.d	Sample	11/22/2019 0:46	670308 DIA 200X	1
21910290504	2191121A_72.d	Sample	11/22/2019 0:58	670308 DIA 200X	1
21910290505	2191121A_73.d	Sample	11/22/2019 1:09	670308 DIA 200X	1
21910290506	2191121A_74.d	Sample	11/22/2019 1:20	670308 DIA 200X	1
21910290507	2191121A_75.d	Sample	11/22/2019 1:32	670308 DIA 100X	1
21910290508	2191121A_76.d	Sample	11/22/2019 1:43	670308 DIA 100X	1
21910290509	2191121A_77.d	Sample	11/22/2019 1:54	670308 DIA 100X	1
21910290510	2191121A_78.d	Sample	11/22/2019 2:06	670308 DIA 100X	1
1400	2191121A_79.d	QC	11/22/2019 2:17		1
21910290511	2191121A_80.d	Sample	11/22/2019 2:28	670308 DIA 2000X	1
21910290512	2191121A_81.d	Sample	11/22/2019 2:40	670308 DIA 2000X	1
21910290513	2191121A_82.d	Sample	11/22/2019 2:51	670308 DIA 2000X	1
21910290514	2191121A_83.d	Sample	11/22/2019 3:03	670308 DIA 10000X	1
21910290515	2191121A_84.d	Sample	11/22/2019 3:14	670308 DIA 10000X	1
21910290516	2191121A_85.d	Sample	11/22/2019 3:25	670308 DIA 10000X	1
21910290517	2191121A_86.d	Sample	11/22/2019 3:36	670308 DIA 10000X	1
21910290518	2191121A_87.d	Sample	11/22/2019 3:48	670308 DIA 10000X	1
1400	2191121A_88.d	QC	11/22/2019 3:59		1
1980920	2191121A_89.d	Sample	11/22/2019 4:10	670573	1
1980921	2191121A_90.d	QC	11/22/2019 4:22	670573	1
1980922	2191121A_91.d	QC	11/22/2019 4:33	670573	1
21911091002	2191121A_92.d	Sample	11/22/2019 4:44	670573	1

21911091005	2191121A_93.d	Sample	11/22/2019 4:56	670573	1
21911091006	2191121A_94.d	Sample	11/22/2019 5:07	670573	1
21911091010	2191121A_95.d	Sample	11/22/2019 5:18		1
21911091011	2191121A_96.d	QC	11/22/2019 5:30	670308 DIA 200X	1
21911091012	2191121A_97.d	QC	11/22/2019 5:41	670308 DIA 200X	1
21911091014	2191121A_98.d	Sample	11/22/2019 5:53	670308 DIA 200X	1
21911091017	2191121A_99.d	Sample	11/22/2019 6:04	670308 DIA 200X	1
21911091018	2191121A_100.d	QC	11/22/2019 6:15	670308 DIA 200X	1
21911091019	2191121A_101.d	QC	11/22/2019 6:27	670308 DIA 200X	1
1400	2191121A_102.d	QC	11/22/2019 6:38	670308 DIA 100X	1
21911091020	2191121A_103.d	Sample	11/22/2019 6:49	670308 DIA 100X	1
21911091021	2191121A_104.d	Sample	11/22/2019 7:00	670308 DIA 100X	1
21911091022	2191121A_105.d	Sample	11/22/2019 7:12	670308 DIA 100X	1
21911091023	2191121A_106.d	Sample	11/22/2019 7:23		1
21911091024	2191121A_107.d	Sample	11/22/2019 7:35	670308 DIA 2000X	1
21911091025	2191121A_108.d	Sample	11/22/2019 7:46	670308 DIA 2000X	1
21911121801	2191121A_109.d	Sample	11/22/2019 7:57	670308 DIA 2000X	1
21911121802	2191121A_110.d	Sample	11/22/2019 8:09	670308 DIA 10000X	1
21911121803	2191121A_111.d	Sample	11/22/2019 8:20	670308 DIA 10000X	1
21911121804	2191121A_112.d	Sample	11/22/2019 8:31	670308 DIA 10000X	1
21911121805	2191121A_113.d	Sample	11/22/2019 8:43	670308 DIA 10000X	1
1400	2191121A_114.d	QC	11/22/2019 8:54		1

Quantitative Analysis Calibration Report

Batch Data Path	D:\MassHunter\Data\2191121ACAL\QuantResults\2191122A.batch.bin		
Analysis Time	12/6/2019 2:06 PM	**Analyst Name**	GCAL\lcms
Report Time	12/6/2019 2:07 PM	**Reporter Name**	GCAL\lcms
Last Calib Update	11/21/2019 12:43 PM	**Batch State**	Processed

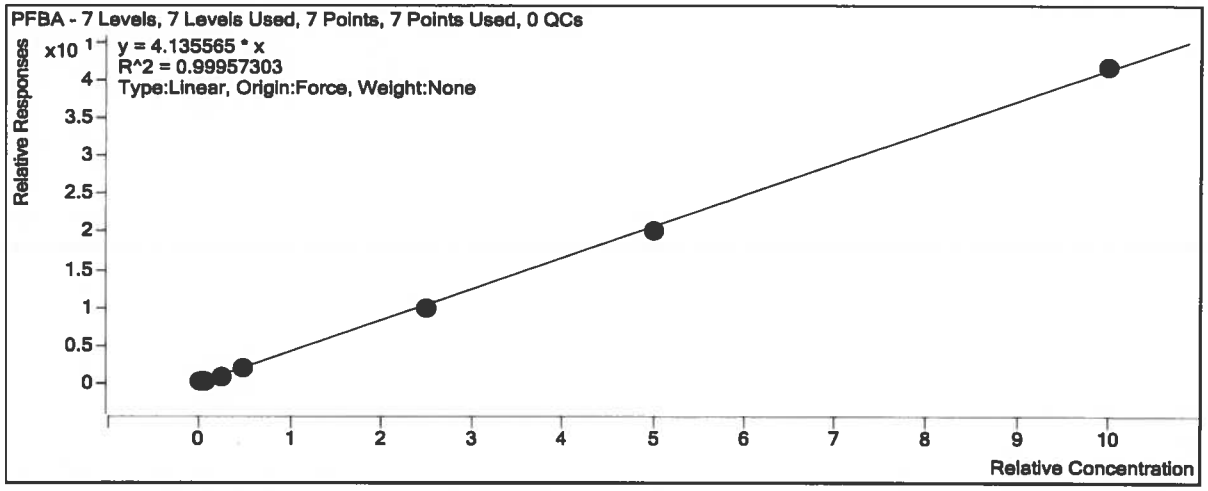
Calibration Info

Extracted ISTD *MPFBA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191121ACAL\2191121A_02.d	Calibration	1	☑	40705	20.0000	2035.2694
D:\MassHunter\Data\2191121ACAL\2191121A_03.d	Calibration	2	☑	37998	20.0000	1899.8762
D:\MassHunter\Data\2191121ACAL\2191121A_04.d	Calibration	3	☑	38064	20.0000	1903.2144
D:\MassHunter\Data\2191121ACAL\2191121A_05.d	Calibration	4	☑	38420	20.0000	1920.9981
D:\MassHunter\Data\2191121ACAL\2191121A_06.d	Calibration	5	☑	38262	20.0000	1913.1105
D:\MassHunter\Data\2191121ACAL\2191121A_07.d	Calibration	6	☑	38254	20.0000	1912.6772
D:\MassHunter\Data\2191121ACAL\2191121A_08.d	Calibration	7	☑	37017	20.0000	1850.8426

Target Compound *PFBA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191121ACAL\2191121A_02.d	Calibration	1	☑	4463	0.5000	4.3856
D:\MassHunter\Data\2191121ACAL\2191121A_03.d	Calibration	2	☑	9072	1.2500	3.8202
D:\MassHunter\Data\2191121ACAL\2191121A_04.d	Calibration	3	☑	36160	5.0000	3.7999
D:\MassHunter\Data\2191121ACAL\2191121A_05.d	Calibration	4	☑	74113	10.0000	3.8580
D:\MassHunter\Data\2191121ACAL\2191121A_06.d	Calibration	5	☑	377097	50.0000	3.9422
D:\MassHunter\Data\2191121ACAL\2191121A_07.d	Calibration	6	☑	772921	100.0000	4.0410
D:\MassHunter\Data\2191121ACAL\2191121A_08.d	Calibration	7	☑	1544414	200.0000	4.1722

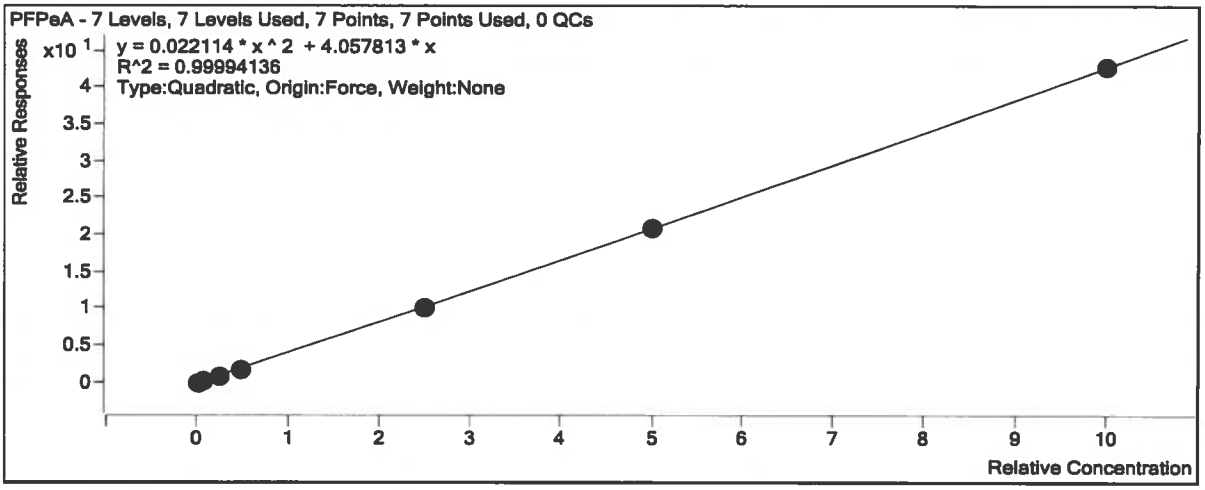


Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191121ACAL\2191121A_05.d	Calibration	4	☑	25768	20.0000	1288.3863
D:\MassHunter\Data\2191121ACAL\2191121A_06.d	Calibration	5	☑	24979	20.0000	1248.9702
D:\MassHunter\Data\2191121ACAL\2191121A_07.d	Calibration	6	☑	25216	20.0000	1260.7906
D:\MassHunter\Data\2191121ACAL\2191121A_08.d	Calibration	7	☑	24859	20.0000	1242.9625

Target Compound ***PFPeA***

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191121ACAL\2191121A_02.d	Calibration	1	☑	1796	0.5000	2.8723
D:\MassHunter\Data\2191121ACAL\2191121A_03.d	Calibration	2	☑	5596	1.2500	3.6417
D:\MassHunter\Data\2191121ACAL\2191121A_04.d	Calibration	3	☑	21667	5.0000	3.4881
D:\MassHunter\Data\2191121ACAL\2191121A_05.d	Calibration	4	☑	46019	10.0000	3.5719
D:\MassHunter\Data\2191121ACAL\2191121A_06.d	Calibration	5	☑	256498	50.0000	4.1074
D:\MassHunter\Data\2191121ACAL\2191121A_07.d	Calibration	6	☑	527385	100.0000	4.1830
D:\MassHunter\Data\2191121ACAL\2191121A_08.d	Calibration	7	☑	1063302	200.0000	4.2773

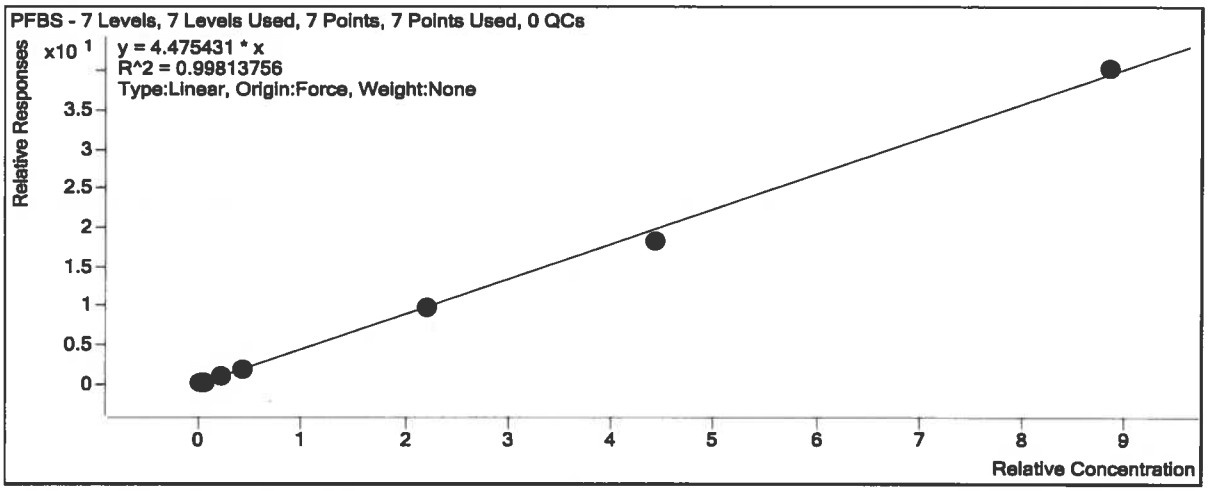


Target Compound ***PFBS***

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191121ACAL\2191121A_02.d	Calibration	1	☑	1741	0.4425	3.8468
D:\MassHunter\Data\2191121ACAL\2191121A_03.d	Calibration	2	☑	4674	1.1100	3.9878
D:\MassHunter\Data\2191121ACAL\2191121A_04.d	Calibration	3	☑	20376	4.4250	4.2080
D:\MassHunter\Data\2191121ACAL\2191121A_05.d	Calibration	4	☑	42550	8.8500	4.3017

Quantitative Analysis Calibration Report

D:\MassHunter\Data\2191121ACAL\2191121A_06.d	Calibration	5	☑	219245	44.2500	4.4149
D:\MassHunter\Data\2191121ACAL\2191121A_07.d	Calibration	6	☑	424637	88.5000	4.1624
D:\MassHunter\Data\2191121ACAL\2191121A_08.d	Calibration	7	☑	908088	177.0000	4.5581



Extracted ISTD ***M3PFBS***

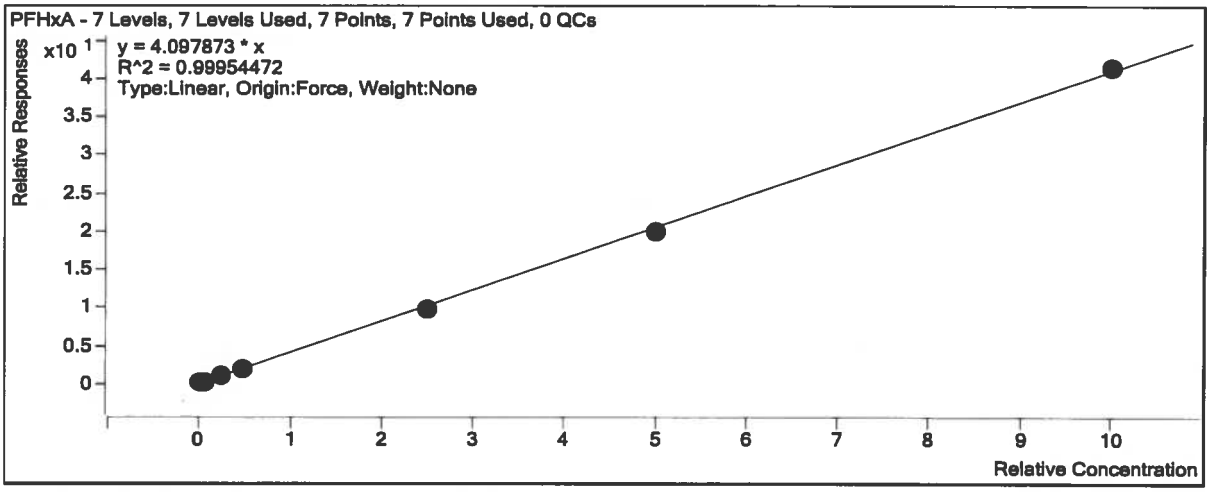
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191121ACAL\2191121A_02.d	Calibration	1	☑	20454	20.0000	1022.7141
D:\MassHunter\Data\2191121ACAL\2191121A_03.d	Calibration	2	☑	21117	20.0000	1055.8512
D:\MassHunter\Data\2191121ACAL\2191121A_04.d	Calibration	3	☑	21886	20.0000	1094.3173
D:\MassHunter\Data\2191121ACAL\2191121A_05.d	Calibration	4	☑	22354	20.0000	1117.6825
D:\MassHunter\Data\2191121ACAL\2191121A_06.d	Calibration	5	☑	22445	20.0000	1122.2697
D:\MassHunter\Data\2191121ACAL\2191121A_07.d	Calibration	6	☑	23055	20.0000	1152.7372
D:\MassHunter\Data\2191121ACAL\2191121A_08.d	Calibration	7	☑	22511	20.0000	1125.5664

Target Compound ***4:2 FTS***

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191121ACAL\2191121A_02.d	Calibration	1	☑	1399	0.4675	9.4419
D:\MassHunter\Data\2191121ACAL\2191121A_03.d	Calibration	2	☑	3411	1.1700	8.6762
D:\MassHunter\Data\2191121ACAL\2191121A_04.d	Calibration	3	☑	13941	4.6700	8.4959
D:\MassHunter\Data\2191121ACAL\2191121A_05.d	Calibration	4	☑	29146	9.3500	8.7709
D:\MassHunter\Data\2191121ACAL\2191121A_06.d	Calibration	5	☑	144362	46.7500	9.3872
D:\MassHunter\Data\2191121ACAL\2191121A_07.d	Calibration	6	☑	282378	93.5000	9.2804
D:\MassHunter\Data\2191121ACAL\2191121A_08.d	Calibration	7	☑	536115	187.0000	9.6240

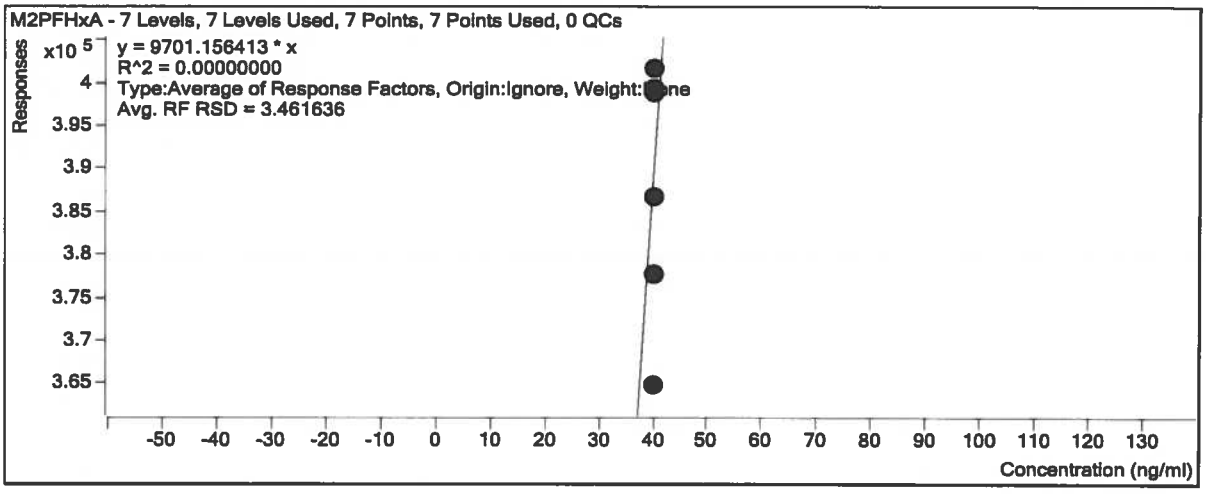
Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191121ACAL\2191121A_08.d	Calibration	7	☑	1738352	200.0000	4.1352



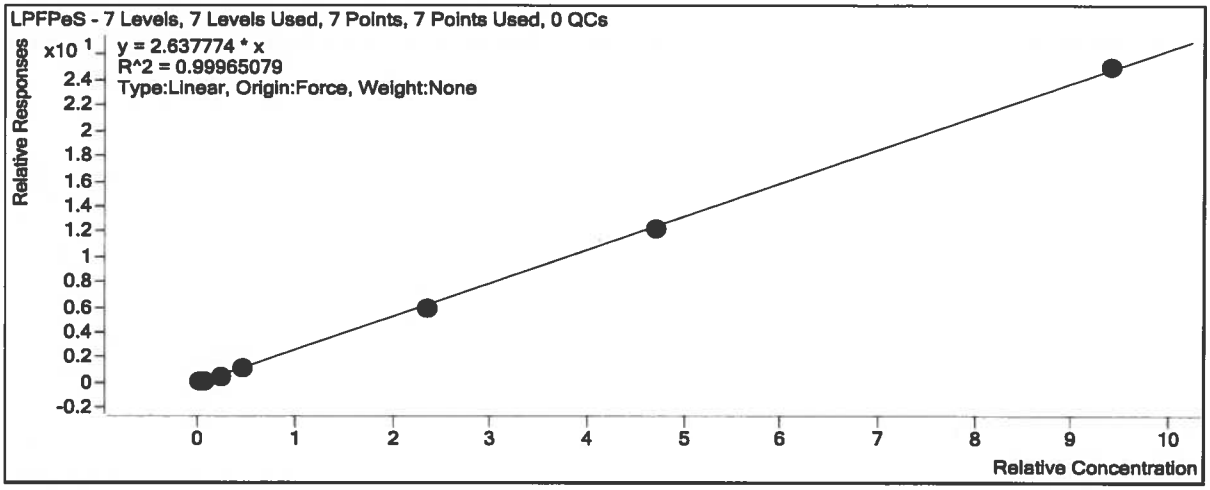
Instrument ISTD *M2PFHxA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191121ACAL\2191121A_02.d	Calibration	1	☑	364900	40.0000	9122.4889
D:\MassHunter\Data\2191121ACAL\2191121A_03.d	Calibration	2	☑	386685	40.0000	9667.1318
D:\MassHunter\Data\2191121ACAL\2191121A_04.d	Calibration	3	☑	377755	40.0000	9443.8761
D:\MassHunter\Data\2191121ACAL\2191121A_05.d	Calibration	4	☑	399021	40.0000	9975.5233
D:\MassHunter\Data\2191121ACAL\2191121A_06.d	Calibration	5	☑	399503	40.0000	9987.5642
D:\MassHunter\Data\2191121ACAL\2191121A_07.d	Calibration	6	☑	401678	40.0000	10041.9409
D:\MassHunter\Data\2191121ACAL\2191121A_08.d	Calibration	7	☑	386783	40.0000	9669.5698



Quantitative Analysis Calibration Report

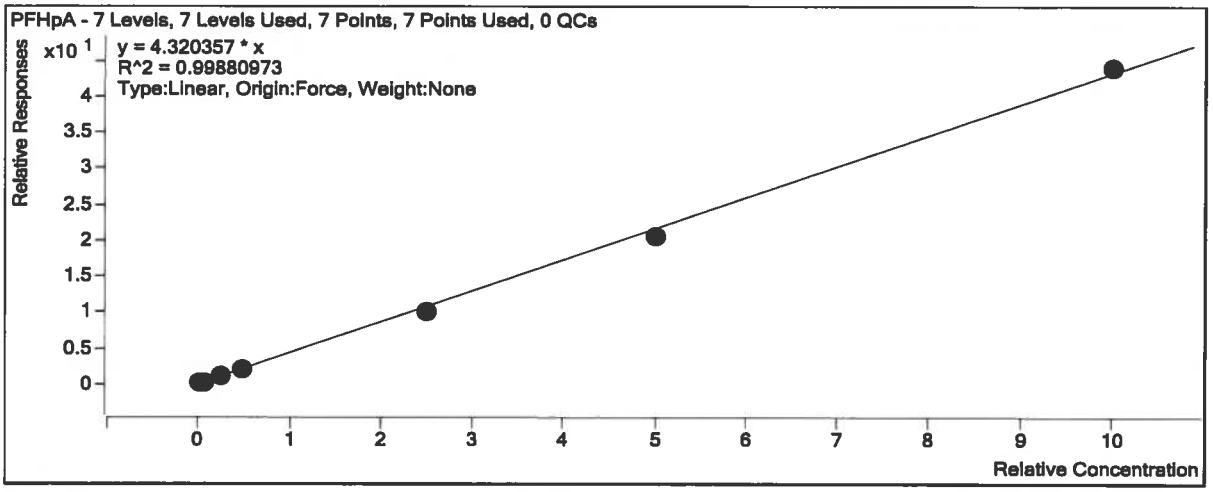
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191121ACAL\2191121A_05.d	Calibration	4	☑	51382	9.4000	2.5105
D:\MassHunter\Data\2191121ACAL\2191121A_06.d	Calibration	5	☑	260051	47.0000	2.5158
D:\MassHunter\Data\2191121ACAL\2191121A_07.d	Calibration	6	☑	530610	94.0000	2.5890
D:\MassHunter\Data\2191121ACAL\2191121A_08.d	Calibration	7	☑	1050384	188.0000	2.6581



Target Compound *HFPO-DA*

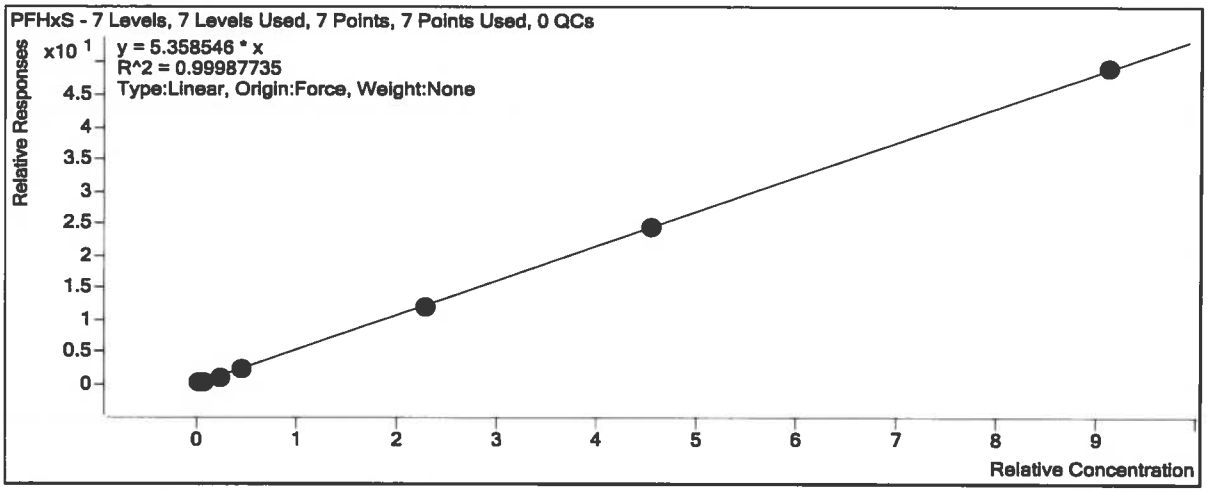
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191121ACAL\2191121A_02.d	Calibration	1	☑	120	0.5000	2.2987
D:\MassHunter\Data\2191121ACAL\2191121A_03.d	Calibration	2	☑	678	1.2500	4.1034
D:\MassHunter\Data\2191121ACAL\2191121A_04.d	Calibration	3	☑	2492	5.0000	4.3085
D:\MassHunter\Data\2191121ACAL\2191121A_05.d	Calibration	4	☑	5114	10.0000	4.8908
D:\MassHunter\Data\2191121ACAL\2191121A_06.d	Calibration	5	☑	26766	50.0000	4.4228
D:\MassHunter\Data\2191121ACAL\2191121A_07.d	Calibration	6	☑	54807	100.0000	4.4039
D:\MassHunter\Data\2191121ACAL\2191121A_08.d	Calibration	7	☑	114727	200.0000	4.2369

Quantitative Analysis Calibration Report



Target Compound *PFHxS*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191121ACAL\2191121A_02.d	Calibration	1	☑	2378	0.4560	4.6861
D:\MassHunter\Data\2191121ACAL\2191121A_03.d	Calibration	2	☑	5922	1.1400	4.4949
D:\MassHunter\Data\2191121ACAL\2191121A_04.d	Calibration	3	☑	26482	4.5600	4.7805
D:\MassHunter\Data\2191121ACAL\2191121A_05.d	Calibration	4	☑	55870	9.1200	5.1252
D:\MassHunter\Data\2191121ACAL\2191121A_06.d	Calibration	5	☑	282925	45.6000	5.1758
D:\MassHunter\Data\2191121ACAL\2191121A_07.d	Calibration	6	☑	581289	91.2000	5.3336
D:\MassHunter\Data\2191121ACAL\2191121A_08.d	Calibration	7	☑	1142326	182.4000	5.3772

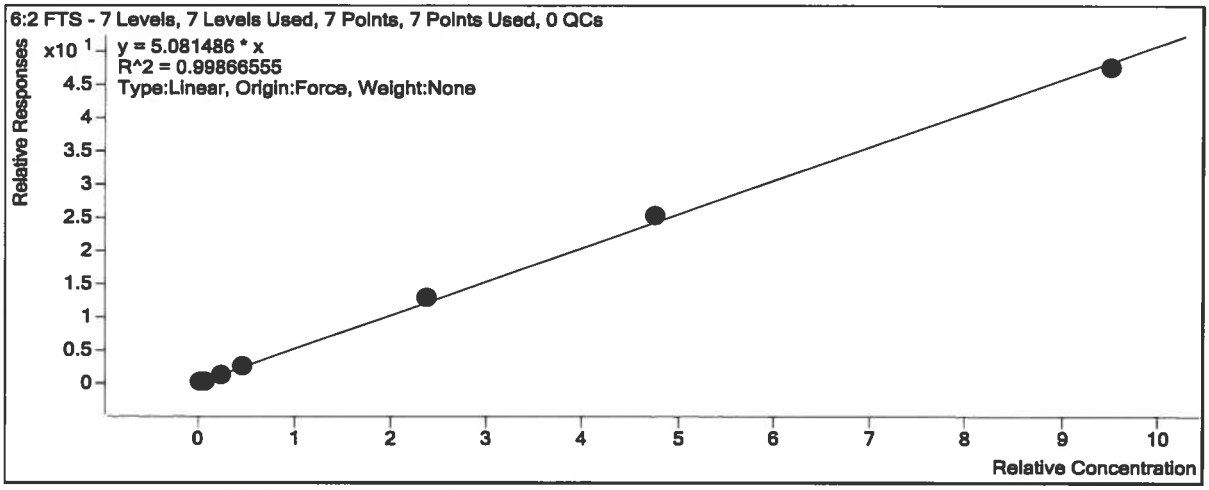


Extracted ISTD *M3PFHxS*

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

Quantitative Analysis Calibration Report

D:\MassHunter\Data\2191121ACAL\2191121A_08.d	Calibration	7	☑	615986	190.0000	5.0013



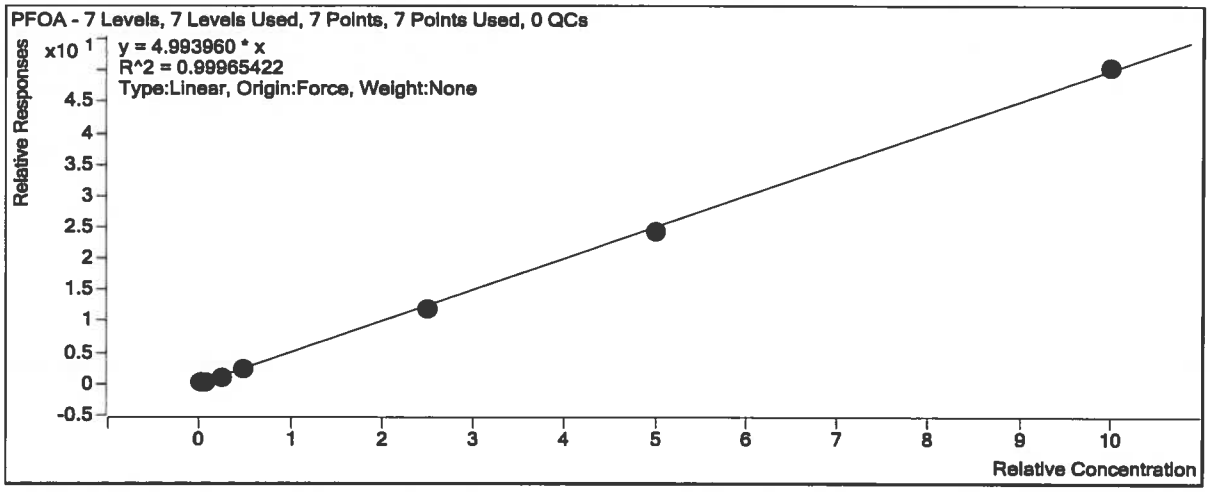
Extracted ISTD *M8PFOA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191121ACAL\2191121A_02.d	Calibration	1	☑	31636	20.0000	1581.8012
D:\MassHunter\Data\2191121ACAL\2191121A_03.d	Calibration	2	☑	31186	20.0000	1559.2767
D:\MassHunter\Data\2191121ACAL\2191121A_04.d	Calibration	3	☑	31752	20.0000	1587.6100
D:\MassHunter\Data\2191121ACAL\2191121A_05.d	Calibration	4	☑	32476	20.0000	1623.8179
D:\MassHunter\Data\2191121ACAL\2191121A_06.d	Calibration	5	☑	30897	20.0000	1544.8671
D:\MassHunter\Data\2191121ACAL\2191121A_07.d	Calibration	6	☑	30364	20.0000	1518.2037
D:\MassHunter\Data\2191121ACAL\2191121A_08.d	Calibration	7	☑	28892	20.0000	1444.6083

Target Compound *PFOA*

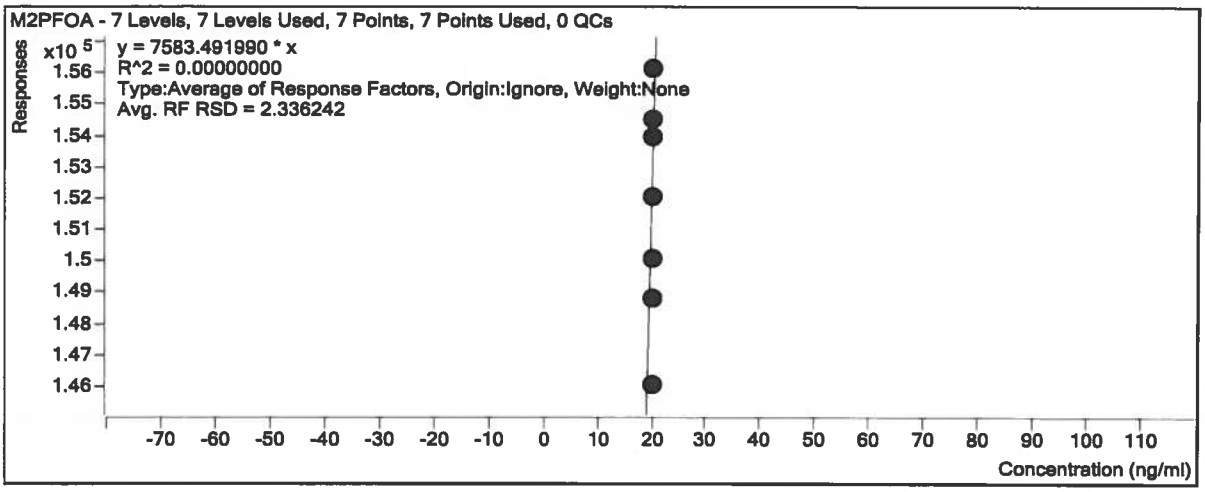
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191121ACAL\2191121A_02.d	Calibration	1	☑	3211	0.5000	4.0604
D:\MassHunter\Data\2191121ACAL\2191121A_03.d	Calibration	2	☑	8516	1.2500	4.3691
D:\MassHunter\Data\2191121ACAL\2191121A_04.d	Calibration	3	☑	36216	5.0000	4.5624
D:\MassHunter\Data\2191121ACAL\2191121A_05.d	Calibration	4	☑	73702	10.0000	4.5388
D:\MassHunter\Data\2191121ACAL\2191121A_06.d	Calibration	5	☑	371744	50.0000	4.8126
D:\MassHunter\Data\2191121ACAL\2191121A_07.d	Calibration	6	☑	741609	100.0000	4.8848
D:\MassHunter\Data\2191121ACAL\2191121A_08.d	Calibration	7	☑	1454439	200.0000	5.0340

Quantitative Analysis Calibration Report



Instrument ISTD *M2PFOA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191121ACAL\2191121A_02.d	Calibration	1	☑	148848	20.0000	7442.3822
D:\MassHunter\Data\2191121ACAL\2191121A_03.d	Calibration	2	☑	152061	20.0000	7603.0557
D:\MassHunter\Data\2191121ACAL\2191121A_04.d	Calibration	3	☑	146088	20.0000	7304.4045
D:\MassHunter\Data\2191121ACAL\2191121A_05.d	Calibration	4	☑	156141	20.0000	7807.0649
D:\MassHunter\Data\2191121ACAL\2191121A_06.d	Calibration	5	☑	153939	20.0000	7696.9461
D:\MassHunter\Data\2191121ACAL\2191121A_07.d	Calibration	6	☑	154554	20.0000	7727.6975
D:\MassHunter\Data\2191121ACAL\2191121A_08.d	Calibration	7	☑	150058	20.0000	7502.8930

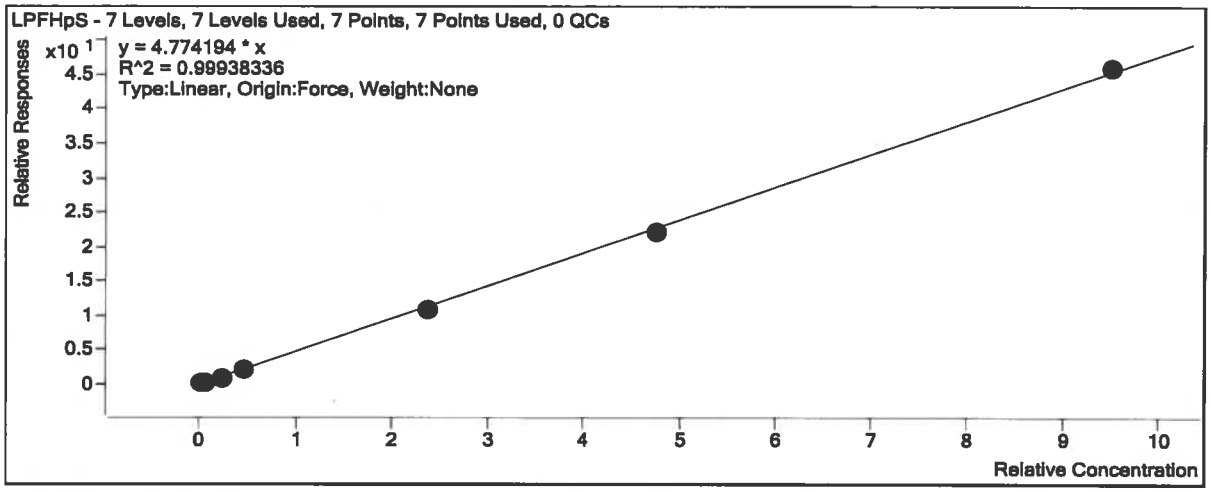


Target Compound *LPFHpS*

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

Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191121ACAL\2191121A_08.d	Calibration	7	☑	1324600	190.0000	4.8259



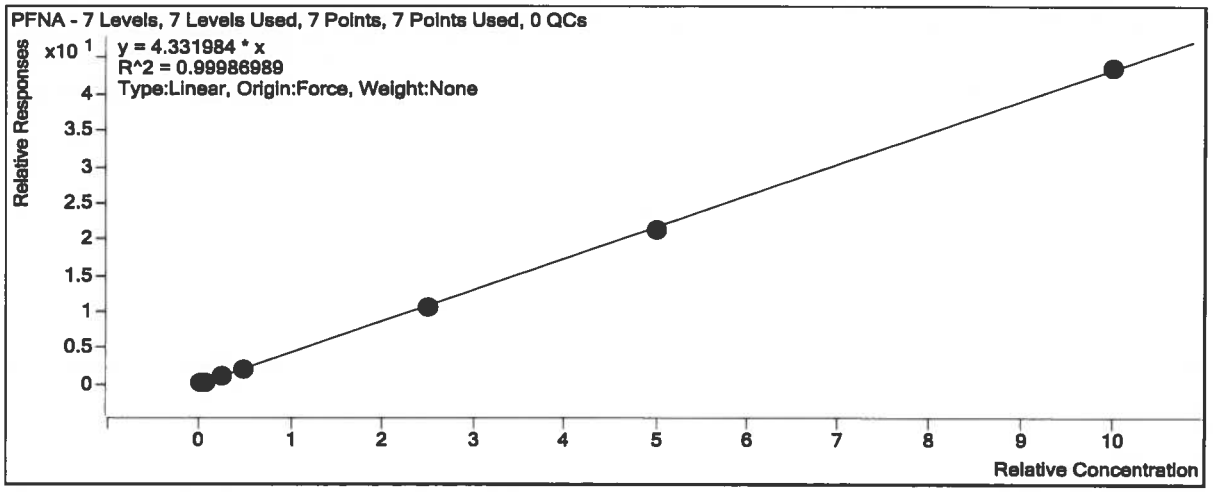
Extracted ISTD *M9PFNA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191121ACAL\2191121A_02.d	Calibration	1	☑	37125	20.0000	1856.2344
D:\MassHunter\Data\2191121ACAL\2191121A_03.d	Calibration	2	☑	37622	20.0000	1881.1237
D:\MassHunter\Data\2191121ACAL\2191121A_04.d	Calibration	3	☑	35614	20.0000	1780.6798
D:\MassHunter\Data\2191121ACAL\2191121A_05.d	Calibration	4	☑	37436	20.0000	1871.7935
D:\MassHunter\Data\2191121ACAL\2191121A_06.d	Calibration	5	☑	36042	20.0000	1802.1245
D:\MassHunter\Data\2191121ACAL\2191121A_07.d	Calibration	6	☑	35789	20.0000	1789.4303
D:\MassHunter\Data\2191121ACAL\2191121A_08.d	Calibration	7	☑	34757	20.0000	1737.8471

Target Compound *PFNA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191121ACAL\2191121A_02.d	Calibration	1	☑	3027	0.5000	3.2612
D:\MassHunter\Data\2191121ACAL\2191121A_03.d	Calibration	2	☑	8236	1.2500	3.5026
D:\MassHunter\Data\2191121ACAL\2191121A_04.d	Calibration	3	☑	36267	5.0000	4.0733
D:\MassHunter\Data\2191121ACAL\2191121A_05.d	Calibration	4	☑	75113	10.0000	4.0129
D:\MassHunter\Data\2191121ACAL\2191121A_06.d	Calibration	5	☑	381011	50.0000	4.2285
D:\MassHunter\Data\2191121ACAL\2191121A_07.d	Calibration	6	☑	766059	100.0000	4.2810
D:\MassHunter\Data\2191121ACAL\2191121A_08.d	Calibration	7	☑	1512689	200.0000	4.3522

Quantitative Analysis Calibration Report



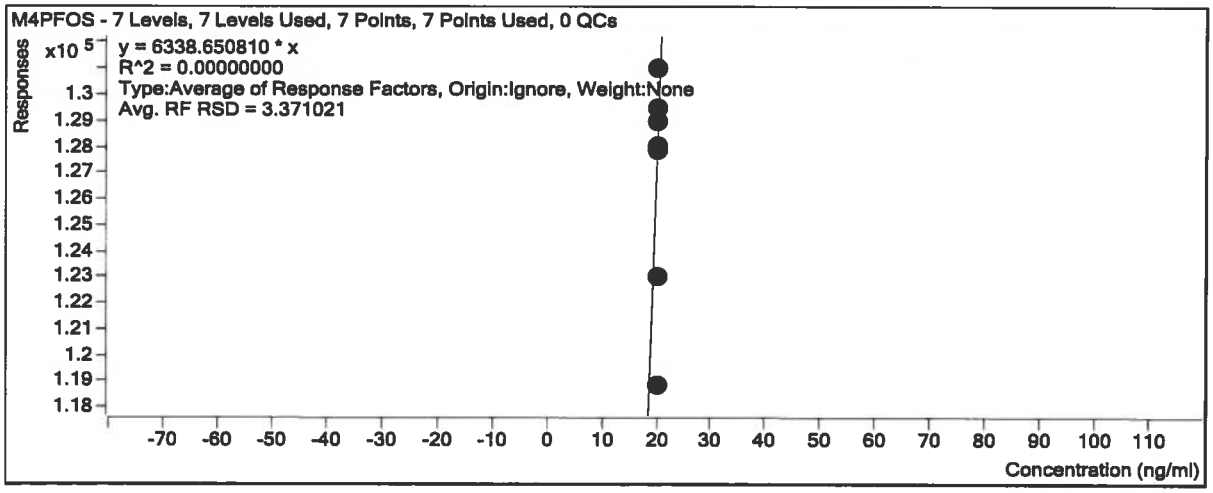
Extracted ISTD *M8PFOS*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191121ACAL\2191121A_02.d	Calibration	1	☑	13328	20.0000	666.3995
D:\MassHunter\Data\2191121ACAL\2191121A_03.d	Calibration	2	☑	13549	20.0000	677.4266
D:\MassHunter\Data\2191121ACAL\2191121A_04.d	Calibration	3	☑	13456	20.0000	672.7981
D:\MassHunter\Data\2191121ACAL\2191121A_05.d	Calibration	4	☑	13000	20.0000	649.9918
D:\MassHunter\Data\2191121ACAL\2191121A_06.d	Calibration	5	☑	13825	20.0000	691.2515
D:\MassHunter\Data\2191121ACAL\2191121A_07.d	Calibration	6	☑	12866	20.0000	643.3051
D:\MassHunter\Data\2191121ACAL\2191121A_08.d	Calibration	7	☑	13555	20.0000	677.7714

Instrument ISTD *M4PFOS*

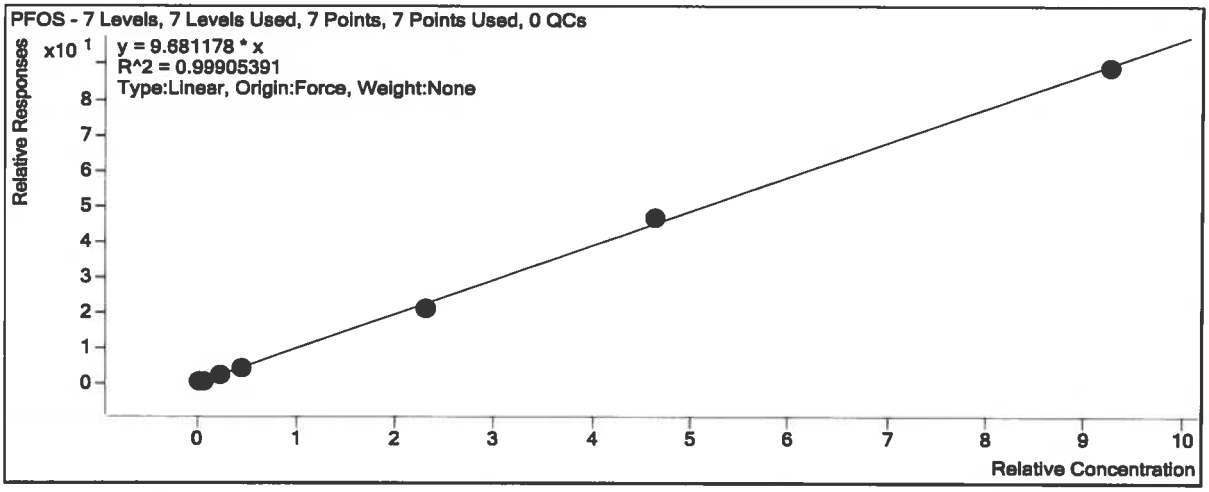
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191121ACAL\2191121A_02.d	Calibration	1	☑	118889	20.0000	5944.4433
D:\MassHunter\Data\2191121ACAL\2191121A_03.d	Calibration	2	☑	129014	20.0000	6450.7079
D:\MassHunter\Data\2191121ACAL\2191121A_04.d	Calibration	3	☑	123026	20.0000	6151.2835
D:\MassHunter\Data\2191121ACAL\2191121A_05.d	Calibration	4	☑	127884	20.0000	6394.2117
D:\MassHunter\Data\2191121ACAL\2191121A_06.d	Calibration	5	☑	129520	20.0000	6475.9975
D:\MassHunter\Data\2191121ACAL\2191121A_07.d	Calibration	6	☑	128078	20.0000	6403.8900
D:\MassHunter\Data\2191121ACAL\2191121A_08.d	Calibration	7	☑	131000	20.0000	6550.0217

Quantitative Analysis Calibration Report



Target Compound *PFOS*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191121ACAL\2191121A_02.d	Calibration	1	☑	2616	0.4628	8.4847
D:\MassHunter\Data\2191121ACAL\2191121A_03.d	Calibration	2	☑	6483	1.1600	8.2504
D:\MassHunter\Data\2191121ACAL\2191121A_04.d	Calibration	3	☑	27946	4.6280	8.9751
D:\MassHunter\Data\2191121ACAL\2191121A_05.d	Calibration	4	☑	57482	9.2550	9.5554
D:\MassHunter\Data\2191121ACAL\2191121A_06.d	Calibration	5	☑	292349	46.2800	9.1384
D:\MassHunter\Data\2191121ACAL\2191121A_07.d	Calibration	6	☑	602902	92.5500	10.1264
D:\MassHunter\Data\2191121ACAL\2191121A_08.d	Calibration	7	☑	1204954	185.1000	9.6046

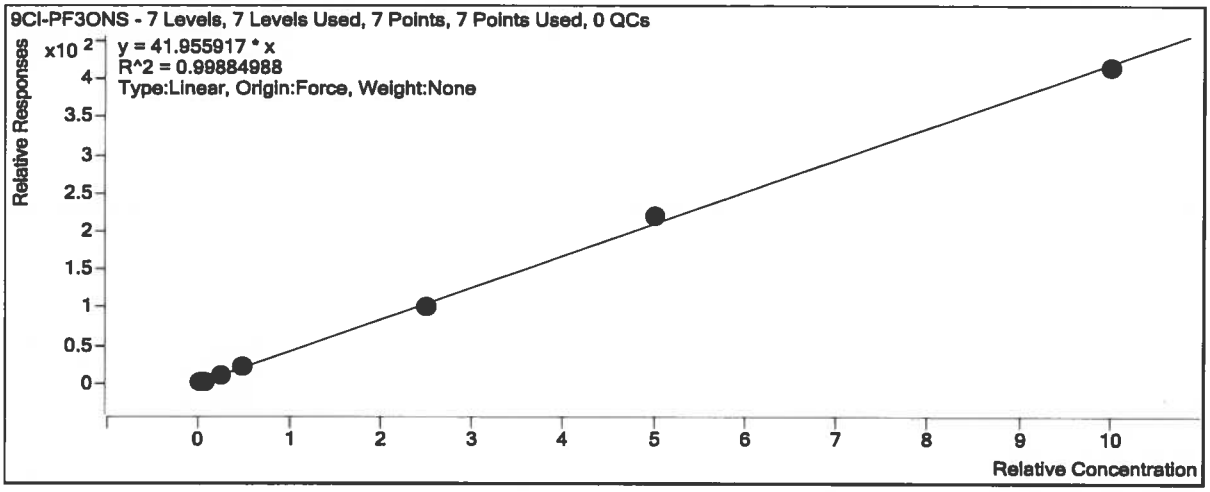


Target Compound *9Cl-PF3ONS*

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

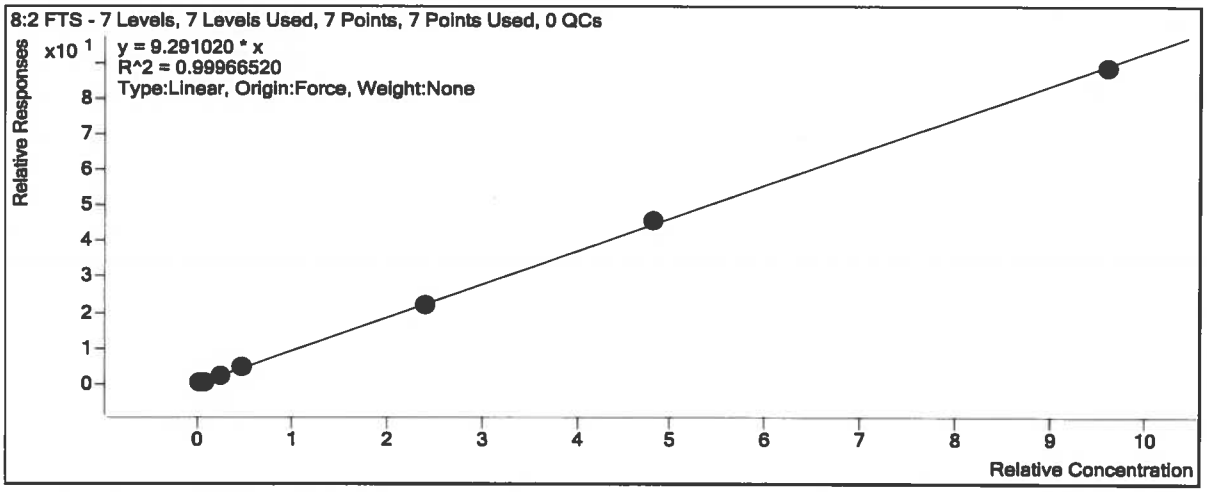
Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191121ACAL\2191121A_08.d	Calibration	7	☑	5620571	200.0000	41.4636



Target Compound ***8:2 FTS***

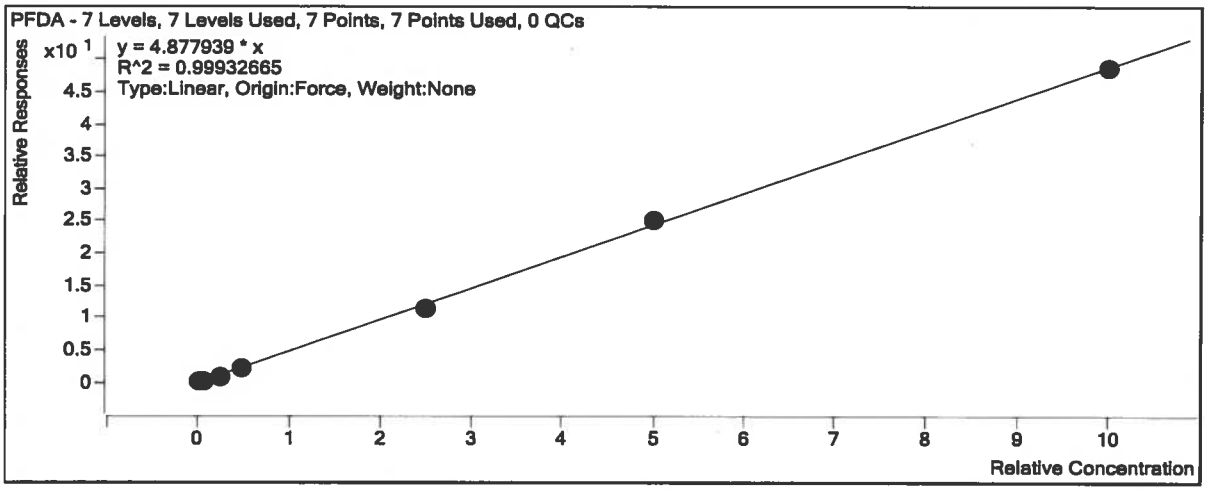
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191121ACAL\2191121A_02.d	Calibration	1	☑	2560	0.4800	9.5818
D:\MassHunter\Data\2191121ACAL\2191121A_03.d	Calibration	2	☑	6224	1.2000	9.0205
D:\MassHunter\Data\2191121ACAL\2191121A_04.d	Calibration	3	☑	26163	4.8000	9.5729
D:\MassHunter\Data\2191121ACAL\2191121A_05.d	Calibration	4	☑	55230	9.6000	10.1579
D:\MassHunter\Data\2191121ACAL\2191121A_06.d	Calibration	5	☑	246364	48.0000	9.2588
D:\MassHunter\Data\2191121ACAL\2191121A_07.d	Calibration	6	☑	460217	96.0000	9.5560
D:\MassHunter\Data\2191121ACAL\2191121A_08.d	Calibration	7	☑	778711	192.0000	9.2245



Quantitative Analysis Calibration Report

Target Compound *PFDA*

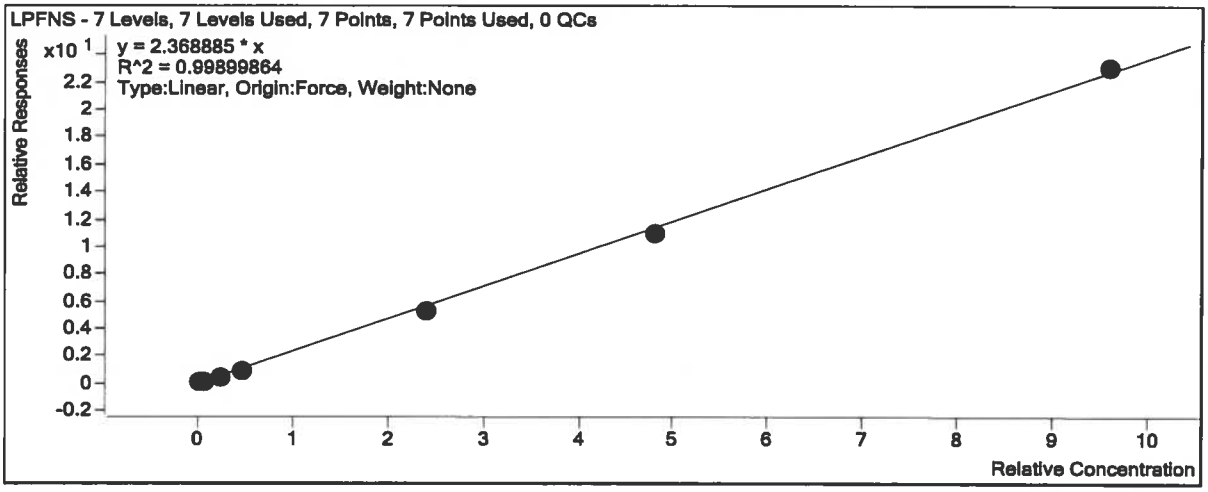
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191121ACAL\2191121A_02.d	Calibration	1	☑	3763	0.5000	4.8915
D:\MassHunter\Data\2191121ACAL\2191121A_03.d	Calibration	2	☑	9797	1.2500	4.4872
D:\MassHunter\Data\2191121ACAL\2191121A_04.d	Calibration	3	☑	36081	5.0000	4.2043
D:\MassHunter\Data\2191121ACAL\2191121A_05.d	Calibration	4	☑	74005	10.0000	4.3617
D:\MassHunter\Data\2191121ACAL\2191121A_06.d	Calibration	5	☑	373458	50.0000	4.5524
D:\MassHunter\Data\2191121ACAL\2191121A_07.d	Calibration	6	☑	757242	100.0000	5.0287
D:\MassHunter\Data\2191121ACAL\2191121A_08.d	Calibration	7	☑	1443061	200.0000	4.8623



Target Compound *LPFNS*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191121ACAL\2191121A_02.d	Calibration	1	☑	1710	0.4800	1.9192
D:\MassHunter\Data\2191121ACAL\2191121A_03.d	Calibration	2	☑	4789	1.2000	2.1214
D:\MassHunter\Data\2191121ACAL\2191121A_04.d	Calibration	3	☑	17754	4.8000	2.0772
D:\MassHunter\Data\2191121ACAL\2191121A_05.d	Calibration	4	☑	37047	9.6000	2.0617
D:\MassHunter\Data\2191121ACAL\2191121A_06.d	Calibration	5	☑	190562	48.0000	2.2030
D:\MassHunter\Data\2191121ACAL\2191121A_07.d	Calibration	6	☑	392599	96.0000	2.2854
D:\MassHunter\Data\2191121ACAL\2191121A_08.d	Calibration	7	☑	801163	192.0000	2.4011

Quantitative Analysis Calibration Report



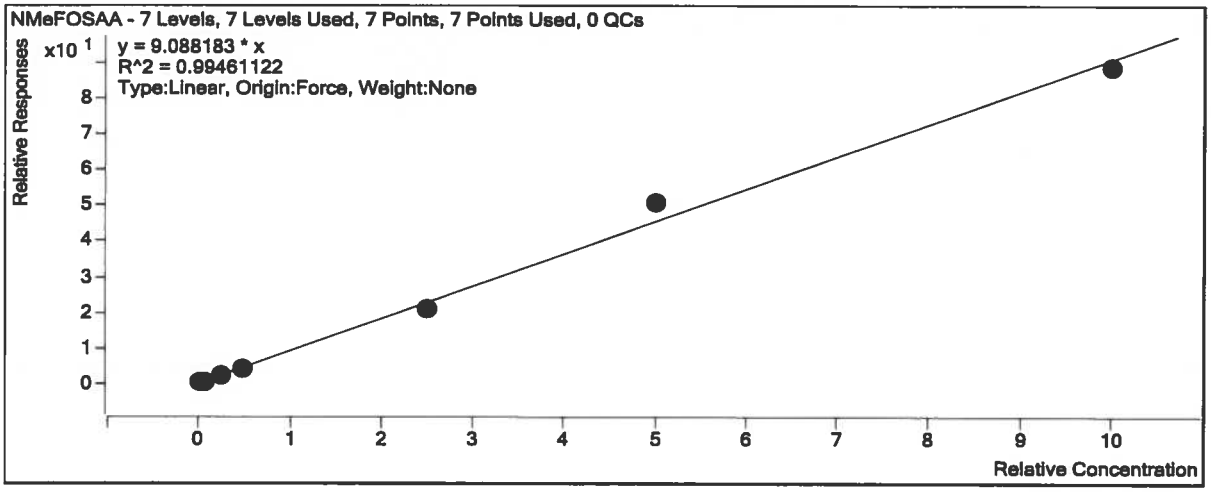
Extracted ISTD *d3-NMeFOSAA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191121ACAL\2191121A_02.d	Calibration	1	☑	5189	20.0000	259.4572
D:\MassHunter\Data\2191121ACAL\2191121A_03.d	Calibration	2	☑	5400	20.0000	270.0118
D:\MassHunter\Data\2191121ACAL\2191121A_04.d	Calibration	3	☑	5490	20.0000	274.5091
D:\MassHunter\Data\2191121ACAL\2191121A_05.d	Calibration	4	☑	6240	20.0000	312.0201
D:\MassHunter\Data\2191121ACAL\2191121A_06.d	Calibration	5	☑	6668	20.0000	333.4246
D:\MassHunter\Data\2191121ACAL\2191121A_07.d	Calibration	6	☑	5705	20.0000	285.2272
D:\MassHunter\Data\2191121ACAL\2191121A_08.d	Calibration	7	☑	6524	20.0000	326.1928

Target Compound *NMeFOSAA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191121ACAL\2191121A_02.d	Calibration	1	☑	1375	0.5000	10.5998
D:\MassHunter\Data\2191121ACAL\2191121A_03.d	Calibration	2	☑	2678	1.2500	7.9341
D:\MassHunter\Data\2191121ACAL\2191121A_04.d	Calibration	3	☑	12016	5.0000	8.7545
D:\MassHunter\Data\2191121ACAL\2191121A_05.d	Calibration	4	☑	26978	10.0000	8.6462
D:\MassHunter\Data\2191121ACAL\2191121A_06.d	Calibration	5	☑	140093	50.0000	8.4033
D:\MassHunter\Data\2191121ACAL\2191121A_07.d	Calibration	6	☑	289956	100.0000	10.1658
D:\MassHunter\Data\2191121ACAL\2191121A_08.d	Calibration	7	☑	578205	200.0000	8.8629

Quantitative Analysis Calibration Report

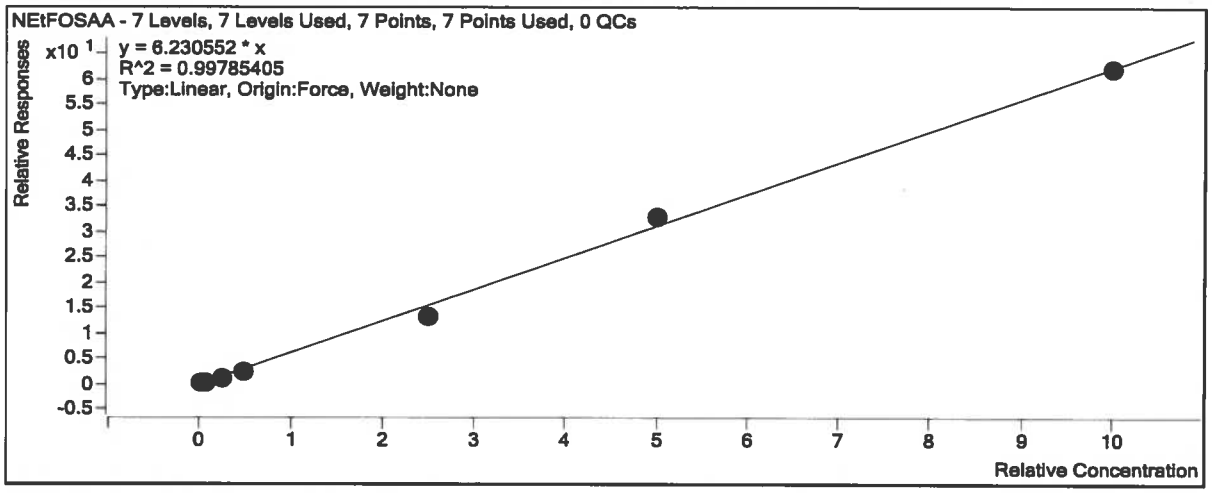


Target Compound *FOSA-I*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191121ACAL\2191121A_02.d	Calibration	1	☑	4030	0.5000	4.0466
D:\MassHunter\Data\2191121ACAL\2191121A_03.d	Calibration	2	☑	11102	1.2500	4.1740
D:\MassHunter\Data\2191121ACAL\2191121A_04.d	Calibration	3	☑	48578	5.0000	4.4755
D:\MassHunter\Data\2191121ACAL\2191121A_05.d	Calibration	4	☑	103423	10.0000	4.9434
D:\MassHunter\Data\2191121ACAL\2191121A_06.d	Calibration	5	☑	511953	50.0000	4.8714

Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191121ACAL\2191121A_04.d	Calibration	3	☑	12119	5.0000	5.3946
D:\MassHunter\Data\2191121ACAL\2191121A_05.d	Calibration	4	☑	24767	10.0000	5.3534
D:\MassHunter\Data\2191121ACAL\2191121A_06.d	Calibration	5	☑	125866	50.0000	5.4162
D:\MassHunter\Data\2191121ACAL\2191121A_07.d	Calibration	6	☑	254370	100.0000	6.5539
D:\MassHunter\Data\2191121ACAL\2191121A_08.d	Calibration	7	☑	484281	200.0000	6.2034



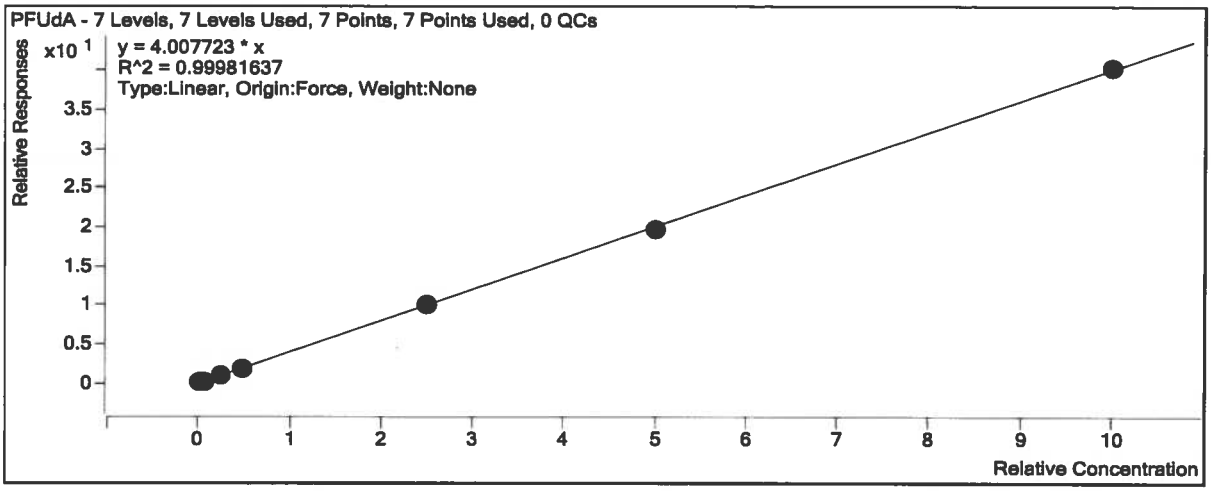
Extracted ISTD *M7PFUdA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191121ACAL\2191121A_02.d	Calibration	1	☑	36488	20.0000	1824.4118
D:\MassHunter\Data\2191121ACAL\2191121A_03.d	Calibration	2	☑	35392	20.0000	1769.6228
D:\MassHunter\Data\2191121ACAL\2191121A_04.d	Calibration	3	☑	34005	20.0000	1700.2254
D:\MassHunter\Data\2191121ACAL\2191121A_05.d	Calibration	4	☑	37287	20.0000	1864.3330
D:\MassHunter\Data\2191121ACAL\2191121A_06.d	Calibration	5	☑	34592	20.0000	1729.6058
D:\MassHunter\Data\2191121ACAL\2191121A_07.d	Calibration	6	☑	34128	20.0000	1706.4035
D:\MassHunter\Data\2191121ACAL\2191121A_08.d	Calibration	7	☑	32164	20.0000	1608.1897

Target Compound *PFUdA*

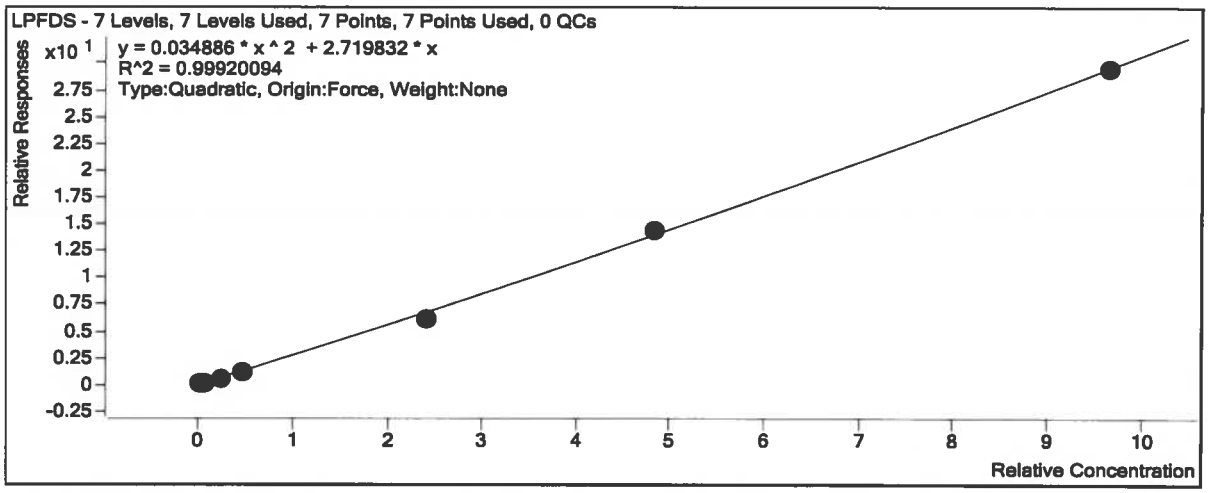
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191121ACAL\2191121A_02.d	Calibration	1	☑	3373	0.5000	3.6977
D:\MassHunter\Data\2191121ACAL\2191121A_03.d	Calibration	2	☑	7623	1.2500	3.4462
D:\MassHunter\Data\2191121ACAL\2191121A_04.d	Calibration	3	☑	31806	5.0000	3.7414

D:\MassHunter\Data\2191121ACAL\2191121A_05.d	Calibration	4	☑	66732	10.0000	3.5794
D:\MassHunter\Data\2191121ACAL\2191121A_06.d	Calibration	5	☑	350477	50.0000	4.0527
D:\MassHunter\Data\2191121ACAL\2191121A_07.d	Calibration	6	☑	670588	100.0000	3.9298
D:\MassHunter\Data\2191121ACAL\2191121A_08.d	Calibration	7	☑	1294801	200.0000	4.0256



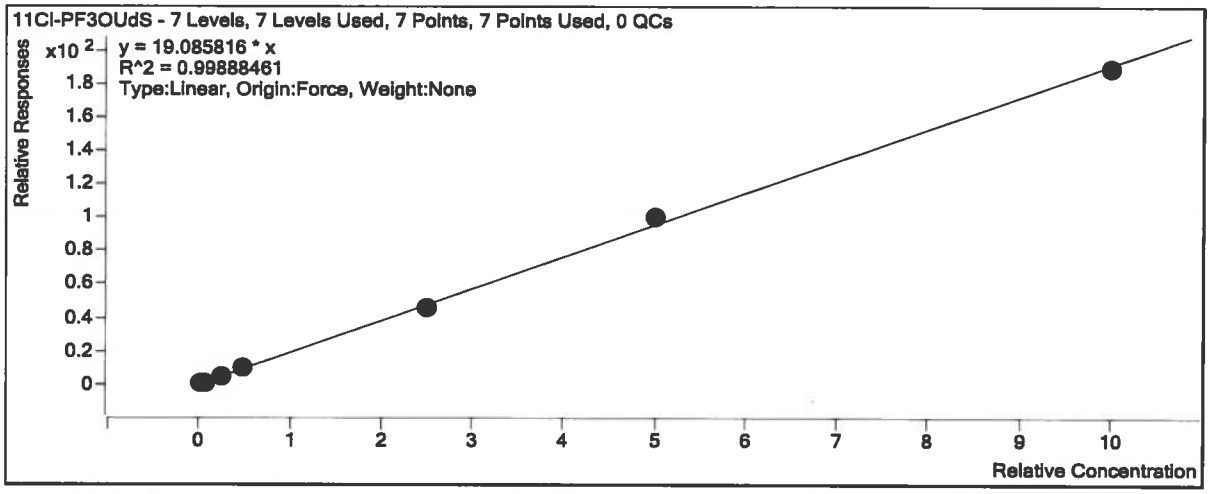
Target Compound ***LPFDS***

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191121ACAL\2191121A_02.d	Calibration	1	☑	1774	0.4825	2.3895
D:\MassHunter\Data\2191121ACAL\2191121A_03.d	Calibration	2	☑	4241	1.2100	2.0068
D:\MassHunter\Data\2191121ACAL\2191121A_04.d	Calibration	3	☑	18821	4.8250	2.2727
D:\MassHunter\Data\2191121ACAL\2191121A_05.d	Calibration	4	☑	37653	9.6500	2.2997
D:\MassHunter\Data\2191121ACAL\2191121A_06.d	Calibration	5	☑	203950	48.2500	2.5763
D:\MassHunter\Data\2191121ACAL\2191121A_07.d	Calibration	6	☑	433660	96.5000	2.9843
D:\MassHunter\Data\2191121ACAL\2191121A_08.d	Calibration	7	☑	872962	193.0000	3.0481



Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191121ACAL\2191121A_08.d	Calibration	7	☑	2559449	200.0000	18.8814



Target Compound *PFDoA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191121ACAL\2191121A_02.d	Calibration	1	☑	2474	0.5000	3.9511
D:\MassHunter\Data\2191121ACAL\2191121A_03.d	Calibration	2	☑	6057	1.2500	3.8761
D:\MassHunter\Data\2191121ACAL\2191121A_04.d	Calibration	3	☑	25235	5.0000	4.3024
D:\MassHunter\Data\2191121ACAL\2191121A_05.d	Calibration	4	☑	51966	10.0000	4.2161
D:\MassHunter\Data\2191121ACAL\2191121A_06.d	Calibration	5	☑	275748	50.0000	4.2369
D:\MassHunter\Data\2191121ACAL\2191121A_07.d	Calibration	6	☑	559767	100.0000	4.3753
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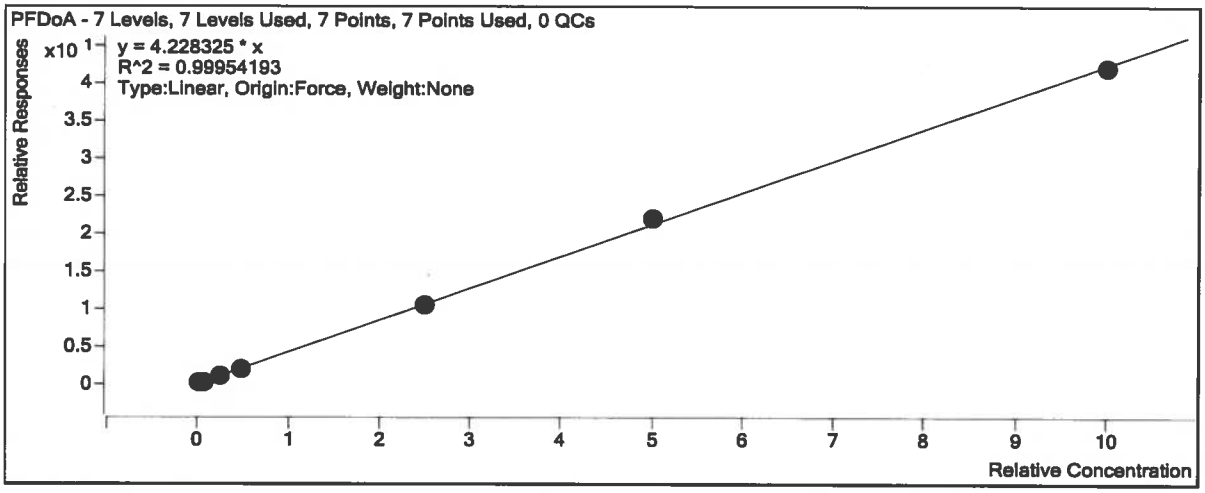
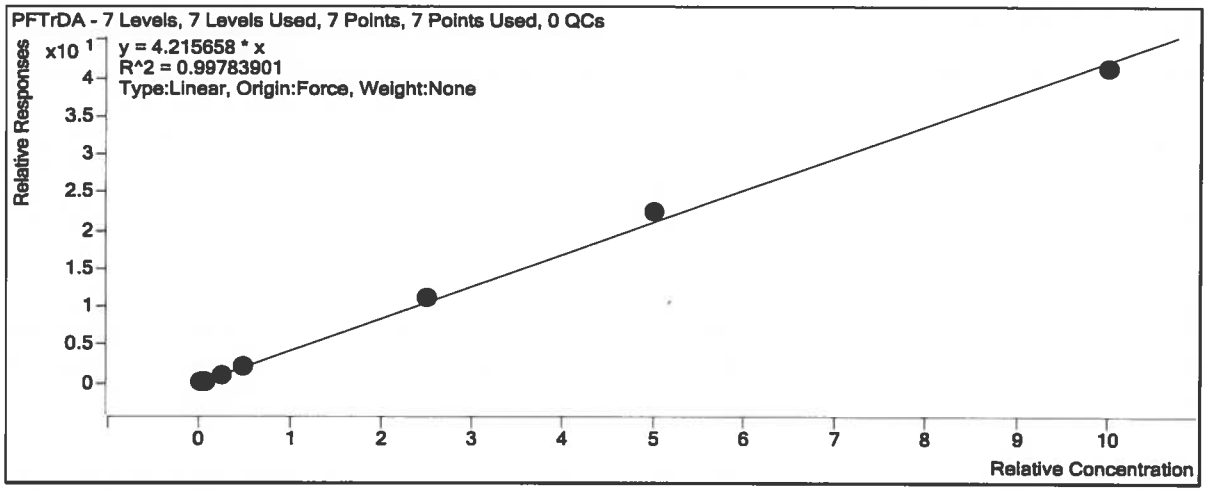


Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191121ACAL\2191121A_05.d	Calibration	4	☑	24651	20.0000	1232.5460
D:\MassHunter\Data\2191121ACAL\2191121A_06.d	Calibration	5	☑	26033	20.0000	1301.6393
D:\MassHunter\Data\2191121ACAL\2191121A_07.d	Calibration	6	☑	25587	20.0000	1279.3725
D:\MassHunter\Data\2191121ACAL\2191121A_08.d	Calibration	7	☑	25969	20.0000	1298.4428

Target Compound *PFTrDA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191121ACAL\2191121A_02.d	Calibration	1	☑	2117	0.5000	3.9973
D:\MassHunter\Data\2191121ACAL\2191121A_03.d	Calibration	2	☑	4924	1.2500	4.0415
D:\MassHunter\Data\2191121ACAL\2191121A_04.d	Calibration	3	☑	19919	5.0000	4.0292
D:\MassHunter\Data\2191121ACAL\2191121A_05.d	Calibration	4	☑	42559	10.0000	4.3006
D:\MassHunter\Data\2191121ACAL\2191121A_06.d	Calibration	5	☑	223598	50.0000	4.4808
D:\MassHunter\Data\2191121ACAL\2191121A_07.d	Calibration	6	☑	452985	100.0000	4.4959
D:\MassHunter\Data\2191121ACAL\2191121A_08.d	Calibration	7	☑	899697	200.0000	4.1289



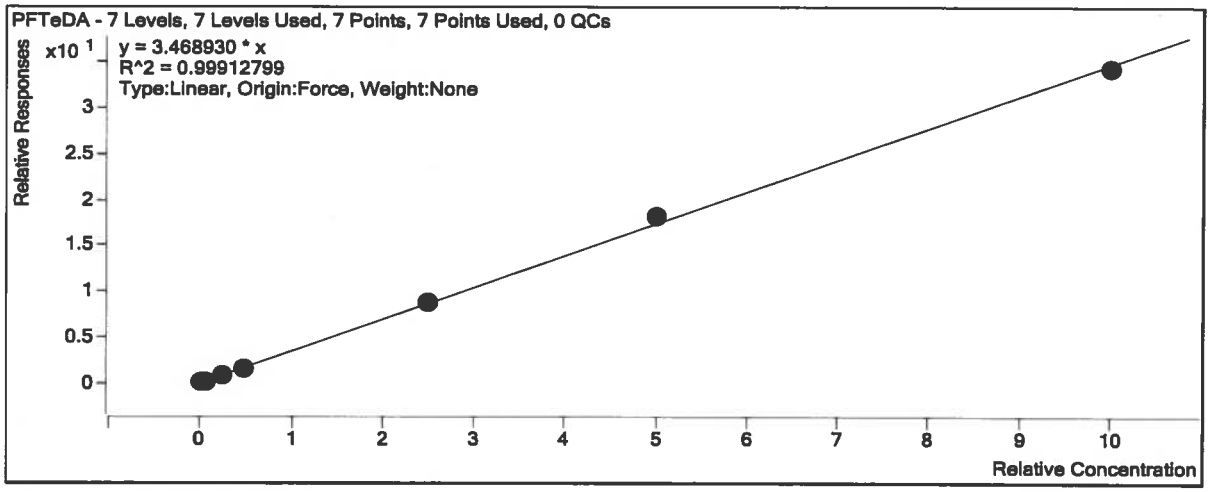
Extracted ISTD *M2PFTeDA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191121ACAL\2191121A_02.d	Calibration	1	☑	21189	20.0000	1059.4475
D:\MassHunter\Data\2191121ACAL\2191121A_03.d	Calibration	2	☑	19492	20.0000	974.5950
D:\MassHunter\Data\2191121ACAL\2191121A_04.d	Calibration	3	☑	19774	20.0000	988.7219
D:\MassHunter\Data\2191121ACAL\2191121A_05.d	Calibration	4	☑	19792	20.0000	989.6158

Quantitative Analysis Calibration Report

Target Compound *PFTeDA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191121ACAL\2191121A_02.d	Calibration	1	☑	1669	0.5000	3.1498
D:\MassHunter\Data\2191121ACAL\2191121A_03.d	Calibration	2	☑	4135	1.2500	3.3941
D:\MassHunter\Data\2191121ACAL\2191121A_04.d	Calibration	3	☑	16927	5.0000	3.4240
D:\MassHunter\Data\2191121ACAL\2191121A_05.d	Calibration	4	☑	34149	10.0000	3.4508
D:\MassHunter\Data\2191121ACAL\2191121A_06.d	Calibration	5	☑	176975	50.0000	3.5465
D:\MassHunter\Data\2191121ACAL\2191121A_07.d	Calibration	6	☑	365546	100.0000	3.6280
D:\MassHunter\Data\2191121ACAL\2191121A_08.d	Calibration	7	☑	746173	200.0000	3.4244



6I

ORGANICS INITIAL CALIBRATION VERIFICATION

Report No:	219103085	Instrument ID:	QQQ1
Analysis Date:	11/21/2019 12:54	Lab File ID:	2191121A_10.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	672870

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	50000	53000	106	70	130	
8:2 Fluorotelomer sulfonate	ng/L	50000	53500	107	70	130	
NEtFOSAA	ng/L	50000	42200	84	70	130	
NMeFOSAA	ng/L	50000	44300	89	70	130	
Perfluorobutanoic acid	ng/L	50000	48000	96	70	130	
Perfluorobutanesulfonic acid	ng/L	50000	48500	97	70	130	
Perfluorodecanoic acid	ng/L	50000	48300	97	70	130	
Perfluorododecanoic acid	ng/L	50000	46300	93	70	130	
Perfluoroheptanoic acid	ng/L	50000	45900	92	70	130	
Perfluorohexanoic acid	ng/L	50000	50700	101	70	130	
Perfluorohexanesulfonic acid	ng/L	50000	49600	99	70	130	
Perfluorononanoic acid	ng/L	50000	51900	104	70	130	
Perfluorooctanoic acid	ng/L	50000	47900	96	70	130	
Perfluorooctane Sulfonate	ng/L	50000	44100	88	70	130	
Perfluoropentanoic acid	ng/L	50000	49800	100	70	130	
Perfluorotetradecanoic acid	ng/L	50000	55600	111	70	130	
Perfluorotridecanoic acid	ng/L	50000	45400	91	70	130	
Perfluoroundecanoic acid	ng/L	50000	47000	94	70	130	

FORM 6I - ORG

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ORGANICS INSTRUMENT SENSITIVITY CHECK

Report No:	219103085	Instrument ID:	QQQ1
Analysis Date:	11/21/2019 13:05	Lab File ID:	2191121A_11.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	672870

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	7.93	6.25	79	70	130	
8:2 Fluorotelomer sulfonate	ng/L	8.00	8.00	100	70	130	
NEtFOSAA	ng/L	8.33	7.80	94	70	130	
NMeFOSAA	ng/L	8.33	8.07	97	70	130	
Perfluorobutanoic acid	ng/L	8.33	7.73	93	70	130	
Perfluorobutanesulfonic acid	ng/L	7.40	6.87	93	70	130	
Perfluorodecanoic acid	ng/L	8.33	6.80	81	70	130	
Perfluorododecanoic acid	ng/L	8.33	8.33	100	70	130	
Perfluoroheptanoic acid	ng/L	8.33	7.40	89	70	130	
Perfluorohexanoic acid	ng/L	8.33	8.20	99	70	130	
Perfluorohexanesulfonic acid	ng/L	7.60	7.00	92	70	130	
Perfluorononanoic acid	ng/L	8.33	7.00	84	70	130	
Perfluorooctanoic acid	ng/L	8.33	7.27	87	70	130	
Perfluorooctane Sulfonate	ng/L	7.73	7.93	103	70	130	
Perfluoropentanoic acid	ng/L	8.33	7.20	86	70	130	
Perfluorotetradecanoic acid	ng/L	8.33	8.40	101	70	130	
Perfluorotridecanoic acid	ng/L	8.33	7.73	93	70	130	
Perfluoroundecanoic acid	ng/L	8.33	6.67	80	70	130	

FORM 7S - ORG

4I

ORGANICS INSTRUMENT BLANK

Report No:	219103085	Instrument ID:	QQQ1
Analysis Date:	11/21/2019 13:17	Lab File ID:	2191121A_12.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	672870

ANALYTE	UNITS	RESULT	Q	DL	LOD	LOQ	#
6:2 Fluorotelomer sulfonate	ng/L	4.00	U	1.79	4.00	10.0	
8:2 Fluorotelomer sulfonate	ng/L	4.00	U	1.63	4.00	10.0	
NEtFOSAA	ng/L	8.00	U	5.38	8.00	10.0	
NMeFOSAA	ng/L	8.00	U	4.60	8.00	10.0	
Perfluorobutanesulfonic acid	ng/L	4.00	U	1.47	4.00	10.0	
Perfluorobutanoic acid	ng/L	4.00	U	2.13	4.00	10.0	
Perfluorodecanoic acid	ng/L	4.00	U	1.65	4.00	10.0	
Perfluorododecanoic acid	ng/L	4.00	U	2.45	4.00	10.0	
Perfluoroheptanoic acid	ng/L	4.00	U	1.85	4.00	10.0	
Perfluorohexanesulfonic acid	ng/L	4.00	U	1.64	4.00	10.0	
Perfluorohexanoic acid	ng/L	4.00	U	1.94	4.00	10.0	
Perfluorononanoic acid	ng/L	4.00	U	1.68	4.00	10.0	
Perfluorooctane Sulfonate	ng/L	4.00	U	1.70	4.00	10.0	
Perfluorooctanoic acid	ng/L	4.00	U	1.80	4.00	10.0	
Perfluoropentanoic acid	ng/L	4.00	U	2.35	4.00	10.0	
Perfluorotetradecanoic acid	ng/L	4.00	U	2.76	4.00	10.0	
Perfluorotridecanoic acid	ng/L	4.00	U	2.56	4.00	10.0	
Perfluoroundecanoic acid	ng/L	4.00	U	1.86	4.00	10.0	

* - Result greater than 1/2 LOQ

LCMS1 Run Log

Analyst:	BMH	Expiration
Batch:	2191122A	Date
Current ICAL Bath:	2191121ACAL/2191121ACALDW	Date
20mM Amm Acetate	010-17-3	11/24/2019
Methanol	2128497	8/31/2024
Calibration Std	010-14-7	5/13/2020
ICV Std	010-6-5	4/9/2020
EIS Mix	010-15-3	5/15/2020

Name	Data File	Type	Acq. Date-Time	Comment	Dil.
MeOH Shot	2191122A_01.d	MeOH Shot	11/22/2019 11:45	Instrument idle/MeOH Shot	1
1500	2191122A_02.d	Sample	11/22/2019 11:56		1
1450	2191122A_03.d	QC	11/22/2019 12:07		1
1982674	2191122A_04.d	Sample	11/22/2019 12:18	671428	1
1982675	2191122A_05.d	QC	11/22/2019 12:29	671428	1
1982676	2191122A_06.d	QC	11/22/2019 12:41	671428	1
21911121703	2191122A_07.d	Sample	11/22/2019 12:52	671428	1
1400	2191122A_08.d	QC	11/22/2019 13:03		1
MeOH Shot	2191122A_09.d	MeOH Shot	11/22/2019 13:23	Instrument idle/MeOH Shot	1
21911121703 x5	2191122A_10.d	Sample	11/22/2019 13:33	671428	5
1400	2191122A_11.d	QC	11/22/2019 13:45		1

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ORGANICS INSTRUMENT BLANK

Report No:	219103085	Instrument ID:	QQQ1
Analysis Date:	11/22/2019 11:56	Lab File ID:	2191122A_02.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	671987

ANALYTE	UNITS	RESULT	Q	DL	LOD	LOQ	#
6:2 Fluorotelomer sulfonate	ng/L	4.00	U	1.79	4.00	10.0	
8:2 Fluorotelomer sulfonate	ng/L	4.00	U	1.63	4.00	10.0	
NEtFOSAA	ng/L	8.00	U	5.38	8.00	10.0	
NMeFOSAA	ng/L	8.00	U	4.60	8.00	10.0	
Perfluorobutanesulfonic acid	ng/L	4.00	U	1.47	4.00	10.0	
Perfluorobutanoic acid	ng/L	4.00	U	2.13	4.00	10.0	
Perfluorodecanoic acid	ng/L	4.00	U	1.65	4.00	10.0	
Perfluorododecanoic acid	ng/L	4.00	U	2.45	4.00	10.0	
Perfluoroheptanoic acid	ng/L	4.00	U	1.85	4.00	10.0	
Perfluorohexanesulfonic acid	ng/L	4.00	U	1.64	4.00	10.0	
Perfluorohexanoic acid	ng/L	4.00	U	1.94	4.00	10.0	
Perfluorononanoic acid	ng/L	4.00	U	1.68	4.00	10.0	
Perfluorooctane Sulfonate	ng/L	4.00	U	1.70	4.00	10.0	
Perfluorooctanoic acid	ng/L	4.00	U	1.80	4.00	10.0	
Perfluoropentanoic acid	ng/L	4.00	U	2.35	4.00	10.0	
Perfluorotetradecanoic acid	ng/L	4.00	U	2.76	4.00	10.0	
Perfluorotridecanoic acid	ng/L	4.00	U	2.56	4.00	10.0	
Perfluoroundecanoic acid	ng/L	4.00	U	1.86	4.00	10.0	

* - Result greater than 1/2 LOQ

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ORGANICS INSTRUMENT SENSITIVITY CHECK

Report No:	219103085	Instrument ID:	QQQ1
Analysis Date:	11/22/2019 12:07	Lab File ID:	2191122A_03.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	671987

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	7.93	7.67	97	70	130	
8:2 Fluorotelomer sulfonate	ng/L	8.00	8.07	101	70	130	
NEtFOSAA	ng/L	8.33	7.67	92	70	130	
NMeFOSAA	ng/L	8.33	8.40	101	70	130	
Perfluorobutanoic acid	ng/L	8.33	7.07	85	70	130	
Perfluorobutanesulfonic acid	ng/L	7.40	6.21	84	70	130	
Perfluorodecanoic acid	ng/L	8.33	7.60	91	70	130	
Perfluorododecanoic acid	ng/L	8.33	7.47	90	70	130	
Perfluoroheptanoic acid	ng/L	8.33	6.87	83	70	130	
Perfluorohexanoic acid	ng/L	8.33	7.33	88	70	130	
Perfluorohexanesulfonic acid	ng/L	7.60	7.47	98	70	130	
Perfluorononanoic acid	ng/L	8.33	6.57	79	70	130	
Perfluorooctanoic acid	ng/L	8.33	7.33	88	70	130	
Perfluorooctane Sulfonate	ng/L	7.73	8.27	107	70	130	
Perfluoropentanoic acid	ng/L	8.33	7.00	84	70	130	
Perfluorotetradecanoic acid	ng/L	8.33	8.27	99	70	130	
Perfluorotridecanoic acid	ng/L	8.33	7.27	87	70	130	
Perfluoroundecanoic acid	ng/L	8.33	5.93	71	70	130	

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ORGANICS CALIBRATION VERIFICATION

Report No:	219103085	Instrument ID:	QQQ1
Analysis Date:	11/22/2019 13:03	Lab File ID:	2191122A_08.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	671987

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	47500	51300	108	70	130	
8:2 Fluorotelomer sulfonate	ng/L	48000	53100	111	70	130	
NEtFOSAA	ng/L	50000	45900	92	70	130	
NMeFOSAA	ng/L	50000	54400	109	70	130	
Perfluorobutanoic acid	ng/L	50000	47000	94	70	130	
Perfluorobutanesulfonic acid	ng/L	44300	44100	100	70	130	
Perfluorodecanoic acid	ng/L	50000	48400	97	70	130	
Perfluorododecanoic acid	ng/L	50000	52800	106	70	130	
Perfluoroheptanoic acid	ng/L	50000	48300	97	70	130	
Perfluorohexanoic acid	ng/L	50000	47100	94	70	130	
Perfluorohexanesulfonic acid	ng/L	45600	46900	103	70	130	
Perfluorononanoic acid	ng/L	50000	47400	95	70	130	
Perfluorooctanoic acid	ng/L	50000	48900	98	70	130	
Perfluorooctane Sulfonate	ng/L	46300	51000	110	70	130	
Perfluoropentanoic acid	ng/L	50000	45600	91	70	130	
Perfluorotetradecanoic acid	ng/L	50000	53200	106	70	130	
Perfluorotridecanoic acid	ng/L	50000	52600	105	70	130	
Perfluoroundecanoic acid	ng/L	50000	50600	101	70	130	

LCMS1 Run Log

Analyst:	BMH	Expiration
Batch:	2191122B	Date
Current ICAL Bath:	2191121BCAL/2191121BCALDW	Date
20mM Amm Acetate	010-17-3	11/24/2019
Methanol	2128497	8/31/2024
Calibration Std	010-14-7	5/13/2020
ICV Std	010-6-5	4/9/2020
EIS Mix	010-15-3	5/15/2020

Name	Data File	Type	Acq. Date-Time	Comment	Dil.
MeOH Shot	2191122B_01.d	MeOH Shot	11/22/2019 14:32	Instrument idle/MeOH Shot	1
1450	2191122B_02.d	QC	11/22/2019 14:43	RECALIBRATE, ACCURACY FAIL	1
1500	2191122B_03.d	Sample	11/22/2019 14:54		1
MeOH Shot	2191122B_04.d	MeOH Shot	11/22/2019 16:10	Instrument idle/MeOH Shot	1
1980920	2191122B_05.d	Sample	11/22/2019 16:20		1
1980921	2191122B_06.d	QC	11/22/2019 16:32	671110	1
1980922	2191122B_07.d	QC	11/22/2019 16:43	671110	1
MeOH Shot	2191122B_08.d	MeOH Shot	11/22/2019 17:11	Instrument idle/MeOH Shot	1
1201	2191122B_09.d	Cal	11/22/2019 17:22		1
1202	2191122B_10.d	Cal	11/22/2019 17:33		1
1203	2191122B_11.d	Cal	11/22/2019 17:45		1
1204	2191122B_12.d	Cal	11/22/2019 17:56		1
1205	2191122B_13.d	Cal	11/22/2019 18:07		1
1206	2191122B_14.d	Cal	11/22/2019 18:19		1
1207	2191122B_15.d	Cal	11/22/2019 18:30		1
1600	2191122B_16.d	QC	11/22/2019 18:41		1
1500	2191122B_17.d	QC	11/22/2019 18:52		1
1450	2191122B_18.d	Sample	11/22/2019 19:04		1
MeOH Shot	2191122B_19.d	MeOH Shot	11/22/2019 19:15	Instrument idle/MeOH Shot	1
1980920	2191122B_20.d	Sample	11/22/2019 19:26	671110	1
1980921	2191122B_21.d	QC	11/22/2019 19:37	671110	1

1980922	2191122B_22.d	QC	11/22/2019 19:49	671110	1
21911091002	2191122B_23.d	Sample	11/22/2019 20:00	671110	1
21911091005	2191122B_24.d	Sample	11/22/2019 20:11	671110	1
21911091006	2191122B_25.d	Sample	11/22/2019 20:23	671110	1
21911091010	2191122B_26.d	Sample	11/22/2019 20:34	671110	1
21911091011	2191122B_27.d	QC	11/22/2019 20:46	671110	1
21911091012	2191122B_28.d	QC	11/22/2019 20:57	671110	1
21911091014	2191122B_29.d	Sample	11/22/2019 21:08	671110	1
21911091017	2191122B_30.d	Sample	11/22/2019 21:20	671110	1
21911091018	2191122B_31.d	QC	11/22/2019 21:31	671110	1
21911091019	2191122B_32.d	QC	11/22/2019 21:42	671110	1
1400	2191122B_33.d	QC	11/22/2019 21:53		1
21911091020	2191122B_34.d	Sample	11/22/2019 22:05	671110	1
21911091021	2191122B_35.d	Sample	11/22/2019 22:16	671110	1
21911091022	2191122B_36.d	Sample	11/22/2019 22:27	671110	1
21911091023	2191122B_37.d	Sample	11/22/2019 22:39	671110	1
21911091024	2191122B_38.d	Sample	11/22/2019 22:50	671110	1
21911091025	2191122B_39.d	Sample	11/22/2019 23:01	671110	1
21911121801	2191122B_40.d	Sample	11/22/2019 23:13	671110	1
21911121802	2191122B_41.d	Sample	11/22/2019 23:24	671110	1
21911121803	2191122B_42.d	Sample	11/22/2019 23:36	671110	1
21911121804	2191122B_43.d	Sample	11/22/2019 23:47	671110	1
1400	2191122B_44.d	QC	11/22/2019 23:58		1
21911121805	2191122B_45.d	Sample	11/23/2019 0:10	671110	1
21911091007	2191122B_46.d	Sample	11/23/2019 0:21	671111	50
21911091008	2191122B_47.d	QC	11/23/2019 0:32	671111	50
21911091009	2191122B_48.d	QC	11/23/2019 0:44	671111	50
21911091013	2191122B_49.d	Sample	11/23/2019 0:55	671111	50
1400	2191122B_50.d	QC	11/23/2019 1:06		1
MeOH Shot	2191122B_51.d	MeOH Shot	11/23/2019 1:18	Instrument idle/MeOH Shot	1
21910308501	2191122B_52.d	Sample	11/23/2019 1:29	671428	1
21910308502	2191122B_53.d	Sample	11/23/2019 1:40	671428	1
21910308503	2191122B_54.d	Sample	11/23/2019 1:51	671428	1
21910308504	2191122B_55.d	QC	11/23/2019 2:03	671428	1

21910308505	2191122B_56.d	QC	11/23/2019 2:14	671428	1
21910308506	2191122B_57.d	Sample	11/23/2019 2:25	671428	1
21910308507	2191122B_58.d	QC	11/23/2019 2:37	671428	1
21910308508	2191122B_59.d	QC	11/23/2019 2:48	671428	1
21910308509	2191122B_60.d	Sample	11/23/2019 2:59	671428	1
21910308510	2191122B_61.d	Sample	11/23/2019 3:11	671428	1
1400	2191122B_62.d	QC	11/23/2019 3:22		1
21910308511	2191122B_63.d	Sample	11/23/2019 3:33	671428	1
21910308512	2191122B_64.d	Sample	11/23/2019 3:45	671428	1
21910308515	2191122B_65.d	Sample	11/23/2019 3:56	671428	1
21910308516	2191122B_66.d	Sample	11/23/2019 4:07	671428	1
21911142501	2191122B_67.d	Sample	11/23/2019 4:19	671428	1
21911142502	2191122B_68.d	Sample	11/23/2019 4:30	671428	1
21911142503	2191122B_69.d	Sample	11/23/2019 4:42	671428	1
21911142504	2191122B_70.d	Sample	11/23/2019 4:53	671428	1
21911121301	2191122B_71.d	Sample	11/23/2019 5:05	671428	10
1400	2191122B_72.d	QC	11/23/2019 5:16		1
MeOH Shot	2191122B_73.d	MeOH Shot	11/23/2019 5:27	Instrument idle/MeOH Shot	1
MeOH Shot	2191122B_74.d	MeOH Shot	11/23/2019 5:38	Instrument idle/MeOH Shot	1

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ORGANICS INITIAL CALIBRATION VERIFICATION

Report No:	219103085	Instrument ID:	QQQ1
Analysis Date:	11/22/2019 18:41	Lab File ID:	2191122B_16.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	671888

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	50000	53200	106	70	130	
8:2 Fluorotelomer sulfonate	ng/L	50000	57200	114	70	130	
NEtFOSAA	ng/L	50000	41800	84	70	130	
NMeFOSAA	ng/L	50000	45900	92	70	130	
Perfluorobutanoic acid	ng/L	50000	48200	96	70	130	
Perfluorobutanesulfonic acid	ng/L	50000	47300	95	70	130	
Perfluorodecanoic acid	ng/L	50000	47000	94	70	130	
Perfluorododecanoic acid	ng/L	50000	47300	95	70	130	
Perfluoroheptanoic acid	ng/L	50000	45900	92	70	130	
Perfluorohexanoic acid	ng/L	50000	51900	104	70	130	
Perfluorohexanesulfonic acid	ng/L	50000	51200	102	70	130	
Perfluorononanoic acid	ng/L	50000	48700	97	70	130	
Perfluorooctanoic acid	ng/L	50000	55700	111	70	130	
Perfluorooctane Sulfonate	ng/L	50000	45500	91	70	130	
Perfluoropentanoic acid	ng/L	50000	48200	96	70	130	
Perfluorotetradecanoic acid	ng/L	50000	54500	109	70	130	
Perfluorotridecanoic acid	ng/L	50000	46400	93	70	130	
Perfluoroundecanoic acid	ng/L	50000	43300	87	70	130	

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Report No:	219103085	Instrument ID:	QQQ1
Analysis Date:	11/22/2019 18:52	Lab File ID:	2191122B_17.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	671888

ANALYTE	UNITS	RESULT	Q	DL	LOD	LOQ	#
6:2 Fluorotelomer sulfonate	ng/L	4.00	U	1.79	4.00	10.0	
8:2 Fluorotelomer sulfonate	ng/L	4.00	U	1.63	4.00	10.0	
NEtFOSAA	ng/L	8.00	U	5.38	8.00	10.0	
NMeFOSAA	ng/L	8.00	U	4.60	8.00	10.0	
Perfluorobutanesulfonic acid	ng/L	4.00	U	1.47	4.00	10.0	
Perfluorobutanoic acid	ng/L	2.83	J	2.13	4.00	10.0	
Perfluorodecanoic acid	ng/L	4.00	U	1.65	4.00	10.0	
Perfluorododecanoic acid	ng/L	4.00	U	2.45	4.00	10.0	
Perfluoroheptanoic acid	ng/L	4.00	U	1.85	4.00	10.0	
Perfluorohexanesulfonic acid	ng/L	4.00	U	1.64	4.00	10.0	
Perfluorohexanoic acid	ng/L	4.00	U	1.94	4.00	10.0	
Perfluorononanoic acid	ng/L	4.00	U	1.68	4.00	10.0	
Perfluorooctane Sulfonate	ng/L	4.00	U	1.70	4.00	10.0	
Perfluorooctanoic acid	ng/L	4.00	U	1.80	4.00	10.0	
Perfluoropentanoic acid	ng/L	4.00	U	2.35	4.00	10.0	
Perfluorotetradecanoic acid	ng/L	4.00	U	2.76	4.00	10.0	
Perfluorotridecanoic acid	ng/L	4.00	U	2.56	4.00	10.0	
Perfluoroundecanoic acid	ng/L	4.00	U	1.86	4.00	10.0	

* - Result greater than 1/2 LOQ

7S

ORGANICS INSTRUMENT SENSITIVITY CHECK

Report No:	219103085	Instrument ID:	QQQ1
Analysis Date:	11/22/2019 19:04	Lab File ID:	2191122B_18.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	671888

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	7.93	8.40	106	70	130	
8:2 Fluorotelomer sulfonate	ng/L	8.00	8.27	104	70	130	
NEtFOSAA	ng/L	8.33	7.47	89	70	130	
NMeFOSAA	ng/L	8.33	10.3	123	70	130	
Perfluorobutanoic acid	ng/L	8.33	8.33	100	70	130	
Perfluorobutanesulfonic acid	ng/L	7.40	6.73	91	70	130	
Perfluorodecanoic acid	ng/L	8.33	7.20	87	70	130	
Perfluorododecanoic acid	ng/L	8.33	8.00	96	70	130	
Perfluoroheptanoic acid	ng/L	8.33	6.87	82	70	130	
Perfluorohexanoic acid	ng/L	8.33	8.47	101	70	130	
Perfluorohexanesulfonic acid	ng/L	7.60	7.13	94	70	130	
Perfluorononanoic acid	ng/L	8.33	6.73	81	70	130	
Perfluorooctanoic acid	ng/L	8.33	7.33	88	70	130	
Perfluorooctane Sulfonate	ng/L	7.73	7.53	97	70	130	
Perfluoropentanoic acid	ng/L	8.33	6.93	83	70	130	
Perfluorotetradecanoic acid	ng/L	8.33	7.87	94	70	130	
Perfluorotridecanoic acid	ng/L	8.33	8.07	97	70	130	
Perfluoroundecanoic acid	ng/L	8.33	7.67	92	70	130	

7E

ORGANICS CALIBRATION VERIFICATION

Report No:	219103085	Instrument ID:	QQQ1
Analysis Date:	11/23/2019 01:06	Lab File ID:	2191122B_50.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	671888

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	47500	54800	115	70	130	
8:2 Fluorotelomer sulfonate	ng/L	48000	64900	135	70	130	*
NEtFOSAA	ng/L	50000	56300	113	70	130	
NMeFOSAA	ng/L	50000	58700	117	70	130	
Perfluorobutanoic acid	ng/L	50000	51300	103	70	130	
Perfluorobutanesulfonic acid	ng/L	44300	45200	102	70	130	
Perfluorodecanoic acid	ng/L	50000	51500	103	70	130	
Perfluorododecanoic acid	ng/L	50000	55700	111	70	130	
Perfluoroheptanoic acid	ng/L	50000	49800	100	70	130	
Perfluorohexanoic acid	ng/L	50000	50800	102	70	130	
Perfluorohexanesulfonic acid	ng/L	45600	50200	110	70	130	
Perfluorononanoic acid	ng/L	50000	49500	99	70	130	
Perfluorooctanoic acid	ng/L	50000	50100	100	70	130	
Perfluorooctane Sulfonate	ng/L	46300	51400	111	70	130	
Perfluoropentanoic acid	ng/L	50000	50600	101	70	130	
Perfluorotetradecanoic acid	ng/L	50000	53500	107	70	130	
Perfluorotridecanoic acid	ng/L	50000	55000	110	70	130	
Perfluoroundecanoic acid	ng/L	50000	51600	103	70	130	

FORM 7E - ORG

7E

ORGANICS CALIBRATION VERIFICATION

Report No:	219103085	Instrument ID:	QQQ1
Analysis Date:	11/23/2019 03:22	Lab File ID:	2191122B_62.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	671888

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	47500	52100	110	70	130	
8:2 Fluorotelomer sulfonate	ng/L	48000	61100	127	70	130	
NEtFOSAA	ng/L	50000	51800	104	70	130	
NMeFOSAA	ng/L	50000	60600	121	70	130	
Perfluorobutanoic acid	ng/L	50000	50900	102	70	130	
Perfluorobutanesulfonic acid	ng/L	44300	45700	103	70	130	
Perfluorodecanoic acid	ng/L	50000	47600	95	70	130	
Perfluorododecanoic acid	ng/L	50000	54600	109	70	130	
Perfluoroheptanoic acid	ng/L	50000	51100	102	70	130	
Perfluorohexanoic acid	ng/L	50000	51000	102	70	130	
Perfluorohexanesulfonic acid	ng/L	45600	49800	109	70	130	
Perfluorononanoic acid	ng/L	50000	49200	98	70	130	
Perfluorooctanoic acid	ng/L	50000	51500	103	70	130	
Perfluorooctane Sulfonate	ng/L	46300	51000	110	70	130	
Perfluoropentanoic acid	ng/L	50000	51300	103	70	130	
Perfluorotetradecanoic acid	ng/L	50000	55200	110	70	130	
Perfluorotridecanoic acid	ng/L	50000	55800	112	70	130	
Perfluoroundecanoic acid	ng/L	50000	52600	105	70	130	

FORM 7E - ORG

7E

ORGANICS CALIBRATION VERIFICATION

Report No:	219103085	Instrument ID:	QQQ1
Analysis Date:	11/23/2019 05:16	Lab File ID:	2191122B_72.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	671888

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	47500	52300	110	70	130	
8:2 Fluorotelomer sulfonate	ng/L	48000	58000	121	70	130	
NEtFOSAA	ng/L	50000	45200	90	70	130	
NMeFOSAA	ng/L	50000	52800	106	70	130	
Perfluorobutanoic acid	ng/L	50000	52100	104	70	130	
Perfluorobutanesulfonic acid	ng/L	44300	44900	101	70	130	
Perfluorodecanoic acid	ng/L	50000	45500	91	70	130	
Perfluorododecanoic acid	ng/L	50000	59300	119	70	130	
Perfluoroheptanoic acid	ng/L	50000	51200	102	70	130	
Perfluorohexanoic acid	ng/L	50000	51500	103	70	130	
Perfluorohexanesulfonic acid	ng/L	45600	52000	114	70	130	
Perfluorononanoic acid	ng/L	50000	47900	96	70	130	
Perfluorooctanoic acid	ng/L	50000	48900	98	70	130	
Perfluorooctane Sulfonate	ng/L	46300	50200	109	70	130	
Perfluoropentanoic acid	ng/L	50000	51400	103	70	130	
Perfluorotetradecanoic acid	ng/L	50000	54200	108	70	130	
Perfluorotridecanoic acid	ng/L	50000	55600	111	70	130	
Perfluoroundecanoic acid	ng/L	50000	53500	107	70	130	

FORM 7E - ORG

8I

INJECTION INTERNAL STANDARD AREA SUMMARY

Report No:	219103085	Standard ID:	1450 (ISC)
Analyst:	BMH	Instrument ID:	QQQ1
Analysis Date:	11/22/19 12:07	Lab File ID:	2191122A_03.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	671987

	M2PFDA	M2PFHxA	M2PFOA	M4PFOS
	Area	*Area*	*Area*	*Area*
STANDARD	142653	325843	131406	107022

CLIENT SAMPLE ID	*GCAL SAMP ID*		#		#		#		#
MB1982674	1982674	158649		344007		138119		110631	
LCS1982675	1982675	160741		371175		150835		118930	
LCSD1982676	1982676	163880		372539		151765		118427	

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 8I - ORG

8I

INJECTION INTERNAL STANDARD AREA SUMMARY

Report No:	219103085	Standard ID:	1205 (ICAL Midpoint)
Analyst:	BMH	Instrument ID:	QQQ1
Analysis Date:	11/22/19 18:07	Lab File ID:	2191122B_13.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	671888

	M2PFDA	M2PFHxA	M2PFOA	M4PFOS
	Area	*Area*	*Area*	*Area*
STANDARD	168002	389334	153412	115580

CLIENT SAMPLE ID	*GCAL SAMP ID*		#		#		#		#
AOI 8-X3-1-102919 (RE)	21910308518	155394		398896		145843		127956	
AOI 8-5-SW-102919 (RE)	21910308519	169422		422230		152305		121436	
AOI 8-5-SW-102919-MS (RE)	21910308520	174425		410831		154382		119853	
AOI 8-5-SW-102919-MSD (RE)	21910308521	172834		414354		160838		119037	
AOI 8-6-SW-102919 (RE)	21910308522	174656		422016		164629		123157	
AOI 8-6-SW-102919-MS (RE)	21910308523	170470		424405		164204		120205	
AOI 8-6-SW-102919-MSD (RE)	21910308524	164468		415403		162005		118406	
AOI 8-7-SW-102919-D (RE)	21910308525	176111		433181		165881		114819	
AOI 8-4-SW-102919 (RE)	21910308526	174555		429949		166457		124031	
AOI 8-3-SW-102919 (RE)	21910308527	159235		422409		163133		113342	
AOI 5-N19-3-102919 (RE)	21910308528	172904		344314		146163		136182	
AOI 5-N19-3-102919-D (RE)	21910308529	182251		352349		147120		129421	

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 8I - ORG

LCMS1 Run Log

Analyst:	BMH	Expiration
Batch:	2191125A	Date
Current ICAL Bath:	2191125ACAL/2191125ACALDW	Date
20mM Amm Acetate	010-17-5	11/27/2019
Methanol	2128552	8/31/2024
Calibration Std	010-16-7	5/21/2020
ICV Std	010-6-5	4/9/2020
EIS Mix	010-17-1	5/21/2020

Name	Data File	Type	Acq. Date-Time	Comment	Dil.
MeOH Shot	2191125A_01.d	MeOH Shot	11/25/2019 10:13	Instrument idle/MeOH Shot	1
1450	2191125A_02.d	QC	11/25/2019 10:24		1
1500	2191125A_03.d	Sample	11/25/2019 10:35		1
MeOH Shot	2191125A_04.d	MeOH Shot	11/25/2019 12:17	Instrument idle/MeOH Shot	1
1201	2191125A_05.d	Cal	11/25/2019 12:28		1
1202	2191125A_06.d	Cal	11/25/2019 12:39		1
1203	2191125A_07.d	Cal	11/25/2019 12:50		1
1204	2191125A_08.d	Cal	11/25/2019 13:02		1
1205	2191125A_09.d	Cal	11/25/2019 13:13		1
1206	2191125A_10.d	Cal	11/25/2019 13:24		1
1207	2191125A_11.d	Cal	11/25/2019 13:36		1
1600	2191125A_12.d	QC	11/25/2019 13:47		1
1450	2191125A_13.d	QC	11/25/2019 13:58		1
1500	2191125A_14.d	Sample	11/25/2019 14:10		1
MeOH Shot	2191125A_15.d	MeOH Shot	11/25/2019 15:02	Instrument idle/MeOH Shot	1
1980914	2191125A_16.d	Sample	11/25/2019 15:13	671108	1
1980915	2191125A_17.d	QC	11/25/2019 15:24	671108	1
1980916	2191125A_18.d	QC	11/25/2019 15:36	671108	1
1981641	2191125A_19.d	Sample	11/25/2019 15:47	671258	1
1981642	2191125A_20.d	QC	11/25/2019 15:58	671258	1
1981643	2191125A_21.d	QC	11/25/2019 16:09	671258	1
1983598	2191125A_22.d	Sample	11/25/2019 16:21	671638	1

1983599	2191125A_23.d	QC	11/25/2019 16:32	671638	1
1983600	2191125A_24.d	QC	11/25/2019 16:43	671638	1
1400	2191125A_25.d	QC	11/25/2019 16:55		1
21911091501	2191125A_26.d	Sample	11/25/2019 17:06	671108	1
21911090201	2191125A_27.d	Sample	11/25/2019 17:17	671108	1
21911090202	2191125A_28.d	Sample	11/25/2019 17:29	671108	1
21911090203	2191125A_29.d	Sample	11/25/2019 17:40	671108	1
21911090204	2191125A_30.d	Sample	11/25/2019 17:52	671108	1
21911090205	2191125A_31.d	Sample	11/25/2019 18:03	671108	1
21911090206	2191125A_32.d	Sample	11/25/2019 18:14	671108	1
21911090207	2191125A_33.d	Sample	11/25/2019 18:26	671108	1
21911090208	2191125A_34.d	Sample	11/25/2019 18:37	671108	1
21911090209	2191125A_35.d	Sample	11/25/2019 18:48	671108	1
1400	2191125A_36.d	QC	11/25/2019 19:00		1
21911090210	2191125A_37.d	Sample	11/25/2019 19:11	671108	1
21911090211	2191125A_38.d	Sample	11/25/2019 19:22	671108	1
21911090212	2191125A_39.d	Sample	11/25/2019 19:34	671108	1
21911090213	2191125A_40.d	QC	11/25/2019 19:45	671108	1
21911090214	2191125A_41.d	QC	11/25/2019 19:56	671108	1
21911090215	2191125A_42.d	Sample	11/25/2019 20:08	671108	1
21911090216	2191125A_43.d	Sample	11/25/2019 20:19	671108	1
21911121806	2191125A_44.d	Sample	11/25/2019 20:30	671108	1
21911121807	2191125A_45.d	Sample	11/25/2019 20:42	671108	1
21911121808	2191125A_46.d	Sample	11/25/2019 20:53	671110	1
1400	2191125A_47.d	QC	11/25/2019 21:04		1
MeOH Shot	2191125A_48.d	MeOH Shot	11/25/2019 21:16	Instrument idle/MeOH Shot	1
21911121901	2191125A_49.d	Sample	11/25/2019 21:27	671258	1
21911121902	2191125A_50.d	Sample	11/25/2019 21:38	671258	1
21911121903	2191125A_51.d	Sample	11/25/2019 21:49	671258	1
21911121904	2191125A_52.d	Sample	11/25/2019 22:01	671258	1
21911121905	2191125A_53.d	QC	11/25/2019 22:12	671258	1
21911121906	2191125A_54.d	QC	11/25/2019 22:24	671258	1
21911121907	2191125A_55.d	Sample	11/25/2019 22:35	671258	1
21911121908	2191125A_56.d	Sample	11/25/2019 22:46	671258	1

21911121909	2191125A_57.d	Sample	11/25/2019 22:58	671258	1
21911121910	2191125A_58.d	Sample	11/25/2019 23:09	671258	1
1400	2191125A_59.d	QC	11/25/2019 23:20		1
21911121911	2191125A_60.d	Sample	11/25/2019 23:32	671258	1
21911121912	2191125A_61.d	Sample	11/25/2019 23:43	671258	1
21911121913	2191125A_62.d	Sample	11/25/2019 23:54	671258	1
21911121914	2191125A_63.d	Sample	11/26/2019 0:06	671258	1
21911121915	2191125A_64.d	Sample	11/26/2019 0:17	671258	1
21911121916	2191125A_65.d	Sample	11/26/2019 0:29	671258	1
21911121917	2191125A_66.d	Sample	11/26/2019 0:40	671258	1
1400	2191125A_67.d	QC	11/26/2019 0:51		1
MeOH Shot	2191125A_68.d	MeOH Shot	11/26/2019 1:03	Instrument idle/MeOH Shot	1
21910233302	2191125A_69.d	Sample	11/26/2019 1:13	671638	1
21910233303	2191125A_70.d	Sample	11/26/2019 1:25	671638	1
21910233307	2191125A_71.d	Sample	11/26/2019 1:36	671638	1
21910233312	2191125A_72.d	Sample	11/26/2019 1:47	671638	1
21910233318	2191125A_73.d	Sample	11/26/2019 1:59	671638	1
21910271702	2191125A_74.d	Sample	11/26/2019 2:10	671638	1
21910271703	2191125A_75.d	Sample	11/26/2019 2:21	671638	1
21910271711	2191125A_76.d	Sample	11/26/2019 2:33	671638	1
21910232608	2191125A_77.d	Sample	11/26/2019 2:44	671638	1
21910232609	2191125A_78.d	QC	11/26/2019 2:56	671638	1
21910232610	2191125A_79.d	QC	11/26/2019 3:07	671638	1
1400	2191125A_80.d	QC	11/26/2019 3:18		1
21910232611	2191125A_81.d	Sample	11/26/2019 3:29	671638	1
21910232612	2191125A_82.d	QC	11/26/2019 3:41	671638	1
21910232613	2191125A_83.d	QC	11/26/2019 3:52	671638	1
21911196669	2191125A_84.d	Sample	11/26/2019 4:03	671638	1
1400	2191125A_85.d	QC	11/26/2019 4:14		1
MeOH Shot	2191125A_86.d	MeOH Shot	11/26/2019 4:26	Instrument idle/MeOH Shot	1
MeOH Shot	2191125A_87.d	MeOH Shot	11/26/2019 4:36	Instrument idle/MeOH Shot	1

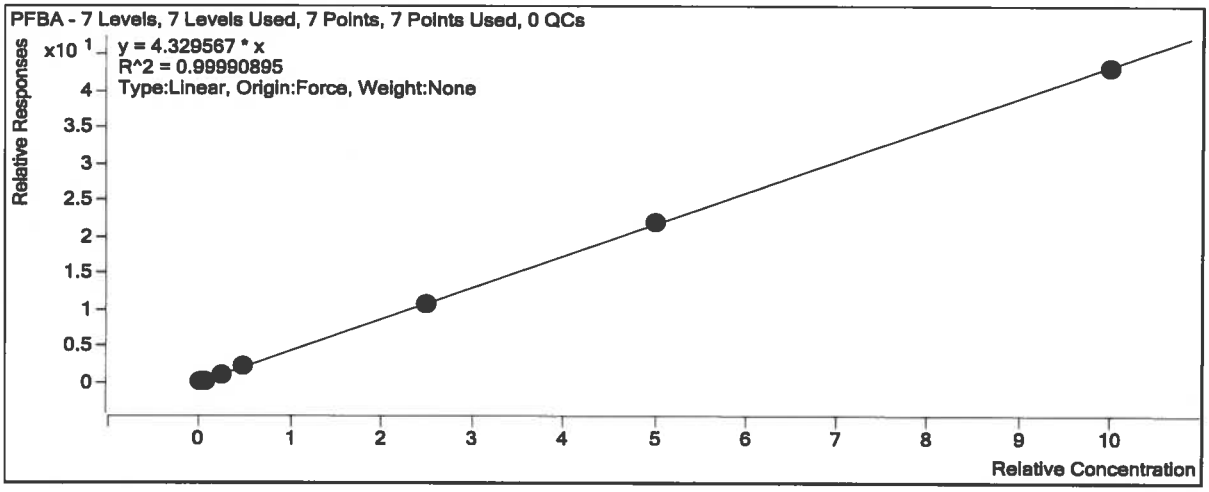
Quantitative Analysis Calibration Report

Batch Data Path	D:\MassHunter\Data\2191125ACAL\QuantResults\2191125A.batch.bin		
Analysis Time	12/8/2019 6:21 PM	**Analyst Name**	GCAL\lcms
Report Time	12/8/2019 6:23 PM	**Reporter Name**	GCAL\lcms
Last Calib Update	11/25/2019 2:03 PM	**Batch State**	Processed

Calibration Info

Target Compound *PFBA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191125ACAL\2191125A_05.d	Calibration	1	☑	3697	0.5000	4.2122
D:\MassHunter\Data\2191125ACAL\2191125A_06.d	Calibration	2	☑	8739	1.2500	4.0989
D:\MassHunter\Data\2191125ACAL\2191125A_07.d	Calibration	3	☑	35914	5.0000	4.2290
D:\MassHunter\Data\2191125ACAL\2191125A_08.d	Calibration	4	☑	75680	10.0000	4.4233
D:\MassHunter\Data\2191125ACAL\2191125A_09.d	Calibration	5	☑	370064	50.0000	4.3798
D:\MassHunter\Data\2191125ACAL\2191125A_10.d	Calibration	6	☑	743122	100.0000	4.3895
D:\MassHunter\Data\2191125ACAL\2191125A_11.d	Calibration	7	☑	1474413	200.0000	4.3113



Extracted ISTD *MPFBA*

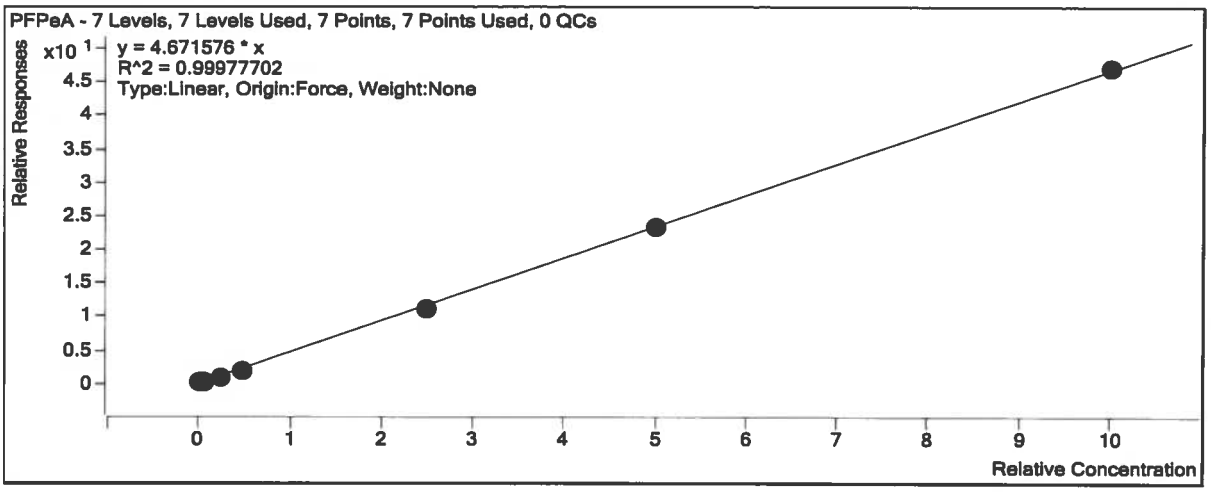
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191125ACAL\2191125A_05.d	Calibration	1	☑	35103	20.0000	1755.1378
D:\MassHunter\Data\2191125ACAL\2191125A_06.d	Calibration	2	☑	34112	20.0000	1705.6233
D:\MassHunter\Data\2191125ACAL\2191125A_07.d	Calibration	3	☑	33969	20.0000	1698.4434
D:\MassHunter\Data\2191125ACAL\2191125A_08.d	Calibration	4	☑	34219	20.0000	1710.9261
D:\MassHunter\Data\2191125ACAL\2191125A_09.d	Calibration	5	☑	33797	20.0000	1689.8745
D:\MassHunter\Data\2191125ACAL\2191125A_10.d	Calibration	6	☑	33859	20.0000	1692.9510
D:\MassHunter\Data\2191125ACAL\2191125A_11.d	Calibration	7	☑	34199	20.0000	1709.9473

Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191125ACAL\2191125A_08.d	Calibration	4	☑	23076	20.0000	1153.8192
D:\MassHunter\Data\2191125ACAL\2191125A_09.d	Calibration	5	☑	22701	20.0000	1135.0263
D:\MassHunter\Data\2191125ACAL\2191125A_10.d	Calibration	6	☑	22103	20.0000	1105.1421
D:\MassHunter\Data\2191125ACAL\2191125A_11.d	Calibration	7	☑	21737	20.0000	1086.8452

Target Compound *PFPeA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191125ACAL\2191125A_05.d	Calibration	1	☑	2391	0.5000	4.1954
D:\MassHunter\Data\2191125ACAL\2191125A_06.d	Calibration	2	☑	5804	1.2500	4.1220
D:\MassHunter\Data\2191125ACAL\2191125A_07.d	Calibration	3	☑	23018	5.0000	4.0171
D:\MassHunter\Data\2191125ACAL\2191125A_08.d	Calibration	4	☑	47444	10.0000	4.1119
D:\MassHunter\Data\2191125ACAL\2191125A_09.d	Calibration	5	☑	254751	50.0000	4.4889
D:\MassHunter\Data\2191125ACAL\2191125A_10.d	Calibration	6	☑	511767	100.0000	4.6308
D:\MassHunter\Data\2191125ACAL\2191125A_11.d	Calibration	7	☑	1020553	200.0000	4.6950



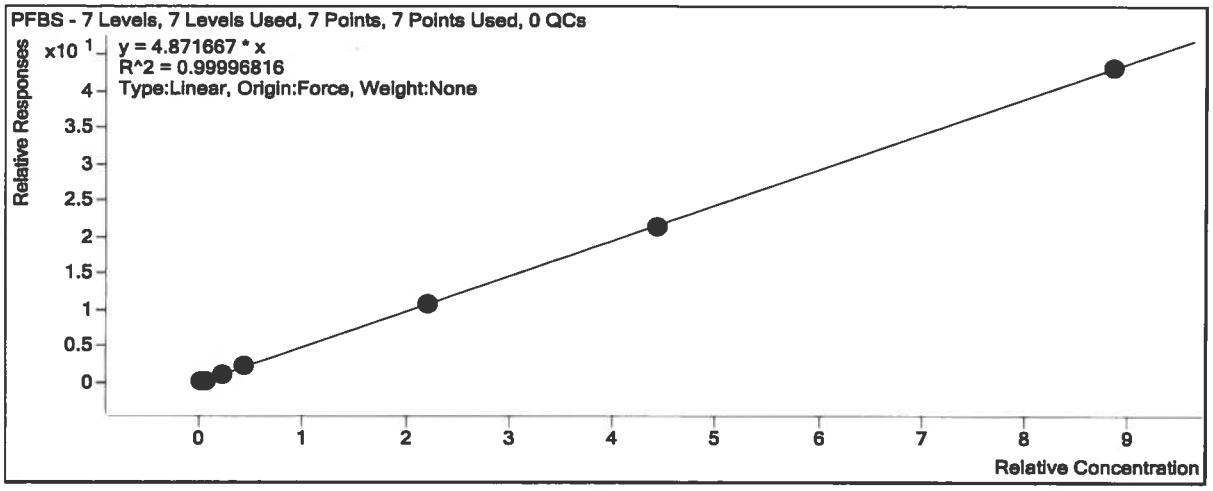
Extracted ISTD *M3PFBS*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191125ACAL\2191125A_05.d	Calibration	1	☑	21332	20.0000	1066.5960
D:\MassHunter\Data\2191125ACAL\2191125A_06.d	Calibration	2	☑	21225	20.0000	1061.2381
D:\MassHunter\Data\2191125ACAL\2191125A_07.d	Calibration	3	☑	21504	20.0000	1075.2166
D:\MassHunter\Data\2191125ACAL\2191125A_08.d	Calibration	4	☑	20920	20.0000	1046.0181

Quantitative Analysis Calibration Report

Target Compound ***PFBS***

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191125ACAL\2191125A_05.d	Calibration	1	☑	2096	0.4425	4.4408
D:\MassHunter\Data\2191125ACAL\2191125A_06.d	Calibration	2	☑	5491	1.1100	4.6614
D:\MassHunter\Data\2191125ACAL\2191125A_07.d	Calibration	3	☑	22663	4.4250	4.7634
D:\MassHunter\Data\2191125ACAL\2191125A_08.d	Calibration	4	☑	46736	8.8500	5.0486
D:\MassHunter\Data\2191125ACAL\2191125A_09.d	Calibration	5	☑	225707	44.2500	4.8818
D:\MassHunter\Data\2191125ACAL\2191125A_10.d	Calibration	6	☑	455071	88.5000	4.8295
D:\MassHunter\Data\2191125ACAL\2191125A_11.d	Calibration	7	☑	905845	177.0000	4.8812

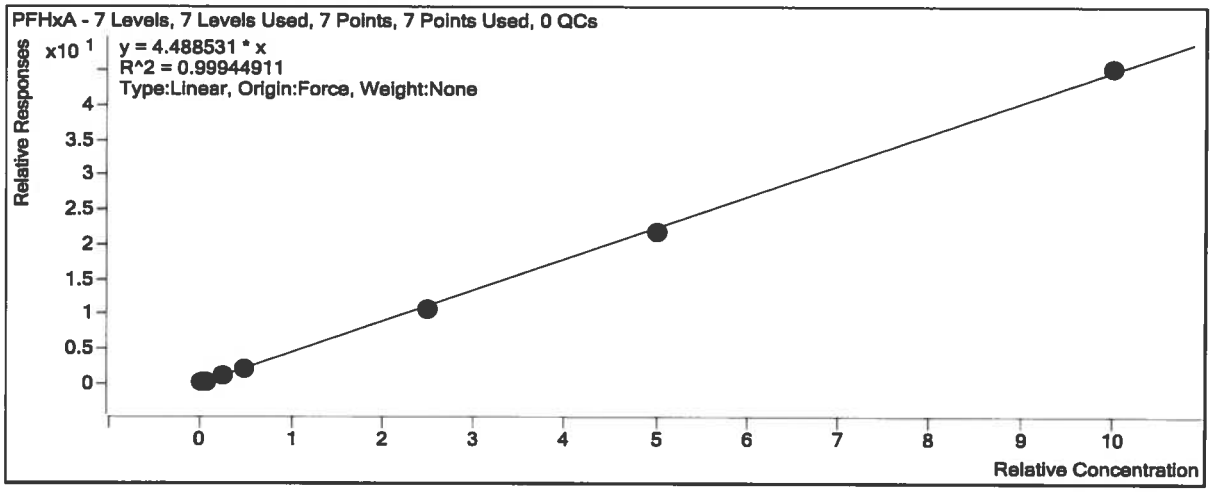


Target Compound ***4:2 FTS***

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191125ACAL\2191125A_05.d	Calibration	1	☑	2218	0.4675	11.9161
D:\MassHunter\Data\2191125ACAL\2191125A_06.d	Calibration	2	☑	4543	1.1700	9.9991
D:\MassHunter\Data\2191125ACAL\2191125A_07.d	Calibration	3	☑	17710	4.6700	9.7403
D:\MassHunter\Data\2191125ACAL\2191125A_08.d	Calibration	4	☑	36386	9.3500	10.9981
D:\MassHunter\Data\2191125ACAL\2191125A_09.d	Calibration	5	☑	165557	46.7500	10.1683
D:\MassHunter\Data\2191125ACAL\2191125A_10.d	Calibration	6	☑	311740	93.5000	9.7143
D:\MassHunter\Data\2191125ACAL\2191125A_11.d	Calibration	7	☑	570545	187.0000	9.6687

Quantitative Analysis Calibration Report

D:\MassHunter\Data\2191125ACAL\2191125A_05.d	Calibration	1	☑	4775	0.5000	4.8578
D:\MassHunter\Data\2191125ACAL\2191125A_06.d	Calibration	2	☑	10912	1.2500	4.4341
D:\MassHunter\Data\2191125ACAL\2191125A_07.d	Calibration	3	☑	41911	5.0000	4.2247
D:\MassHunter\Data\2191125ACAL\2191125A_08.d	Calibration	4	☑	87630	10.0000	4.4925
D:\MassHunter\Data\2191125ACAL\2191125A_09.d	Calibration	5	☑	408936	50.0000	4.2478
D:\MassHunter\Data\2191125ACAL\2191125A_10.d	Calibration	6	☑	820942	100.0000	4.3677
D:\MassHunter\Data\2191125ACAL\2191125A_11.d	Calibration	7	☑	1644798	200.0000	4.5339

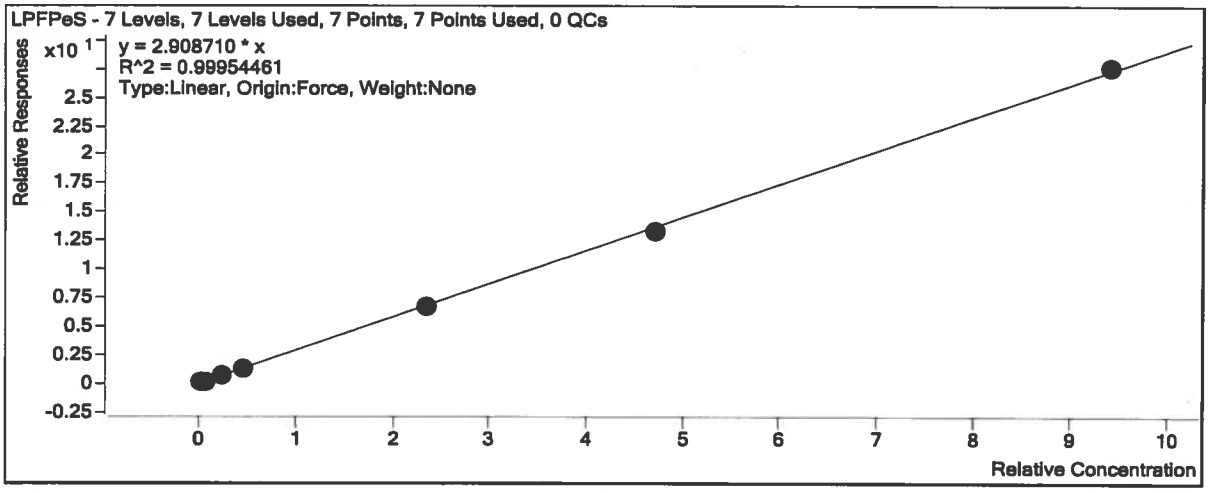


Instrument ISTD *M2PFHxA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191125ACAL\2191125A_05.d	Calibration	1	☑	340441	40.0000	8511.0129
D:\MassHunter\Data\2191125ACAL\2191125A_06.d	Calibration	2	☑	342190	40.0000	8554.7423
D:\MassHunter\Data\2191125ACAL\2191125A_07.d	Calibration	3	☑	338926	40.0000	8473.1428
D:\MassHunter\Data\2191125ACAL\2191125A_08.d	Calibration	4	☑	335988	40.0000	8399.7021
D:\MassHunter\Data\2191125ACAL\2191125A_09.d	Calibration	5	☑	352170	40.0000	8804.2587
D:\MassHunter\Data\2191125ACAL\2191125A_10.d	Calibration	6	☑	338639	40.0000	8465.9768
D:\MassHunter\Data\2191125ACAL\2191125A_11.d	Calibration	7	☑	332735	40.0000	8318.3843

Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191125ACAL\2191125A_11.d	Calibration	7	☑	1001330	188.0000	2.9364



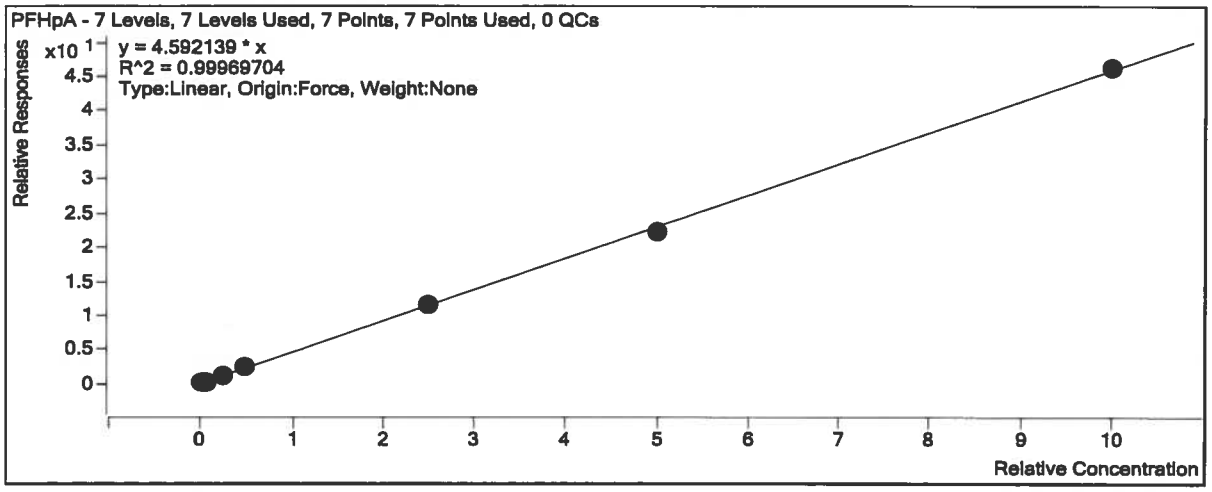
Extracted ISTD *M3HFPODA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191125ACAL\2191125A_05.d	Calibration	1	☑	1889	20.0000	94.4680
D:\MassHunter\Data\2191125ACAL\2191125A_06.d	Calibration	2	☑	1834	20.0000	91.6910
D:\MassHunter\Data\2191125ACAL\2191125A_07.d	Calibration	3	☑	1921	20.0000	96.0631
D:\MassHunter\Data\2191125ACAL\2191125A_08.d	Calibration	4	☑	2095	20.0000	104.7449
D:\MassHunter\Data\2191125ACAL\2191125A_09.d	Calibration	5	☑	1915	20.0000	95.7282
D:\MassHunter\Data\2191125ACAL\2191125A_10.d	Calibration	6	☑	1903	20.0000	95.1583
D:\MassHunter\Data\2191125ACAL\2191125A_11.d	Calibration	7	☑	2123	20.0000	106.1470

Target Compound *HFPO-DA*

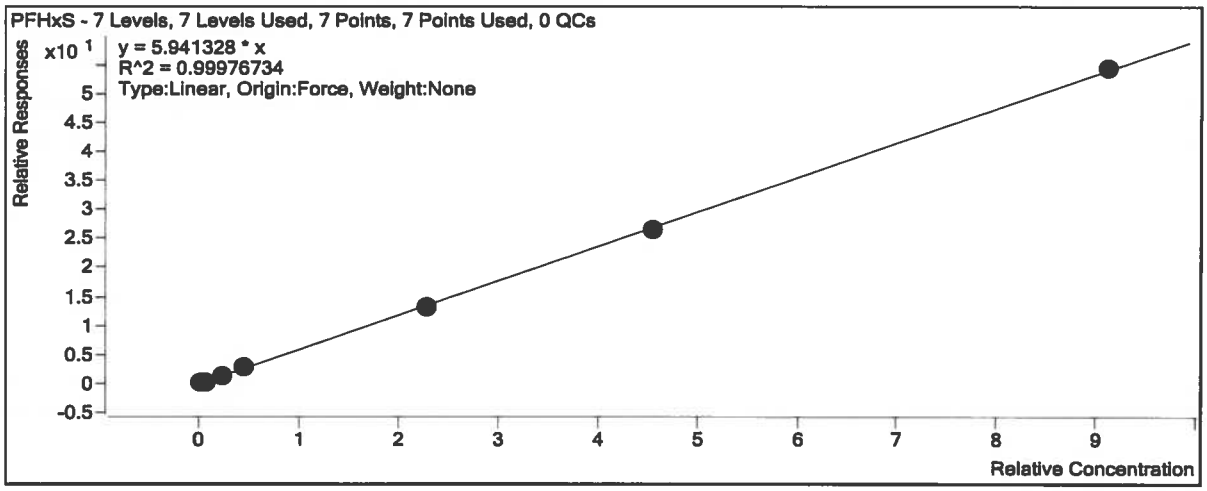
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191125ACAL\2191125A_05.d	Calibration	1	☑	259	0.5000	5.4799
D:\MassHunter\Data\2191125ACAL\2191125A_06.d	Calibration	2	☑	578	1.2500	5.0416
D:\MassHunter\Data\2191125ACAL\2191125A_07.d	Calibration	3	☑	2116	5.0000	4.4051
D:\MassHunter\Data\2191125ACAL\2191125A_08.d	Calibration	4	☑	4020	10.0000	3.8376
D:\MassHunter\Data\2191125ACAL\2191125A_09.d	Calibration	5	☑	20120	50.0000	4.2035
D:\MassHunter\Data\2191125ACAL\2191125A_10.d	Calibration	6	☑	43581	100.0000	4.5799
D:\MassHunter\Data\2191125ACAL\2191125A_11.d	Calibration	7	☑	89112	200.0000	4.1976

Quantitative Analysis Calibration Report



Target Compound *PFHxS*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191125ACAL\2191125A_05.d	Calibration	1	☑	2818	0.4560	6.0834
D:\MassHunter\Data\2191125ACAL\2191125A_06.d	Calibration	2	☑	6840	1.1400	5.9614
D:\MassHunter\Data\2191125ACAL\2191125A_07.d	Calibration	3	☑	27932	4.5600	5.9145
D:\MassHunter\Data\2191125ACAL\2191125A_08.d	Calibration	4	☑	59345	9.1200	6.4101
D:\MassHunter\Data\2191125ACAL\2191125A_09.d	Calibration	5	☑	281472	45.6000	5.7663
D:\MassHunter\Data\2191125ACAL\2191125A_10.d	Calibration	6	☑	557443	91.2000	5.8312
D:\MassHunter\Data\2191125ACAL\2191125A_11.d	Calibration	7	☑	1108839	182.4000	5.9786

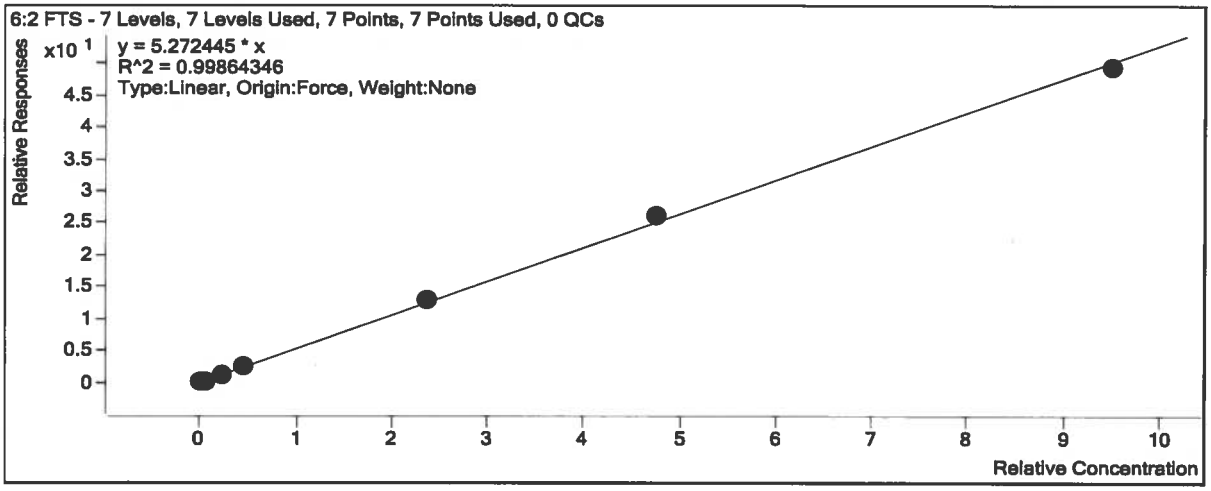


Extracted ISTD *M3PFHxS*

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

Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191125ACAL\2191125A_08.d	Calibration	4	☑	40085	9.5000	5.7837
D:\MassHunter\Data\2191125ACAL\2191125A_09.d	Calibration	5	☑	182793	47.5000	5.5189
D:\MassHunter\Data\2191125ACAL\2191125A_10.d	Calibration	6	☑	338881	95.0000	5.5490
D:\MassHunter\Data\2191125ACAL\2191125A_11.d	Calibration	7	☑	609007	190.0000	5.1865



Extracted ISTD *M8PFOA*

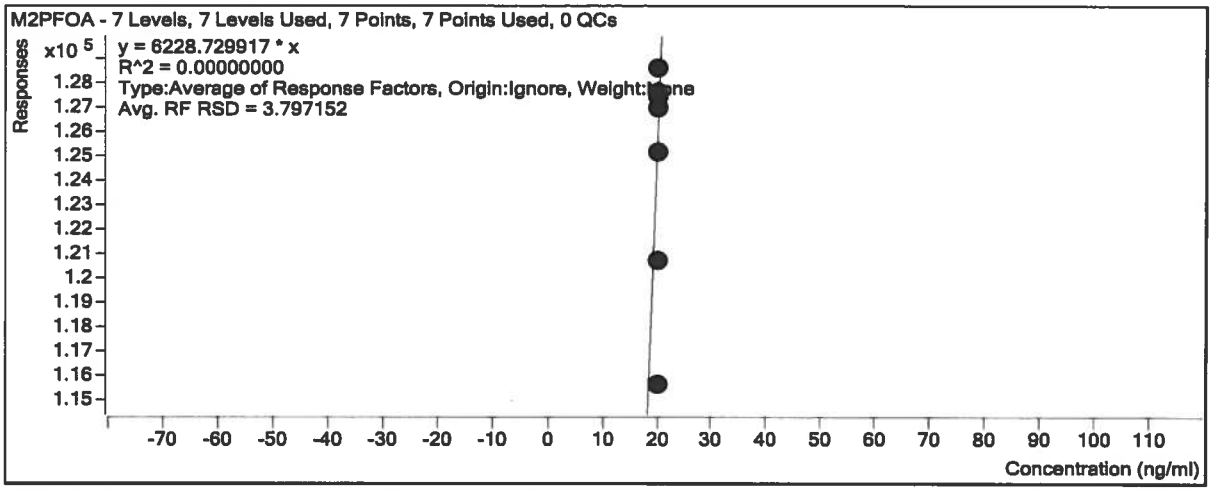
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191125ACAL\2191125A_05.d	Calibration	1	☑	26837	20.0000	1341.8504
D:\MassHunter\Data\2191125ACAL\2191125A_06.d	Calibration	2	☑	27924	20.0000	1396.2175
D:\MassHunter\Data\2191125ACAL\2191125A_07.d	Calibration	3	☑	26325	20.0000	1316.2507
D:\MassHunter\Data\2191125ACAL\2191125A_08.d	Calibration	4	☑	27516	20.0000	1375.7905
D:\MassHunter\Data\2191125ACAL\2191125A_09.d	Calibration	5	☑	26732	20.0000	1336.6183
D:\MassHunter\Data\2191125ACAL\2191125A_10.d	Calibration	6	☑	25382	20.0000	1269.1140
D:\MassHunter\Data\2191125ACAL\2191125A_11.d	Calibration	7	☑	24878	20.0000	1243.9009

Instrument ISTD *M2PFOA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191125ACAL\2191125A_05.d	Calibration	1	☑	127408	20.0000	6370.4200
D:\MassHunter\Data\2191125ACAL\2191125A_06.d	Calibration	2	☑	127582	20.0000	6379.0995
D:\MassHunter\Data\2191125ACAL\2191125A_07.d	Calibration	3	☑	126974	20.0000	6348.6769
D:\MassHunter\Data\2191125ACAL\2191125A_08.d	Calibration	4	☑	125174	20.0000	6258.7025

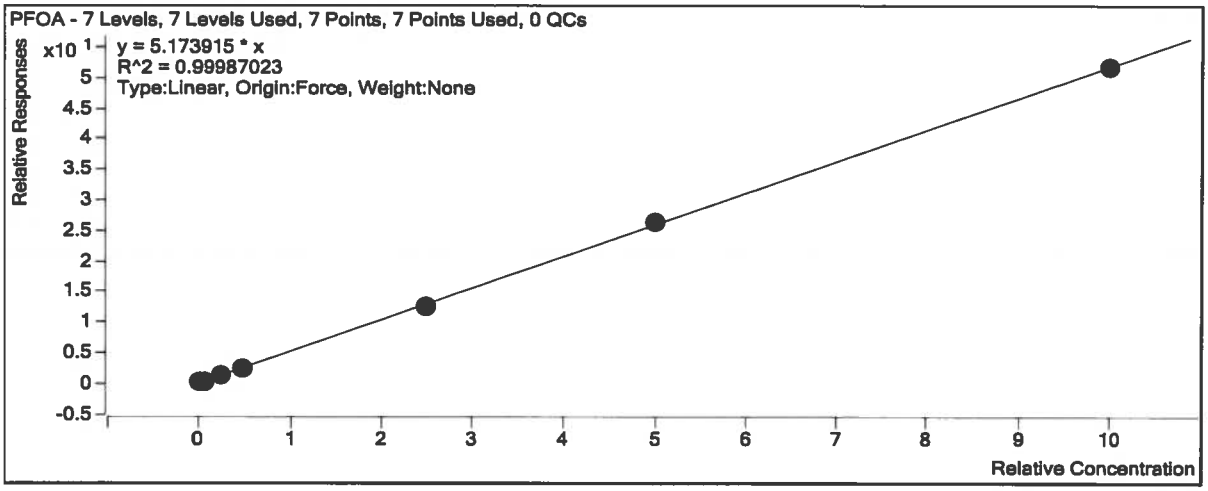
Quantitative Analysis Calibration Report

D:\MassHunter\Data\2191125ACAL\2191125A_09.d	Calibration	5	☑	128570	20.0000	6428.4895
D:\MassHunter\Data\2191125ACAL\2191125A_10.d	Calibration	6	☑	120681	20.0000	6034.0414
D:\MassHunter\Data\2191125ACAL\2191125A_11.d	Calibration	7	☑	115634	20.0000	5781.6796



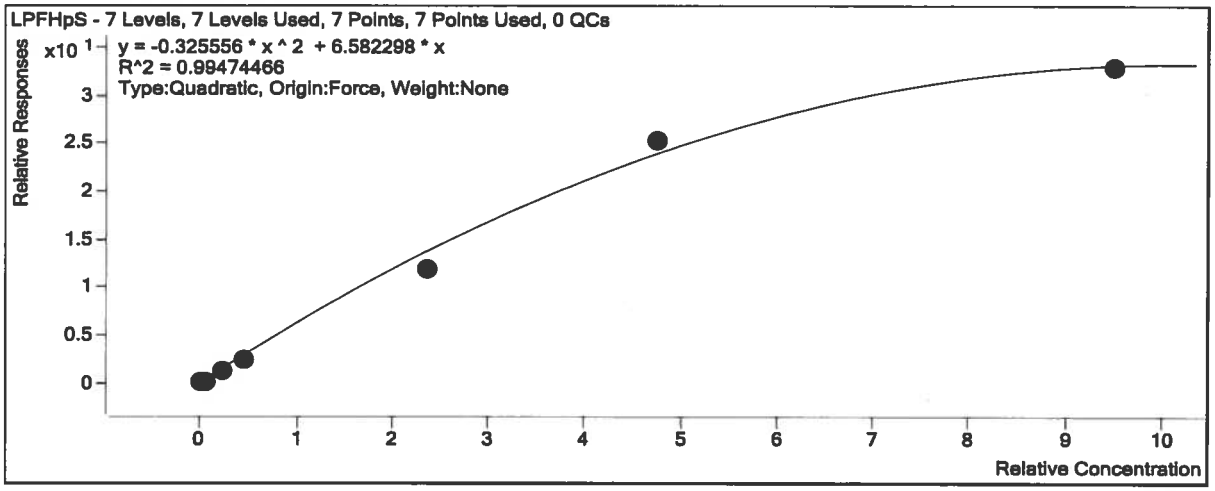
Target Compound ***PFOA***

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191125ACAL\2191125A_05.d	Calibration	1	☑	3512	0.5000	5.2343
D:\MassHunter\Data\2191125ACAL\2191125A_06.d	Calibration	2	☑	7854	1.2500	4.4999
D:\MassHunter\Data\2191125ACAL\2191125A_07.d	Calibration	3	☑	32367	5.0000	4.9181
D:\MassHunter\Data\2191125ACAL\2191125A_08.d	Calibration	4	☑	71204	10.0000	5.1755
D:\MassHunter\Data\2191125ACAL\2191125A_09.d	Calibration	5	☑	335574	50.0000	5.0212
D:\MassHunter\Data\2191125ACAL\2191125A_10.d	Calibration	6	☑	665858	100.0000	5.2466
D:\MassHunter\Data\2191125ACAL\2191125A_11.d	Calibration	7	☑	1285064	200.0000	5.1655



Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191125ACAL\2191125A_11.d	Calibration	7	☑	818415	190.0000	3.4629



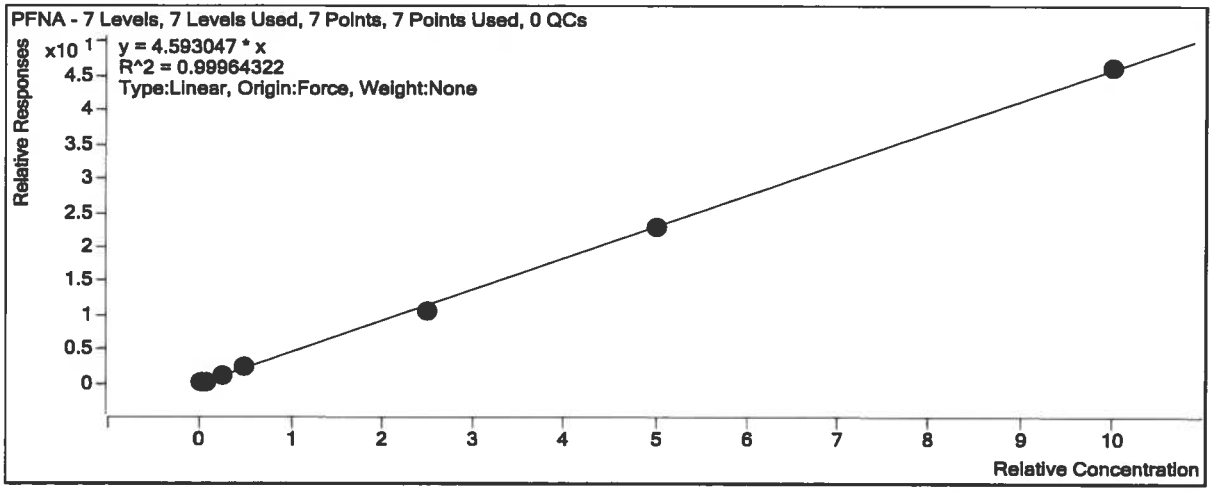
Extracted ISTD *M9PFNA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191125ACAL\2191125A_05.d	Calibration	1	☑	31007	20.0000	1550.3283
D:\MassHunter\Data\2191125ACAL\2191125A_06.d	Calibration	2	☑	29069	20.0000	1453.4500
D:\MassHunter\Data\2191125ACAL\2191125A_07.d	Calibration	3	☑	29123	20.0000	1456.1637
D:\MassHunter\Data\2191125ACAL\2191125A_08.d	Calibration	4	☑	28492	20.0000	1424.6064
D:\MassHunter\Data\2191125ACAL\2191125A_09.d	Calibration	5	☑	30386	20.0000	1519.2815
D:\MassHunter\Data\2191125ACAL\2191125A_10.d	Calibration	6	☑	29608	20.0000	1480.4055
D:\MassHunter\Data\2191125ACAL\2191125A_11.d	Calibration	7	☑	28016	20.0000	1400.8173

Target Compound *PFNA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191125ACAL\2191125A_05.d	Calibration	1	☑	3386	0.5000	4.3683
D:\MassHunter\Data\2191125ACAL\2191125A_06.d	Calibration	2	☑	7476	1.2500	4.1149
D:\MassHunter\Data\2191125ACAL\2191125A_07.d	Calibration	3	☑	32840	5.0000	4.5105
D:\MassHunter\Data\2191125ACAL\2191125A_08.d	Calibration	4	☑	68663	10.0000	4.8198
D:\MassHunter\Data\2191125ACAL\2191125A_09.d	Calibration	5	☑	326862	50.0000	4.3028
D:\MassHunter\Data\2191125ACAL\2191125A_10.d	Calibration	6	☑	675123	100.0000	4.5604
D:\MassHunter\Data\2191125ACAL\2191125A_11.d	Calibration	7	☑	1294034	200.0000	4.6189

Quantitative Analysis Calibration Report



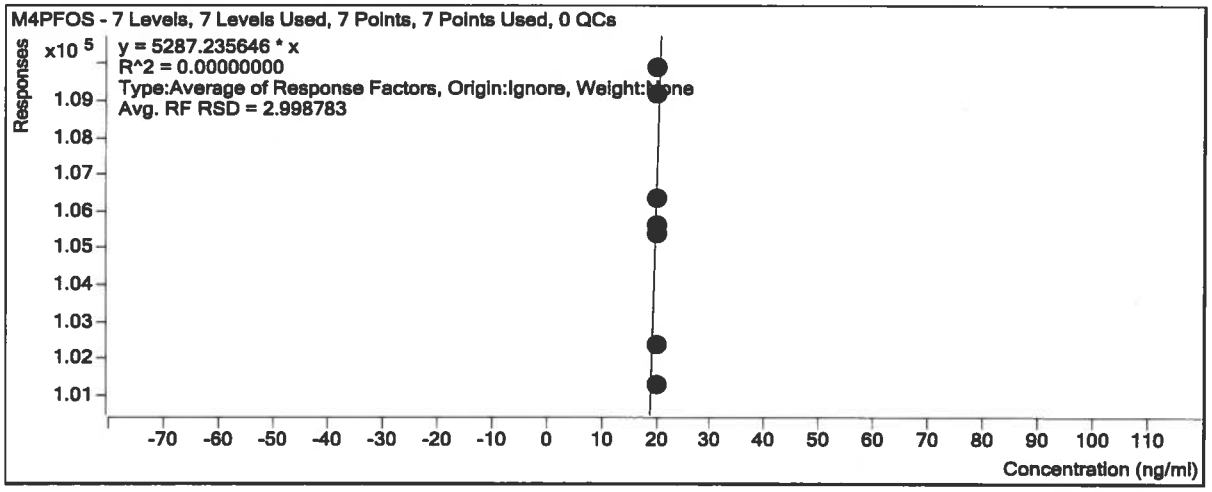
Extracted ISTD *M8PFOS*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191125ACAL\2191125A_05.d	Calibration	1	☑	11744	20.0000	587.1835
D:\MassHunter\Data\2191125ACAL\2191125A_06.d	Calibration	2	☑	11555	20.0000	577.7506
D:\MassHunter\Data\2191125ACAL\2191125A_07.d	Calibration	3	☑	12141	20.0000	607.0584
D:\MassHunter\Data\2191125ACAL\2191125A_08.d	Calibration	4	☑	10024	20.0000	501.1769
D:\MassHunter\Data\2191125ACAL\2191125A_09.d	Calibration	5	☑	11374	20.0000	568.6828
D:\MassHunter\Data\2191125ACAL\2191125A_10.d	Calibration	6	☑	11112	20.0000	555.6030
D:\MassHunter\Data\2191125ACAL\2191125A_11.d	Calibration	7	☑	12084	20.0000	604.2017

Instrument ISTD *M4PFOS*

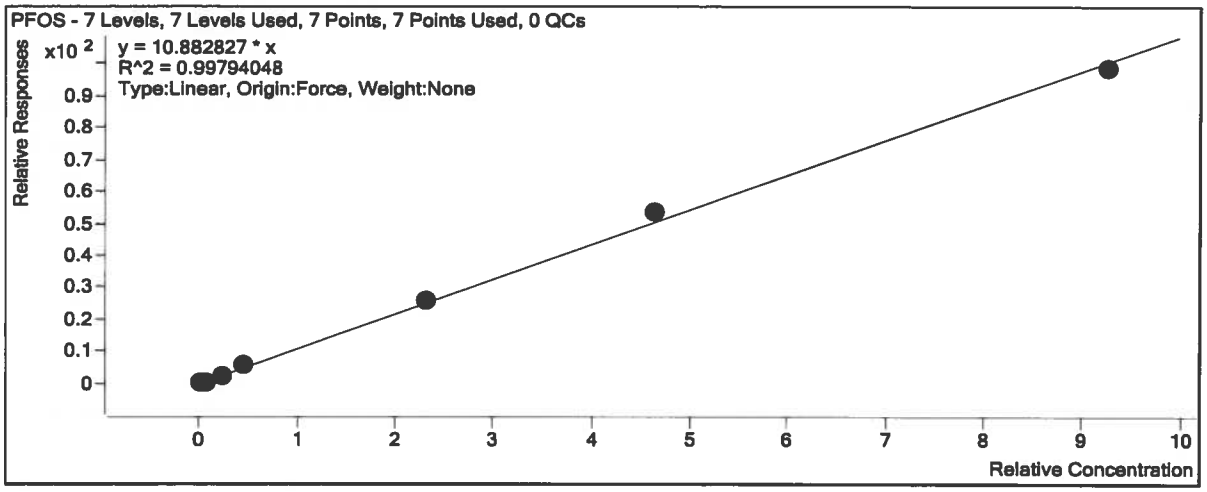
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191125ACAL\2191125A_05.d	Calibration	1	☑	105403	20.0000	5270.1499
D:\MassHunter\Data\2191125ACAL\2191125A_06.d	Calibration	2	☑	105655	20.0000	5282.7550
D:\MassHunter\Data\2191125ACAL\2191125A_07.d	Calibration	3	☑	101308	20.0000	5065.4083
D:\MassHunter\Data\2191125ACAL\2191125A_08.d	Calibration	4	☑	102406	20.0000	5120.2854
D:\MassHunter\Data\2191125ACAL\2191125A_09.d	Calibration	5	☑	109186	20.0000	5459.2864
D:\MassHunter\Data\2191125ACAL\2191125A_10.d	Calibration	6	☑	106370	20.0000	5318.4939
D:\MassHunter\Data\2191125ACAL\2191125A_11.d	Calibration	7	☑	109885	20.0000	5494.2706

Quantitative Analysis Calibration Report



Target Compound *PFOS*

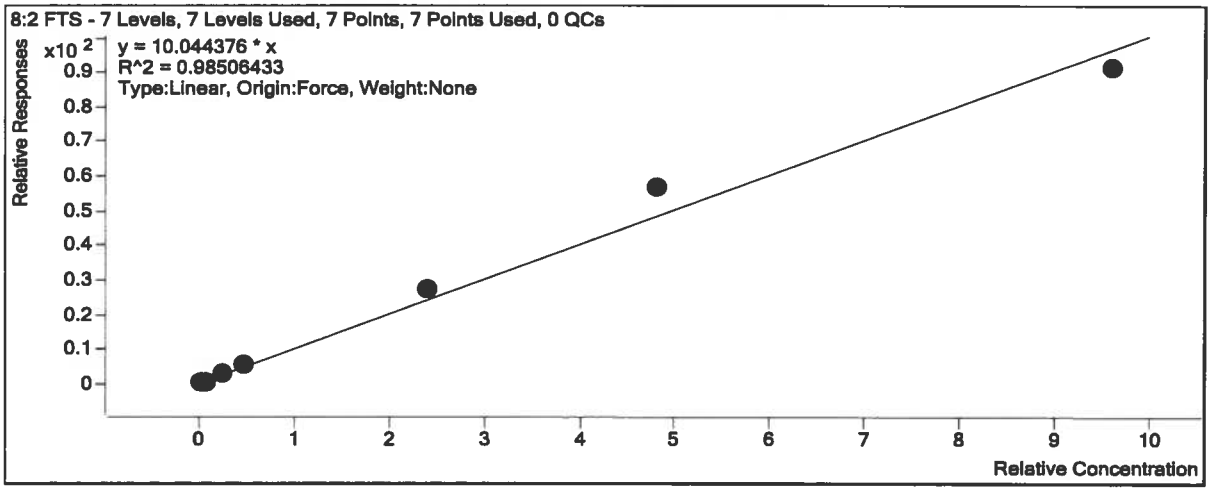
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191125ACAL\2191125A_05.d	Calibration	1	☑	2901	0.4628	10.6760
D:\MassHunter\Data\2191125ACAL\2191125A_06.d	Calibration	2	☑	7107	1.1600	10.6051
D:\MassHunter\Data\2191125ACAL\2191125A_07.d	Calibration	3	☑	29810	4.6280	10.6106
D:\MassHunter\Data\2191125ACAL\2191125A_08.d	Calibration	4	☑	61227	9.2550	13.2001
D:\MassHunter\Data\2191125ACAL\2191125A_09.d	Calibration	5	☑	295485	46.2800	11.2272
D:\MassHunter\Data\2191125ACAL\2191125A_10.d	Calibration	6	☑	597357	92.5500	11.6170
D:\MassHunter\Data\2191125ACAL\2191125A_11.d	Calibration	7	☑	1193549	185.1000	10.6722



Target Compound *9Cl-PF3ONS*

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

Quantitative Analysis Calibration Report



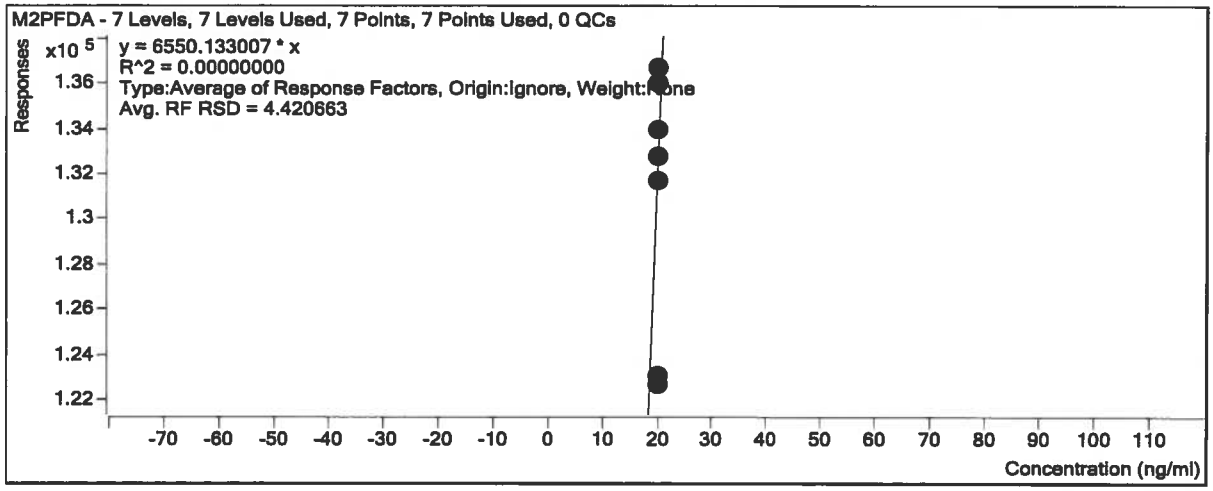
Extracted ISTD *M6PFDA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191125ACAL\2191125A_05.d	Calibration	1	☑	27337	20.0000	1366.8450
D:\MassHunter\Data\2191125ACAL\2191125A_06.d	Calibration	2	☑	26843	20.0000	1342.1741
D:\MassHunter\Data\2191125ACAL\2191125A_07.d	Calibration	3	☑	27035	20.0000	1351.7487
D:\MassHunter\Data\2191125ACAL\2191125A_08.d	Calibration	4	☑	27133	20.0000	1356.6559
D:\MassHunter\Data\2191125ACAL\2191125A_09.d	Calibration	5	☑	25605	20.0000	1280.2694
D:\MassHunter\Data\2191125ACAL\2191125A_10.d	Calibration	6	☑	23407	20.0000	1170.3531
D:\MassHunter\Data\2191125ACAL\2191125A_11.d	Calibration	7	☑	22079	20.0000	1103.9280

Instrument ISTD *M2PFDA*

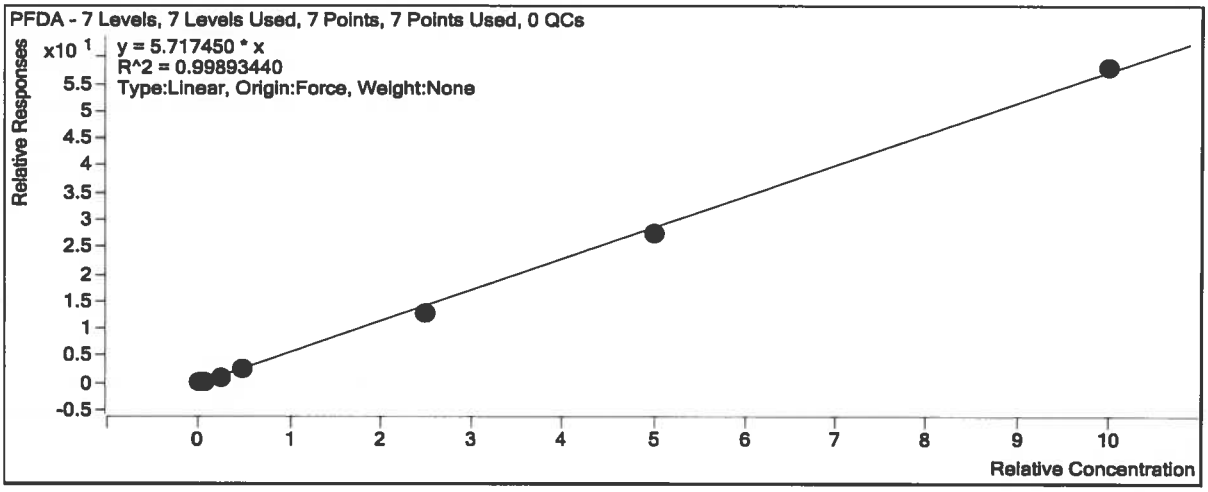
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191125ACAL\2191125A_05.d	Calibration	1	☑	132785	20.0000	6639.2714
D:\MassHunter\Data\2191125ACAL\2191125A_06.d	Calibration	2	☑	136694	20.0000	6834.6910
D:\MassHunter\Data\2191125ACAL\2191125A_07.d	Calibration	3	☑	133992	20.0000	6699.6247
D:\MassHunter\Data\2191125ACAL\2191125A_08.d	Calibration	4	☑	131753	20.0000	6587.6453
D:\MassHunter\Data\2191125ACAL\2191125A_09.d	Calibration	5	☑	135989	20.0000	6799.4429
D:\MassHunter\Data\2191125ACAL\2191125A_10.d	Calibration	6	☑	122713	20.0000	6135.6408
D:\MassHunter\Data\2191125ACAL\2191125A_11.d	Calibration	7	☑	123092	20.0000	6154.6149

Quantitative Analysis Calibration Report



Target Compound *PFDA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191125ACAL\2191125A_05.d	Calibration	1	☑	3379	0.5000	4.9443
D:\MassHunter\Data\2191125ACAL\2191125A_06.d	Calibration	2	☑	8036	1.2500	4.7897
D:\MassHunter\Data\2191125ACAL\2191125A_07.d	Calibration	3	☑	32783	5.0000	4.8505
D:\MassHunter\Data\2191125ACAL\2191125A_08.d	Calibration	4	☑	69959	10.0000	5.1567
D:\MassHunter\Data\2191125ACAL\2191125A_09.d	Calibration	5	☑	335709	50.0000	5.2444
D:\MassHunter\Data\2191125ACAL\2191125A_10.d	Calibration	6	☑	647637	100.0000	5.5337
D:\MassHunter\Data\2191125ACAL\2191125A_11.d	Calibration	7	☑	1279440	200.0000	5.7949

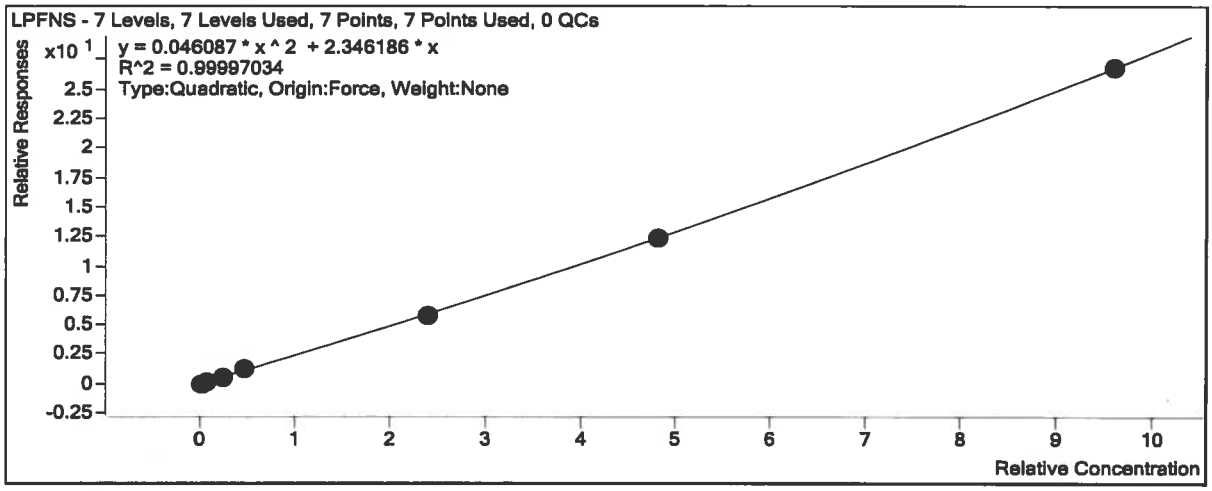


Target Compound *LPFNS*

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

Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191125ACAL\2191125A_11.d	Calibration	7	☑	749941	192.0000	2.7883



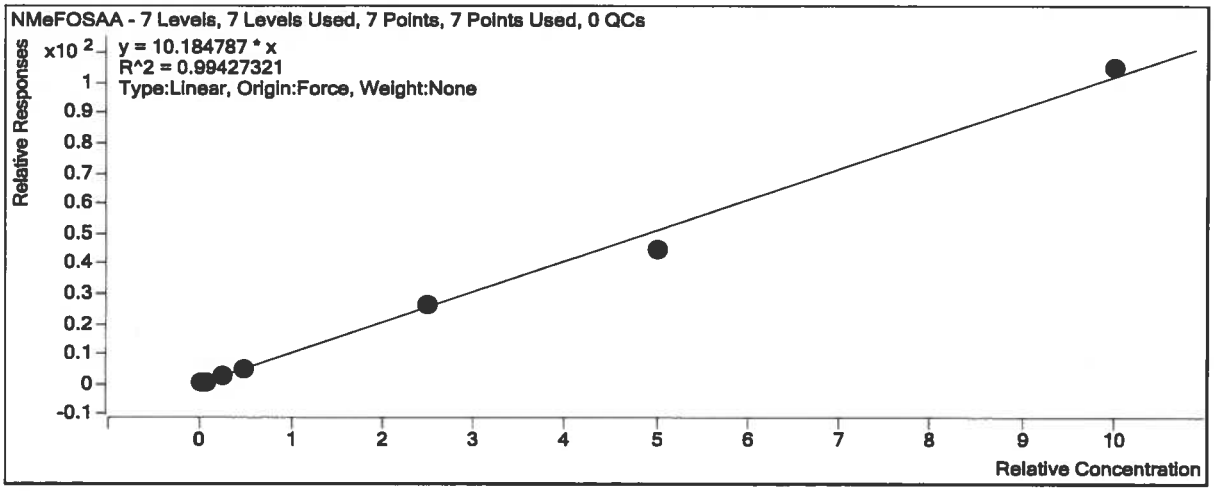
Extracted ISTD *d3-NMeFOSAA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191125ACAL\2191125A_05.d	Calibration	1	☑	4923	20.0000	246.1378
D:\MassHunter\Data\2191125ACAL\2191125A_06.d	Calibration	2	☑	4999	20.0000	249.9301
D:\MassHunter\Data\2191125ACAL\2191125A_07.d	Calibration	3	☑	5009	20.0000	250.4510
D:\MassHunter\Data\2191125ACAL\2191125A_08.d	Calibration	4	☑	4831	20.0000	241.5423
D:\MassHunter\Data\2191125ACAL\2191125A_09.d	Calibration	5	☑	4940	20.0000	246.9875
D:\MassHunter\Data\2191125ACAL\2191125A_10.d	Calibration	6	☑	5458	20.0000	272.9042
D:\MassHunter\Data\2191125ACAL\2191125A_11.d	Calibration	7	☑	5066	20.0000	253.2754

Target Compound *NMeFOSAA*

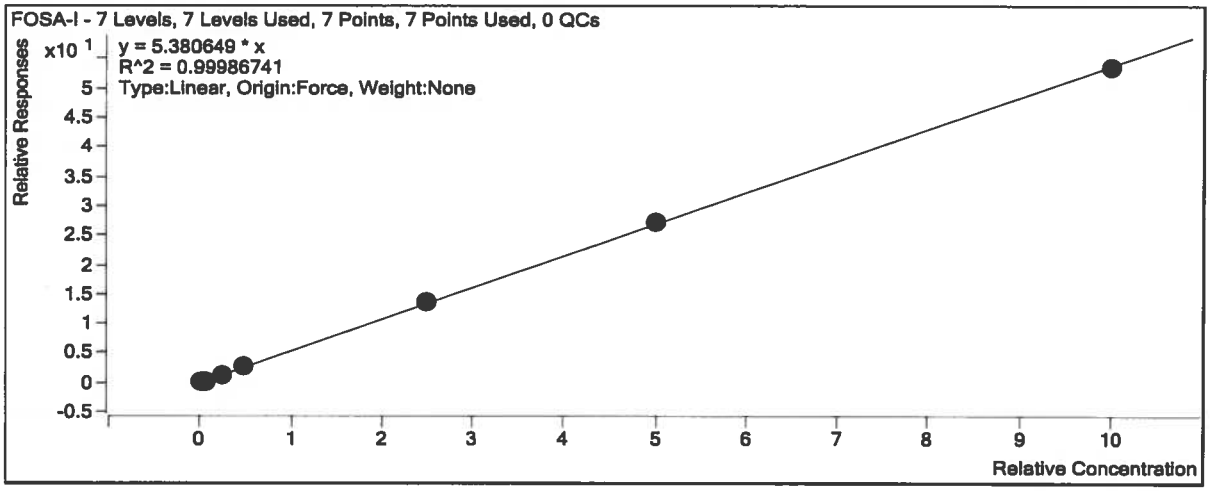
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191125ACAL\2191125A_05.d	Calibration	1	☑	1446	0.5000	11.7517
D:\MassHunter\Data\2191125ACAL\2191125A_06.d	Calibration	2	☑	2701	1.2500	8.6465
D:\MassHunter\Data\2191125ACAL\2191125A_07.d	Calibration	3	☑	12412	5.0000	9.9115
D:\MassHunter\Data\2191125ACAL\2191125A_08.d	Calibration	4	☑	25185	10.0000	10.4266
D:\MassHunter\Data\2191125ACAL\2191125A_09.d	Calibration	5	☑	130480	50.0000	10.5658
D:\MassHunter\Data\2191125ACAL\2191125A_10.d	Calibration	6	☑	243009	100.0000	8.9045
D:\MassHunter\Data\2191125ACAL\2191125A_11.d	Calibration	7	☑	530899	200.0000	10.4807

Quantitative Analysis Calibration Report



Target Compound *FOSA-I*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191125ACAL\2191125A_05.d	Calibration	1	☑	4283	0.5000	4.6569
D:\MassHunter\Data\2191125ACAL\2191125A_06.d	Calibration	2	☑	11997	1.2500	5.3904
D:\MassHunter\Data\2191125ACAL\2191125A_07.d	Calibration	3	☑	51263	5.0000	5.5303
D:\MassHunter\Data\2191125ACAL\2191125A_08.d	Calibration	4	☑	105540	10.0000	5.7728
D:\MassHunter\Data\2191125ACAL\2191125A_09.d	Calibration	5	☑	495850	50.0000	5.4526
D:\MassHunter\Data\2191125ACAL\2191125A_10.d	Calibration	6	☑	992437	100.0000	5.4645
D:\MassHunter\Data\2191125ACAL\2191125A_11.d	Calibration	7	☑	1958644	200.0000	5.3541



Extracted ISTD *M8FOSA*

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

Quantitative Analysis Calibration Report

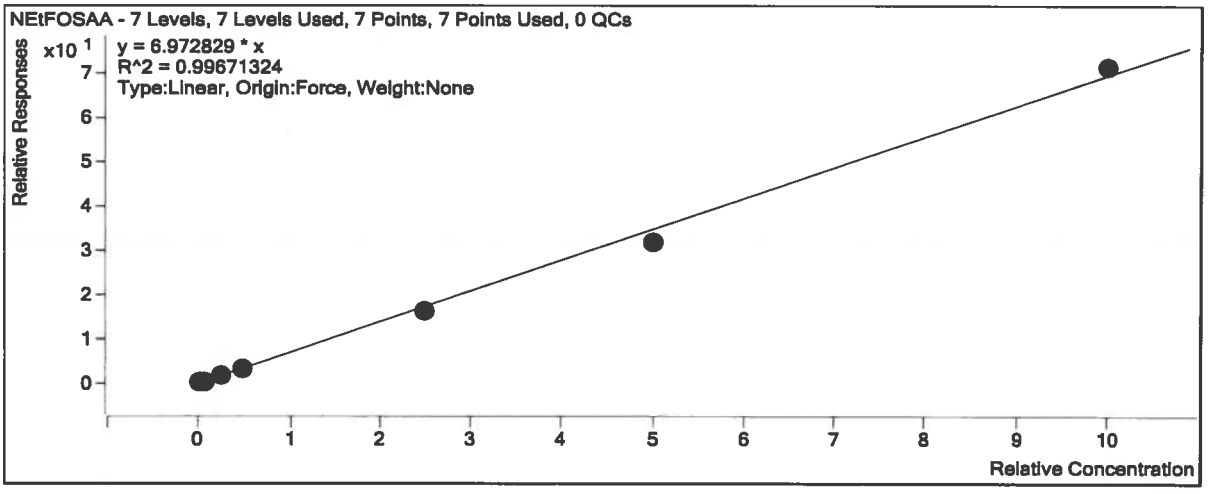
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191125ACAL\2191125A_11.d	Calibration	7	☑	36582	20.0000	1829.0991

Extracted ISTD *d5-NEtFOSAA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191125ACAL\2191125A_05.d	Calibration	1	☑	7320	20.0000	366.0075
D:\MassHunter\Data\2191125ACAL\2191125A_06.d	Calibration	2	☑	7347	20.0000	367.3424
D:\MassHunter\Data\2191125ACAL\2191125A_07.d	Calibration	3	☑	6742	20.0000	337.0773
D:\MassHunter\Data\2191125ACAL\2191125A_08.d	Calibration	4	☑	7266	20.0000	363.3047
D:\MassHunter\Data\2191125ACAL\2191125A_09.d	Calibration	5	☑	7118	20.0000	355.8995
D:\MassHunter\Data\2191125ACAL\2191125A_10.d	Calibration	6	☑	6739	20.0000	336.9460
D:\MassHunter\Data\2191125ACAL\2191125A_11.d	Calibration	7	☑	6115	20.0000	305.7271

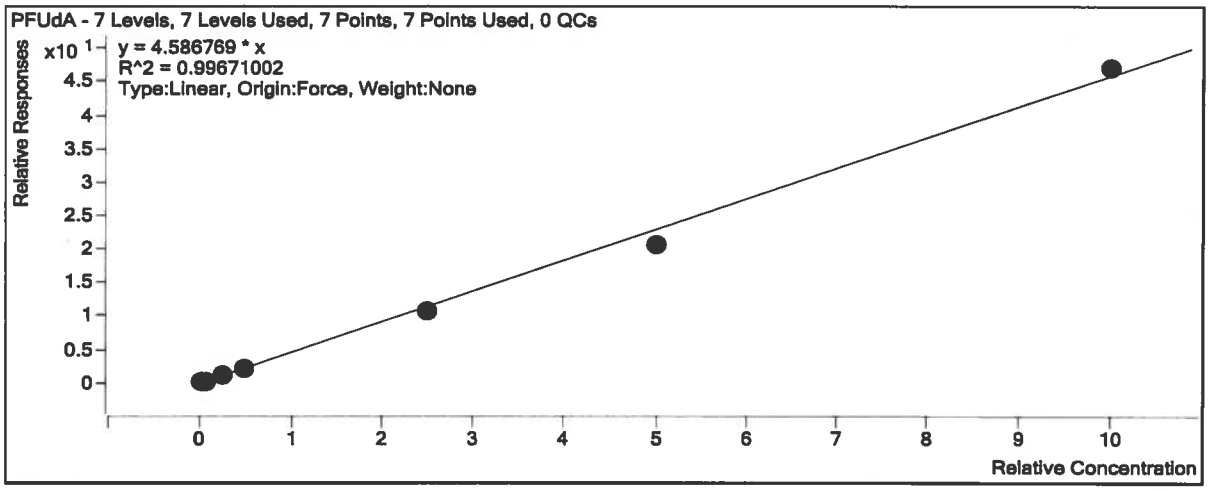
Target Compound *NEtFOSAA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191125ACAL\2191125A_05.d	Calibration	1	☑	975	0.5000	5.3281
D:\MassHunter\Data\2191125ACAL\2191125A_06.d	Calibration	2	☑	2616	1.2500	5.6978
D:\MassHunter\Data\2191125ACAL\2191125A_07.d	Calibration	3	☑	11927	5.0000	7.0765
D:\MassHunter\Data\2191125ACAL\2191125A_08.d	Calibration	4	☑	23513	10.0000	6.4719
D:\MassHunter\Data\2191125ACAL\2191125A_09.d	Calibration	5	☑	116173	50.0000	6.5284
D:\MassHunter\Data\2191125ACAL\2191125A_10.d	Calibration	6	☑	214557	100.0000	6.3677
D:\MassHunter\Data\2191125ACAL\2191125A_11.d	Calibration	7	☑	437381	200.0000	7.1531



Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191125ACAL\2191125A_08.d	Calibration	4	☑	61835	10.0000	4.4716
D:\MassHunter\Data\2191125ACAL\2191125A_09.d	Calibration	5	☑	285031	50.0000	4.3716
D:\MassHunter\Data\2191125ACAL\2191125A_10.d	Calibration	6	☑	551684	100.0000	4.1741
D:\MassHunter\Data\2191125ACAL\2191125A_11.d	Calibration	7	☑	1109124	200.0000	4.7038



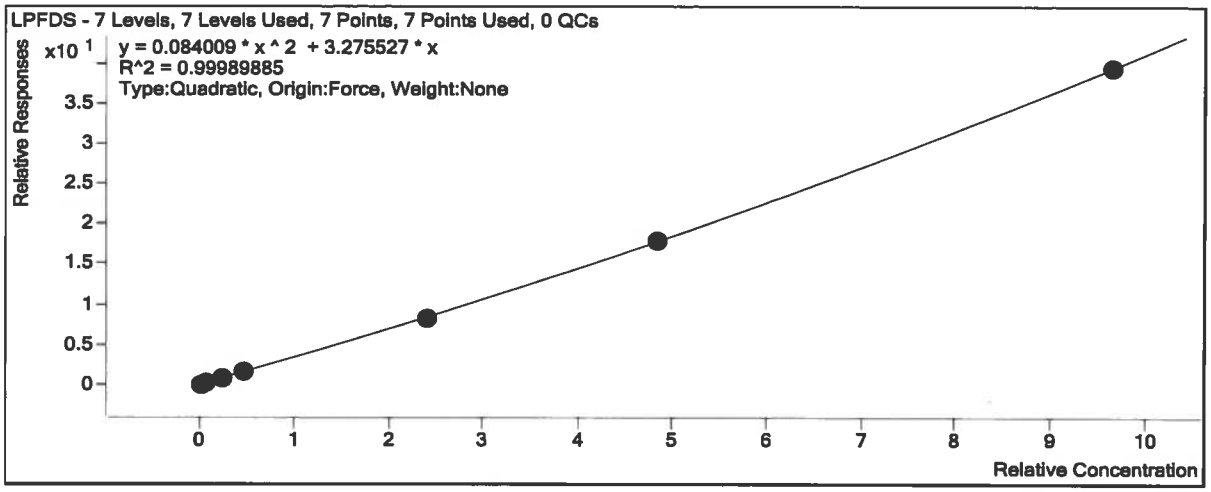
Extracted ISTD *M7PFUdA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191125ACAL\2191125A_05.d	Calibration	1	☑	28920	20.0000	1446.0047
D:\MassHunter\Data\2191125ACAL\2191125A_06.d	Calibration	2	☑	26288	20.0000	1314.3980
D:\MassHunter\Data\2191125ACAL\2191125A_07.d	Calibration	3	☑	27842	20.0000	1392.0755
D:\MassHunter\Data\2191125ACAL\2191125A_08.d	Calibration	4	☑	27657	20.0000	1382.8308
D:\MassHunter\Data\2191125ACAL\2191125A_09.d	Calibration	5	☑	26080	20.0000	1304.0201
D:\MassHunter\Data\2191125ACAL\2191125A_10.d	Calibration	6	☑	26434	20.0000	1321.6867
D:\MassHunter\Data\2191125ACAL\2191125A_11.d	Calibration	7	☑	23579	20.0000	1178.9617

Target Compound *LPFDS*

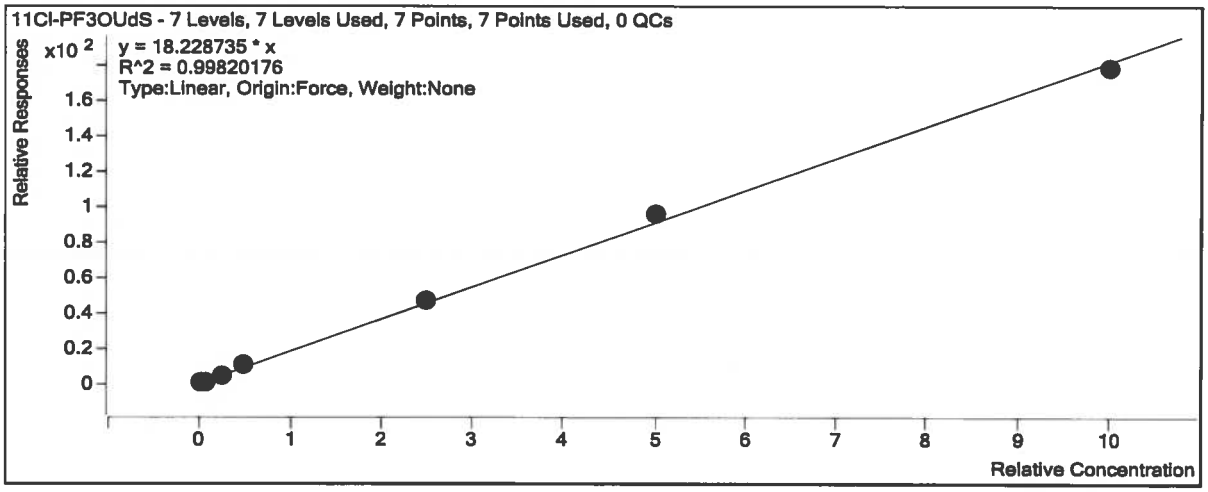
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191125ACAL\2191125A_05.d	Calibration	1	☑	1634	0.4825	2.4770
D:\MassHunter\Data\2191125ACAL\2191125A_06.d	Calibration	2	☑	4579	1.2100	2.8197
D:\MassHunter\Data\2191125ACAL\2191125A_07.d	Calibration	3	☑	20049	4.8250	3.0739
D:\MassHunter\Data\2191125ACAL\2191125A_08.d	Calibration	4	☑	41261	9.6500	3.1517

D:\MassHunter\Data\2191125ACAL\2191125A_09.d	Calibration	5	☑	208088	48.2500	3.3686
D:\MassHunter\Data\2191125ACAL\2191125A_10.d	Calibration	6	☑	420852	96.5000	3.7264
D:\MassHunter\Data\2191125ACAL\2191125A_11.d	Calibration	7	☑	869759	193.0000	4.0823



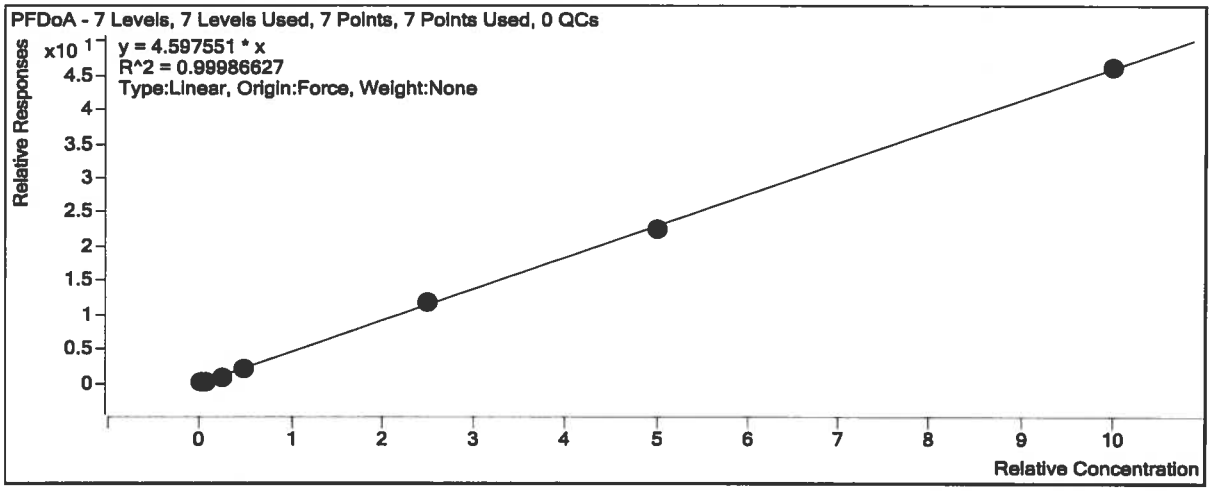
Target Compound *11Cl-PF3OUdS*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191125ACAL\2191125A_05.d	Calibration	1	☑	4752	0.5000	16.1853
D:\MassHunter\Data\2191125ACAL\2191125A_06.d	Calibration	2	☑	12695	1.2500	17.5789
D:\MassHunter\Data\2191125ACAL\2191125A_07.d	Calibration	3	☑	52709	5.0000	17.3653
D:\MassHunter\Data\2191125ACAL\2191125A_08.d	Calibration	4	☑	109037	10.0000	21.7561
D:\MassHunter\Data\2191125ACAL\2191125A_09.d	Calibration	5	☑	537888	50.0000	18.9170
D:\MassHunter\Data\2191125ACAL\2191125A_10.d	Calibration	6	☑	1075476	100.0000	19.3569
D:\MassHunter\Data\2191125ACAL\2191125A_11.d	Calibration	7	☑	2162491	200.0000	17.8954



Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191125ACAL\2191125A_11.d	Calibration	7	☑	939920	200.0000	4.6084



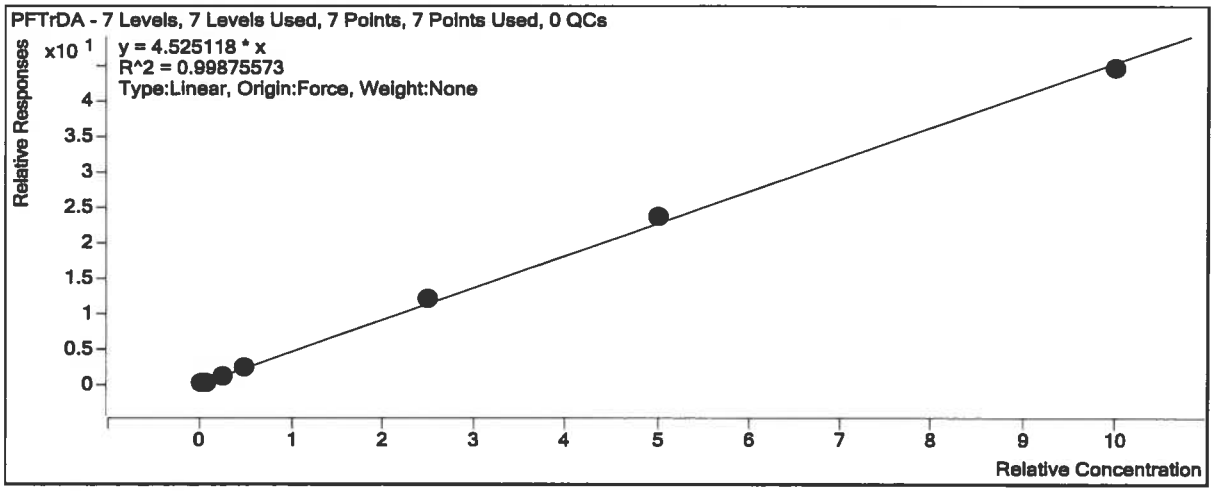
Extracted ISTD *MPFDoA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191125ACAL\2191125A_05.d	Calibration	1	☑	21486	20.0000	1074.2955
D:\MassHunter\Data\2191125ACAL\2191125A_06.d	Calibration	2	☑	19459	20.0000	972.9709
D:\MassHunter\Data\2191125ACAL\2191125A_07.d	Calibration	3	☑	20692	20.0000	1034.5962
D:\MassHunter\Data\2191125ACAL\2191125A_08.d	Calibration	4	☑	20019	20.0000	1000.9749
D:\MassHunter\Data\2191125ACAL\2191125A_09.d	Calibration	5	☑	20061	20.0000	1003.0279
D:\MassHunter\Data\2191125ACAL\2191125A_10.d	Calibration	6	☑	20225	20.0000	1011.2671
D:\MassHunter\Data\2191125ACAL\2191125A_11.d	Calibration	7	☑	20396	20.0000	1019.7863

Target Compound *PFTrDA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191125ACAL\2191125A_05.d	Calibration	1	☑	1892	0.5000	4.8057
D:\MassHunter\Data\2191125ACAL\2191125A_06.d	Calibration	2	☑	4409	1.2500	4.7949
D:\MassHunter\Data\2191125ACAL\2191125A_07.d	Calibration	3	☑	17159	5.0000	4.4758
D:\MassHunter\Data\2191125ACAL\2191125A_08.d	Calibration	4	☑	35881	10.0000	4.8871
D:\MassHunter\Data\2191125ACAL\2191125A_09.d	Calibration	5	☑	180364	50.0000	4.8115
D:\MassHunter\Data\2191125ACAL\2191125A_10.d	Calibration	6	☑	357028	100.0000	4.7306
D:\MassHunter\Data\2191125ACAL\2191125A_11.d	Calibration	7	☑	725888	200.0000	4.4550

Quantitative Analysis Calibration Report



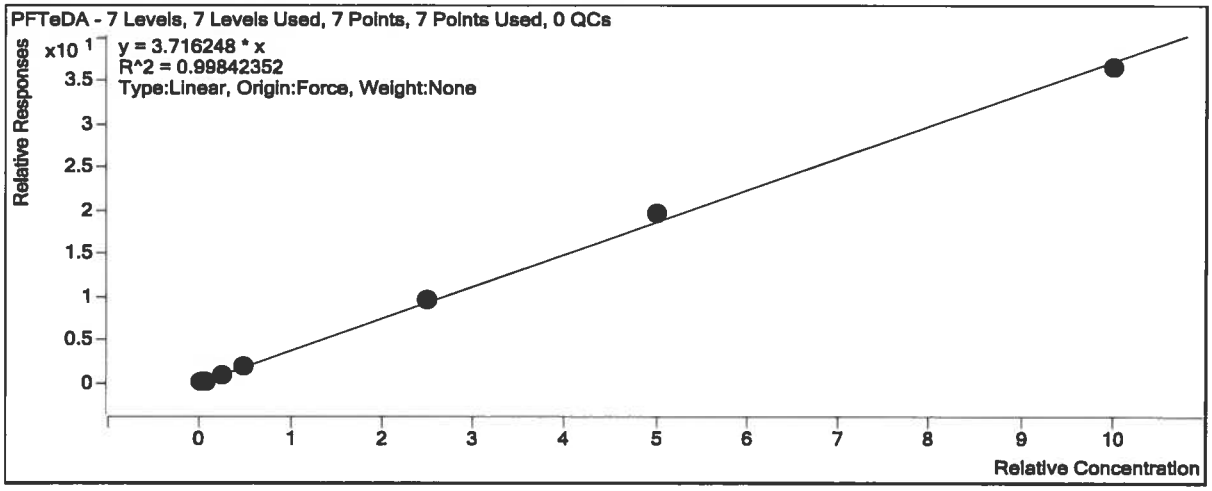
Extracted ISTD *M2PFTeDA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191125ACAL\2191125A_05.d	Calibration	1	☑	15747	20.0000	787.3381
D:\MassHunter\Data\2191125ACAL\2191125A_06.d	Calibration	2	☑	14713	20.0000	735.6499
D:\MassHunter\Data\2191125ACAL\2191125A_07.d	Calibration	3	☑	15335	20.0000	766.7407
D:\MassHunter\Data\2191125ACAL\2191125A_08.d	Calibration	4	☑	14684	20.0000	734.2117
D:\MassHunter\Data\2191125ACAL\2191125A_09.d	Calibration	5	☑	14994	20.0000	749.7235
D:\MassHunter\Data\2191125ACAL\2191125A_10.d	Calibration	6	☑	15094	20.0000	754.7128
D:\MassHunter\Data\2191125ACAL\2191125A_11.d	Calibration	7	☑	16294	20.0000	814.6979

Target Compound *PFTeDA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191125ACAL\2191125A_05.d	Calibration	1	☑	1443	0.5000	3.6661
D:\MassHunter\Data\2191125ACAL\2191125A_06.d	Calibration	2	☑	3496	1.2500	3.8018
D:\MassHunter\Data\2191125ACAL\2191125A_07.d	Calibration	3	☑	14522	5.0000	3.7879
D:\MassHunter\Data\2191125ACAL\2191125A_08.d	Calibration	4	☑	30065	10.0000	4.0948
D:\MassHunter\Data\2191125ACAL\2191125A_09.d	Calibration	5	☑	145548	50.0000	3.8827
D:\MassHunter\Data\2191125ACAL\2191125A_10.d	Calibration	6	☑	296693	100.0000	3.9312
D:\MassHunter\Data\2191125ACAL\2191125A_11.d	Calibration	7	☑	594910	200.0000	3.6511

Quantitative Analysis Calibration Report



6I

ORGANICS INITIAL CALIBRATION VERIFICATION

Report No:	219102326	Instrument ID:	QQQ1
Analysis Date:	11/25/2019 13:47	Lab File ID:	2191125A_12.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	672385

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	50000	57100	114	70	130	
8:2 Fluorotelomer sulfonate	ng/L	50000	62300	125	70	130	
NEtFOSAA	ng/L	50000	36900	74	70	130	
NMeFOSAA	ng/L	50000	40500	81	70	130	
Perfluorobutanoic acid	ng/L	50000	51100	102	70	130	
Perfluorobutanesulfonic acid	ng/L	50000	49100	98	70	130	
Perfluorodecanoic acid	ng/L	50000	47200	94	70	130	
Perfluorododecanoic acid	ng/L	50000	48600	97	70	130	
Perfluoroheptanoic acid	ng/L	50000	47800	96	70	130	
Perfluorohexanoic acid	ng/L	50000	50900	102	70	130	
Perfluorohexanesulfonic acid	ng/L	50000	51000	102	70	130	
Perfluorononanoic acid	ng/L	50000	54700	109	70	130	
Perfluorooctanoic acid	ng/L	50000	51400	103	70	130	
Perfluorooctane Sulfonate	ng/L	50000	49500	99	70	130	
Perfluoropentanoic acid	ng/L	50000	44100	88	70	130	
Perfluorotetradecanoic acid	ng/L	50000	54900	110	70	130	
Perfluorotridecanoic acid	ng/L	50000	46700	93	70	130	
Perfluoroundecanoic acid	ng/L	50000	45000	90	70	130	

7S

ORGANICS INSTRUMENT SENSITIVITY CHECK

Report No:	219102326	Instrument ID:	QQQ1
Analysis Date:	11/25/2019 13:59	Lab File ID:	2191125A_13.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	672385

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	7.93	8.93	113	70	130	
8:2 Fluorotelomer sulfonate	ng/L	8.00	8.53	107	70	130	
NEtFOSAA	ng/L	8.33	7.07	85	70	130	
NMeFOSAA	ng/L	8.33	10.7	129	70	130	
Perfluorobutanoic acid	ng/L	8.33	8.53	103	70	130	
Perfluorobutanesulfonic acid	ng/L	7.40	7.47	101	70	130	
Perfluorodecanoic acid	ng/L	8.33	6.93	83	70	130	
Perfluorododecanoic acid	ng/L	8.33	8.53	102	70	130	
Perfluoroheptanoic acid	ng/L	8.33	7.93	96	70	130	
Perfluorohexanoic acid	ng/L	8.33	8.33	100	70	130	
Perfluorohexanesulfonic acid	ng/L	7.60	7.40	98	70	130	
Perfluorononanoic acid	ng/L	8.33	8.47	102	70	130	
Perfluorooctanoic acid	ng/L	8.33	7.47	90	70	130	
Perfluorooctane Sulfonate	ng/L	7.73	8.73	113	70	130	
Perfluoropentanoic acid	ng/L	8.33	7.00	84	70	130	
Perfluorotetradecanoic acid	ng/L	8.33	8.93	107	70	130	
Perfluorotridecanoic acid	ng/L	8.33	10.1	121	70	130	
Perfluoroundecanoic acid	ng/L	8.33	7.87	94	70	130	

FORM 7S - ORG

4I

ORGANICS INSTRUMENT BLANK

Report No:	219102326	Instrument ID:	QQQ1
Analysis Date:	11/25/2019 14:10	Lab File ID:	2191125A_14.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	672385

ANALYTE	UNITS	RESULT	Q	DL	LOD	LOQ	#
6:2 Fluorotelomer sulfonate	ng/L	4.00	U	1.79	4.00	10.0	
8:2 Fluorotelomer sulfonate	ng/L	4.00	U	1.63	4.00	10.0	
NEtFOSAA	ng/L	8.00	U	5.38	8.00	10.0	
NMeFOSAA	ng/L	8.00	U	4.60	8.00	10.0	
Perfluorobutanesulfonic acid	ng/L	4.00	U	1.47	4.00	10.0	
Perfluorobutanoic acid	ng/L	4.00	U	2.13	4.00	10.0	
Perfluorodecanoic acid	ng/L	4.00	U	1.65	4.00	10.0	
Perfluorododecanoic acid	ng/L	4.00	U	2.45	4.00	10.0	
Perfluoroheptanoic acid	ng/L	4.00	U	1.85	4.00	10.0	
Perfluorohexanesulfonic acid	ng/L	4.00	U	1.64	4.00	10.0	
Perfluorohexanoic acid	ng/L	4.00	U	1.94	4.00	10.0	
Perfluorononanoic acid	ng/L	4.00	U	1.68	4.00	10.0	
Perfluorooctane Sulfonate	ng/L	4.00	U	1.70	4.00	10.0	
Perfluorooctanoic acid	ng/L	4.00	U	1.80	4.00	10.0	
Perfluoropentanoic acid	ng/L	4.00	U	2.35	4.00	10.0	
Perfluorotetradecanoic acid	ng/L	4.00	U	2.76	4.00	10.0	
Perfluorotridecanoic acid	ng/L	4.00	U	2.56	4.00	10.0	
Perfluoroundecanoic acid	ng/L	4.00	U	1.86	4.00	10.0	

* - Result greater than 1/2 LOQ

7E

ORGANICS CALIBRATION VERIFICATION

Report No:	219102333	Instrument ID:	QQQ1
Analysis Date:	11/25/2019 16:55	Lab File ID:	2191125A_25.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	672385

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	47500	49700	105	70	130	
8:2 Fluorotelomer sulfonate	ng/L	48000	54400	113	70	130	
NEtFOSAA	ng/L	50000	46800	94	70	130	
NMeFOSAA	ng/L	50000	51500	103	70	130	
Perfluorobutanoic acid	ng/L	50000	49600	99	70	130	
Perfluorobutanesulfonic acid	ng/L	44300	45200	102	70	130	
Perfluorodecanoic acid	ng/L	50000	46600	93	70	130	
Perfluorododecanoic acid	ng/L	50000	51800	104	70	130	
Perfluoroheptanoic acid	ng/L	50000	49600	99	70	130	
Perfluorohexanoic acid	ng/L	50000	49900	100	70	130	
Perfluorohexanesulfonic acid	ng/L	45600	46000	101	70	130	
Perfluorononanoic acid	ng/L	50000	51000	102	70	130	
Perfluorooctanoic acid	ng/L	50000	50000	100	70	130	
Perfluorooctane Sulfonate	ng/L	46300	50600	109	70	130	
Perfluoropentanoic acid	ng/L	50000	47500	95	70	130	
Perfluorotetradecanoic acid	ng/L	50000	53200	106	70	130	
Perfluorotridecanoic acid	ng/L	50000	54700	109	70	130	
Perfluoroundecanoic acid	ng/L	50000	48100	96	70	130	

FORM 7E - ORG

7E

ORGANICS CALIBRATION VERIFICATION

Report No:	219102333	Instrument ID:	QQQ1
Analysis Date:	11/26/2019 00:51	Lab File ID:	2191125A_67.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	672385

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	47500	46700	98	70	130	
8:2 Fluorotelomer sulfonate	ng/L	48000	54100	113	70	130	
NEtFOSAA	ng/L	50000	60100	120	70	130	
NMeFOSAA	ng/L	50000	48300	97	70	130	
Perfluorobutanoic acid	ng/L	50000	49800	100	70	130	
Perfluorobutanesulfonic acid	ng/L	44300	44200	100	70	130	
Perfluorodecanoic acid	ng/L	50000	43800	88	70	130	
Perfluorododecanoic acid	ng/L	50000	51500	103	70	130	
Perfluoroheptanoic acid	ng/L	50000	48800	98	70	130	
Perfluorohexanoic acid	ng/L	50000	47600	95	70	130	
Perfluorohexanesulfonic acid	ng/L	45600	45300	99	70	130	
Perfluorononanoic acid	ng/L	50000	51700	103	70	130	
Perfluorooctanoic acid	ng/L	50000	52700	105	70	130	
Perfluorooctane Sulfonate	ng/L	46300	50900	110	70	130	
Perfluoropentanoic acid	ng/L	50000	48900	98	70	130	
Perfluorotetradecanoic acid	ng/L	50000	52500	105	70	130	
Perfluorotridecanoic acid	ng/L	50000	56900	114	70	130	
Perfluoroundecanoic acid	ng/L	50000	48600	97	70	130	

FORM 7E - ORG

7E

ORGANICS CALIBRATION VERIFICATION

Report No:	219102333	Instrument ID:	QQQ1
Analysis Date:	11/26/2019 03:18	Lab File ID:	2191125A_80.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	672385

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	47500	48300	102	70	130	
8:2 Fluorotelomer sulfonate	ng/L	48000	51100	106	70	130	
NEtFOSAA	ng/L	50000	52600	105	70	130	
NMeFOSAA	ng/L	50000	47000	94	70	130	
Perfluorobutanoic acid	ng/L	50000	50100	100	70	130	
Perfluorobutanesulfonic acid	ng/L	44300	43200	98	70	130	
Perfluorodecanoic acid	ng/L	50000	45800	92	70	130	
Perfluorododecanoic acid	ng/L	50000	55600	111	70	130	
Perfluoroheptanoic acid	ng/L	50000	49300	99	70	130	
Perfluorohexanoic acid	ng/L	50000	46600	93	70	130	
Perfluorohexanesulfonic acid	ng/L	45600	46300	102	70	130	
Perfluorononanoic acid	ng/L	50000	49000	98	70	130	
Perfluorooctanoic acid	ng/L	50000	51900	104	70	130	
Perfluorooctane Sulfonate	ng/L	46300	52000	112	70	130	
Perfluoropentanoic acid	ng/L	50000	45200	90	70	130	
Perfluorotetradecanoic acid	ng/L	50000	51600	103	70	130	
Perfluorotridecanoic acid	ng/L	50000	51700	103	70	130	
Perfluoroundecanoic acid	ng/L	50000	47700	95	70	130	

FORM 7E - ORG

8I

INJECTION INTERNAL STANDARD AREA SUMMARY

Report No:	219102333	Standard ID:	1205 (ICAL Midpoint)
Analyst:	BMH	Instrument ID:	QQQ1
Analysis Date:	11/25/19 13:13	Lab File ID:	2191125A_09.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	672385

	M2PFDA	M2PFHxA	M2PFOA	M4PFOS
	Area	*Area*	*Area*	*Area*
STANDARD	135989	352170	128570	109186

CLIENT SAMPLE ID	*GCAL SAMP ID*		#		#		#		#
MB1983598	1983598	123003		320547		118329		87783	
LCS1983599	1983599	127746		343593		127923		90244	
LCSD1983600	1983600	125880		340435		126873		94519	
AOI7-10-SB-7.5-8-102119 (RE)	21910233327	128632		323065		120333		93250	
AOI7-5-SB-1.5-2-102119 (RE)	21910233328	139045		327392		127926		94005	
AOI7-7-SB-1.5-2-102119 (RE)	21910233329	140362		335184		131583		97327	
AOI7-11-SB-18-18.5-102119 (RE)	21910233330	129386		331846		125227		94562	
AOI7-9-SB-17-17.5-102119 (RE)	21910233331	131699		324319		121917		93137	

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 8I - ORG

8I

INJECTION INTERNAL STANDARD AREA SUMMARY

Report No:	219102717	Standard ID:	1205 (ICAL Midpoint)
Analyst:	BMH	Instrument ID:	QQQ1
Analysis Date:	11/25/19 13:13	Lab File ID:	2191125A_09.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	672385

	M2PFDA	M2PFHxA	M2PFOA	M4PFOS
	Area	*Area*	*Area*	*Area*
STANDARD	135989	352170	128570	109186

CLIENT SAMPLE ID	*GCAL SAMP ID*		#		#		#		#
MB1983598	1983598	123003		320547		118329		87783	
LCS1983599	1983599	127746		343593		127923		90244	
LCSD1983600	1983600	125880		340435		126873		94519	
AOI4-1-SB-5.5-6-102519 (RE)	21910271723	125826		315641		115679		92801	

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 8I - ORG

8I

INJECTION INTERNAL STANDARD AREA SUMMARY

Report No:	219102326	Standard ID:	1205 (ICAL Midpoint)
Analyst:	BMH	Instrument ID:	QQQ1
Analysis Date:	11/25/19 13:13	Lab File ID:	2191125A_09.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	672385

	M2PFDA	M2PFHxA	M2PFOA	M4PFOS
	Area	*Area*	*Area*	*Area*
STANDARD	135989	352170	128570	109186

CLIENT SAMPLE ID	*GCAL SAMP ID*		#		#		#		#
MB1983598	1983598	123003		320547		118329		87783	
LCS1983599	1983599	127746		343593		127923		90244	
LCSD1983600	1983600	125880		340435		126873		94519	
AOI6-3-SB-1.5-2-102219 (RE)	21910232635	129093		303220		106753		92266	
AOI6-3-SB-1.5-2-102219-MS (RE)	21910232636	134659		311347		114417		96298	
AOI6-3-SB-1.5-2-102219-MSD(RE)	21910232637	134482		311933		113252		98243	

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 8I - ORG

LCMS1 Run Log

Analyst:	BMH	Expiration
Batch:	2191127A	Date
Current ICAL Bath:	2191127ACAL/2191127ACALDW	Date
20mM Amm Acetate	010-18-3	11/28/2019
Methanol	2128552	8/31/2024
Calibration Std	010-16-7	5/21/2020
ICV Std	010-6-5	4/9/2020
EIS Mix	010-18-4	5/21/2020

Name	Data File	Type	Acq. Date-Time	Comment	Dil.
MeOH Shot	2191127A_01.d	Method Blank	11/27/2019 10:44	Instrument idle/MeOH Shot	1
1201	2191127A_02.d	Cal	11/27/2019 10:55		1
1202	2191127A_03.d	Cal	11/27/2019 11:06		1
1203	2191127A_04.d	Cal	11/27/2019 11:17		1
1204	2191127A_05.d	Cal	11/27/2019 11:29		1
1205	2191127A_06.d	Cal	11/27/2019 11:40		1
1206	2191127A_07.d	Cal	11/27/2019 11:51		1
1207	2191127A_08.d	Cal	11/27/2019 12:03		1
MeOH Shot	2191127A_09.d	Method Blank	11/27/2019 12:24	Instrument idle/MeOH Shot	1
1202	2191127A_10.d	Cal	11/27/2019 12:35	RR Low PFPeA	1
1205	2191127A_11.d	Cal	11/27/2019 12:46	RR bad injection	1
1205	2191127A_13.d	Cal	11/27/2019 14:59	RR bad injection	1
1201	2191127A_17.d	Cal	11/27/2019 15:50		1
1202	2191127A_18.d	Cal	11/27/2019 16:02		1
1203	2191127A_19.d	Cal	11/27/2019 16:13		1
1204	2191127A_20.d	Cal	11/27/2019 16:24		1
1205	2191127A_21.d	Cal	11/27/2019 16:35		1
1206	2191127A_22.d	Cal	11/27/2019 16:47		1
1207	2191127A_23.d	Cal	11/27/2019 16:58		1
1203	2191127A_25.d	Cal	11/27/2019 17:29		1
1600	2191127A_27.d	QC	11/27/2019 17:54		1
1450	2191127A_28.d	QC	11/27/2019 18:05		1

1500	2191127A_29.d	Sample	11/27/2019 18:16		1
MeOH Shot	2191127A_30.d	Method Blank	11/27/2019 18:30	Instrument idle/MeOH Shot	1
1982098	2191127A_31.d	Sample	11/27/2019 18:40	671340	1
1982099	2191127A_32.d	QC	11/27/2019 18:52	671340	1
1982100	2191127A_33.d	QC	11/27/2019 19:03	671340	1
21911134401 10x	2191127A_34.d	Sample	11/27/2019 19:14	671340	1
21911134401 5x	2191127A_35.d	Sample	11/27/2019 19:26	671340	1
1982101 10x	2191127A_36.d	QC	11/27/2019 19:37	671340	1
1982101 5x	2191127A_37.d	QC	11/27/2019 19:48	671340	1
21911134402 10x	2191127A_38.d	Sample	11/27/2019 20:00	671340	1
21911134402 5x	2191127A_39.d	Sample	11/27/2019 20:11	671340	1
21911134403 10x	2191127A_40.d	Sample	11/27/2019 20:22	671340	1
21911134403 5x	2191127A_41.d	Sample	11/27/2019 20:34	671340	1
21911134404 10x	2191127A_42.d	Sample	11/27/2019 20:45	671340	1
21911134404 5x	2191127A_43.d	Sample	11/27/2019 20:56	671340	1
21911134405 10x	2191127A_44.d	Sample	11/27/2019 21:08	671340	1
21911134405 5x	2191127A_45.d	Sample	11/27/2019 21:19	671340	1
1400	2191127A_46.d	QC	11/27/2019 21:30		1
21911134406 10x	2191127A_47.d	Sample	11/27/2019 21:42	671340	1
21911134406 5x	2191127A_48.d	Sample	11/27/2019 21:53	671340	1
21911134411 10x	2191127A_49.d	Sample	11/27/2019 22:04	671340	1
21911134411 5x	2191127A_50.d	Sample	11/27/2019 22:16	671340	1
21911134412 10x	2191127A_51.d	Sample	11/27/2019 22:27	671340	1
21911134412 5x	2191127A_52.d	Sample	11/27/2019 22:39	671340	1
21911134413 10x	2191127A_53.d	Sample	11/27/2019 22:50	671340	1
21911134413 5x	2191127A_54.d	Sample	11/27/2019 23:01	671340	1
21911134414 10x	2191127A_55.d	Sample	11/27/2019 23:13	671340	1
21911134414 5x	2191127A_56.d	Sample	11/27/2019 23:24	671340	1
1400	2191127A_57.d	QC	11/27/2019 23:35		1
21911134419 10x	2191127A_58.d	Sample	11/27/2019 23:47	671340	1
21911134419 5x	2191127A_59.d	Sample	11/27/2019 23:58	671340	1
21911134420 10x	2191127A_60.d	Sample	11/28/2019 0:09	671340	1
21911134420 5x	2191127A_61.d	Sample	11/28/2019 0:21	671340	1
21911134443 10x	2191127A_62.d	Sample	11/28/2019 0:32	671340	1

21911134443 5x	2191127A_63.d	Sample	11/28/2019 0:44	671340	1
21911134444 10x	2191127A_64.d	Sample	11/28/2019 0:55	671340	1
21911134444 5x	2191127A_65.d	Sample	11/28/2019 1:06	671340	1
21911134445 10x	2191127A_66.d	Sample	11/28/2019 1:18	671340	1
21911134445 5x	2191127A_67.d	Sample	11/28/2019 1:29	671340	1
1400	2191127A_68.d	QC	11/28/2019 1:40		1
21911134446 10x	2191127A_69.d	Sample	11/28/2019 1:52	671340	1
21911134446 5x	2191127A_70.d	Sample	11/28/2019 2:03	671340	1
21911134451 10x	2191127A_71.d	Sample	11/28/2019 2:14	671340	1
21911134451 5x	2191127A_72.d	Sample	11/28/2019 2:26	671340	1
21911134452 10x	2191127A_73.d	Sample	11/28/2019 2:37	671340	1
21911134452 5x	2191127A_74.d	Sample	11/28/2019 2:49	671340	1
1979410	2191127A_75.d	Sample	11/28/2019 3:00	670857	1
1979411	2191127A_76.d	QC	11/28/2019 3:11	670857	1
1979412	2191127A_77.d	QC	11/28/2019 3:23	670857	1
21911062710	2191127A_78.d	Sample	11/28/2019 3:34	670857	1
21910308506	2191127A_79.d	Sample	11/28/2019 3:45	671428	1
21910308507	2191127A_80.d	Sample	11/28/2019 3:57	671428	1
21910308508	2191127A_81.d	Sample	11/28/2019 4:08	671428	1
1400	2191127A_82.d	QC	11/28/2019 4:20		1
21911142501	2191127A_83.d	Sample	11/28/2019 4:31	671428	1
21911142502	2191127A_84.d	Sample	11/28/2019 4:42	671428	1
21911142503	2191127A_85.d	Sample	11/28/2019 4:54	671428	1
21911142504	2191127A_86.d	Sample	11/28/2019 5:05	671428	1
1400	2191127A_87.d	QC	11/28/2019 5:16		1
21910254109	2191127A_88.d	Sample	11/28/2019 5:28	670126	50
21910232608	2191127A_89.d	Sample	11/28/2019 5:39	671638	10
21910232609	2191127A_90.d	Sample	11/28/2019 5:50	671638	10
21910232610	2191127A_91.d	Sample	11/28/2019 6:02	671638	10
21910232611	2191127A_92.d	Sample	11/28/2019 6:13	671638	10
21910232612	2191127A_93.d	Sample	11/28/2019 6:24	671638	10
21910232613	2191127A_94.d	Sample	11/28/2019 6:36	671638	10
21910232621	2191127A_95.d	Sample	11/28/2019 6:47	671259	5
21910261311	2191127A_96.d	Sample	11/28/2019 6:58	671259	1

21910261316	2191127A_97.d	Sample	11/28/2019 7:10	671259	1
1400	2191127A_98.d	QC	11/28/2019 7:21		1
1984161	2191127A_99.d	Sample	11/28/2019 7:33	671751	1
1984162	2191127A_100.d	QC	11/28/2019 7:44	671751	1
1984163	2191127A_101.d	QC	11/28/2019 7:56	671751	1
21911196660	2191127A_102.d	Sample	11/28/2019 8:07	671751	1
21911196661	2191127A_103.d	Sample	11/28/2019 8:18	671751	1
21911196667	2191127A_104.d	Sample	11/28/2019 8:29	671751	1
21911196668	2191127A_105.d	Sample	11/28/2019 8:41	671751	1
21911196670	2191127A_106.d	Sample	11/28/2019 8:52	671751	1
21911196671	2191127A_107.d	Sample	11/28/2019 9:03	671751	1
21911196672	2191127A_108.d	Sample	11/28/2019 9:14	671751	1
21911201401	2191127A_109.d	Sample	11/28/2019 9:26	671751	1
21911201601	2191127A_110.d	Sample	11/28/2019 9:37	671751	1
21911201602	2191127A_111.d	Sample	11/28/2019 9:49	671751	1
1400	2191127A_112.d	QC	11/28/2019 10:00		1
21911201603	2191127A_113.d	Sample	11/28/2019 10:11	671751	1
21911201604	2191127A_114.d	Sample	11/28/2019 10:22	671751	1
21911213002	2191127A_115.d	Sample	11/28/2019 10:34	671751	1
21911213003	2191127A_116.d	Sample	11/28/2019 10:45	671751	1
21911213004	2191127A_117.d	Sample	11/28/2019 10:56	671751	1
21911213006	2191127A_118.d	Sample	11/28/2019 11:08	671751	1
21911213008	2191127A_119.d	Sample	11/28/2019 11:19	671751	1
21911213012	2191127A_120.d	Sample	11/28/2019 11:31	671751	1
1400	2191127A_121.d	QC	11/28/2019 11:42		1
MeOH Shot	2191127A_122.d	Method Blank	11/28/2019 11:53	Instrument idle/MeOH Shot	1
MeOH Shot	2191127A_123.d	Method Blank	11/28/2019 12:04	Instrument idle/MeOH Shot	1

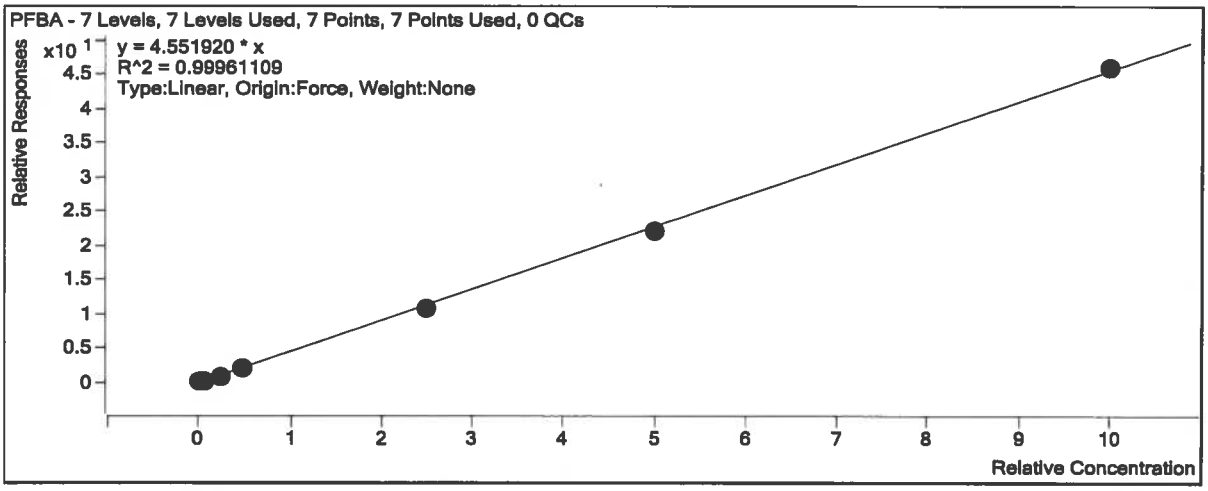
Quantitative Analysis Calibration Report

Batch Data Path	D:\MassHunter\Data\2191127ACAL\QuantResults\2191127A.batch.bin		
Analysis Time	12/8/2019 6:48 PM	**Analyst Name**	GCAL\lcms
Report Time	12/8/2019 6:51 PM	**Reporter Name**	GCAL\lcms
Last Calib Update	11/27/2019 5:42 PM	**Batch State**	Processed

Calibration Info

Target Compound *PFBA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191127ACAL\2191127A_17.d	Calibration	1	☑	3390	0.5000	4.4946
D:\MassHunter\Data\2191127ACAL\2191127A_18.d	Calibration	2	☑	7728	1.2500	4.0168
D:\MassHunter\Data\2191127ACAL\2191127A_25.d	Calibration	3	☑	30302	5.0000	4.0776
D:\MassHunter\Data\2191127ACAL\2191127A_20.d	Calibration	4	☑	62042	10.0000	4.1376
D:\MassHunter\Data\2191127ACAL\2191127A_21.d	Calibration	5	☑	338479	50.0000	4.3876
D:\MassHunter\Data\2191127ACAL\2191127A_22.d	Calibration	6	☑	663774	100.0000	4.4420
D:\MassHunter\Data\2191127ACAL\2191127A_23.d	Calibration	7	☑	1308272	200.0000	4.5910



Extracted ISTD *MPFBA*

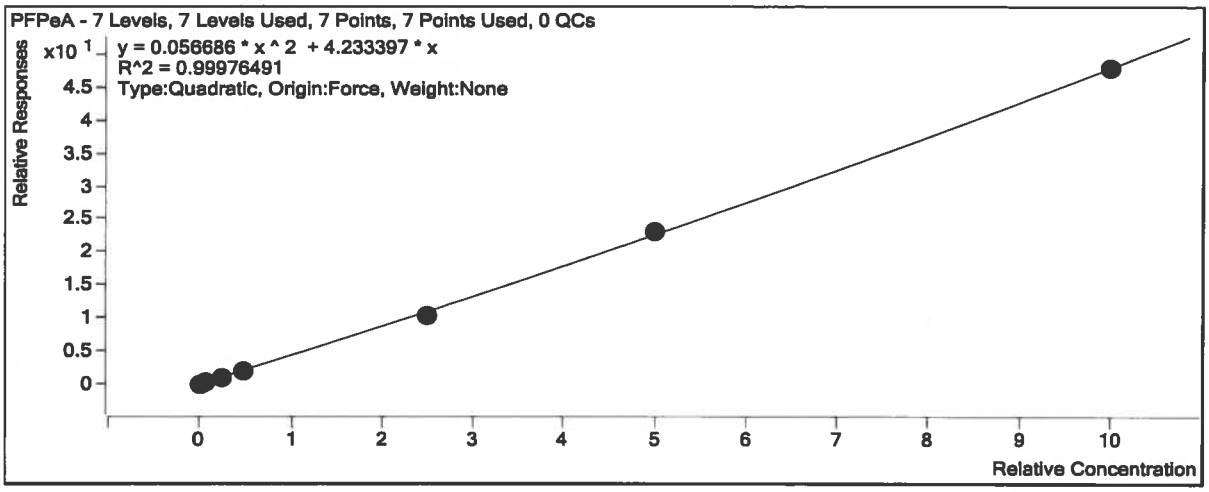
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191127ACAL\2191127A_17.d	Calibration	1	☑	30172	20.0000	1508.6006
D:\MassHunter\Data\2191127ACAL\2191127A_18.d	Calibration	2	☑	30785	20.0000	1539.2299
D:\MassHunter\Data\2191127ACAL\2191127A_25.d	Calibration	3	☑	29726	20.0000	1486.2802
D:\MassHunter\Data\2191127ACAL\2191127A_20.d	Calibration	4	☑	29989	20.0000	1499.4613
D:\MassHunter\Data\2191127ACAL\2191127A_21.d	Calibration	5	☑	30857	20.0000	1542.8730
D:\MassHunter\Data\2191127ACAL\2191127A_22.d	Calibration	6	☑	29886	20.0000	1494.3222
D:\MassHunter\Data\2191127ACAL\2191127A_23.d	Calibration	7	☑	28496	20.0000	1424.8138

Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191127ACAL\2191127A_20.d	Calibration	4	☑	20489	20.0000	1024.4692
D:\MassHunter\Data\2191127ACAL\2191127A_21.d	Calibration	5	☑	20789	20.0000	1039.4713
D:\MassHunter\Data\2191127ACAL\2191127A_22.d	Calibration	6	☑	19943	20.0000	997.1603
D:\MassHunter\Data\2191127ACAL\2191127A_23.d	Calibration	7	☑	19137	20.0000	956.8470

Target Compound *PFPeA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191127ACAL\2191127A_17.d	Calibration	1	☑	1583	0.5000	3.0815
D:\MassHunter\Data\2191127ACAL\2191127A_18.d	Calibration	2	☑	4757	1.2500	3.6780
D:\MassHunter\Data\2191127ACAL\2191127A_25.d	Calibration	3	☑	19226	5.0000	3.7677
D:\MassHunter\Data\2191127ACAL\2191127A_20.d	Calibration	4	☑	40574	10.0000	3.9605
D:\MassHunter\Data\2191127ACAL\2191127A_21.d	Calibration	5	☑	217213	50.0000	4.1793
D:\MassHunter\Data\2191127ACAL\2191127A_22.d	Calibration	6	☑	458550	100.0000	4.5986
D:\MassHunter\Data\2191127ACAL\2191127A_23.d	Calibration	7	☑	917262	200.0000	4.7932



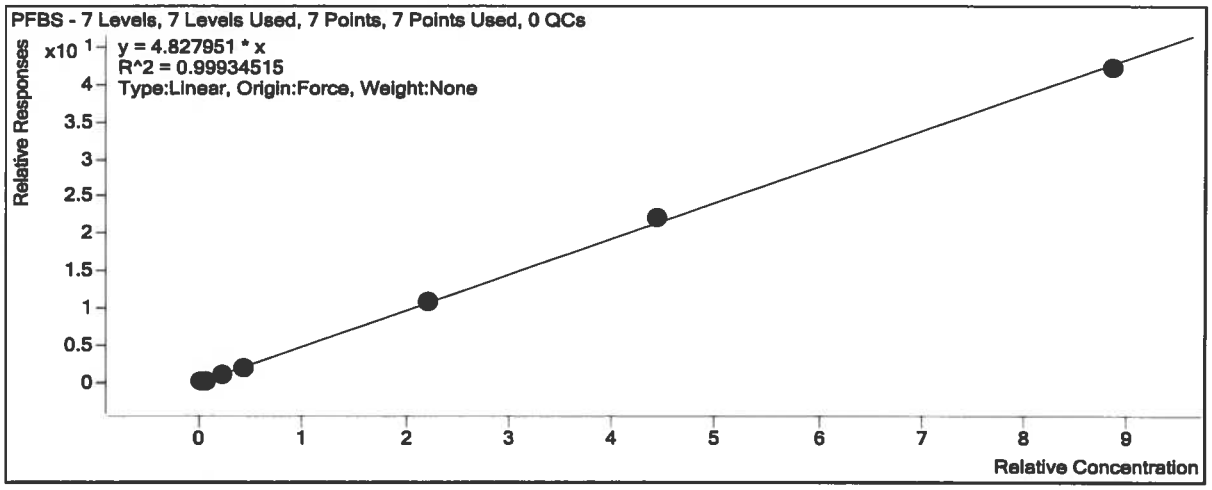
Extracted ISTD *M3PFBS*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191127ACAL\2191127A_17.d	Calibration	1	☑	21121	20.0000	1056.0372
D:\MassHunter\Data\2191127ACAL\2191127A_18.d	Calibration	2	☑	21834	20.0000	1091.6904
D:\MassHunter\Data\2191127ACAL\2191127A_25.d	Calibration	3	☑	21652	20.0000	1082.5886
D:\MassHunter\Data\2191127ACAL\2191127A_20.d	Calibration	4	☑	20902	20.0000	1045.0771

Quantitative Analysis Calibration Report

Target Compound *PFBS*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191127ACAL\2191127A_17.d	Calibration	1	☑	2013	0.4425	4.3088
D:\MassHunter\Data\2191127ACAL\2191127A_18.d	Calibration	2	☑	5218	1.1100	4.3059
D:\MassHunter\Data\2191127ACAL\2191127A_25.d	Calibration	3	☑	21219	4.4250	4.4293
D:\MassHunter\Data\2191127ACAL\2191127A_20.d	Calibration	4	☑	43841	8.8500	4.7401
D:\MassHunter\Data\2191127ACAL\2191127A_21.d	Calibration	5	☑	240166	44.2500	4.8859
D:\MassHunter\Data\2191127ACAL\2191127A_22.d	Calibration	6	☑	471927	88.5000	5.0242
D:\MassHunter\Data\2191127ACAL\2191127A_23.d	Calibration	7	☑	918578	177.0000	4.7758



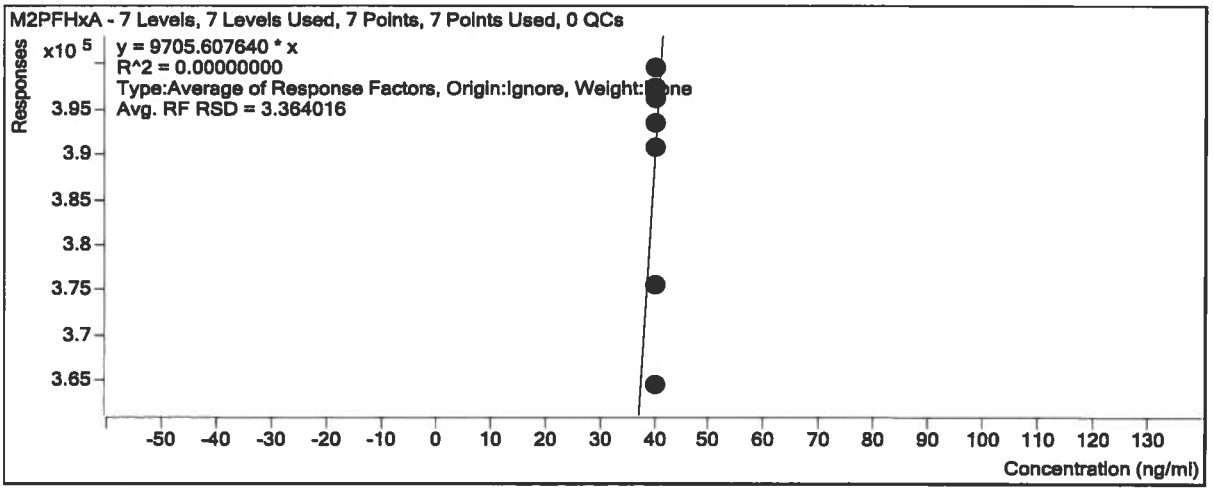
Extracted ISTD *M2 4:2 FTS*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191127ACAL\2191127A_17.d	Calibration	1	☑	11194	20.0000	559.6795
D:\MassHunter\Data\2191127ACAL\2191127A_18.d	Calibration	2	☑	11917	20.0000	595.8412
D:\MassHunter\Data\2191127ACAL\2191127A_25.d	Calibration	3	☑	11074	20.0000	553.6966
D:\MassHunter\Data\2191127ACAL\2191127A_20.d	Calibration	4	☑	10890	20.0000	544.4876
D:\MassHunter\Data\2191127ACAL\2191127A_21.d	Calibration	5	☑	9958	20.0000	497.9095
D:\MassHunter\Data\2191127ACAL\2191127A_22.d	Calibration	6	☑	9316	20.0000	465.8249
D:\MassHunter\Data\2191127ACAL\2191127A_23.d	Calibration	7	☑	7654	20.0000	382.6981

Target Compound *4:2 FTS*

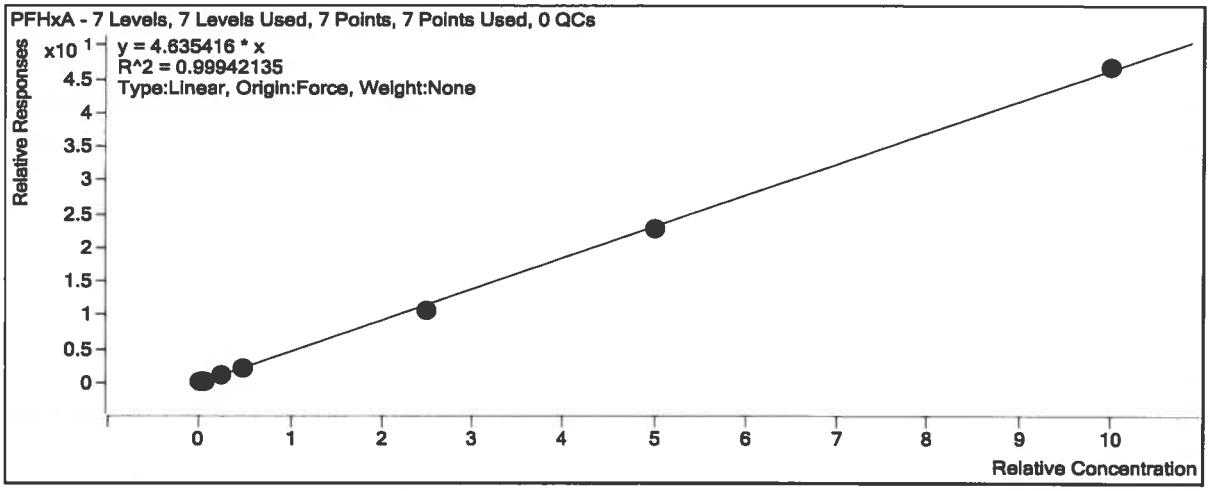
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF

Quantitative Analysis Calibration Report



Target Compound *PFHxA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191127ACAL\2191127A_17.d	Calibration	1	☑	4913	0.5000	5.2801
D:\MassHunter\Data\2191127ACAL\2191127A_18.d	Calibration	2	☑	9397	1.2500	3.9670
D:\MassHunter\Data\2191127ACAL\2191127A_25.d	Calibration	3	☑	38926	5.0000	4.3650
D:\MassHunter\Data\2191127ACAL\2191127A_20.d	Calibration	4	☑	76394	10.0000	4.1290
D:\MassHunter\Data\2191127ACAL\2191127A_21.d	Calibration	5	☑	409270	50.0000	4.3057
D:\MassHunter\Data\2191127ACAL\2191127A_22.d	Calibration	6	☑	784783	100.0000	4.5609
D:\MassHunter\Data\2191127ACAL\2191127A_23.d	Calibration	7	☑	1559324	200.0000	4.6761

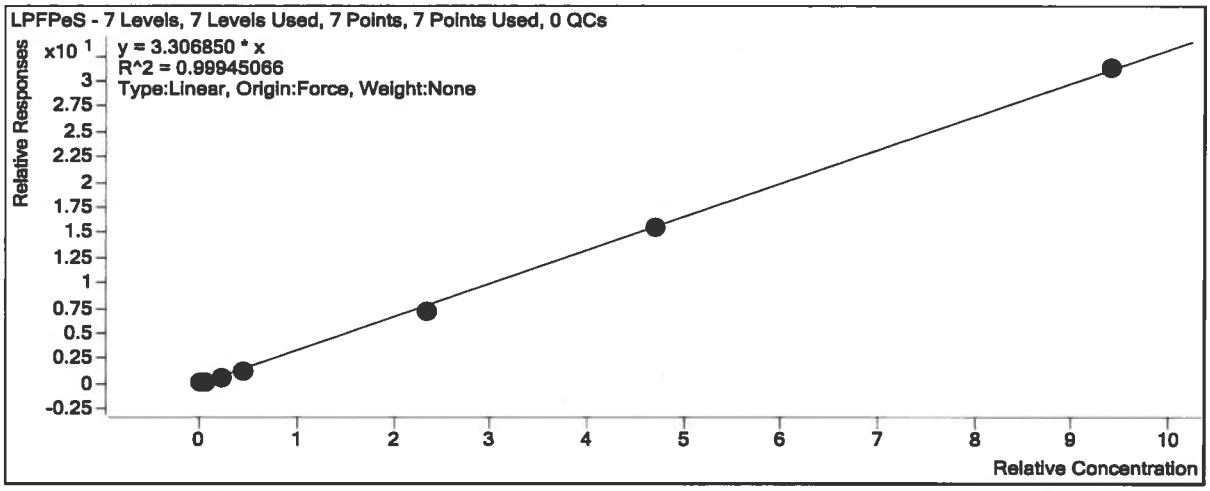


Target Compound *LPFPeS*

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

Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191127ACAL\2191127A_23.d	Calibration	7	☑	1042324	188.0000	3.3253



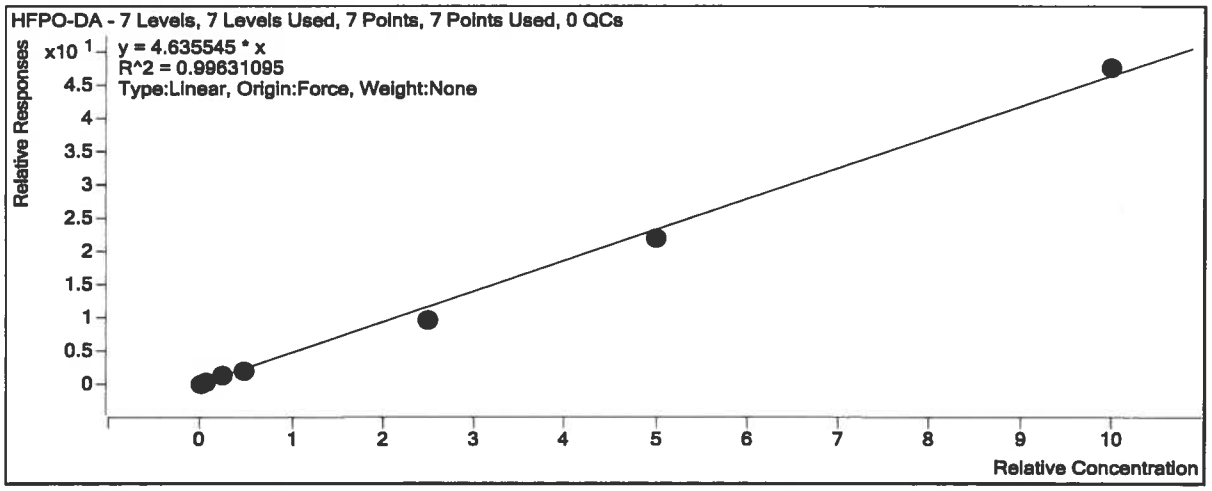
Extracted ISTD *M3HFPODA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191127ACAL\2191127A_17.d	Calibration	1	☑	1875	20.0000	93.7342
D:\MassHunter\Data\2191127ACAL\2191127A_18.d	Calibration	2	☑	1663	20.0000	83.1335
D:\MassHunter\Data\2191127ACAL\2191127A_25.d	Calibration	3	☑	1664	20.0000	83.2163
D:\MassHunter\Data\2191127ACAL\2191127A_20.d	Calibration	4	☑	2028	20.0000	101.4216
D:\MassHunter\Data\2191127ACAL\2191127A_21.d	Calibration	5	☑	2037	20.0000	101.8710
D:\MassHunter\Data\2191127ACAL\2191127A_22.d	Calibration	6	☑	1918	20.0000	95.8995
D:\MassHunter\Data\2191127ACAL\2191127A_23.d	Calibration	7	☑	1812	20.0000	90.5841

Target Compound *HFPO-DA*

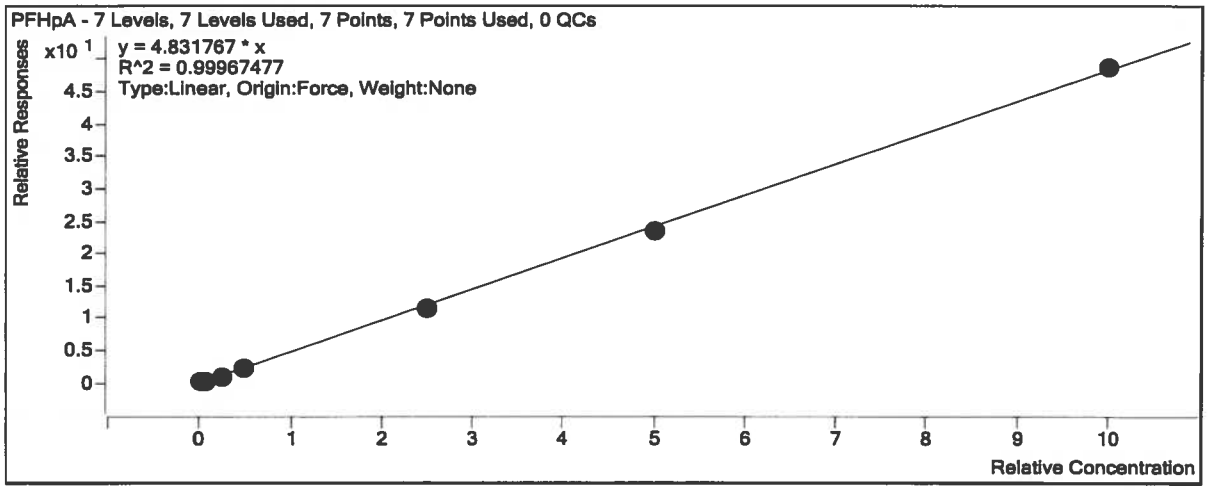
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191127ACAL\2191127A_17.d	Calibration	1	☑	85	0.5000	1.8205
D:\MassHunter\Data\2191127ACAL\2191127A_18.d	Calibration	2	☑	486	1.2500	4.6784
D:\MassHunter\Data\2191127ACAL\2191127A_25.d	Calibration	3	☑	1880	5.0000	4.5191
D:\MassHunter\Data\2191127ACAL\2191127A_20.d	Calibration	4	☑	3765	10.0000	3.7118
D:\MassHunter\Data\2191127ACAL\2191127A_21.d	Calibration	5	☑	19795	50.0000	3.8862
D:\MassHunter\Data\2191127ACAL\2191127A_22.d	Calibration	6	☑	41883	100.0000	4.3674
D:\MassHunter\Data\2191127ACAL\2191127A_23.d	Calibration	7	☑	86088	200.0000	4.7518

Quantitative Analysis Calibration Report



Target Compound *PFHpA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191127ACAL\2191127A_17.d	Calibration	1	☑	4019	0.5000	4.1272
D:\MassHunter\Data\2191127ACAL\2191127A_18.d	Calibration	2	☑	9597	1.2500	3.8960
D:\MassHunter\Data\2191127ACAL\2191127A_25.d	Calibration	3	☑	41899	5.0000	4.3035
D:\MassHunter\Data\2191127ACAL\2191127A_20.d	Calibration	4	☑	86015	10.0000	4.5173
D:\MassHunter\Data\2191127ACAL\2191127A_21.d	Calibration	5	☑	459209	50.0000	4.6652
D:\MassHunter\Data\2191127ACAL\2191127A_22.d	Calibration	6	☑	885072	100.0000	4.7262
D:\MassHunter\Data\2191127ACAL\2191127A_23.d	Calibration	7	☑	1740252	200.0000	4.8697



Extracted ISTD *M4PFHpA*

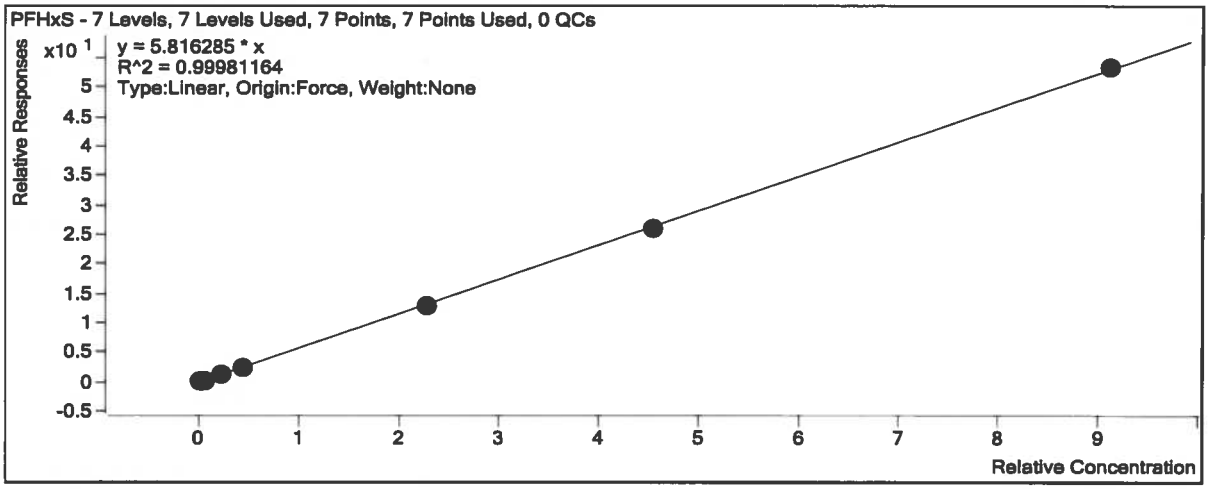
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF

Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191127ACAL\2191127A_23.d	Calibration	7	☑	35736	20.0000	1786.8055

Target Compound *PFHxS*

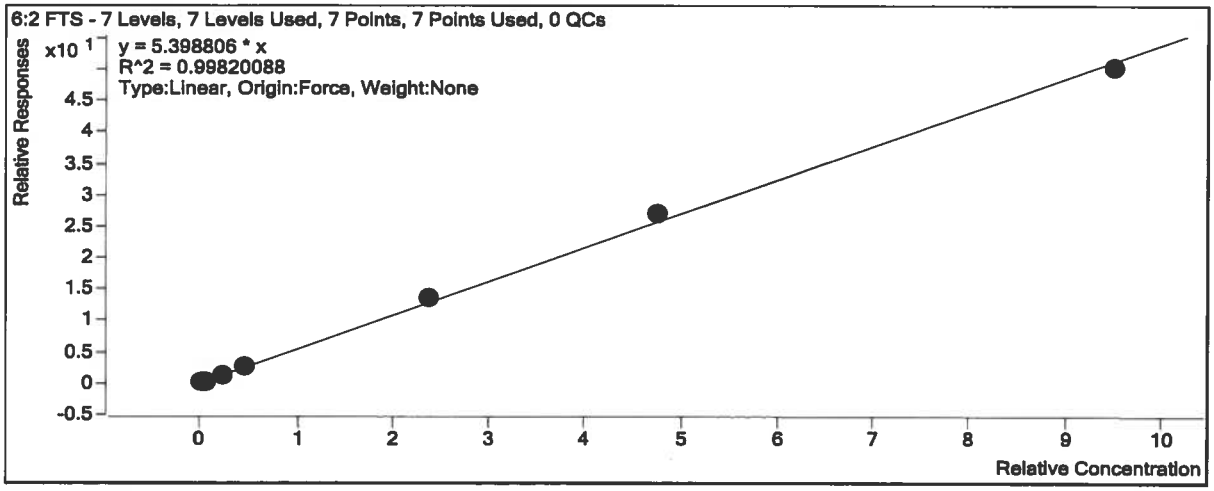
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191127ACAL\2191127A_17.d	Calibration	1	☑	2658	0.4560	5.5140
D:\MassHunter\Data\2191127ACAL\2191127A_18.d	Calibration	2	☑	6572	1.1400	5.1702
D:\MassHunter\Data\2191127ACAL\2191127A_25.d	Calibration	3	☑	26614	4.5600	5.3599
D:\MassHunter\Data\2191127ACAL\2191127A_20.d	Calibration	4	☑	54992	9.1200	5.5751
D:\MassHunter\Data\2191127ACAL\2191127A_21.d	Calibration	5	☑	297874	45.6000	5.6820
D:\MassHunter\Data\2191127ACAL\2191127A_22.d	Calibration	6	☑	588029	91.2000	5.7123
D:\MassHunter\Data\2191127ACAL\2191127A_23.d	Calibration	7	☑	1151919	182.4000	5.8516



Extracted ISTD *M3PFHxS*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191127ACAL\2191127A_17.d	Calibration	1	☑	21141	20.0000	1057.0740
D:\MassHunter\Data\2191127ACAL\2191127A_18.d	Calibration	2	☑	22301	20.0000	1115.0359
D:\MassHunter\Data\2191127ACAL\2191127A_25.d	Calibration	3	☑	21778	20.0000	1088.8757
D:\MassHunter\Data\2191127ACAL\2191127A_20.d	Calibration	4	☑	21631	20.0000	1081.5562
D:\MassHunter\Data\2191127ACAL\2191127A_21.d	Calibration	5	☑	22993	20.0000	1149.6624
D:\MassHunter\Data\2191127ACAL\2191127A_22.d	Calibration	6	☑	22575	20.0000	1128.7325
D:\MassHunter\Data\2191127ACAL\2191127A_23.d	Calibration	7	☑	21585	20.0000	1079.2538

Quantitative Analysis Calibration Report



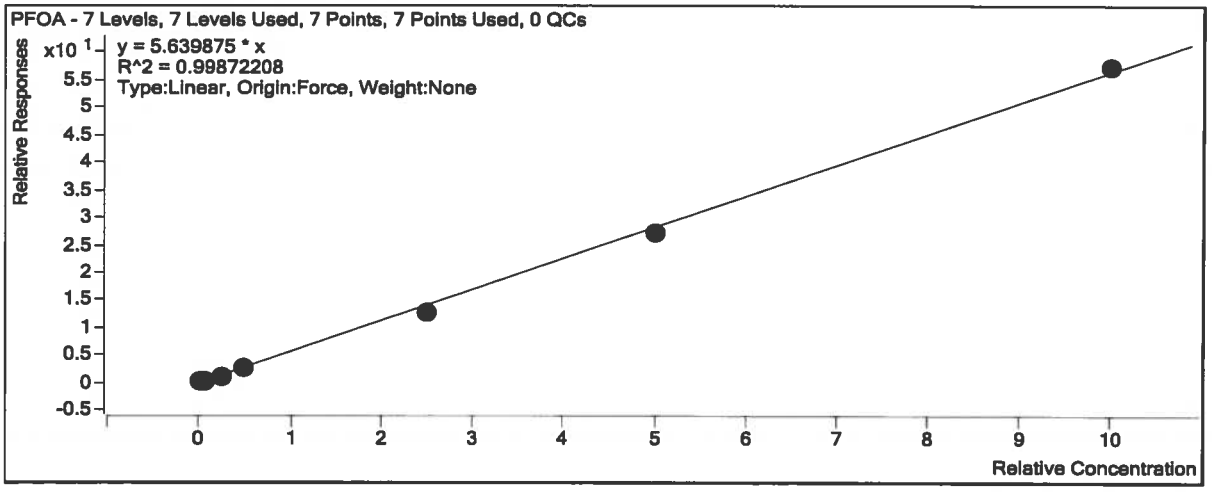
Quantitative Analysis Calibration Report

Extracted ISTD *M2 6:2 FTS*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191127ACAL\2191127A_17.d	Calibration	1	☑	23923	20.0000	1196.1357
D:\MassHunter\Data\2191127ACAL\2191127A_18.d	Calibration	2	☑	24710	20.0000	1235.5132
D:\MassHunter\Data\2191127ACAL\2191127A_25.d	Calibration	3	☑	22899	20.0000	1144.9279
D:\MassHunter\Data\2191127ACAL\2191127A_20.d	Calibration	4	☑	22829	20.0000	1141.4404
D:\MassHunter\Data\2191127ACAL\2191127A_21.d	Calibration	5	☑	21995	20.0000	1099.7419
D:\MassHunter\Data\2191127ACAL\2191127A_22.d	Calibration	6	☑	19614	20.0000	980.6766
D:\MassHunter\Data\2191127ACAL\2191127A_23.d	Calibration	7	☑	18072	20.0000	903.6238

Target Compound *PFOA*

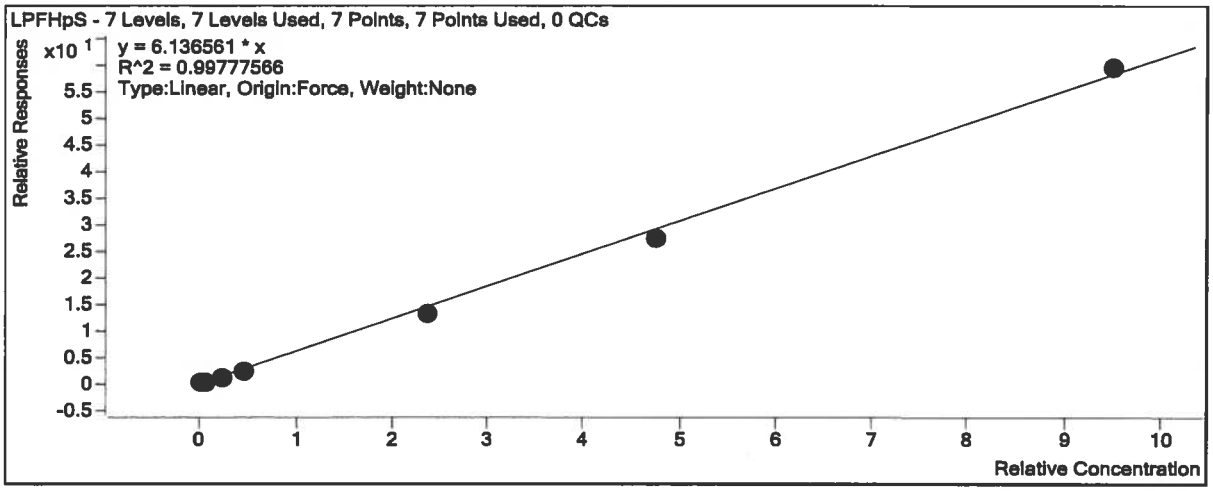
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191127ACAL\2191127A_17.d	Calibration	1	☑	3238	0.5000	4.9757
D:\MassHunter\Data\2191127ACAL\2191127A_18.d	Calibration	2	☑	7213	1.2500	4.3295
D:\MassHunter\Data\2191127ACAL\2191127A_25.d	Calibration	3	☑	30908	5.0000	4.9440
D:\MassHunter\Data\2191127ACAL\2191127A_20.d	Calibration	4	☑	65969	10.0000	5.0892
D:\MassHunter\Data\2191127ACAL\2191127A_21.d	Calibration	5	☑	347471	50.0000	5.1333
D:\MassHunter\Data\2191127ACAL\2191127A_22.d	Calibration	6	☑	676359	100.0000	5.4357
D:\MassHunter\Data\2191127ACAL\2191127A_23.d	Calibration	7	☑	1284772	200.0000	5.7244



Extracted ISTD *M8PFOA*

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

Quantitative Analysis Calibration Report



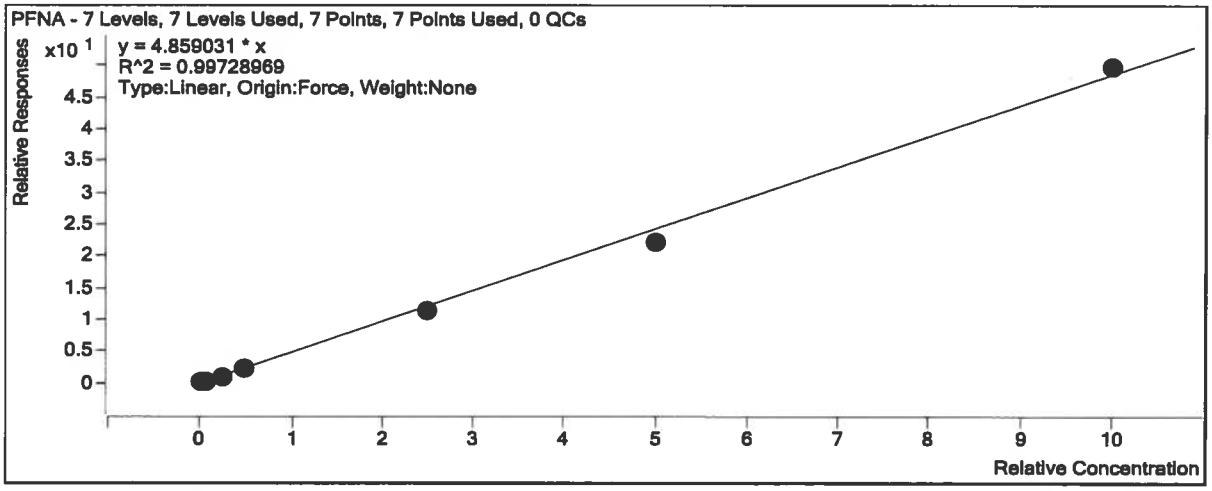
Extracted ISTD *M9PFNA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191127ACAL\2191127A_17.d	Calibration	1	☑	30216	20.0000	1510.7797
D:\MassHunter\Data\2191127ACAL\2191127A_18.d	Calibration	2	☑	32998	20.0000	1649.9068
D:\MassHunter\Data\2191127ACAL\2191127A_25.d	Calibration	3	☑	33464	20.0000	1673.2167
D:\MassHunter\Data\2191127ACAL\2191127A_20.d	Calibration	4	☑	30017	20.0000	1500.8534
D:\MassHunter\Data\2191127ACAL\2191127A_21.d	Calibration	5	☑	31770	20.0000	1588.4950
D:\MassHunter\Data\2191127ACAL\2191127A_22.d	Calibration	6	☑	31526	20.0000	1576.3236
D:\MassHunter\Data\2191127ACAL\2191127A_23.d	Calibration	7	☑	26617	20.0000	1330.8403

Target Compound *PFNA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191127ACAL\2191127A_17.d	Calibration	1	☑	3120	0.5000	4.1300
D:\MassHunter\Data\2191127ACAL\2191127A_18.d	Calibration	2	☑	7972	1.2500	3.8656
D:\MassHunter\Data\2191127ACAL\2191127A_25.d	Calibration	3	☑	34155	5.0000	4.0825
D:\MassHunter\Data\2191127ACAL\2191127A_20.d	Calibration	4	☑	67182	10.0000	4.4762
D:\MassHunter\Data\2191127ACAL\2191127A_21.d	Calibration	5	☑	363462	50.0000	4.5762
D:\MassHunter\Data\2191127ACAL\2191127A_22.d	Calibration	6	☑	706041	100.0000	4.4790
D:\MassHunter\Data\2191127ACAL\2191127A_23.d	Calibration	7	☑	1323706	200.0000	4.9732

Quantitative Analysis Calibration Report



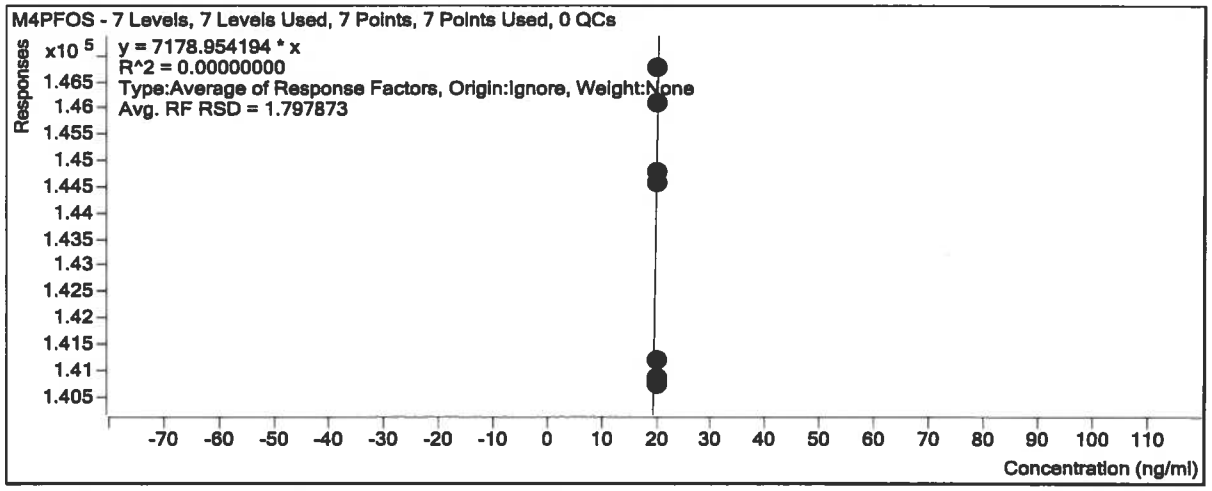
Extracted ISTD *M8PFOS*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191127ACAL\2191127A_17.d	Calibration	1	☑	14085	20.0000	704.2466
D:\MassHunter\Data\2191127ACAL\2191127A_18.d	Calibration	2	☑	14650	20.0000	732.4848
D:\MassHunter\Data\2191127ACAL\2191127A_25.d	Calibration	3	☑	14506	20.0000	725.2922
D:\MassHunter\Data\2191127ACAL\2191127A_20.d	Calibration	4	☑	14446	20.0000	722.2926
D:\MassHunter\Data\2191127ACAL\2191127A_21.d	Calibration	5	☑	15461	20.0000	773.0681
D:\MassHunter\Data\2191127ACAL\2191127A_22.d	Calibration	6	☑	14500	20.0000	725.0127
D:\MassHunter\Data\2191127ACAL\2191127A_23.d	Calibration	7	☑	15195	20.0000	759.7415

Instrument ISTD *M4PFOS*

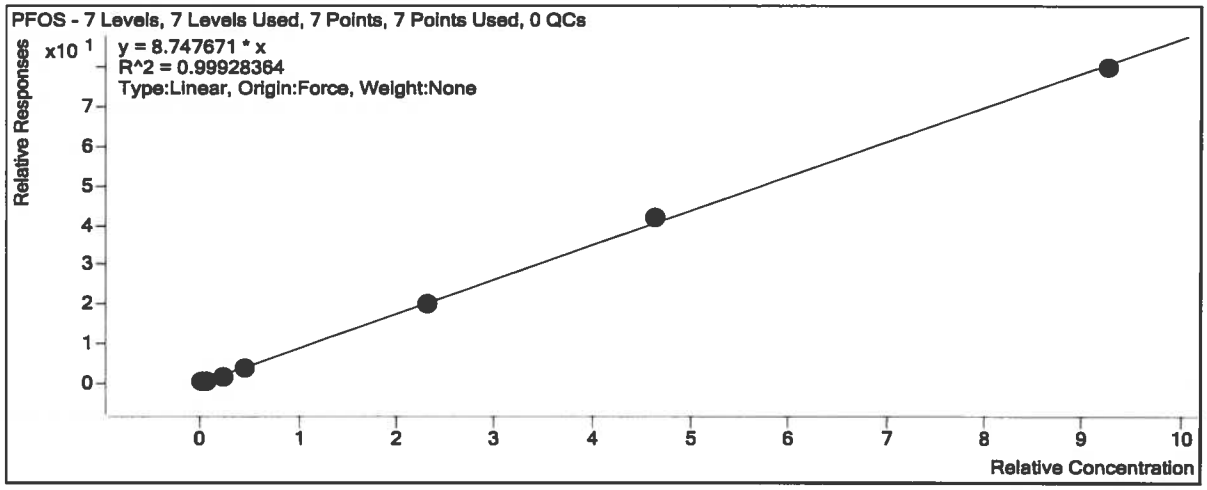
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191127ACAL\2191127A_17.d	Calibration	1	☑	146765	20.0000	7338.2266
D:\MassHunter\Data\2191127ACAL\2191127A_18.d	Calibration	2	☑	140746	20.0000	7037.3204
D:\MassHunter\Data\2191127ACAL\2191127A_25.d	Calibration	3	☑	144594	20.0000	7229.7077
D:\MassHunter\Data\2191127ACAL\2191127A_20.d	Calibration	4	☑	146096	20.0000	7304.8042
D:\MassHunter\Data\2191127ACAL\2191127A_21.d	Calibration	5	☑	144782	20.0000	7239.0846
D:\MassHunter\Data\2191127ACAL\2191127A_22.d	Calibration	6	☑	140867	20.0000	7043.3504
D:\MassHunter\Data\2191127ACAL\2191127A_23.d	Calibration	7	☑	141204	20.0000	7060.1855

Quantitative Analysis Calibration Report



Target Compound *PFOS*

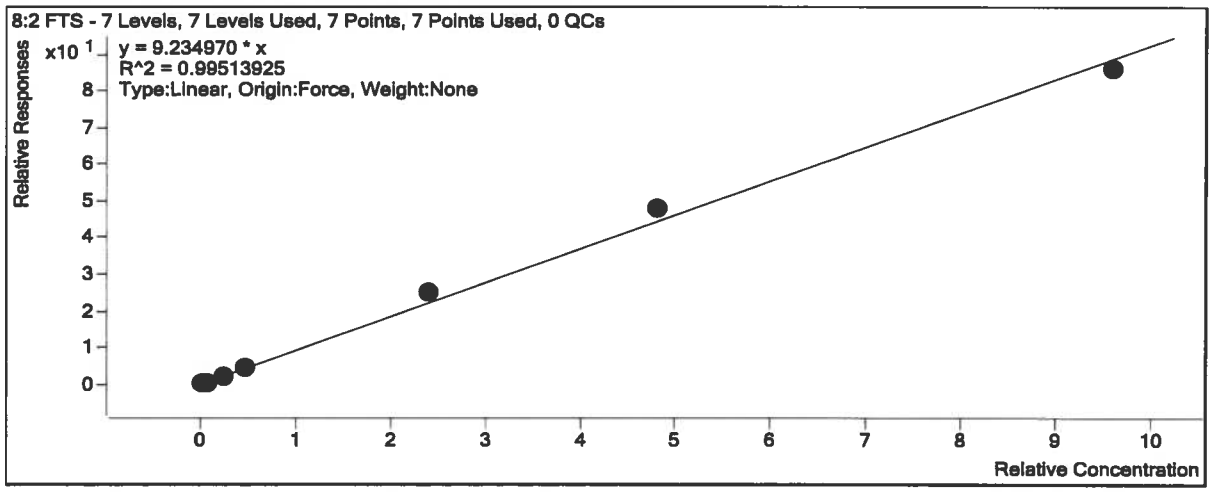
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191127ACAL\2191127A_17.d	Calibration	1	☑	3044	0.4628	9.3403
D:\MassHunter\Data\2191127ACAL\2191127A_18.d	Calibration	2	☑	6339	1.1600	7.4604
D:\MassHunter\Data\2191127ACAL\2191127A_25.d	Calibration	3	☑	22915	4.6280	6.8267
D:\MassHunter\Data\2191127ACAL\2191127A_20.d	Calibration	4	☑	57873	9.2550	8.6574
D:\MassHunter\Data\2191127ACAL\2191127A_21.d	Calibration	5	☑	311599	46.2800	8.7093
D:\MassHunter\Data\2191127ACAL\2191127A_22.d	Calibration	6	☑	612132	92.5500	9.1227
D:\MassHunter\Data\2191127ACAL\2191127A_23.d	Calibration	7	☑	1217528	185.1000	8.6578



Target Compound *9Cl-PF3ONS*

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

Quantitative Analysis Calibration Report



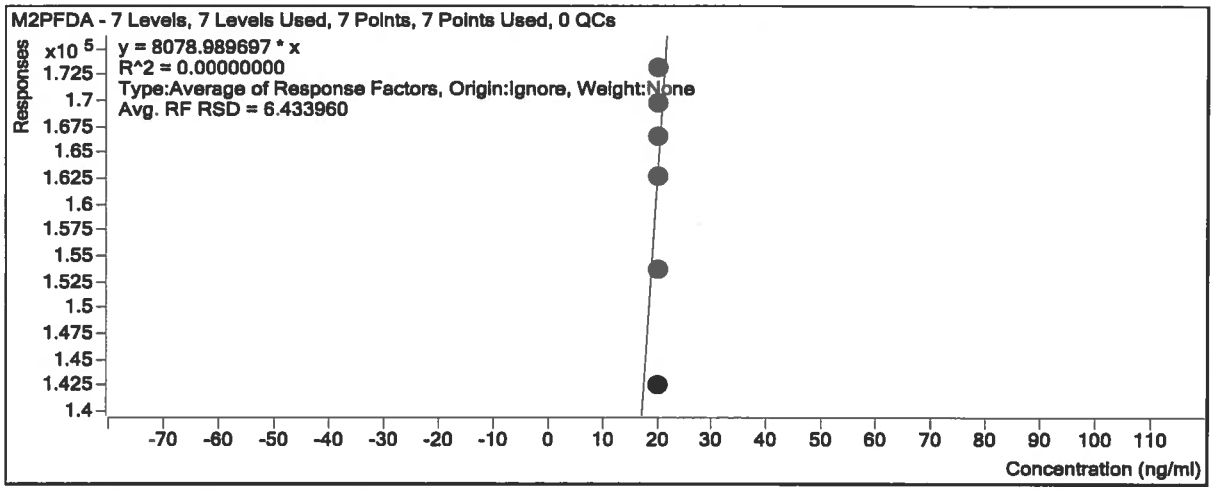
Extracted ISTD *M6PFDA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191127ACAL\2191127A_17.d	Calibration	1	☑	30016	20.0000	1500.8182
D:\MassHunter\Data\2191127ACAL\2191127A_18.d	Calibration	2	☑	30148	20.0000	1507.3933
D:\MassHunter\Data\2191127ACAL\2191127A_25.d	Calibration	3	☑	29664	20.0000	1483.2149
D:\MassHunter\Data\2191127ACAL\2191127A_20.d	Calibration	4	☑	29605	20.0000	1480.2252
D:\MassHunter\Data\2191127ACAL\2191127A_21.d	Calibration	5	☑	27962	20.0000	1398.1159
D:\MassHunter\Data\2191127ACAL\2191127A_22.d	Calibration	6	☑	26245	20.0000	1312.2321
D:\MassHunter\Data\2191127ACAL\2191127A_23.d	Calibration	7	☑	22072	20.0000	1103.5881

Instrument ISTD *M2PFDA*

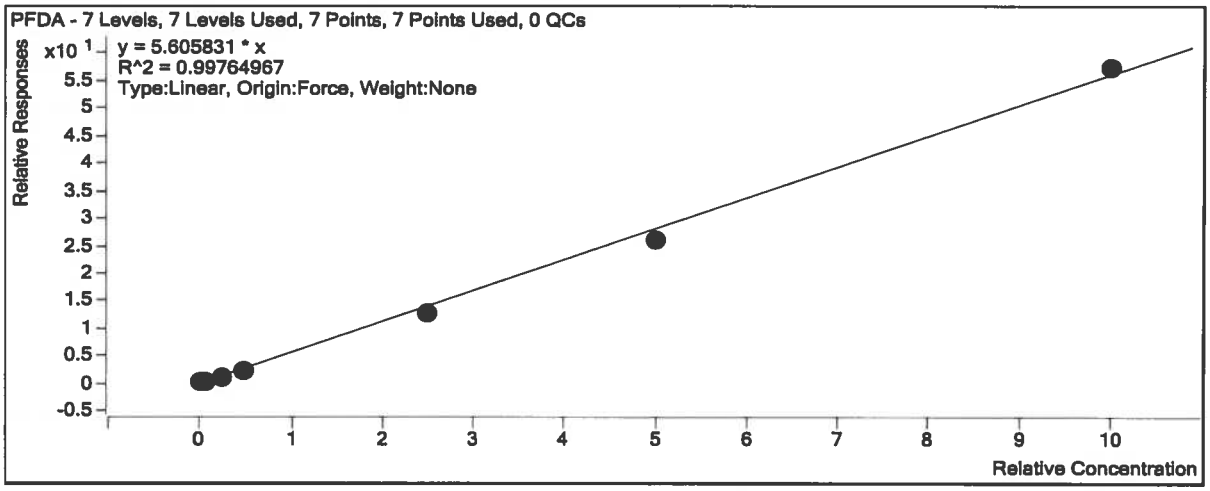
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191127ACAL\2191127A_17.d	Calibration	1	☑	162614	20.0000	8130.7210
D:\MassHunter\Data\2191127ACAL\2191127A_18.d	Calibration	2	☑	173132	20.0000	8656.6180
D:\MassHunter\Data\2191127ACAL\2191127A_25.d	Calibration	3	☑	162694	20.0000	8134.6861
D:\MassHunter\Data\2191127ACAL\2191127A_20.d	Calibration	4	☑	169756	20.0000	8487.8196
D:\MassHunter\Data\2191127ACAL\2191127A_21.d	Calibration	5	☑	166561	20.0000	8328.0495
D:\MassHunter\Data\2191127ACAL\2191127A_22.d	Calibration	6	☑	153642	20.0000	7682.0973
D:\MassHunter\Data\2191127ACAL\2191127A_23.d	Calibration	7	☑	142659	20.0000	7132.9365

Quantitative Analysis Calibration Report



Target Compound *PFDA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191127ACAL\2191127A_17.d	Calibration	1	☑	3792	0.5000	5.0537
D:\MassHunter\Data\2191127ACAL\2191127A_18.d	Calibration	2	☑	9057	1.2500	4.8066
D:\MassHunter\Data\2191127ACAL\2191127A_25.d	Calibration	3	☑	34357	5.0000	4.6328
D:\MassHunter\Data\2191127ACAL\2191127A_20.d	Calibration	4	☑	68005	10.0000	4.5943
D:\MassHunter\Data\2191127ACAL\2191127A_21.d	Calibration	5	☑	361645	50.0000	5.1733
D:\MassHunter\Data\2191127ACAL\2191127A_22.d	Calibration	6	☑	687380	100.0000	5.2382
D:\MassHunter\Data\2191127ACAL\2191127A_23.d	Calibration	7	☑	1264255	200.0000	5.7279

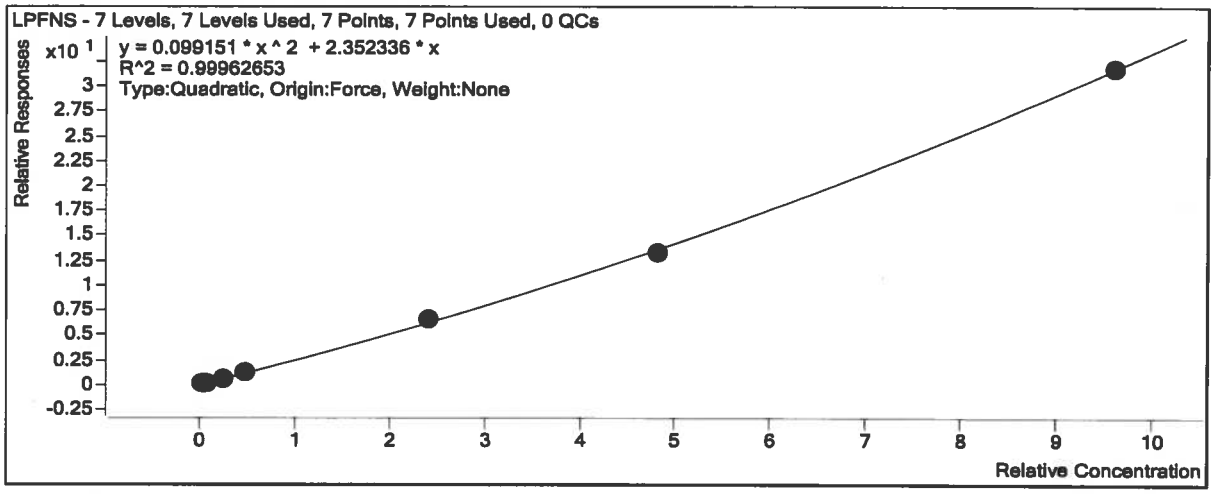


Target Compound *LPFNS*

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

Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191127ACAL\2191127A_23.d	Calibration	7	☑	845810	192.0000	3.3101



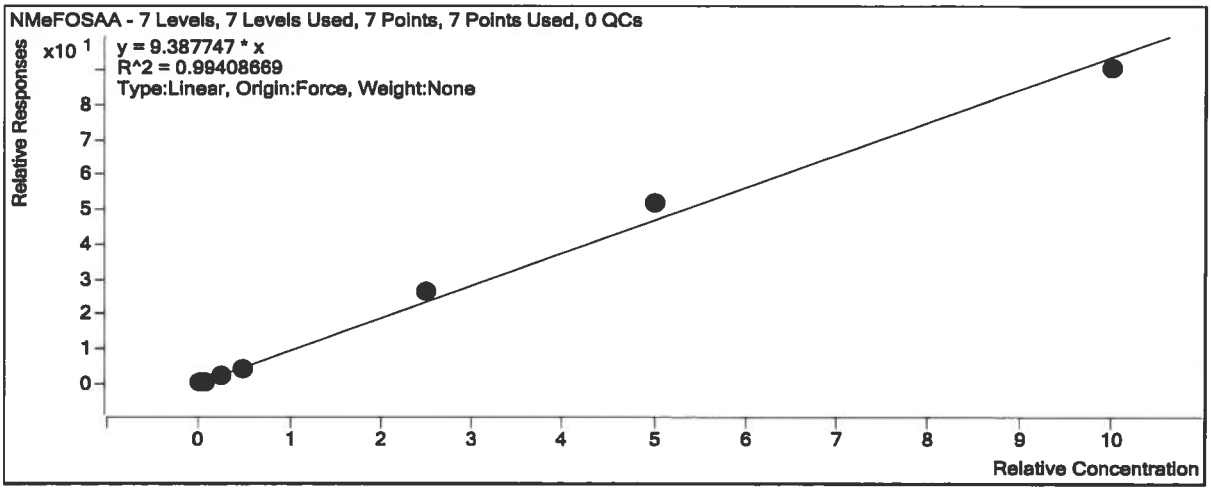
Extracted ISTD *d3-NMeFOSAA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191127ACAL\2191127A_17.d	Calibration	1	☑	4551	20.0000	227.5522
D:\MassHunter\Data\2191127ACAL\2191127A_18.d	Calibration	2	☑	5781	20.0000	289.0559
D:\MassHunter\Data\2191127ACAL\2191127A_25.d	Calibration	3	☑	5311	20.0000	265.5638
D:\MassHunter\Data\2191127ACAL\2191127A_20.d	Calibration	4	☑	5788	20.0000	289.4184
D:\MassHunter\Data\2191127ACAL\2191127A_21.d	Calibration	5	☑	5434	20.0000	271.7134
D:\MassHunter\Data\2191127ACAL\2191127A_22.d	Calibration	6	☑	5402	20.0000	270.0978
D:\MassHunter\Data\2191127ACAL\2191127A_23.d	Calibration	7	☑	6249	20.0000	312.4439

Target Compound *NMeFOSAA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191127ACAL\2191127A_17.d	Calibration	1	☑	1281	0.5000	11.2581
D:\MassHunter\Data\2191127ACAL\2191127A_18.d	Calibration	2	☑	3315	1.2500	9.1742
D:\MassHunter\Data\2191127ACAL\2191127A_25.d	Calibration	3	☑	13356	5.0000	10.0588
D:\MassHunter\Data\2191127ACAL\2191127A_20.d	Calibration	4	☑	25601	10.0000	8.8456
D:\MassHunter\Data\2191127ACAL\2191127A_21.d	Calibration	5	☑	142947	50.0000	10.5219
D:\MassHunter\Data\2191127ACAL\2191127A_22.d	Calibration	6	☑	280186	100.0000	10.3735
D:\MassHunter\Data\2191127ACAL\2191127A_23.d	Calibration	7	☑	566858	200.0000	9.0714

Quantitative Analysis Calibration Report



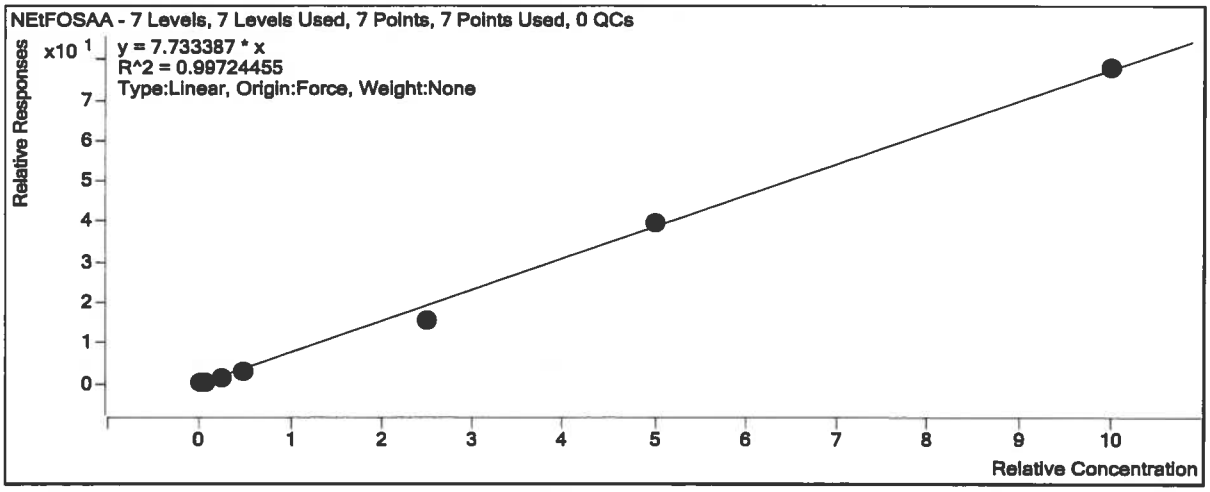
Extracted ISTD *M8FOSA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191127ACAL\2191127A_17.d	Calibration	1	☑	34156	20.0000	1707.7999
D:\MassHunter\Data\2191127ACAL\2191127A_18.d	Calibration	2	☑	33874	20.0000	1693.6791
D:\MassHunter\Data\2191127ACAL\2191127A_25.d	Calibration	3	☑	33770	20.0000	1688.5050
D:\MassHunter\Data\2191127ACAL\2191127A_20.d	Calibration	4	☑	32910	20.0000	1645.5158
D:\MassHunter\Data\2191127ACAL\2191127A_21.d	Calibration	5	☑	34661	20.0000	1733.0295
D:\MassHunter\Data\2191127ACAL\2191127A_22.d	Calibration	6	☑	33800	20.0000	1689.9805
D:\MassHunter\Data\2191127ACAL\2191127A_23.d	Calibration	7	☑	31282	20.0000	1564.0856

Target Compound *FOSA-I*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191127ACAL\2191127A_17.d	Calibration	1	☑	4412	0.5000	5.1668
D:\MassHunter\Data\2191127ACAL\2191127A_18.d	Calibration	2	☑	9936	1.2500	4.6930
D:\MassHunter\Data\2191127ACAL\2191127A_25.d	Calibration	3	☑	43653	5.0000	5.1706
D:\MassHunter\Data\2191127ACAL\2191127A_20.d	Calibration	4	☑	89915	10.0000	5.4642
D:\MassHunter\Data\2191127ACAL\2191127A_21.d	Calibration	5	☑	478597	50.0000	5.5232
D:\MassHunter\Data\2191127ACAL\2191127A_22.d	Calibration	6	☑	927250	100.0000	5.4867
D:\MassHunter\Data\2191127ACAL\2191127A_23.d	Calibration	7	☑	1857085	200.0000	5.9366

Quantitative Analysis Calibration Report



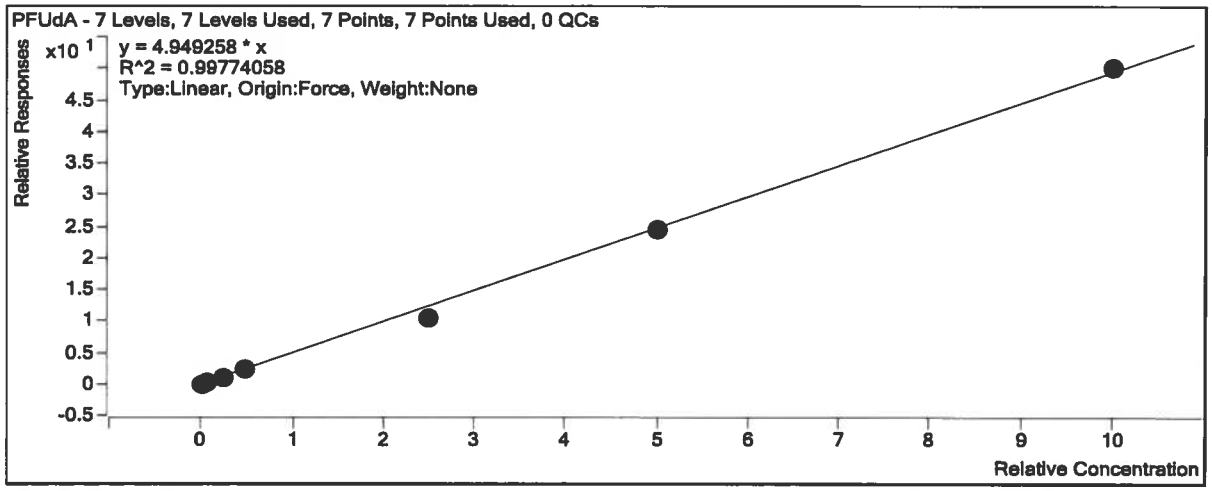
Extracted ISTD *M7PFUdA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191127ACAL\2191127A_17.d	Calibration	1	☑	27956	20.0000	1397.7953
D:\MassHunter\Data\2191127ACAL\2191127A_18.d	Calibration	2	☑	28343	20.0000	1417.1357
D:\MassHunter\Data\2191127ACAL\2191127A_25.d	Calibration	3	☑	29290	20.0000	1464.4939
D:\MassHunter\Data\2191127ACAL\2191127A_20.d	Calibration	4	☑	28337	20.0000	1416.8742
D:\MassHunter\Data\2191127ACAL\2191127A_21.d	Calibration	5	☑	30227	20.0000	1511.3583
D:\MassHunter\Data\2191127ACAL\2191127A_22.d	Calibration	6	☑	24326	20.0000	1216.3120
D:\MassHunter\Data\2191127ACAL\2191127A_23.d	Calibration	7	☑	22560	20.0000	1127.9982

Target Compound *PFUdA*

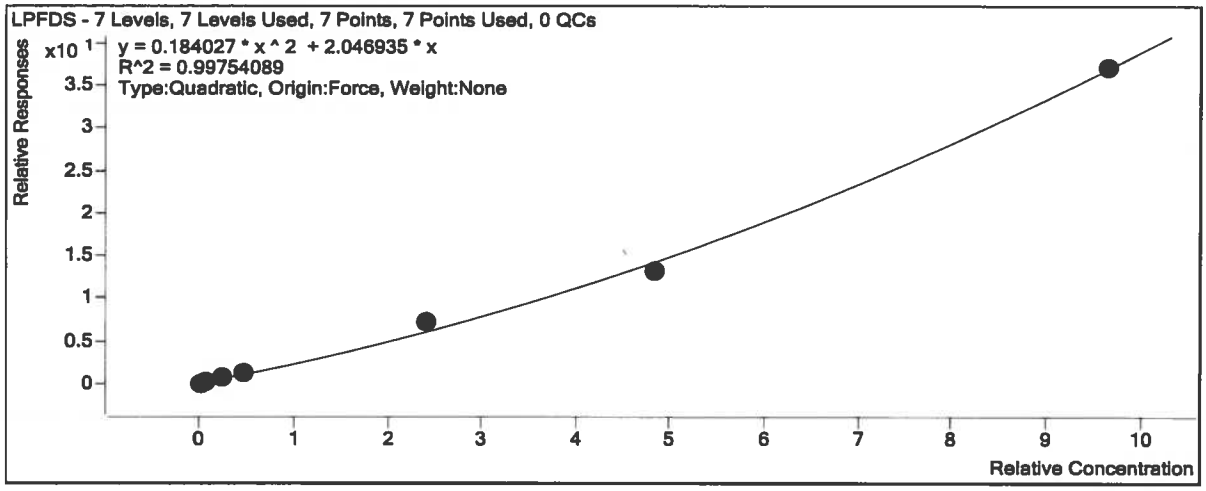
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191127ACAL\2191127A_17.d	Calibration	1	☑	2394	0.5000	3.4250
D:\MassHunter\Data\2191127ACAL\2191127A_18.d	Calibration	2	☑	6717	1.2500	3.7919
D:\MassHunter\Data\2191127ACAL\2191127A_25.d	Calibration	3	☑	28385	5.0000	3.8764
D:\MassHunter\Data\2191127ACAL\2191127A_20.d	Calibration	4	☑	62927	10.0000	4.4412
D:\MassHunter\Data\2191127ACAL\2191127A_21.d	Calibration	5	☑	311610	50.0000	4.1236
D:\MassHunter\Data\2191127ACAL\2191127A_22.d	Calibration	6	☑	599421	100.0000	4.9282
D:\MassHunter\Data\2191127ACAL\2191127A_23.d	Calibration	7	☑	1129832	200.0000	5.0081

Quantitative Analysis Calibration Report



Target Compound *LPFDS*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191127ACAL\2191127A_17.d	Calibration	1	☑	1739	0.4825	2.4012
D:\MassHunter\Data\2191127ACAL\2191127A_18.d	Calibration	2	☑	4645	1.2100	2.5468
D:\MassHunter\Data\2191127ACAL\2191127A_25.d	Calibration	3	☑	17746	4.8250	2.4796
D:\MassHunter\Data\2191127ACAL\2191127A_20.d	Calibration	4	☑	38068	9.6500	2.6650
D:\MassHunter\Data\2191127ACAL\2191127A_21.d	Calibration	5	☑	203213	48.2500	3.0124
D:\MassHunter\Data\2191127ACAL\2191127A_22.d	Calibration	6	☑	345344	96.5000	2.7272
D:\MassHunter\Data\2191127ACAL\2191127A_23.d	Calibration	7	☑	818005	193.0000	3.8405

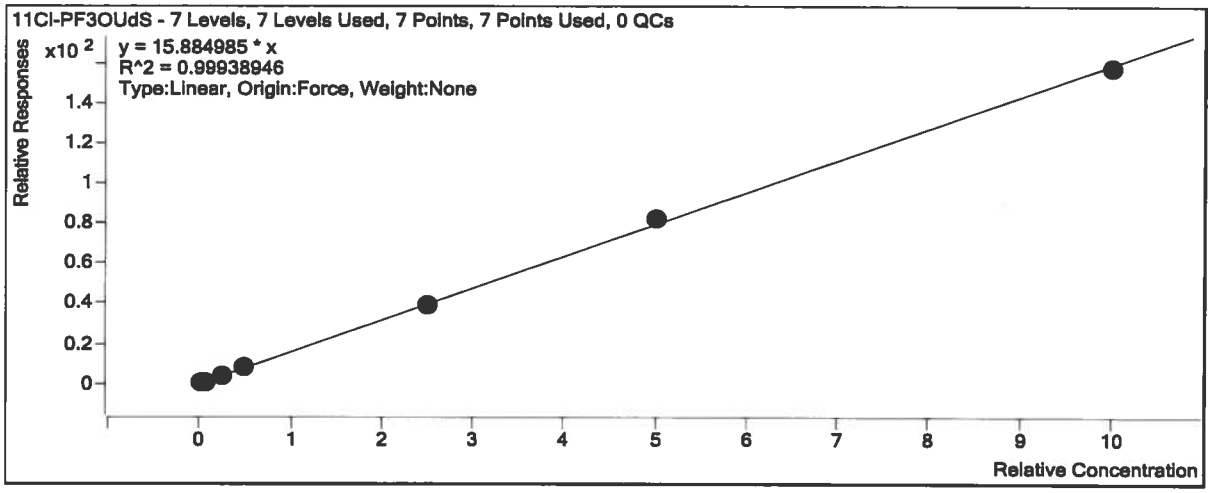


Target Compound *11Cl-PF3OUdS*

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

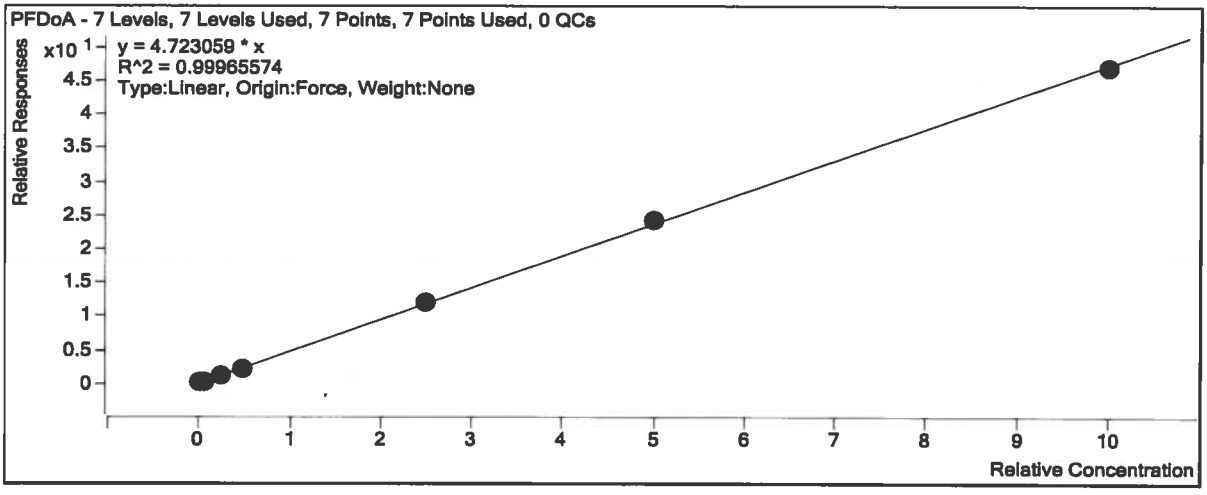
Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191127ACAL\2191127A_23.d	Calibration	7	☑	2388770	200.0000	15.7209



Target Compound *PFDoA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191127ACAL\2191127A_17.d	Calibration	1	☑	2329	0.5000	4.3179
D:\MassHunter\Data\2191127ACAL\2191127A_18.d	Calibration	2	☑	5590	1.2500	4.2840
D:\MassHunter\Data\2191127ACAL\2191127A_25.d	Calibration	3	☑	25020	5.0000	4.7161
D:\MassHunter\Data\2191127ACAL\2191127A_20.d	Calibration	4	☑	46235	10.0000	4.4398
D:\MassHunter\Data\2191127ACAL\2191127A_21.d	Calibration	5	☑	262932	50.0000	4.7819
D:\MassHunter\Data\2191127ACAL\2191127A_22.d	Calibration	6	☑	533673	100.0000	4.8588
D:\MassHunter\Data\2191127ACAL\2191127A_23.d	Calibration	7	☑	972883	200.0000	4.6862

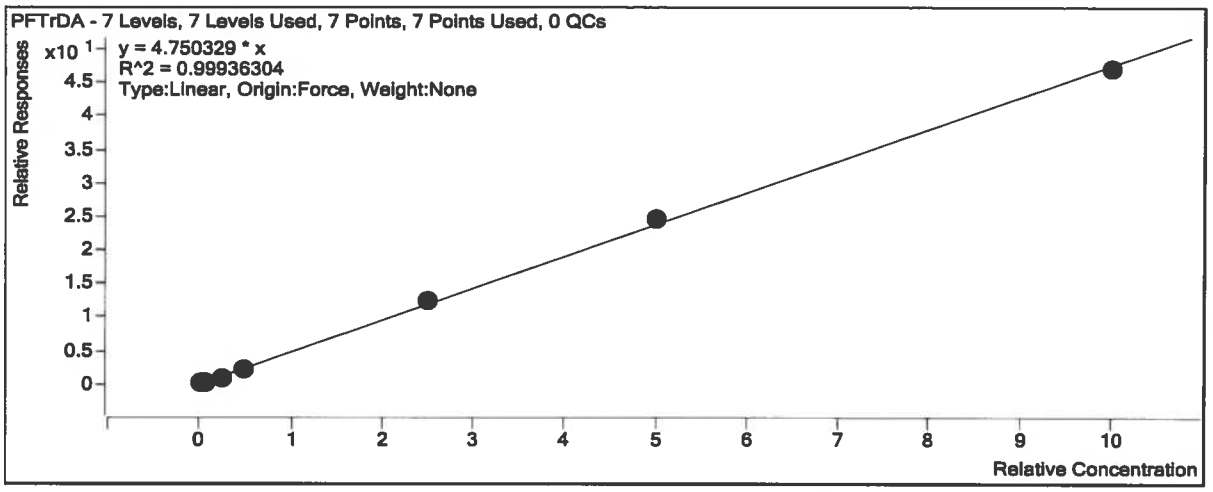


Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191127ACAL\2191127A_20.d	Calibration	4	☑	20827	20.0000	1041.3714
D:\MassHunter\Data\2191127ACAL\2191127A_21.d	Calibration	5	☑	21994	20.0000	1099.6988
D:\MassHunter\Data\2191127ACAL\2191127A_22.d	Calibration	6	☑	21967	20.0000	1098.3614
D:\MassHunter\Data\2191127ACAL\2191127A_23.d	Calibration	7	☑	20761	20.0000	1038.0354

Target Compound *PFTrDA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191127ACAL\2191127A_17.d	Calibration	1	☑	1867	0.5000	4.3835
D:\MassHunter\Data\2191127ACAL\2191127A_18.d	Calibration	2	☑	4595	1.2500	4.3256
D:\MassHunter\Data\2191127ACAL\2191127A_25.d	Calibration	3	☑	18190	5.0000	4.0739
D:\MassHunter\Data\2191127ACAL\2191127A_20.d	Calibration	4	☑	39737	10.0000	4.6635
D:\MassHunter\Data\2191127ACAL\2191127A_21.d	Calibration	5	☑	215277	50.0000	4.9434
D:\MassHunter\Data\2191127ACAL\2191127A_22.d	Calibration	6	☑	421903	100.0000	4.9126
D:\MassHunter\Data\2191127ACAL\2191127A_23.d	Calibration	7	☑	837742	200.0000	4.6983



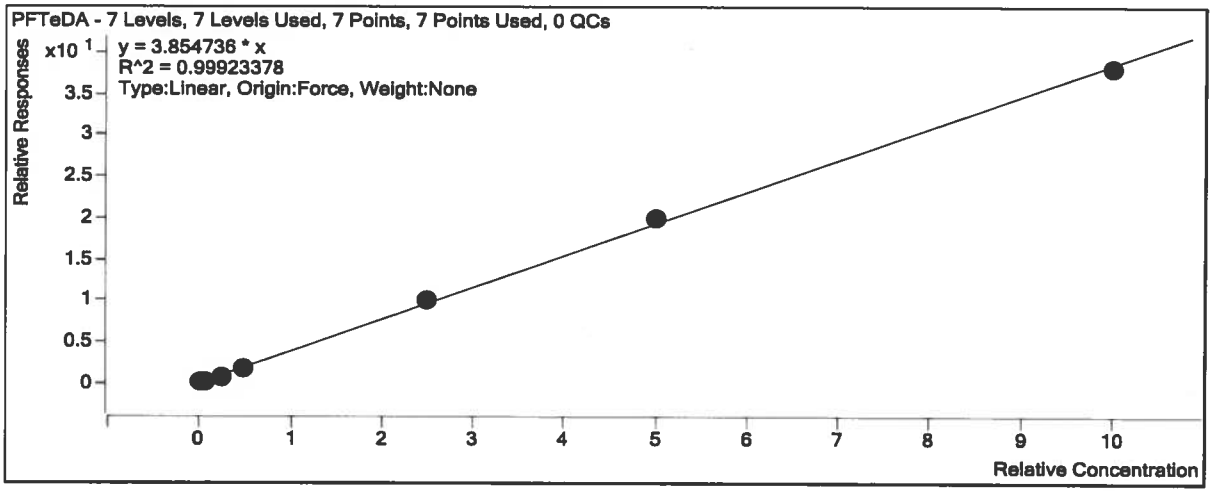
Extracted ISTD *M2PFTeDA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191127ACAL\2191127A_17.d	Calibration	1	☑	17039	20.0000	851.9541
D:\MassHunter\Data\2191127ACAL\2191127A_18.d	Calibration	2	☑	16996	20.0000	849.8149
D:\MassHunter\Data\2191127ACAL\2191127A_25.d	Calibration	3	☑	17860	20.0000	892.9822
D:\MassHunter\Data\2191127ACAL\2191127A_20.d	Calibration	4	☑	17042	20.0000	852.0771

Quantitative Analysis Calibration Report

Target Compound *PFTeDA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191127ACAL\2191127A_17.d	Calibration	1	☑	1328	0.5000	3.1181
D:\MassHunter\Data\2191127ACAL\2191127A_18.d	Calibration	2	☑	3842	1.2500	3.6166
D:\MassHunter\Data\2191127ACAL\2191127A_25.d	Calibration	3	☑	15478	5.0000	3.4667
D:\MassHunter\Data\2191127ACAL\2191127A_20.d	Calibration	4	☑	31876	10.0000	3.7410
D:\MassHunter\Data\2191127ACAL\2191127A_21.d	Calibration	5	☑	175894	50.0000	4.0391
D:\MassHunter\Data\2191127ACAL\2191127A_22.d	Calibration	6	☑	343227	100.0000	3.9965
D:\MassHunter\Data\2191127ACAL\2191127A_23.d	Calibration	7	☑	679044	200.0000	3.8083



6I

ORGANICS INITIAL CALIBRATION VERIFICATION

Report No:	219102541	Instrument ID:	QQQ1
Analysis Date:	11/27/2019 17:54	Lab File ID:	2191127A_27.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	672386

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	50000	53600	107	70	130	
8:2 Fluorotelomer sulfonate	ng/L	50000	56300	113	70	130	
NEtFOSAA	ng/L	50000	37400	75	70	130	
NMeFOSAA	ng/L	50000	41800	84	70	130	
Perfluorobutanoic acid	ng/L	50000	49600	99	70	130	
Perfluorobutanesulfonic acid	ng/L	50000	51300	103	70	130	
Perfluorodecanoic acid	ng/L	50000	49900	100	70	130	
Perfluorododecanoic acid	ng/L	50000	49900	100	70	130	
Perfluoroheptanoic acid	ng/L	50000	48100	96	70	130	
Perfluorohexanoic acid	ng/L	50000	52600	105	70	130	
Perfluorohexanesulfonic acid	ng/L	50000	52500	105	70	130	
Perfluorononanoic acid	ng/L	50000	48900	98	70	130	
Perfluorooctanoic acid	ng/L	50000	48000	96	70	130	
Perfluorooctane Sulfonate	ng/L	50000	45900	92	70	130	
Perfluoropentanoic acid	ng/L	50000	50400	101	70	130	
Perfluorotetradecanoic acid	ng/L	50000	59100	118	70	130	
Perfluorotridecanoic acid	ng/L	50000	49500	99	70	130	
Perfluoroundecanoic acid	ng/L	50000	40200	80	70	130	

7S

ORGANICS INSTRUMENT SENSITIVITY CHECK

Report No:	219102541	Instrument ID:	QQQ1
Analysis Date:	11/27/2019 18:05	Lab File ID:	2191127A_28.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	672386

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	7.93	6.67	85	70	130	
8:2 Fluorotelomer sulfonate	ng/L	8.00	7.60	95	70	130	
NEtFOSAA	ng/L	8.33	7.20	87	70	130	
NMeFOSAA	ng/L	8.33	10.0	120	70	130	
Perfluorobutanoic acid	ng/L	8.33	7.67	92	70	130	
Perfluorobutanesulfonic acid	ng/L	7.40	6.73	91	70	130	
Perfluorodecanoic acid	ng/L	8.33	7.20	86	70	130	
Perfluorododecanoic acid	ng/L	8.33	7.07	85	70	130	
Perfluoroheptanoic acid	ng/L	8.33	6.29	75	70	130	
Perfluorohexanoic acid	ng/L	8.33	7.80	93	70	130	
Perfluorohexanesulfonic acid	ng/L	7.60	7.07	93	70	130	
Perfluorononanoic acid	ng/L	8.33	6.43	77	70	130	
Perfluorooctanoic acid	ng/L	8.33	5.97	72	70	130	
Perfluorooctane Sulfonate	ng/L	7.73	7.60	98	70	130	
Perfluoropentanoic acid	ng/L	8.33	6.57	79	70	130	
Perfluorotetradecanoic acid	ng/L	8.33	7.80	93	70	130	
Perfluorotridecanoic acid	ng/L	8.33	7.93	95	70	130	
Perfluoroundecanoic acid	ng/L	8.33	6.87	82	70	130	

4I

ORGANICS INSTRUMENT BLANK

Report No:	219102541	Instrument ID:	QQQ1
Analysis Date:	11/27/2019 18:16	Lab File ID:	2191127A_29.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	672386

ANALYTE	UNITS	RESULT	Q	DL	LOD	LOQ	#
6:2 Fluorotelomer sulfonate	ng/L	4.00	U	1.79	4.00	10.0	
8:2 Fluorotelomer sulfonate	ng/L	4.00	U	1.63	4.00	10.0	
NEtFOSAA	ng/L	8.00	U	5.38	8.00	10.0	
NMeFOSAA	ng/L	8.00	U	4.60	8.00	10.0	
Perfluorobutanesulfonic acid	ng/L	4.00	U	1.47	4.00	10.0	
Perfluorobutanoic acid	ng/L	4.00	U	2.13	4.00	10.0	
Perfluorodecanoic acid	ng/L	4.00	U	1.65	4.00	10.0	
Perfluorododecanoic acid	ng/L	4.00	U	2.45	4.00	10.0	
Perfluoroheptanoic acid	ng/L	4.00	U	1.85	4.00	10.0	
Perfluorohexanesulfonic acid	ng/L	4.00	U	1.64	4.00	10.0	
Perfluorohexanoic acid	ng/L	4.00	U	1.94	4.00	10.0	
Perfluorononanoic acid	ng/L	4.00	U	1.68	4.00	10.0	
Perfluorooctane Sulfonate	ng/L	4.00	U	1.70	4.00	10.0	
Perfluorooctanoic acid	ng/L	4.00	U	1.80	4.00	10.0	
Perfluoropentanoic acid	ng/L	4.00	U	2.35	4.00	10.0	
Perfluorotetradecanoic acid	ng/L	4.00	U	2.76	4.00	10.0	
Perfluorotridecanoic acid	ng/L	4.00	U	2.56	4.00	10.0	
Perfluoroundecanoic acid	ng/L	4.00	U	1.86	4.00	10.0	

* - Result greater than 1/2 LOQ

7E

ORGANICS CALIBRATION VERIFICATION

Report No:	219103085	Instrument ID:	QQQ1
Analysis Date:	11/28/2019 01:40	Lab File ID:	2191127A_68.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	672386

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	47500	49300	104	70	130	
8:2 Fluorotelomer sulfonate	ng/L	48000	58600	122	70	130	
NEtFOSAA	ng/L	50000	45600	91	70	130	
NMeFOSAA	ng/L	50000	50000	100	70	130	
Perfluorobutanoic acid	ng/L	50000	48400	97	70	130	
Perfluorobutanesulfonic acid	ng/L	44300	44300	100	70	130	
Perfluorodecanoic acid	ng/L	50000	47400	95	70	130	
Perfluorododecanoic acid	ng/L	50000	55600	111	70	130	
Perfluoroheptanoic acid	ng/L	50000	50000	100	70	130	
Perfluorohexanoic acid	ng/L	50000	46800	94	70	130	
Perfluorohexanesulfonic acid	ng/L	45600	45600	100	70	130	
Perfluorononanoic acid	ng/L	50000	49600	99	70	130	
Perfluorooctanoic acid	ng/L	50000	46400	93	70	130	
Perfluorooctane Sulfonate	ng/L	46300	55100	119	70	130	
Perfluoropentanoic acid	ng/L	50000	49300	99	70	130	
Perfluorotetradecanoic acid	ng/L	50000	52600	105	70	130	
Perfluorotridecanoic acid	ng/L	50000	51100	102	70	130	
Perfluoroundecanoic acid	ng/L	50000	41000	82	70	130	

FORM 7E - ORG

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ORGANICS CALIBRATION VERIFICATION

Report No:	219102541	Instrument ID:	QQQ1
Analysis Date:	11/28/2019 04:20	Lab File ID:	2191127A_82.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	672386

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	47500	48100	101	70	130	
8:2 Fluorotelomer sulfonate	ng/L	48000	56600	118	70	130	
NEtFOSAA	ng/L	50000	41800	84	70	130	
NMeFOSAA	ng/L	50000	52100	104	70	130	
Perfluorobutanoic acid	ng/L	50000	48200	96	70	130	
Perfluorobutanesulfonic acid	ng/L	44300	44500	101	70	130	
Perfluorodecanoic acid	ng/L	50000	48600	97	70	130	
Perfluorododecanoic acid	ng/L	50000	52800	106	70	130	
Perfluoroheptanoic acid	ng/L	50000	47600	95	70	130	
Perfluorohexanoic acid	ng/L	50000	47200	94	70	130	
Perfluorohexanesulfonic acid	ng/L	45600	46100	101	70	130	
Perfluorononanoic acid	ng/L	50000	47300	95	70	130	
Perfluorooctanoic acid	ng/L	50000	48200	96	70	130	
Perfluorooctane Sulfonate	ng/L	46300	52800	114	70	130	
Perfluoropentanoic acid	ng/L	50000	49000	98	70	130	
Perfluorotetradecanoic acid	ng/L	50000	52200	104	70	130	
Perfluorotridecanoic acid	ng/L	50000	50600	101	70	130	
Perfluoroundecanoic acid	ng/L	50000	43500	87	70	130	

FORM 7E - ORG

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ORGANICS CALIBRATION VERIFICATION

Report No:	219102541	Instrument ID:	QQQ1
Analysis Date:	11/28/2019 05:16	Lab File ID:	2191127A_87.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	672386

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	47500	50100	106	70	130	
8:2 Fluorotelomer sulfonate	ng/L	48000	56200	117	70	130	
NEtFOSAA	ng/L	50000	51800	104	70	130	
NMeFOSAA	ng/L	50000	59100	118	70	130	
Perfluorobutanoic acid	ng/L	50000	48300	97	70	130	
Perfluorobutanesulfonic acid	ng/L	44300	45100	102	70	130	
Perfluorodecanoic acid	ng/L	50000	45800	92	70	130	
Perfluorododecanoic acid	ng/L	50000	53200	106	70	130	
Perfluoroheptanoic acid	ng/L	50000	47600	95	70	130	
Perfluorohexanoic acid	ng/L	50000	46800	94	70	130	
Perfluorohexanesulfonic acid	ng/L	45600	46600	102	70	130	
Perfluorononanoic acid	ng/L	50000	46100	92	70	130	
Perfluorooctanoic acid	ng/L	50000	47500	95	70	130	
Perfluorooctane Sulfonate	ng/L	46300	55000	119	70	130	
Perfluoropentanoic acid	ng/L	50000	50000	100	70	130	
Perfluorotetradecanoic acid	ng/L	50000	51900	104	70	130	
Perfluorotridecanoic acid	ng/L	50000	51600	103	70	130	
Perfluoroundecanoic acid	ng/L	50000	44000	88	70	130	

FORM 7E - ORG

7E

ORGANICS CALIBRATION VERIFICATION

Report No:	219102541	Instrument ID:	QQQ1
Analysis Date:	11/28/2019 07:21	Lab File ID:	2191127A_98.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	672386

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	47500	47400	100	70	130	
8:2 Fluorotelomer sulfonate	ng/L	48000	51800	108	70	130	
NEtFOSAA	ng/L	50000	48300	97	70	130	
NMeFOSAA	ng/L	50000	54200	108	70	130	
Perfluorobutanoic acid	ng/L	50000	48100	96	70	130	
Perfluorobutanesulfonic acid	ng/L	44300	43600	99	70	130	
Perfluorodecanoic acid	ng/L	50000	49000	98	70	130	
Perfluorododecanoic acid	ng/L	50000	51000	102	70	130	
Perfluoroheptanoic acid	ng/L	50000	46900	94	70	130	
Perfluorohexanoic acid	ng/L	50000	46900	94	70	130	
Perfluorohexanesulfonic acid	ng/L	45600	45800	100	70	130	
Perfluorononanoic acid	ng/L	50000	45600	91	70	130	
Perfluorooctanoic acid	ng/L	50000	46200	92	70	130	
Perfluorooctane Sulfonate	ng/L	46300	56500	122	70	130	
Perfluoropentanoic acid	ng/L	50000	51000	102	70	130	
Perfluorotetradecanoic acid	ng/L	50000	50700	101	70	130	
Perfluorotridecanoic acid	ng/L	50000	49500	99	70	130	
Perfluoroundecanoic acid	ng/L	50000	44300	89	70	130	

FORM 7E - ORG

8I

INJECTION INTERNAL STANDARD AREA SUMMARY

Report No:	219102541	Standard ID:	1205 (ICAL Midpoint)
Analyst:	BMH	Instrument ID:	QQQ1
Analysis Date:	11/27/19 16:35	Lab File ID:	2191127A_21.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	672386

	M2PFDA	M2PFHxA	M2PFOA	M4PFOS
	Area	*Area*	*Area*	*Area*
STANDARD	166561	399525	157847	144782

CLIENT SAMPLE ID	*GCAL SAMP ID*		#		#		#		#
AOI1-5-SB-7-7.5-102319DL	21910254109DL	189297		459311		177228		148314	

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 8I - ORG

8I

INJECTION INTERNAL STANDARD AREA SUMMARY

Report No:	219103085	Standard ID:	1205 (ICAL Midpoint)
Analyst:	BMH	Instrument ID:	QQQ1
Analysis Date:	11/27/19 16:35	Lab File ID:	2191127A_21.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	672386

	M2PFDA	M2PFHxA	M2PFOA	M4PFOS
	Area	*Area*	*Area*	*Area*
STANDARD	166561	399525	157847	144782

CLIENT SAMPLE ID	*GCAL SAMP ID*		#		#		#		#
AOI 8-6-SW-102919 (RE)RE	21910308522RE	103772		241978		92698		77774	
AOI 8-6-SW-102919-MS (RE)RE	21910308523RE	171544		411236		158230		136226	
AOI 8-6-SW-102919-MSD (RE)RE	21910308524RE	172616		411685		157513		140262	

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 8I - ORG

LCMS1 Run Log

Analyst:	BMH	Expiration
Batch:	2191129A	Date
Current ICAL Bath:	2191129ACAL/2191129ACALDW	Date
20mM Amm Acetate	010-18-7	12/1/2019
Methanol	2128497	8/31/2024
Calibration Std	010-16-7	5/21/2020
ICV Std	010-6-5	4/9/2020
EIS Mix	010-17-1	5/21/2020

Name	Data File	Type	Acq. Date-Time	Comment	Dil.
MeOH Shot	2191129A_01.d	MeOH Shot	11/29/2019 13:01	Instrument idle/MeOH Shot	1
1201	2191129A_02.d	Cal	11/29/2019 13:12		1
1202	2191129A_03.d	Cal	11/29/2019 13:23		1
1203	2191129A_04.d	Cal	11/29/2019 13:34		1
1204	2191129A_05.d	Cal	11/29/2019 13:45		1
MeOH Shot	2191129A_06.d	MeOH Shot	11/29/2019 14:39	Instrument idle/MeOH Shot	1
1205	2191129A_07.d	Cal	11/29/2019 14:50		1
1206	2191129A_08.d	Cal	11/29/2019 15:01		1
1207	2191129A_09.d	Cal	11/29/2019 15:12		1
MeOH Shot	2191129A_10.d	MeOH Shot	11/29/2019 15:40	Instrument idle/MeOH Shot	1
1202	2191129A_11.d	Cal	11/29/2019 15:51		1
MeOH Shot	2191129A_12.d	MeOH Shot	11/29/2019 16:18	Instrument idle/MeOH Shot	1
1201	2191129A_13.d	Cal	11/29/2019 16:29		1
1202	2191129A_14.d	Cal	11/29/2019 16:40	RR ACCURACY FAILURE	1
1203	2191129A_15.d	Cal	11/29/2019 16:52		1
1204	2191129A_16.d	Cal	11/29/2019 17:03		1
1205	2191129A_17.d	Cal	11/29/2019 17:14		1
1206	2191129A_18.d	Cal	11/29/2019 17:26		1
1207	2191129A_19.d	Cal	11/29/2019 17:37		1
MeOH Shot	2191129A_20.d	MeOH Shot	11/29/2019 18:03	Instrument idle/MeOH Shot	1
1202	2191129A_21.d	Cal	11/29/2019 18:14		1
MeOH Shot	2191129A_22.d	MeOH Shot	11/29/2019 18:31	Instrument idle/MeOH Shot	1

1600	2191129A_23.d	QC	11/29/2019 18:42		1
1450	2191129A_24.d	QC	11/29/2019 18:53		1
1500	2191129A_25.d	Sample	11/29/2019 19:05		1
MeOH Shot	2191129A_26.d	MeOH Shot	11/29/2019 19:20	Instrument idle/MeOH Shot	1
21910261305	2191129A_27.d	Sample	11/29/2019 19:31	670205	50
21910254124	2191129A_28.d	Sample	11/29/2019 19:42	670126	50
21910254125	2191129A_29.d	Sample	11/29/2019 19:54	670126	50
1400	2191129A_30.d	QC	11/29/2019 20:05		1
MeOH Shot	2191129A_31.d	MeOH Shot	11/30/2019 0:41	Instrument idle/MeOH Shot	1
1987282	2191129A_32.d	Sample	11/30/2019 0:52	672357	1
1987283	2191129A_33.d	QC	11/30/2019 1:03	672357	1
1987284	2191129A_34.d	QC	11/30/2019 1:15	672357	1
21911072306	2191129A_35.d	Sample	11/30/2019 1:26	672357	1
21911291404 x10	2191129A_36.d	Sample	11/30/2019 1:37	672357	10
21911291403 x5	2191129A_37.d	Sample	11/30/2019 1:49	672357	5
21911291402 x5	2191129A_38.d	Sample	11/30/2019 2:00	672357	5
21911291401	2191129A_39.d	Sample	11/30/2019 2:11	672357	1
MeOH Shot	2191129A_40.d	MeOH Shot	11/30/2019 2:23	Instrument idle/MeOH Shot	1
1400	2191129A_41.d	QC	11/30/2019 2:33		1
21911291402	2191129A_42.d	Sample	11/30/2019 2:45	672357	1
21911291403	2191129A_43.d	Sample	11/30/2019 2:56	672357	1
21911291404	2191129A_44.d	Sample	11/30/2019 3:07	672357	1
21911291401 5x	2191129A_45.d	Sample	11/30/2019 3:19	672357	5
1400	2191129A_46.d	QC	11/30/2019 3:30		1
MeOH Shot	2191129A_47.d	MeOH Shot	11/30/2019 3:50	Instrument idle/MeOH Shot	1
1400	2191129A_48.d	QC	11/30/2019 4:01		1
21911072301	2191129A_49.d	Sample	11/30/2019 4:12	672357	1
21911072302	2191129A_50.d	Sample	11/30/2019 4:24	672357	1
21911072303	2191129A_51.d	Sample	11/30/2019 4:35	672357	1
21911072304	2191129A_52.d	Sample	11/30/2019 4:46	672357	1
21911072305	2191129A_53.d	Sample	11/30/2019 4:58	672357	1
1400	2191129A_54.d	QC	11/30/2019 5:09		1
21911291601 x5	2191129A_55.d	Sample	11/30/2019 5:21	672357	5
21911291602 x5	2191129A_56.d	Sample	11/30/2019 5:32	672357	5

21911291603 x5	2191129A_57.d	Sample	11/30/2019 5:43	672357	5
21911291605 x5	2191129A_58.d	Sample	11/30/2019 5:54	672357	5
21911291606 x5	2191129A_59.d	Sample	11/30/2019 6:06	672357	5
21911291607 x5	2191129A_60.d	Sample	11/30/2019 6:17	672357	5
1400	2191129A_61.d	QC	11/30/2019 6:28		1
21911291601	2191129A_62.d	Sample	11/30/2019 6:40	672357	1
21911291602	2191129A_63.d	Sample	11/30/2019 6:51	672357	1
21911291603	2191129A_64.d	Sample	11/30/2019 7:02	672357	1
21911291605	2191129A_65.d	Sample	11/30/2019 7:14	672357	1
21911291606	2191129A_66.d	Sample	11/30/2019 7:25	672357	1
21911291607	2191129A_67.d	Sample	11/30/2019 7:36	672357	1
1400	2191129A_68.d	QC	11/30/2019 7:47		1

Quantitative Analysis Calibration Report

Batch Data Path	D:\MassHunter\Data\2191129ACAL\QuantResults\2191129A.batch.bin		
Analysis Time	11/30/2019 12:28 PM	**Analyst Name**	GCAL\lcms
Report Time	11/30/2019 12:29 PM	**Reporter Name**	GCAL\lcms
Last Calib Update	11/29/2019 11:51 PM	**Batch State**	Processed

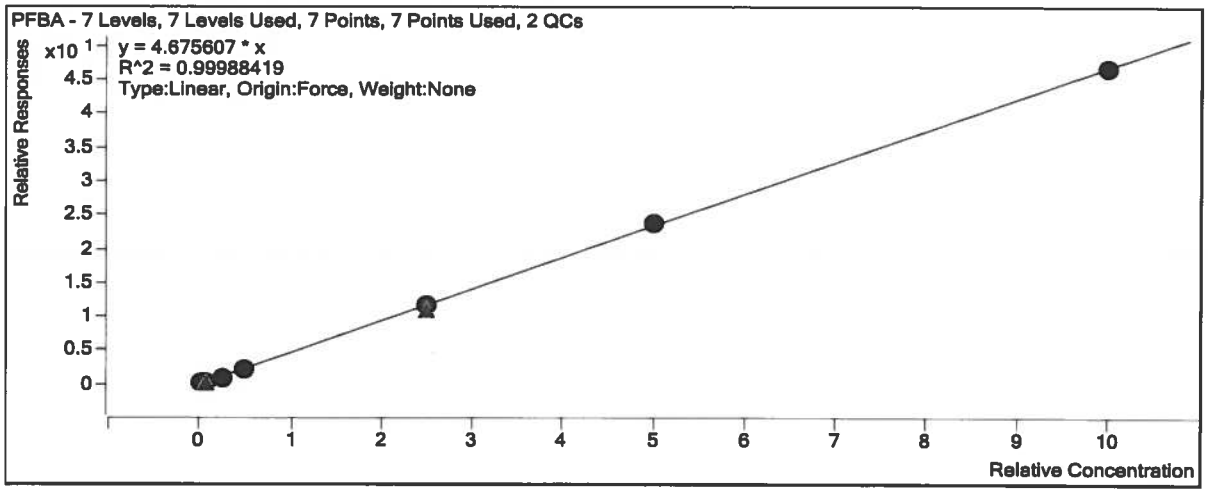
Calibration Info

Extracted ISTD *MPFBA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191129ACAL\2191129A_13.d	Calibration	1	☑	30052	20.0000	1502.6038
D:\MassHunter\Data\2191129ACAL\2191129A_21.d	Calibration	2	☑	30147	20.0000	1507.3516
D:\MassHunter\Data\2191129ACAL\2191129A_15.d	Calibration	3	☑	30805	20.0000	1540.2709
D:\MassHunter\Data\2191129ACAL\2191129A_16.d	Calibration	4	☑	30655	20.0000	1532.7660
D:\MassHunter\Data\2191129ACAL\2191129A_17.d	Calibration	5	☑	28230	20.0000	1411.5134
D:\MassHunter\Data\2191129ACAL\2191129A_18.d	Calibration	6	☑	29981	20.0000	1499.0425
D:\MassHunter\Data\2191129ACAL\2191129A_19.d	Calibration	7	☑	29338	20.0000	1466.9150

Target Compound *PFBA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191129ACAL\2191129A_13.d	Calibration	1	☑	3329	0.5000	4.4308
D:\MassHunter\Data\2191129ACAL\2191129A_21.d	Calibration	2	☑	7059	1.2500	3.7465
D:\MassHunter\Data\2191129ACAL\2191129A_15.d	Calibration	3	☑	31603	5.0000	4.1036
D:\MassHunter\Data\2191129ACAL\2191129A_16.d	Calibration	4	☑	63059	10.0000	4.1141
D:\MassHunter\Data\2191129ACAL\2191129A_17.d	Calibration	5	☑	330781	50.0000	4.6869
D:\MassHunter\Data\2191129ACAL\2191129A_18.d	Calibration	6	☑	709868	100.0000	4.7355
D:\MassHunter\Data\2191129ACAL\2191129A_19.d	Calibration	7	☑	1367673	200.0000	4.6617

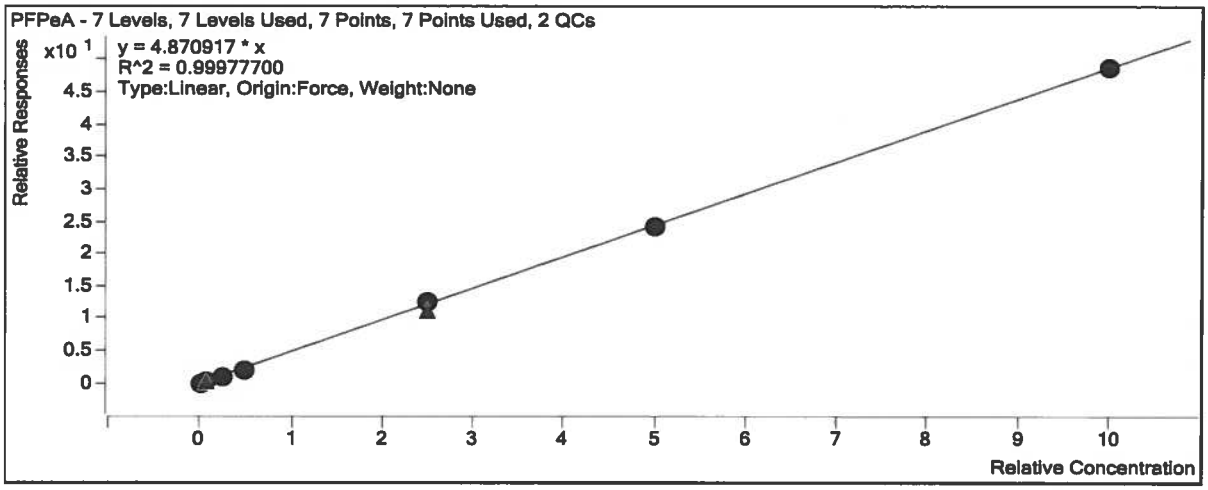


Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191129ACAL\2191129A_16.d	Calibration	4	☑	21171	20.0000	1058.5377
D:\MassHunter\Data\2191129ACAL\2191129A_17.d	Calibration	5	☑	19469	20.0000	973.4308
D:\MassHunter\Data\2191129ACAL\2191129A_18.d	Calibration	6	☑	20327	20.0000	1016.3722
D:\MassHunter\Data\2191129ACAL\2191129A_19.d	Calibration	7	☑	20098	20.0000	1004.9011

Target Compound *PFPeA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191129ACAL\2191129A_13.d	Calibration	1	☑	1360	0.5000	2.5203
D:\MassHunter\Data\2191129ACAL\2191129A_21.d	Calibration	2	☑	3997	1.2500	2.9508
D:\MassHunter\Data\2191129ACAL\2191129A_15.d	Calibration	3	☑	21546	5.0000	3.9464
D:\MassHunter\Data\2191129ACAL\2191129A_16.d	Calibration	4	☑	41128	10.0000	3.8854
D:\MassHunter\Data\2191129ACAL\2191129A_17.d	Calibration	5	☑	244058	50.0000	5.0144
D:\MassHunter\Data\2191129ACAL\2191129A_18.d	Calibration	6	☑	494449	100.0000	4.8648
D:\MassHunter\Data\2191129ACAL\2191129A_19.d	Calibration	7	☑	978091	200.0000	4.8666

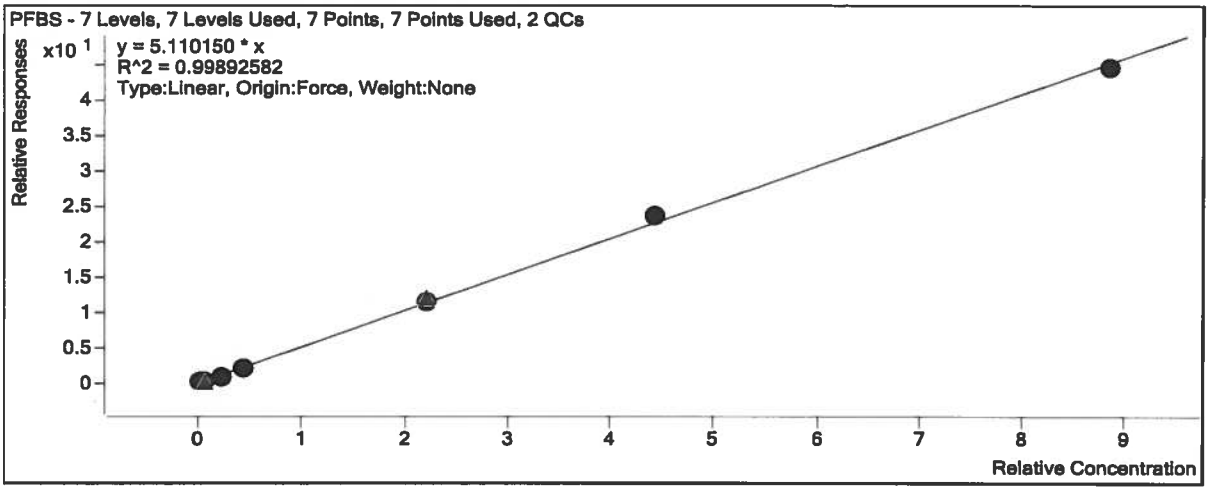


Target Compound *PFBS*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191129ACAL\2191129A_13.d	Calibration	1	☑	2053	0.4425	4.3569
D:\MassHunter\Data\2191129ACAL\2191129A_21.d	Calibration	2	☑	4853	1.1100	4.0788
D:\MassHunter\Data\2191129ACAL\2191129A_15.d	Calibration	3	☑	22560	4.4250	4.4823
D:\MassHunter\Data\2191129ACAL\2191129A_16.d	Calibration	4	☑	45925	8.8500	4.7608

Quantitative Analysis Calibration Report

D:\MassHunter\Data\2191129ACAL\2191129A_17.d	Calibration	5	☑	236938	44.2500	5.2366
D:\MassHunter\Data\2191129ACAL\2191129A_18.d	Calibration	6	☑	517578	88.5000	5.3683
D:\MassHunter\Data\2191129ACAL\2191129A_19.d	Calibration	7	☑	988909	177.0000	5.0390



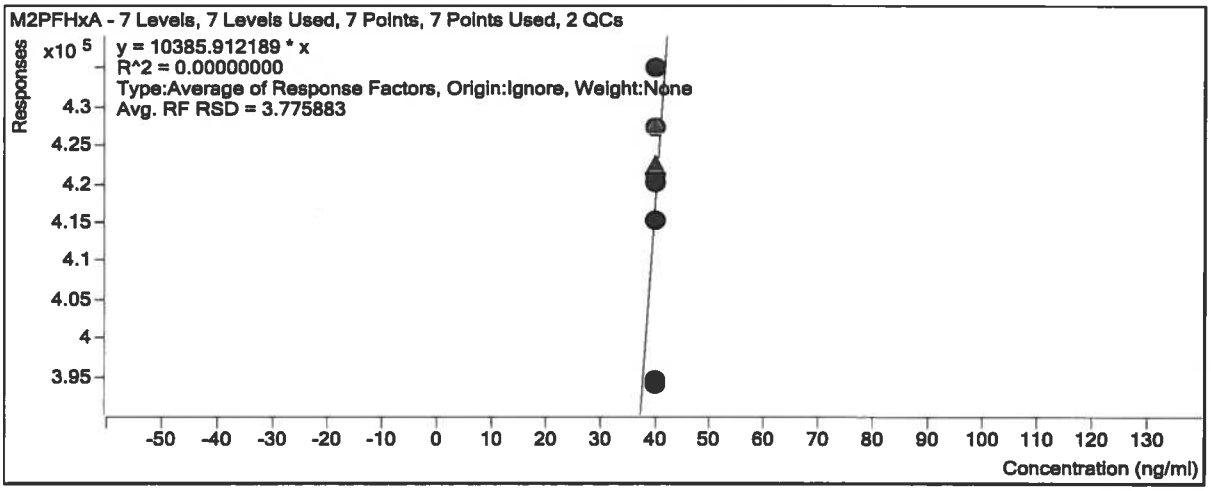
Extracted ISTD ***M3PFBS***

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191129ACAL\2191129A_13.d	Calibration	1	☑	21294	20.0000	1064.7056
D:\MassHunter\Data\2191129ACAL\2191129A_21.d	Calibration	2	☑	21437	20.0000	1071.8379
D:\MassHunter\Data\2191129ACAL\2191129A_15.d	Calibration	3	☑	22748	20.0000	1137.4191
D:\MassHunter\Data\2191129ACAL\2191129A_16.d	Calibration	4	☑	21800	20.0000	1089.9782
D:\MassHunter\Data\2191129ACAL\2191129A_17.d	Calibration	5	☑	20451	20.0000	1022.5255
D:\MassHunter\Data\2191129ACAL\2191129A_18.d	Calibration	6	☑	21788	20.0000	1089.4187
D:\MassHunter\Data\2191129ACAL\2191129A_19.d	Calibration	7	☑	22175	20.0000	1108.7586

Extracted ISTD ***M2 4:2 FTS***

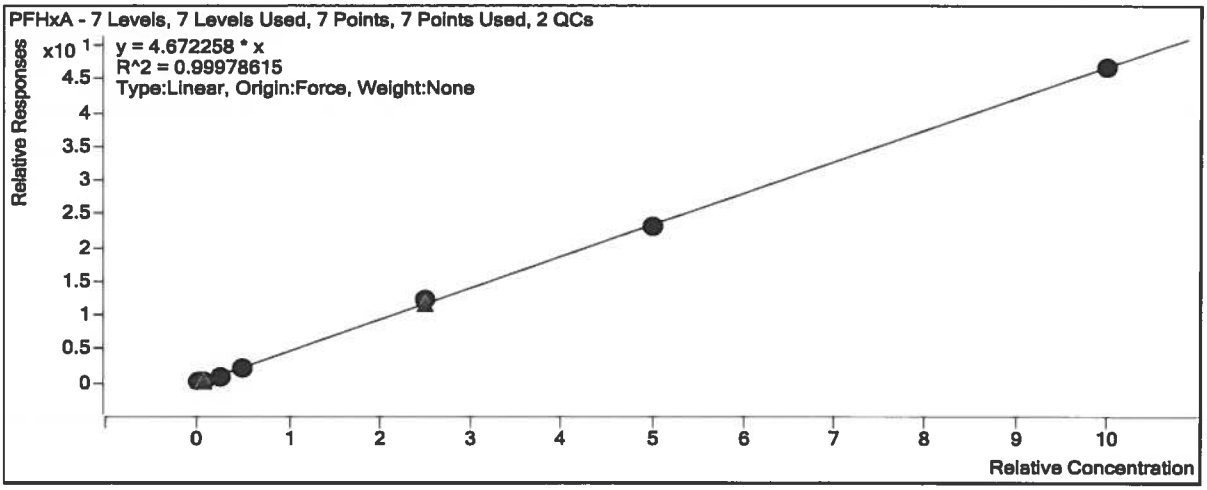
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191129ACAL\2191129A_13.d	Calibration	1	☑	11128	20.0000	556.4241
D:\MassHunter\Data\2191129ACAL\2191129A_21.d	Calibration	2	☑	11150	20.0000	557.4810
D:\MassHunter\Data\2191129ACAL\2191129A_15.d	Calibration	3	☑	11299	20.0000	564.9731
D:\MassHunter\Data\2191129ACAL\2191129A_16.d	Calibration	4	☑	10740	20.0000	536.9911
D:\MassHunter\Data\2191129ACAL\2191129A_17.d	Calibration	5	☑	9509	20.0000	475.4497
D:\MassHunter\Data\2191129ACAL\2191129A_18.d	Calibration	6	☑	9198	20.0000	459.8982
D:\MassHunter\Data\2191129ACAL\2191129A_19.d	Calibration	7	☑	8741	20.0000	437.0305

Quantitative Analysis Calibration Report



Target Compound *PFHxA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191129ACAL\2191129A_13.d	Calibration	1	☑	4760	0.5000	4.7893
D:\MassHunter\Data\2191129ACAL\2191129A_21.d	Calibration	2	☑	10217	1.2500	4.2356
D:\MassHunter\Data\2191129ACAL\2191129A_15.d	Calibration	3	☑	43034	5.0000	4.1091
D:\MassHunter\Data\2191129ACAL\2191129A_16.d	Calibration	4	☑	84987	10.0000	4.1865
D:\MassHunter\Data\2191129ACAL\2191129A_17.d	Calibration	5	☑	429230	50.0000	4.8907
D:\MassHunter\Data\2191129ACAL\2191129A_18.d	Calibration	6	☑	918586	100.0000	4.6583
D:\MassHunter\Data\2191129ACAL\2191129A_19.d	Calibration	7	☑	1740452	200.0000	4.6637

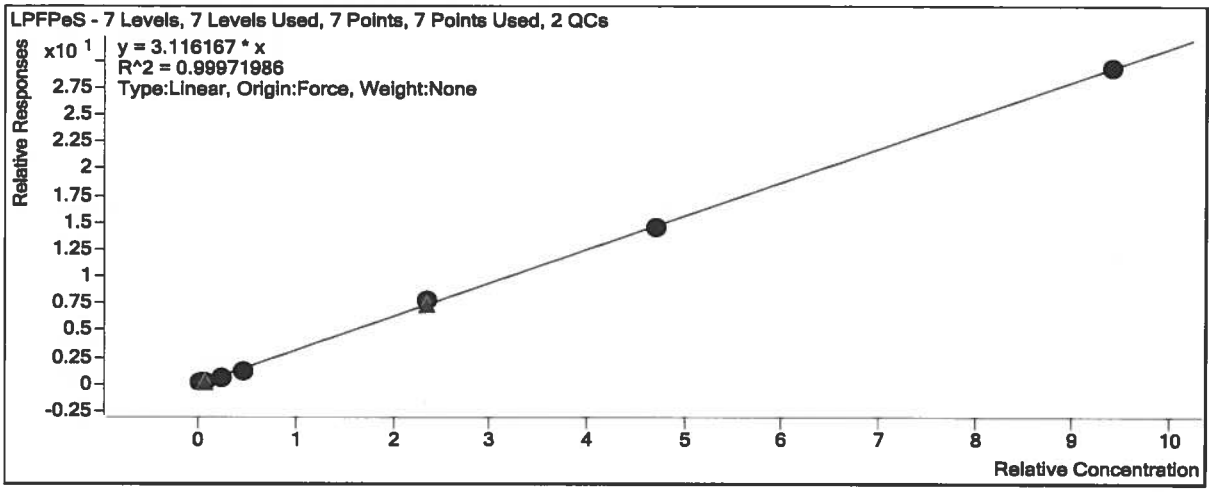


Target Compound *LPFPeS*

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

Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191129ACAL\2191129A_19.d	Calibration	7	☑	1092869	188.0000	3.1154



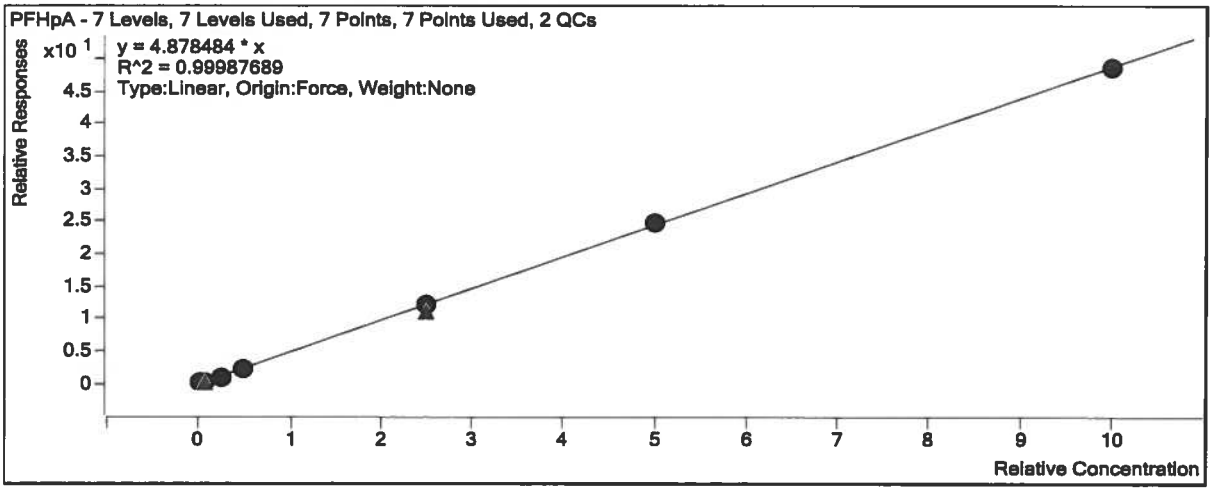
Extracted ISTD *M3HFPODA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191129ACAL\2191129A_13.d	Calibration	1	☑	2157	20.0000	107.8546
D:\MassHunter\Data\2191129ACAL\2191129A_21.d	Calibration	2	☑	1972	20.0000	98.6025
D:\MassHunter\Data\2191129ACAL\2191129A_15.d	Calibration	3	☑	2479	20.0000	123.9303
D:\MassHunter\Data\2191129ACAL\2191129A_16.d	Calibration	4	☑	2277	20.0000	113.8685
D:\MassHunter\Data\2191129ACAL\2191129A_17.d	Calibration	5	☑	2080	20.0000	103.9915
D:\MassHunter\Data\2191129ACAL\2191129A_18.d	Calibration	6	☑	2238	20.0000	111.8873
D:\MassHunter\Data\2191129ACAL\2191129A_19.d	Calibration	7	☑	2515	20.0000	125.7420

Target Compound *HFPO-DA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191129ACAL\2191129A_13.d	Calibration	1	☑	136	0.5000	2.5196
D:\MassHunter\Data\2191129ACAL\2191129A_21.d	Calibration	2	☑	640	1.2500	5.1957
D:\MassHunter\Data\2191129ACAL\2191129A_15.d	Calibration	3	☑	2180	5.0000	3.5187
D:\MassHunter\Data\2191129ACAL\2191129A_16.d	Calibration	4	☑	5026	10.0000	4.4136
D:\MassHunter\Data\2191129ACAL\2191129A_17.d	Calibration	5	☑	23771	50.0000	4.5717
D:\MassHunter\Data\2191129ACAL\2191129A_18.d	Calibration	6	☑	51713	100.0000	4.6219
D:\MassHunter\Data\2191129ACAL\2191129A_19.d	Calibration	7	☑	104883	200.0000	4.1706

Quantitative Analysis Calibration Report

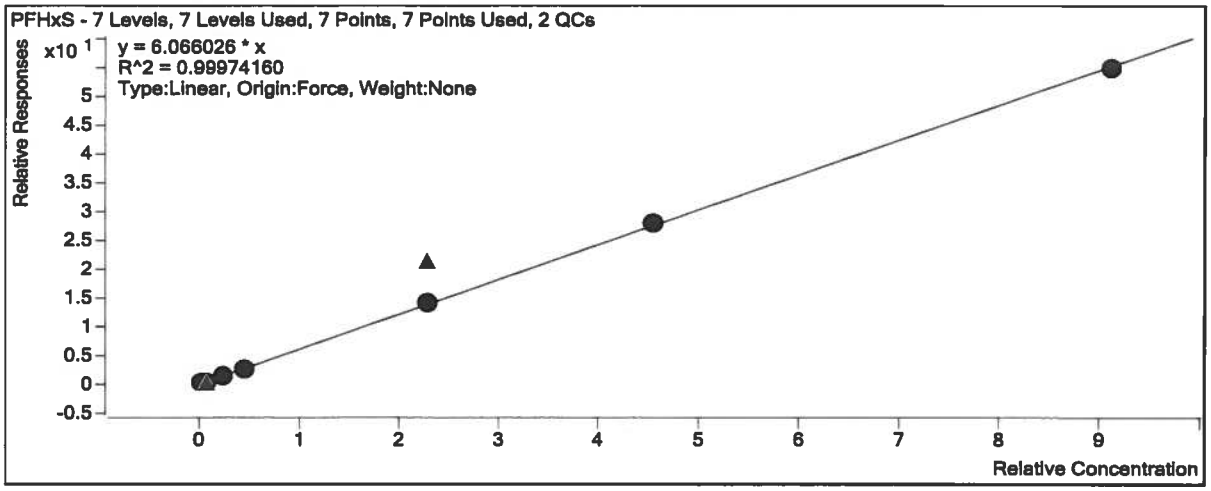


Extracted ISTD *M3PFHxS*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191129ACAL\2191129A_13.d	Calibration	1	☑	20891	20.0000	1044.5689
D:\MassHunter\Data\2191129ACAL\2191129A_21.d	Calibration	2	☑	21367	20.0000	1068.3565
D:\MassHunter\Data\2191129ACAL\2191129A_15.d	Calibration	3	☑	22615	20.0000	1130.7739
D:\MassHunter\Data\2191129ACAL\2191129A_16.d	Calibration	4	☑	22296	20.0000	1114.8050
D:\MassHunter\Data\2191129ACAL\2191129A_17.d	Calibration	5	☑	20710	20.0000	1035.5066
D:\MassHunter\Data\2191129ACAL\2191129A_18.d	Calibration	6	☑	22452	20.0000	1122.5869
D:\MassHunter\Data\2191129ACAL\2191129A_19.d	Calibration	7	☑	22163	20.0000	1108.1718

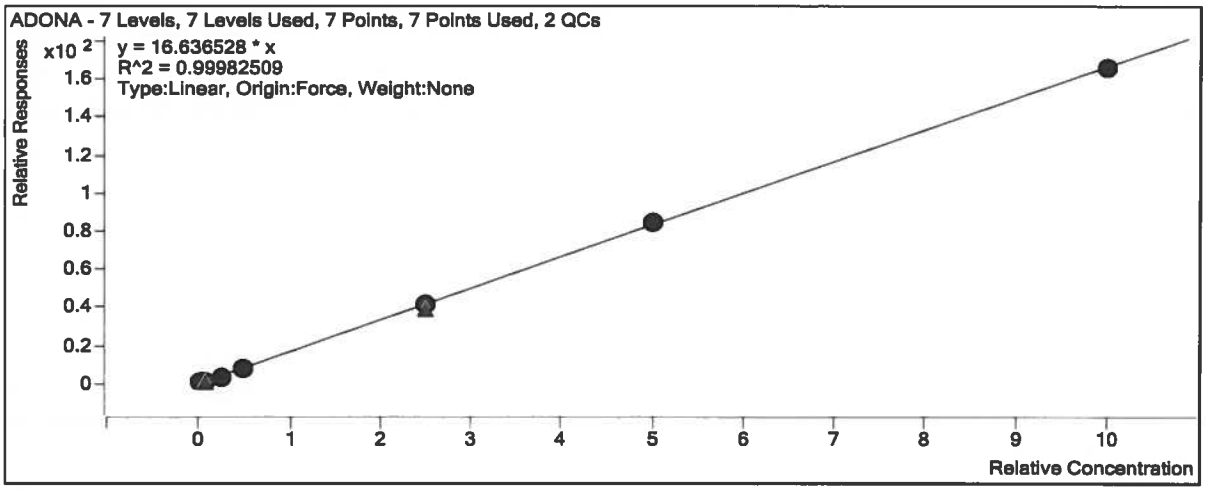
Target Compound *PFHxS*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191129ACAL\2191129A_13.d	Calibration	1	☑	2496	0.4560	5.2401
D:\MassHunter\Data\2191129ACAL\2191129A_21.d	Calibration	2	☑	5859	1.1400	4.8105
D:\MassHunter\Data\2191129ACAL\2191129A_15.d	Calibration	3	☑	28779	4.5600	5.5814
D:\MassHunter\Data\2191129ACAL\2191129A_16.d	Calibration	4	☑	57545	9.1200	5.6600
D:\MassHunter\Data\2191129ACAL\2191129A_17.d	Calibration	5	☑	296372	45.6000	6.2765
D:\MassHunter\Data\2191129ACAL\2191129A_18.d	Calibration	6	☑	632247	91.2000	6.1755
D:\MassHunter\Data\2191129ACAL\2191129A_19.d	Calibration	7	☑	1218215	182.4000	6.0269



Target Compound *ADONA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191129ACAL\2191129A_13.d	Calibration	1	☑	8971	0.5000	12.1153
D:\MassHunter\Data\2191129ACAL\2191129A_21.d	Calibration	2	☑	22338	1.2500	12.7497
D:\MassHunter\Data\2191129ACAL\2191129A_15.d	Calibration	3	☑	110402	5.0000	14.7102
D:\MassHunter\Data\2191129ACAL\2191129A_16.d	Calibration	4	☑	220922	10.0000	14.9266
D:\MassHunter\Data\2191129ACAL\2191129A_17.d	Calibration	5	☑	1113722	50.0000	16.6484
D:\MassHunter\Data\2191129ACAL\2191129A_18.d	Calibration	6	☑	2340426	100.0000	16.9513
D:\MassHunter\Data\2191129ACAL\2191129A_19.d	Calibration	7	☑	4507720	200.0000	16.5628

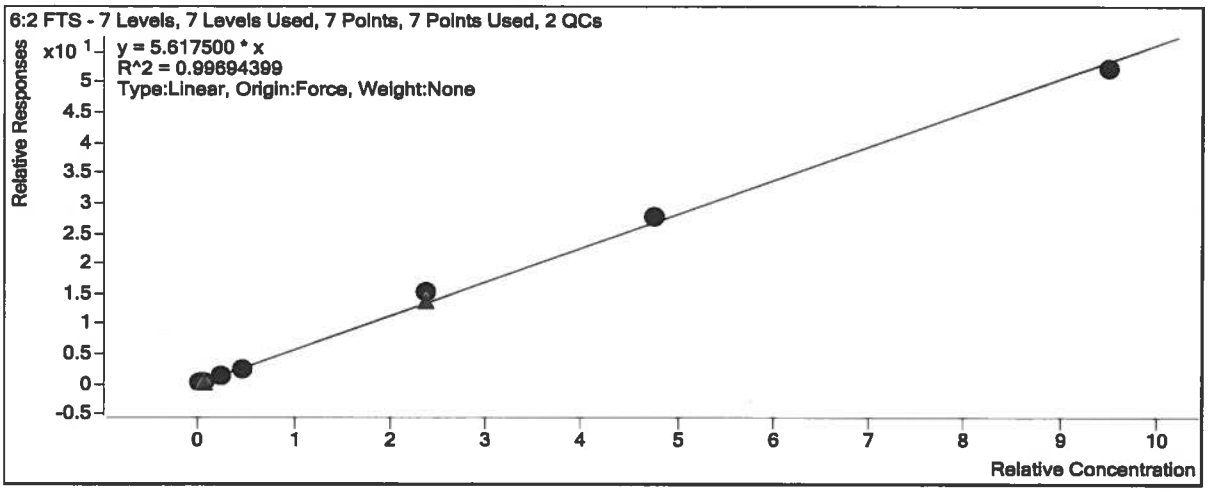


Target Compound *6:2 FTS*

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

Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191129ACAL\2191129A_19.d	Calibration	7	☑	990966	190.0000	5.4974



Extracted ISTD *M2 6:2 FTS*

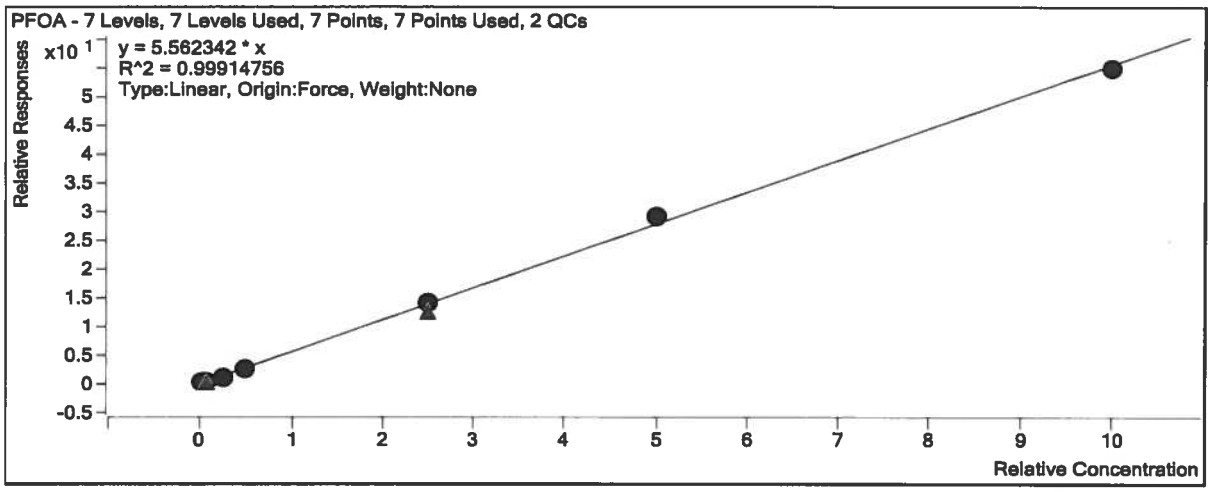
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191129ACAL\2191129A_13.d	Calibration	1	☑	23637	20.0000	1181.8380
D:\MassHunter\Data\2191129ACAL\2191129A_21.d	Calibration	2	☑	24222	20.0000	1211.1115
D:\MassHunter\Data\2191129ACAL\2191129A_15.d	Calibration	3	☑	24635	20.0000	1231.7479
D:\MassHunter\Data\2191129ACAL\2191129A_16.d	Calibration	4	☑	24491	20.0000	1224.5363
D:\MassHunter\Data\2191129ACAL\2191129A_17.d	Calibration	5	☑	19791	20.0000	989.5656
D:\MassHunter\Data\2191129ACAL\2191129A_18.d	Calibration	6	☑	21216	20.0000	1060.7866
D:\MassHunter\Data\2191129ACAL\2191129A_19.d	Calibration	7	☑	18975	20.0000	948.7470

Extracted ISTD *M8PFOA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191129ACAL\2191129A_13.d	Calibration	1	☑	29620	20.0000	1481.0052
D:\MassHunter\Data\2191129ACAL\2191129A_21.d	Calibration	2	☑	28033	20.0000	1401.6355
D:\MassHunter\Data\2191129ACAL\2191129A_15.d	Calibration	3	☑	30020	20.0000	1501.0215
D:\MassHunter\Data\2191129ACAL\2191129A_16.d	Calibration	4	☑	29601	20.0000	1480.0510
D:\MassHunter\Data\2191129ACAL\2191129A_17.d	Calibration	5	☑	26759	20.0000	1337.9323
D:\MassHunter\Data\2191129ACAL\2191129A_18.d	Calibration	6	☑	27614	20.0000	1380.6759
D:\MassHunter\Data\2191129ACAL\2191129A_19.d	Calibration	7	☑	27216	20.0000	1360.8005

Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191129ACAL\2191129A_16.d	Calibration	4	☑	75692	10.0000	5.1141
D:\MassHunter\Data\2191129ACAL\2191129A_17.d	Calibration	5	☑	380298	50.0000	5.6849
D:\MassHunter\Data\2191129ACAL\2191129A_18.d	Calibration	6	☑	802413	100.0000	5.8117
D:\MassHunter\Data\2191129ACAL\2191129A_19.d	Calibration	7	☑	1495213	200.0000	5.4939



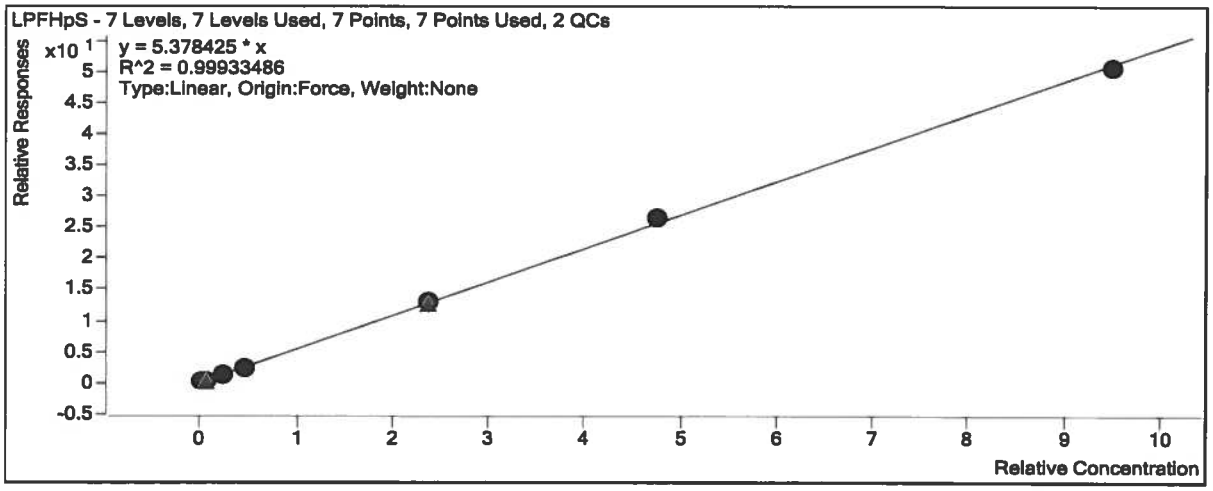
Instrument ISTD *M2PFOA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191129ACAL\2191129A_13.d	Calibration	1	☑	171398	20.0000	8569.9197
D:\MassHunter\Data\2191129ACAL\2191129A_21.d	Calibration	2	☑	167655	20.0000	8382.7376
D:\MassHunter\Data\2191129ACAL\2191129A_15.d	Calibration	3	☑	177512	20.0000	8875.5778
D:\MassHunter\Data\2191129ACAL\2191129A_16.d	Calibration	4	☑	168488	20.0000	8424.4205
D:\MassHunter\Data\2191129ACAL\2191129A_17.d	Calibration	5	☑	154180	20.0000	7709.0012
D:\MassHunter\Data\2191129ACAL\2191129A_18.d	Calibration	6	☑	159015	20.0000	7950.7703
D:\MassHunter\Data\2191129ACAL\2191129A_19.d	Calibration	7	☑	152625	20.0000	7631.2414

Quantitative Analysis Calibration Report

Target Compound *LPFHpS*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191129ACAL\2191129A_13.d	Calibration	1	☑	2999	0.4750	4.2633
D:\MassHunter\Data\2191129ACAL\2191129A_21.d	Calibration	2	☑	7743	1.1900	4.6424
D:\MassHunter\Data\2191129ACAL\2191129A_15.d	Calibration	3	☑	35085	4.7500	4.9208
D:\MassHunter\Data\2191129ACAL\2191129A_16.d	Calibration	4	☑	69735	9.5000	4.9596
D:\MassHunter\Data\2191129ACAL\2191129A_17.d	Calibration	5	☑	351463	47.5000	5.5303
D:\MassHunter\Data\2191129ACAL\2191129A_18.d	Calibration	6	☑	732278	95.0000	5.5829
D:\MassHunter\Data\2191129ACAL\2191129A_19.d	Calibration	7	☑	1375284	190.0000	5.3192



Extracted ISTD *M9PFNA*

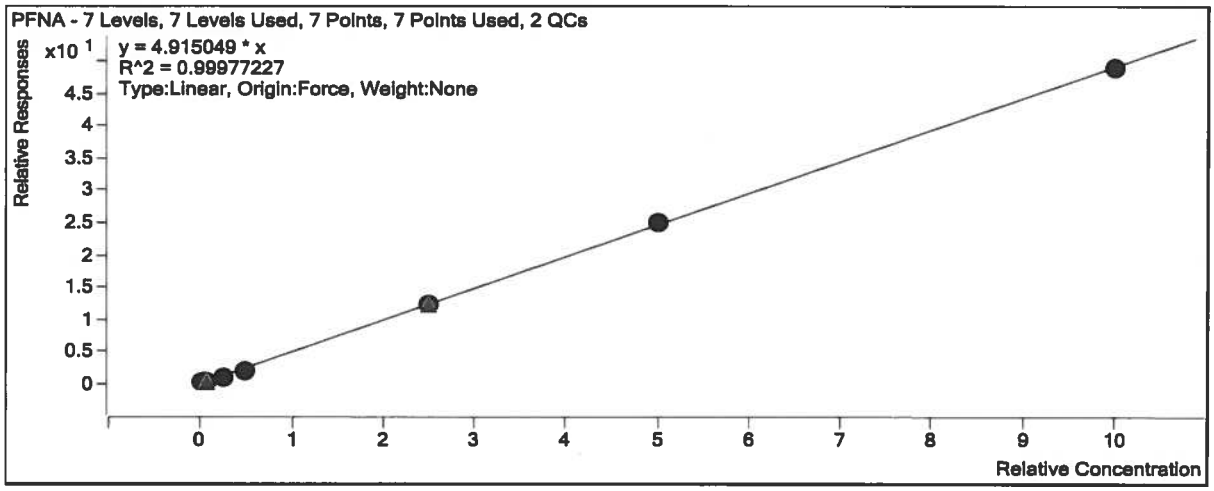
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191129ACAL\2191129A_13.d	Calibration	1	☑	36781	20.0000	1839.0626
D:\MassHunter\Data\2191129ACAL\2191129A_21.d	Calibration	2	☑	35610	20.0000	1780.4890
D:\MassHunter\Data\2191129ACAL\2191129A_15.d	Calibration	3	☑	36377	20.0000	1818.8516
D:\MassHunter\Data\2191129ACAL\2191129A_16.d	Calibration	4	☑	37260	20.0000	1863.0173
D:\MassHunter\Data\2191129ACAL\2191129A_17.d	Calibration	5	☑	33495	20.0000	1674.7575
D:\MassHunter\Data\2191129ACAL\2191129A_18.d	Calibration	6	☑	33419	20.0000	1670.9272
D:\MassHunter\Data\2191129ACAL\2191129A_19.d	Calibration	7	☑	29181	20.0000	1459.0385

Target Compound *PFNA*

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

Quantitative Analysis Calibration Report

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



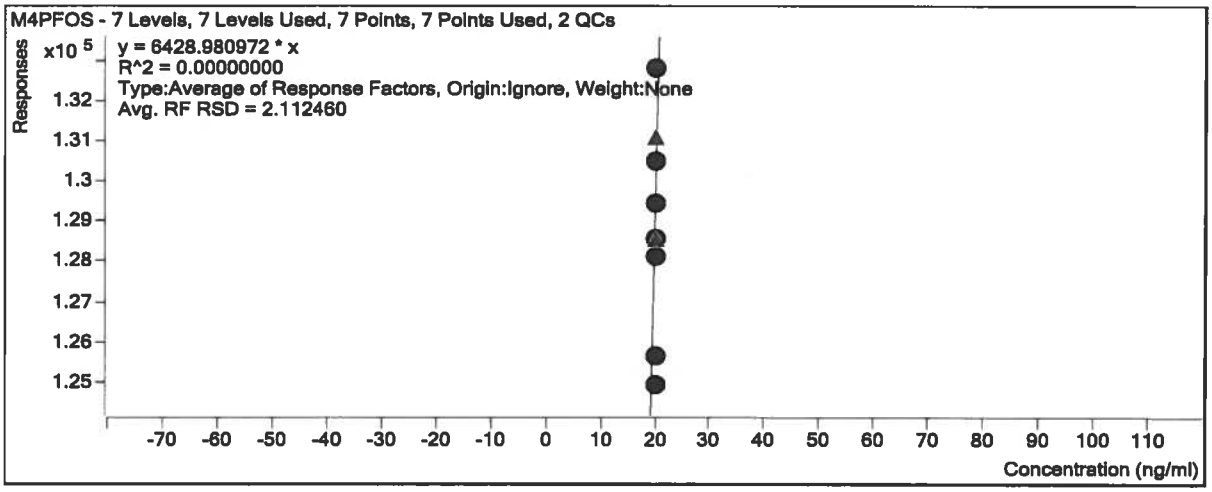
Extracted ISTD *M8PFOS*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191129ACAL\2191129A_13.d	Calibration	1	☑	12232	20.0000	611.6077
D:\MassHunter\Data\2191129ACAL\2191129A_21.d	Calibration	2	☑	12340	20.0000	617.0112
D:\MassHunter\Data\2191129ACAL\2191129A_15.d	Calibration	3	☑	12735	20.0000	636.7487
D:\MassHunter\Data\2191129ACAL\2191129A_16.d	Calibration	4	☑	13014	20.0000	650.7024
D:\MassHunter\Data\2191129ACAL\2191129A_17.d	Calibration	5	☑	11230	20.0000	561.5021
D:\MassHunter\Data\2191129ACAL\2191129A_18.d	Calibration	6	☑	12696	20.0000	634.8152
D:\MassHunter\Data\2191129ACAL\2191129A_19.d	Calibration	7	☑	12305	20.0000	615.2512

Instrument ISTD *M4PFOS*

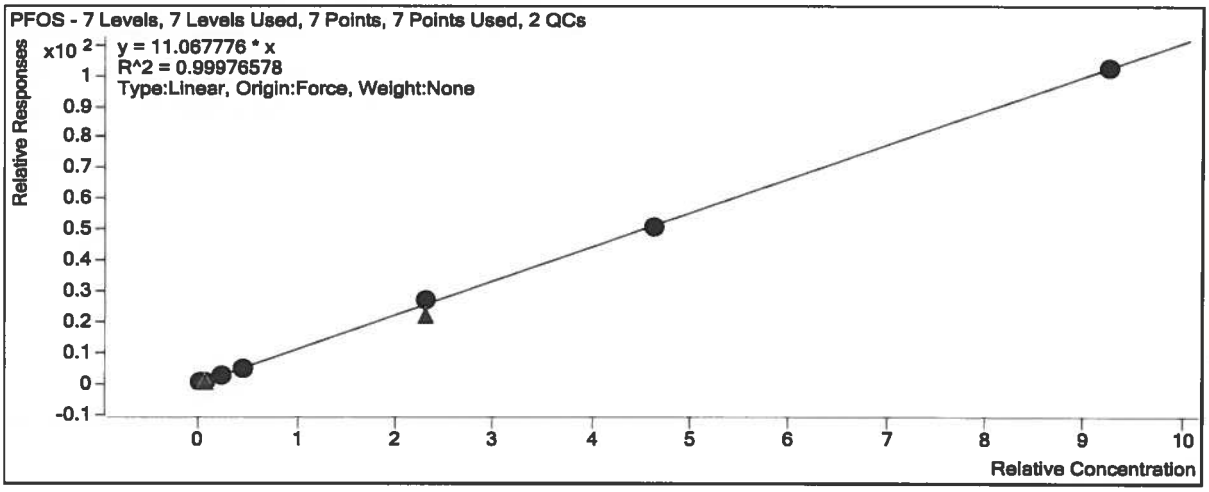
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191129ACAL\2191129A_13.d	Calibration	1	☑	128146	20.0000	6407.3219
D:\MassHunter\Data\2191129ACAL\2191129A_21.d	Calibration	2	☑	128556	20.0000	6427.7960
D:\MassHunter\Data\2191129ACAL\2191129A_15.d	Calibration	3	☑	130498	20.0000	6524.8989
D:\MassHunter\Data\2191129ACAL\2191129A_16.d	Calibration	4	☑	129443	20.0000	6472.1581
D:\MassHunter\Data\2191129ACAL\2191129A_17.d	Calibration	5	☑	124947	20.0000	6247.3514
D:\MassHunter\Data\2191129ACAL\2191129A_18.d	Calibration	6	☑	132811	20.0000	6640.5614
D:\MassHunter\Data\2191129ACAL\2191129A_19.d	Calibration	7	☑	125656	20.0000	6282.7791

Quantitative Analysis Calibration Report



Target Compound *PFOS*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191129ACAL\2191129A_13.d	Calibration	1	☑	3737	0.4628	13.2057
D:\MassHunter\Data\2191129ACAL\2191129A_21.d	Calibration	2	☑	7178	1.1600	10.0282
D:\MassHunter\Data\2191129ACAL\2191129A_15.d	Calibration	3	☑	30537	4.6280	10.3625
D:\MassHunter\Data\2191129ACAL\2191129A_16.d	Calibration	4	☑	59781	9.2550	9.9267
D:\MassHunter\Data\2191129ACAL\2191129A_17.d	Calibration	5	☑	301295	46.2800	11.5944
D:\MassHunter\Data\2191129ACAL\2191129A_18.d	Calibration	6	☑	643824	92.5500	10.9583
D:\MassHunter\Data\2191129ACAL\2191129A_19.d	Calibration	7	☑	1260178	185.1000	11.0655

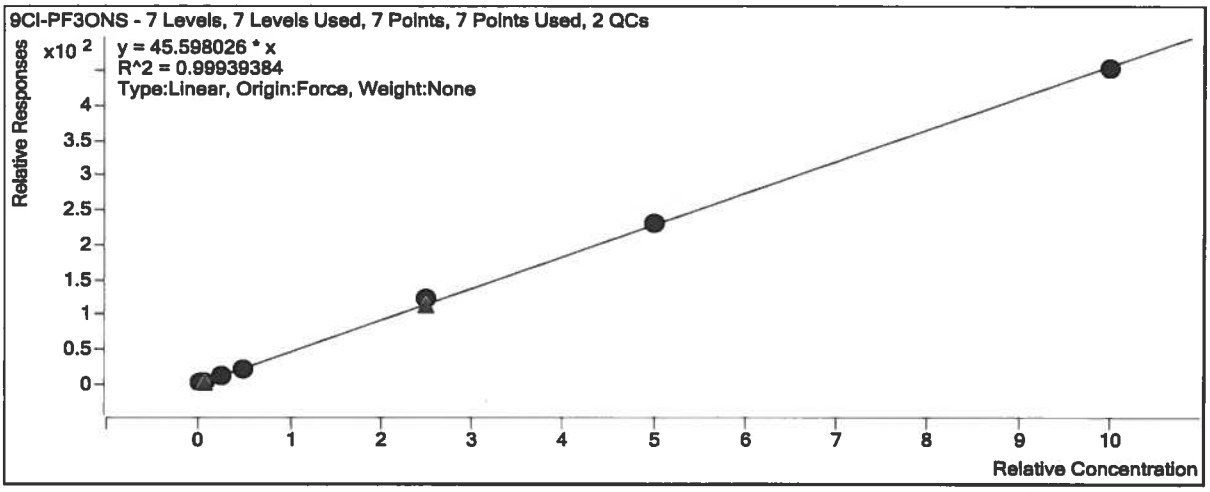


Target Compound *9Cl-PF3ONS*

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

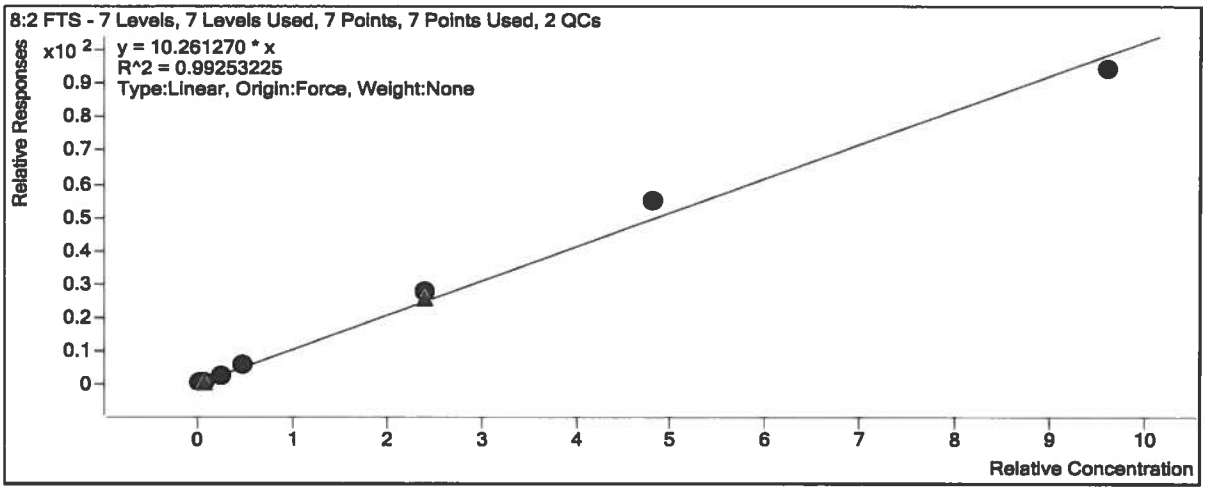
Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191129ACAL\2191129A_19.d	Calibration	7	☑	5569138	200.0000	45.2591



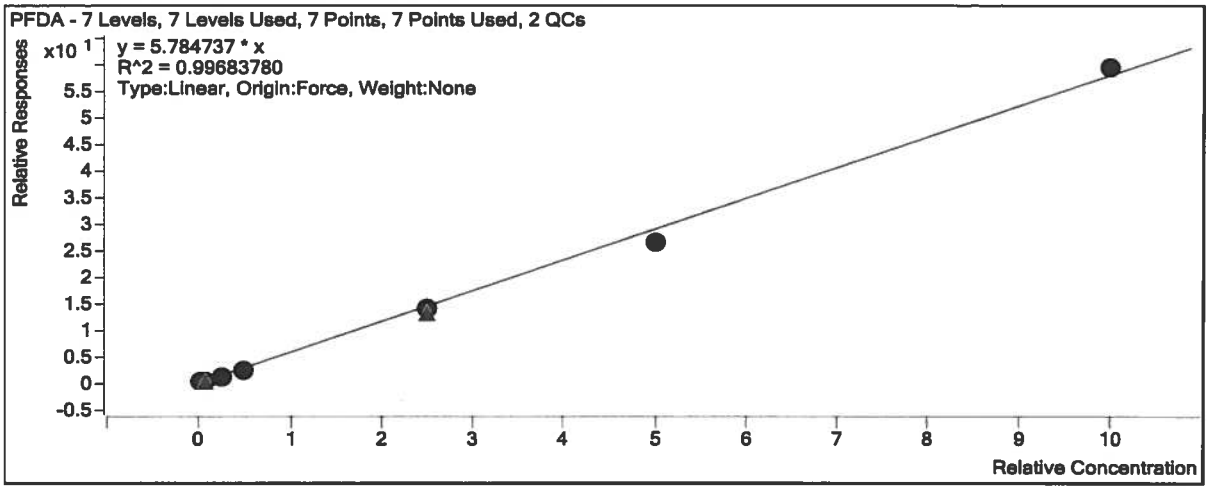
Target Compound ***8:2 FTS***

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191129ACAL\2191129A_13.d	Calibration	1	☑	3981	0.4800	10.0741
D:\MassHunter\Data\2191129ACAL\2191129A_21.d	Calibration	2	☑	9424	1.2000	9.3544
D:\MassHunter\Data\2191129ACAL\2191129A_15.d	Calibration	3	☑	43006	4.8000	10.2982
D:\MassHunter\Data\2191129ACAL\2191129A_16.d	Calibration	4	☑	87278	9.6000	11.5404
D:\MassHunter\Data\2191129ACAL\2191129A_17.d	Calibration	5	☑	400415	48.0000	11.4502
D:\MassHunter\Data\2191129ACAL\2191129A_18.d	Calibration	6	☑	755883	96.0000	11.5140
D:\MassHunter\Data\2191129ACAL\2191129A_19.d	Calibration	7	☑	1165322	192.0000	9.8706



Quantitative Analysis Calibration Report

D:\MassHunter\Data\2191129ACAL\2191129A_17.d	Calibration	5	☑	387887	50.0000	5.5374
D:\MassHunter\Data\2191129ACAL\2191129A_18.d	Calibration	6	☑	822186	100.0000	5.2820
D:\MassHunter\Data\2191129ACAL\2191129A_19.d	Calibration	7	☑	1467810	200.0000	5.9291



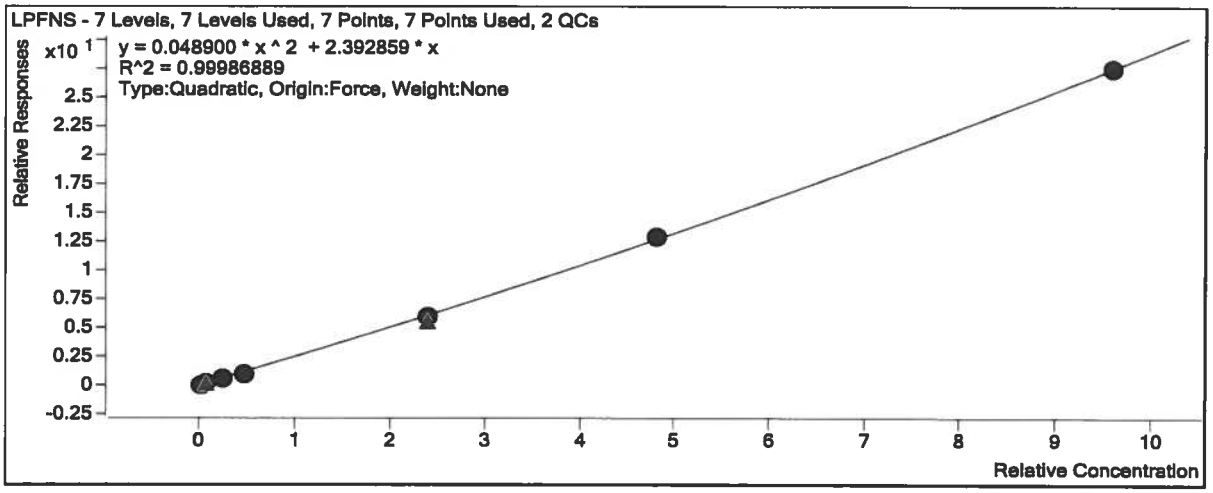
Extracted ISTD *M6PFDA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191129ACAL\2191129A_13.d	Calibration	1	☑	30712	20.0000	1535.5827
D:\MassHunter\Data\2191129ACAL\2191129A_21.d	Calibration	2	☑	33409	20.0000	1670.4371
D:\MassHunter\Data\2191129ACAL\2191129A_15.d	Calibration	3	☑	32114	20.0000	1605.6787
D:\MassHunter\Data\2191129ACAL\2191129A_16.d	Calibration	4	☑	33449	20.0000	1672.4616
D:\MassHunter\Data\2191129ACAL\2191129A_17.d	Calibration	5	☑	28019	20.0000	1400.9707
D:\MassHunter\Data\2191129ACAL\2191129A_18.d	Calibration	6	☑	31131	20.0000	1556.5673
D:\MassHunter\Data\2191129ACAL\2191129A_19.d	Calibration	7	☑	24756	20.0000	1237.8055

Target Compound *LPFNS*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191129ACAL\2191129A_13.d	Calibration	1	☑	1533	0.4800	1.7369
D:\MassHunter\Data\2191129ACAL\2191129A_21.d	Calibration	2	☑	3652	1.2000	1.7092
D:\MassHunter\Data\2191129ACAL\2191129A_15.d	Calibration	3	☑	18820	4.8000	2.1557
D:\MassHunter\Data\2191129ACAL\2191129A_16.d	Calibration	4	☑	36964	9.6000	2.0668
D:\MassHunter\Data\2191129ACAL\2191129A_17.d	Calibration	5	☑	196626	48.0000	2.4460
D:\MassHunter\Data\2191129ACAL\2191129A_18.d	Calibration	6	☑	426652	96.0000	2.6598
D:\MassHunter\Data\2191129ACAL\2191129A_19.d	Calibration	7	☑	800998	192.0000	2.8593

Quantitative Analysis Calibration Report



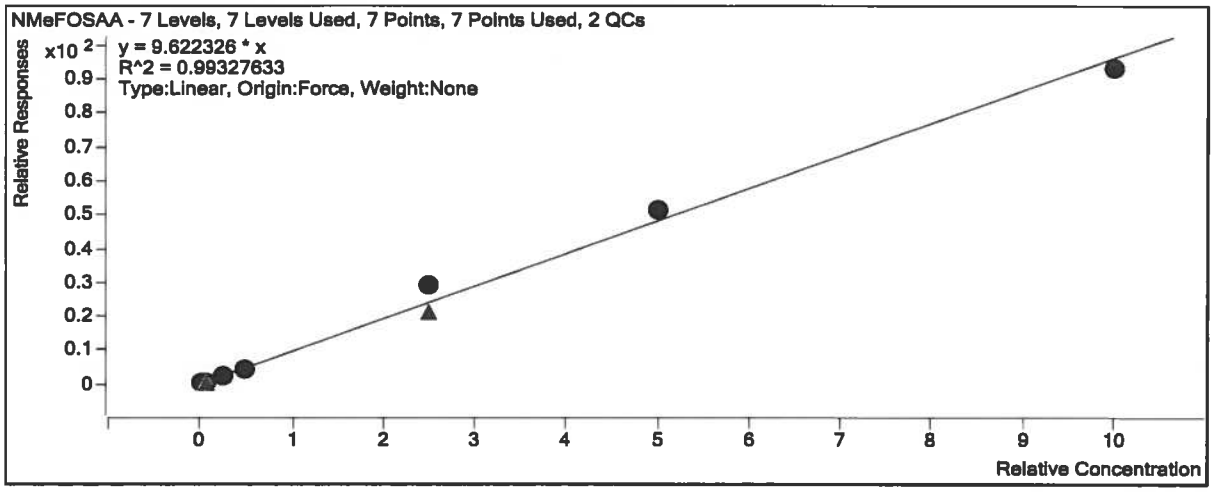
Extracted ISTD *d3-NMeFOSAA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191129ACAL\2191129A_13.d	Calibration	1	☑	4647	20.0000	232.3651
D:\MassHunter\Data\2191129ACAL\2191129A_21.d	Calibration	2	☑	5284	20.0000	264.1869
D:\MassHunter\Data\2191129ACAL\2191129A_15.d	Calibration	3	☑	5221	20.0000	261.0428
D:\MassHunter\Data\2191129ACAL\2191129A_16.d	Calibration	4	☑	6049	20.0000	302.4459
D:\MassHunter\Data\2191129ACAL\2191129A_17.d	Calibration	5	☑	4775	20.0000	238.7410
D:\MassHunter\Data\2191129ACAL\2191129A_18.d	Calibration	6	☑	5978	20.0000	298.9138
D:\MassHunter\Data\2191129ACAL\2191129A_19.d	Calibration	7	☑	6304	20.0000	315.1857

Target Compound *NMeFOSAA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191129ACAL\2191129A_13.d	Calibration	1	☑	1013	0.5000	8.7157
D:\MassHunter\Data\2191129ACAL\2191129A_21.d	Calibration	2	☑	2696	1.2500	8.1630
D:\MassHunter\Data\2191129ACAL\2191129A_15.d	Calibration	3	☑	13319	5.0000	10.2044
D:\MassHunter\Data\2191129ACAL\2191129A_16.d	Calibration	4	☑	27281	10.0000	9.0202
D:\MassHunter\Data\2191129ACAL\2191129A_17.d	Calibration	5	☑	140080	50.0000	11.7349
D:\MassHunter\Data\2191129ACAL\2191129A_18.d	Calibration	6	☑	309037	100.0000	10.3387
D:\MassHunter\Data\2191129ACAL\2191129A_19.d	Calibration	7	☑	587027	200.0000	9.3124

Quantitative Analysis Calibration Report



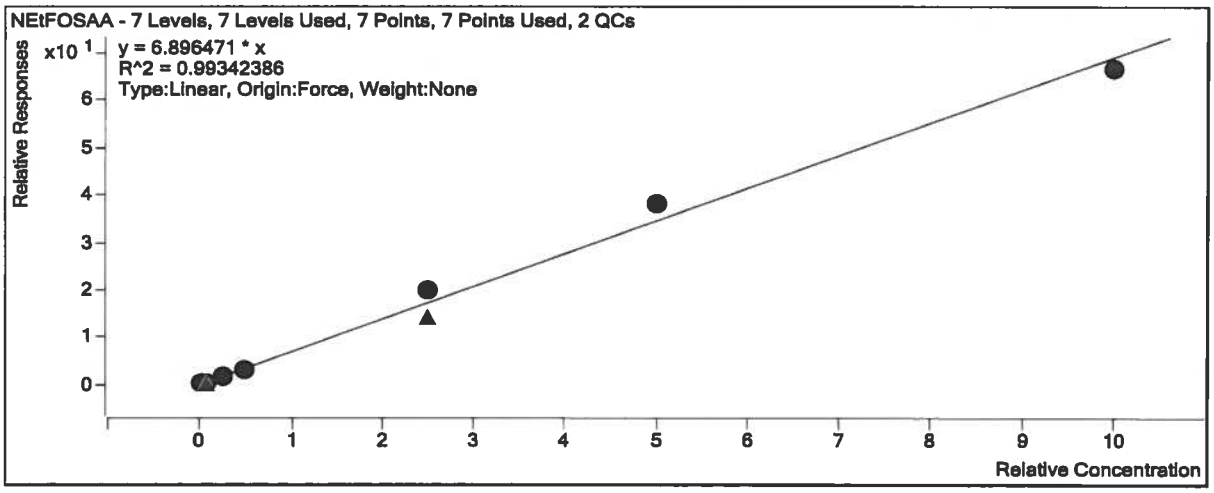
Extracted ISTD *M8FOSA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191129ACAL\2191129A_13.d	Calibration	1	☑	30368	20.0000	1518.4149
D:\MassHunter\Data\2191129ACAL\2191129A_21.d	Calibration	2	☑	32159	20.0000	1607.9397
D:\MassHunter\Data\2191129ACAL\2191129A_15.d	Calibration	3	☑	32543	20.0000	1627.1587
D:\MassHunter\Data\2191129ACAL\2191129A_16.d	Calibration	4	☑	33036	20.0000	1651.8056
D:\MassHunter\Data\2191129ACAL\2191129A_17.d	Calibration	5	☑	33001	20.0000	1650.0693
D:\MassHunter\Data\2191129ACAL\2191129A_18.d	Calibration	6	☑	34644	20.0000	1732.1793
D:\MassHunter\Data\2191129ACAL\2191129A_19.d	Calibration	7	☑	33956	20.0000	1697.8118

Target Compound *FOSA-I*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191129ACAL\2191129A_13.d	Calibration	1	☑	3906	0.5000	5.1447
D:\MassHunter\Data\2191129ACAL\2191129A_21.d	Calibration	2	☑	9084	1.2500	4.5196
D:\MassHunter\Data\2191129ACAL\2191129A_15.d	Calibration	3	☑	46023	5.0000	5.6568
D:\MassHunter\Data\2191129ACAL\2191129A_16.d	Calibration	4	☑	92600	10.0000	5.6060
D:\MassHunter\Data\2191129ACAL\2191129A_17.d	Calibration	5	☑	472714	50.0000	5.7296
D:\MassHunter\Data\2191129ACAL\2191129A_18.d	Calibration	6	☑	996295	100.0000	5.7517
D:\MassHunter\Data\2191129ACAL\2191129A_19.d	Calibration	7	☑	1925133	200.0000	5.6695

Quantitative Analysis Calibration Report



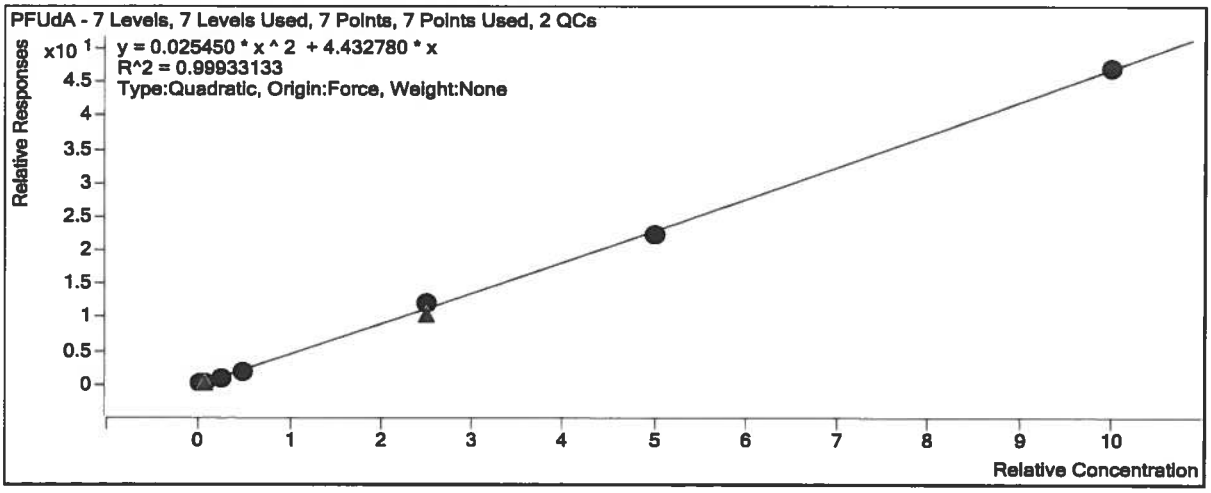
Extracted ISTD *M7PFUdA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191129ACAL\2191129A_13.d	Calibration	1	☑	31851	20.0000	1592.5746
D:\MassHunter\Data\2191129ACAL\2191129A_21.d	Calibration	2	☑	34753	20.0000	1737.6411
D:\MassHunter\Data\2191129ACAL\2191129A_15.d	Calibration	3	☑	34312	20.0000	1715.6066
D:\MassHunter\Data\2191129ACAL\2191129A_16.d	Calibration	4	☑	35910	20.0000	1795.5075
D:\MassHunter\Data\2191129ACAL\2191129A_17.d	Calibration	5	☑	29430	20.0000	1471.4847
D:\MassHunter\Data\2191129ACAL\2191129A_18.d	Calibration	6	☑	32810	20.0000	1640.5059
D:\MassHunter\Data\2191129ACAL\2191129A_19.d	Calibration	7	☑	28193	20.0000	1409.6726

Target Compound *PFUdA*

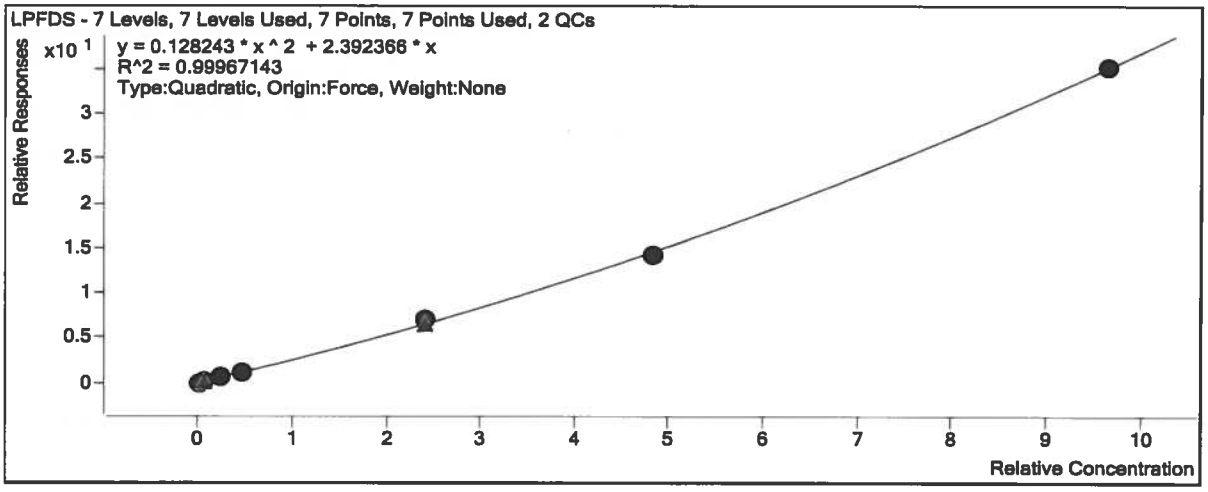
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191129ACAL\2191129A_13.d	Calibration	1	☑	3270	0.5000	4.1070
D:\MassHunter\Data\2191129ACAL\2191129A_21.d	Calibration	2	☑	6725	1.2500	3.0961
D:\MassHunter\Data\2191129ACAL\2191129A_15.d	Calibration	3	☑	35870	5.0000	4.1817
D:\MassHunter\Data\2191129ACAL\2191129A_16.d	Calibration	4	☑	72321	10.0000	4.0279
D:\MassHunter\Data\2191129ACAL\2191129A_17.d	Calibration	5	☑	356811	50.0000	4.8497
D:\MassHunter\Data\2191129ACAL\2191129A_18.d	Calibration	6	☑	727921	100.0000	4.4372
D:\MassHunter\Data\2191129ACAL\2191129A_19.d	Calibration	7	☑	1324295	200.0000	4.6972

Quantitative Analysis Calibration Report



Target Compound *LPFDS*

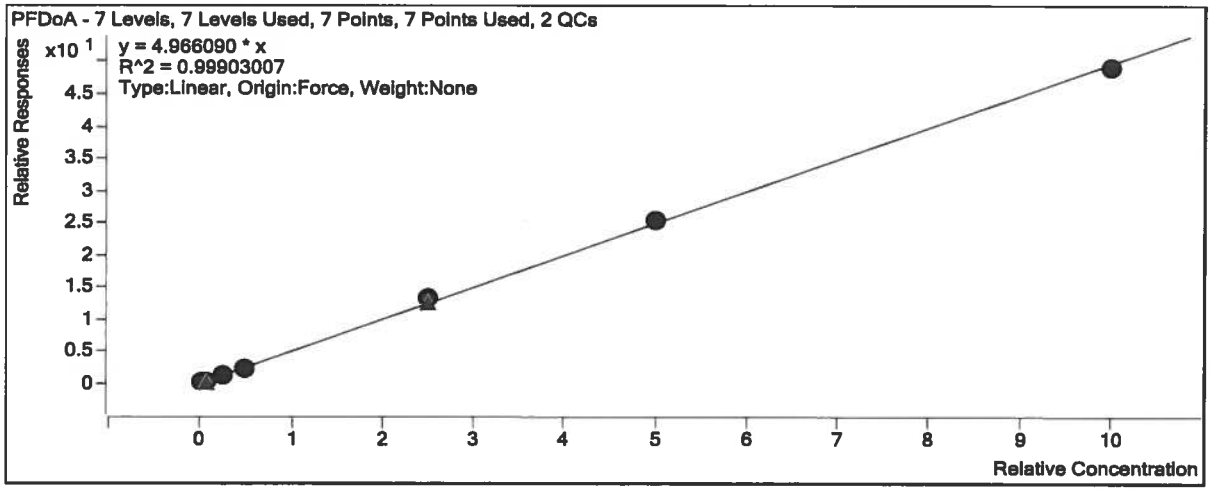
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191129ACAL\2191129A_13.d	Calibration	1	☑	1411	0.4825	1.9043
D:\MassHunter\Data\2191129ACAL\2191129A_21.d	Calibration	2	☑	3868	1.2100	1.9135
D:\MassHunter\Data\2191129ACAL\2191129A_15.d	Calibration	3	☑	18475	4.8250	2.3847
D:\MassHunter\Data\2191129ACAL\2191129A_16.d	Calibration	4	☑	36997	9.6500	2.2923
D:\MassHunter\Data\2191129ACAL\2191129A_17.d	Calibration	5	☑	195503	48.2500	2.8922
D:\MassHunter\Data\2191129ACAL\2191129A_18.d	Calibration	6	☑	442089	96.5000	2.9432
D:\MassHunter\Data\2191129ACAL\2191129A_19.d	Calibration	7	☑	868497	193.0000	3.6355



Target Compound *11Cl-PF3OUdS*

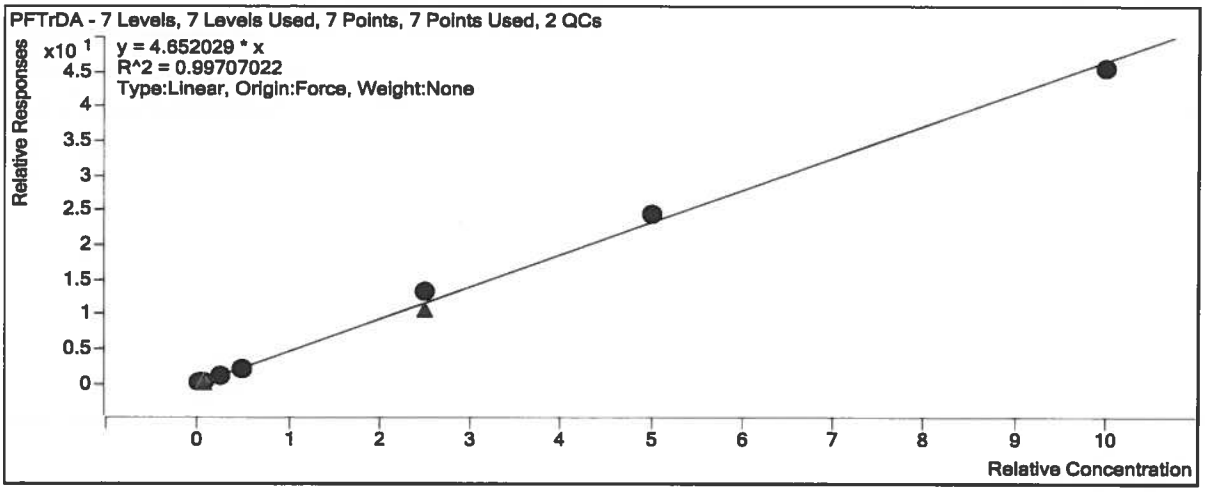
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF

Quantitative Analysis Calibration Report



Target Compound *PFTrDA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191129ACAL\2191129A_13.d	Calibration	1	☑	2171	0.5000	4.4559
D:\MassHunter\Data\2191129ACAL\2191129A_21.d	Calibration	2	☑	4754	1.2500	3.6767
D:\MassHunter\Data\2191129ACAL\2191129A_15.d	Calibration	3	☑	23799	5.0000	4.7294
D:\MassHunter\Data\2191129ACAL\2191129A_16.d	Calibration	4	☑	46067	10.0000	4.4915
D:\MassHunter\Data\2191129ACAL\2191129A_17.d	Calibration	5	☑	242860	50.0000	5.2985
D:\MassHunter\Data\2191129ACAL\2191129A_18.d	Calibration	6	☑	513931	100.0000	4.8993
D:\MassHunter\Data\2191129ACAL\2191129A_19.d	Calibration	7	☑	980932	200.0000	4.5502



Extracted ISTD *M2PFTeDA*

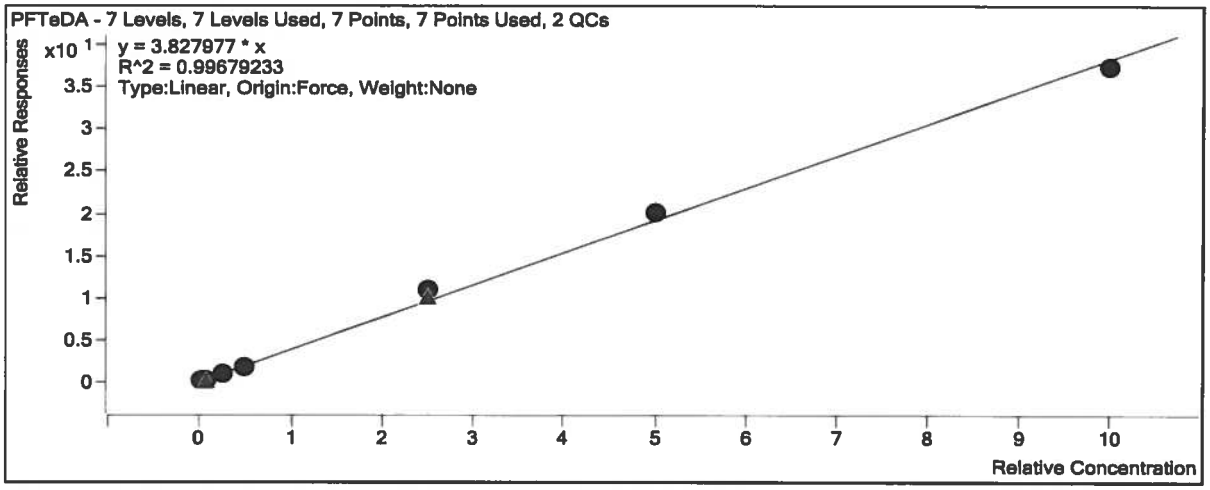
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF

Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191129ACAL\2191129A_19.d	Calibration	7	☑	21558	20.0000	1077.9001

Target Compound *PFTeDA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191129ACAL\2191129A_13.d	Calibration	1	☑	1721	0.5000	3.5317
D:\MassHunter\Data\2191129ACAL\2191129A_21.d	Calibration	2	☑	4010	1.2500	3.1009
D:\MassHunter\Data\2191129ACAL\2191129A_15.d	Calibration	3	☑	18944	5.0000	3.7646
D:\MassHunter\Data\2191129ACAL\2191129A_16.d	Calibration	4	☑	37816	10.0000	3.6870
D:\MassHunter\Data\2191129ACAL\2191129A_17.d	Calibration	5	☑	200655	50.0000	4.3777
D:\MassHunter\Data\2191129ACAL\2191129A_18.d	Calibration	6	☑	424272	100.0000	4.0446
D:\MassHunter\Data\2191129ACAL\2191129A_19.d	Calibration	7	☑	806246	200.0000	3.7399



6I

ORGANICS INITIAL CALIBRATION VERIFICATION

Report No:	219102541	Instrument ID:	QQQ1
Analysis Date:	11/29/2019 18:42	Lab File ID:	2191129A_23.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	672374

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	50000	49900	100	70	130	
8:2 Fluorotelomer sulfonate	ng/L	50000	50500	101	70	130	
NEtFOSAA	ng/L	50000	41900	84	70	130	
NMeFOSAA	ng/L	50000	43800	88	70	130	
Perfluorobutanoic acid	ng/L	50000	47200	94	70	130	
Perfluorobutanesulfonic acid	ng/L	50000	47500	95	70	130	
Perfluorodecanoic acid	ng/L	50000	46400	93	70	130	
Perfluorododecanoic acid	ng/L	50000	51200	102	70	130	
Perfluoroheptanoic acid	ng/L	50000	45600	91	70	130	
Perfluorohexanoic acid	ng/L	50000	50200	100	70	130	
Perfluorohexanesulfonic acid	ng/L	50000	71100	142	70	130	*
Perfluorononanoic acid	ng/L	50000	49400	99	70	130	
Perfluorooctanoic acid	ng/L	50000	45800	92	70	130	
Perfluorooctane Sulfonate	ng/L	50000	40400	81	70	130	
Perfluoropentanoic acid	ng/L	50000	46500	93	70	130	
Perfluorotetradecanoic acid	ng/L	50000	53100	106	70	130	
Perfluorotridecanoic acid	ng/L	50000	46600	93	70	130	
Perfluoroundecanoic acid	ng/L	50000	46900	94	70	130	

FORM 6I - ORG

7S

ORGANICS INSTRUMENT SENSITIVITY CHECK

Report No:	219102541	Instrument ID:	QQQ1
Analysis Date:	11/29/2019 18:53	Lab File ID:	2191129A_24.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	672374

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	7.93	6.67	85	70	130	
8:2 Fluorotelomer sulfonate	ng/L	8.00	7.20	90	70	130	
NEtFOSAA	ng/L	8.33	6.93	83	70	130	
NMeFOSAA	ng/L	8.33	6.80	82	70	130	
Perfluorobutanoic acid	ng/L	8.33	6.73	81	70	130	
Perfluorobutanesulfonic acid	ng/L	7.40	6.01	82	70	130	
Perfluorodecanoic acid	ng/L	8.33	6.23	75	70	130	
Perfluorododecanoic acid	ng/L	8.33	6.61	79	70	130	
Perfluoroheptanoic acid	ng/L	8.33	6.93	83	70	130	
Perfluorohexanoic acid	ng/L	8.33	6.73	81	70	130	
Perfluorohexanesulfonic acid	ng/L	7.60	6.21	82	70	130	
Perfluorononanoic acid	ng/L	8.33	7.07	85	70	130	
Perfluorooctanoic acid	ng/L	8.33	6.67	80	70	130	
Perfluorooctane Sulfonate	ng/L	7.73	7.60	99	70	130	
Perfluoropentanoic acid	ng/L	8.33	6.23	75	70	130	
Perfluorotetradecanoic acid	ng/L	8.33	7.73	93	70	130	
Perfluorotridecanoic acid	ng/L	8.33	7.73	93	70	130	
Perfluoroundecanoic acid	ng/L	8.33	6.73	81	70	130	

4I

ORGANICS INSTRUMENT BLANK

Report No:	219102541	Instrument ID:	QQQ1
Analysis Date:	11/29/2019 19:05	Lab File ID:	2191129A_25.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	672374

ANALYTE	UNITS	RESULT	Q	DL	LOD	LOQ	#
6:2 Fluorotelomer sulfonate	ng/L	4.00	U	1.79	4.00	10.0	
8:2 Fluorotelomer sulfonate	ng/L	4.00	U	1.63	4.00	10.0	
NEtFOSAA	ng/L	8.00	U	5.38	8.00	10.0	
NMeFOSAA	ng/L	8.00	U	4.60	8.00	10.0	
Perfluorobutanesulfonic acid	ng/L	4.00	U	1.47	4.00	10.0	
Perfluorobutanoic acid	ng/L	2.56	J	2.13	4.00	10.0	
Perfluorodecanoic acid	ng/L	4.00	U	1.65	4.00	10.0	
Perfluorododecanoic acid	ng/L	4.00	U	2.45	4.00	10.0	
Perfluoroheptanoic acid	ng/L	4.00	U	1.85	4.00	10.0	
Perfluorohexanesulfonic acid	ng/L	4.00	U	1.64	4.00	10.0	
Perfluorohexanoic acid	ng/L	4.00	U	1.94	4.00	10.0	
Perfluorononanoic acid	ng/L	4.00	U	1.68	4.00	10.0	
Perfluorooctane Sulfonate	ng/L	2.27	J	1.70	4.00	10.0	
Perfluorooctanoic acid	ng/L	4.00	U	1.80	4.00	10.0	
Perfluoropentanoic acid	ng/L	4.00	U	2.35	4.00	10.0	
Perfluorotetradecanoic acid	ng/L	4.00	U	2.76	4.00	10.0	
Perfluorotridecanoic acid	ng/L	4.00	U	2.56	4.00	10.0	
Perfluoroundecanoic acid	ng/L	4.00	U	1.86	4.00	10.0	

* - Result greater than 1/2 LOQ

7E

ORGANICS CALIBRATION VERIFICATION

Report No:	219102541	Instrument ID:	QQQ1
Analysis Date:	11/29/2019 20:05	Lab File ID:	2191129A_30.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	672374

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	47500	52900	111	70	130	
8:2 Fluorotelomer sulfonate	ng/L	48000	52500	109	70	130	
NEtFOSAA	ng/L	50000	57400	115	70	130	
NMeFOSAA	ng/L	50000	54000	108	70	130	
Perfluorobutanoic acid	ng/L	50000	50600	101	70	130	
Perfluorobutanesulfonic acid	ng/L	44300	45900	104	70	130	
Perfluorodecanoic acid	ng/L	50000	48000	96	70	130	
Perfluorododecanoic acid	ng/L	50000	54600	109	70	130	
Perfluoroheptanoic acid	ng/L	50000	50800	102	70	130	
Perfluorohexanoic acid	ng/L	50000	50200	100	70	130	
Perfluorohexanesulfonic acid	ng/L	45600	47900	105	70	130	
Perfluorononanoic acid	ng/L	50000	50700	101	70	130	
Perfluorooctanoic acid	ng/L	50000	51800	104	70	130	
Perfluorooctane Sulfonate	ng/L	46300	43700	94	70	130	
Perfluoropentanoic acid	ng/L	50000	49200	98	70	130	
Perfluorotetradecanoic acid	ng/L	50000	55600	111	70	130	
Perfluorotridecanoic acid	ng/L	50000	56000	112	70	130	
Perfluoroundecanoic acid	ng/L	50000	53900	108	70	130	

7E

ORGANICS CALIBRATION VERIFICATION

Report No:	219102541	Instrument ID:	QQQ1
Analysis Date:	11/30/2019 02:33	Lab File ID:	2191129A_41.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	672374

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	47500	52400	110	70	130	
8:2 Fluorotelomer sulfonate	ng/L	48000	51800	108	70	130	
NEtFOSAA	ng/L	50000	55100	110	70	130	
NMeFOSAA	ng/L	50000	55000	110	70	130	
Perfluorobutanoic acid	ng/L	50000	50100	100	70	130	
Perfluorobutanesulfonic acid	ng/L	44300	46500	105	70	130	
Perfluorodecanoic acid	ng/L	50000	47300	95	70	130	
Perfluorododecanoic acid	ng/L	50000	51800	104	70	130	
Perfluoroheptanoic acid	ng/L	50000	50400	101	70	130	
Perfluorohexanoic acid	ng/L	50000	51000	102	70	130	
Perfluorohexanesulfonic acid	ng/L	45600	48600	106	70	130	
Perfluorononanoic acid	ng/L	50000	49600	99	70	130	
Perfluorooctanoic acid	ng/L	50000	47800	96	70	130	
Perfluorooctane Sulfonate	ng/L	46300	51100	110	70	130	
Perfluoropentanoic acid	ng/L	50000	48000	96	70	130	
Perfluorotetradecanoic acid	ng/L	50000	53200	106	70	130	
Perfluorotridecanoic acid	ng/L	50000	54500	109	70	130	
Perfluoroundecanoic acid	ng/L	50000	51000	102	70	130	

FORM 7E - ORG

8I

INJECTION INTERNAL STANDARD AREA SUMMARY

Report No:	219102541	Standard ID:	1205 (ICAL Midpoint)
Analyst:	BMH	Instrument ID:	QQQ1
Analysis Date:	11/29/19 17:14	Lab File ID:	2191129A_17.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	672374

	M2PFDA	M2PFHxA	M2PFOA	M4PFOS
	Area	*Area*	*Area*	*Area*
STANDARD	171630	394602	154180	124947

CLIENT SAMPLE ID	*GCAL SAMP ID*		#		#		#		#
AOI2-2-SB-4.5-5-102319DL1	21910254124DL1	207050		463988		186951		145213	
AOI2-2-SB-4.5-5-102319-DDL1	21910254125DL1	189586		433947		174263		138299	

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 8I - ORG

8I

INJECTION INTERNAL STANDARD AREA SUMMARY

Report No:	219102613	Standard ID:	1205 (ICAL Midpoint)
Analyst:	BMH	Instrument ID:	QQQ1
Analysis Date:	11/29/19 17:14	Lab File ID:	2191129A_17.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	672374

		M2PFDA		M2PFHxA		M2PFOA		M4PFOS	
		Area		*Area*		*Area*		*Area*	
STANDARD		171630		394602		154180		124947	
CLIENT SAMPLE ID	***GCAL SAMP ID***		*#*		*#*		*#*		*#*
AOI3-11-SB-1.5-2-102419DL	21910261305DL	203260		447796		184357		141856	

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 8I - ORG

LCMS1 Run Log

Analyst:	BMH	Expiration
Batch:	2191205A	Date
Current ICAL Bath:	2191205ACAL	Date
20mM Amm Acetate	010-18-8	12/2/2019
Methanol	2128592	8/31/2024
Calibration Std	010-19-9	6/3/2020
ICV Std	010-19-7	6/3/2020
EIS Mix	010-19-6	6/3/2020

Name	Data File	Type	Acq. Date-Time	Comment	Dil.
MeOH Shot	2191205A_01.d	MeOH Shot	12/5/2019 6:36	Instrument idle/MeOH Shot	1
1201	2191205A_02.d	Cal	12/5/2019 6:46		1
1202	2191205A_03.d	Cal	12/5/2019 6:58		1
1203	2191205A_04.d	Cal	12/5/2019 7:09		1
1204	2191205A_05.d	Cal	12/5/2019 7:20		1
1205	2191205A_06.d	Cal	12/5/2019 7:32		1
1206	2191205A_07.d	Cal	12/5/2019 7:43		1
1207	2191205A_08.d	Cal	12/5/2019 7:54		1
MeOH Shot	2191205A_09.d	MeOH Shot	12/5/2019 8:18	Instrument idle/MeOH Shot	1
1600	2191205A_10.d	QC	12/5/2019 8:29		1
1450	2191205A_11.d	QC	12/5/2019 8:40		1
1500	2191205A_12.d	Sample	12/5/2019 8:51		1
MeOH Shot	2191205A_13.d	MeOH Shot	12/5/2019 9:08	Instrument idle/MeOH Shot	1
1987194	2191205A_14.d	Sample	12/5/2019 9:19	672328	1
1987195	2191205A_15.d	QC	12/5/2019 9:30	672328	1
1987196	2191205A_16.d	QC	12/5/2019 9:41	672328 rr - bad read	1
21912045401	2191205A_17.d	Sample	12/5/2019 9:52	672328	1
21912045402	2191205A_18.d	Sample	12/5/2019 10:04	672328	1
21912045403	2191205A_19.d	Sample	12/5/2019 10:15	672328	1
21912045404	2191205A_20.d	Sample	12/5/2019 10:26	672328	1
21912045405	2191205A_21.d	Sample	12/5/2019 10:38	672328	1

21912045406	2191205A_22.d	Sample	12/5/2019 10:49	672328	1
1987196	2191205A_23.d	QC	12/5/2019 11:00	672328	1
21912045401	2191205A_24.d	Sample	12/5/2019 11:12	672328 confirmed 1st run	1
1400	2191205A_25.d	QC	12/5/2019 11:23		1
21912047601	2191205A_26.d	Sample	12/5/2019 11:34	672328	1
21912047602	2191205A_27.d	Sample	12/5/2019 11:46	672328	1
21912047603	2191205A_28.d	Sample	12/5/2019 11:57	672328	1
21912047604	2191205A_29.d	Sample	12/5/2019 12:08	672328	1
MeOH Shot	2191205A_30.d	MeOH Shot	12/5/2019 12:20	Instrument idle/MeOH Shot	1
21912047605	2191205A_31.d	Sample	12/5/2019 12:30	672328	1
1400	2191205A_32.d	QC	12/5/2019 12:42		1
21912024501	2191205A_33.d	Sample	12/5/2019 12:53	672509 500X DIA	1
1987807	2191205A_34.d	QC	12/5/2019 13:04	672509 500X DIA	1
21912024502	2191205A_35.d	Sample	12/5/2019 13:16	672509 500X DIA	1
21912024503	2191205A_36.d	Sample	12/5/2019 13:27	672509 500X DIA	1
21912024504	2191205A_37.d	Sample	12/5/2019 13:39	672509 500X DIA	1
21910271702	2191205A_38.d	Sample	12/5/2019 13:50	670210	100
21910271703	2191205A_39.d	Sample	12/5/2019 14:01	670210	100
21910271707	2191205A_40.d	Sample	12/5/2019 14:12	670210	50
21910271720	2191205A_41.d	Sample	12/5/2019 14:24	670210	50
21910254111	2191205A_42.d	Sample	12/5/2019 14:35	670127 2000xDIA	1
1400	2191205A_43.d	QC	12/5/2019 14:46		1
MeOH Shot	2191205A_44.d	MeOH Shot	12/5/2019 14:58	Instrument idle/MeOH Shot	1
MeOH Shot	2191205A_45.d	MeOH Shot	12/5/2019 15:08	Instrument idle/MeOH Shot	1
MeOH Shot	2191205A_46.d	MeOH Shot	12/5/2019 23:43	Instrument idle/MeOH Shot	1
1400	2191205A_47.d	QC	12/5/2019 23:54		1
1989213	2191205A_48.d	Sample	12/6/2019 0:05		1
1989214	2191205A_49.d	QC	12/6/2019 0:17		1
1989215	2191205A_50.d	QC	12/6/2019 0:28		1
21912053301	2191205A_51.d	Sample	12/6/2019 0:39		1
21912053302	2191205A_52.d	Sample	12/6/2019 0:51		1
21912053303	2191205A_53.d	Sample	12/6/2019 1:02		1
21912053304	2191205A_54.d	Sample	12/6/2019 1:13		1
21912053305	2191205A_55.d	Sample	12/6/2019 1:25		1

21912053306	2191205A_56.d	Sample	12/6/2019 1:36		1
21912053307	2191205A_57.d	Sample	12/6/2019 1:47		1
21912053308	2191205A_58.d	QC	12/6/2019 1:59		1
21912053309	2191205A_59.d	QC	12/6/2019 2:10		1
21912053310	2191205A_60.d	Sample	12/6/2019 2:21		1
1400	2191205A_61.d	QC	12/6/2019 2:33		1
MeOH Shot	2191205A_62.d	MeOH Shot	12/6/2019 4:02	Instrument idle/MeOH Shot	1
21912054601	2191205A_63.d	Sample	12/6/2019 4:13		1
21912054602	2191205A_64.d	Sample	12/6/2019 4:25		1
21912054603	2191205A_65.d	Sample	12/6/2019 4:36		1
21912054604	2191205A_66.d	Sample	12/6/2019 4:47		1
21912054605	2191205A_67.d	Sample	12/6/2019 4:59		1
21912054606	2191205A_68.d	Sample	12/6/2019 5:10		1
21912054607	2191205A_69.d	Sample	12/6/2019 5:21		1
1400	2191205A_70.d	QC	12/6/2019 5:33		1
MeOH Shot	2191205A_71.d	MeOH Shot	12/6/2019 5:44	Instrument idle/MeOH Shot	1
1987804	2191205A_72.d	Sample	12/6/2019 5:55		1
1987805	2191205A_73.d	QC	12/6/2019 6:06		1
1987806	2191205A_74.d	QC	12/6/2019 6:18		1
21912024501	2191205A_75.d	Sample	12/6/2019 6:29	x10 DIA	1
1987807	2191205A_76.d	QC	12/6/2019 6:40	x10 DIA	1
21912024502	2191205A_77.d	Sample	12/6/2019 6:52	x10 DIA	1
21912024503	2191205A_78.d	Sample	12/6/2019 7:03	x10 DIA	1
21912024504	2191205A_79.d	Sample	12/6/2019 7:15	x10 DIA	1
1400	2191205A_80.d	QC	12/6/2019 7:26		1
MeOH Shot	2191205A_81.d	MeOH Shot	12/6/2019 7:37	Instrument idle/MeOH Shot	1

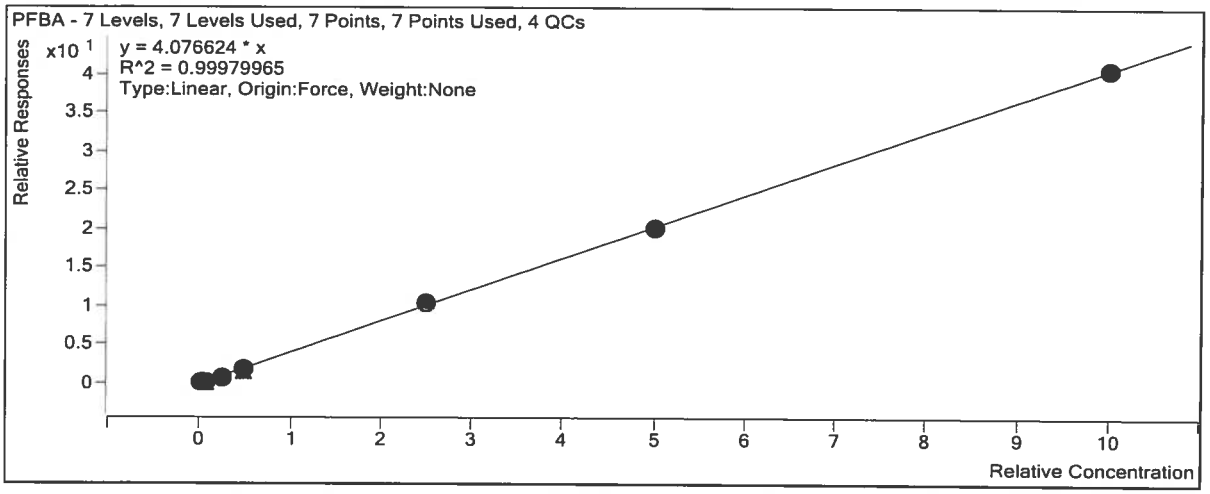
Quantitative Analysis Calibration Report

Batch Data Path	D:\MassHunter\Data\2191205ACAL\QuantResults\2191205A.batch.bin		
Analysis Time	12/6/2019 9:46 AM	**Analyst Name**	GCAL\lcms
Report Time	12/6/2019 9:48 AM	**Reporter Name**	GCAL\lcms
Last Calib Update	12/5/2019 11:25 AM	**Batch State**	Processed

Calibration Info

Target Compound *PFBA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191205ACAL\2191205A_02.d	Calibration	1	☑	2408	0.5000	3.7862
D:\MassHunter\Data\2191205ACAL\2191205A_03.d	Calibration	2	☑	5553	1.2500	3.5907
D:\MassHunter\Data\2191205ACAL\2191205A_04.d	Calibration	3	☑	22952	5.0000	3.5804
D:\MassHunter\Data\2191205ACAL\2191205A_05.d	Calibration	4	☑	49495	10.0000	3.8378
D:\MassHunter\Data\2191205ACAL\2191205A_06.d	Calibration	5	☑	272373	50.0000	4.2593
D:\MassHunter\Data\2191205ACAL\2191205A_07.d	Calibration	6	☑	519222	100.0000	4.0371
D:\MassHunter\Data\2191205ACAL\2191205A_08.d	Calibration	7	☑	1039397	200.0000	4.0760

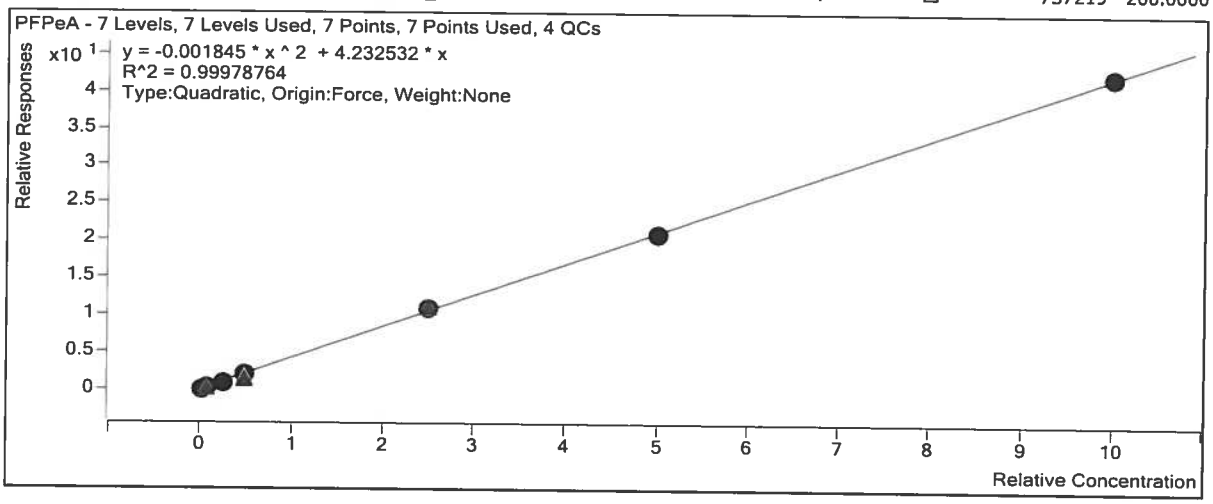


Extracted ISTD *MPFBA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191205ACAL\2191205A_02.d	Calibration	1	☑	25441	20.0000	1272.0675
D:\MassHunter\Data\2191205ACAL\2191205A_03.d	Calibration	2	☑	24745	20.0000	1237.2689
D:\MassHunter\Data\2191205ACAL\2191205A_04.d	Calibration	3	☑	25642	20.0000	1282.0998
D:\MassHunter\Data\2191205ACAL\2191205A_05.d	Calibration	4	☑	25793	20.0000	1289.6691
D:\MassHunter\Data\2191205ACAL\2191205A_06.d	Calibration	5	☑	25579	20.0000	1278.9639
D:\MassHunter\Data\2191205ACAL\2191205A_07.d	Calibration	6	☑	25723	20.0000	1286.1385
D:\MassHunter\Data\2191205ACAL\2191205A_08.d	Calibration	7	☑	25500	20.0000	1275.0125

Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191205ACAL\2191205A_05.d	Calibration	4	☑	37915	10.0000	4.1777
D:\MassHunter\Data\2191205ACAL\2191205A_06.d	Calibration	5	☑	195642	50.0000	4.4007
D:\MassHunter\Data\2191205ACAL\2191205A_07.d	Calibration	6	☑	368531	100.0000	4.1633
D:\MassHunter\Data\2191205ACAL\2191205A_08.d	Calibration	7	☑	737219	200.0000	4.2189



Extracted ISTD *M5PFPeA*

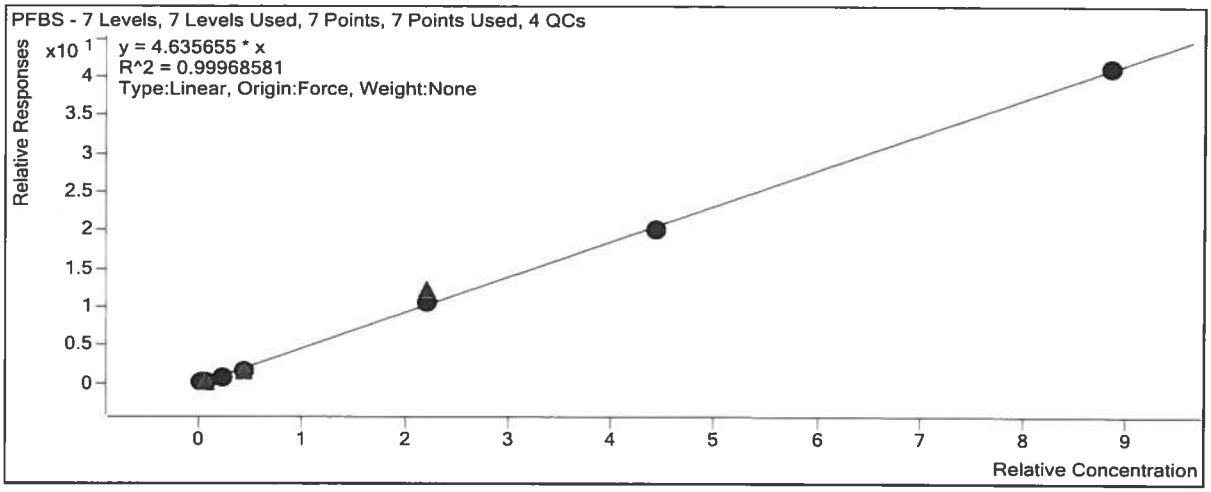
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191205ACAL\2191205A_02.d	Calibration	1	☑	17562	20.0000	878.1098
D:\MassHunter\Data\2191205ACAL\2191205A_03.d	Calibration	2	☑	17297	20.0000	864.8478
D:\MassHunter\Data\2191205ACAL\2191205A_04.d	Calibration	3	☑	18147	20.0000	907.3623
D:\MassHunter\Data\2191205ACAL\2191205A_05.d	Calibration	4	☑	18151	20.0000	907.5595
D:\MassHunter\Data\2191205ACAL\2191205A_06.d	Calibration	5	☑	17783	20.0000	889.1361
D:\MassHunter\Data\2191205ACAL\2191205A_07.d	Calibration	6	☑	17704	20.0000	885.1941
D:\MassHunter\Data\2191205ACAL\2191205A_08.d	Calibration	7	☑	17474	20.0000	873.7087

Target Compound *PFBS*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191205ACAL\2191205A_02.d	Calibration	1	☑	1656	0.4425	4.0864
D:\MassHunter\Data\2191205ACAL\2191205A_03.d	Calibration	2	☑	4081	1.1100	3.9594
D:\MassHunter\Data\2191205ACAL\2191205A_04.d	Calibration	3	☑	17296	4.4250	4.0830
D:\MassHunter\Data\2191205ACAL\2191205A_05.d	Calibration	4	☑	34804	8.8500	4.0644

Quantitative Analysis Calibration Report

D:\MassHunter\Data\2191205ACAL\2191205A_06.d	Calibration	5	☑	204620	44.2500	4.8329
D:\MassHunter\Data\2191205ACAL\2191205A_07.d	Calibration	6	☑	385861	88.5000	4.5449
D:\MassHunter\Data\2191205ACAL\2191205A_08.d	Calibration	7	☑	776485	177.0000	4.6478



Extracted ISTD *M3PFBS*

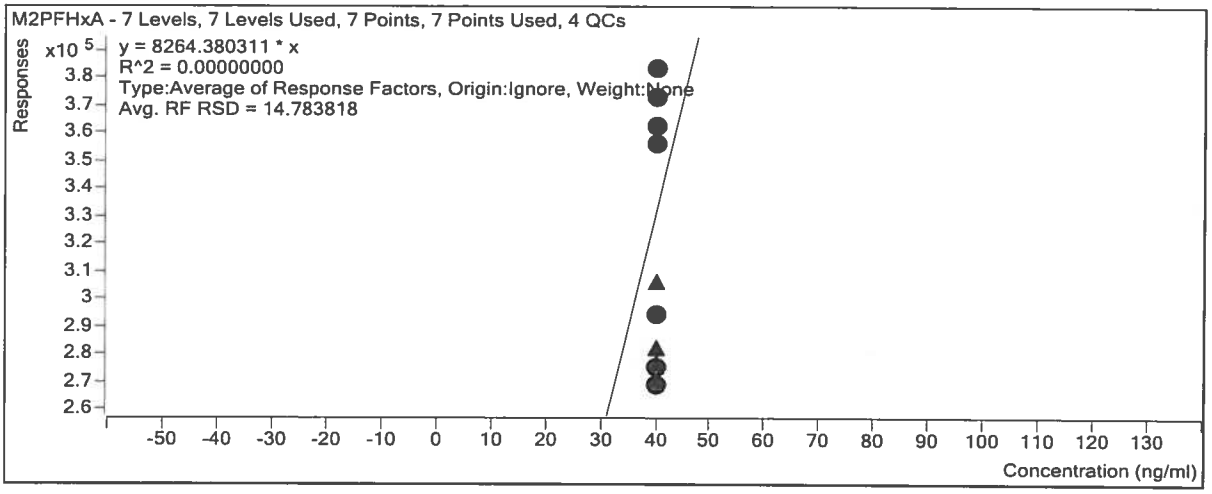
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191205ACAL\2191205A_02.d	Calibration	1	☑	18316	20.0000	915.7893
D:\MassHunter\Data\2191205ACAL\2191205A_03.d	Calibration	2	☑	18572	20.0000	928.5939
D:\MassHunter\Data\2191205ACAL\2191205A_04.d	Calibration	3	☑	19146	20.0000	957.2928
D:\MassHunter\Data\2191205ACAL\2191205A_05.d	Calibration	4	☑	19352	20.0000	967.5819
D:\MassHunter\Data\2191205ACAL\2191205A_06.d	Calibration	5	☑	19136	20.0000	956.8151
D:\MassHunter\Data\2191205ACAL\2191205A_07.d	Calibration	6	☑	19186	20.0000	959.3212
D:\MassHunter\Data\2191205ACAL\2191205A_08.d	Calibration	7	☑	18877	20.0000	943.8651

Target Compound *4:2 FTS*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191205ACAL\2191205A_02.d	Calibration	1	☑	1239	0.4675	8.9469
D:\MassHunter\Data\2191205ACAL\2191205A_03.d	Calibration	2	☑	4005	1.1700	8.8847
D:\MassHunter\Data\2191205ACAL\2191205A_04.d	Calibration	3	☑	16830	4.6700	9.2182
D:\MassHunter\Data\2191205ACAL\2191205A_05.d	Calibration	4	☑	35738	9.3500	9.1305
D:\MassHunter\Data\2191205ACAL\2191205A_06.d	Calibration	5	☑	185849	46.7500	10.4456
D:\MassHunter\Data\2191205ACAL\2191205A_07.d	Calibration	6	☑	329925	93.5000	10.0444
D:\MassHunter\Data\2191205ACAL\2191205A_08.d	Calibration	7	☑	613428	187.0000	9.4934

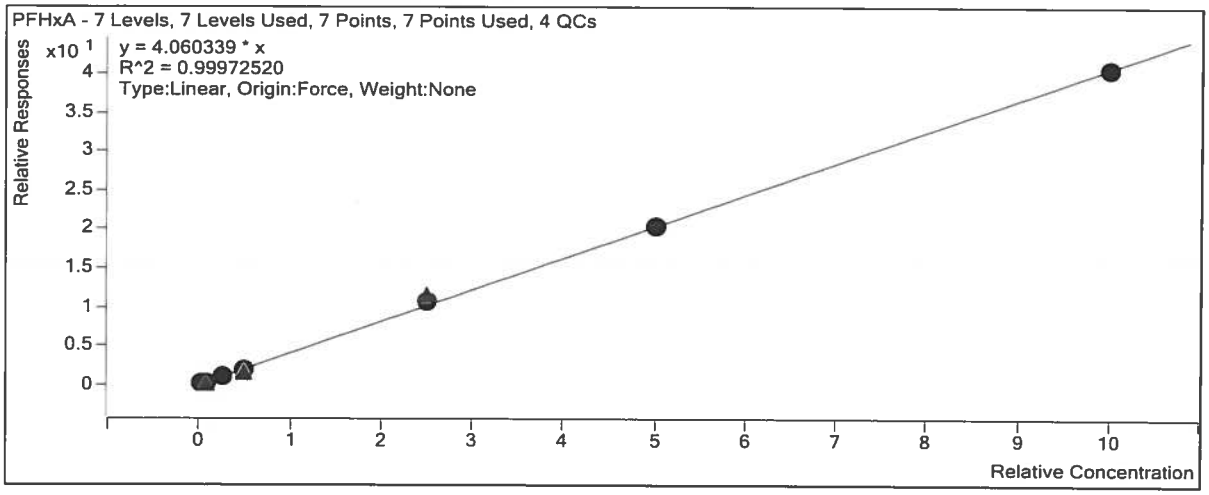
Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191205ACAL\2191205A_08.d	Calibration	7	☑	362757	40.0000	9068.9301



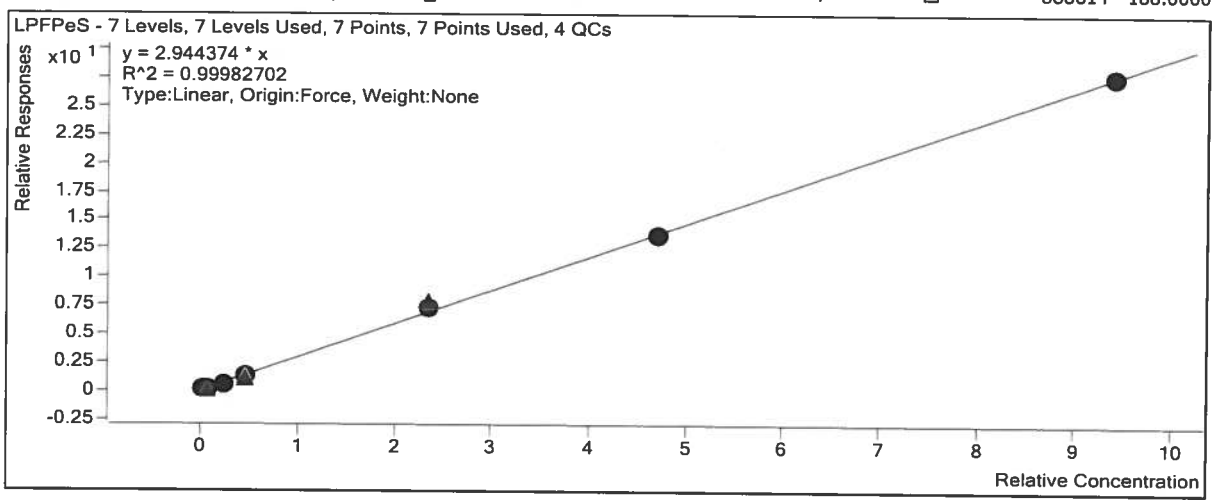
Target Compound *PFHxA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191205ACAL\2191205A_02.d	Calibration	1	☑	3533	0.5000	4.3490
D:\MassHunter\Data\2191205ACAL\2191205A_03.d	Calibration	2	☑	7989	1.2500	3.9446
D:\MassHunter\Data\2191205ACAL\2191205A_04.d	Calibration	3	☑	31053	5.0000	3.7134
D:\MassHunter\Data\2191205ACAL\2191205A_05.d	Calibration	4	☑	64470	10.0000	3.9048
D:\MassHunter\Data\2191205ACAL\2191205A_06.d	Calibration	5	☑	355678	50.0000	4.2961
D:\MassHunter\Data\2191205ACAL\2191205A_07.d	Calibration	6	☑	661877	100.0000	4.0507
D:\MassHunter\Data\2191205ACAL\2191205A_08.d	Calibration	7	☑	1301614	200.0000	4.0486



Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191205ACAL\2191205A_05.d	Calibration	4	☑	44356	9.4000	2.8580
D:\MassHunter\Data\2191205ACAL\2191205A_06.d	Calibration	5	☑	239444	47.0000	3.0767
D:\MassHunter\Data\2191205ACAL\2191205A_07.d	Calibration	6	☑	449838	94.0000	2.9288
D:\MassHunter\Data\2191205ACAL\2191205A_08.d	Calibration	7	☑	888614	188.0000	2.9404



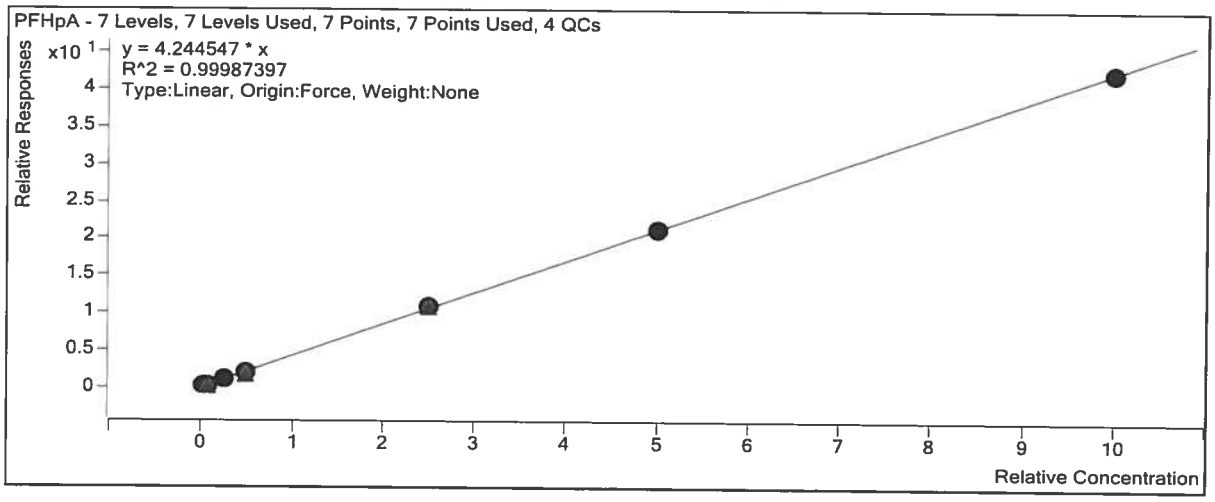
Extracted ISTD *M3HFPODA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191205ACAL\2191205A_02.d	Calibration	1	☑	1342	20.0000	67.0970
D:\MassHunter\Data\2191205ACAL\2191205A_03.d	Calibration	2	☑	1743	20.0000	87.1450
D:\MassHunter\Data\2191205ACAL\2191205A_04.d	Calibration	3	☑	1696	20.0000	84.7790
D:\MassHunter\Data\2191205ACAL\2191205A_05.d	Calibration	4	☑	1742	20.0000	87.0893
D:\MassHunter\Data\2191205ACAL\2191205A_06.d	Calibration	5	☑	1847	20.0000	92.3623
D:\MassHunter\Data\2191205ACAL\2191205A_07.d	Calibration	6	☑	1493	20.0000	74.6713
D:\MassHunter\Data\2191205ACAL\2191205A_08.d	Calibration	7	☑	1913	20.0000	95.6333

Target Compound *HFPO-DA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191205ACAL\2191205A_02.d	Calibration	1	☑	95	0.5000	2.8320
D:\MassHunter\Data\2191205ACAL\2191205A_03.d	Calibration	2	☑	471	1.2500	4.3278
D:\MassHunter\Data\2191205ACAL\2191205A_04.d	Calibration	3	☑	1705	5.0000	4.0215
D:\MassHunter\Data\2191205ACAL\2191205A_05.d	Calibration	4	☑	3422	10.0000	3.9294

Quantitative Analysis Calibration Report



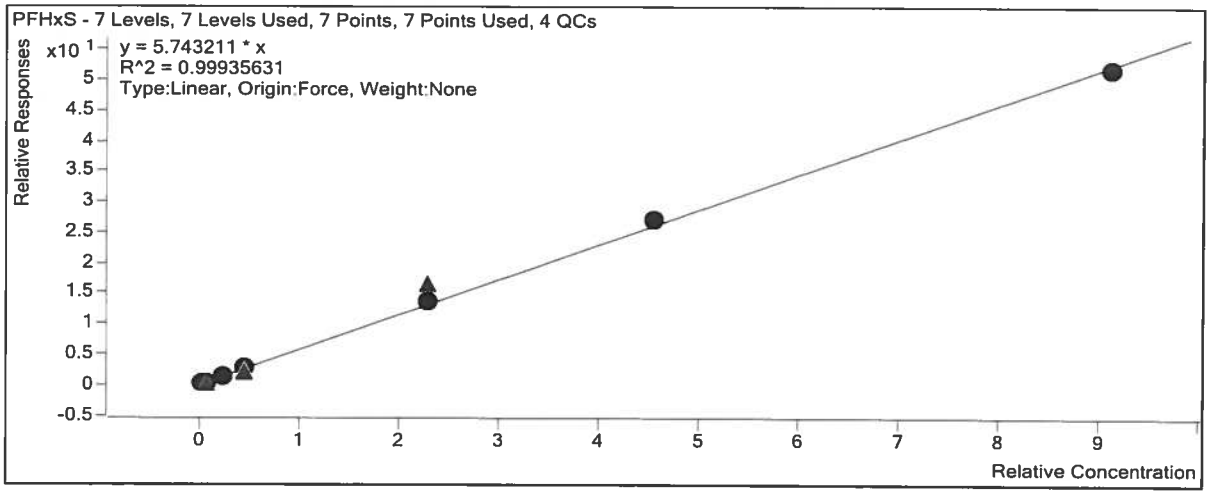
Extracted ISTD *M3PFHxS*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191205ACAL\2191205A_02.d	Calibration	1	☑	18510	20.0000	925.4778
D:\MassHunter\Data\2191205ACAL\2191205A_03.d	Calibration	2	☑	17859	20.0000	892.9471
D:\MassHunter\Data\2191205ACAL\2191205A_04.d	Calibration	3	☑	17957	20.0000	897.8711
D:\MassHunter\Data\2191205ACAL\2191205A_05.d	Calibration	4	☑	18278	20.0000	913.8778
D:\MassHunter\Data\2191205ACAL\2191205A_06.d	Calibration	5	☑	18982	20.0000	949.1238
D:\MassHunter\Data\2191205ACAL\2191205A_07.d	Calibration	6	☑	18173	20.0000	908.6417
D:\MassHunter\Data\2191205ACAL\2191205A_08.d	Calibration	7	☑	18966	20.0000	948.3068

Target Compound *PFHxS*

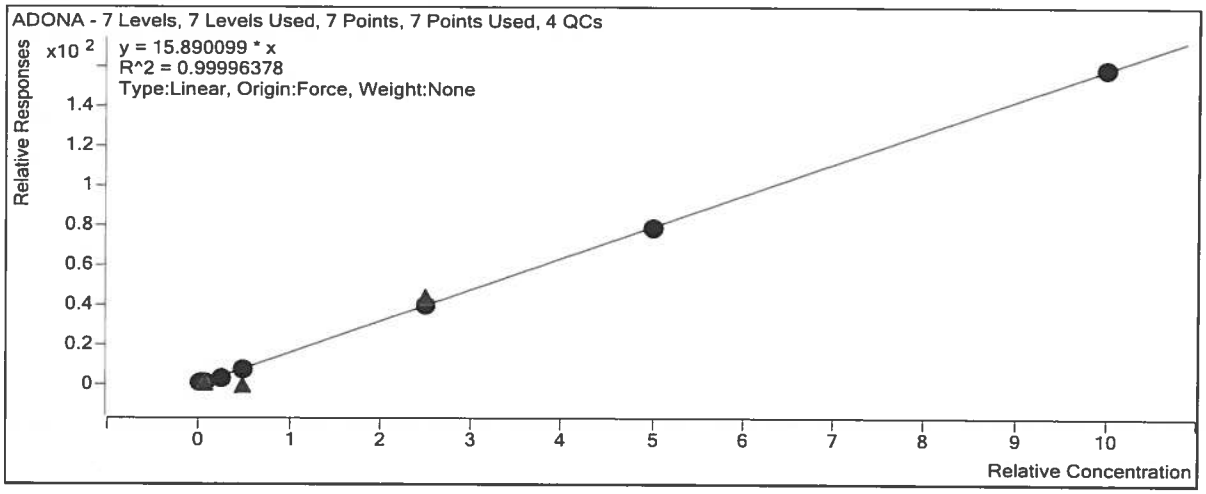
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191205ACAL\2191205A_02.d	Calibration	1	☑	2159	0.4560	5.1170
D:\MassHunter\Data\2191205ACAL\2191205A_03.d	Calibration	2	☑	5222	1.1400	5.1295
D:\MassHunter\Data\2191205ACAL\2191205A_04.d	Calibration	3	☑	22575	4.5600	5.5139
D:\MassHunter\Data\2191205ACAL\2191205A_05.d	Calibration	4	☑	48302	9.1200	5.7954
D:\MassHunter\Data\2191205ACAL\2191205A_06.d	Calibration	5	☑	260074	45.6000	6.0091
D:\MassHunter\Data\2191205ACAL\2191205A_07.d	Calibration	6	☑	491653	91.2000	5.9330
D:\MassHunter\Data\2191205ACAL\2191205A_08.d	Calibration	7	☑	982338	182.4000	5.6792

Quantitative Analysis Calibration Report



Target Compound *ADONA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191205ACAL\2191205A_02.d	Calibration	1	☑	8345	0.5000	14.3362
D:\MassHunter\Data\2191205ACAL\2191205A_03.d	Calibration	2	☑	20359	1.2500	13.2858
D:\MassHunter\Data\2191205ACAL\2191205A_04.d	Calibration	3	☑	86623	5.0000	13.2511
D:\MassHunter\Data\2191205ACAL\2191205A_05.d	Calibration	4	☑	184915	10.0000	15.0990
D:\MassHunter\Data\2191205ACAL\2191205A_06.d	Calibration	5	☑	983148	50.0000	15.8905
D:\MassHunter\Data\2191205ACAL\2191205A_07.d	Calibration	6	☑	1836856	100.0000	15.8244
D:\MassHunter\Data\2191205ACAL\2191205A_08.d	Calibration	7	☑	3703545	200.0000	15.9102



Extracted ISTD *M2 6:2 FTS*

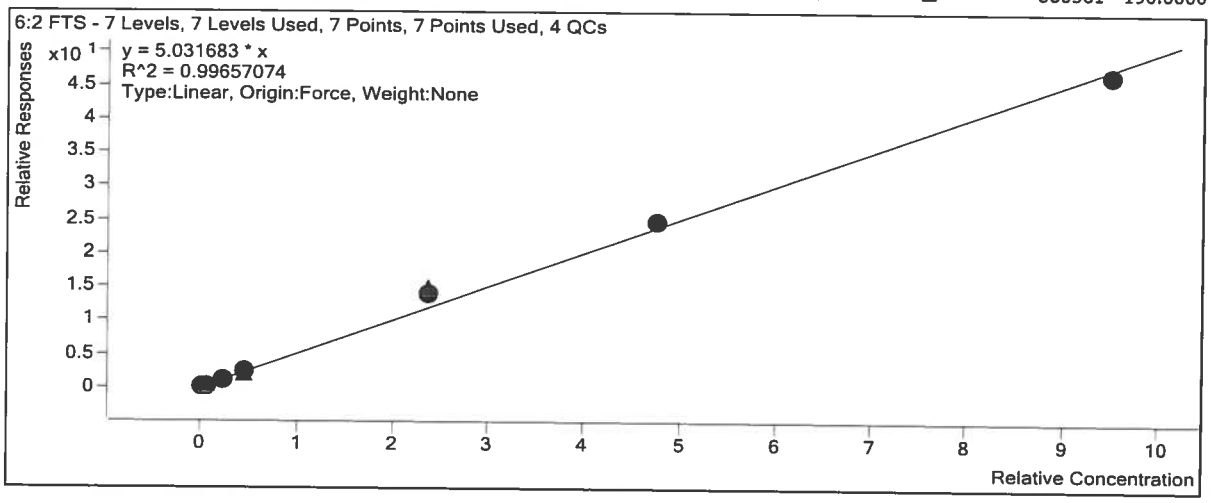
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF

Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191205ACAL\2191205A_08.d	Calibration	7	☑	18391	20.0000	919.5363

Target Compound *6:2 FTS*

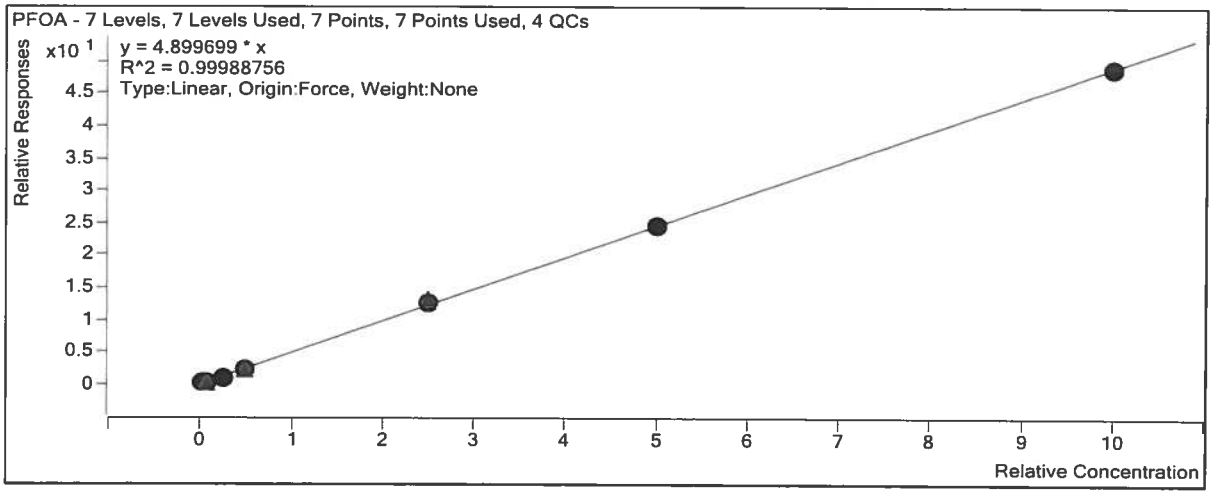
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191205ACAL\2191205A_02.d	Calibration	1	☑	2146	0.4750	5.8859
D:\MassHunter\Data\2191205ACAL\2191205A_03.d	Calibration	2	☑	6240	1.1900	5.0285
D:\MassHunter\Data\2191205ACAL\2191205A_04.d	Calibration	3	☑	25353	4.7500	5.0847
D:\MassHunter\Data\2191205ACAL\2191205A_05.d	Calibration	4	☑	55027	9.5000	5.4066
D:\MassHunter\Data\2191205ACAL\2191205A_06.d	Calibration	5	☑	282051	47.5000	5.9180
D:\MassHunter\Data\2191205ACAL\2191205A_07.d	Calibration	6	☑	486174	95.0000	5.2305
D:\MassHunter\Data\2191205ACAL\2191205A_08.d	Calibration	7	☑	860561	190.0000	4.9256



Instrument ISTD *M2PFOA*

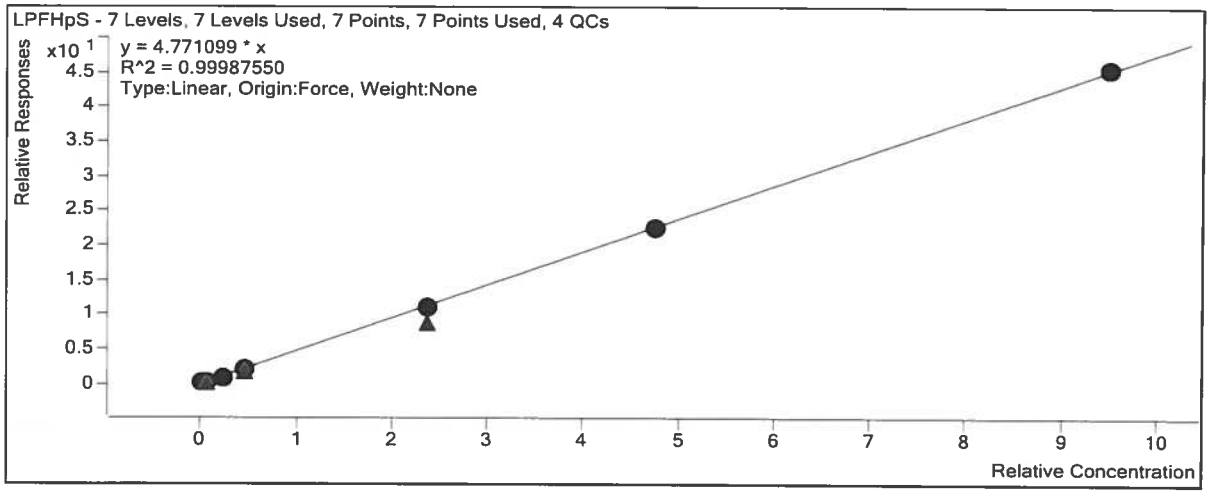
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191205ACAL\2191205A_02.d	Calibration	1	☑	107723	20.0000	5386.1529
D:\MassHunter\Data\2191205ACAL\2191205A_03.d	Calibration	2	☑	109538	20.0000	5476.8991
D:\MassHunter\Data\2191205ACAL\2191205A_04.d	Calibration	3	☑	160088	20.0000	8004.3953
D:\MassHunter\Data\2191205ACAL\2191205A_05.d	Calibration	4	☑	118465	20.0000	5923.2310
D:\MassHunter\Data\2191205ACAL\2191205A_06.d	Calibration	5	☑	140173	20.0000	7008.6256
D:\MassHunter\Data\2191205ACAL\2191205A_07.d	Calibration	6	☑	144393	20.0000	7219.6480
D:\MassHunter\Data\2191205ACAL\2191205A_08.d	Calibration	7	☑	143913	20.0000	7195.6478

Quantitative Analysis Calibration Report



Target Compound *LPFHpS*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191205ACAL\2191205A_02.d	Calibration	1	☑	2043	0.4750	3.6946
D:\MassHunter\Data\2191205ACAL\2191205A_03.d	Calibration	2	☑	5433	1.1900	3.7245
D:\MassHunter\Data\2191205ACAL\2191205A_04.d	Calibration	3	☑	23274	4.7500	3.7478
D:\MassHunter\Data\2191205ACAL\2191205A_05.d	Calibration	4	☑	49830	9.5000	4.2829
D:\MassHunter\Data\2191205ACAL\2191205A_06.d	Calibration	5	☑	274885	47.5000	4.6768
D:\MassHunter\Data\2191205ACAL\2191205A_07.d	Calibration	6	☑	522457	95.0000	4.7378
D:\MassHunter\Data\2191205ACAL\2191205A_08.d	Calibration	7	☑	1058640	190.0000	4.7872



Extracted ISTD *M9PFNA*

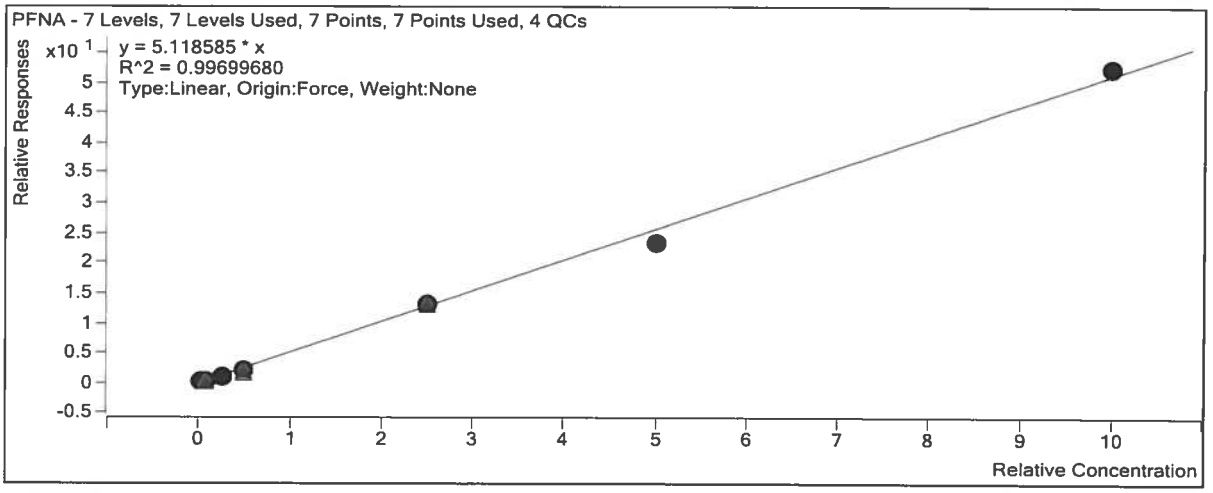
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF

Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191205ACAL\2191205A_08.d	Calibration	7	☑	20880	20.0000	1044.0089

Target Compound *PFNA*

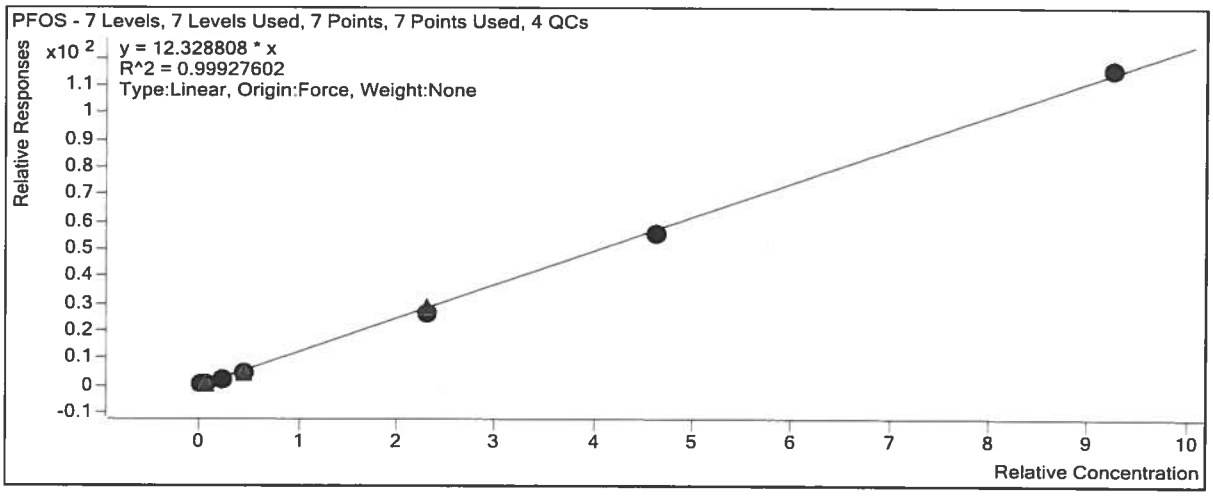
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191205ACAL\2191205A_02.d	Calibration	1	☑	2698	0.5000	3.8816
D:\MassHunter\Data\2191205ACAL\2191205A_03.d	Calibration	2	☑	7477	1.2500	4.4516
D:\MassHunter\Data\2191205ACAL\2191205A_04.d	Calibration	3	☑	27374	5.0000	3.8306
D:\MassHunter\Data\2191205ACAL\2191205A_05.d	Calibration	4	☑	60170	10.0000	4.4106
D:\MassHunter\Data\2191205ACAL\2191205A_06.d	Calibration	5	☑	334429	50.0000	5.1973
D:\MassHunter\Data\2191205ACAL\2191205A_07.d	Calibration	6	☑	605677	100.0000	4.6621
D:\MassHunter\Data\2191205ACAL\2191205A_08.d	Calibration	7	☑	1092115	200.0000	5.2304



Extracted ISTD *M8PFOS*

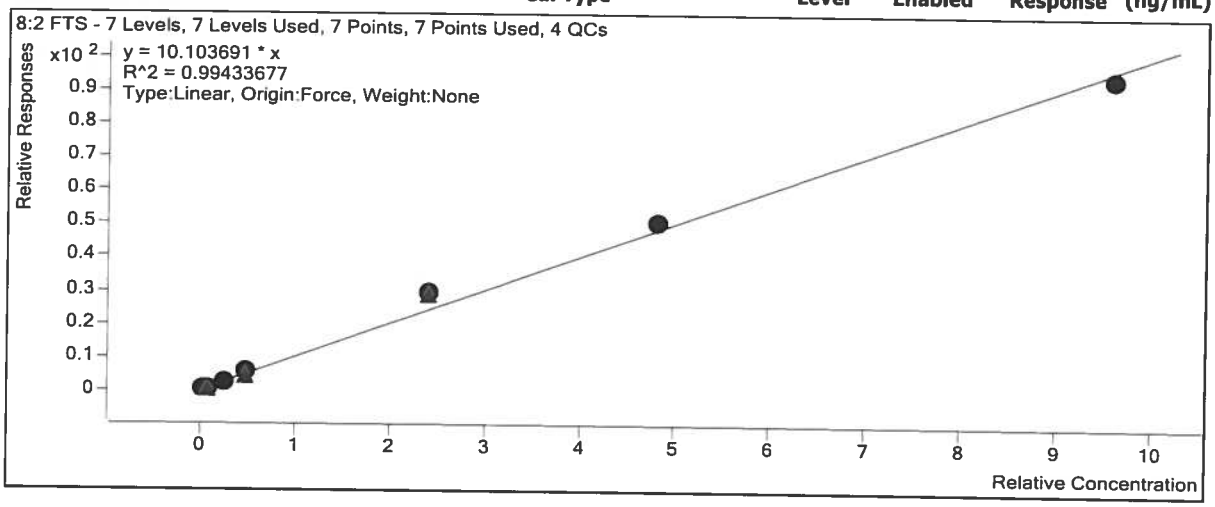
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191205ACAL\2191205A_02.d	Calibration	1	☑	9222	20.0000	461.1207
D:\MassHunter\Data\2191205ACAL\2191205A_03.d	Calibration	2	☑	9167	20.0000	458.3552
D:\MassHunter\Data\2191205ACAL\2191205A_04.d	Calibration	3	☑	9073	20.0000	453.6320
D:\MassHunter\Data\2191205ACAL\2191205A_05.d	Calibration	4	☑	9302	20.0000	465.1100
D:\MassHunter\Data\2191205ACAL\2191205A_06.d	Calibration	5	☑	9682	20.0000	484.1086
D:\MassHunter\Data\2191205ACAL\2191205A_07.d	Calibration	6	☑	8915	20.0000	445.7530
D:\MassHunter\Data\2191205ACAL\2191205A_08.d	Calibration	7	☑	8469	20.0000	423.4477

Quantitative Analysis Calibration Report



Quantitative Analysis Calibration Report

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



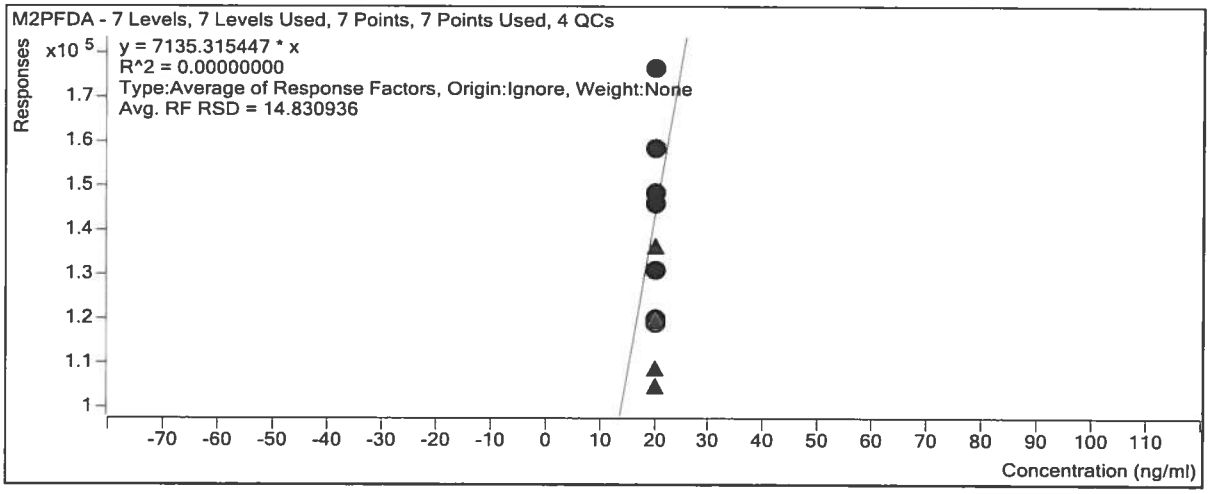
Extracted ISTD *M6PFDA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191205ACAL\2191205A_02.d	Calibration	1	☑	24875	20.0000	1243.7538
D:\MassHunter\Data\2191205ACAL\2191205A_03.d	Calibration	2	☑	26606	20.0000	1330.3183
D:\MassHunter\Data\2191205ACAL\2191205A_04.d	Calibration	3	☑	27071	20.0000	1353.5459
D:\MassHunter\Data\2191205ACAL\2191205A_05.d	Calibration	4	☑	26622	20.0000	1331.1165
D:\MassHunter\Data\2191205ACAL\2191205A_06.d	Calibration	5	☑	26357	20.0000	1317.8473
D:\MassHunter\Data\2191205ACAL\2191205A_07.d	Calibration	6	☑	22734	20.0000	1136.6813
D:\MassHunter\Data\2191205ACAL\2191205A_08.d	Calibration	7	☑	21860	20.0000	1093.0150

Instrument ISTD *M2PFDA*

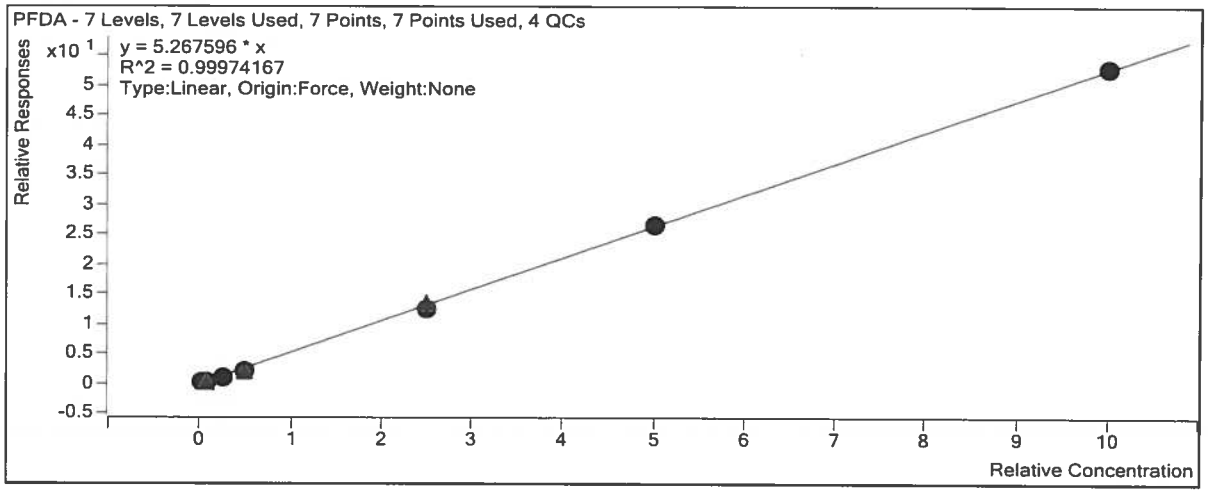
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191205ACAL\2191205A_02.d	Calibration	1	☑	119673	20.0000	5983.6562
D:\MassHunter\Data\2191205ACAL\2191205A_03.d	Calibration	2	☑	118688	20.0000	5934.3894
D:\MassHunter\Data\2191205ACAL\2191205A_04.d	Calibration	3	☑	176552	20.0000	8827.5992
D:\MassHunter\Data\2191205ACAL\2191205A_05.d	Calibration	4	☑	131043	20.0000	6552.1363
D:\MassHunter\Data\2191205ACAL\2191205A_06.d	Calibration	5	☑	148311	20.0000	7415.5538
D:\MassHunter\Data\2191205ACAL\2191205A_07.d	Calibration	6	☑	158730	20.0000	7936.4992
D:\MassHunter\Data\2191205ACAL\2191205A_08.d	Calibration	7	☑	145947	20.0000	7297.3740

Quantitative Analysis Calibration Report



Target Compound *PFDA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191205ACAL\2191205A_02.d	Calibration	1	☑	2648	0.5000	4.2579
D:\MassHunter\Data\2191205ACAL\2191205A_03.d	Calibration	2	☑	6841	1.2500	4.1137
D:\MassHunter\Data\2191205ACAL\2191205A_04.d	Calibration	3	☑	28958	5.0000	4.2789
D:\MassHunter\Data\2191205ACAL\2191205A_05.d	Calibration	4	☑	60840	10.0000	4.5706
D:\MassHunter\Data\2191205ACAL\2191205A_06.d	Calibration	5	☑	330632	50.0000	5.0178
D:\MassHunter\Data\2191205ACAL\2191205A_07.d	Calibration	6	☑	601321	100.0000	5.2901
D:\MassHunter\Data\2191205ACAL\2191205A_08.d	Calibration	7	☑	1154220	200.0000	5.2800

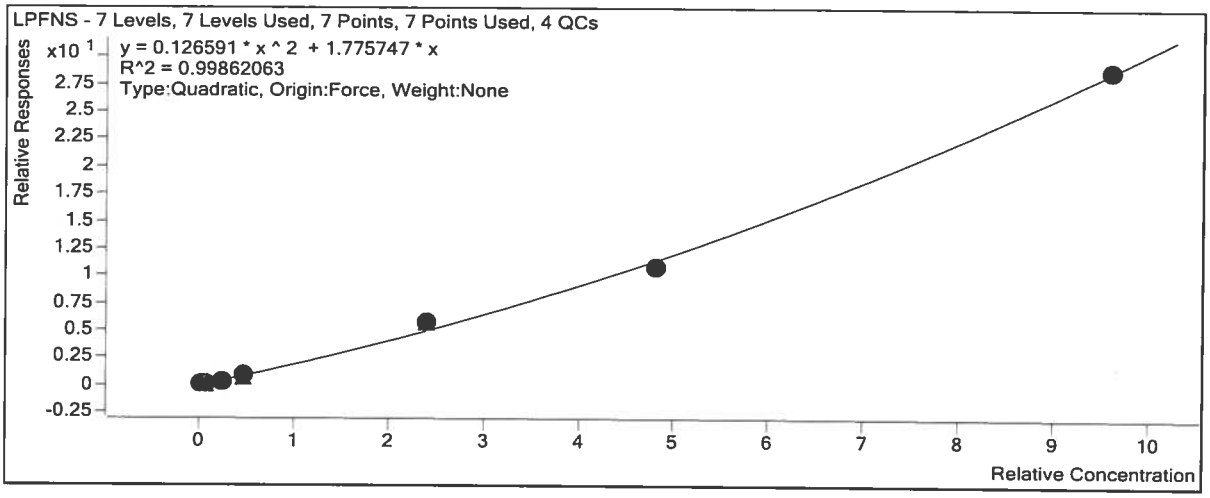


Target Compound *LPFNS*

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

Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191205ACAL\2191205A_08.d	Calibration	7	☑	601564	192.0000	3.0011



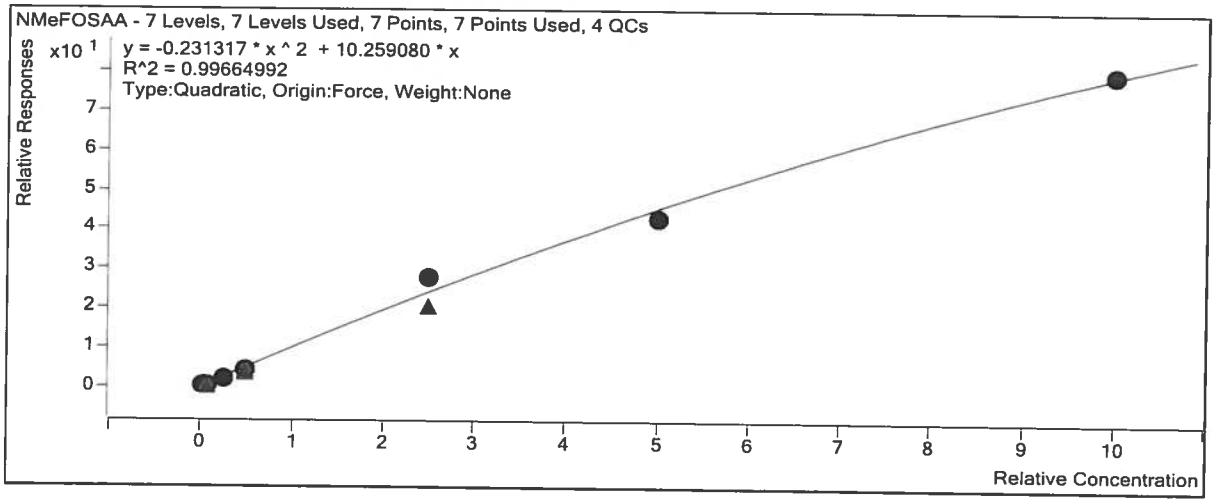
Extracted ISTD *d3-NMeFOSAA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191205ACAL\2191205A_02.d	Calibration	1	☑	4579	20.0000	228.9641
D:\MassHunter\Data\2191205ACAL\2191205A_03.d	Calibration	2	☑	4389	20.0000	219.4620
D:\MassHunter\Data\2191205ACAL\2191205A_04.d	Calibration	3	☑	4365	20.0000	218.2466
D:\MassHunter\Data\2191205ACAL\2191205A_05.d	Calibration	4	☑	5031	20.0000	251.5422
D:\MassHunter\Data\2191205ACAL\2191205A_06.d	Calibration	5	☑	4410	20.0000	220.4933
D:\MassHunter\Data\2191205ACAL\2191205A_07.d	Calibration	6	☑	5294	20.0000	264.6885
D:\MassHunter\Data\2191205ACAL\2191205A_08.d	Calibration	7	☑	5602	20.0000	280.0951

Target Compound *NMeFOSAA*

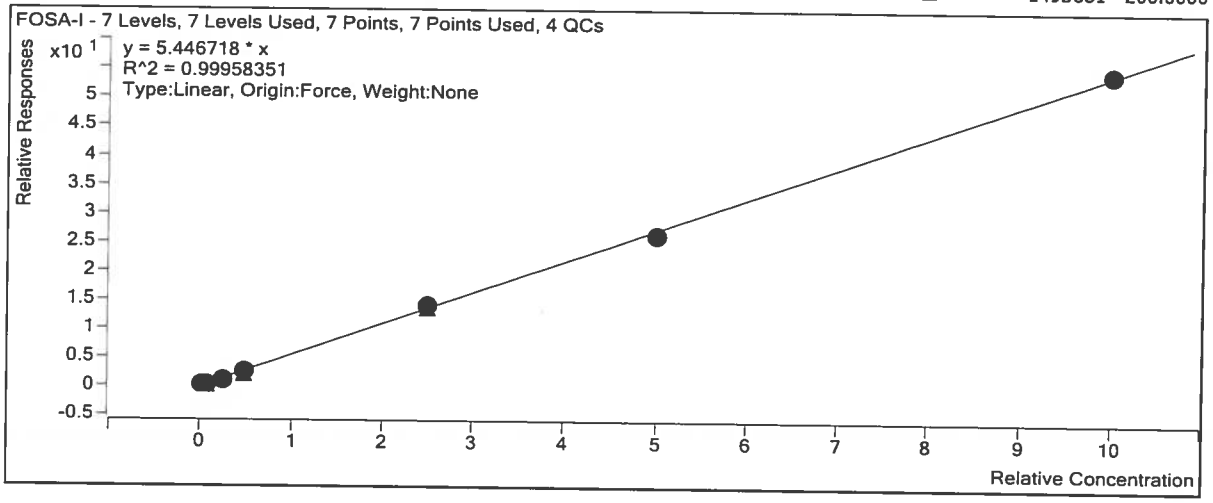
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191205ACAL\2191205A_02.d	Calibration	1	☑	1048	0.5000	9.1574
D:\MassHunter\Data\2191205ACAL\2191205A_03.d	Calibration	2	☑	2230	1.2500	8.1308
D:\MassHunter\Data\2191205ACAL\2191205A_04.d	Calibration	3	☑	9769	5.0000	8.9523
D:\MassHunter\Data\2191205ACAL\2191205A_05.d	Calibration	4	☑	21247	10.0000	8.4465
D:\MassHunter\Data\2191205ACAL\2191205A_06.d	Calibration	5	☑	121815	50.0000	11.0493
D:\MassHunter\Data\2191205ACAL\2191205A_07.d	Calibration	6	☑	228382	100.0000	8.6283
D:\MassHunter\Data\2191205ACAL\2191205A_08.d	Calibration	7	☑	447257	200.0000	7.9840

Quantitative Analysis Calibration Report



Target Compound *FOSA-I*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191205ACAL\2191205A_02.d	Calibration	1	☑	3139	0.5000	4.7249
D:\MassHunter\Data\2191205ACAL\2191205A_03.d	Calibration	2	☑	8205	1.2500	4.7888
D:\MassHunter\Data\2191205ACAL\2191205A_04.d	Calibration	3	☑	33544	5.0000	4.8614
D:\MassHunter\Data\2191205ACAL\2191205A_05.d	Calibration	4	☑	73468	10.0000	5.3696
D:\MassHunter\Data\2191205ACAL\2191205A_06.d	Calibration	5	☑	389323	50.0000	5.7035
D:\MassHunter\Data\2191205ACAL\2191205A_07.d	Calibration	6	☑	749266	100.0000	5.2984
D:\MassHunter\Data\2191205ACAL\2191205A_08.d	Calibration	7	☑	1493681	200.0000	5.4683



Extracted ISTD *M8FOSA*

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

Quantitative Analysis Calibration Report

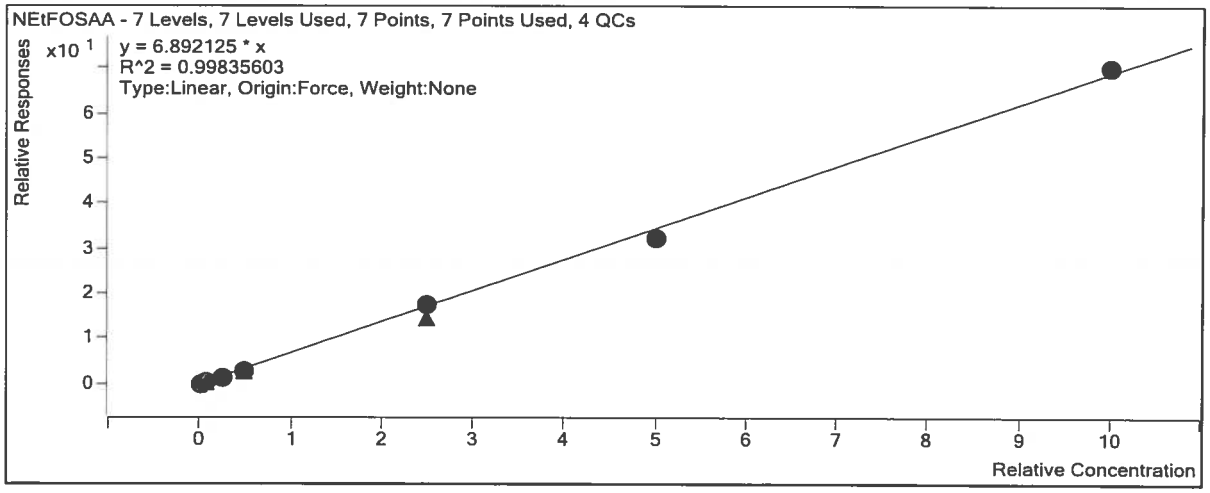
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191205ACAL\2191205A_08.d	Calibration	7	☑	27315	20.0000	1365.7528

Extracted ISTD *d5-NEtFOSAA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191205ACAL\2191205A_02.d	Calibration	1	☑	7081	20.0000	354.0395
D:\MassHunter\Data\2191205ACAL\2191205A_03.d	Calibration	2	☑	6518	20.0000	325.8844
D:\MassHunter\Data\2191205ACAL\2191205A_04.d	Calibration	3	☑	6981	20.0000	349.0335
D:\MassHunter\Data\2191205ACAL\2191205A_05.d	Calibration	4	☑	7247	20.0000	362.3436
D:\MassHunter\Data\2191205ACAL\2191205A_06.d	Calibration	5	☑	6446	20.0000	322.2855
D:\MassHunter\Data\2191205ACAL\2191205A_07.d	Calibration	6	☑	6395	20.0000	319.7728
D:\MassHunter\Data\2191205ACAL\2191205A_08.d	Calibration	7	☑	5831	20.0000	291.5458

Target Compound *NEtFOSAA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191205ACAL\2191205A_02.d	Calibration	1	☑	826	0.5000	4.6673
D:\MassHunter\Data\2191205ACAL\2191205A_03.d	Calibration	2	☑	2585	1.2500	6.3447
D:\MassHunter\Data\2191205ACAL\2191205A_04.d	Calibration	3	☑	10478	5.0000	6.0037
D:\MassHunter\Data\2191205ACAL\2191205A_05.d	Calibration	4	☑	20169	10.0000	5.5663
D:\MassHunter\Data\2191205ACAL\2191205A_06.d	Calibration	5	☑	112056	50.0000	6.9538
D:\MassHunter\Data\2191205ACAL\2191205A_07.d	Calibration	6	☑	206229	100.0000	6.4492
D:\MassHunter\Data\2191205ACAL\2191205A_08.d	Calibration	7	☑	408333	200.0000	7.0029

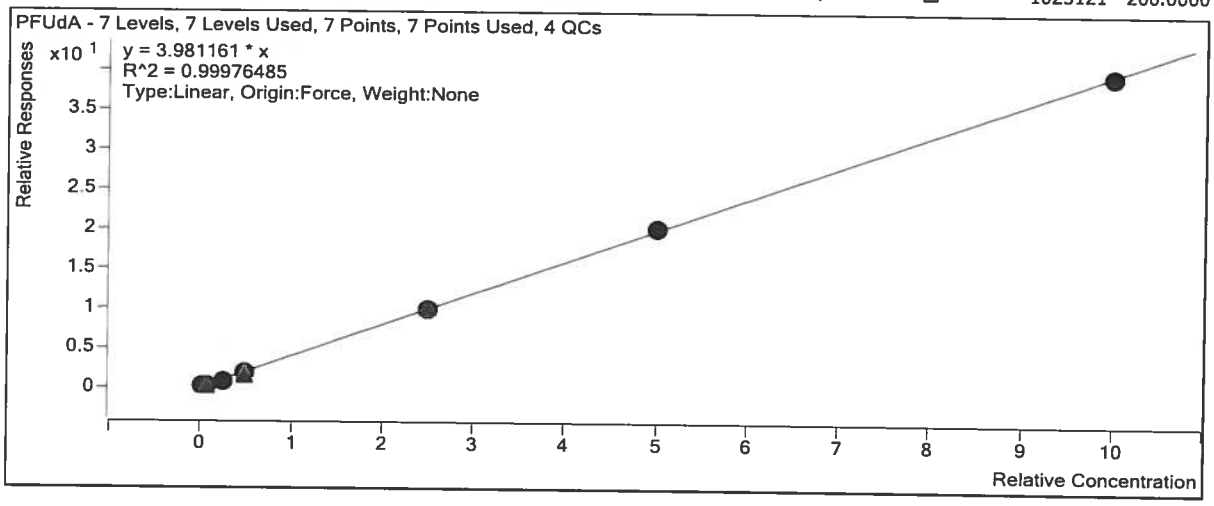


Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191205ACAL\2191205A_05.d	Calibration	4	☑	30810	20.0000	1540.4979
D:\MassHunter\Data\2191205ACAL\2191205A_06.d	Calibration	5	☑	28089	20.0000	1404.4702
D:\MassHunter\Data\2191205ACAL\2191205A_07.d	Calibration	6	☑	26882	20.0000	1344.1218
D:\MassHunter\Data\2191205ACAL\2191205A_08.d	Calibration	7	☑	25900	20.0000	1294.9794

Target Compound *PFUdA*

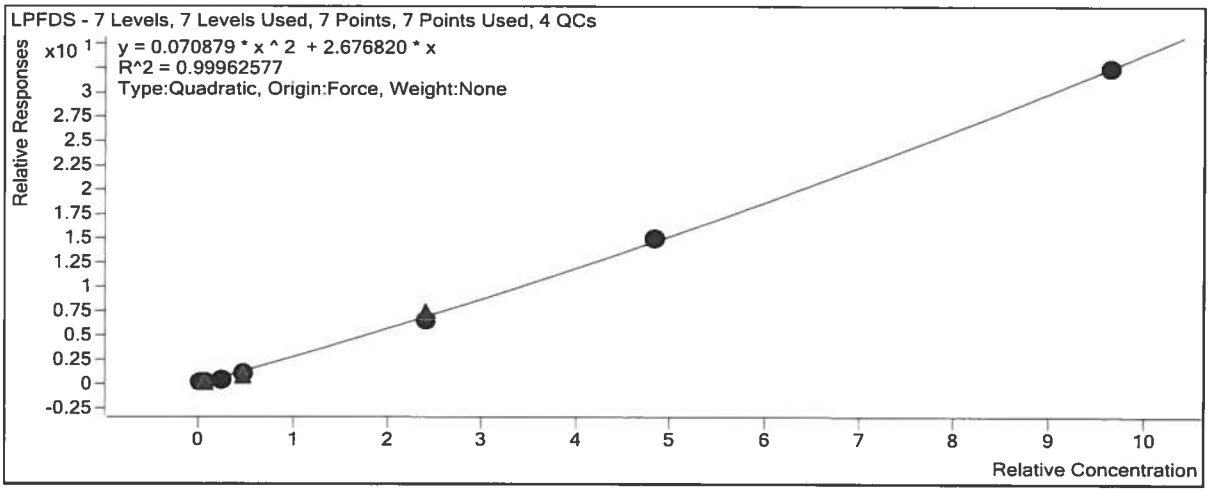
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191205ACAL\2191205A_02.d	Calibration	1	☑	2965	0.5000	4.5483
D:\MassHunter\Data\2191205ACAL\2191205A_03.d	Calibration	2	☑	6095	1.2500	3.3034
D:\MassHunter\Data\2191205ACAL\2191205A_04.d	Calibration	3	☑	26962	5.0000	3.5375
D:\MassHunter\Data\2191205ACAL\2191205A_05.d	Calibration	4	☑	54982	10.0000	3.5691
D:\MassHunter\Data\2191205ACAL\2191205A_06.d	Calibration	5	☑	282495	50.0000	4.0228
D:\MassHunter\Data\2191205ACAL\2191205A_07.d	Calibration	6	☑	546853	100.0000	4.0685
D:\MassHunter\Data\2191205ACAL\2191205A_08.d	Calibration	7	☑	1025121	200.0000	3.9581



Target Compound *LPFDS*

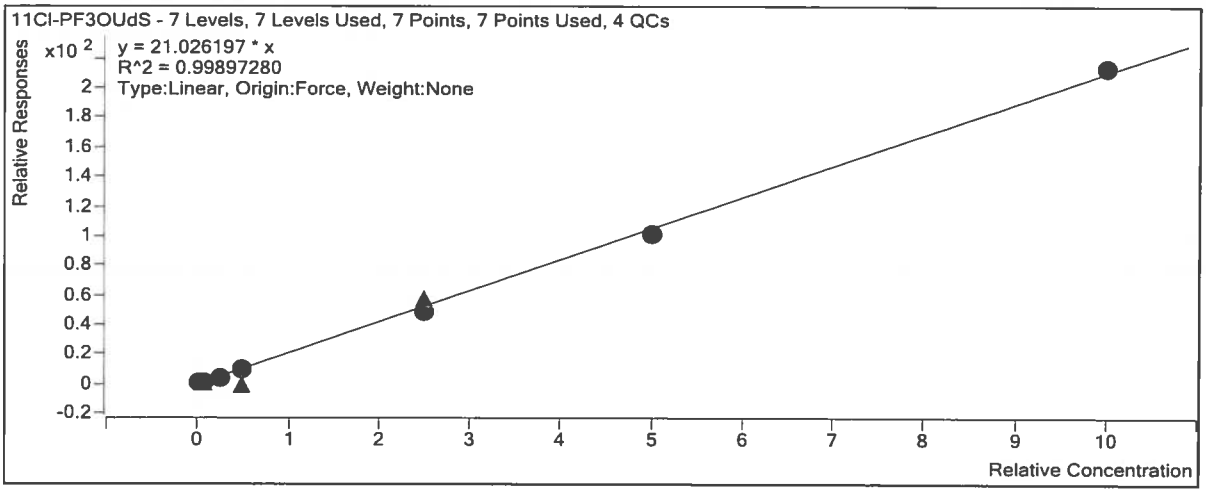
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191205ACAL\2191205A_02.d	Calibration	1	☑	1418	0.4825	2.3637
D:\MassHunter\Data\2191205ACAL\2191205A_03.d	Calibration	2	☑	3092	1.2100	1.9208
D:\MassHunter\Data\2191205ACAL\2191205A_04.d	Calibration	3	☑	13818	4.8250	2.1157
D:\MassHunter\Data\2191205ACAL\2191205A_05.d	Calibration	4	☑	29476	9.6500	2.2947

D:\MassHunter\Data\2191205ACAL\2191205A_06.d	Calibration	5	☑	171017	48.2500	2.6895
D:\MassHunter\Data\2191205ACAL\2191205A_07.d	Calibration	6	☑	338848	96.5000	3.0891
D:\MassHunter\Data\2191205ACAL\2191205A_08.d	Calibration	7	☑	707647	193.0000	3.3545



Target Compound *11Cl-PF3OUdS*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191205ACAL\2191205A_02.d	Calibration	1	☑	3730	0.5000	16.1787
D:\MassHunter\Data\2191205ACAL\2191205A_03.d	Calibration	2	☑	8772	1.2500	15.3101
D:\MassHunter\Data\2191205ACAL\2191205A_04.d	Calibration	3	☑	39985	5.0000	17.6287
D:\MassHunter\Data\2191205ACAL\2191205A_05.d	Calibration	4	☑	88393	10.0000	19.0048
D:\MassHunter\Data\2191205ACAL\2191205A_06.d	Calibration	5	☑	476764	50.0000	19.6966
D:\MassHunter\Data\2191205ACAL\2191205A_07.d	Calibration	6	☑	900491	100.0000	20.2016
D:\MassHunter\Data\2191205ACAL\2191205A_08.d	Calibration	7	☑	1805825	200.0000	21.3229

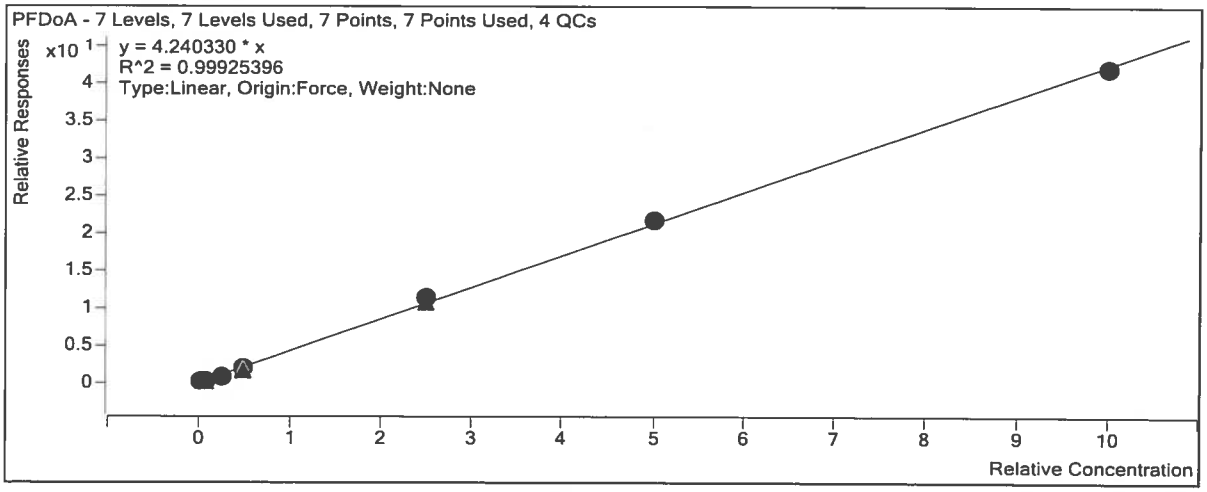


Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191205ACAL\2191205A_08.d	Calibration	7	☑	23006	20.0000	1150.3159

Target Compound *PFDoA*

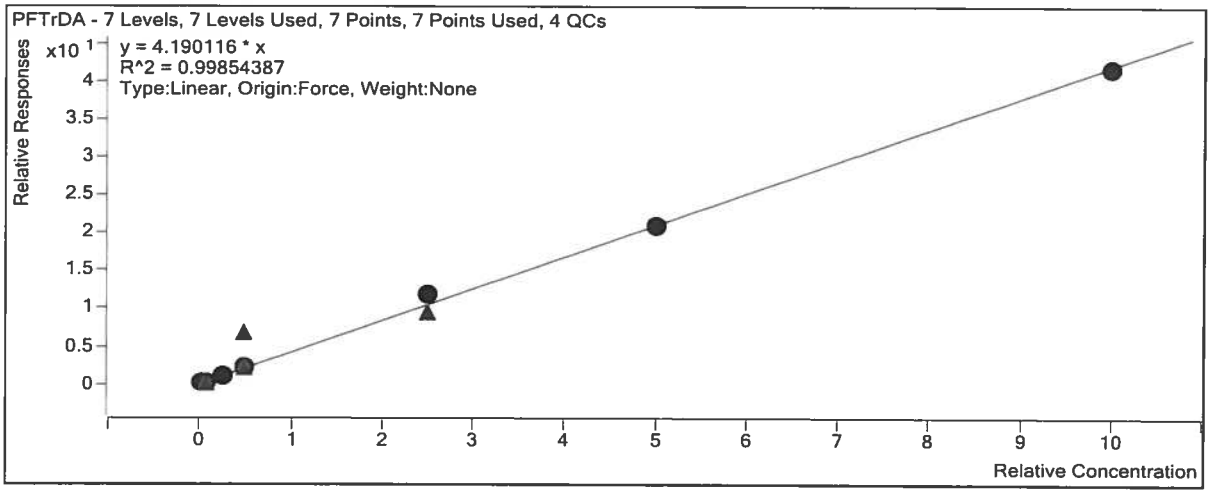
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191205ACAL\2191205A_02.d	Calibration	1	☑	2238	0.5000	4.2358
D:\MassHunter\Data\2191205ACAL\2191205A_03.d	Calibration	2	☑	4820	1.2500	3.6351
D:\MassHunter\Data\2191205ACAL\2191205A_04.d	Calibration	3	☑	20197	5.0000	3.4787
D:\MassHunter\Data\2191205ACAL\2191205A_05.d	Calibration	4	☑	45964	10.0000	4.0362
D:\MassHunter\Data\2191205ACAL\2191205A_06.d	Calibration	5	☑	250421	50.0000	4.5614
D:\MassHunter\Data\2191205ACAL\2191205A_07.d	Calibration	6	☑	465078	100.0000	4.3370
D:\MassHunter\Data\2191205ACAL\2191205A_08.d	Calibration	7	☑	965602	200.0000	4.1971



Target Compound *PFTrDA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191205ACAL\2191205A_02.d	Calibration	1	☑	1734	0.5000	4.3055
D:\MassHunter\Data\2191205ACAL\2191205A_03.d	Calibration	2	☑	4106	1.2500	4.0506
D:\MassHunter\Data\2191205ACAL\2191205A_04.d	Calibration	3	☑	17543	5.0000	4.2169
D:\MassHunter\Data\2191205ACAL\2191205A_05.d	Calibration	4	☑	36450	10.0000	4.2933
D:\MassHunter\Data\2191205ACAL\2191205A_06.d	Calibration	5	☑	205617	50.0000	4.7549
D:\MassHunter\Data\2191205ACAL\2191205A_07.d	Calibration	6	☑	374029	100.0000	4.1757
D:\MassHunter\Data\2191205ACAL\2191205A_08.d	Calibration	7	☑	752540	200.0000	4.1582

Quantitative Analysis Calibration Report



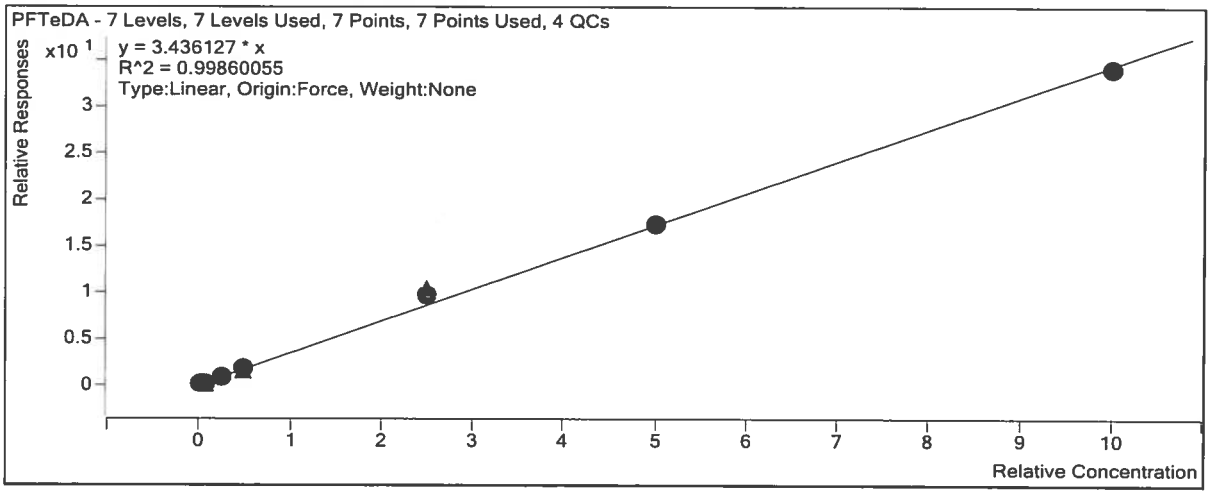
Extracted ISTD *M2PFTeDA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191205ACAL\2191205A_02.d	Calibration	1	☑	16109	20.0000	805.4359
D:\MassHunter\Data\2191205ACAL\2191205A_03.d	Calibration	2	☑	16218	20.0000	810.9190
D:\MassHunter\Data\2191205ACAL\2191205A_04.d	Calibration	3	☑	16641	20.0000	832.0486
D:\MassHunter\Data\2191205ACAL\2191205A_05.d	Calibration	4	☑	16980	20.0000	848.9863
D:\MassHunter\Data\2191205ACAL\2191205A_06.d	Calibration	5	☑	17297	20.0000	864.8568
D:\MassHunter\Data\2191205ACAL\2191205A_07.d	Calibration	6	☑	17915	20.0000	895.7326
D:\MassHunter\Data\2191205ACAL\2191205A_08.d	Calibration	7	☑	18098	20.0000	904.8959

Target Compound *PFTeDA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191205ACAL\2191205A_02.d	Calibration	1	☑	1423	0.5000	3.5332
D:\MassHunter\Data\2191205ACAL\2191205A_03.d	Calibration	2	☑	3248	1.2500	3.2046
D:\MassHunter\Data\2191205ACAL\2191205A_04.d	Calibration	3	☑	14075	5.0000	3.3833
D:\MassHunter\Data\2191205ACAL\2191205A_05.d	Calibration	4	☑	29677	10.0000	3.4956
D:\MassHunter\Data\2191205ACAL\2191205A_06.d	Calibration	5	☑	167437	50.0000	3.8720
D:\MassHunter\Data\2191205ACAL\2191205A_07.d	Calibration	6	☑	311144	100.0000	3.4736
D:\MassHunter\Data\2191205ACAL\2191205A_08.d	Calibration	7	☑	615221	200.0000	3.3994

Quantitative Analysis Calibration Report



6I

ORGANICS INITIAL CALIBRATION VERIFICATION

Report No:	219102717	Instrument ID:	QQQ1
Analysis Date:	12/05/2019 08:29	Lab File ID:	2191205A_10.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	672685

ANALYTE	*UNITS*	*TRUE*	*FOUND*	*% REC*	*LCL*	*UCL*	*Q*
6:2 Fluorotelomer sulfonate	ng/L	50000	59200	118	70	130	
8:2 Fluorotelomer sulfonate	ng/L	50000	57200	114	70	130	
NEtFOSAA	ng/L	50000	42400	85	70	130	
NMeFOSAA	ng/L	50000	42300	85	70	130	
Perfluorobutanoic acid	ng/L	50000	53000	106	70	130	
Perfluorobutanesulfonic acid	ng/L	50000	53000	106	70	130	
Perfluorodecanoic acid	ng/L	50000	52000	104	70	130	
Perfluorododecanoic acid	ng/L	50000	50700	101	70	130	
Perfluoroheptanoic acid	ng/L	50000	51500	103	70	130	
Perfluorohexanoic acid	ng/L	50000	57200	114	70	130	
Perfluorohexanesulfonic acid	ng/L	50000	58200	116	70	130	
Perfluorononanoic acid	ng/L	50000	51300	103	70	130	
Perfluorooctanoic acid	ng/L	50000	53900	108	70	130	
Perfluorooctane Sulfonate	ng/L	50000	46300	93	70	130	
Perfluoropentanoic acid	ng/L	50000	52600	105	70	130	
Perfluorotetradecanoic acid	ng/L	50000	60100	120	70	130	
Perfluorotridecanoic acid	ng/L	50000	45600	91	70	130	
Perfluoroundecanoic acid	ng/L	50000	51400	103	70	130	

7S

ORGANICS INSTRUMENT SENSITIVITY CHECK

Report No:	219102717	Instrument ID:	QQQ1
Analysis Date:	12/05/2019 08:40	Lab File ID:	2191205A_11.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	672685

ANALYTE	*UNITS*	*TRUE*	*FOUND*	*% REC*	*LCL*	*UCL*	*Q*
6:2 Fluorotelomer sulfonate	ng/L	7.93	11.1	140	70	130	*
8:2 Fluorotelomer sulfonate	ng/L	8.00	8.27	103	70	130	
NEtFOSAA	ng/L	8.33	7.20	86	70	130	
NMeFOSAA	ng/L	8.33	7.33	88	70	130	
Perfluorobutanoic acid	ng/L	8.33	7.87	95	70	130	
Perfluorobutanesulfonic acid	ng/L	7.40	6.55	89	70	130	
Perfluorodecanoic acid	ng/L	8.33	7.53	91	70	130	
Perfluorododecanoic acid	ng/L	8.33	8.07	96	70	130	
Perfluoroheptanoic acid	ng/L	8.33	7.87	94	70	130	
Perfluorohexanoic acid	ng/L	8.33	8.13	98	70	130	
Perfluorohexanesulfonic acid	ng/L	7.60	7.53	99	70	130	
Perfluorononanoic acid	ng/L	8.33	6.87	83	70	130	
Perfluorooctanoic acid	ng/L	8.33	8.13	98	70	130	
Perfluorooctane Sulfonate	ng/L	7.73	9.73	126	70	130	
Perfluoropentanoic acid	ng/L	8.33	5.51	66	70	130	*
Perfluorotetradecanoic acid	ng/L	8.33	9.33	112	70	130	
Perfluorotridecanoic acid	ng/L	8.33	9.00	108	70	130	
Perfluoroundecanoic acid	ng/L	8.33	8.87	106	70	130	

4I

ORGANICS INSTRUMENT BLANK

Report No:	219102717	Instrument ID:	QQQ1
Analysis Date:	12/05/2019 08:51	Lab File ID:	2191205A_12.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	672685

ANALYTE	UNITS	RESULT	Q	DL	LOD	LOQ	#
6:2 Fluorotelomer sulfonate	ng/L	4.00	U	1.79	4.00	10.0	
8:2 Fluorotelomer sulfonate	ng/L	4.00	U	1.63	4.00	10.0	
NEtFOSAA	ng/L	8.00	U	5.38	8.00	10.0	
NMeFOSAA	ng/L	8.00	U	4.60	8.00	10.0	
Perfluorobutanesulfonic acid	ng/L	4.00	U	1.47	4.00	10.0	
Perfluorobutanoic acid	ng/L	4.00	U	2.13	4.00	10.0	
Perfluorodecanoic acid	ng/L	4.00	U	1.65	4.00	10.0	
Perfluorododecanoic acid	ng/L	4.00	U	2.45	4.00	10.0	
Perfluoroheptanoic acid	ng/L	4.00	U	1.85	4.00	10.0	
Perfluorohexanesulfonic acid	ng/L	4.00	U	1.64	4.00	10.0	
Perfluorohexanoic acid	ng/L	4.00	U	1.94	4.00	10.0	
Perfluorononanoic acid	ng/L	4.00	U	1.68	4.00	10.0	
Perfluorooctane Sulfonate	ng/L	1.97	J	1.70	4.00	10.0	
Perfluorooctanoic acid	ng/L	4.00	U	1.80	4.00	10.0	
Perfluoropentanoic acid	ng/L	4.00	U	2.35	4.00	10.0	
Perfluorotetradecanoic acid	ng/L	4.00	U	2.76	4.00	10.0	
Perfluorotridecanoic acid	ng/L	4.00	U	2.56	4.00	10.0	
Perfluoroundecanoic acid	ng/L	4.00	U	1.86	4.00	10.0	

* - Result greater than 1/2 LOQ

7E

ORGANICS CALIBRATION VERIFICATION

Report No:	219102717	Instrument ID:	QQQ1
Analysis Date:	12/05/2019 12:42	Lab File ID:	2191205A_32.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	672685

ANALYTE	*UNITS*	*TRUE*	*FOUND*	*% REC*	*LCL*	*UCL*	*Q*
6:2 Fluorotelomer sulfonate	ng/L	47500	53200	112	70	130	
8:2 Fluorotelomer sulfonate	ng/L	48000	51800	108	70	130	
NEtFOSAA	ng/L	50000	46400	93	70	130	
NMeFOSAA	ng/L	50000	52200	104	70	130	
Perfluorobutanoic acid	ng/L	50000	52600	105	70	130	
Perfluorobutanesulfonic acid	ng/L	44300	46100	104	70	130	
Perfluorodecanoic acid	ng/L	50000	50300	101	70	130	
Perfluorododecanoic acid	ng/L	50000	50200	100	70	130	
Perfluoroheptanoic acid	ng/L	50000	51500	103	70	130	
Perfluorohexanoic acid	ng/L	50000	51100	102	70	130	
Perfluorohexanesulfonic acid	ng/L	45600	47800	105	70	130	
Perfluorononanoic acid	ng/L	50000	45800	92	70	130	
Perfluorooctanoic acid	ng/L	50000	52100	104	70	130	
Perfluorooctane Sulfonate	ng/L	46300	48200	104	70	130	
Perfluoropentanoic acid	ng/L	50000	51600	103	70	130	
Perfluorotetradecanoic acid	ng/L	50000	55300	111	70	130	
Perfluorotridecanoic acid	ng/L	50000	55800	112	70	130	
Perfluoroundecanoic acid	ng/L	50000	53300	107	70	130	

FORM 7E - ORG

7E

ORGANICS CALIBRATION VERIFICATION

Report No:	219102717	Instrument ID:	QQQ1
Analysis Date:	12/05/2019 14:46	Lab File ID:	2191205A_43.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	672685

ANALYTE	*UNITS*	*TRUE*	*FOUND*	*% REC*	*LCL*	*UCL*	*Q*
6:2 Fluorotelomer sulfonate	ng/L	47500	51300	108	70	130	
8:2 Fluorotelomer sulfonate	ng/L	48000	54800	114	70	130	
NEtFOSAA	ng/L	50000	46000	92	70	130	
NMeFOSAA	ng/L	50000	54800	110	70	130	
Perfluorobutanoic acid	ng/L	50000	52300	105	70	130	
Perfluorobutanesulfonic acid	ng/L	44300	45700	103	70	130	
Perfluorodecanoic acid	ng/L	50000	48400	97	70	130	
Perfluorododecanoic acid	ng/L	50000	53600	107	70	130	
Perfluoroheptanoic acid	ng/L	50000	52300	105	70	130	
Perfluorohexanoic acid	ng/L	50000	53100	106	70	130	
Perfluorohexanesulfonic acid	ng/L	45600	48900	107	70	130	
Perfluorononanoic acid	ng/L	50000	47100	94	70	130	
Perfluorooctanoic acid	ng/L	50000	52600	105	70	130	
Perfluorooctane Sulfonate	ng/L	46300	45900	99	70	130	
Perfluoropentanoic acid	ng/L	50000	51400	103	70	130	
Perfluorotetradecanoic acid	ng/L	50000	55900	112	70	130	
Perfluorotridecanoic acid	ng/L	50000	54700	109	70	130	
Perfluoroundecanoic acid	ng/L	50000	49500	99	70	130	

FORM 7E - ORG

8I

INJECTION INTERNAL STANDARD AREA SUMMARY

Report No:	219102717	Standard ID:	1205 (ICAL Midpoint)
Analyst:	BMH	Instrument ID:	QQQ1
Analysis Date:	12/05/19 07:32	Lab File ID:	2191205A_06.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	672685

	M2PFDA		M2PFHxA		M2PFOA		M4PFOS	
	Area		*Area*		*Area*		*Area*	
STANDARD	148311		356302		140173		105810	
CLIENT SAMPLE ID	***GCAL SAMP ID***	*#*		*#*		*#*		*#*
AOI3-2-SB-1.5-2-102519DL1	21910271702DL1	169638		396047		151260		124086	
AOI3-2-SB-1.5-2-102519-DDL1	21910271703DL1	174828		401961		155881		127440	
AOI3-6-SB-1.5-2-102519DL	21910271707DL	151952		359727		138563		112588	
AOI2-4-SB-4.5-5-102519DL	21910271720DL	156613		357272		139360		113560	

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 8I - ORG

LCMS1 Run Log

Analyst:	BMH	Expiration
Batch:	2191206A	Date
Current ICAL Bath:	2191206ACAL/2191206ACALDW	Date
20mM Amm Acetate	010-21-4	12/8/2019
Methanol	2128592	8/31/2024
Calibration Std	010-19-9	6/3/2020
ICV Std	010-19-7	6/3/2020
EIS Mix	010-21-2	6/6/2020

Name	Data File	Type	Acq. Date-Time	Comment	Dil.
MeOH Shot	2191206A_01.d	MeOH Shot	12/6/2019 15:12	Instrument idle/MeOH Shot	1
1201	2191206A_02.d	Cal	12/6/2019 15:23		1
1202	2191206A_03.d	Cal	12/6/2019 15:34		1
1203	2191206A_04.d	Cal	12/6/2019 15:46		1
1204	2191206A_05.d	Cal	12/6/2019 15:57		1
1205	2191206A_06.d	Cal	12/6/2019 16:08		1
1206	2191206A_07.d	Cal	12/6/2019 16:29		1
1207	2191206A_08.d	Cal	12/6/2019 16:40		1
MeOH Shot	2191206A_09.d	MeOH Shot	12/6/2019 16:51	Instrument idle/MeOH Shot	1
1600	2191206A_10.d	QC	12/6/2019 17:02		1
MeOH Shot	2191206A_11.d	MeOH Shot	12/6/2019 18:00	Instrument idle/MeOH Shot	1
1201	2191206A_12.d	Cal	12/6/2019 18:11		1
1202	2191206A_13.d	Cal	12/6/2019 18:22	RR Accurracy fail	1
1203	2191206A_14.d	Cal	12/6/2019 18:34		1
1204	2191206A_15.d	Cal	12/6/2019 18:45		1
1205	2191206A_16.d	Cal	12/6/2019 18:56		1
1206	2191206A_17.d	Cal	12/6/2019 19:07		1
1207	2191206A_18.d	Cal	12/6/2019 19:19		1
MeOH Shot	2191206A_19.d	MeOH Shot	12/6/2019 20:13	Instrument idle/MeOH Shot	1
1202	2191206A_20.d	Cal	12/6/2019 20:24		1
1600	2191206A_21.d	QC	12/6/2019 20:35		1
1450	2191206A_22.d	QC	12/6/2019 20:47		1

1500	2191206A_23.d	Sample	12/6/2019 20:58	Remade due to contaminaiton	1
MeOH Shot	2191206A_24.d	MeOH Shot	12/6/2019 21:28	Instrument idle/MeOH Shot	1
1500	2191206A_25.d	Sample	12/6/2019 21:39		1
MeOH Shot	2191206A_26.d	MeOH Shot	12/6/2019 21:55	Instrument idle/MeOH Shot	1
1989761	2191206A_27.d	Sample	12/6/2019 22:06	672887	1
1989762	2191206A_28.d	QC	12/6/2019 22:17	672887	1
1989763	2191206A_29.d	QC	12/6/2019 22:29	672887	1
21912065601	2191206A_30.d	Sample	12/6/2019 22:40	672887	1
21912065602	2191206A_31.d	QC	12/6/2019 22:51	672887	1
21912065603	2191206A_32.d	QC	12/6/2019 23:02	672887	1
21912065604	2191206A_33.d	Sample	12/6/2019 23:14	672887	1
21912065605	2191206A_34.d	Sample	12/6/2019 23:25	672887	1
21912065606	2191206A_35.d	Sample	12/6/2019 23:36	672887	1
21912065607	2191206A_36.d	Sample	12/6/2019 23:48	672887	1
21912065608	2191206A_37.d	Sample	12/6/2019 23:59	672887	1
21912065609	2191206A_38.d	Sample	12/7/2019 0:11	672887	1
1400	2191206A_39.d	QC	12/7/2019 0:22		1
21910271707	2191206A_40.d	Sample	12/7/2019 0:33	670210	50
21910254111	2191206A_41.d	Sample	12/7/2019 0:45	670127 10000x DIA	1
21911142608	2191206A_42.d	Sample	12/7/2019 0:56	671427	10
1400	2191206A_43.d	QC	12/7/2019 1:07		1
1987194	2191206A_44.d	Sample	12/7/2019 1:19	672328	1
1987195	2191206A_45.d	QC	12/7/2019 1:30	672328	1
1987196	2191206A_46.d	QC	12/7/2019 1:41	672328	1
21911213301	2191206A_47.d	Sample	12/7/2019 1:53	672328	1
21911212917	2191206A_48.d	Sample	12/7/2019 2:04	672328	1
21911212902	2191206A_49.d	Sample	12/7/2019 2:15	672328	1
21911212903	2191206A_50.d	QC	12/7/2019 2:27	672328	1
21911212904	2191206A_51.d	QC	12/7/2019 2:38	672328	1
21911212906	2191206A_52.d	Sample	12/7/2019 2:49	672328	1
21911212923	2191206A_53.d	Sample	12/7/2019 3:01	672328	1
21911212925	2191206A_54.d	Sample	12/7/2019 3:12	672328	1
21911213302	2191206A_55.d	Sample	12/7/2019 3:23	672328	1
1400	2191206A_56.d	QC	12/7/2019 3:35		1

1988883	2191206A_57.d	Sample	12/7/2019 3:46	672719	1
1988884	2191206A_58.d	QC	12/7/2019 3:57	672719	1
1988885	2191206A_59.d	QC	12/7/2019 4:09	672719	1
21912031401	2191206A_60.d	Sample	12/7/2019 4:20	672719	1
21911220202	2191206A_61.d	Sample	12/7/2019 4:32	672719	1
21911220306	2191206A_62.d	Sample	12/7/2019 4:43	672719	1
21911220307	2191206A_63.d	Sample	12/7/2019 4:54	672719	1
21911220311	2191206A_64.d	Sample	12/7/2019 5:06	672719	1
MeOH Shot	2191206A_65.d	MeOH Shot	12/7/2019 5:33	Instrument idle/MeOH Shot	1
1400	2191206A_66.d	QC	12/7/2019 5:43		1
21912067101	2191206A_67.d	Sample	12/7/2019 5:55	672887	1
21912067102	2191206A_68.d	Sample	12/7/2019 6:06	672887	1
21912067103	2191206A_69.d	Sample	12/7/2019 6:18	672887	1
21912067104	2191206A_70.d	Sample	12/7/2019 6:29	672887	1
21912067105	2191206A_71.d	Sample	12/7/2019 6:40	672887	1
21912067106	2191206A_72.d	Sample	12/7/2019 6:51	672887	1
21912067107	2191206A_73.d	Sample	12/7/2019 7:03	672887	1
21912067108	2191206A_74.d	Sample	12/7/2019 7:14	672887	1
21912067109	2191206A_75.d	Sample	12/7/2019 7:25	672887	1
1400	2191206A_76.d	QC	12/7/2019 7:37		1
1989522	2191206A_77.d	Sample	12/7/2019 7:48	672852	1
1989523	2191206A_78.d	QC	12/7/2019 8:00	672852	1
1989524	2191206A_79.d	QC	12/7/2019 8:11	672852	1
21912067110 10x	2191206A_80.d	Sample	12/7/2019 8:22	672852	1
21912067110	2191206A_81.d	Sample	12/7/2019 8:33	672852	1
1400	2191206A_82.d	QC	12/7/2019 8:45		1
MeOH Shot	2191206A_83.d	MeOH Shot	12/7/2019 8:59	Instrument idle/MeOH Shot	1
21911220201	2191206A_84.d	Sample	12/7/2019 9:10	671891	1
21912031402	2191206A_85.d	Sample	12/7/2019 9:22	671891	1
1400	2191206A_86.d	QC	12/7/2019 9:33		1

Quantitative Analysis Calibration Report

Batch Data Path	D:\MassHunter\Data\2191206ACAL\QuantResults\2191206A.batch.bin		
Analysis Time	12/16/2019 7:31 AM	**Analyst Name**	GCAL\lcms
Report Time	12/16/2019 7:34 AM	**Reporter Name**	GCAL\lcms
Last Calib Update	12/6/2019 8:40 PM	**Batch State**	Processed

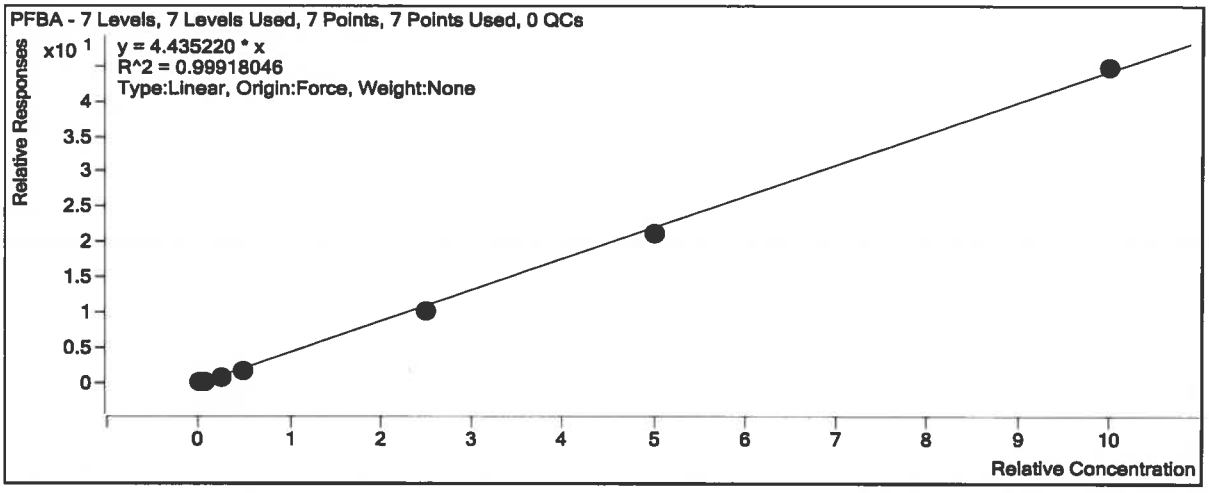
Calibration Info

Extracted ISTD *MPFBA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191206ACAL\2191206A_12.d	Calibration	1	☑	23045	20.0000	1152.2324
D:\MassHunter\Data\2191206ACAL\2191206A_20.d	Calibration	2	☑	24563	20.0000	1228.1449
D:\MassHunter\Data\2191206ACAL\2191206A_14.d	Calibration	3	☑	23585	20.0000	1179.2342
D:\MassHunter\Data\2191206ACAL\2191206A_15.d	Calibration	4	☑	23540	20.0000	1177.0067
D:\MassHunter\Data\2191206ACAL\2191206A_16.d	Calibration	5	☑	23997	20.0000	1199.8283
D:\MassHunter\Data\2191206ACAL\2191206A_17.d	Calibration	6	☑	23848	20.0000	1192.3762
D:\MassHunter\Data\2191206ACAL\2191206A_18.d	Calibration	7	☑	23020	20.0000	1151.0159

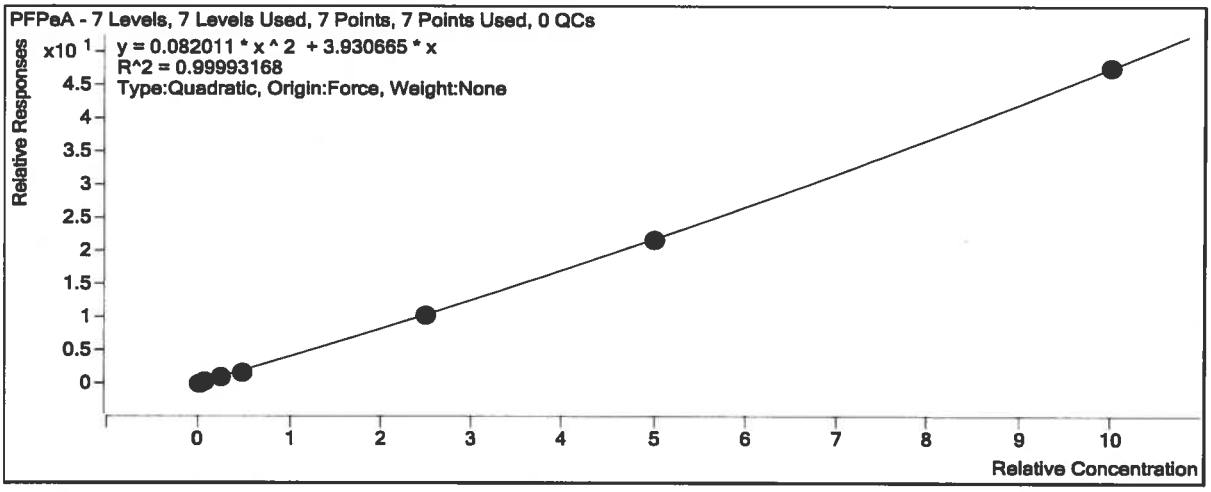
Target Compound *PFBA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191206ACAL\2191206A_12.d	Calibration	1	☑	2426	0.5000	4.2116
D:\MassHunter\Data\2191206ACAL\2191206A_20.d	Calibration	2	☑	6030	1.2500	3.9282
D:\MassHunter\Data\2191206ACAL\2191206A_14.d	Calibration	3	☑	22217	5.0000	3.7680
D:\MassHunter\Data\2191206ACAL\2191206A_15.d	Calibration	4	☑	41729	10.0000	3.5454
D:\MassHunter\Data\2191206ACAL\2191206A_16.d	Calibration	5	☑	250922	50.0000	4.1826
D:\MassHunter\Data\2191206ACAL\2191206A_17.d	Calibration	6	☑	512480	100.0000	4.2980
D:\MassHunter\Data\2191206ACAL\2191206A_18.d	Calibration	7	☑	1033148	200.0000	4.4880



Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191206ACAL\2191206A_15.d	Calibration	4	☑	28617	10.0000	3.3575
D:\MassHunter\Data\2191206ACAL\2191206A_16.d	Calibration	5	☑	178857	50.0000	4.1641
D:\MassHunter\Data\2191206ACAL\2191206A_17.d	Calibration	6	☑	366497	100.0000	4.3451
D:\MassHunter\Data\2191206ACAL\2191206A_18.d	Calibration	7	☑	764813	200.0000	4.7499



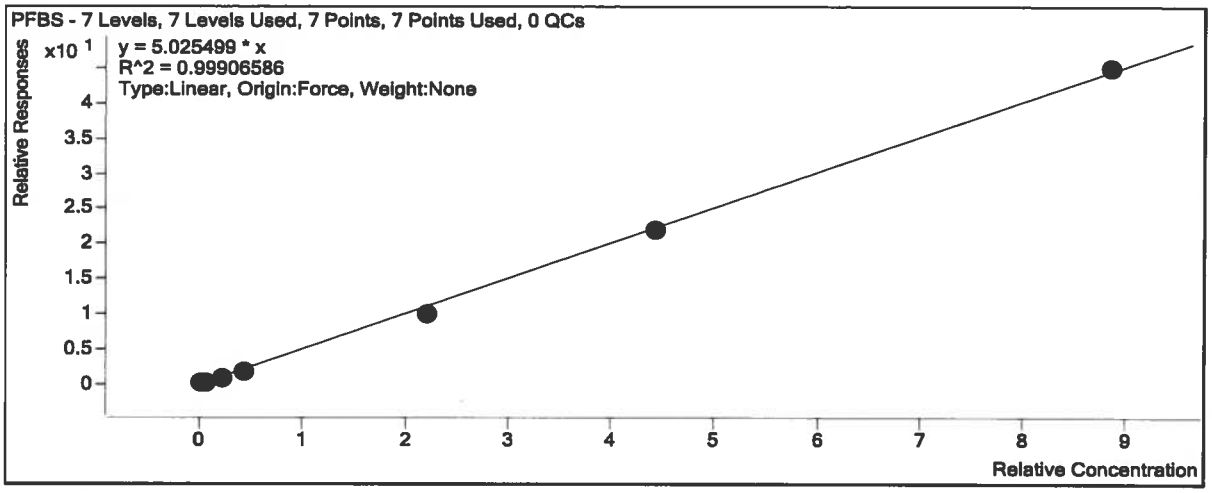
Extracted ISTD ***M5PFPeA***

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191206ACAL\2191206A_12.d	Calibration	1	☑	16436	20.0000	821.8179
D:\MassHunter\Data\2191206ACAL\2191206A_20.d	Calibration	2	☑	17334	20.0000	866.6757
D:\MassHunter\Data\2191206ACAL\2191206A_14.d	Calibration	3	☑	17189	20.0000	859.4467
D:\MassHunter\Data\2191206ACAL\2191206A_15.d	Calibration	4	☑	17047	20.0000	852.3301
D:\MassHunter\Data\2191206ACAL\2191206A_16.d	Calibration	5	☑	17181	20.0000	859.0487
D:\MassHunter\Data\2191206ACAL\2191206A_17.d	Calibration	6	☑	16870	20.0000	843.4776
D:\MassHunter\Data\2191206ACAL\2191206A_18.d	Calibration	7	☑	16102	20.0000	805.0875

Target Compound ***PFBS***

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191206ACAL\2191206A_12.d	Calibration	1	☑	1722	0.4425	4.2117
D:\MassHunter\Data\2191206ACAL\2191206A_20.d	Calibration	2	☑	4485	1.1100	4.2691
D:\MassHunter\Data\2191206ACAL\2191206A_14.d	Calibration	3	☑	18015	4.4250	4.3004
D:\MassHunter\Data\2191206ACAL\2191206A_15.d	Calibration	4	☑	34131	8.8500	4.0878

D:\MassHunter\Data\2191206ACAL\2191206A_16.d	Calibration	5	☑	191896	44.2500	4.5493
D:\MassHunter\Data\2191206ACAL\2191206A_17.d	Calibration	6	☑	406829	88.5000	4.9608
D:\MassHunter\Data\2191206ACAL\2191206A_18.d	Calibration	7	☑	814272	177.0000	5.0743



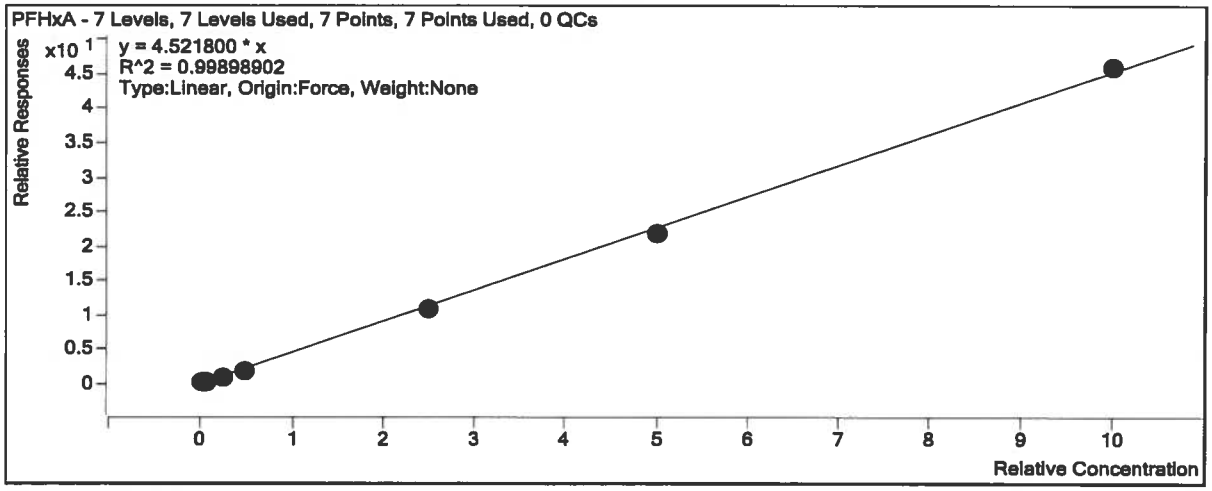
Extracted ISTD *M3PFBS*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191206ACAL\2191206A_12.d	Calibration	1	☑	18480	20.0000	924.0023
D:\MassHunter\Data\2191206ACAL\2191206A_20.d	Calibration	2	☑	18931	20.0000	946.5559
D:\MassHunter\Data\2191206ACAL\2191206A_14.d	Calibration	3	☑	18934	20.0000	946.7017
D:\MassHunter\Data\2191206ACAL\2191206A_15.d	Calibration	4	☑	18869	20.0000	943.4339
D:\MassHunter\Data\2191206ACAL\2191206A_16.d	Calibration	5	☑	19065	20.0000	953.2528
D:\MassHunter\Data\2191206ACAL\2191206A_17.d	Calibration	6	☑	18533	20.0000	926.6476
D:\MassHunter\Data\2191206ACAL\2191206A_18.d	Calibration	7	☑	18132	20.0000	906.6162

Extracted ISTD *M2 4:2 FTS*

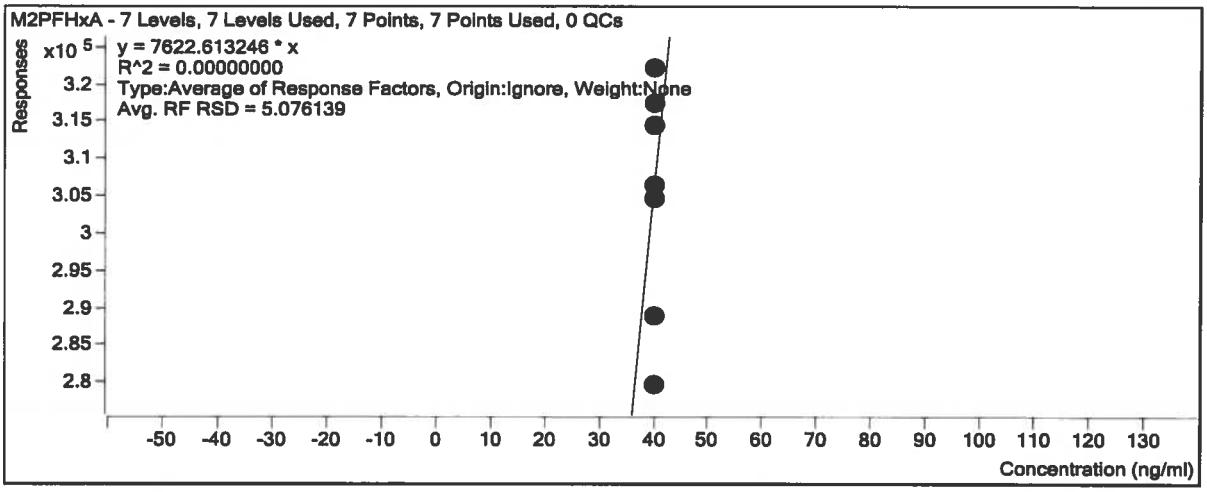
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191206ACAL\2191206A_12.d	Calibration	1	☑	9050	20.0000	452.5017
D:\MassHunter\Data\2191206ACAL\2191206A_20.d	Calibration	2	☑	7973	20.0000	398.6391
D:\MassHunter\Data\2191206ACAL\2191206A_14.d	Calibration	3	☑	8674	20.0000	433.7047
D:\MassHunter\Data\2191206ACAL\2191206A_15.d	Calibration	4	☑	8526	20.0000	426.2938
D:\MassHunter\Data\2191206ACAL\2191206A_16.d	Calibration	5	☑	7611	20.0000	380.5573
D:\MassHunter\Data\2191206ACAL\2191206A_17.d	Calibration	6	☑	6985	20.0000	349.2428
D:\MassHunter\Data\2191206ACAL\2191206A_18.d	Calibration	7	☑	5977	20.0000	298.8535

Quantitative Analysis Calibration Report



Instrument ISTD *M2PFHxA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191206ACAL\2191206A_12.d	Calibration	1	☑	304610	40.0000	7615.2466
D:\MassHunter\Data\2191206ACAL\2191206A_20.d	Calibration	2	☑	306622	40.0000	7665.5605
D:\MassHunter\Data\2191206ACAL\2191206A_14.d	Calibration	3	☑	322205	40.0000	8055.1193
D:\MassHunter\Data\2191206ACAL\2191206A_15.d	Calibration	4	☑	288943	40.0000	7223.5648
D:\MassHunter\Data\2191206ACAL\2191206A_16.d	Calibration	5	☑	317557	40.0000	7938.9257
D:\MassHunter\Data\2191206ACAL\2191206A_17.d	Calibration	6	☑	314537	40.0000	7863.4171
D:\MassHunter\Data\2191206ACAL\2191206A_18.d	Calibration	7	☑	279858	40.0000	6996.4587

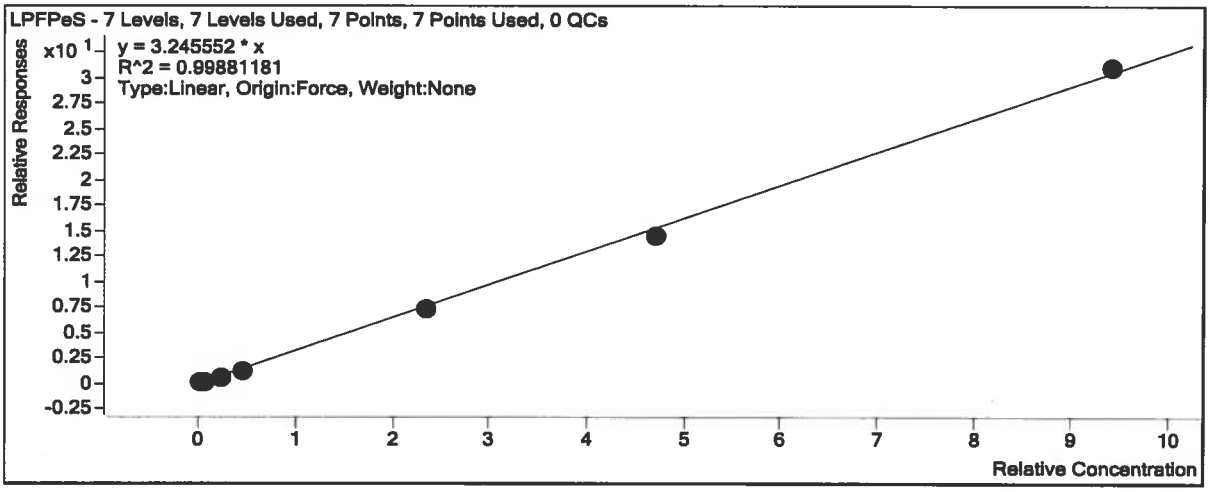


Target Compound *LPFPeS*

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

Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191206ACAL\2191206A_18.d	Calibration	7	☑	917632	188.0000	3.2945



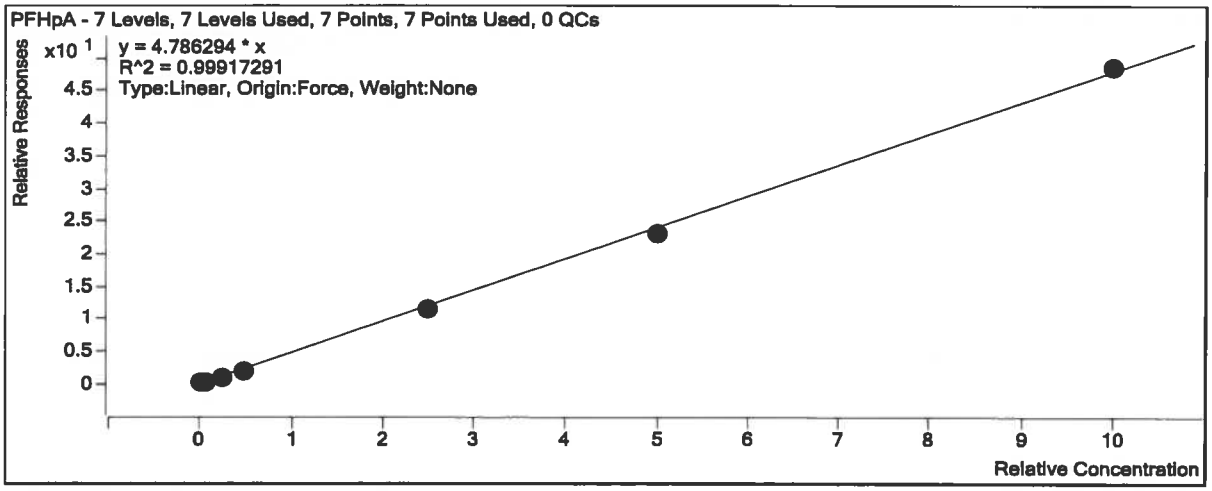
Extracted ISTD *M3HFPODA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191206ACAL\2191206A_12.d	Calibration	1	☑	1840	20.0000	91.9877
D:\MassHunter\Data\2191206ACAL\2191206A_20.d	Calibration	2	☑	1795	20.0000	89.7572
D:\MassHunter\Data\2191206ACAL\2191206A_14.d	Calibration	3	☑	2450	20.0000	122.4804
D:\MassHunter\Data\2191206ACAL\2191206A_15.d	Calibration	4	☑	3026	20.0000	151.3043
D:\MassHunter\Data\2191206ACAL\2191206A_16.d	Calibration	5	☑	10186	20.0000	509.2793
D:\MassHunter\Data\2191206ACAL\2191206A_17.d	Calibration	6	☑	18796	20.0000	939.7850
D:\MassHunter\Data\2191206ACAL\2191206A_18.d	Calibration	7	☑	39712	20.0000	1985.6219

Target Compound *HFPO-DA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191206ACAL\2191206A_12.d	Calibration	1	☑	37	0.5000	0.8101
D:\MassHunter\Data\2191206ACAL\2191206A_20.d	Calibration	2	☑	3	1.2500	0.0240
D:\MassHunter\Data\2191206ACAL\2191206A_14.d	Calibration	3	☑	17	5.0000	0.0283
D:\MassHunter\Data\2191206ACAL\2191206A_15.d	Calibration	4	☑	73	10.0000	0.0484
D:\MassHunter\Data\2191206ACAL\2191206A_16.d	Calibration	5	☑	87	50.0000	0.0034
D:\MassHunter\Data\2191206ACAL\2191206A_17.d	Calibration	6	☑	76	100.0000	0.0008
D:\MassHunter\Data\2191206ACAL\2191206A_18.d	Calibration	7	☑	95	200.0000	0.0002

Quantitative Analysis Calibration Report



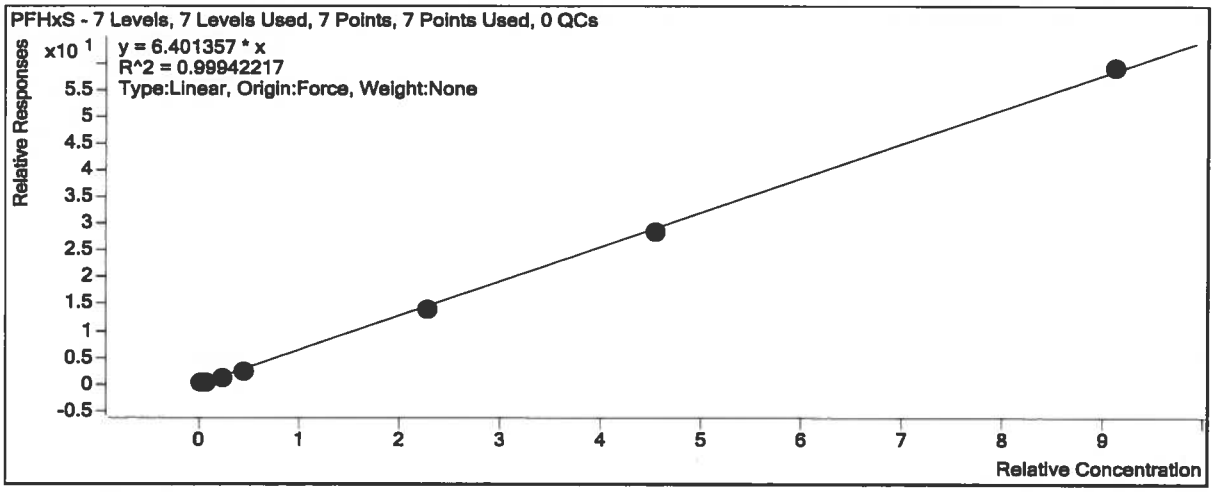
Extracted ISTD *M3PFHxS*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191206ACAL\2191206A_12.d	Calibration	1	☑	16894	20.0000	844.6961
D:\MassHunter\Data\2191206ACAL\2191206A_20.d	Calibration	2	☑	17390	20.0000	869.5082
D:\MassHunter\Data\2191206ACAL\2191206A_14.d	Calibration	3	☑	17966	20.0000	898.3033
D:\MassHunter\Data\2191206ACAL\2191206A_15.d	Calibration	4	☑	17857	20.0000	892.8648
D:\MassHunter\Data\2191206ACAL\2191206A_16.d	Calibration	5	☑	17989	20.0000	899.4586
D:\MassHunter\Data\2191206ACAL\2191206A_17.d	Calibration	6	☑	17857	20.0000	892.8691
D:\MassHunter\Data\2191206ACAL\2191206A_18.d	Calibration	7	☑	17364	20.0000	868.2193

Target Compound *PFHxS*

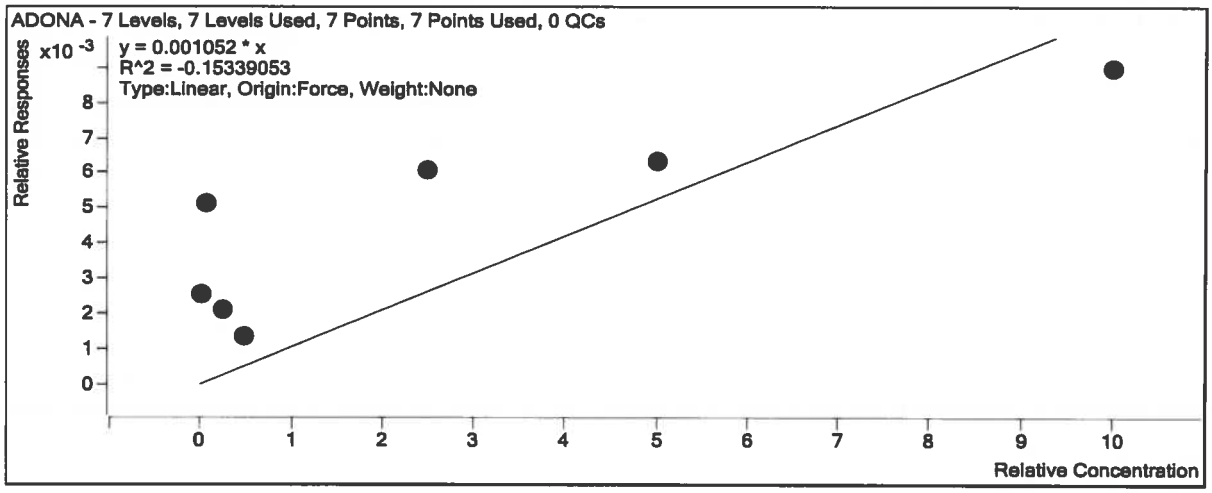
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191206ACAL\2191206A_12.d	Calibration	1	☑	2257	0.4560	5.8606
D:\MassHunter\Data\2191206ACAL\2191206A_20.d	Calibration	2	☑	5704	1.1400	5.7545
D:\MassHunter\Data\2191206ACAL\2191206A_14.d	Calibration	3	☑	22407	4.5600	5.4702
D:\MassHunter\Data\2191206ACAL\2191206A_15.d	Calibration	4	☑	43009	9.1200	5.2817
D:\MassHunter\Data\2191206ACAL\2191206A_16.d	Calibration	5	☑	249235	45.6000	6.0766
D:\MassHunter\Data\2191206ACAL\2191206A_17.d	Calibration	6	☑	508679	91.2000	6.2468
D:\MassHunter\Data\2191206ACAL\2191206A_18.d	Calibration	7	☑	1023610	182.4000	6.4637

Quantitative Analysis Calibration Report



Target Compound *ADONA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191206ACAL\2191206A_12.d	Calibration	1	☑	59	0.5000	0.1036
D:\MassHunter\Data\2191206ACAL\2191206A_20.d	Calibration	2	☑	120	1.2500	0.0822
D:\MassHunter\Data\2191206ACAL\2191206A_14.d	Calibration	3	☑	49	5.0000	0.0086
D:\MassHunter\Data\2191206ACAL\2191206A_15.d	Calibration	4	☑	31	10.0000	0.0027
D:\MassHunter\Data\2191206ACAL\2191206A_16.d	Calibration	5	☑	136	50.0000	0.0024
D:\MassHunter\Data\2191206ACAL\2191206A_17.d	Calibration	6	☑	142	100.0000	0.0013
D:\MassHunter\Data\2191206ACAL\2191206A_18.d	Calibration	7	☑	170	200.0000	0.0009

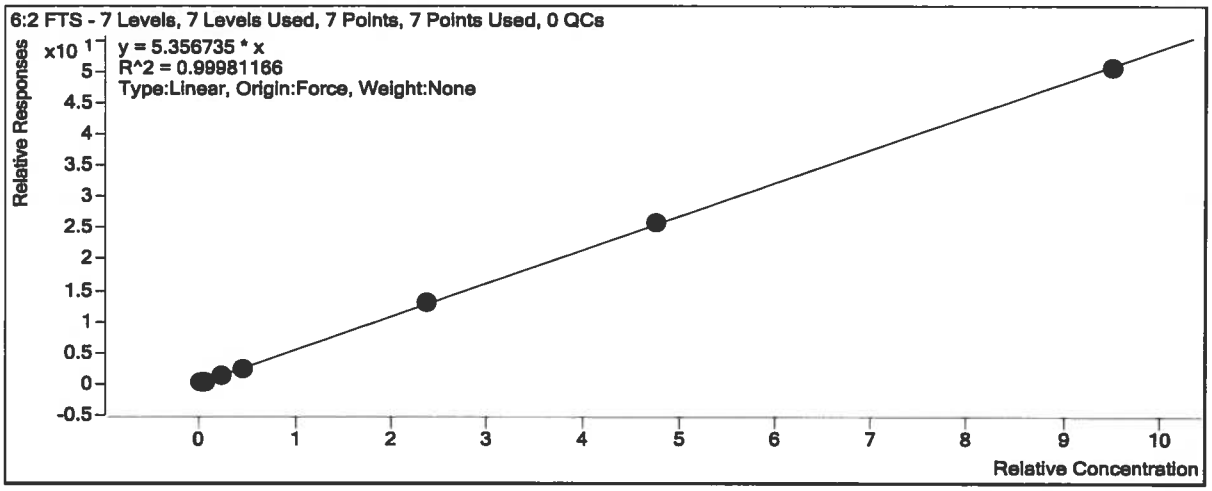


Target Compound *6:2 FTS*

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

Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191206ACAL\2191206A_18.d	Calibration	7	☑	813804	190.0000	5.3273



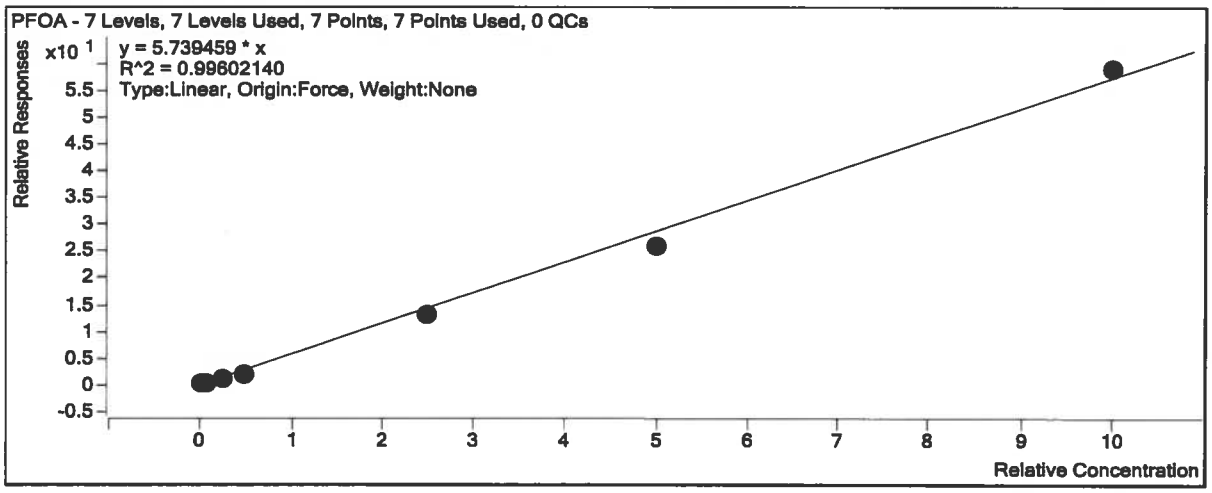
Extracted ISTD *M2 6:2 FTS*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191206ACAL\2191206A_12.d	Calibration	1	☑	20278	20.0000	1013.8806
D:\MassHunter\Data\2191206ACAL\2191206A_20.d	Calibration	2	☑	19574	20.0000	978.6897
D:\MassHunter\Data\2191206ACAL\2191206A_14.d	Calibration	3	☑	20154	20.0000	1007.6905
D:\MassHunter\Data\2191206ACAL\2191206A_15.d	Calibration	4	☑	19983	20.0000	999.1389
D:\MassHunter\Data\2191206ACAL\2191206A_16.d	Calibration	5	☑	19240	20.0000	962.0047
D:\MassHunter\Data\2191206ACAL\2191206A_17.d	Calibration	6	☑	17977	20.0000	898.8739
D:\MassHunter\Data\2191206ACAL\2191206A_18.d	Calibration	7	☑	16080	20.0000	804.0121

Extracted ISTD *M8PFOA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191206ACAL\2191206A_12.d	Calibration	1	☑	22869	20.0000	1143.4627
D:\MassHunter\Data\2191206ACAL\2191206A_20.d	Calibration	2	☑	23386	20.0000	1169.2758
D:\MassHunter\Data\2191206ACAL\2191206A_14.d	Calibration	3	☑	22660	20.0000	1132.9999
D:\MassHunter\Data\2191206ACAL\2191206A_15.d	Calibration	4	☑	23016	20.0000	1150.8102
D:\MassHunter\Data\2191206ACAL\2191206A_16.d	Calibration	5	☑	22323	20.0000	1116.1410
D:\MassHunter\Data\2191206ACAL\2191206A_17.d	Calibration	6	☑	22266	20.0000	1113.2901
D:\MassHunter\Data\2191206ACAL\2191206A_18.d	Calibration	7	☑	18998	20.0000	949.9180

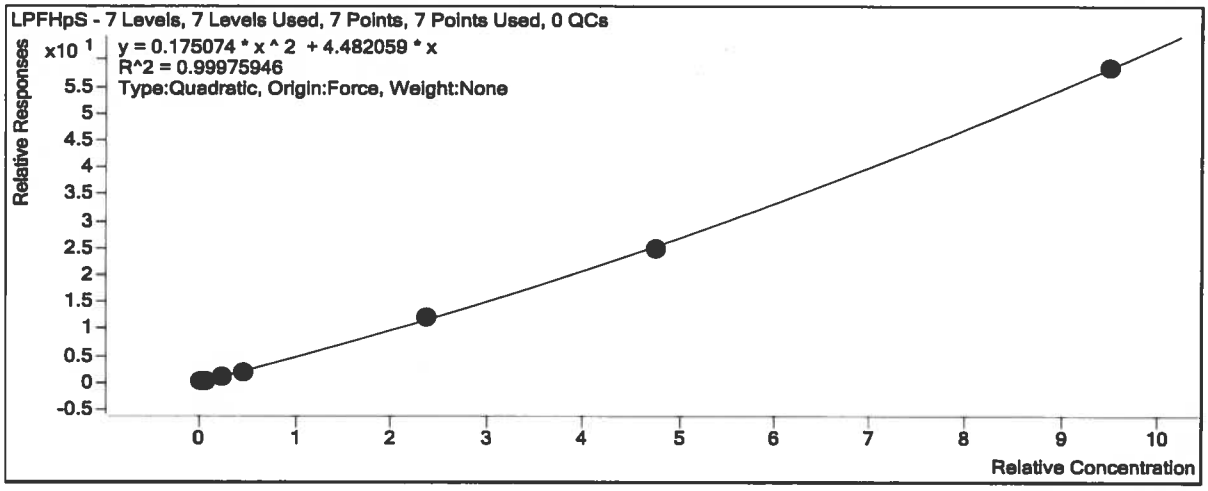
Quantitative Analysis Calibration Report



Quantitative Analysis Calibration Report

Target Compound *LPFHpS*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191206ACAL\2191206A_12.d	Calibration	1	☑	2359	0.4750	4.3437
D:\MassHunter\Data\2191206ACAL\2191206A_20.d	Calibration	2	☑	5679	1.1900	4.0814
D:\MassHunter\Data\2191206ACAL\2191206A_14.d	Calibration	3	☑	23266	4.7500	4.3232
D:\MassHunter\Data\2191206ACAL\2191206A_15.d	Calibration	4	☑	47113	9.5000	4.3094
D:\MassHunter\Data\2191206ACAL\2191206A_16.d	Calibration	5	☑	274337	47.5000	5.1745
D:\MassHunter\Data\2191206ACAL\2191206A_17.d	Calibration	6	☑	551645	95.0000	5.2159
D:\MassHunter\Data\2191206ACAL\2191206A_18.d	Calibration	7	☑	1110557	190.0000	6.1532



Extracted ISTD *M9PFNA*

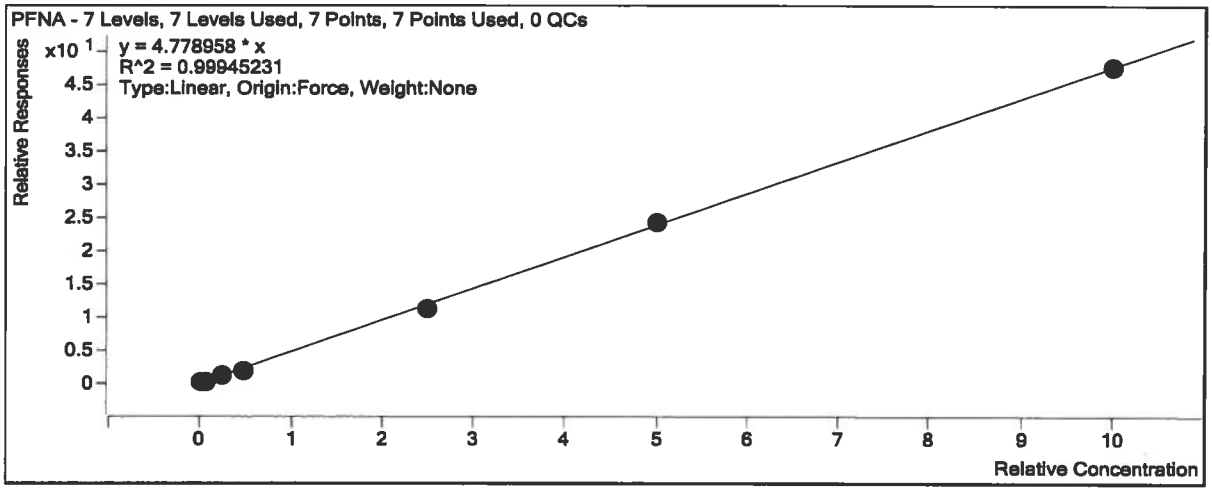
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191206ACAL\2191206A_12.d	Calibration	1	☑	24415	20.0000	1220.7309
D:\MassHunter\Data\2191206ACAL\2191206A_20.d	Calibration	2	☑	26483	20.0000	1324.1357
D:\MassHunter\Data\2191206ACAL\2191206A_14.d	Calibration	3	☑	26961	20.0000	1348.0427
D:\MassHunter\Data\2191206ACAL\2191206A_15.d	Calibration	4	☑	26887	20.0000	1344.3712
D:\MassHunter\Data\2191206ACAL\2191206A_16.d	Calibration	5	☑	27661	20.0000	1383.0274
D:\MassHunter\Data\2191206ACAL\2191206A_17.d	Calibration	6	☑	25279	20.0000	1263.9383
D:\MassHunter\Data\2191206ACAL\2191206A_18.d	Calibration	7	☑	25052	20.0000	1252.5805

Target Compound *PFNA*

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

Quantitative Analysis Calibration Report

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



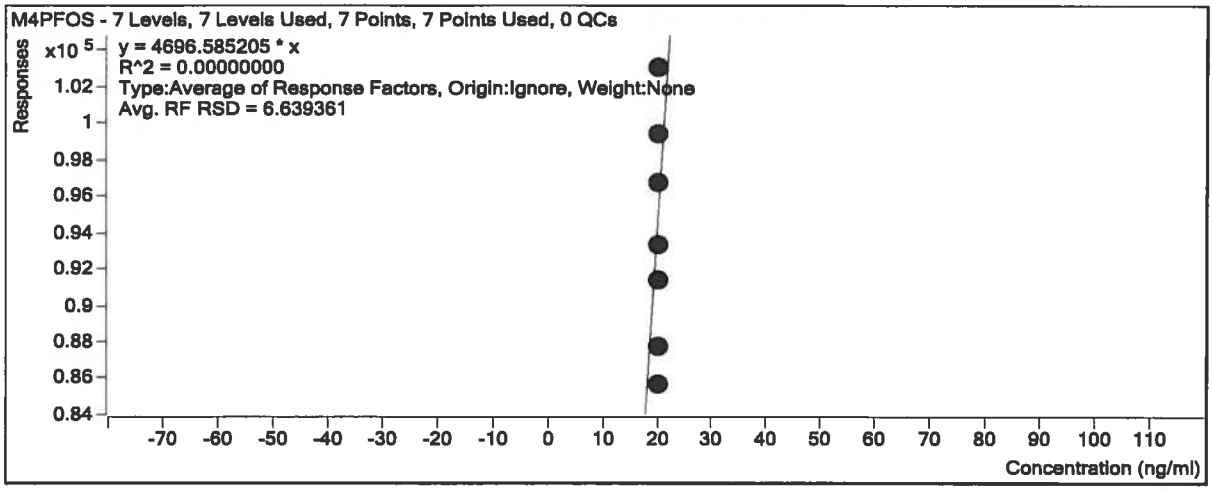
Extracted ISTD *M8PFOS*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191206ACAL\2191206A_12.d	Calibration	1	☑	8538	20.0000	426.8785
D:\MassHunter\Data\2191206ACAL\2191206A_20.d	Calibration	2	☑	9223	20.0000	461.1309
D:\MassHunter\Data\2191206ACAL\2191206A_14.d	Calibration	3	☑	9313	20.0000	465.6604
D:\MassHunter\Data\2191206ACAL\2191206A_15.d	Calibration	4	☑	9301	20.0000	465.0266
D:\MassHunter\Data\2191206ACAL\2191206A_16.d	Calibration	5	☑	9463	20.0000	473.1262
D:\MassHunter\Data\2191206ACAL\2191206A_17.d	Calibration	6	☑	9335	20.0000	466.7352
D:\MassHunter\Data\2191206ACAL\2191206A_18.d	Calibration	7	☑	8646	20.0000	432.3075

Instrument ISTD *M4PFOS*

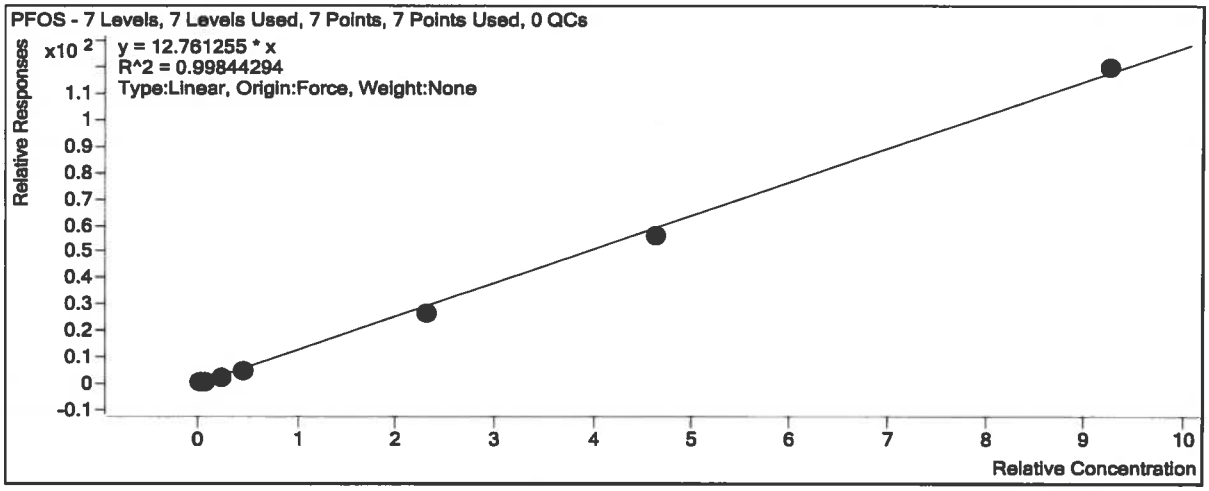
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191206ACAL\2191206A_12.d	Calibration	1	☑	87799	20.0000	4389.9274
D:\MassHunter\Data\2191206ACAL\2191206A_20.d	Calibration	2	☑	91398	20.0000	4569.9061
D:\MassHunter\Data\2191206ACAL\2191206A_14.d	Calibration	3	☑	93332	20.0000	4666.6131
D:\MassHunter\Data\2191206ACAL\2191206A_15.d	Calibration	4	☑	85721	20.0000	4286.0687
D:\MassHunter\Data\2191206ACAL\2191206A_16.d	Calibration	5	☑	99438	20.0000	4971.9236
D:\MassHunter\Data\2191206ACAL\2191206A_17.d	Calibration	6	☑	103047	20.0000	5152.3360
D:\MassHunter\Data\2191206ACAL\2191206A_18.d	Calibration	7	☑	96786	20.0000	4839.3215

Quantitative Analysis Calibration Report



Target Compound *PFOS*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191206ACAL\2191206A_12.d	Calibration	1	☑	2243	0.4628	11.3530
D:\MassHunter\Data\2191206ACAL\2191206A_20.d	Calibration	2	☑	5769	1.1600	10.7842
D:\MassHunter\Data\2191206ACAL\2191206A_14.d	Calibration	3	☑	22330	4.6280	10.3618
D:\MassHunter\Data\2191206ACAL\2191206A_15.d	Calibration	4	☑	42576	9.2550	9.8927
D:\MassHunter\Data\2191206ACAL\2191206A_16.d	Calibration	5	☑	255825	46.2800	11.6835
D:\MassHunter\Data\2191206ACAL\2191206A_17.d	Calibration	6	☑	527529	92.5500	12.2124
D:\MassHunter\Data\2191206ACAL\2191206A_18.d	Calibration	7	☑	1038230	185.1000	12.9746

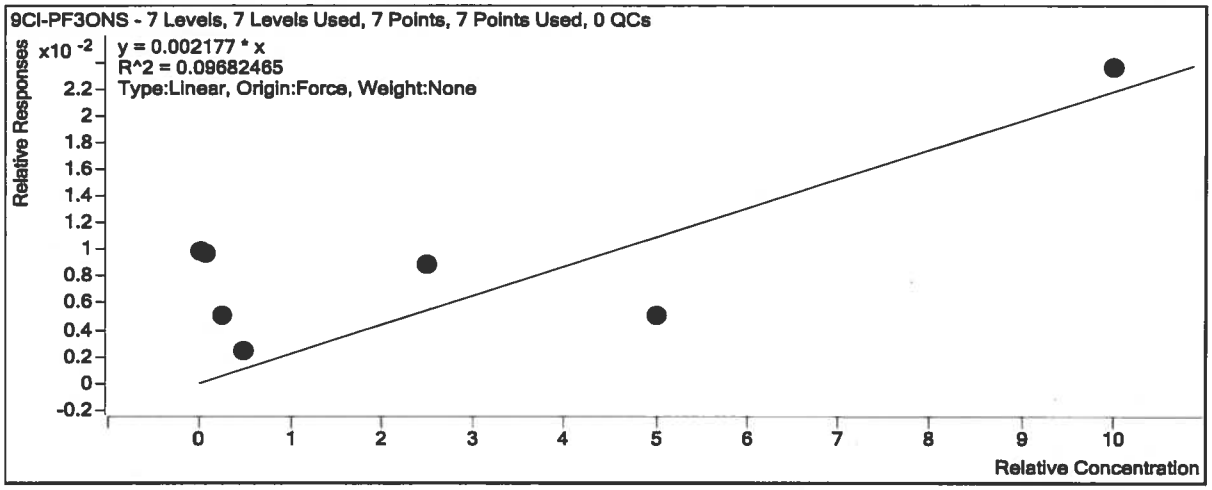


Target Compound *9Cl-PF3ONS*

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

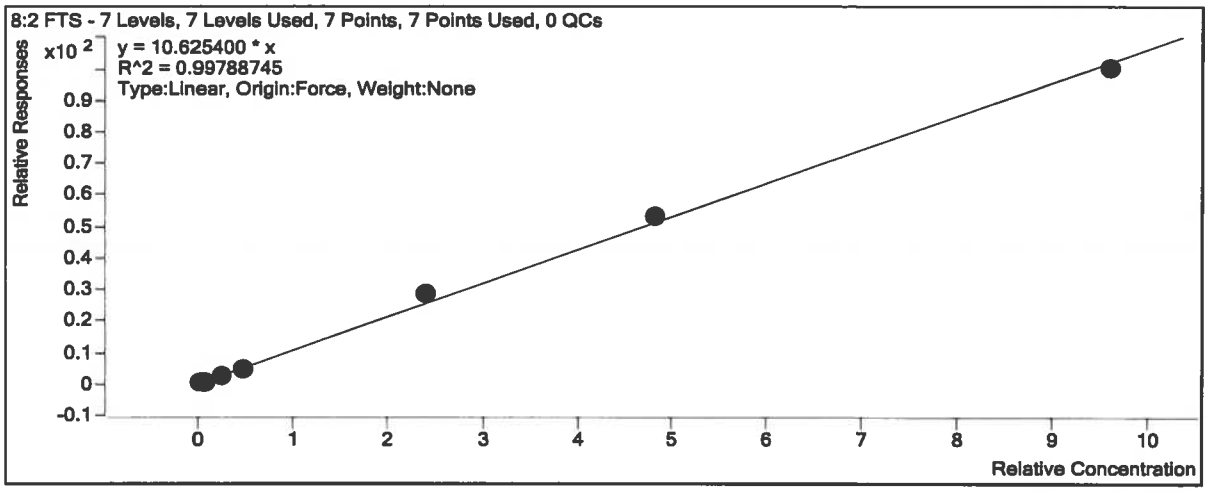
Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191206ACAL\2191206A_18.d	Calibration	7	☑	204	200.0000	0.0024

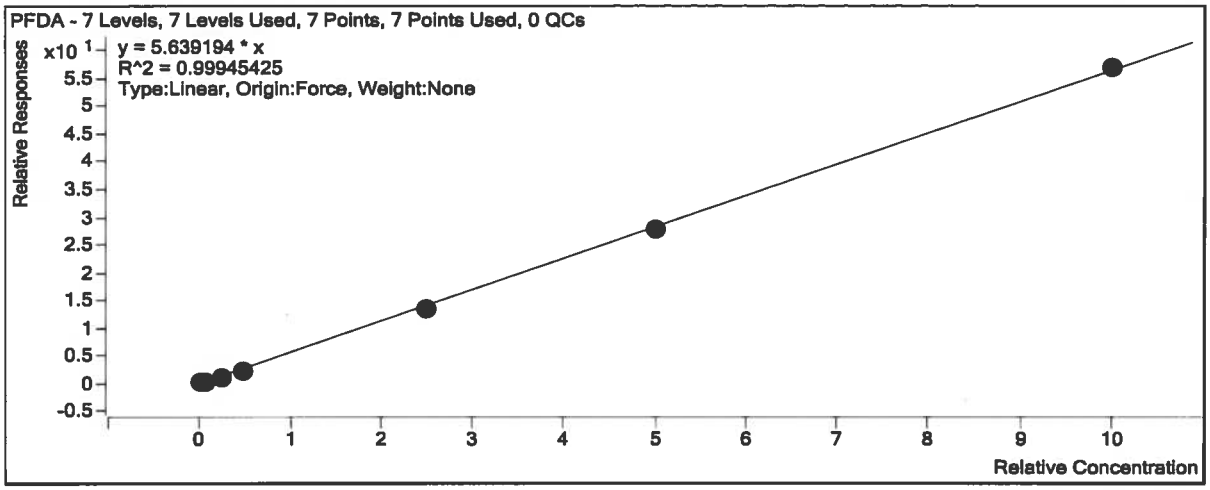


Target Compound *8:2 FTS*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191206ACAL\2191206A_12.d	Calibration	1	☑	3862	0.4800	12.1625
D:\MassHunter\Data\2191206ACAL\2191206A_20.d	Calibration	2	☑	8170	1.2000	10.2806
D:\MassHunter\Data\2191206ACAL\2191206A_14.d	Calibration	3	☑	34927	4.8000	10.2001
D:\MassHunter\Data\2191206ACAL\2191206A_15.d	Calibration	4	☑	66937	9.6000	9.5557
D:\MassHunter\Data\2191206ACAL\2191206A_16.d	Calibration	5	☑	362052	48.0000	11.9952
D:\MassHunter\Data\2191206ACAL\2191206A_17.d	Calibration	6	☑	646580	96.0000	11.0337
D:\MassHunter\Data\2191206ACAL\2191206A_18.d	Calibration	7	☑	1090377	192.0000	10.4406



D:\MassHunter\Data\2191206ACAL\2191206A_16.d	Calibration	5	☑	306191	50.0000	5.3860
D:\MassHunter\Data\2191206ACAL\2191206A_17.d	Calibration	6	☑	602378	100.0000	5.5368
D:\MassHunter\Data\2191206ACAL\2191206A_18.d	Calibration	7	☑	1134989	200.0000	5.6850



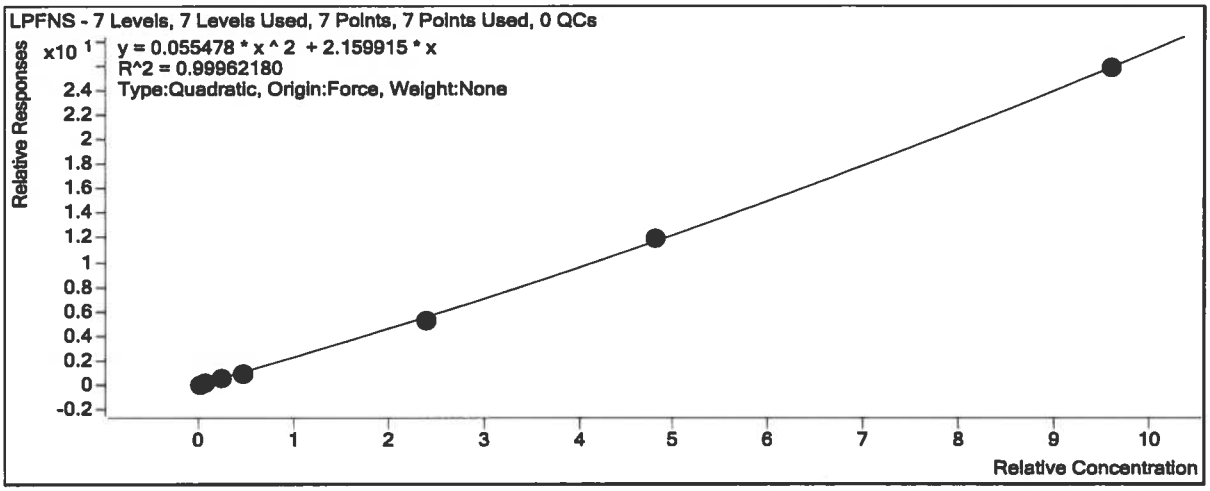
Extracted ISTD *M6PFDA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191206ACAL\2191206A_12.d	Calibration	1	☑	23099	20.0000	1154.9373
D:\MassHunter\Data\2191206ACAL\2191206A_20.d	Calibration	2	☑	23425	20.0000	1171.2459
D:\MassHunter\Data\2191206ACAL\2191206A_14.d	Calibration	3	☑	25985	20.0000	1299.2304
D:\MassHunter\Data\2191206ACAL\2191206A_15.d	Calibration	4	☑	25048	20.0000	1252.4227
D:\MassHunter\Data\2191206ACAL\2191206A_16.d	Calibration	5	☑	22740	20.0000	1136.9861
D:\MassHunter\Data\2191206ACAL\2191206A_17.d	Calibration	6	☑	21759	20.0000	1087.9604
D:\MassHunter\Data\2191206ACAL\2191206A_18.d	Calibration	7	☑	19965	20.0000	998.2347

Target Compound *LPFNS*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191206ACAL\2191206A_12.d	Calibration	1	☑	1103	0.4800	1.8832
D:\MassHunter\Data\2191206ACAL\2191206A_20.d	Calibration	2	☑	3026	1.2000	1.9044
D:\MassHunter\Data\2191206ACAL\2191206A_14.d	Calibration	3	☑	11582	4.8000	1.7900
D:\MassHunter\Data\2191206ACAL\2191206A_15.d	Calibration	4	☑	22856	9.6000	1.7709
D:\MassHunter\Data\2191206ACAL\2191206A_16.d	Calibration	5	☑	144074	48.0000	2.1703
D:\MassHunter\Data\2191206ACAL\2191206A_17.d	Calibration	6	☑	301175	96.0000	2.4821
D:\MassHunter\Data\2191206ACAL\2191206A_18.d	Calibration	7	☑	646329	192.0000	2.6875

Quantitative Analysis Calibration Report



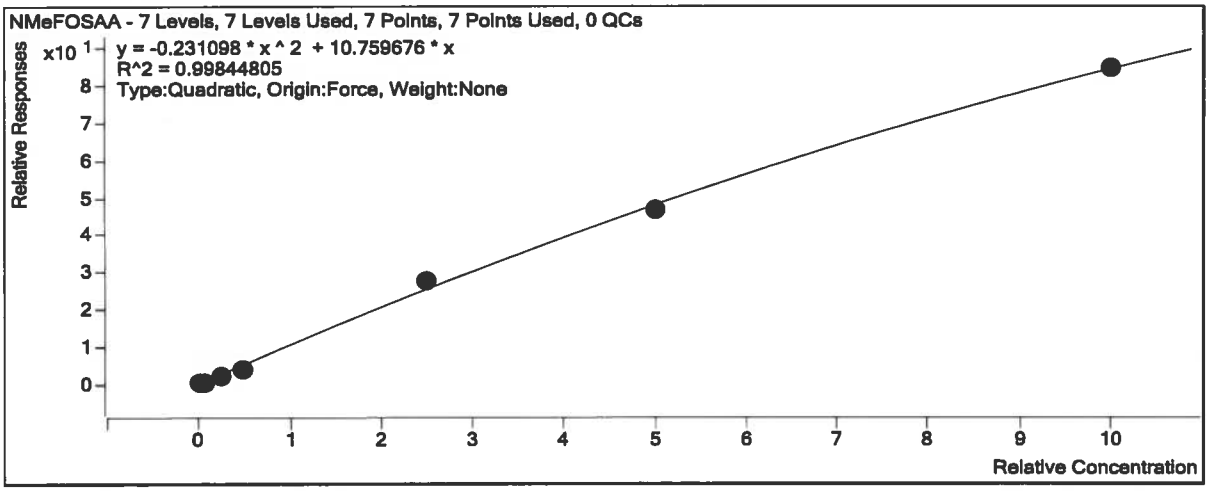
Extracted ISTD *d3-NMeFOSAA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191206ACAL\2191206A_12.d	Calibration	1	☑	3977	20.0000	198.8749
D:\MassHunter\Data\2191206ACAL\2191206A_20.d	Calibration	2	☑	4069	20.0000	203.4390
D:\MassHunter\Data\2191206ACAL\2191206A_14.d	Calibration	3	☑	4481	20.0000	224.0508
D:\MassHunter\Data\2191206ACAL\2191206A_15.d	Calibration	4	☑	4459	20.0000	222.9295
D:\MassHunter\Data\2191206ACAL\2191206A_16.d	Calibration	5	☑	4076	20.0000	203.7969
D:\MassHunter\Data\2191206ACAL\2191206A_17.d	Calibration	6	☑	4841	20.0000	242.0735
D:\MassHunter\Data\2191206ACAL\2191206A_18.d	Calibration	7	☑	5444	20.0000	272.1970

Target Compound *NMeFOSAA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191206ACAL\2191206A_12.d	Calibration	1	☑	851	0.5000	8.5570
D:\MassHunter\Data\2191206ACAL\2191206A_20.d	Calibration	2	☑	2688	1.2500	10.5708
D:\MassHunter\Data\2191206ACAL\2191206A_14.d	Calibration	3	☑	9430	5.0000	8.4177
D:\MassHunter\Data\2191206ACAL\2191206A_15.d	Calibration	4	☑	17678	10.0000	7.9297
D:\MassHunter\Data\2191206ACAL\2191206A_16.d	Calibration	5	☑	113203	50.0000	11.1094
D:\MassHunter\Data\2191206ACAL\2191206A_17.d	Calibration	6	☑	225595	100.0000	9.3193
D:\MassHunter\Data\2191206ACAL\2191206A_18.d	Calibration	7	☑	461112	200.0000	8.4702

Quantitative Analysis Calibration Report



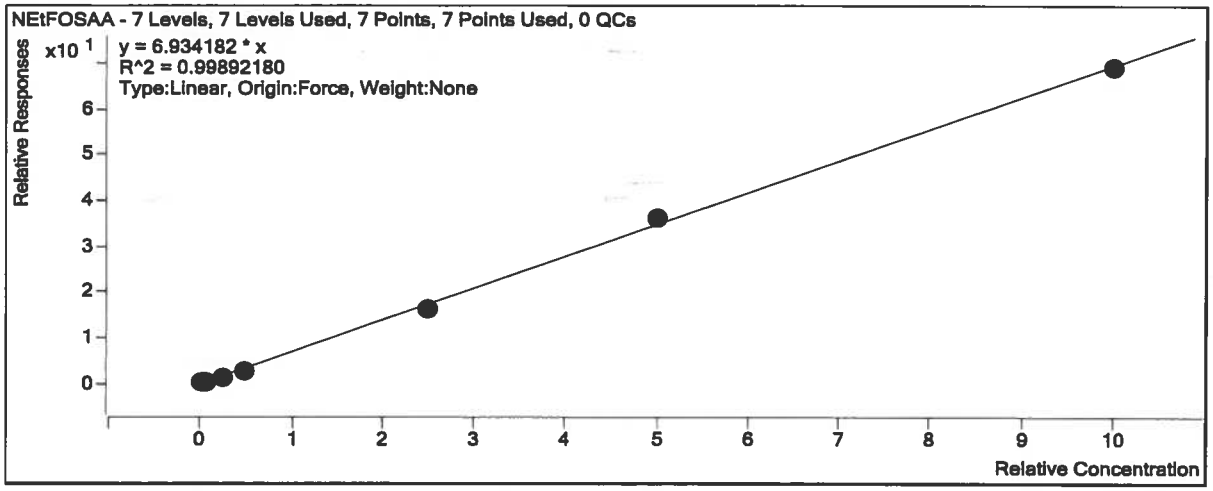
Extracted ISTD *M8FOSA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191206ACAL\2191206A_12.d	Calibration	1	☑	26824	20.0000	1341.2172
D:\MassHunter\Data\2191206ACAL\2191206A_20.d	Calibration	2	☑	28748	20.0000	1437.3911
D:\MassHunter\Data\2191206ACAL\2191206A_14.d	Calibration	3	☑	28565	20.0000	1428.2620
D:\MassHunter\Data\2191206ACAL\2191206A_15.d	Calibration	4	☑	28480	20.0000	1424.0024
D:\MassHunter\Data\2191206ACAL\2191206A_16.d	Calibration	5	☑	27659	20.0000	1382.9267
D:\MassHunter\Data\2191206ACAL\2191206A_17.d	Calibration	6	☑	29353	20.0000	1467.6284
D:\MassHunter\Data\2191206ACAL\2191206A_18.d	Calibration	7	☑	27349	20.0000	1367.4283

Target Compound *FOSA-I*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191206ACAL\2191206A_12.d	Calibration	1	☑	2882	0.5000	4.2978
D:\MassHunter\Data\2191206ACAL\2191206A_20.d	Calibration	2	☑	8975	1.2500	4.9953
D:\MassHunter\Data\2191206ACAL\2191206A_14.d	Calibration	3	☑	36228	5.0000	5.0730
D:\MassHunter\Data\2191206ACAL\2191206A_15.d	Calibration	4	☑	68654	10.0000	4.8212
D:\MassHunter\Data\2191206ACAL\2191206A_16.d	Calibration	5	☑	389834	50.0000	5.6378
D:\MassHunter\Data\2191206ACAL\2191206A_17.d	Calibration	6	☑	790053	100.0000	5.3832
D:\MassHunter\Data\2191206ACAL\2191206A_18.d	Calibration	7	☑	1594721	200.0000	5.8311

Quantitative Analysis Calibration Report



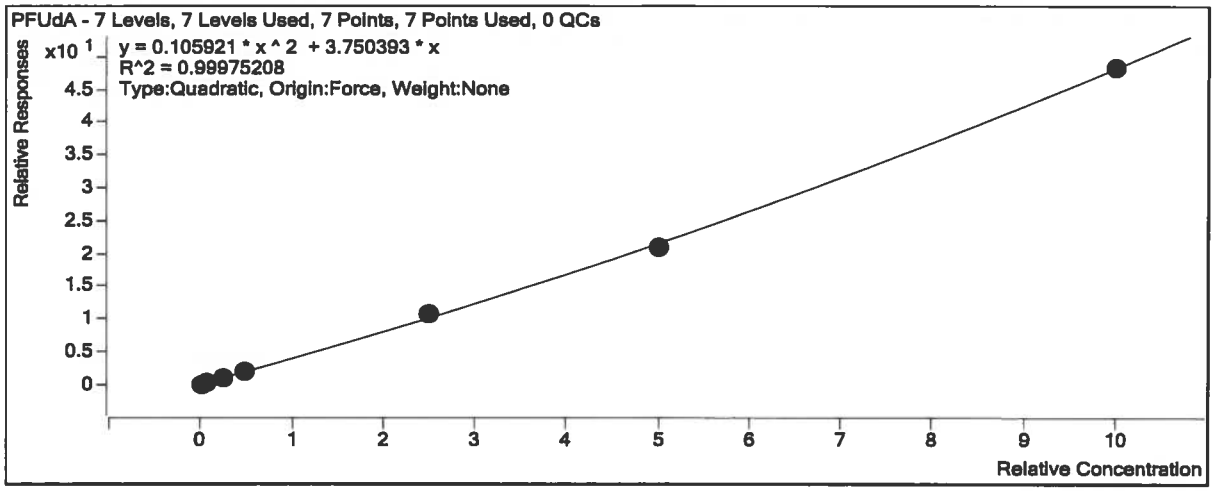
Extracted ISTD *M7PFUdA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191206ACAL\2191206A_12.d	Calibration	1	☑	26378	20.0000	1318.9229
D:\MassHunter\Data\2191206ACAL\2191206A_20.d	Calibration	2	☑	28886	20.0000	1444.2833
D:\MassHunter\Data\2191206ACAL\2191206A_14.d	Calibration	3	☑	28900	20.0000	1444.9841
D:\MassHunter\Data\2191206ACAL\2191206A_15.d	Calibration	4	☑	26600	20.0000	1329.9769
D:\MassHunter\Data\2191206ACAL\2191206A_16.d	Calibration	5	☑	25691	20.0000	1284.5566
D:\MassHunter\Data\2191206ACAL\2191206A_17.d	Calibration	6	☑	25038	20.0000	1251.9163
D:\MassHunter\Data\2191206ACAL\2191206A_18.d	Calibration	7	☑	17923	20.0000	896.1746

Target Compound *PFUdA*

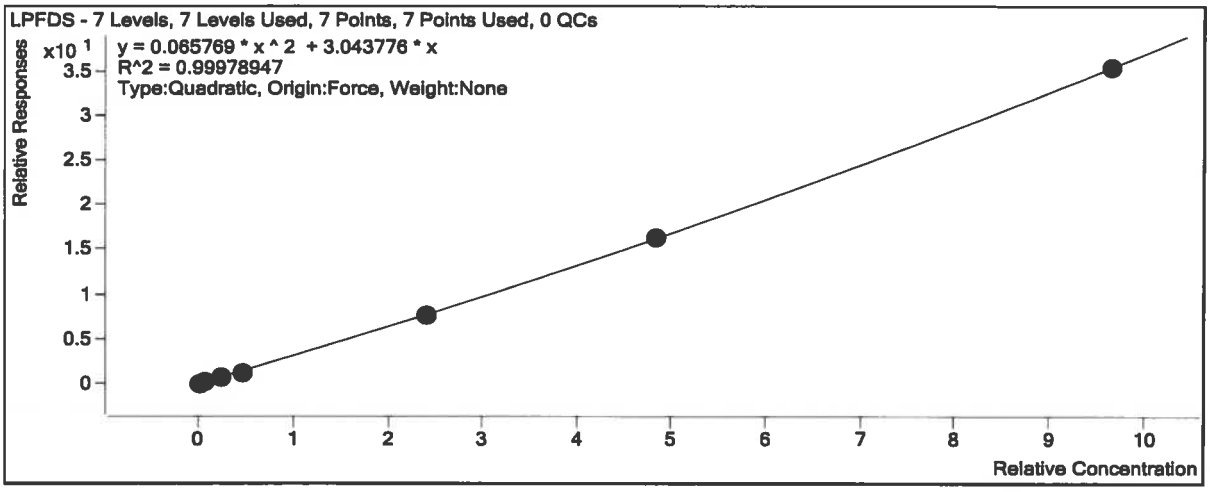
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191206ACAL\2191206A_12.d	Calibration	1	☑	2094	0.5000	3.1749
D:\MassHunter\Data\2191206ACAL\2191206A_20.d	Calibration	2	☑	6530	1.2500	3.6168
D:\MassHunter\Data\2191206ACAL\2191206A_14.d	Calibration	3	☑	24365	5.0000	3.3724
D:\MassHunter\Data\2191206ACAL\2191206A_15.d	Calibration	4	☑	47554	10.0000	3.5755
D:\MassHunter\Data\2191206ACAL\2191206A_16.d	Calibration	5	☑	271963	50.0000	4.2343
D:\MassHunter\Data\2191206ACAL\2191206A_17.d	Calibration	6	☑	526329	100.0000	4.2042
D:\MassHunter\Data\2191206ACAL\2191206A_18.d	Calibration	7	☑	863139	200.0000	4.8157

Quantitative Analysis Calibration Report



Target Compound *LPFDS*

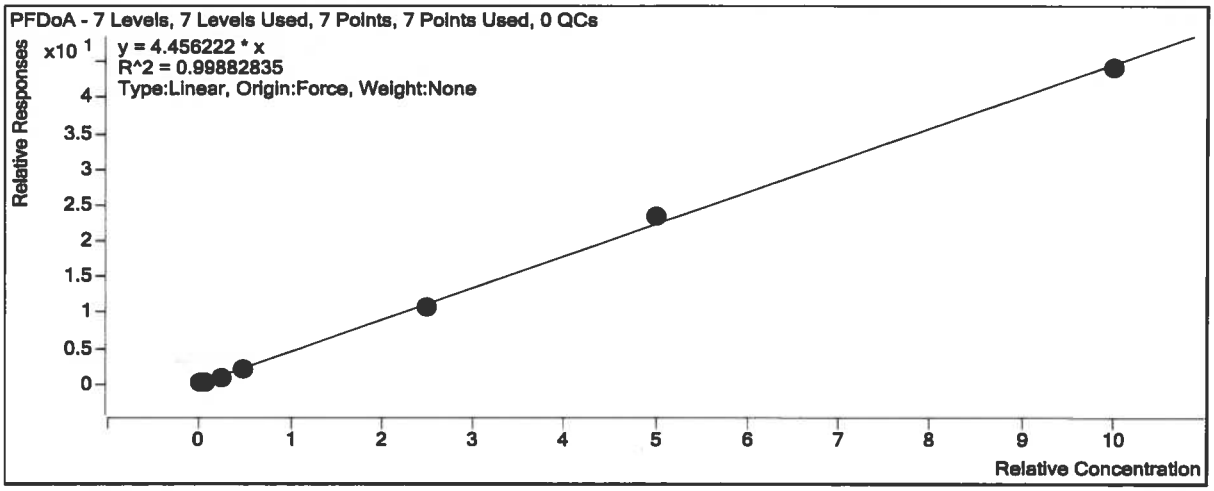
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191206ACAL\2191206A_12.d	Calibration	1	☑	1194	0.4825	2.1425
D:\MassHunter\Data\2191206ACAL\2191206A_20.d	Calibration	2	☑	3323	1.2100	2.3448
D:\MassHunter\Data\2191206ACAL\2191206A_14.d	Calibration	3	☑	14566	4.8250	2.3236
D:\MassHunter\Data\2191206ACAL\2191206A_15.d	Calibration	4	☑	28015	9.6500	2.3180
D:\MassHunter\Data\2191206ACAL\2191206A_16.d	Calibration	5	☑	172704	48.2500	3.1481
D:\MassHunter\Data\2191206ACAL\2191206A_17.d	Calibration	6	☑	356931	96.5000	3.3997
D:\MassHunter\Data\2191206ACAL\2191206A_18.d	Calibration	7	☑	707941	193.0000	3.6746



Target Compound *11Cl-PF3OUdS*

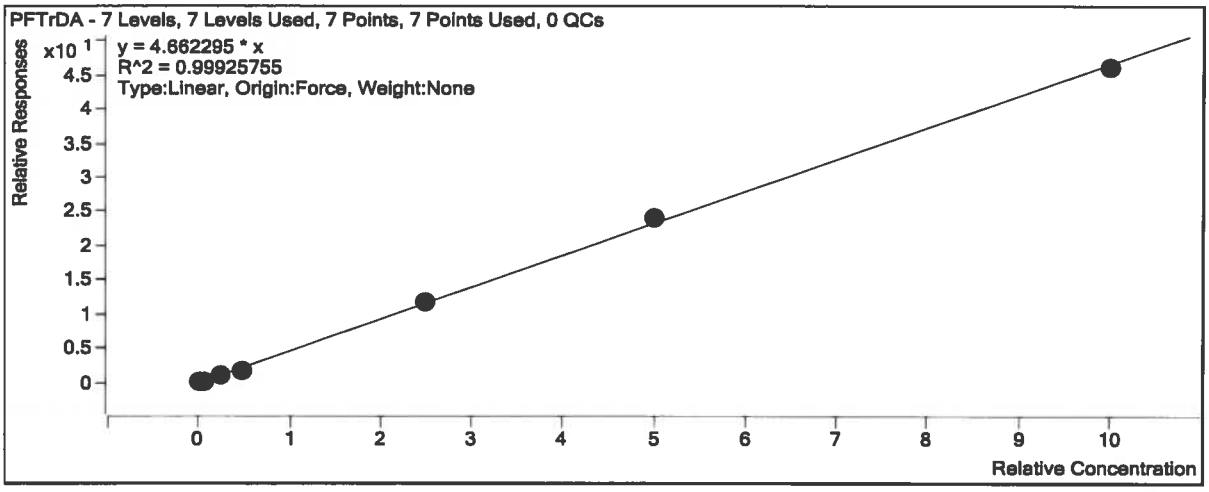
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF

Quantitative Analysis Calibration Report



Target Compound *PFTrDA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191206ACAL\2191206A_12.d	Calibration	1	☑	1487	0.5000	4.1548
D:\MassHunter\Data\2191206ACAL\2191206A_20.d	Calibration	2	☑	3964	1.2500	4.2660
D:\MassHunter\Data\2191206ACAL\2191206A_14.d	Calibration	3	☑	16238	5.0000	4.3069
D:\MassHunter\Data\2191206ACAL\2191206A_15.d	Calibration	4	☑	30442	10.0000	4.0086
D:\MassHunter\Data\2191206ACAL\2191206A_16.d	Calibration	5	☑	182038	50.0000	4.8184
D:\MassHunter\Data\2191206ACAL\2191206A_17.d	Calibration	6	☑	372873	100.0000	4.8411
D:\MassHunter\Data\2191206ACAL\2191206A_18.d	Calibration	7	☑	727055	200.0000	4.6097



Extracted ISTD *M2PFTeDA*

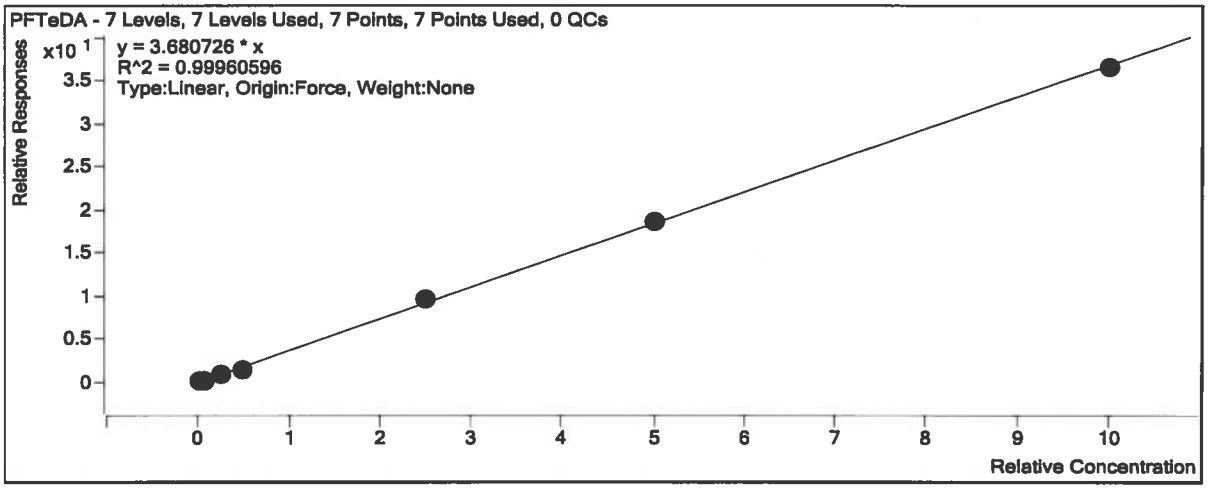
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF

Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191206ACAL\2191206A_18.d	Calibration	7	☑	15772	20.0000	788.6124

Target Compound *PFTeDA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191206ACAL\2191206A_12.d	Calibration	1	☑	1238	0.5000	3.4588
D:\MassHunter\Data\2191206ACAL\2191206A_20.d	Calibration	2	☑	3180	1.2500	3.4221
D:\MassHunter\Data\2191206ACAL\2191206A_14.d	Calibration	3	☑	13343	5.0000	3.5390
D:\MassHunter\Data\2191206ACAL\2191206A_15.d	Calibration	4	☑	23805	10.0000	3.1347
D:\MassHunter\Data\2191206ACAL\2191206A_16.d	Calibration	5	☑	145295	50.0000	3.8458
D:\MassHunter\Data\2191206ACAL\2191206A_17.d	Calibration	6	☑	288991	100.0000	3.7520
D:\MassHunter\Data\2191206ACAL\2191206A_18.d	Calibration	7	☑	576325	200.0000	3.6540



6I

ORGANICS INITIAL CALIBRATION VERIFICATION

Report No:	219102541	Instrument ID:	QQQ1
Analysis Date:	12/06/2019 20:35	Lab File ID:	2191206A_21.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	672863

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	50000	53400	107	70	130	
8:2 Fluorotelomer sulfonate	ng/L	50000	58800	118	70	130	
NEtFOSAA	ng/L	50000	40700	81	70	130	
NMeFOSAA	ng/L	50000	44100	88	70	130	
Perfluorobutanoic acid	ng/L	50000	47700	95	70	130	
Perfluorobutanesulfonic acid	ng/L	50000	46900	94	70	130	
Perfluorodecanoic acid	ng/L	50000	47400	95	70	130	
Perfluorododecanoic acid	ng/L	50000	46600	93	70	130	
Perfluoroheptanoic acid	ng/L	50000	45500	91	70	130	
Perfluorohexanoic acid	ng/L	50000	49200	98	70	130	
Perfluorohexanesulfonic acid	ng/L	50000	51700	103	70	130	
Perfluorononanoic acid	ng/L	50000	55200	110	70	130	
Perfluorooctanoic acid	ng/L	50000	44000	88	70	130	
Perfluorooctane Sulfonate	ng/L	50000	41600	83	70	130	
Perfluoropentanoic acid	ng/L	50000	52100	104	70	130	
Perfluorotetradecanoic acid	ng/L	50000	55600	111	70	130	
Perfluorotridecanoic acid	ng/L	50000	45400	91	70	130	
Perfluoroundecanoic acid	ng/L	50000	51800	104	70	130	

7S

ORGANICS INSTRUMENT SENSITIVITY CHECK

Report No:	219102541	Instrument ID:	QQQ1
Analysis Date:	12/06/2019 20:47	Lab File ID:	2191206A_22.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	672863

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	7.93	8.20	104	70	130	
8:2 Fluorotelomer sulfonate	ng/L	8.00	8.13	102	70	130	
NEtFOSAA	ng/L	8.33	6.26	75	70	130	
NMeFOSAA	ng/L	8.33	7.47	89	70	130	
Perfluorobutanoic acid	ng/L	8.33	8.13	98	70	130	
Perfluorobutanesulfonic acid	ng/L	7.40	6.67	91	70	130	
Perfluorodecanoic acid	ng/L	8.33	6.53	78	70	130	
Perfluorododecanoic acid	ng/L	8.33	8.07	96	70	130	
Perfluoroheptanoic acid	ng/L	8.33	8.00	96	70	130	
Perfluorohexanoic acid	ng/L	8.33	7.13	86	70	130	
Perfluorohexanesulfonic acid	ng/L	7.60	6.51	86	70	130	
Perfluorononanoic acid	ng/L	8.33	7.47	90	70	130	
Perfluorooctanoic acid	ng/L	8.33	7.47	90	70	130	
Perfluorooctane Sulfonate	ng/L	7.73	6.47	84	70	130	
Perfluoropentanoic acid	ng/L	8.33	7.33	88	70	130	
Perfluorotetradecanoic acid	ng/L	8.33	7.87	95	70	130	
Perfluorotridecanoic acid	ng/L	8.33	7.87	94	70	130	
Perfluoroundecanoic acid	ng/L	8.33	7.67	92	70	130	

4I

ORGANICS INSTRUMENT BLANK

Report No:	219102541	Instrument ID:	QQQ1
Analysis Date:	12/06/2019 21:39	Lab File ID:	2191206A_25.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	672863

ANALYTE	UNITS	RESULT	Q	DL	LOD	LOQ	#
6:2 Fluorotelomer sulfonate	ng/L	4.00	U	1.79	4.00	10.0	
8:2 Fluorotelomer sulfonate	ng/L	4.00	U	1.63	4.00	10.0	
NEtFOSAA	ng/L	8.00	U	5.38	8.00	10.0	
NMeFOSAA	ng/L	8.00	U	4.60	8.00	10.0	
Perfluorobutanesulfonic acid	ng/L	4.00	U	1.47	4.00	10.0	
Perfluorobutanoic acid	ng/L	4.00	U	2.13	4.00	10.0	
Perfluorodecanoic acid	ng/L	4.00	U	1.65	4.00	10.0	
Perfluorododecanoic acid	ng/L	4.00	U	2.45	4.00	10.0	
Perfluoroheptanoic acid	ng/L	4.00	U	1.85	4.00	10.0	
Perfluorohexanesulfonic acid	ng/L	4.00	U	1.64	4.00	10.0	
Perfluorohexanoic acid	ng/L	4.00	U	1.94	4.00	10.0	
Perfluorononanoic acid	ng/L	4.00	U	1.68	4.00	10.0	
Perfluorooctane Sulfonate	ng/L	4.00	U	1.70	4.00	10.0	
Perfluorooctanoic acid	ng/L	4.00	U	1.80	4.00	10.0	
Perfluoropentanoic acid	ng/L	24.3		2.35	4.00	10.0	*
Perfluorotetradecanoic acid	ng/L	4.00	U	2.76	4.00	10.0	
Perfluorotridecanoic acid	ng/L	4.00	U	2.56	4.00	10.0	
Perfluoroundecanoic acid	ng/L	4.00	U	1.86	4.00	10.0	

* - Result greater than 1/2 LOQ

FORM 4I - ORG

7E

ORGANICS CALIBRATION VERIFICATION

Report No:	219102541	Instrument ID:	QQQ1
Analysis Date:	12/07/2019 00:22	Lab File ID:	2191206A_39.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	672863

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	47500	47400	100	70	130	
8:2 Fluorotelomer sulfonate	ng/L	48000	51800	108	70	130	
NEtFOSAA	ng/L	50000	44400	89	70	130	
NMeFOSAA	ng/L	50000	49200	98	70	130	
Perfluorobutanoic acid	ng/L	50000	47000	94	70	130	
Perfluorobutanesulfonic acid	ng/L	44300	41800	95	70	130	
Perfluorodecanoic acid	ng/L	50000	44200	88	70	130	
Perfluorododecanoic acid	ng/L	50000	53100	106	70	130	
Perfluoroheptanoic acid	ng/L	50000	46900	94	70	130	
Perfluorohexanoic acid	ng/L	50000	46100	92	70	130	
Perfluorohexanesulfonic acid	ng/L	45600	43000	94	70	130	
Perfluorononanoic acid	ng/L	50000	53200	106	70	130	
Perfluorooctanoic acid	ng/L	50000	44800	90	70	130	
Perfluorooctane Sulfonate	ng/L	46300	42500	92	70	130	
Perfluoropentanoic acid	ng/L	50000	49300	99	70	130	
Perfluorotetradecanoic acid	ng/L	50000	53400	107	70	130	
Perfluorotridecanoic acid	ng/L	50000	52100	104	70	130	
Perfluoroundecanoic acid	ng/L	50000	51600	103	70	130	

FORM 7E - ORG

7E

ORGANICS CALIBRATION VERIFICATION

Report No:	219102541	Instrument ID:	QQQ1
Analysis Date:	12/07/2019 01:07	Lab File ID:	2191206A_43.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	672863

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	47500	48000	101	70	130	
8:2 Fluorotelomer sulfonate	ng/L	48000	53100	111	70	130	
NEtFOSAA	ng/L	50000	54600	109	70	130	
NMeFOSAA	ng/L	50000	45300	91	70	130	
Perfluorobutanoic acid	ng/L	50000	47400	95	70	130	
Perfluorobutanesulfonic acid	ng/L	44300	42500	96	70	130	
Perfluorodecanoic acid	ng/L	50000	48200	96	70	130	
Perfluorododecanoic acid	ng/L	50000	53300	107	70	130	
Perfluoroheptanoic acid	ng/L	50000	46500	93	70	130	
Perfluorohexanoic acid	ng/L	50000	46300	93	70	130	
Perfluorohexanesulfonic acid	ng/L	45600	50300	110	70	130	
Perfluorononanoic acid	ng/L	50000	53700	107	70	130	
Perfluorooctanoic acid	ng/L	50000	46500	93	70	130	
Perfluorooctane Sulfonate	ng/L	46300	50000	108	70	130	
Perfluoropentanoic acid	ng/L	50000	49400	99	70	130	
Perfluorotetradecanoic acid	ng/L	50000	52000	104	70	130	
Perfluorotridecanoic acid	ng/L	50000	50700	101	70	130	
Perfluoroundecanoic acid	ng/L	50000	53400	107	70	130	

FORM 7E - ORG

8I

INJECTION INTERNAL STANDARD AREA SUMMARY

Report No:	219102541	Standard ID:	1205 (ICAL Midpoint)
Analyst:	BMH	Instrument ID:	QQQ1
Analysis Date:	12/06/19 18:56	Lab File ID:	2191206A_16.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	672863

	M2PFDA	M2PFHxA	M2PFOA	M4PFOS
	Area	*Area*	*Area*	*Area*
STANDARD	131777	317557	125912	99438

CLIENT SAMPLE ID	*GCAL SAMP ID*		#		#		#		#
AOI1-5-GW-102319RE1	21910254111RE1	127697		332569		120118		84875	

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 8I - ORG

8I

INJECTION INTERNAL STANDARD AREA SUMMARY

Report No:	219102717	Standard ID:	1205 (ICAL Midpoint)
Analyst:	BMH	Instrument ID:	QQQ1
Analysis Date:	12/06/19 18:56	Lab File ID:	2191206A_16.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	672863

	M2PFDA		M2PFHxA		M2PFOA		M4PFOS	
	Area		*Area*		*Area*		*Area*	
STANDARD	131777		317557		125912		99438	
CLIENT SAMPLE ID / ***GCAL SAMP ID***		*#*		*#*		*#*		*#*
AOI3-6-SB-1.5-2-102519RE / 21910271707RE	93819		243049		86480		68725	

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 8I - ORG

LCMS1 Run Log

Analyst:	BMH	Expiration
Batch:	2191220A	Date
Current ICAL Bath:	2191220ACAL/2191220ACALDW	Date
20mM Amm Acetate	010-25-2	12/22/2019
Methanol	2128592	8/31/2024
Calibration Std	010-24-8	6/12/2020
ICV Std	010-19-7	6/3/2020
EIS Mix	010-24-9	6/13/2020

Name	Data File	Type	Acq. Date-Time	Comment	Dil.
MeOH Shot	2191220A_01.d	MeOH Shot	12/20/2019 9:15	Instrument idle/MeOH Shot	1
1201	2191220A_02.d	Cal	12/20/2019 9:26		1
1202	2191220A_03.d	Cal	12/20/2019 9:37		1
1203	2191220A_04.d	Cal	12/20/2019 9:48		1
1204	2191220A_05.d	Cal	12/20/2019 9:59		1
1205	2191220A_06.d	Cal	12/20/2019 10:11		1
1206	2191220A_07.d	Cal	12/20/2019 10:22		1
1207	2191220A_08.d	Cal	12/20/2019 10:33		1
MeOH Shot	2191220A_09.d	MeOH Shot	12/20/2019 10:45	Instrument idle/MeOH Shot	1
1600	2191220A_10.d	QC	12/20/2019 10:56		1
1450	2191220A_11.d	QC	12/20/2019 11:07		1
1500	2191220A_12.d	Sample	12/20/2019 11:18		1
MeOH Shot	2191220A_13.d	MeOH Shot	12/20/2019 11:30	Instrument idle/MeOH Shot	1
1994291	2191220A_14.d	Sample	12/20/2019 11:41	673797	1
1994292	2191220A_15.d	QC	12/20/2019 11:52	673797	1
1994293	2191220A_16.d	QC	12/20/2019 12:03	673797	1
21912160207	2191220A_17.d	Sample	12/20/2019 12:14	673797	1
21912160208	2191220A_18.d	Sample	12/20/2019 12:26	673797	1
21912170208	2191220A_19.d	Sample	12/20/2019 12:37	673797	1
1400	2191220A_20.d	QC	12/20/2019 12:48		1

21912184901	2191220A_21.d	Sample	12/20/2019 13:00	673797	1
21912184902	2191220A_22.d	Sample	12/20/2019 13:12	673797	1
21912184903	2191220A_23.d	Sample	12/20/2019 13:23	673797	1
21912184904	2191220A_24.d	Sample	12/20/2019 13:34	673797	1
21912184905	2191220A_25.d	Sample	12/20/2019 13:46	673797	1
21912184906	2191220A_26.d	Sample	12/20/2019 13:57	673797	1
21912184907	2191220A_27.d	Sample	12/20/2019 14:08	673797	1
1400	2191220A_28.d	QC	12/20/2019 14:20		1
21912189402	2191220A_29.d	Sample	12/20/2019 14:31	673797	1
21912185204	2191220A_30.d	Sample	12/20/2019 14:42	673797	1
1995053	2191220A_31.d	Sample	12/20/2019 14:54	673937	1
1995054	2191220A_32.d	QC	12/20/2019 15:05	673937	1
1995055	2191220A_33.d	QC	12/20/2019 15:16	673937	1
Left Port 7 Test	2191220A_34.d	Sample	12/20/2019 15:28	TEST	1
21912185205	2191220A_35.d	Sample	12/20/2019 15:39	673797	1
21912185101	2191220A_36.d	Sample	12/20/2019 15:50	673797	1
21912189401 x10	2191220A_37.d	Sample	12/20/2019 16:02	673797	10
21912185201	2191220A_38.d	Sample	12/20/2019 16:13	673797	1
21912185202	2191220A_39.d	Sample	12/20/2019 16:24	673797	1
21912185203	2191220A_40.d	Sample	12/20/2019 16:36	673797	1
1400	2191220A_41.d	QC	12/20/2019 16:47		1
21912193001	2191220A_42.d	Sample	12/20/2019 16:58	673937	1
21912193002	2191220A_43.d	QC	12/20/2019 17:10	673937	1
21912193003	2191220A_44.d	QC	12/20/2019 17:21	673937	1
21912193004	2191220A_45.d	Sample	12/20/2019 17:33	673937	1
21912193005	2191220A_46.d	Sample	12/20/2019 17:44	673937	1
21912193006	2191220A_47.d	Sample	12/20/2019 17:55	673937	1
21912193007	2191220A_48.d	Sample	12/20/2019 18:06	673937	1
1400	2191220A_49.d	QC	12/20/2019 18:18		1
1985092	2191220A_51.d	QC	12/20/2019 18:29	671891	1
1985093	2191220A_52.d	QC	12/20/2019 18:41	671891	1
MB Filter Test	2191220A_53.d	Sample	12/20/2019 18:52	Test	1
LCS Filter Test	2191220A_54.d	QC	12/20/2019 19:03	Test	1
LCSD Filter Test	2191220A_55.d	QC	12/20/2019 19:15	Test	1

MB Jug Test	2191220A_56.d	Sample	12/20/2019 19:26	Test	1
LCS Jug Test	2191220A_57.d	QC	12/20/2019 19:37	Test	1
LCSD Jug Test	2191220A_58.d	QC	12/20/2019 19:49	Test	1
21910232621	2191220A_59.d	Sample	12/20/2019 20:00	671259	50
21910232626	2191220A_60.d	Sample	12/20/2019 20:12	671259	20
21910232629	2191220A_61.d	Sample	12/20/2019 20:23	671259	5
1400	2191220A_62.d	QC	12/20/2019 20:34		1
1985322	2191220A_63.d	Sample	12/20/2019 20:46	671946 DW	1
1985323	2191220A_64.d	QC	12/20/2019 20:57	671946 DW	1
21911215801	2191220A_65.d	Sample	12/20/2019 21:08	671946 DW	1
21911215802	2191220A_66.d	Sample	12/20/2019 21:20	671946 DW	1
21911215803	2191220A_67.d	Sample	12/20/2019 21:31	671946 DW	1
21911215804	2191220A_68.d	Sample	12/20/2019 21:43	671946 DW	1
21911215805	2191220A_69.d	Sample	12/20/2019 21:54	671946 DW	1
21911215807	2191220A_70.d	Sample	12/20/2019 22:05	671946 DW	1
21911215808	2191220A_71.d	Sample	12/20/2019 22:17	671946 DW	1
21911215809	2191220A_72.d	Sample	12/20/2019 22:28	671946 DW	1
21911215810	2191220A_73.d	Sample	12/20/2019 22:40	671946 DW	1
21911215811	2191220A_74.d	Sample	12/20/2019 22:51	671946 DW	1
1400	2191220A_75.d	QC	12/20/2019 23:02		1
21911215812	2191220A_76.d	Sample	12/20/2019 23:14	671946 DW	1
21911215813	2191220A_77.d	QC	12/20/2019 23:25	671946 DW	1
21911215814	2191220A_78.d	QC	12/20/2019 23:36	671946 DW	1
21911215815	2191220A_79.d	Sample	12/20/2019 23:48	671946 DW	1
21911215816	2191220A_80.d	Sample	12/20/2019 23:59	671946 DW	1
21911215817	2191220A_81.d	Sample	12/21/2019 0:11	671946 DW	1
21911215818	2191220A_82.d	Sample	12/21/2019 0:22	671946 DW	1
21911215819	2191220A_83.d	Sample	12/21/2019 0:33	671946 DW	1
1400	2191220A_84.d	QC	12/21/2019 0:44		1
1989954	2191220A_85.d	Sample	12/21/2019 0:56	672923	1
1989955	2191220A_86.d	QC	12/21/2019 1:07	672923	1
1989956	2191220A_87.d	QC	12/21/2019 1:19	672923	1
21911262914	2191220A_88.d	Sample	12/21/2019 1:30	672923	1
21912031202	2191220A_89.d	Sample	12/21/2019 1:42	672923	1

21911270814	2191220A_90.d	Sample	12/21/2019 1:53	672923	1
21911270317	2191220A_91.d	Sample	12/21/2019 2:04	672923	1
21911270321	2191220A_92.d	Sample	12/21/2019 2:15	672923	1
21911270316	2191220A_93.d	Sample	12/21/2019 2:27	672923	1
21912031201	2191220A_94.d	Sample	12/21/2019 2:38	672923	1
21911262904	2191220A_95.d	Sample	12/21/2019 2:49	672923	1
21911262910	2191220A_96.d	Sample	12/21/2019 3:01	672923	1
21911270315	2191220A_97.d	Sample	12/21/2019 3:12	672923	1
1400	2191220A_98.d	QC	12/21/2019 3:23		1
21911262901	2191220A_99.d	Sample	12/21/2019 3:35	672923	1
21911272201	2191220A_100.d	Sample	12/21/2019 3:46	672923	1
21911272303	2191220A_101.d	Sample	12/21/2019 3:57	672923	1
21911272304	2191220A_102.d	Sample	12/21/2019 4:08	672923	1
21911262801	2191220A_103.d	Sample	12/21/2019 4:20	672923	1
21911262903	2191220A_104.d	Sample	12/21/2019 4:31	672923	1
21911262908	2191220A_105.d	Sample	12/21/2019 4:42	672923	1
21911262911	2191220A_106.d	Sample	12/21/2019 4:54	672923	1
21911262902	2191220A_107.d	Sample	12/21/2019 5:05	672923	1
MeOH Shot	2191220A_108.d	MeOH Shot	12/21/2019 5:16	Instrument idle/MeOH Shot	1
1992137	2191220A_109.d	Sample	12/21/2019 5:27	673398	1
1992138	2191220A_110.d	QC	12/21/2019 5:39	673398	1
1992139	2191220A_111.d	QC	12/21/2019 5:50	673398	1
21911196662	2191220A_112.d	Sample	12/21/2019 6:01	673398	1
1400	2191220A_113.d	QC	12/21/2019 6:12		1

Quantitative Analysis Calibration Report

Batch Data Path	D:\MassHunter\Data\2191220ACAL\QuantResults\2191220A.batch.bin		
Analysis Time	12/23/2019 10:16 AM	**Analyst Name**	GCAL\lcms
Report Time	12/23/2019 10:20 AM	**Reporter Name**	GCAL\lcms
Last Calib Update	12/20/2019 11:11 AM	**Batch State**	Processed

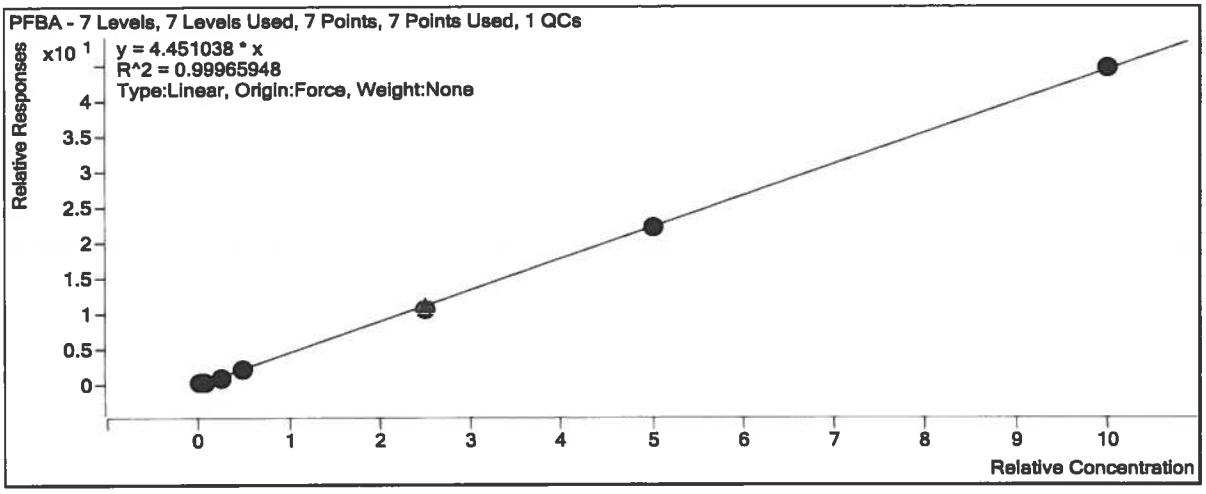
Calibration Info

Extracted ISTD ***MPFBA***

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191220ACAL\2191220A_02.d	Calibration	1	☑	23765	20.0000	1188.2697
D:\MassHunter\Data\2191220ACAL\2191220A_03.d	Calibration	2	☑	21905	20.0000	1095.2497
D:\MassHunter\Data\2191220ACAL\2191220A_04.d	Calibration	3	☑	22170	20.0000	1108.4845
D:\MassHunter\Data\2191220ACAL\2191220A_05.d	Calibration	4	☑	22591	20.0000	1129.5569
D:\MassHunter\Data\2191220ACAL\2191220A_06.d	Calibration	5	☑	22763	20.0000	1138.1421
D:\MassHunter\Data\2191220ACAL\2191220A_07.d	Calibration	6	☑	22133	20.0000	1106.6623
D:\MassHunter\Data\2191220ACAL\2191220A_08.d	Calibration	7	☑	21868	20.0000	1093.3909

Target Compound ***PFBA***

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191220ACAL\2191220A_02.d	Calibration	1	☑	2174	0.5000	3.6584
D:\MassHunter\Data\2191220ACAL\2191220A_03.d	Calibration	2	☑	6189	1.2500	4.5209
D:\MassHunter\Data\2191220ACAL\2191220A_04.d	Calibration	3	☑	21186	5.0000	3.8226
D:\MassHunter\Data\2191220ACAL\2191220A_05.d	Calibration	4	☑	44596	10.0000	3.9481
D:\MassHunter\Data\2191220ACAL\2191220A_06.d	Calibration	5	☑	238225	50.0000	4.1862
D:\MassHunter\Data\2191220ACAL\2191220A_07.d	Calibration	6	☑	491549	100.0000	4.4417
D:\MassHunter\Data\2191220ACAL\2191220A_08.d	Calibration	7	☑	977835	200.0000	4.4716

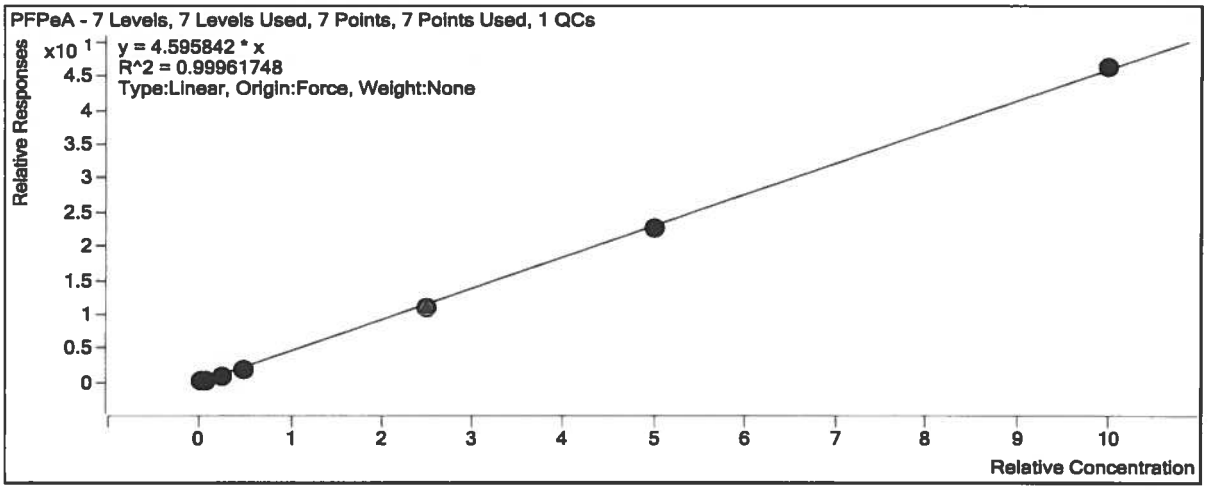


Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191220ACAL\2191220A_05.d	Calibration	4	☑	15596	20.0000	779.8103
D:\MassHunter\Data\2191220ACAL\2191220A_06.d	Calibration	5	☑	15787	20.0000	789.3615
D:\MassHunter\Data\2191220ACAL\2191220A_07.d	Calibration	6	☑	15907	20.0000	795.3404
D:\MassHunter\Data\2191220ACAL\2191220A_08.d	Calibration	7	☑	15745	20.0000	787.2709

Target Compound ***PFPeA***

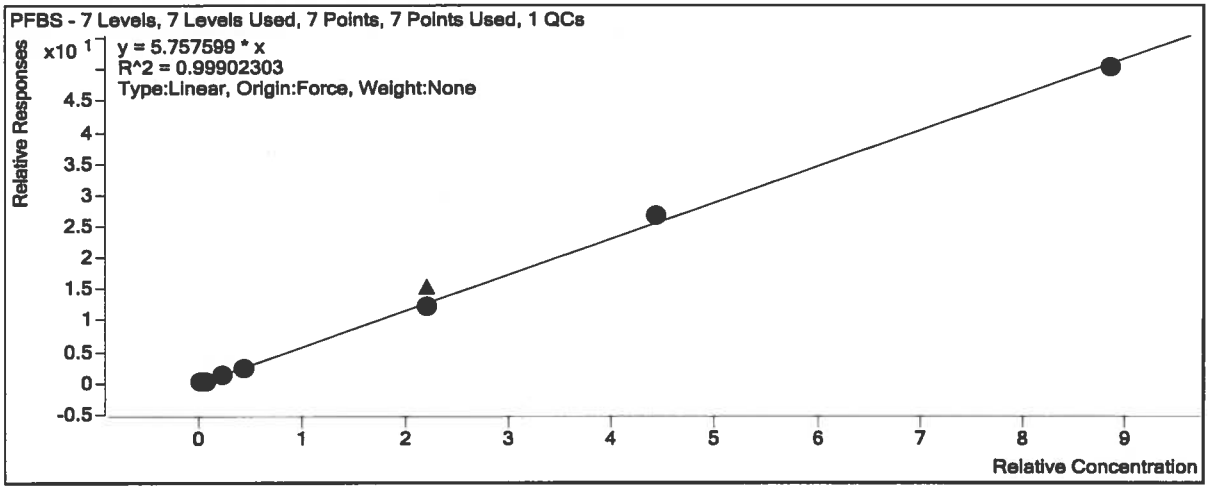
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191220ACAL\2191220A_02.d	Calibration	1	☑	1491	0.5000	4.0066
D:\MassHunter\Data\2191220ACAL\2191220A_03.d	Calibration	2	☑	3827	1.2500	3.9693
D:\MassHunter\Data\2191220ACAL\2191220A_04.d	Calibration	3	☑	14820	5.0000	3.8521
D:\MassHunter\Data\2191220ACAL\2191220A_05.d	Calibration	4	☑	30247	10.0000	3.8787
D:\MassHunter\Data\2191220ACAL\2191220A_06.d	Calibration	5	☑	174112	50.0000	4.4115
D:\MassHunter\Data\2191220ACAL\2191220A_07.d	Calibration	6	☑	358705	100.0000	4.5101
D:\MassHunter\Data\2191220ACAL\2191220A_08.d	Calibration	7	☑	729185	200.0000	4.6311



Target Compound ***PFBS***

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191220ACAL\2191220A_02.d	Calibration	1	☑	1589	0.4425	4.3655
D:\MassHunter\Data\2191220ACAL\2191220A_03.d	Calibration	2	☑	4861	1.1100	5.3470
D:\MassHunter\Data\2191220ACAL\2191220A_04.d	Calibration	3	☑	18939	4.4250	5.3572
D:\MassHunter\Data\2191220ACAL\2191220A_05.d	Calibration	4	☑	39172	8.8500	5.5305

D:\MassHunter\Data\2191220ACAL\2191220A_06.d	Calibration	5	☑	212340	44.2500	5.6234
D:\MassHunter\Data\2191220ACAL\2191220A_07.d	Calibration	6	☑	426087	88.5000	6.0510
D:\MassHunter\Data\2191220ACAL\2191220A_08.d	Calibration	7	☑	836943	177.0000	5.6935



Extracted ISTD *M3PFBS*

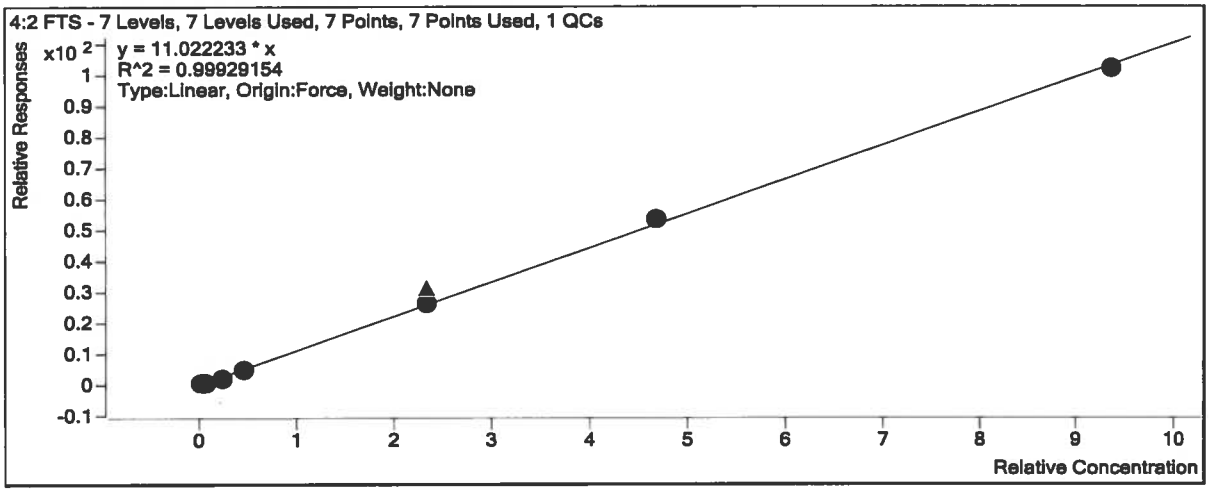
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191220ACAL\2191220A_02.d	Calibration	1	☑	16449	20.0000	822.4694
D:\MassHunter\Data\2191220ACAL\2191220A_03.d	Calibration	2	☑	16380	20.0000	819.0090
D:\MassHunter\Data\2191220ACAL\2191220A_04.d	Calibration	3	☑	15978	20.0000	798.9244
D:\MassHunter\Data\2191220ACAL\2191220A_05.d	Calibration	4	☑	16007	20.0000	800.3304
D:\MassHunter\Data\2191220ACAL\2191220A_06.d	Calibration	5	☑	17067	20.0000	853.3414
D:\MassHunter\Data\2191220ACAL\2191220A_07.d	Calibration	6	☑	15913	20.0000	795.6543
D:\MassHunter\Data\2191220ACAL\2191220A_08.d	Calibration	7	☑	16610	20.0000	830.5110

Extracted ISTD *M2 4:2 FTS*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191220ACAL\2191220A_02.d	Calibration	1	☑	10192	20.0000	509.5904
D:\MassHunter\Data\2191220ACAL\2191220A_03.d	Calibration	2	☑	10959	20.0000	547.9432
D:\MassHunter\Data\2191220ACAL\2191220A_04.d	Calibration	3	☑	11219	20.0000	560.9446
D:\MassHunter\Data\2191220ACAL\2191220A_05.d	Calibration	4	☑	11136	20.0000	556.8187
D:\MassHunter\Data\2191220ACAL\2191220A_06.d	Calibration	5	☑	10942	20.0000	547.1220
D:\MassHunter\Data\2191220ACAL\2191220A_07.d	Calibration	6	☑	10223	20.0000	511.1380
D:\MassHunter\Data\2191220ACAL\2191220A_08.d	Calibration	7	☑	9791	20.0000	489.5525

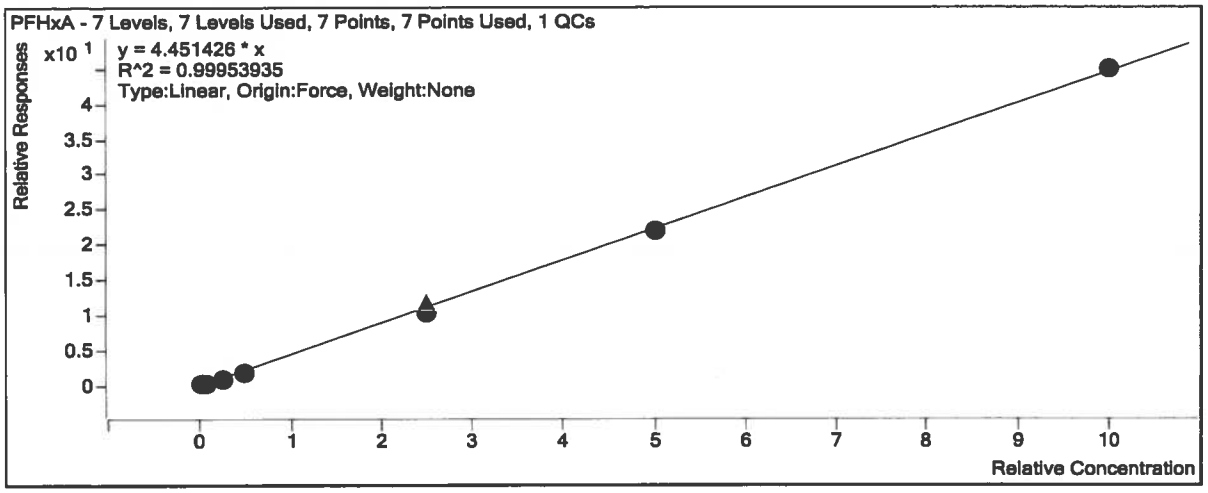
Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191220ACAL\2191220A_08.d	Calibration	7	☑	997941	187.0000	10.9009

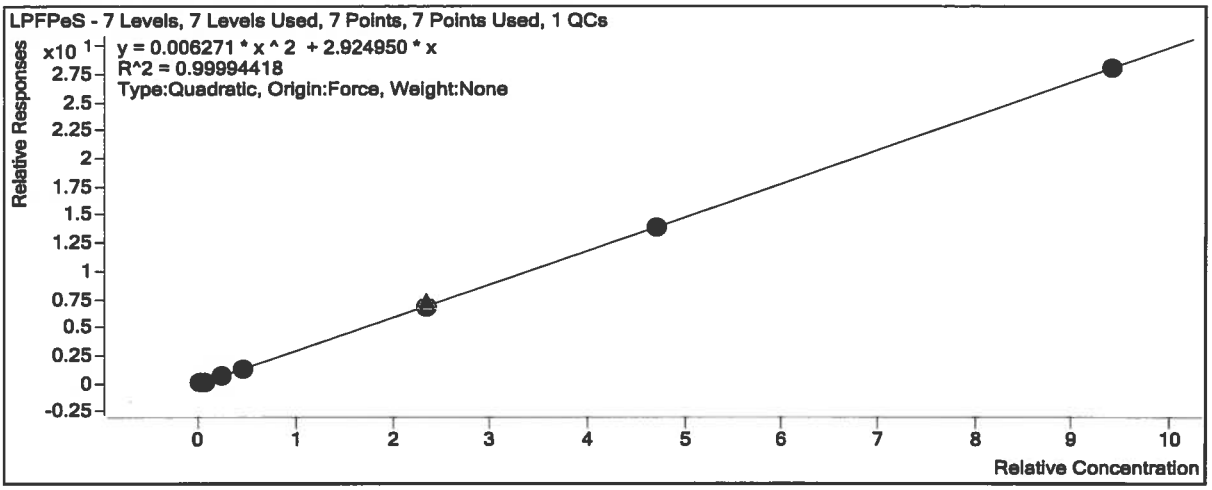


Target Compound *PFHxA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191220ACAL\2191220A_02.d	Calibration	1	☑	3119	0.5000	4.2206
D:\MassHunter\Data\2191220ACAL\2191220A_03.d	Calibration	2	☑	7854	1.2500	4.1393
D:\MassHunter\Data\2191220ACAL\2191220A_04.d	Calibration	3	☑	31579	5.0000	3.9133
D:\MassHunter\Data\2191220ACAL\2191220A_05.d	Calibration	4	☑	63771	10.0000	3.9287
D:\MassHunter\Data\2191220ACAL\2191220A_06.d	Calibration	5	☑	349995	50.0000	4.1698
D:\MassHunter\Data\2191220ACAL\2191220A_07.d	Calibration	6	☑	711827	100.0000	4.3948
D:\MassHunter\Data\2191220ACAL\2191220A_08.d	Calibration	7	☑	1433273	200.0000	4.4848



D:\MassHunter\Data\2191220ACAL\2191220A_06.d	Calibration	5	☑	227137	47.0000	2.8788
D:\MassHunter\Data\2191220ACAL\2191220A_07.d	Calibration	6	☑	453604	94.0000	2.9793
D:\MassHunter\Data\2191220ACAL\2191220A_08.d	Calibration	7	☑	895737	188.0000	2.9817



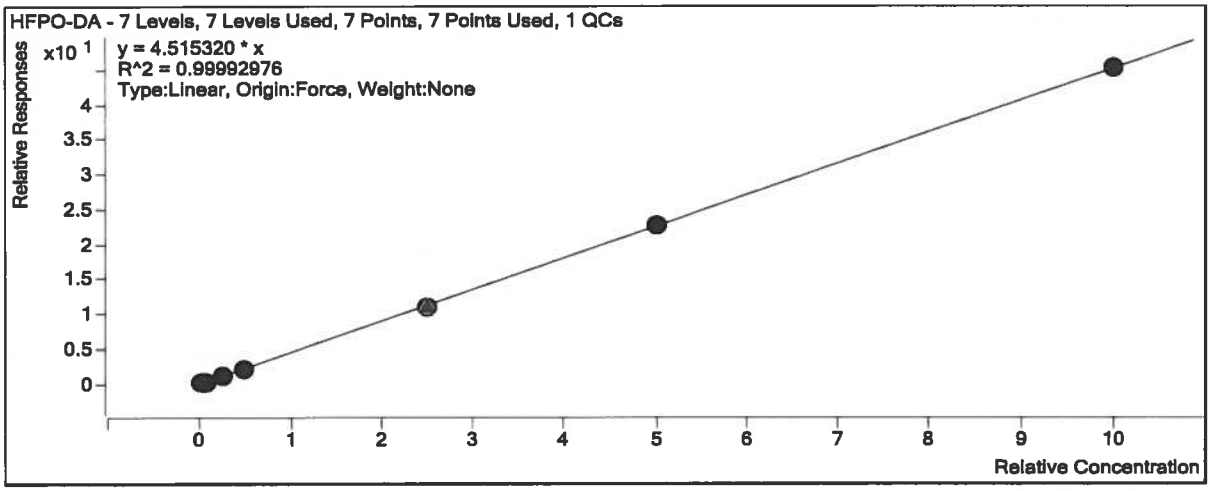
Extracted ISTD *M3HFPODA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191220ACAL\2191220A_02.d	Calibration	1	☑	1380	20.0000	69.0157
D:\MassHunter\Data\2191220ACAL\2191220A_03.d	Calibration	2	☑	1796	20.0000	89.8218
D:\MassHunter\Data\2191220ACAL\2191220A_04.d	Calibration	3	☑	1833	20.0000	91.6653
D:\MassHunter\Data\2191220ACAL\2191220A_05.d	Calibration	4	☑	1965	20.0000	98.2660
D:\MassHunter\Data\2191220ACAL\2191220A_06.d	Calibration	5	☑	1992	20.0000	99.6002
D:\MassHunter\Data\2191220ACAL\2191220A_07.d	Calibration	6	☑	2074	20.0000	103.7061
D:\MassHunter\Data\2191220ACAL\2191220A_08.d	Calibration	7	☑	2101	20.0000	105.0444

Target Compound *HFPO-DA*

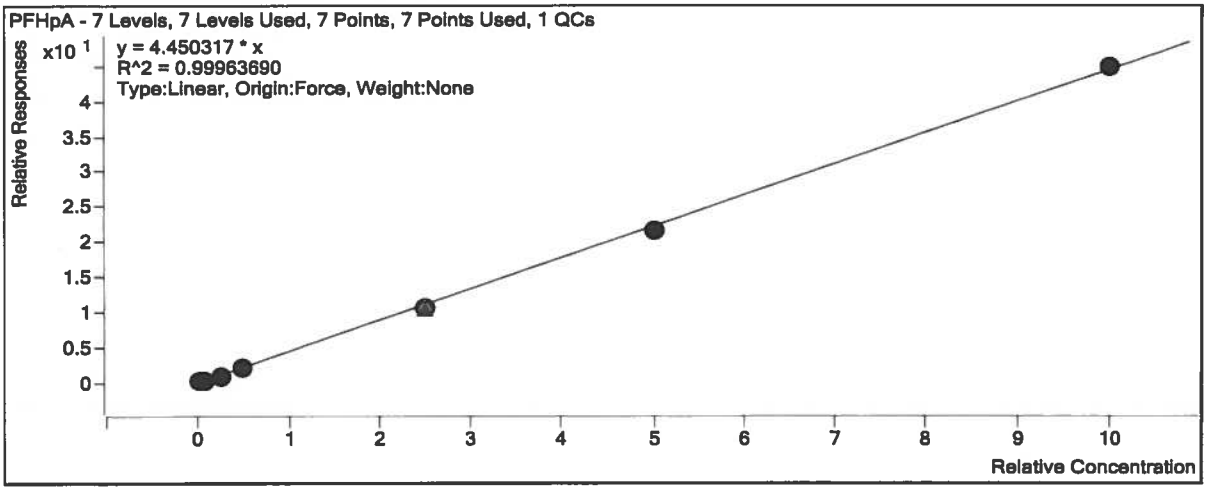
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191220ACAL\2191220A_02.d	Calibration	1	☑	211	0.5000	6.1212
D:\MassHunter\Data\2191220ACAL\2191220A_03.d	Calibration	2	☑	318	1.2500	2.8328
D:\MassHunter\Data\2191220ACAL\2191220A_04.d	Calibration	3	☑	2121	5.0000	4.6280
D:\MassHunter\Data\2191220ACAL\2191220A_05.d	Calibration	4	☑	4080	10.0000	4.1519
D:\MassHunter\Data\2191220ACAL\2191220A_06.d	Calibration	5	☑	21963	50.0000	4.4102
D:\MassHunter\Data\2191220ACAL\2191220A_07.d	Calibration	6	☑	46914	100.0000	4.5238
D:\MassHunter\Data\2191220ACAL\2191220A_08.d	Calibration	7	☑	94974	200.0000	4.5207

Quantitative Analysis Calibration Report



Target Compound *PFHpA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191220ACAL\2191220A_02.d	Calibration	1	☑	3222	0.5000	4.0888
D:\MassHunter\Data\2191220ACAL\2191220A_03.d	Calibration	2	☑	7510	1.2500	3.6287
D:\MassHunter\Data\2191220ACAL\2191220A_04.d	Calibration	3	☑	34576	5.0000	3.9233
D:\MassHunter\Data\2191220ACAL\2191220A_05.d	Calibration	4	☑	72611	10.0000	4.1556
D:\MassHunter\Data\2191220ACAL\2191220A_06.d	Calibration	5	☑	381313	50.0000	4.2877
D:\MassHunter\Data\2191220ACAL\2191220A_07.d	Calibration	6	☑	775919	100.0000	4.3474
D:\MassHunter\Data\2191220ACAL\2191220A_08.d	Calibration	7	☑	1526912	200.0000	4.4873



Extracted ISTD *M4PFHpA*

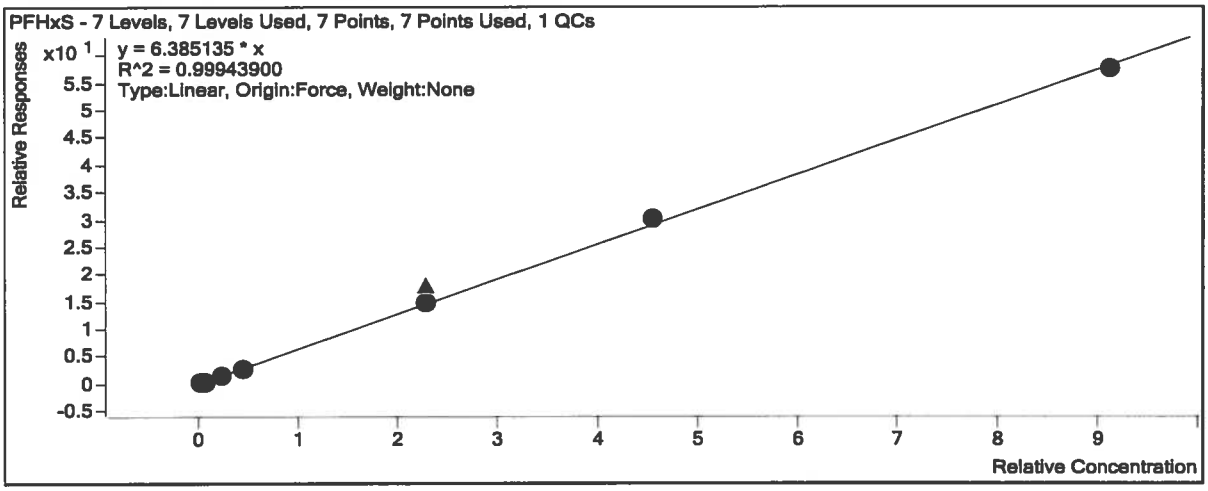
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF

Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191220ACAL\2191220A_08.d	Calibration	7	☑	34027	20.0000	1701.3711

Target Compound *PFHxS*

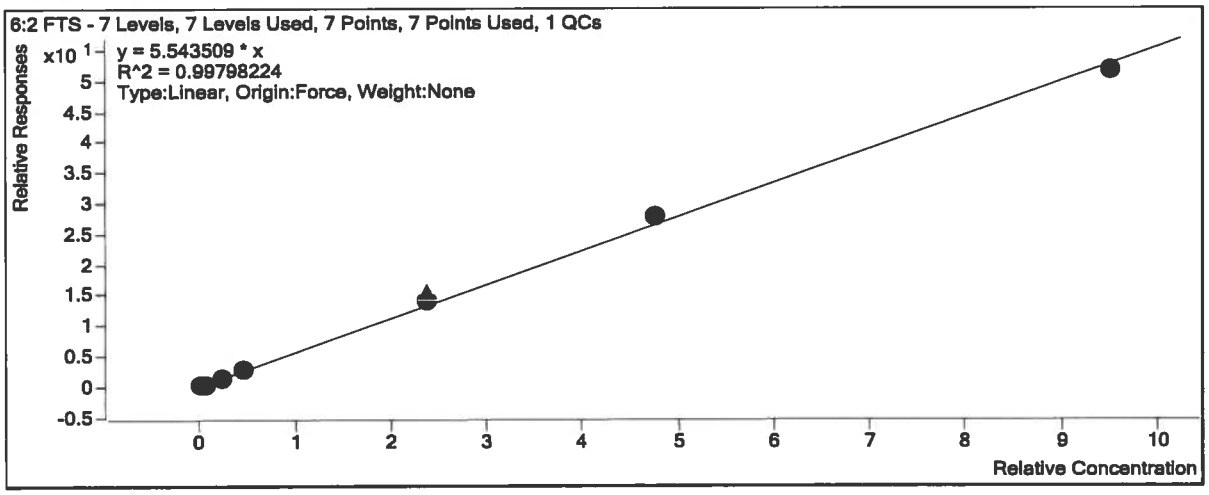
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191220ACAL\2191220A_02.d	Calibration	1	☑	2049	0.4560	5.0592
D:\MassHunter\Data\2191220ACAL\2191220A_03.d	Calibration	2	☑	5275	1.1400	5.4944
D:\MassHunter\Data\2191220ACAL\2191220A_04.d	Calibration	3	☑	21475	4.5600	5.8245
D:\MassHunter\Data\2191220ACAL\2191220A_05.d	Calibration	4	☑	44923	9.1200	6.2669
D:\MassHunter\Data\2191220ACAL\2191220A_06.d	Calibration	5	☑	238544	45.6000	6.5751
D:\MassHunter\Data\2191220ACAL\2191220A_07.d	Calibration	6	☑	483643	91.2000	6.6051
D:\MassHunter\Data\2191220ACAL\2191220A_08.d	Calibration	7	☑	949665	182.4000	6.3190



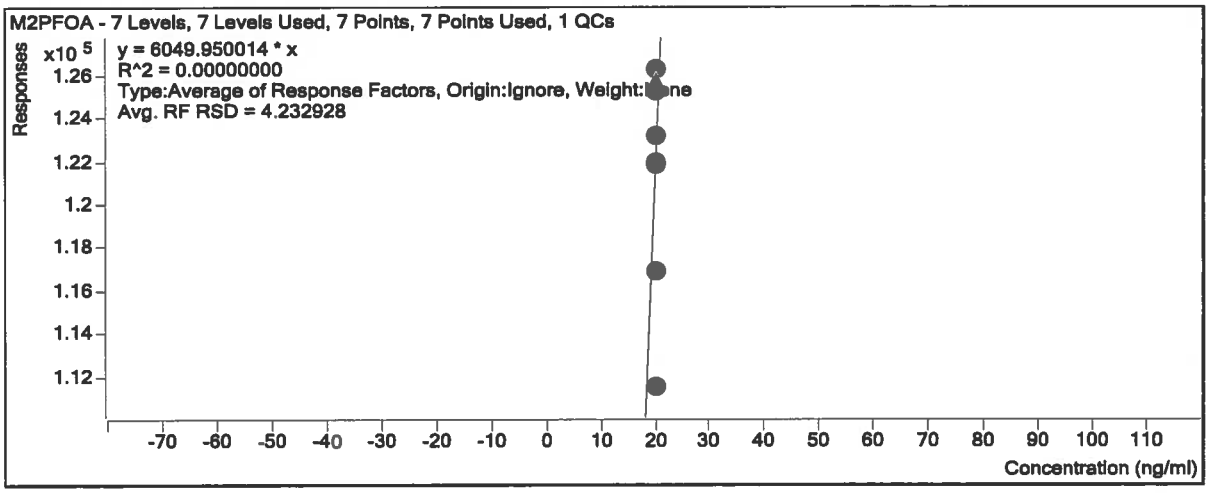
Extracted ISTD *M3PFHxS*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191220ACAL\2191220A_02.d	Calibration	1	☑	17766	20.0000	888.2880
D:\MassHunter\Data\2191220ACAL\2191220A_03.d	Calibration	2	☑	16843	20.0000	842.1332
D:\MassHunter\Data\2191220ACAL\2191220A_04.d	Calibration	3	☑	16171	20.0000	808.5384
D:\MassHunter\Data\2191220ACAL\2191220A_05.d	Calibration	4	☑	15720	20.0000	785.9958
D:\MassHunter\Data\2191220ACAL\2191220A_06.d	Calibration	5	☑	15912	20.0000	795.6145
D:\MassHunter\Data\2191220ACAL\2191220A_07.d	Calibration	6	☑	16058	20.0000	802.8850
D:\MassHunter\Data\2191220ACAL\2191220A_08.d	Calibration	7	☑	16479	20.0000	823.9470

Quantitative Analysis Calibration Report

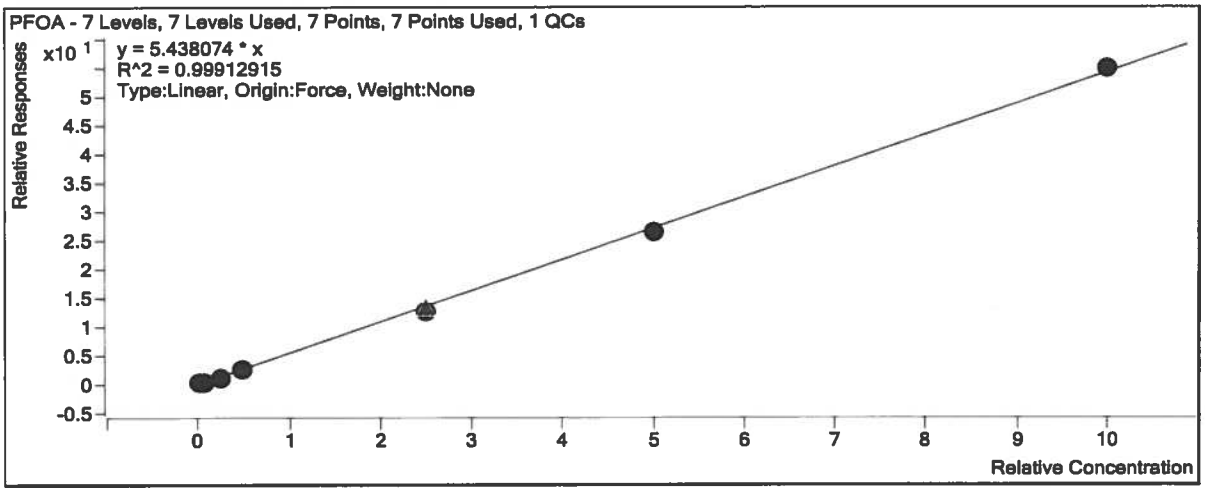


Quantitative Analysis Calibration Report



Target Compound *PFOA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191220ACAL\2191220A_02.d	Calibration	1	☑	2143	0.5000	4.2756
D:\MassHunter\Data\2191220ACAL\2191220A_03.d	Calibration	2	☑	6126	1.2500	4.7698
D:\MassHunter\Data\2191220ACAL\2191220A_04.d	Calibration	3	☑	24867	5.0000	4.6034
D:\MassHunter\Data\2191220ACAL\2191220A_05.d	Calibration	4	☑	52331	10.0000	5.0387
D:\MassHunter\Data\2191220ACAL\2191220A_06.d	Calibration	5	☑	278469	50.0000	5.0236
D:\MassHunter\Data\2191220ACAL\2191220A_07.d	Calibration	6	☑	556826	100.0000	5.2836
D:\MassHunter\Data\2191220ACAL\2191220A_08.d	Calibration	7	☑	1116336	200.0000	5.5042

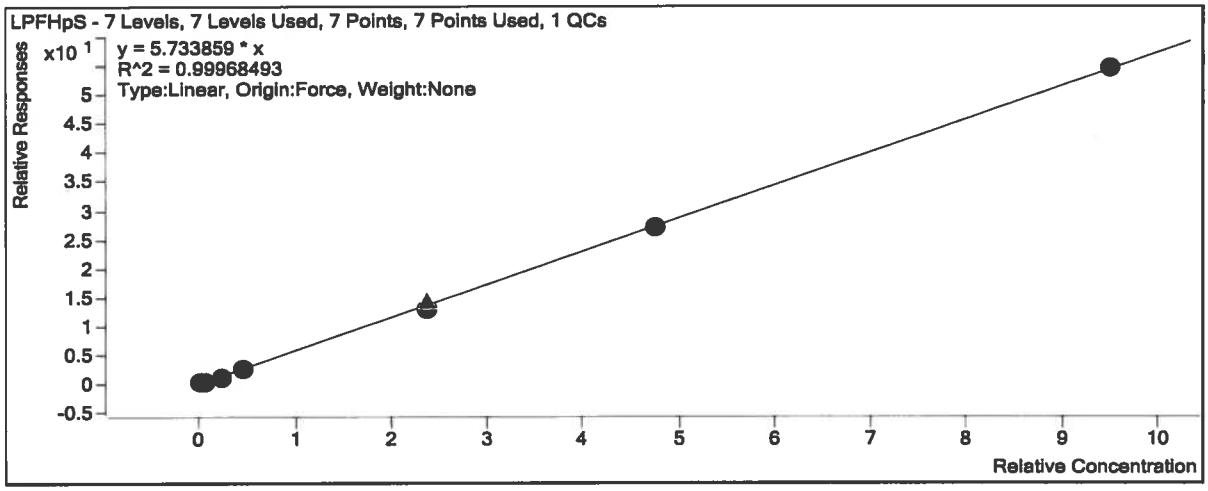


Target Compound *LPFHpS*

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

Quantitative Analysis Calibration Report

D:\MassHunter\Data\2191220ACAL\2191220A_02.d	Calibration	1	☑	2366	0.4750	4.9687
D:\MassHunter\Data\2191220ACAL\2191220A_03.d	Calibration	2	☑	7054	1.1900	5.7690
D:\MassHunter\Data\2191220ACAL\2191220A_04.d	Calibration	3	☑	25880	4.7500	5.0430
D:\MassHunter\Data\2191220ACAL\2191220A_05.d	Calibration	4	☑	55180	9.5000	5.5926
D:\MassHunter\Data\2191220ACAL\2191220A_06.d	Calibration	5	☑	283156	47.5000	5.3770
D:\MassHunter\Data\2191220ACAL\2191220A_07.d	Calibration	6	☑	575802	95.0000	5.7512
D:\MassHunter\Data\2191220ACAL\2191220A_08.d	Calibration	7	☑	1108392	190.0000	5.7526



Extracted ISTD ***M9PFNA***

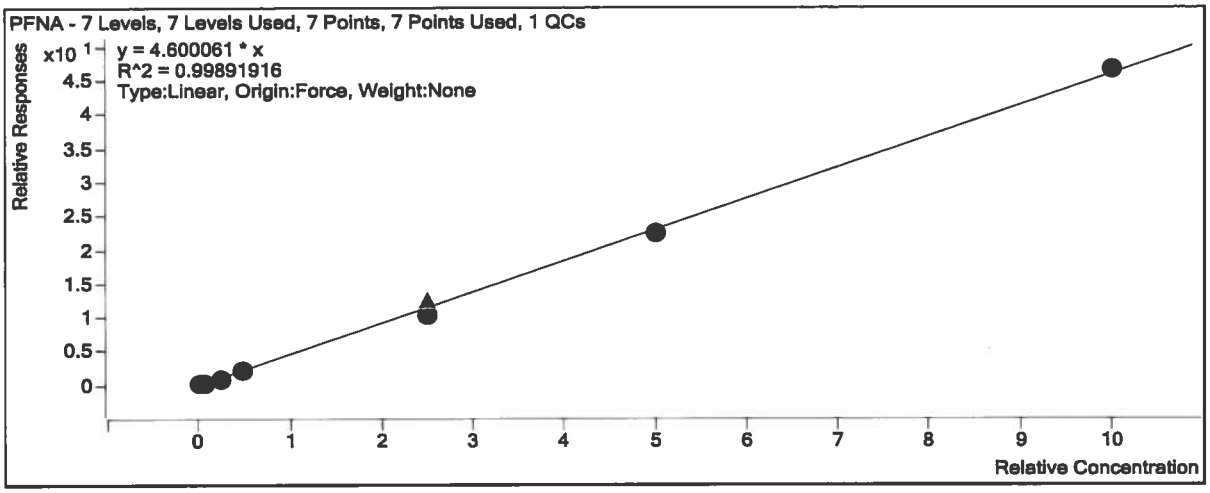
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191220ACAL\2191220A_02.d	Calibration	1	☑	23654	20.0000	1182.6975
D:\MassHunter\Data\2191220ACAL\2191220A_03.d	Calibration	2	☑	25977	20.0000	1298.8561
D:\MassHunter\Data\2191220ACAL\2191220A_04.d	Calibration	3	☑	25782	20.0000	1289.0989
D:\MassHunter\Data\2191220ACAL\2191220A_05.d	Calibration	4	☑	26156	20.0000	1307.7810
D:\MassHunter\Data\2191220ACAL\2191220A_06.d	Calibration	5	☑	27308	20.0000	1365.4061
D:\MassHunter\Data\2191220ACAL\2191220A_07.d	Calibration	6	☑	26356	20.0000	1317.8019
D:\MassHunter\Data\2191220ACAL\2191220A_08.d	Calibration	7	☑	25124	20.0000	1256.1927

Target Compound ***PFNA***

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191220ACAL\2191220A_02.d	Calibration	1	☑	2360	0.5000	3.9915
D:\MassHunter\Data\2191220ACAL\2191220A_03.d	Calibration	2	☑	6669	1.2500	4.1077
D:\MassHunter\Data\2191220ACAL\2191220A_04.d	Calibration	3	☑	26168	5.0000	4.0599

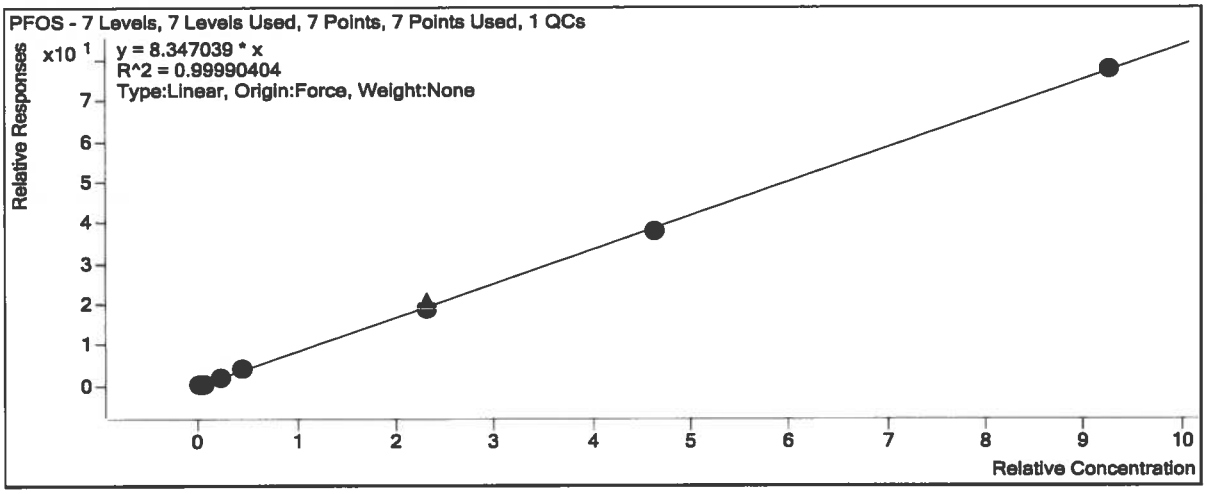
Quantitative Analysis Calibration Report

D:\MassHunter\Data\2191220ACAL\2191220A_05.d	Calibration	4	☑	54603	10.0000	4.1753
D:\MassHunter\Data\2191220ACAL\2191220A_06.d	Calibration	5	☑	285016	50.0000	4.1748
D:\MassHunter\Data\2191220ACAL\2191220A_07.d	Calibration	6	☑	589515	100.0000	4.4735
D:\MassHunter\Data\2191220ACAL\2191220A_08.d	Calibration	7	☑	1170698	200.0000	4.6597

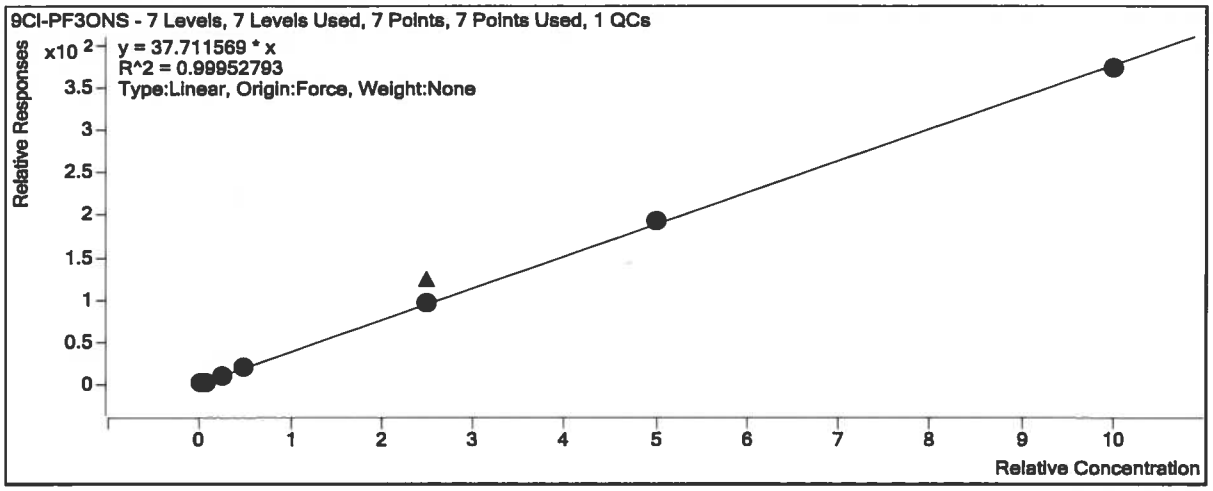


Target Compound ***PFOS***

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191220ACAL\2191220A_02.d	Calibration	1	☑	2412	0.4628	7.2923
D:\MassHunter\Data\2191220ACAL\2191220A_03.d	Calibration	2	☑	5572	1.1600	7.1473
D:\MassHunter\Data\2191220ACAL\2191220A_04.d	Calibration	3	☑	22995	4.6280	7.9217
D:\MassHunter\Data\2191220ACAL\2191220A_05.d	Calibration	4	☑	48066	9.2550	8.7879
D:\MassHunter\Data\2191220ACAL\2191220A_06.d	Calibration	5	☑	247277	46.2800	8.2095
D:\MassHunter\Data\2191220ACAL\2191220A_07.d	Calibration	6	☑	506729	92.5500	8.2443
D:\MassHunter\Data\2191220ACAL\2191220A_08.d	Calibration	7	☑	1002142	185.1000	8.3805

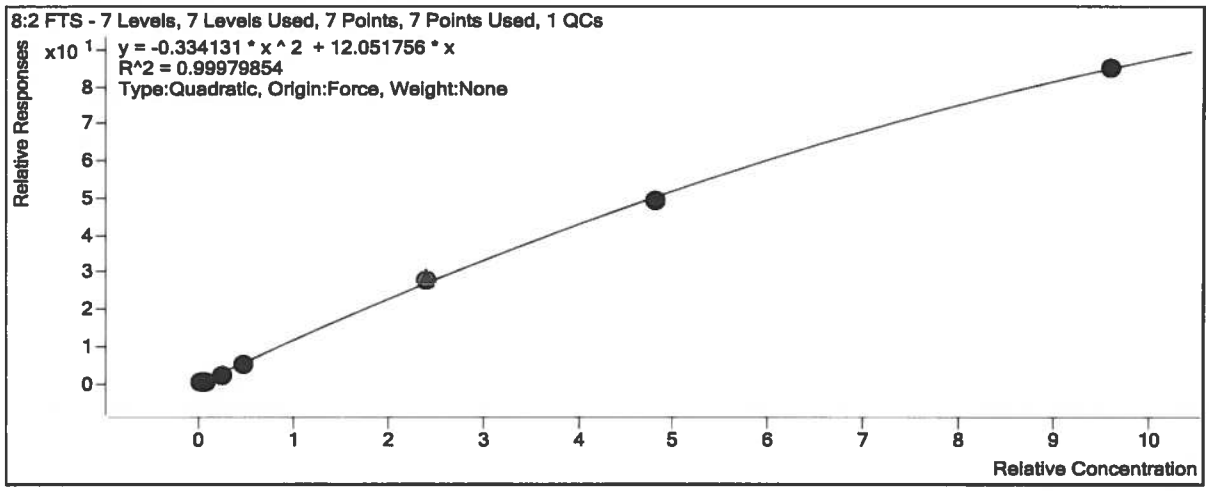


Quantitative Analysis Calibration Report



Target Compound *8:2 FTS*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191220ACAL\2191220A_02.d	Calibration	1	☑	3169	0.4800	9.2073
D:\MassHunter\Data\2191220ACAL\2191220A_03.d	Calibration	2	☑	8020	1.2000	9.4947
D:\MassHunter\Data\2191220ACAL\2191220A_04.d	Calibration	3	☑	33556	4.8000	10.5124
D:\MassHunter\Data\2191220ACAL\2191220A_05.d	Calibration	4	☑	72118	9.6000	11.3935
D:\MassHunter\Data\2191220ACAL\2191220A_06.d	Calibration	5	☑	369245	48.0000	11.6084
D:\MassHunter\Data\2191220ACAL\2191220A_07.d	Calibration	6	☑	709936	96.0000	10.3310
D:\MassHunter\Data\2191220ACAL\2191220A_08.d	Calibration	7	☑	1257528	192.0000	8.8532

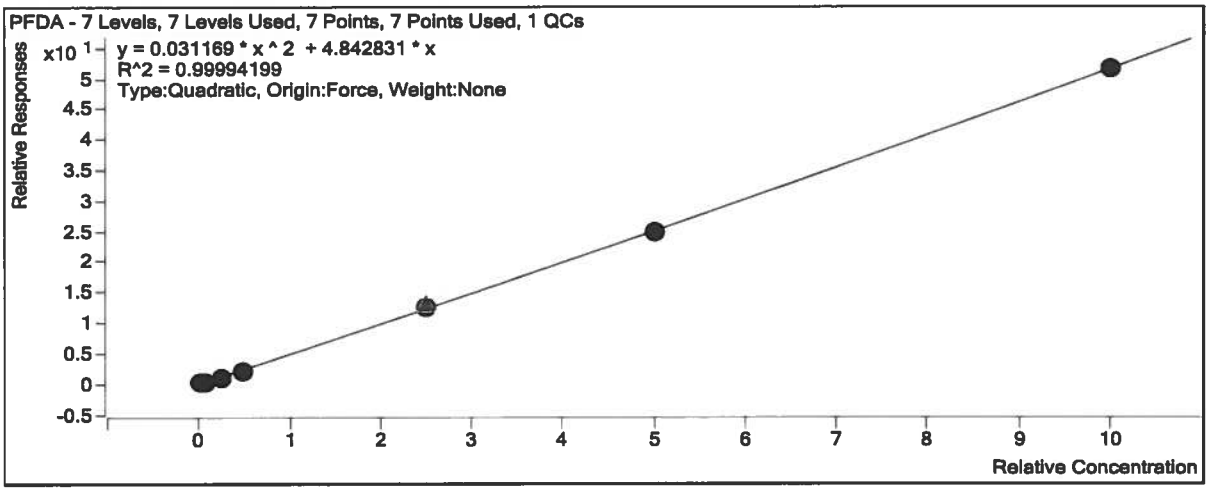


Extracted ISTD *M2 8:2 FTS*

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

Quantitative Analysis Calibration Report

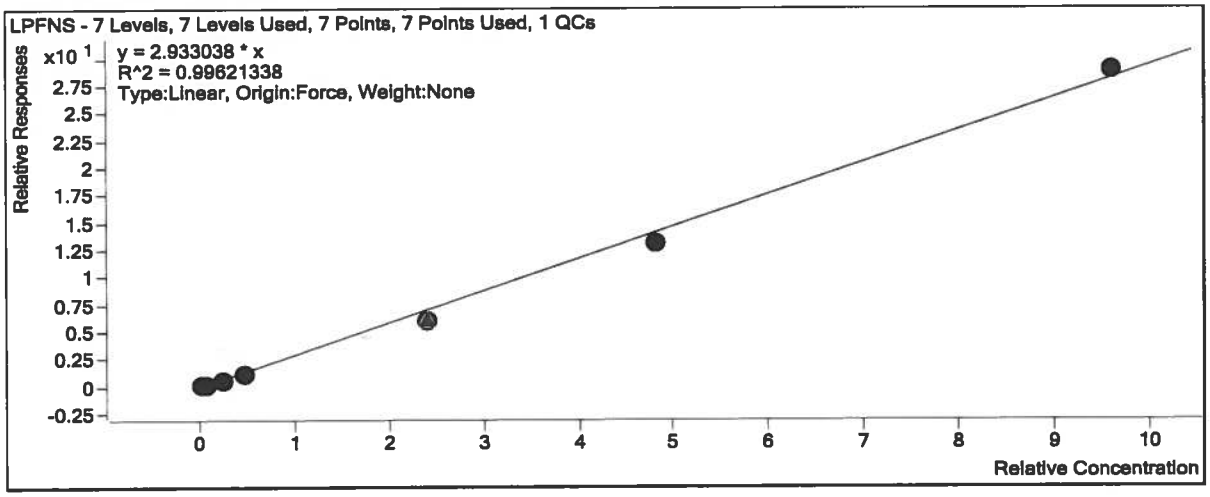
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191220ACAL\2191220A_05.d	Calibration	4	☑	54027	10.0000	4.2543
D:\MassHunter\Data\2191220ACAL\2191220A_06.d	Calibration	5	☑	296046	50.0000	4.9744
D:\MassHunter\Data\2191220ACAL\2191220A_07.d	Calibration	6	☑	579314	100.0000	4.9927
D:\MassHunter\Data\2191220ACAL\2191220A_08.d	Calibration	7	☑	1100740	200.0000	5.1545



Target Compound *LPFNS*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191220ACAL\2191220A_02.d	Calibration	1	☑	1458	0.4800	2.5686
D:\MassHunter\Data\2191220ACAL\2191220A_03.d	Calibration	2	☑	3639	1.2000	2.3345
D:\MassHunter\Data\2191220ACAL\2191220A_04.d	Calibration	3	☑	14793	4.8000	2.3907
D:\MassHunter\Data\2191220ACAL\2191220A_05.d	Calibration	4	☑	30030	9.6000	2.3919
D:\MassHunter\Data\2191220ACAL\2191220A_06.d	Calibration	5	☑	163079	48.0000	2.4883
D:\MassHunter\Data\2191220ACAL\2191220A_07.d	Calibration	6	☑	346957	96.0000	2.7426
D:\MassHunter\Data\2191220ACAL\2191220A_08.d	Calibration	7	☑	726021	192.0000	3.0102

Quantitative Analysis Calibration Report



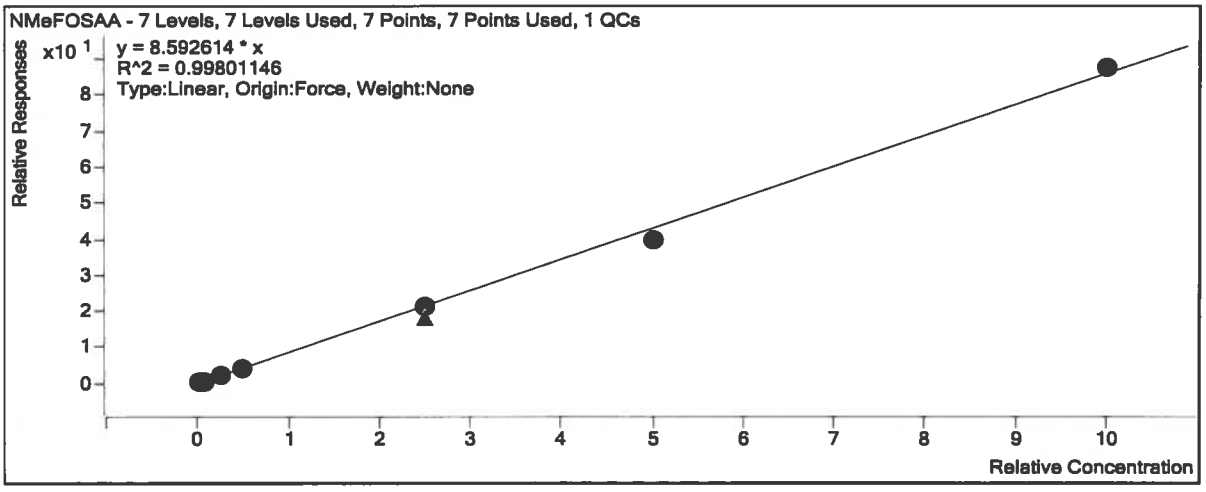
Quantitative Analysis Calibration Report

Extracted ISTD *d3-NMeFOSAA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191220ACAL\2191220A_02.d	Calibration	1	☑	3778	20.0000	188.8768
D:\MassHunter\Data\2191220ACAL\2191220A_03.d	Calibration	2	☑	3292	20.0000	164.6202
D:\MassHunter\Data\2191220ACAL\2191220A_04.d	Calibration	3	☑	3670	20.0000	183.5133
D:\MassHunter\Data\2191220ACAL\2191220A_05.d	Calibration	4	☑	4085	20.0000	204.2474
D:\MassHunter\Data\2191220ACAL\2191220A_06.d	Calibration	5	☑	4262	20.0000	213.0993
D:\MassHunter\Data\2191220ACAL\2191220A_07.d	Calibration	6	☑	4685	20.0000	234.2543
D:\MassHunter\Data\2191220ACAL\2191220A_08.d	Calibration	7	☑	4393	20.0000	219.6706

Target Compound *NMeFOSAA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191220ACAL\2191220A_02.d	Calibration	1	☑	768	0.5000	8.1295
D:\MassHunter\Data\2191220ACAL\2191220A_03.d	Calibration	2	☑	2045	1.2500	9.9378
D:\MassHunter\Data\2191220ACAL\2191220A_04.d	Calibration	3	☑	8323	5.0000	9.0706
D:\MassHunter\Data\2191220ACAL\2191220A_05.d	Calibration	4	☑	16678	10.0000	8.1656
D:\MassHunter\Data\2191220ACAL\2191220A_06.d	Calibration	5	☑	92157	50.0000	8.6492
D:\MassHunter\Data\2191220ACAL\2191220A_07.d	Calibration	6	☑	186517	100.0000	7.9621
D:\MassHunter\Data\2191220ACAL\2191220A_08.d	Calibration	7	☑	384310	200.0000	8.7474

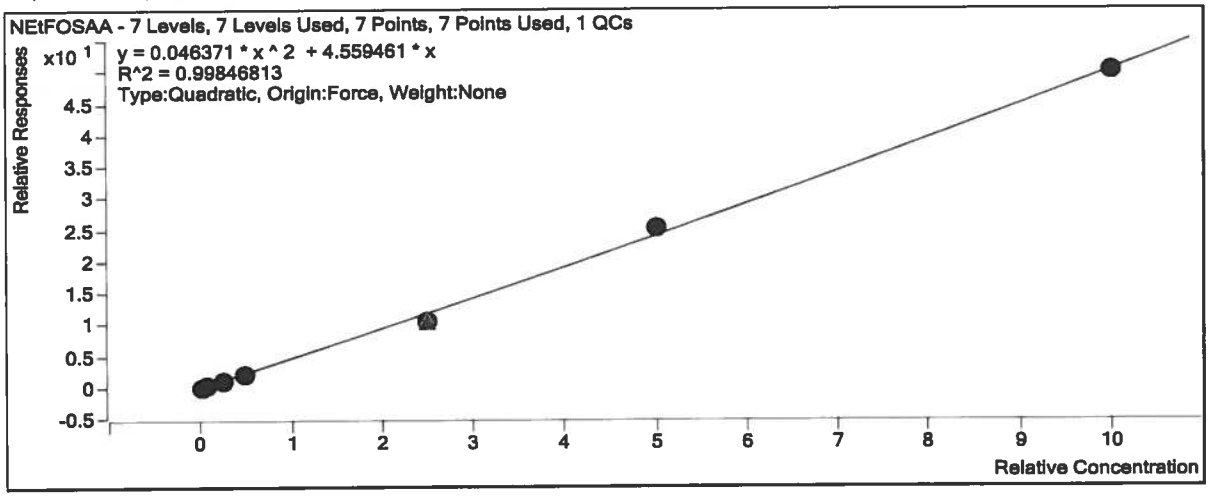


Extracted ISTD *M8FOSA*

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

Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191220ACAL\2191220A_06.d	Calibration	5	☑	85324	50.0000	4.1173
D:\MassHunter\Data\2191220ACAL\2191220A_07.d	Calibration	6	☑	170280	100.0000	5.0107
D:\MassHunter\Data\2191220ACAL\2191220A_08.d	Calibration	7	☑	332696	200.0000	5.0045



Extracted ISTD *M7PFUdA*

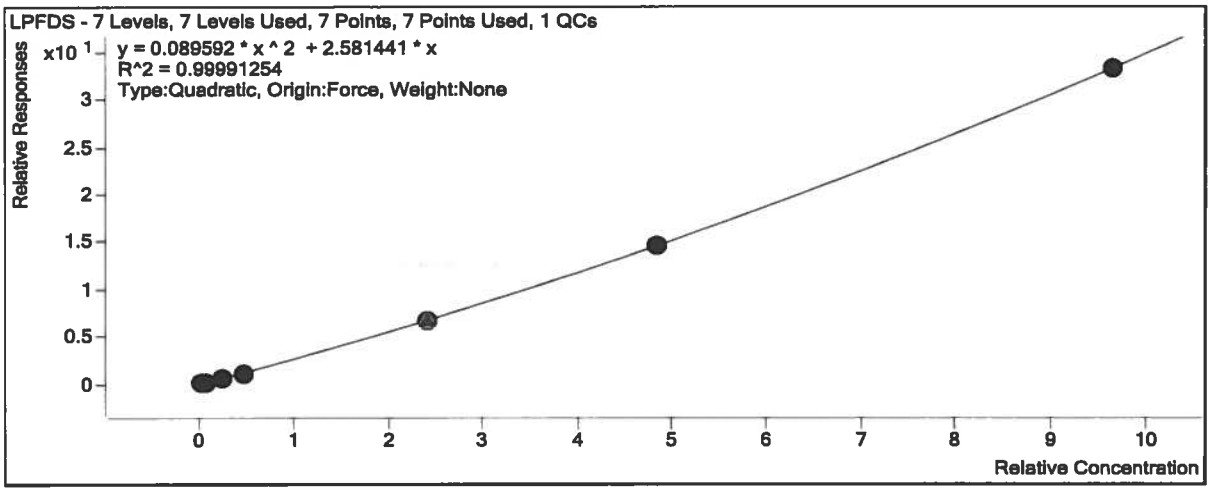
Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191220ACAL\2191220A_02.d	Calibration	1	☑	23719	20.0000	1185.9683
D:\MassHunter\Data\2191220ACAL\2191220A_03.d	Calibration	2	☑	26681	20.0000	1334.0624
D:\MassHunter\Data\2191220ACAL\2191220A_04.d	Calibration	3	☑	26162	20.0000	1308.0865
D:\MassHunter\Data\2191220ACAL\2191220A_05.d	Calibration	4	☑	27688	20.0000	1384.4106
D:\MassHunter\Data\2191220ACAL\2191220A_06.d	Calibration	5	☑	24484	20.0000	1224.1964
D:\MassHunter\Data\2191220ACAL\2191220A_07.d	Calibration	6	☑	26240	20.0000	1312.0090
D:\MassHunter\Data\2191220ACAL\2191220A_08.d	Calibration	7	☑	24056	20.0000	1202.7797

Target Compound *LPFDS*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191220ACAL\2191220A_02.d	Calibration	1	☑	1391	0.4825	2.6186
D:\MassHunter\Data\2191220ACAL\2191220A_03.d	Calibration	2	☑	3741	1.2100	2.5674
D:\MassHunter\Data\2191220ACAL\2191220A_04.d	Calibration	3	☑	13476	4.8250	2.2602
D:\MassHunter\Data\2191220ACAL\2191220A_05.d	Calibration	4	☑	28454	9.6500	2.3219
D:\MassHunter\Data\2191220ACAL\2191220A_06.d	Calibration	5	☑	156826	48.2500	2.7307

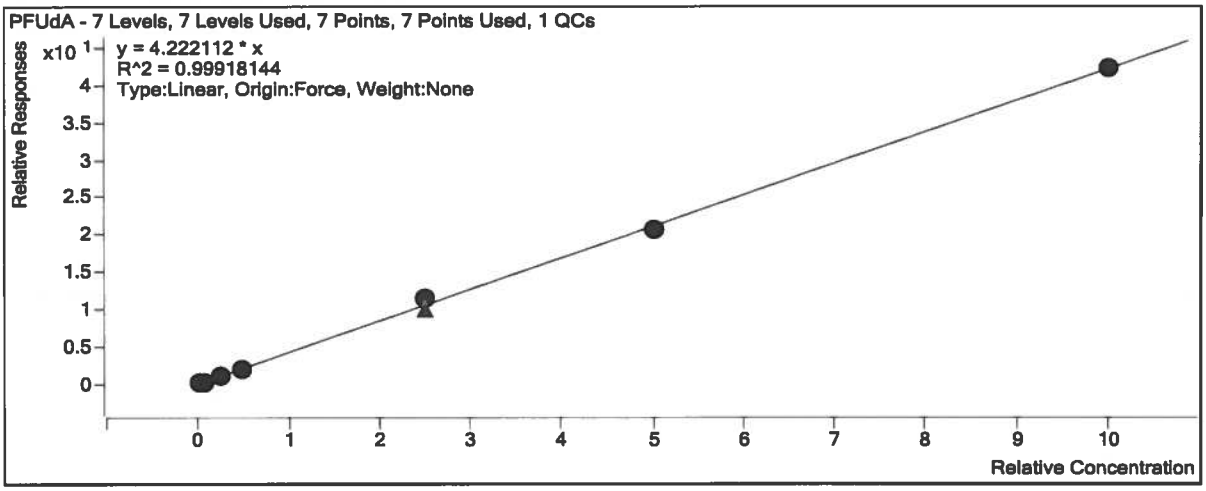
Quantitative Analysis Calibration Report

D:\MassHunter\Data\2191220ACAL\2191220A_07.d	Calibration	6	☑	341087	96.5000	3.0462
D:\MassHunter\Data\2191220ACAL\2191220A_08.d	Calibration	7	☑	709521	193.0000	3.4430



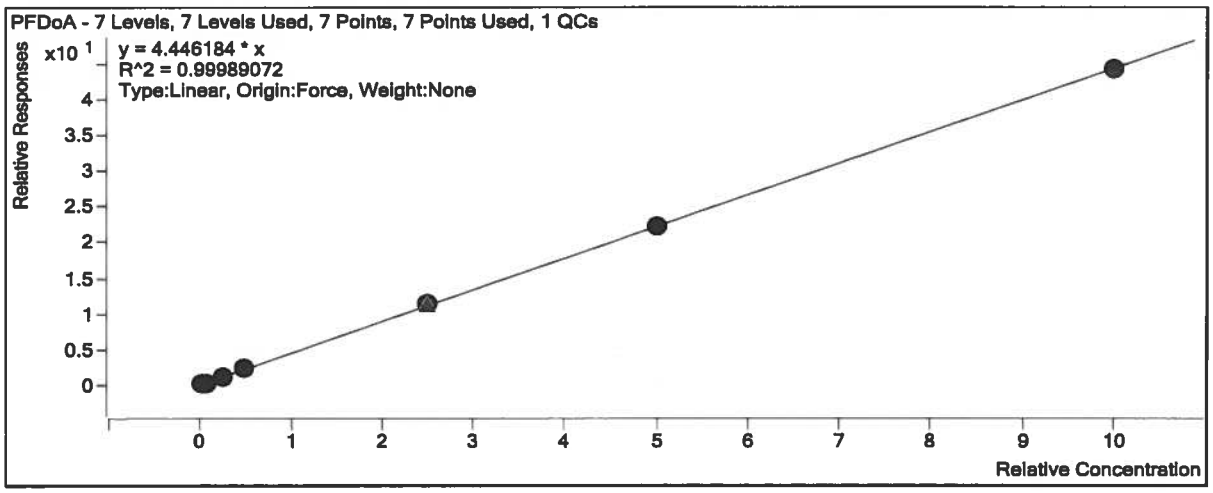
Target Compound *PFUdA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191220ACAL\2191220A_02.d	Calibration	1	☑	2207	0.5000	3.7224
D:\MassHunter\Data\2191220ACAL\2191220A_03.d	Calibration	2	☑	5753	1.2500	3.4501
D:\MassHunter\Data\2191220ACAL\2191220A_04.d	Calibration	3	☑	25414	5.0000	3.8856
D:\MassHunter\Data\2191220ACAL\2191220A_05.d	Calibration	4	☑	53605	10.0000	3.8720
D:\MassHunter\Data\2191220ACAL\2191220A_06.d	Calibration	5	☑	281217	50.0000	4.5943
D:\MassHunter\Data\2191220ACAL\2191220A_07.d	Calibration	6	☑	539368	100.0000	4.1110
D:\MassHunter\Data\2191220ACAL\2191220A_08.d	Calibration	7	☑	1017009	200.0000	4.2277



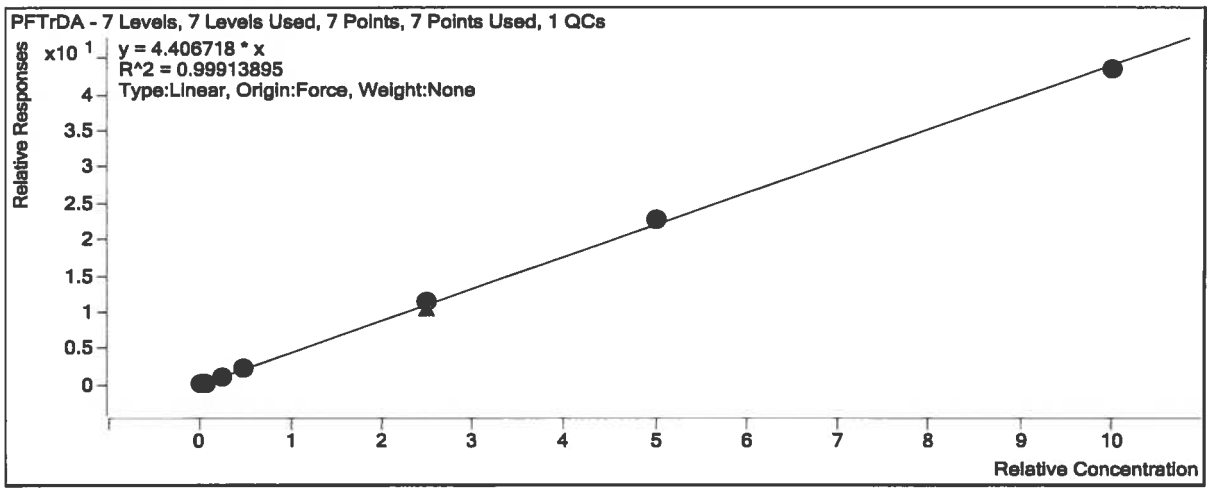
Target Compound *11Cl-PF3OUdS*

Quantitative Analysis Calibration Report



Target Compound *PFTrDA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191220ACAL\2191220A_02.d	Calibration	1	☑	1608	0.5000	4.5426
D:\MassHunter\Data\2191220ACAL\2191220A_03.d	Calibration	2	☑	3628	1.2500	3.7765
D:\MassHunter\Data\2191220ACAL\2191220A_04.d	Calibration	3	☑	16559	5.0000	4.3224
D:\MassHunter\Data\2191220ACAL\2191220A_05.d	Calibration	4	☑	35655	10.0000	4.4646
D:\MassHunter\Data\2191220ACAL\2191220A_06.d	Calibration	5	☑	192316	50.0000	4.6504
D:\MassHunter\Data\2191220ACAL\2191220A_07.d	Calibration	6	☑	390284	100.0000	4.5723
D:\MassHunter\Data\2191220ACAL\2191220A_08.d	Calibration	7	☑	767899	200.0000	4.3500

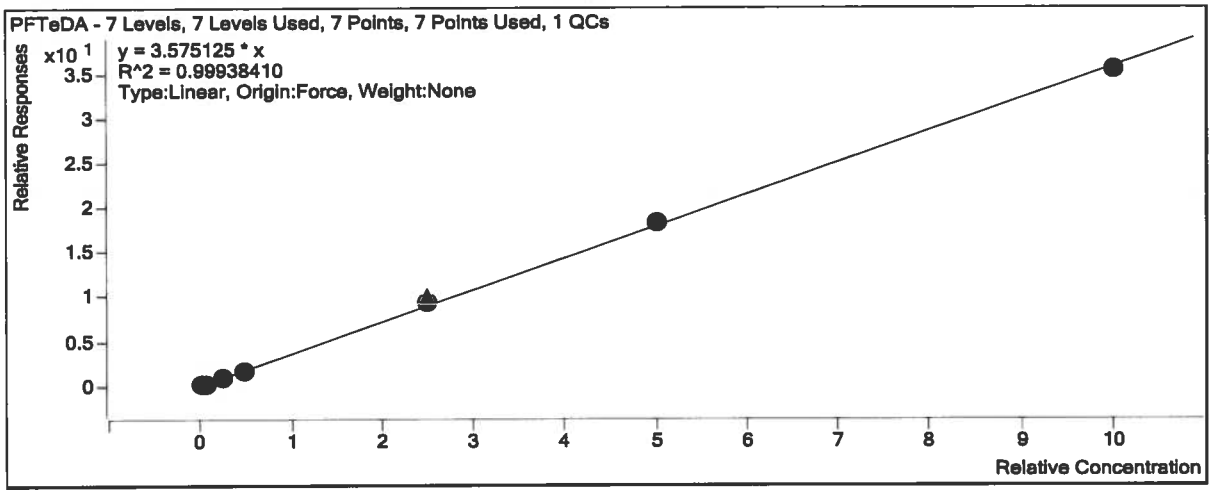


Target Compound *PFTeDA*

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

Quantitative Analysis Calibration Report

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191220ACAL\2191220A_08.d	Calibration	7	☑	624360	200.0000	3.5369



Extracted ISTD *M2PFTeDA*

Calibration STD	Cal Type	Level	Enabled	Response	Exp Conc (ng/mL)	RF
D:\MassHunter\Data\2191220ACAL\2191220A_02.d	Calibration	1	☑	14159	20.0000	707.9567
D:\MassHunter\Data\2191220ACAL\2191220A_03.d	Calibration	2	☑	15370	20.0000	768.5220
D:\MassHunter\Data\2191220ACAL\2191220A_04.d	Calibration	3	☑	15324	20.0000	766.2116
D:\MassHunter\Data\2191220ACAL\2191220A_05.d	Calibration	4	☑	15972	20.0000	798.6011
D:\MassHunter\Data\2191220ACAL\2191220A_06.d	Calibration	5	☑	16542	20.0000	827.0884
D:\MassHunter\Data\2191220ACAL\2191220A_07.d	Calibration	6	☑	17072	20.0000	853.5836
D:\MassHunter\Data\2191220ACAL\2191220A_08.d	Calibration	7	☑	17653	20.0000	882.6388

6I

ORGANICS INITIAL CALIBRATION VERIFICATION

Report No:	219102326	Instrument ID:	QQQ1
Analysis Date:	12/20/2019 10:56	Lab File ID:	2191220A_10.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	674094

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	50000	55200	110	70	130	
8:2 Fluorotelomer sulfonate	ng/L	50000	51900	104	70	130	
NEtFOSAA	ng/L	50000	44600	89	70	130	
NMeFOSAA	ng/L	50000	43100	86	70	130	
Perfluorobutanoic acid	ng/L	50000	50300	101	70	130	
Perfluorobutanesulfonic acid	ng/L	50000	53900	108	70	130	
Perfluorodecanoic acid	ng/L	50000	54600	109	70	130	
Perfluorododecanoic acid	ng/L	50000	50900	102	70	130	
Perfluoroheptanoic acid	ng/L	50000	48400	97	70	130	
Perfluorohexanoic acid	ng/L	50000	53000	106	70	130	
Perfluorohexanesulfonic acid	ng/L	50000	56900	114	70	130	
Perfluorononanoic acid	ng/L	50000	54700	109	70	130	
Perfluorooctanoic acid	ng/L	50000	49500	99	70	130	
Perfluorooctane Sulfonate	ng/L	50000	50900	102	70	130	
Perfluoropentanoic acid	ng/L	50000	49500	99	70	130	
Perfluorotetradecanoic acid	ng/L	50000	56100	112	70	130	
Perfluorotridecanoic acid	ng/L	50000	48700	97	70	130	
Perfluoroundecanoic acid	ng/L	50000	47500	95	70	130	

7S

ORGANICS INSTRUMENT SENSITIVITY CHECK

Report No:	219102326	Instrument ID:	QQQ1
Analysis Date:	12/20/2019 11:07	Lab File ID:	2191220A_11.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	674094

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	7.93	8.20	104	70	130	
8:2 Fluorotelomer sulfonate	ng/L	8.00	6.93	87	70	130	
NEtFOSAA	ng/L	8.33	9.67	116	70	130	
NMeFOSAA	ng/L	8.33	9.27	111	70	130	
Perfluorobutanoic acid	ng/L	8.33	9.53	115	70	130	
Perfluorobutanesulfonic acid	ng/L	7.40	6.73	92	70	130	
Perfluorodecanoic acid	ng/L	8.33	8.07	97	70	130	
Perfluorododecanoic acid	ng/L	8.33	8.80	106	70	130	
Perfluoroheptanoic acid	ng/L	8.33	7.60	91	70	130	
Perfluorohexanoic acid	ng/L	8.33	8.00	96	70	130	
Perfluorohexanesulfonic acid	ng/L	7.60	8.27	109	70	130	
Perfluorononanoic acid	ng/L	8.33	7.13	85	70	130	
Perfluorooctanoic acid	ng/L	8.33	7.80	93	70	130	
Perfluorooctane Sulfonate	ng/L	7.73	7.47	96	70	130	
Perfluoropentanoic acid	ng/L	8.33	7.07	85	70	130	
Perfluorotetradecanoic acid	ng/L	8.33	8.87	106	70	130	
Perfluorotridecanoic acid	ng/L	8.33	8.60	103	70	130	
Perfluoroundecanoic acid	ng/L	8.33	8.13	98	70	130	

FORM 7S - ORG

4I

ORGANICS INSTRUMENT BLANK

Report No:	219102326	Instrument ID:	QQQ1
Analysis Date:	12/20/2019 11:18	Lab File ID:	2191220A_12.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	674094

ANALYTE	UNITS	RESULT	Q	DL	LOD	LOQ	#
6:2 Fluorotelomer sulfonate	ng/L	4.00	U	1.79	4.00	10.0	
8:2 Fluorotelomer sulfonate	ng/L	4.00	U	1.63	4.00	10.0	
NEtFOSAA	ng/L	8.00	U	5.38	8.00	10.0	
NMeFOSAA	ng/L	8.00	U	4.60	8.00	10.0	
Perfluorobutanesulfonic acid	ng/L	4.00	U	1.47	4.00	10.0	
Perfluorobutanoic acid	ng/L	4.00	U	2.13	4.00	10.0	
Perfluorodecanoic acid	ng/L	4.00	U	1.65	4.00	10.0	
Perfluorododecanoic acid	ng/L	4.00	U	2.45	4.00	10.0	
Perfluoroheptanoic acid	ng/L	4.00	U	1.85	4.00	10.0	
Perfluorohexanesulfonic acid	ng/L	4.00	U	1.64	4.00	10.0	
Perfluorohexanoic acid	ng/L	4.00	U	1.94	4.00	10.0	
Perfluorononanoic acid	ng/L	4.00	U	1.68	4.00	10.0	
Perfluorooctane Sulfonate	ng/L	4.00	U	1.70	4.00	10.0	
Perfluorooctanoic acid	ng/L	4.00	U	1.80	4.00	10.0	
Perfluoropentanoic acid	ng/L	4.00	U	2.35	4.00	10.0	
Perfluorotetradecanoic acid	ng/L	4.00	U	2.76	4.00	10.0	
Perfluorotridecanoic acid	ng/L	4.00	U	2.56	4.00	10.0	
Perfluoroundecanoic acid	ng/L	4.00	U	1.86	4.00	10.0	

* - Result greater than 1/2 LOQ

FORM 4I - ORG

7E

ORGANICS CALIBRATION VERIFICATION

Report No:	219102326	Instrument ID:	QQQ1
Analysis Date:	12/20/2019 18:18	Lab File ID:	2191220A_49.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	674094

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	47500	47800	101	70	130	
8:2 Fluorotelomer sulfonate	ng/L	48000	46100	96	70	130	
NEtFOSAA	ng/L	50000	65000	130	70	130	
NMeFOSAA	ng/L	50000	51300	103	70	130	
Perfluorobutanoic acid	ng/L	50000	47000	94	70	130	
Perfluorobutanesulfonic acid	ng/L	44300	43200	98	70	130	
Perfluorodecanoic acid	ng/L	50000	50000	100	70	130	
Perfluorododecanoic acid	ng/L	50000	52800	106	70	130	
Perfluoroheptanoic acid	ng/L	50000	47800	96	70	130	
Perfluorohexanoic acid	ng/L	50000	49500	99	70	130	
Perfluorohexanesulfonic acid	ng/L	45600	47000	103	70	130	
Perfluorononanoic acid	ng/L	50000	50000	100	70	130	
Perfluorooctanoic acid	ng/L	50000	49200	98	70	130	
Perfluorooctane Sulfonate	ng/L	46300	48100	104	70	130	
Perfluoropentanoic acid	ng/L	50000	46800	94	70	130	
Perfluorotetradecanoic acid	ng/L	50000	52300	105	70	130	
Perfluorotridecanoic acid	ng/L	50000	53000	106	70	130	
Perfluoroundecanoic acid	ng/L	50000	49400	99	70	130	

FORM 7E - ORG

7E

ORGANICS CALIBRATION VERIFICATION

Report No:	219102326	Instrument ID:	QQQ1
Analysis Date:	12/20/2019 20:34	Lab File ID:	2191220A_62.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	674094

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
6:2 Fluorotelomer sulfonate	ng/L	47500	50600	106	70	130	
8:2 Fluorotelomer sulfonate	ng/L	48000	46000	96	70	130	
NEtFOSAA	ng/L	50000	54900	110	70	130	
NMeFOSAA	ng/L	50000	45900	92	70	130	
Perfluorobutanoic acid	ng/L	50000	47000	94	70	130	
Perfluorobutanesulfonic acid	ng/L	44300	45400	103	70	130	
Perfluorodecanoic acid	ng/L	50000	53500	107	70	130	
Perfluorododecanoic acid	ng/L	50000	56200	112	70	130	
Perfluoroheptanoic acid	ng/L	50000	49700	99	70	130	
Perfluorohexanoic acid	ng/L	50000	49000	98	70	130	
Perfluorohexanesulfonic acid	ng/L	45600	51200	112	70	130	
Perfluorononanoic acid	ng/L	50000	48900	98	70	130	
Perfluorooctanoic acid	ng/L	50000	49100	98	70	130	
Perfluorooctane Sulfonate	ng/L	46300	51200	111	70	130	
Perfluoropentanoic acid	ng/L	50000	44100	88	70	130	
Perfluorotetradecanoic acid	ng/L	50000	51700	103	70	130	
Perfluorotridecanoic acid	ng/L	50000	53700	107	70	130	
Perfluoroundecanoic acid	ng/L	50000	50800	102	70	130	

FORM 7E - ORG

8I

INJECTION INTERNAL STANDARD AREA SUMMARY

Report No:	219102326	Standard ID:	1205 (ICAL Midpoint)
Analyst:	BMH	Instrument ID:	QQQ1
Analysis Date:	12/20/19 10:11	Lab File ID:	2191220A_06.d
Analytical Method:	EPA 537 Modified	Analytical Batch:	674094

	M2PFDA	M2PFHxA	M2PFOA	M4PFOS
	Area	*Area*	*Area*	*Area*
STANDARD	132232	343724	123174	123483

CLIENT SAMPLE ID	*GCAL SAMP ID*		#		#		#		#
AOI5-1-GW-102219 (RE)DL	21910232632DL	157260		374326		137296		125037	
AOI1-3-GW-102219 (RE)DL	21910232633DL	164681		403834		139854		134464	
AOI1-1-GW-102219 (RE)DL	21910232634DL	155137		370111		109296		125961	

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 8I - ORG

8E

EXTRACTED INTERNAL STANDARD RECOVERY

Report No: 219091838 Recovery Limits: 50 - 150

Client Sample ID	GCAL SampleID	EIS1	#	EIS2	#	EIS3	#	EIS4	#	EIS5	#	EIS6	#	EIS7	#
JFTBLA-Decon-091719	21909183801	111		114		105		81		90		110		111	
JFTBLA-DW-FieldBlank-091719	21909183802	111		116		117		83		84		110		115	
MB1961980	1961980	124		110		110		54		96		112		110	
LCS1961981	1961981	110		108		106		97		92		113		111	
LCSD1961982	1961982	118		117		102		81		82		111		106	

Client Sample ID	GCAL SampleID	EIS8	#	EIS9	#	EIS10	#	EIS11	#	EIS12	#	EIS13	#	EIS14	#
JFTBLA-Decon-091719	21909183801	94		92		79		101		105		100		98	
JFTBLA-DW-FieldBlank-091719	21909183802	99		101		95		102		103		90		101	
MB1961980	1961980	98		100		103		109		109		102		105	
LCS1961981	1961981	98		96		98		106		101		103		103	
LCSD1961982	1961982	96		95		95		101		101		94		98	

Client Sample ID	GCAL SampleID	EIS15	#	EIS16	#	EIS17	#	EIS18	#	EIS19	#	EIS20	#
JFTBLA-Decon-091719	21909183801	106		104		61		97		104		116	
JFTBLA-DW-FieldBlank-091719	21909183802	111		106		85		105		103		108	
MB1961980	1961980	110		109		106		107		113		104	
LCS1961981	1961981	110		103		98		106		111		108	
LCSD1961982	1961982	106		102		98		98		102		102	

EIS1: M2 4:2 FTS EIS2: M2 6:2 FTS EIS3: M2 8:2 FTS EIS4: M2PFTeDA

EIS5: M3HFPODA EIS6: M3PFBS EIS7: M3PFHxS EIS8: M4PFHpA

EIS9: M5PFHxA EIS10: M5PFPeA EIS11: M6PFDA EIS12: M7PFUdA

EIS13: M8FOSA EIS14: M8PFOA EIS15: M8PFOS EIS16: M9PFNA

EIS17: MPFBA EIS18: MPFDoA EIS19: d3-NMeFOSAA EIS20: d5-NEtFOSAA

FORM 8E - ORG

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EXTRACTED INTERNAL STANDARD RECOVERY

Report No: 219102326 Recovery Limits: 50 - 150

Client Sample ID	GCAL SampleID	EIS1	#	EIS2	#	EIS3	#	EIS4	#	EIS5	#	EIS6	#	EIS7	#
JFTBLA-EB-PW-102219	21910232601	112		117		103		75		93		108		118	
AOI6-1-SB-1.5-2-102219	21910232602	105				96				70		95		81	
AOI6-1-SB-1.5-2-102219DL	21910232602			120											
AOI6-1-SB-1.5-2-102219RE	21910232602							65							
AOI6-1-SB-1.5-2-102219-MS	21910232603	112				95				83		90		86	
AOI6-1-SB-1.5-2-102219-MSDL	21910232603			143											
AOI6-1-SB-1.5-2-102219-MSRE	21910232603							73							
AOI6-1-SB-1.5-2-102219-MSD	21910232604	99				92				89		91		82	
AOI6-1-SB-1.5-2-102219-MSDDL	21910232604			131											
AOI6-1-SB-1.5-2-102219-MSDRE	21910232604							78							

Client Sample ID	GCAL SampleID	EIS8	#	EIS9	#	EIS10	#	EIS11	#	EIS12	#	EIS13	#	EIS14	#
JFTBLA-EB-PW-102219	21910232601	109		101		103		97		98		85		103	
AOI6-1-SB-1.5-2-102219	21910232602	94		83		88		81		77		84		87	
AOI6-1-SB-1.5-2-102219DL	21910232602														
AOI6-1-SB-1.5-2-102219RE	21910232602														
AOI6-1-SB-1.5-2-102219-MS	21910232603	90		81		85		75		78		84		85	
AOI6-1-SB-1.5-2-102219-MSDL	21910232603														
AOI6-1-SB-1.5-2-102219-MSRE	21910232603														
AOI6-1-SB-1.5-2-102219-MSD	21910232604	93		81		83		77		72		84		82	
AOI6-1-SB-1.5-2-102219-MSDDL	21910232604														
AOI6-1-SB-1.5-2-102219-MSDRE	21910232604														

Client Sample ID	GCAL SampleID	EIS15	#	EIS16	#	EIS17	#	EIS18	#	EIS19	#	EIS20	#
JFTBLA-EB-PW-102219	21910232601	83		99		97		91		96		95	
AOI6-1-SB-1.5-2-102219	21910232602	73		84		84		73		69		82	
AOI6-1-SB-1.5-2-102219DL	21910232602												
AOI6-1-SB-1.5-2-102219RE	21910232602												
AOI6-1-SB-1.5-2-102219-MS	21910232603	68		82		82		65		96		79	
AOI6-1-SB-1.5-2-102219-MSDL	21910232603												
AOI6-1-SB-1.5-2-102219-MSRE	21910232603												
AOI6-1-SB-1.5-2-102219-MSD	21910232604	70		81		81		65		80		78	
AOI6-1-SB-1.5-2-102219-MSDDL	21910232604												
AOI6-1-SB-1.5-2-102219-MSDRE	21910232604												

EIS1: M2 4:2 FTS EIS2: M2 6:2 FTS EIS3: M2 8:2 FTS EIS4: M2PFTeDA

EIS5: M3HFPODA EIS6: M3PFBS EIS7: M3PFHxS EIS8: M4PFHpA

EIS9: M5PFHxA EIS10: M5PFPeA EIS11: M6PFDA EIS12: M7PFUdA

EIS13: M8FOSA EIS14: M8PFOA EIS15: M8PFOS EIS16: M9PFNA

EIS17: MPFBA EIS18: MPFDoA EIS19: d3-NMeFOSAA EIS20: d5-NEtFOSAA

FORM 8E - ORG

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EXTRACTED INTERNAL STANDARD RECOVERY

Report No: 219102326 Recovery Limits: 50 - 150

Client Sample ID	GCAL SampleID	EIS1	#	EIS2	#	EIS3	#	EIS4	#	EIS5	#	EIS6	#	EIS7	#
AOI6-1-SB-7-7.5-102219	21910232605	115		103		100		50		85		91		80	
AOI6-1-SB-18.5-19-102219	21910232606	104		109		101		65		82		95		86	
AOI6-1-GW-102219	21910232607	100		108		104		78		104		110		113	
AOI6-3-SB-1.5-2-102219	21910232608	102				103		86		91		99		99	
AOI6-3-SB-1.5-2-102219DL	21910232608			317	*										
AOI6-3-SB-1.5-2-102219-MS	21910232609	93				103		83		75		97		96	
AOI6-3-SB-1.5-2-102219-MSDL	21910232609			314	*										
AOI6-3-SB-1.5-2-102219-MSD	21910232610	92				105		45	*	82		92		91	
AOI6-3-SB-1.5-2-102219-MSDDL	21910232610			296	*										
AOI6-2-SB-1.5-2-102219	21910232611	102				110		81		76		95		96	

Client Sample ID	GCAL SampleID	EIS8	#	EIS9	#	EIS10	#	EIS11	#	EIS12	#	EIS13	#	EIS14	#
AOI6-1-SB-7-7.5-102219	21910232605	93		79		82		78		77		79		83	
AOI6-1-SB-18.5-19-102219	21910232606	98		88		87		82		87		84		90	
AOI6-1-GW-102219	21910232607	106		106		103		99		88		92		100	
AOI6-3-SB-1.5-2-102219	21910232608	90						89		97		91		83	
AOI6-3-SB-1.5-2-102219DL	21910232608			107		105									
AOI6-3-SB-1.5-2-102219-MS	21910232609	87						93		99		90		76	
AOI6-3-SB-1.5-2-102219-MSDL	21910232609			103		101									
AOI6-3-SB-1.5-2-102219-MSD	21910232610	79						88		93		86		75	
AOI6-3-SB-1.5-2-102219-MSDDL	21910232610			100		97									
AOI6-2-SB-1.5-2-102219	21910232611	94		87				92		96		83		76	

Client Sample ID	GCAL SampleID	EIS15	#	EIS16	#	EIS17	#	EIS18	#	EIS19	#	EIS20	#
AOI6-1-SB-7-7.5-102219	21910232605	72		80		78		71		81		85	
AOI6-1-SB-18.5-19-102219	21910232606	68		84		81		73		88		87	
AOI6-1-GW-102219	21910232607	76		95		84		86		100		102	
AOI6-3-SB-1.5-2-102219	21910232608	94		99		96		87		101		101	
AOI6-3-SB-1.5-2-102219DL	21910232608												
AOI6-3-SB-1.5-2-102219-MS	21910232609	83		91		93		90		86		94	
AOI6-3-SB-1.5-2-102219-MSDL	21910232609												
AOI6-3-SB-1.5-2-102219-MSD	21910232610	86		87		87		78		100		93	
AOI6-3-SB-1.5-2-102219-MSDDL	21910232610												
AOI6-2-SB-1.5-2-102219	21910232611	84		90		90		80		92		95	

EIS1: M2 4:2 FTS EIS2: M2 6:2 FTS EIS3: M2 8:2 FTS EIS4: M2PFTeDA

EIS5: M3HFPODA EIS6: M3PFBS EIS7: M3PFHxS EIS8: M4PFHpA

EIS9: M5PFHxA EIS10: M5PFPeA EIS11: M6PFDA EIS12: M7PFUdA

EIS13: M8FOSA EIS14: M8PFOA EIS15: M8PFOS EIS16: M9PFNA

EIS17: MPFBA EIS18: MPFDoA EIS19: d3-NMeFOSAA EIS20: d5-NEtFOSAA

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EXTRACTED INTERNAL STANDARD RECOVERY

Report No: 219102326 Recovery Limits: 50 - 150

Client Sample ID	GCAL SampleID	EIS1	#	EIS2	#	EIS3	#	EIS4	#	EIS5	#	EIS6	#	EIS7	#
AOI6-2-SB-1.5-2-102219DL	21910232611			324	*										
AOI6-2-SB-1.5-2-102219-MS	21910232612	103				107		82		80		98		98	
AOI6-2-SB-1.5-2-102219-MSDL	21910232612			313	*										
AOI6-2-SB-1.5-2-102219-MSD	21910232613	98				112		84		73		95		98	
AOI6-2-SB-1.5-2-102219-MSDDL	21910232613			342	*										
AOI6-4-SB-1.5-2-102219	21910232614	95		100		108		78		73		89		92	
AOI6-4-SB-1.5-2-102219-MS	21910232615	96		102		112		73		78		92		92	
AOI6-4-SB-1.5-2-102219-MSD	21910232616	100		109		121		78		83		95		94	
AOI5-1-SB-1.5-2-102219	21910232617	111		107		126		85		78		99		97	
AOI5-1-SB-1.5-2-102219DL	21910232617														

Client Sample ID	GCAL SampleID	EIS8	#	EIS9	#	EIS10	#	EIS11	#	EIS12	#	EIS13	#	EIS14	#
AOI6-2-SB-1.5-2-102219DL	21910232611					99									
AOI6-2-SB-1.5-2-102219-MS	21910232612	93		88				91		88		87		78	
AOI6-2-SB-1.5-2-102219-MSDL	21910232612					105									
AOI6-2-SB-1.5-2-102219-MSD	21910232613	91		85				83		87		81		75	
AOI6-2-SB-1.5-2-102219-MSDDL	21910232613					104									
AOI6-4-SB-1.5-2-102219	21910232614	87		87		85		87		88		84		85	
AOI6-4-SB-1.5-2-102219-MS	21910232615	91		88		88		83		89		87		86	
AOI6-4-SB-1.5-2-102219-MSD	21910232616	92		88		88		85		89		79		87	
AOI5-1-SB-1.5-2-102219	21910232617	92		92		93		91		99		88			
AOI5-1-SB-1.5-2-102219DL	21910232617													99	

Client Sample ID	GCAL SampleID	EIS15	#	EIS16	#	EIS17	#	EIS18	#	EIS19	#	EIS20	#
AOI6-2-SB-1.5-2-102219DL	21910232611												
AOI6-2-SB-1.5-2-102219-MS	21910232612	94		92		92		85		91		99	
AOI6-2-SB-1.5-2-102219-MSDL	21910232612												
AOI6-2-SB-1.5-2-102219-MSD	21910232613	92		87		90		81		85		94	
AOI6-2-SB-1.5-2-102219-MSDDL	21910232613												
AOI6-4-SB-1.5-2-102219	21910232614	81		81		86		83		85		90	
AOI6-4-SB-1.5-2-102219-MS	21910232615	90		86		89		85		85		101	
AOI6-4-SB-1.5-2-102219-MSD	21910232616	93		85		89		81		84		93	
AOI5-1-SB-1.5-2-102219	21910232617			81		93		89		90		103	
AOI5-1-SB-1.5-2-102219DL	21910232617	79											

EIS1: M2 4:2 FTS EIS2: M2 6:2 FTS EIS3: M2 8:2 FTS EIS4: M2PFTeDA

EIS5: M3HFPODA EIS6: M3PFBS EIS7: M3PFHxS EIS8: M4PFHpA

EIS9: M5PFHxA EIS10: M5PFPeA EIS11: M6PFDA EIS12: M7PFUdA

EIS13: M8FOSA EIS14: M8PFOA EIS15: M8PFOS EIS16: M9PFNA

EIS17: MPFBA EIS18: MPFDoA EIS19: d3-NMeFOSAA EIS20: d5-NEtFOSAA

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EXTRACTED INTERNAL STANDARD RECOVERY

Report No: 219102326 Recovery Limits: 50 - 150

Client Sample ID	GCAL SampleID	EIS1	#	EIS2	#	EIS3	#	EIS4	#	EIS5	#	EIS6	#	EIS7	#
AOI5-1-SB-1.5-2-102219-D	21910232618	103		102		126		77		76		95		94	
AOI5-1-SB-1.5-2-102219-DDL	21910232618														
AOI5-1-SB-8-8.5-102219	21910232619	108		111		127		62		78		92		98	
AOI5-1-SB-8-8.5-102219DL	21910232619														
AOI5-1-SB-19-19.5-102219	21910232620	100		112		129		77		82		97		98	
AOI5-1-GW-102219	21910232621	137				121		85		119					
AOI5-1-GW-102219DL	21910232621			365	*							106		102	
AOI1-3-SB-4.5-5-102219	21910232622	102		116		149		86		75		100		103	
AOI1-3-SB-9.5-10-102219	21910232623	105		115		130		73		72		96		97	
AOI1-3-SB-16-16.5-102219	21910232624	104		115		122		68		86		94		96	

Client Sample ID	GCAL SampleID	EIS8	#	EIS9	#	EIS10	#	EIS11	#	EIS12	#	EIS13	#	EIS14	#
AOI5-1-SB-1.5-2-102219-D	21910232618	94		89		89		85		88		86			
AOI5-1-SB-1.5-2-102219-DDL	21910232618													131	
AOI5-1-SB-8-8.5-102219	21910232619	88						86		84		85		89	
AOI5-1-SB-8-8.5-102219DL	21910232619			102		106									
AOI5-1-SB-19-19.5-102219	21910232620	90		87		88		91		92		87		85	
AOI5-1-GW-102219	21910232621							99		99		94			
AOI5-1-GW-102219DL	21910232621	102		102		89								90	
AOI1-3-SB-4.5-5-102219	21910232622	96		94		94		94		90		91		93	
AOI1-3-SB-9.5-10-102219	21910232623	88		87		87		88		90		82		82	
AOI1-3-SB-16-16.5-102219	21910232624	85		87		85		87		81		85		84	

Client Sample ID	GCAL SampleID	EIS15	#	EIS16	#	EIS17	#	EIS18	#	EIS19	#	EIS20	#
AOI5-1-SB-1.5-2-102219-D	21910232618			77		90		82		89		96	
AOI5-1-SB-1.5-2-102219-DDL	21910232618	106											
AOI5-1-SB-8-8.5-102219	21910232619	90		92		88		82		90		89	
AOI5-1-SB-8-8.5-102219DL	21910232619												
AOI5-1-SB-19-19.5-102219	21910232620	101		86		89		78		84		98	
AOI5-1-GW-102219	21910232621			86				93		106		97	
AOI5-1-GW-102219DL	21910232621	118				124							
AOI1-3-SB-4.5-5-102219	21910232622	93		96		93		87		99		102	
AOI1-3-SB-9.5-10-102219	21910232623	88		87		88		81		95		97	
AOI1-3-SB-16-16.5-102219	21910232624	88		82		87		78		86		95	

EIS1: M2 4:2 FTS EIS2: M2 6:2 FTS EIS3: M2 8:2 FTS EIS4: M2PFTeDA

EIS5: M3HFPODA EIS6: M3PFBS EIS7: M3PFHxS EIS8: M4PFHpA

EIS9: M5PFHxA EIS10: M5PFPeA EIS11: M6PFDA EIS12: M7PFUdA

EIS13: M8FOSA EIS14: M8PFOA EIS15: M8PFOS EIS16: M9PFNA

EIS17: MPFBA EIS18: MPFDoA EIS19: d3-NMeFOSAA EIS20: d5-NEtFOSAA

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Client Sample ID	GCAL SampleID	EIS1	#	EIS2	#	EIS3	#	EIS4	#	EIS5	#	EIS6	#	EIS7	#
AOI1-1-SB-4.5-5-102219	21910232625	102		109		127		69		76		90		95	
AOI1-3-GW-102219	21910232626	121		80		92		82		107		108			
AOI1-3-GW-102219DL	21910232626													95	
AOI1-1-SB-10-10.5-102219	21910232627	95		111		128		70		75		89		93	
AOI1-1-SB-17-17.5-102219	21910232628	115		121		147		80		76		100		97	
AOI1-1-GW-102219	21910232629	118		76		107		83		93		105			
AOI1-1-GW-102219DL	21910232629													97	
JFTBLA-EB-PW-102219 (RE)	21910232630					102		20	*						
AOI6-1-GW-102219 (RE)	21910232631					107		50							
AOI5-1-GW-102219 (RE)	21910232632					99		61							

Client Sample ID	GCAL SampleID	EIS8	#	EIS9	#	EIS10	#	EIS11	#	EIS12	#	EIS13	#	EIS14	#
AOI1-1-SB-4.5-5-102219	21910232625	89		82		84		82		81		81		80	
AOI1-3-GW-102219	21910232626	96						96		102		80			
AOI1-3-GW-102219DL	21910232626			82		99								88	
AOI1-1-SB-10-10.5-102219	21910232627	83		82		82		84		83		79		82	
AOI1-1-SB-17-17.5-102219	21910232628	90		91		88		91		96		81		92	
AOI1-1-GW-102219	21910232629	100						93		100		87			
AOI1-1-GW-102219DL	21910232629			79		89								99	
JFTBLA-EB-PW-102219 (RE)	21910232630														
AOI6-1-GW-102219 (RE)	21910232631														
AOI5-1-GW-102219 (RE)	21910232632														

Client Sample ID	GCAL SampleID	EIS15	#	EIS16	#	EIS17	#	EIS18	#	EIS19	#	EIS20	#
AOI1-1-SB-4.5-5-102219	21910232625	82		82		84		73		80		91	
AOI1-3-GW-102219	21910232626			76		102		90		94		112	
AOI1-3-GW-102219DL	21910232626	214	*										
AOI1-1-SB-10-10.5-102219	21910232627	82		82		82		75		91		89	
AOI1-1-SB-17-17.5-102219	21910232628	97		91		91		84		91		98	
AOI1-1-GW-102219	21910232629			88		99		82		99		92	
AOI1-1-GW-102219DL	21910232629	117											
JFTBLA-EB-PW-102219 (RE)	21910232630	79								77			
AOI6-1-GW-102219 (RE)	21910232631	76								81			
AOI5-1-GW-102219 (RE)	21910232632									74			

EIS1: M2 4:2 FTS EIS2: M2 6:2 FTS EIS3: M2 8:2 FTS EIS4: M2PFTeDA

EIS5: M3HFPODA EIS6: M3PFBS EIS7: M3PFHxS EIS8: M4PFHpA

EIS9: M5PFHxA EIS10: M5PFPeA EIS11: M6PFDA EIS12: M7PFUdA

EIS13: M8FOSA EIS14: M8PFOA EIS15: M8PFOS EIS16: M9PFNA

EIS17: MPFBA EIS18: MPFDoA EIS19: d3-NMeFOSAA EIS20: d5-NEtFOSAA

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Client Sample ID	GCAL SampleID	EIS1	#	EIS2	#	EIS3	#	EIS4	#	EIS5	#	EIS6	#	EIS7	#
AOI5-1-GW-102219 (RE)DL	21910232632														
AOI1-3-GW-102219 (RE)	21910232633					110		61							
AOI1-3-GW-102219 (RE)DL	21910232633														
AOI1-1-GW-102219 (RE)	21910232634					108		94							
AOI1-1-GW-102219 (RE)DL	21910232634														
AOI6-3-SB-1.5-2-102219 (RE)	21910232635							100							
AOI6-3-SB-1.5-2-102219-MS (RE)	21910232636							88							
AOI6-3-SB-1.5-2-102219-MSD(RE)	21910232637							86							
MB1974706	1974706	110		110		100		71		79		96		85	
LCS1974707	1974707	119		110		103		74		86		96		82	

Client Sample ID	GCAL SampleID	EIS8	#	EIS9	#	EIS10	#	EIS11	#	EIS12	#	EIS13	#	EIS14	#
AOI5-1-GW-102219 (RE)DL	21910232632														
AOI1-3-GW-102219 (RE)	21910232633														
AOI1-3-GW-102219 (RE)DL	21910232633														
AOI1-1-GW-102219 (RE)	21910232634														
AOI1-1-GW-102219 (RE)DL	21910232634														
AOI6-3-SB-1.5-2-102219 (RE)	21910232635														
AOI6-3-SB-1.5-2-102219-MS (RE)	21910232636														
AOI6-3-SB-1.5-2-102219-MSD(RE)	21910232637														
MB1974706	1974706	95		86		89		86		84		80		89	
LCS1974707	1974707	95		86		87		87		80		73		89	

Client Sample ID	GCAL SampleID	EIS15	#	EIS16	#	EIS17	#	EIS18	#	EIS19	#	EIS20	#
AOI5-1-GW-102219 (RE)DL	21910232632	154	*										
AOI1-3-GW-102219 (RE)	21910232633									87			
AOI1-3-GW-102219 (RE)DL	21910232633	96											
AOI1-1-GW-102219 (RE)	21910232634									96			
AOI1-1-GW-102219 (RE)DL	21910232634	106											
AOI6-3-SB-1.5-2-102219 (RE)	21910232635												
AOI6-3-SB-1.5-2-102219-MS (RE)	21910232636												
AOI6-3-SB-1.5-2-102219-MSD(RE)	21910232637												
MB1974706	1974706	76		88		83		83		85		88	
LCS1974707	1974707	78		88		84		82		89		92	

EIS1: M2 4:2 FTS EIS2: M2 6:2 FTS EIS3: M2 8:2 FTS EIS4: M2PFTeDA

EIS5: M3HFPODA EIS6: M3PFBS EIS7: M3PFHxS EIS8: M4PFHpA

EIS9: M5PFHxA EIS10: M5PFPeA EIS11: M6PFDA EIS12: M7PFUdA

EIS13: M8FOSA | EIS14: M8PFOA | EIS15: M8PFOS | EIS16: M9PFNA

EIS17: MPFBA | EIS18: MPFDoA | EIS19: d3-NMeFOSAA | EIS20: d5-NEtFOSAA

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Client Sample ID	GCAL SampleID	EIS1	#	EIS2	#	EIS3	#	EIS4	#	EIS5	#	EIS6	#	EIS7	#
LCSD1974708	1974708	117		115		103		82		91		101		93	
MB1974709	1974709	101		97		108		86		72		96		95	
LCS1974711	1974711	105		110		102		89		88		103		102	
MB1974715	1974715	124		103		100		58		94		101		109	
LCS1974716	1974716	119		110		112		92		86		109		113	
LCSD1974717	1974717	114		105		97		57		104		103		105	
MB1976185	1976185							84							
LCS1976186	1976186							84							
LCSD1976187	1976187							84							
MB1981644	1981644					137		53							

Client Sample ID	GCAL SampleID	EIS8	#	EIS9	#	EIS10	#	EIS11	#	EIS12	#	EIS13	#	EIS14	#
LCSD1974708	1974708	101		89		91		86		88		82		89	
MB1974709	1974709	95		94		93		90		96		79		94	
LCS1974711	1974711	101		98		99		100		101		71		100	
MB1974715	1974715	99		97		98		85		90		88		93	
LCS1974716	1974716	103		103		102		94		96		92		104	
LCSD1974717	1974717	98		97		97		86		85		92		99	
MB1976185	1976185														
LCS1976186	1976186														
LCSD1976187	1976187														
MB1981644	1981644														

Client Sample ID	GCAL SampleID	EIS15	#	EIS16	#	EIS17	#	EIS18	#	EIS19	#	EIS20	#
LCSD1974708	1974708	77		94		87		80		92		86	
MB1974709	1974709	78		94		95		91		100		93	
LCS1974711	1974711	90		95		99		90		91		108	
MB1974715	1974715	72		91		99		76		82		91	
LCS1974716	1974716	81		102		105		92		108		107	
LCSD1974717	1974717	72		89		99		71		84		83	
MB1976185	1976185												
LCS1976186	1976186												
LCSD1976187	1976187												
MB1981644	1981644	98								101			

EIS1: M2 4:2 FTS | EIS2: M2 6:2 FTS | EIS3: M2 8:2 FTS | EIS4: M2PFTeDA

EIS5: M3HFPODA | EIS6: M3PFBS | EIS7: M3PFHxS | EIS8: M4PFHpA

EIS9: M5PFHxA | EIS10: M5PFPeA | EIS11: M6PFDA | EIS12: M7PFUdA

EIS13: M8FOSA EIS14: M8PFOA EIS15: M8PFOS EIS16: M9PFNA

EIS17: MPFBA EIS18: MPFDoA EIS19: d3-NMeFOSAA EIS20: d5-NEtFOSAA

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Client Sample ID	GCAL SampleID	EIS1	#	EIS2	#	EIS3	#	EIS4	#	EIS5	#	EIS6	#	EIS7	#
LCS1981645	1981645					129		55							
LCSD1981646	1981646					139		93							
MB1983598	1983598							98							
LCS1983599	1983599							98							
LCSD1983600	1983600							97							

Client Sample ID	GCAL SampleID	EIS8	#	EIS9	#	EIS10	#	EIS11	#	EIS12	#	EIS13	#	EIS14	#
LCS1981645	1981645														
LCSD1981646	1981646														
MB1983598	1983598														
LCS1983599	1983599														
LCSD1983600	1983600														

Client Sample ID	GCAL SampleID	EIS15	#	EIS16	#	EIS17	#	EIS18	#	EIS19	#	EIS20	#
LCS1981645	1981645	96								86			
LCSD1981646	1981646	112								103			
MB1983598	1983598												
LCS1983599	1983599												
LCSD1983600	1983600												

EIS1: M2 4:2 FTS EIS2: M2 6:2 FTS EIS3: M2 8:2 FTS EIS4: M2PFTeDA

EIS5: M3HFPODA EIS6: M3PFBS EIS7: M3PFHxS EIS8: M4PFHpA

EIS9: M5PFHxA EIS10: M5PFPeA EIS11: M6PFDA EIS12: M7PFUdA

EIS13: M8FOSA EIS14: M8PFOA EIS15: M8PFOS EIS16: M9PFNA

EIS17: MPFBA EIS18: MPFDoA EIS19: d3-NMeFOSAA EIS20: d5-NEtFOSAA

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Client Sample ID	GCAL SampleID	EIS1	#	EIS2	#	EIS3	#	EIS4	#	EIS5	#	EIS6	#	EIS7	#
AOI7-10-SB-1.5-2-102119	21910233301	97		107		110		78		71		94		95	
AOI7-10-SB-7.5-8-102119	21910233302	96		101		108		28	*	69		94		97	
AOI7-5-SB-1.5-2-102119	21910233303	105		111		124		27	*	80		98		99	
AOI7-10-SB-17-17.5-102119	21910233304	107		107		130		64		80		101		101	
JFTBLA-EB-HA-102119	21910233305	123		110		103		78		100		110		112	
AOI7-6-SB-1.5-2-102119	21910233306	105		113		130		83		81		101		103	
AOI7-7-SB-1.5-2-102119	21910233307	107		113		125		19	*	74		102		94	
AOI7-10-GW-102119	21910233308	123		108		78		78		104		112		110	
AOI7-11-SB-1.5-2-102119	21910233309	105		102		116		73		80		96		96	
AOI7-11-SB-7.5-8-102119	21910233310	79		85		84		75		278	*	92		92	

Client Sample ID	GCAL SampleID	EIS8	#	EIS9	#	EIS10	#	EIS11	#	EIS12	#	EIS13	#	EIS14	#
AOI7-10-SB-1.5-2-102119	21910233301	91		89		88		89		96		87		89	
AOI7-10-SB-7.5-8-102119	21910233302	89		89		89		79		86		85		89	
AOI7-5-SB-1.5-2-102119	21910233303	92		90		90		87		90		91		88	
AOI7-10-SB-17-17.5-102119	21910233304	93		92		95		89		92		92		94	
JFTBLA-EB-HA-102119	21910233305	108		105		104		96		96		97		102	
AOI7-6-SB-1.5-2-102119	21910233306	98		91		95		90		99		97		91	
AOI7-7-SB-1.5-2-102119	21910233307	98		95		94		89		91		88		94	
AOI7-10-GW-102119	21910233308	107		106		104		92		104		64		105	
AOI7-11-SB-1.5-2-102119	21910233309	90		89		88		83		92		91		86	
AOI7-11-SB-7.5-8-102119	21910233310	88		88		90		83		89		94		88	

Client Sample ID	GCAL SampleID	EIS15	#	EIS16	#	EIS17	#	EIS18	#	EIS19	#	EIS20	#
AOI7-10-SB-1.5-2-102119	21910233301	93		87		87		79		101		97	
AOI7-10-SB-7.5-8-102119	21910233302	92		88		89		72		84		90	
AOI7-5-SB-1.5-2-102119	21910233303	88		87		92		84		85		91	
AOI7-10-SB-17-17.5-102119	21910233304	101		91		96		82		95		104	
JFTBLA-EB-HA-102119	21910233305	78		99		106		89		112		96	
AOI7-6-SB-1.5-2-102119	21910233306	105		91		96		84		101		103	
AOI7-7-SB-1.5-2-102119	21910233307	101		89		93		85		90		91	
AOI7-10-GW-102119	21910233308	69		97		83		90		107		89	
AOI7-11-SB-1.5-2-102119	21910233309	95		87		87		84		96		98	
AOI7-11-SB-7.5-8-102119	21910233310	77		83		87		81		96		78	

EIS1: M2 4:2 FTS EIS2: M2 6:2 FTS EIS3: M2 8:2 FTS EIS4: M2PFTeDA

EIS5: M3HFPODA EIS6: M3PFBS EIS7: M3PFHxS EIS8: M4PFHpA

EIS9: M5PFHxA EIS10: M5PFPeA EIS11: M6PFDA EIS12: M7PFUdA

EIS13: M8FOSA EIS14: M8PFOA EIS15: M8PFOS EIS16: M9PFNA

EIS17: MPFBA EIS18: MPFDoA EIS19: d3-NMeFOSAA EIS20: d5-NEtFOSAA

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* M3HFPODA is not associated with any target analytes

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Client Sample ID	GCAL SampleID	EIS1	#	EIS2	#	EIS3	#	EIS4	#	EIS5	#	EIS6	#	EIS7	#
AOI7-8-SB-1.5-2-102119	21910233311	104		105		115		80		76		99		99	
AOI7-11-SB-18-18.5-102119	21910233312	102		112		122		27	*	78		102		103	
AOI7-9-SB-1.5-2-102119	21910233313	108		108		119		87		84		102		104	
AOI7-7-11-GW-102119	21910233314	116		104		99		56		93		108		112	
AOI7-9-SB-7.5-8-102119	21910233315	106		105		119		64		79		97		95	
JFTBLA-FRB-102119	21910233316	123		116		115		84		89		108		108	
AOI7-1-SB-1.5-2-102119	21910233317	94		105		107		76		78		93		93	
AOI7-9-SB-17-17.5-102119	21910233318	103		102		119		11	*	76		94		93	
AOI7-2-SB-1.5-2-102119	21910233319	108		113		131		90		85		108		105	
AOI7-3-SB-1.5-2-102119	21910233320	108		122		122		86		81		106		104	

Client Sample ID	GCAL SampleID	EIS8	#	EIS9	#	EIS10	#	EIS11	#	EIS12	#	EIS13	#	EIS14	#
AOI7-8-SB-1.5-2-102119	21910233311	91		87		89		90		90		88		89	
AOI7-11-SB-18-18.5-102119	21910233312	96		94		96		90		96		95		90	
AOI7-9-SB-1.5-2-102119	21910233313	96		93		95		92		94		92		96	
AOI7-7-11-GW-102119	21910233314	105		104		101		90		93		72		100	
AOI7-9-SB-7.5-8-102119	21910233315	97		89		92		89		89		90		86	
JFTBLA-FRB-102119	21910233316	104		104		104		92		96		91		103	
AOI7-1-SB-1.5-2-102119	21910233317	87		85		86		84		89		78		88	
AOI7-9-SB-17-17.5-102119	21910233318	91		90		92		94		89		88		91	
AOI7-2-SB-1.5-2-102119	21910233319	101		99		98		94		91		96		102	
AOI7-3-SB-1.5-2-102119	21910233320	103		97		99		90		98		97		97	

Client Sample ID	GCAL SampleID	EIS15	#	EIS16	#	EIS17	#	EIS18	#	EIS19	#	EIS20	#
AOI7-8-SB-1.5-2-102119	21910233311	97		89		90		83		99		100	
AOI7-11-SB-18-18.5-102119	21910233312	101		93		97		83		109		96	
AOI7-9-SB-1.5-2-102119	21910233313	103		87		97		89		97		110	
AOI7-7-11-GW-102119	21910233314	75		93		56		76		88		92	
AOI7-9-SB-7.5-8-102119	21910233315	95		86		93		79		93		93	
JFTBLA-FRB-102119	21910233316	72		99		106		79		94		100	
AOI7-1-SB-1.5-2-102119	21910233317	87		81		78		78		88		100	
AOI7-9-SB-17-17.5-102119	21910233318	99		85		90		79		86		81	
AOI7-2-SB-1.5-2-102119	21910233319	105		96		99		87		105		100	
AOI7-3-SB-1.5-2-102119	21910233320	102		92		100		94		99		121	

EIS1: M2 4:2 FTS EIS2: M2 6:2 FTS EIS3: M2 8:2 FTS EIS4: M2PFTeDA

EIS5: M3HFPODA EIS6: M3PFBS EIS7: M3PFHxS EIS8: M4PFHpA

EIS9: M5PFHxA EIS10: M5PFPeA EIS11: M6PFDA EIS12: M7PFUdA

EIS13: M8FOSA EIS14: M8PFOA EIS15: M8PFOS EIS16: M9PFNA

EIS17: MPFBA EIS18: MPFDoA EIS19: d3-NMeFOSAA EIS20: d5-NEtFOSAA

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Report No: 219102333 Recovery Limits: 50 - 150

Client Sample ID	GCAL SampleID	EIS1	#	EIS2	#	EIS3	#	EIS4	#	EIS5	#	EIS6	#	EIS7	#
AOI7-9-GW-102119	21910233321	138		115		97		87		99		117		106	
AOI7-4-1.5-2-102119	21910233322	110		117		122		90		80		102		107	
JFTBLA-EB-HA-102119 (RE)	21910233323					99		105							
AOI7-10-GW-102119 (RE)	21910233324					76		95							
AOI7-7-11-GW-102119 (RE)	21910233325					91		91							
AOI7-9-GW-102119 (RE)	21910233326					80		87							
AOI7-10-SB-7.5-8-102119 (RE)	21910233327							78							
AOI7-5-SB-1.5-2-102119 (RE)	21910233328							90							
AOI7-7-SB-1.5-2-102119 (RE)	21910233329							102							
AOI7-11-SB-18-18.5-102119 (RE)	21910233330							101							

Client Sample ID	GCAL SampleID	EIS8	#	EIS9	#	EIS10	#	EIS11	#	EIS12	#	EIS13	#	EIS14	#
AOI7-9-GW-102119	21910233321	110		108		109		100		114		78		105	
AOI7-4-1.5-2-102119	21910233322	100		98		96		94		102		93		96	
JFTBLA-EB-HA-102119 (RE)	21910233323														
AOI7-10-GW-102119 (RE)	21910233324														
AOI7-7-11-GW-102119 (RE)	21910233325														
AOI7-9-GW-102119 (RE)	21910233326														
AOI7-10-SB-7.5-8-102119 (RE)	21910233327														
AOI7-5-SB-1.5-2-102119 (RE)	21910233328														
AOI7-7-SB-1.5-2-102119 (RE)	21910233329														
AOI7-11-SB-18-18.5-102119 (RE)	21910233330														

Client Sample ID	GCAL SampleID	EIS15	#	EIS16	#	EIS17	#	EIS18	#	EIS19	#	EIS20	#
AOI7-9-GW-102119	21910233321	71		98		102		90		103		107	
AOI7-4-1.5-2-102119	21910233322	103		95		98		90		119		104	
JFTBLA-EB-HA-102119 (RE)	21910233323	94								95			
AOI7-10-GW-102119 (RE)	21910233324	79								96			
AOI7-7-11-GW-102119 (RE)	21910233325	83								96			
AOI7-9-GW-102119 (RE)	21910233326	88								93			
AOI7-10-SB-7.5-8-102119 (RE)	21910233327												
AOI7-5-SB-1.5-2-102119 (RE)	21910233328												
AOI7-7-SB-1.5-2-102119 (RE)	21910233329												
AOI7-11-SB-18-18.5-102119 (RE)	21910233330												

EIS1: M2 4:2 FTS EIS2: M2 6:2 FTS EIS3: M2 8:2 FTS EIS4: M2PFTeDA

EIS5: M3HFPODA EIS6: M3PFBS EIS7: M3PFHxS EIS8: M4PFHpA

EIS9: M5PFHxA EIS10: M5PFPeA EIS11: M6PFDA EIS12: M7PFUdA

EIS13: M8FOSA EIS14: M8PFOA EIS15: M8PFOS EIS16: M9PFNA

EIS17: MPFBA EIS18: MPFDoA EIS19: d3-NMeFOSAA EIS20: d5-NEtFOSAA

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Report No: 219102333 Recovery Limits: 50 - 150

Client Sample ID	GCAL SampleID	EIS1	#	EIS2	#	EIS3	#	EIS4	#	EIS5	#	EIS6	#	EIS7	#
AOI7-9-SB-17-17.5-102119 (RE)	21910233331							69							
MB1974712	1974712	97		106		122				72		94		95	
MB1974712RE	1974712							94							
LCS1974713	1974713	100		109		123				71		97		98	
LCS1974713RE	1974713							88							
LCSD1974714	1974714	107		113		130				72		101		101	
LCSD1974714RE	1974714							52							
MB1974715	1974715	124		103		100		58		94		101		109	
LCS1974716	1974716	119		110		112		92		86		109		113	
LCSD1974717	1974717	114		105		97		57		104		103		105	

Client Sample ID	GCAL SampleID	EIS8	#	EIS9	#	EIS10	#	EIS11	#	EIS12	#	EIS13	#	EIS14	#
AOI7-9-SB-17-17.5-102119 (RE)	21910233331														
MB1974712	1974712	89		85		87		84		89		74		87	
MB1974712RE	1974712														
LCS1974713	1974713	89		90		90		86		87		85		91	
LCS1974713RE	1974713														
LCSD1974714	1974714	95		94		93		91		98		75		93	
LCSD1974714RE	1974714														
MB1974715	1974715	99		97		98		85		90		88		93	
LCS1974716	1974716	103		103		102		94		96		92		104	
LCSD1974717	1974717	98		97		97		86		85		92		99	

Client Sample ID	GCAL SampleID	EIS15	#	EIS16	#	EIS17	#	EIS18	#	EIS19	#	EIS20	#
AOI7-9-SB-17-17.5-102119 (RE)	21910233331												
MB1974712	1974712	99		81		87		84		91		94	
MB1974712RE	1974712												
LCS1974713	1974713	91		88		91		82		102		100	
LCS1974713RE	1974713												
LCSD1974714	1974714	90		89		95		86		101		88	
LCSD1974714RE	1974714												
MB1974715	1974715	72		91		99		76		82		91	
LCS1974716	1974716	81		102		105		92		108		107	
LCSD1974717	1974717	72		89		99		71		84		83	

EIS1: M2 4:2 FTS EIS2: M2 6:2 FTS EIS3: M2 8:2 FTS EIS4: M2PFTeDA

EIS5: M3HFPODA EIS6: M3PFBS EIS7: M3PFHxS EIS8: M4PFHpA

EIS9: M5PFHxA EIS10: M5PFPeA EIS11: M6PFDA EIS12: M7PFUdA

EIS13: M8FOSA EIS14: M8PFOA EIS15: M8PFOS EIS16: M9PFNA

EIS17: MPFBA EIS18: MPFDoA EIS19: d3-NMeFOSAA EIS20: d5-NEtFOSAA

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Client Sample ID	GCAL SampleID	EIS1	#	EIS2	#	EIS3	#	EIS4	#	EIS5	#	EIS6	#	EIS7	#
MB1981225	1981225					101		102							
LCS1981226	1981226					90		99							
LCSD1981227	1981227					87		84							
MB1983598	1983598							98							
LCS1983599	1983599							98							
LCSD1983600	1983600							97							

Client Sample ID	GCAL SampleID	EIS8	#	EIS9	#	EIS10	#	EIS11	#	EIS12	#	EIS13	#	EIS14	#
MB1981225	1981225														
LCS1981226	1981226														
LCSD1981227	1981227														
MB1983598	1983598														
LCS1983599	1983599														
LCSD1983600	1983600														

Client Sample ID	GCAL SampleID	EIS15	#	EIS16	#	EIS17	#	EIS18	#	EIS19	#	EIS20	#
MB1981225	1981225	84								94			
LCS1981226	1981226	93								99			
LCSD1981227	1981227	88								89			
MB1983598	1983598												
LCS1983599	1983599												
LCSD1983600	1983600												

EIS1: M2 4:2 FTS EIS2: M2 6:2 FTS EIS3: M2 8:2 FTS EIS4: M2PFTeDA

EIS5: M3HFPODA EIS6: M3PFBS EIS7: M3PFHxS EIS8: M4PFHpA

EIS9: M5PFHxA EIS10: M5PFPeA EIS11: M6PFDA EIS12: M7PFUdA

EIS13: M8FOSA EIS14: M8PFOA EIS15: M8PFOS EIS16: M9PFNA

EIS17: MPFBA EIS18: MPFDoA EIS19: d3-NMeFOSAA EIS20: d5-NEtFOSAA

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Client Sample ID	GCAL SampleID	EIS1	#	EIS2	#	EIS3	#	EIS4	#	EIS5	#	EIS6	#	EIS7	#
AOI1-5-SB-4.5-5-102319	21910254101	94		85		115		71		73		95		96	
AOI1-5-SB-4.5-5-102319DL	21910254101														
AOI1-5-SB-4.5-5-102319-D	21910254102	109		86		112		73		81		100		98	
AOI1-5-SB-4.5-5-102319-DDL	21910254102														
AOI1-4-SB-4.5-5-102319-D	21910254103	109		103		116		79		70		99		97	
AOI1-4-SB-4.5-5-102319-DDL	21910254103														
AOI1-4-SB-4.5-5-102319	21910254104	103		104		109		26	*	73		98		95	
AOI1-4-SB-4.5-5-102319DL	21910254104														
JFTBLA-EB-B-102319	21910254105	120		120		81				95		101		90	
JFTBLA-EB-B-102319RE	21910254105							76							

Client Sample ID	GCAL SampleID	EIS8	#	EIS9	#	EIS10	#	EIS11	#	EIS12	#	EIS13	#	EIS14	#
AOI1-5-SB-4.5-5-102319	21910254101	91		84		89		82		89		84			
AOI1-5-SB-4.5-5-102319DL	21910254101													116	
AOI1-5-SB-4.5-5-102319-D	21910254102	94		85		91		81		92		90			
AOI1-5-SB-4.5-5-102319-DDL	21910254102													112	
AOI1-4-SB-4.5-5-102319-D	21910254103	92		90		91		88		84		89			
AOI1-4-SB-4.5-5-102319-DDL	21910254103													106	
AOI1-4-SB-4.5-5-102319	21910254104	91		88		91		84		84		85			
AOI1-4-SB-4.5-5-102319DL	21910254104													103	
JFTBLA-EB-B-102319	21910254105	97		87		92		67		51		73		92	
JFTBLA-EB-B-102319RE	21910254105														

Client Sample ID	GCAL SampleID	EIS15	#	EIS16	#	EIS17	#	EIS18	#	EIS19	#	EIS20	#
AOI1-5-SB-4.5-5-102319	21910254101	72		84		83		77		97		87	
AOI1-5-SB-4.5-5-102319DL	21910254101												
AOI1-5-SB-4.5-5-102319-D	21910254102	73		87		85		71		103		97	
AOI1-5-SB-4.5-5-102319-DDL	21910254102												
AOI1-4-SB-4.5-5-102319-D	21910254103	70		87		88		79		94		90	
AOI1-4-SB-4.5-5-102319-DDL	21910254103												
AOI1-4-SB-4.5-5-102319	21910254104	76		87		87		71		86		71	
AOI1-4-SB-4.5-5-102319DL	21910254104												
JFTBLA-EB-B-102319	21910254105	73		82		88				70		52	
JFTBLA-EB-B-102319RE	21910254105							84					

EIS1: M2 4:2 FTS EIS2: M2 6:2 FTS EIS3: M2 8:2 FTS EIS4: M2PFTeDA

EIS5: M3HFPODA EIS6: M3PFBS EIS7: M3PFHxS EIS8: M4PFHpA

EIS9: M5PFHxA EIS10: M5PFPeA EIS11: M6PFDA EIS12: M7PFUdA

EIS13: M8FOSA EIS14: M8PFOA EIS15: M8PFOS EIS16: M9PFNA

EIS17: MPFBA EIS18: MPFDoA EIS19: d3-NMeFOSAA EIS20: d5-NEtFOSAA

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Client Sample ID	GCAL SampleID	EIS1	#	EIS2	#	EIS3	#	EIS4	#	EIS5	#	EIS6	#	EIS7	#
JFTBLA-EB-HA-02319	21910254106	118		119		92				91		107		93	
JFTBLA-EB-HA-02319RE	21910254106							51							
AOI1-6-SB-4.5-5-102319	21910254107	107		101		116		44	*	78		102		101	
AOI1-6-SB-4.5-5-102319DL	21910254107														
JFTBLA-EB-WM-102319	21910254108	121		113		86				85		105		96	
JFTBLA-EB-WM-102319RE	21910254108							75							
AOI1-5-SB-7-7.5-102319	21910254109	101		91		105		56		70		97		95	
AOI1-5-SB-7-7.5-102319DL	21910254109														
AOI1-5-SB-17.5-18-102319	21910254110	107		105		111		78		70		98		93	
AOI1-5-GW-102319	21910254111	112		66		71		3	*	91		103		94	

Client Sample ID	GCAL SampleID	EIS8	#	EIS9	#	EIS10	#	EIS11	#	EIS12	#	EIS13	#	EIS14	#
JFTBLA-EB-HA-02319	21910254106	101		92		94		71		53		75		91	
JFTBLA-EB-HA-02319RE	21910254106														
AOI1-6-SB-4.5-5-102319	21910254107	100		92		96		85		89		94			
AOI1-6-SB-4.5-5-102319DL	21910254107													78	
JFTBLA-EB-WM-102319	21910254108	104		96		95		71		51		71		89	
JFTBLA-EB-WM-102319RE	21910254108														
AOI1-5-SB-7-7.5-102319	21910254109	92				88		80		81		87			
AOI1-5-SB-7-7.5-102319DL	21910254109			160	*									166	*
AOI1-5-SB-17.5-18-102319	21910254110	96		88		92		82		85		67		87	
AOI1-5-GW-102319	21910254111			41	*			62		51		27	*		

Client Sample ID	GCAL SampleID	EIS15	#	EIS16	#	EIS17	#	EIS18	#	EIS19	#	EIS20	#
JFTBLA-EB-HA-02319	21910254106	72		85		89				56		60			
JFTBLA-EB-HA-02319RE	21910254106							74							
AOI1-6-SB-4.5-5-102319	21910254107	79		93		92		88		85		103			
AOI1-6-SB-4.5-5-102319DL	21910254107														
JFTBLA-EB-WM-102319	21910254108	76		81		91				70		64			
JFTBLA-EB-WM-102319RE	21910254108							80							
AOI1-5-SB-7-7.5-102319	21910254109	70		83		83		73		90		88			
AOI1-5-SB-7-7.5-102319DL	21910254109														
AOI1-5-SB-17.5-18-102319	21910254110	74		86		89		83		88		93			
AOI1-5-GW-102319	21910254111	75		77						59		53			

EIS1: M2 4:2 FTS
EIS2: M2 6:2 FTS
EIS3: M2 8:2 FTS
EIS4: M2PFTeDA
EIS5: M3HFPODA
EIS6: M3PFBS
EIS7: M3PFHxS
EIS8: M4PFHpA
EIS9: M5PFHxA
EIS10: M5PFPeA
EIS11: M6PFDA
EIS12: M7PFUdA
EIS13: M8FOSA
EIS14: M8PFOA
EIS15: M8PFOS
EIS16: M9PFNA
EIS17: MPFBA
EIS18: MPFDoA
EIS19: d3-NMeFOSAA
EIS20: d5-NEtFOSAA

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Client Sample ID	GCAL SampleID	EIS1	#	EIS2	#	EIS3	#	EIS4	#	EIS5	#	EIS6	#	EIS7	#
AOI1-5-GW-102319DL	21910254111														
AOI1-5-GW-102319RE	21910254111														
AOI1-5-GW-102319RE1	21910254111														
AOI1-SA-GW-102319	21910254112	117		81		76		7	*	92		98		89	
AOI1-SA-GW-102319DL	21910254112														
AOI1-6-SB-9-9.5-102319	21910254113	109		107		108		77		74		103		99	
AOI1-6-SB-9-9.5-102319DL	21910254113														
AOI1-6-SB-12.5-13-102319	21910254114	113		104		114		66		74		102		98	
AOI1-6-GW-102319	21910254115	115		80		77				80		101		89	
AOI1-6-GW-102319DL	21910254115														

Client Sample ID	GCAL SampleID	EIS8	#	EIS9	#	EIS10	#	EIS11	#	EIS12	#	EIS13	#	EIS14	#
AOI1-5-GW-102319DL	21910254111	102		114		113						54			
AOI1-5-GW-102319RE	21910254111														
AOI1-5-GW-102319RE1	21910254111													89	
AOI1-SA-GW-102319	21910254112	90						73		60		57			
AOI1-SA-GW-102319DL	21910254112			113		116								104	
AOI1-6-SB-9-9.5-102319	21910254113	99		92		95		84		91		93			
AOI1-6-SB-9-9.5-102319DL	21910254113													113	
AOI1-6-SB-12.5-13-102319	21910254114	96		92		94		86		89		88		87	
AOI1-6-GW-102319	21910254115	94		86		88		58				44	*		
AOI1-6-GW-102319DL	21910254115													103	

Client Sample ID	GCAL SampleID	EIS15	#	EIS16	#	EIS17	#	EIS18	#	EIS19	#	EIS20	#
AOI1-5-GW-102319DL	21910254111					120							
AOI1-5-GW-102319RE	21910254111							63					
AOI1-5-GW-102319RE1	21910254111												
AOI1-SA-GW-102319	21910254112	77		82		84		35	*	71		58	
AOI1-SA-GW-102319DL	21910254112												
AOI1-6-SB-9-9.5-102319	21910254113	77		88		92		80		100		85	
AOI1-6-SB-9-9.5-102319DL	21910254113												
AOI1-6-SB-12.5-13-102319	21910254114	76		88		92		77		98		96	
AOI1-6-GW-102319	21910254115	61		74		85				52			
AOI1-6-GW-102319DL	21910254115												

EIS1: M2 4:2 FTS EIS2: M2 6:2 FTS EIS3: M2 8:2 FTS EIS4: M2PFTeDA

EIS5: M3HFPODA EIS6: M3PFBS EIS7: M3PFHxS EIS8: M4PFHpA

EIS9: M5PFHxA EIS10: M5PFPeA EIS11: M6PFDA EIS12: M7PFUdA

EIS13: M8FOSA EIS14: M8PFOA EIS15: M8PFOS EIS16: M9PFNA

EIS17: MPFBA EIS18: MPFDoA EIS19: d3-NMeFOSAA EIS20: d5-NEtFOSAA

* EIS 13 M8FOSA is not associated with any target analytes

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Client Sample ID	GCAL SampleID	EIS1	#	EIS2	#	EIS3	#	EIS4	#	EIS5	#	EIS6	#	EIS7	#
AOI1-6-GW-102319RE	21910254115							54							
AOI1-4-SB-9.5-10-102319	21910254116	108		106		100		66		75		102		101	
AOI1-4-GW-102319	21910254117	119		102		91				89		101		91	
AOI1-4-GW-102319DL	21910254117														
AOI1-4-GW-102319RE	21910254117							62							
AOI1-2-SB-4.5-5-102319	21910254118	113		105		107		74		83		101		98	
AOI1-2-SB-4.5-5-102319RE	21910254118														
AOI1-2-SB-4.5-5-102319DL	21910254118														
AOI1-2-SB-9.5-10-102319	21910254119	115		111		117		74		91		106		102	
AOI1-2-SB-9.5-10-102319RE	21910254119														

Client Sample ID	GCAL SampleID	EIS8	#	EIS9	#	EIS10	#	EIS11	#	EIS12	#	EIS13	#	EIS14	#
AOI1-6-GW-102319RE	21910254115									78		76			
AOI1-4-SB-9.5-10-102319	21910254116	97		90		96		87		92		92		90	
AOI1-4-GW-102319	21910254117	96		83		88		77		78		50			
AOI1-4-GW-102319DL	21910254117													98	
AOI1-4-GW-102319RE	21910254117														
AOI1-2-SB-4.5-5-102319	21910254118	99		88		94		95		92		93			
AOI1-2-SB-4.5-5-102319RE	21910254118														
AOI1-2-SB-4.5-5-102319DL	21910254118													105	
AOI1-2-SB-9.5-10-102319	21910254119	101		94		97		88		91		91		91	
AOI1-2-SB-9.5-10-102319RE	21910254119														

Client Sample ID	GCAL SampleID	EIS15	#	EIS16	#	EIS17	#	EIS18	#	EIS19	#	EIS20	#
AOI1-6-GW-102319RE	21910254115							69				88	
AOI1-4-SB-9.5-10-102319	21910254116	81		91		92		86		102		101	
AOI1-4-GW-102319	21910254117	77		85		87		55		80		86	
AOI1-4-GW-102319DL	21910254117												
AOI1-4-GW-102319RE	21910254117												
AOI1-2-SB-4.5-5-102319	21910254118			89		90		82		96		99	
AOI1-2-SB-4.5-5-102319RE	21910254118	77											
AOI1-2-SB-4.5-5-102319DL	21910254118												
AOI1-2-SB-9.5-10-102319	21910254119			94		93		90		116		98	
AOI1-2-SB-9.5-10-102319RE	21910254119	83											

EIS1: M2 4:2 FTS EIS2: M2 6:2 FTS EIS3: M2 8:2 FTS EIS4: M2PFTeDA

EIS5: M3HFPODA EIS6: M3PFBS EIS7: M3PFHxS EIS8: M4PFHpA

EIS9: M5PFHxA EIS10: M5PFPeA EIS11: M6PFDA EIS12: M7PFUdA

EIS13: M8FOSA EIS14: M8PFOA EIS15: M8PFOS EIS16: M9PFNA

EIS17: MPFBA EIS18: MPFDoA EIS19: d3-NMeFOSAA EIS20: d5-NEtFOSAA

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Report No: 219102541 Recovery Limits: 50 - 150

Client Sample ID	GCAL SampleID	EIS1	#	EIS2	#	EIS3	#	EIS4	#	EIS5	#	EIS6	#	EIS7	#
AOI1-2-SB-12.5-13-102319	21910254120	104		105		99		7	*	65		99		93	
AOI1-2-SB-12.5-13-102319RE	21910254120														
AOI1-2-GW-102319	21910254121	128		76		75		1	*	89		99			
AOI1-2-GW-102319DL1	21910254121													82	
AOI1-2-GW-102319RE	21910254121														
AOI1-2-GW-102319DL	21910254121														
AOI2-3-SB-4.5-5-102319	21910254122	101		102		119		77		73		95			
AOI2-3-SB-4.5-5-102319RE	21910254122														
AOI2-3-SB-4.5-5-102319DL	21910254122													100	
AOI2-3-SB-4.5-5-102319-D	21910254123	104		107		108		76		79		96			

Client Sample ID	GCAL SampleID	EIS8	#	EIS9	#	EIS10	#	EIS11	#	EIS12	#	EIS13	#	EIS14	#
AOI1-2-SB-12.5-13-102319	21910254120	94		92		93		74		60		81		88	
AOI1-2-SB-12.5-13-102319RE	21910254120														
AOI1-2-GW-102319	21910254121	94				86		65							
AOI1-2-GW-102319DL1	21910254121			106										140	
AOI1-2-GW-102319RE	21910254121									74		74			
AOI1-2-GW-102319DL	21910254121														
AOI2-3-SB-4.5-5-102319	21910254122	92				89		85		86		87		91	
AOI2-3-SB-4.5-5-102319RE	21910254122														
AOI2-3-SB-4.5-5-102319DL	21910254122			98											
AOI2-3-SB-4.5-5-102319-D	21910254123	92				90		89		90		92		90	

Client Sample ID	GCAL SampleID	EIS15	#	EIS16	#	EIS17	#	EIS18	#	EIS19	#	EIS20	#
AOI1-2-SB-12.5-13-102319	21910254120			81		90		33	*	82		69	
AOI1-2-SB-12.5-13-102319RE	21910254120	76											
AOI1-2-GW-102319	21910254121			67						54			
AOI1-2-GW-102319DL1	21910254121												
AOI1-2-GW-102319RE	21910254121					78		57				74	
AOI1-2-GW-102319DL	21910254121	174	*										
AOI2-3-SB-4.5-5-102319	21910254122			89		81		80		110		101	
AOI2-3-SB-4.5-5-102319RE	21910254122	77											
AOI2-3-SB-4.5-5-102319DL	21910254122												
AOI2-3-SB-4.5-5-102319-D	21910254123			87		83		84		106		93	

EIS1: M2 4:2 FTS EIS2: M2 6:2 FTS EIS3: M2 8:2 FTS EIS4: M2PFTeDA

EIS5: M3HFPODA EIS6: M3PFBS EIS7: M3PFHxS EIS8: M4PFHpA

EIS9: M5PFHxA EIS10: M5PFPeA EIS11: M6PFDA EIS12: M7PFUdA

EIS13: M8FOSA EIS14: M8PFOA EIS15: M8PFOS EIS16: M9PFNA

EIS17: MPFBA EIS18: MPFDoA EIS19: d3-NMeFOSAA EIS20: d5-NEtFOSAA

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Client Sample ID	GCAL SampleID	EIS1	#	EIS2	#	EIS3	#	EIS4	#	EIS5	#	EIS6	#	EIS7	#
AOI2-3-SB-4.5-5-102319-DDL	21910254123													104	
AOI2-3-SB-4.5-5-102319-DRE	21910254123														
AOI2-2-SB-4.5-5-102319	21910254124	120		106		99		84		80		108			
AOI2-2-SB-4.5-5-102319DL	21910254124													103	
AOI2-2-SB-4.5-5-102319DL1	21910254124														
AOI2-2-SB-4.5-5-102319-D	21910254125	109		101		95		80		74		98			
AOI2-2-SB-4.5-5-102319-DDL	21910254125													78	
AOI2-2-SB-4.5-5-102319-DDL1	21910254125														
AOI1-6-SB-4.5-5-102319 (RE)	21910254127							120							
AOI1-2-SB-12.5-13-102319 (RE)	21910254128							122							

Client Sample ID	GCAL SampleID	EIS8	#	EIS9	#	EIS10	#	EIS11	#	EIS12	#	EIS13	#	EIS14	#
AOI2-3-SB-4.5-5-102319-DDL	21910254123			116											
AOI2-3-SB-4.5-5-102319-DRE	21910254123														
AOI2-2-SB-4.5-5-102319	21910254124	101		95		99		93		93		90		99	
AOI2-2-SB-4.5-5-102319DL	21910254124														
AOI2-2-SB-4.5-5-102319DL1	21910254124														
AOI2-2-SB-4.5-5-102319-D	21910254125	97		88		89		84		93		83		89	
AOI2-2-SB-4.5-5-102319-DDL	21910254125														
AOI2-2-SB-4.5-5-102319-DDL1	21910254125														
AOI1-6-SB-4.5-5-102319 (RE)	21910254127														
AOI1-2-SB-12.5-13-102319 (RE)	21910254128														

Client Sample ID	GCAL SampleID	EIS15	#	EIS16	#	EIS17	#	EIS18	#	EIS19	#	EIS20	#
AOI2-3-SB-4.5-5-102319-DDL	21910254123												
AOI2-3-SB-4.5-5-102319-DRE	21910254123	73											
AOI2-2-SB-4.5-5-102319	21910254124			60		95		87		115		98	
AOI2-2-SB-4.5-5-102319DL	21910254124												
AOI2-2-SB-4.5-5-102319DL1	21910254124	240	*										
AOI2-2-SB-4.5-5-102319-D	21910254125			51		86		76		107		94	
AOI2-2-SB-4.5-5-102319-DDL	21910254125												
AOI2-2-SB-4.5-5-102319-DDL1	21910254125	137											
AOI1-6-SB-4.5-5-102319 (RE)	21910254127												
AOI1-2-SB-12.5-13-102319 (RE)	21910254128							116					

EIS1: M2 4:2 FTS EIS2: M2 6:2 FTS EIS3: M2 8:2 FTS EIS4: M2PFTeDA

EIS5: M3HFPODA EIS6: M3PFBS EIS7: M3PFHxS EIS8: M4PFHpA

EIS9: M5PFHxA EIS10: M5PFPeA EIS11: M6PFDA EIS12: M7PFUdA

EIS13: M8FOSA | EIS14: M8PFOA | EIS15: M8PFOS | EIS16: M9PFNA

EIS17: MPFBA | EIS18: MPFDoA | EIS19: d3-NMeFOSAA | EIS20: d5-NEtFOSAA

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Client Sample ID	GCAL SampleID	EIS1	#	EIS2	#	EIS3	#	EIS4	#	EIS5	#	EIS6	#	EIS7	#
MB1975542	1975542	106		109		117		79		79		100		97	
LCS1975543	1975543	104		110		98		78		75		96		93	
LCSD1975546	1975546	110		105		108		82		68		99		99	
MB1975549	1975549	107		106		95		28	*	92		99		85	
LCS1975550	1975550	113		107		100		30	*	87		101		92	
LCSD1975551	1975551	105		109		98		17	*	82		100		89	
MB1976210	1976210							61							
LCS1976211	1976211							63							
LCSD1976212	1976212							40	*						
MB1979816	1979816							86							

Client Sample ID	GCAL SampleID	EIS8	#	EIS9	#	EIS10	#	EIS11	#	EIS12	#	EIS13	#	EIS14	#
MB1975542	1975542	94		89		90		90		87		86		85	
LCS1975543	1975543	91		86		85		85		83		58		88	
LCSD1975546	1975546	98		91		90		87		94		65		94	
MB1975549	1975549	97		90		89		76		70		82		69	
LCS1975550	1975550	99		91		92		80		76		83		90	
LCSD1975551	1975551	96		87		89		77		76		81		88	
MB1976210	1976210									80		80			
LCS1976211	1976211									84		89			
LCSD1976212	1976212									79		85			
MB1979816	1979816														

Client Sample ID	GCAL SampleID	EIS15	#	EIS16	#	EIS17	#	EIS18	#	EIS19	#	EIS20	#
MB1975542	1975542	72		88		85		80		102		101	
LCS1975543	1975543	74		86		79		78		118		92	
LCSD1975546	1975546	75		91		85		81		97		88	
MB1975549	1975549	73		83		87		58		78		78	
LCS1975550	1975550	72		84		89		65		87		75	
LCSD1975551	1975551	70		84		87		55		83		70	
MB1976210	1976210	77				92		68				85	
LCS1976211	1976211	87				102		82				101	
LCSD1976212	1976212	81				99		67				98	
MB1979816	1979816							86					

EIS1: M2 4:2 FTS | EIS2: M2 6:2 FTS | EIS3: M2 8:2 FTS | EIS4: M2PFTeDA

EIS5: M3HFPODA | EIS6: M3PFBS | EIS7: M3PFHxS | EIS8: M4PFHpA

EIS9: M5PFHxA | EIS10: M5PFPeA | EIS11: M6PFDA | EIS12: M7PFUdA

EIS13: M8FOSA EIS14: M8PFOA EIS15: M8PFOS EIS16: M9PFNA

EIS17: MPFBA EIS18: MPFDoA EIS19: d3-NMeFOSAA EIS20: d5-NEtFOSAA

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Client Sample ID	GCAL SampleID	EIS1	#	EIS2	#	EIS3	#	EIS4	#	EIS5	#	EIS6	#	EIS7	#
LCS1979817	1979817							109							
LCSD1979818	1979818							113							

Client Sample ID	GCAL SampleID	EIS8	#	EIS9	#	EIS10	#	EIS11	#	EIS12	#	EIS13	#	EIS14	#
LCS1979817	1979817														
LCSD1979818	1979818														

Client Sample ID	GCAL SampleID	EIS15	#	EIS16	#	EIS17	#	EIS18	#	EIS19	#	EIS20	#
LCS1979817	1979817							103					
LCSD1979818	1979818							115					

EIS1: M2 4:2 FTS EIS2: M2 6:2 FTS EIS3: M2 8:2 FTS EIS4: M2PFTeDA

EIS5: M3HFPODA EIS6: M3PFBS EIS7: M3PFHxS EIS8: M4PFHpA

EIS9: M5PFHxA EIS10: M5PFPeA EIS11: M6PFDA EIS12: M7PFUdA

EIS13: M8FOSA EIS14: M8PFOA EIS15: M8PFOS EIS16: M9PFNA

EIS17: MPFBA EIS18: MPFDoA EIS19: d3-NMeFOSAA EIS20: d5-NEtFOSAA

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Report No: 219102613 Recovery Limits: 50 - 150

Client Sample ID	GCAL SampleID	EIS1	#	EIS2	#	EIS3	#	EIS4	#	EIS5	#	EIS6	#	EIS7	#
AOI3-8-SB-1.5-2-102419	21910261301	111		116		95		96		94		89		96	
AOI3-8-SB-1.5-2-102419-D	21910261302	117		114		100		102		95		86		95	
AOI3-8-SB-9-9.5-102419	21910261303	98		94		97		57		89		89		89	
AOI3-8-SB-13-13.5-102419	21910261304	98		96		107		54		93		91		91	
AOI3-11-SB-1.5-2-102419	21910261305	103		98		98		81		94		96		91	
AOI3-11-SB-1.5-2-102419DL	21910261305														
AOI3-11-SB-8.5-9-102419	21910261306	102		95		99		65		93				89	
AOI3-11-SB-8.5-9-102419DL	21910261306											115			
AOI3-11-SB-11-11.5-102419	21910261307	94		98		102		35	*	92		90		91	
AOI3-12-SB-1.5-2-102419	21910261308	98				87		74		93				86	

Client Sample ID	GCAL SampleID	EIS8	#	EIS9	#	EIS10	#	EIS11	#	EIS12	#	EIS13	#	EIS14	#
AOI3-8-SB-1.5-2-102419	21910261301	87		86		94		105		78		93		70	
AOI3-8-SB-1.5-2-102419-D	21910261302	92		88		96		117		84		93		69	
AOI3-8-SB-9-9.5-102419	21910261303	83		83		85		89		81		84		63	
AOI3-8-SB-13-13.5-102419	21910261304	88		87		86		94		86		89		70	
AOI3-11-SB-1.5-2-102419	21910261305	89		88		85		94		84		94			
AOI3-11-SB-1.5-2-102419DL	21910261305													133	
AOI3-11-SB-8.5-9-102419	21910261306	84		85		88		88		85		90			
AOI3-11-SB-8.5-9-102419DL	21910261306													96	
AOI3-11-SB-11-11.5-102419	21910261307	82		86		88		87		80		85		69	
AOI3-12-SB-1.5-2-102419	21910261308					81		91		83					

Client Sample ID	GCAL SampleID	EIS15	#	EIS16	#	EIS17	#	EIS18	#	EIS19	#
AOI3-8-SB-1.5-2-102419	21910261301	91		85		93		107		105	
AOI3-8-SB-1.5-2-102419-D	21910261302	93		86		100		105		103	
AOI3-8-SB-9-9.5-102419	21910261303	82		79		77		100		87	
AOI3-8-SB-13-13.5-102419	21910261304	84		82		81		82		91	
AOI3-11-SB-1.5-2-102419	21910261305	58		87		82		104		91	
AOI3-11-SB-1.5-2-102419DL	21910261305										
AOI3-11-SB-8.5-9-102419	21910261306	69		85		82		88		99	
AOI3-11-SB-8.5-9-102419DL	21910261306										
AOI3-11-SB-11-11.5-102419	21910261307	82		84		78		88		79	
AOI3-12-SB-1.5-2-102419	21910261308	61		80		84		81		86	

EIS1: M2 4:2 FTS EIS2: M2 6:2 FTS EIS3: M2 8:2 FTS EIS4: M2PFTeDA

EIS5: M3PFBS EIS6: M3PFHxS EIS7: M4PFHpA EIS8: M5PFHxA

EIS9: M5PFPeA EIS10: M6PFDA EIS11: M7PFUdA EIS12: M8FOSA

EIS13: M8PFOA EIS14: M8PFOS EIS15: M9PFNA EIS16: MPFBA

EIS17: MPFDoA EIS18: d3-NMeFOSAA EIS19: d5-NEtFOSAA

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Client Sample ID	GCAL SampleID	EIS1	#	EIS2	#	EIS3	#	EIS4	#	EIS5	#	EIS6	#	EIS7	#
AOI3-12-SB-1.5-2-102419DL	21910261308			534	*							128			
AOI3-12-SB-7-7.5-102419	21910261309	91				97		53		89				82	
AOI3-12-SB-7-7.5-102419DL	21910261309			129								96			
AOI3-12-SB-19-19.5-102419	21910261310	95		96		108		79		91		91		92	
AOI3-8-GW-102419	21910261311	133		126		115		35	*					75	
AOI3-8-GW-102419DL	21910261311									133		138			
AOI3-9-SB-1.5-2-102419	21910261312	100		96		93		82		98		93		93	
AOI3-11-GW-102419	21910261313	130				98		30	*						
AOI3-11-GW-102419DL	21910261313			125						155	*			97	
AOI3-11-GW-102419DL1	21910261313											154	*		

Client Sample ID	GCAL SampleID	EIS8	#	EIS9	#	EIS10	#	EIS11	#	EIS12	#	EIS13	#	EIS14	#
AOI3-12-SB-1.5-2-102419DL	21910261308	99		106								112		120	
AOI3-12-SB-7-7.5-102419	21910261309					78		86		80				65	
AOI3-12-SB-7-7.5-102419DL	21910261309	98		100								104			
AOI3-12-SB-19-19.5-102419	21910261310	84		86		85		91		79		90		60	
AOI3-8-GW-102419	21910261311					73		70		78		74		84	
AOI3-8-GW-102419DL	21910261311	117		110											
AOI3-9-SB-1.5-2-102419	21910261312	86		86		89		90		88		90		64	
AOI3-11-GW-102419	21910261313					68		73		68					
AOI3-11-GW-102419DL	21910261313			104								100			
AOI3-11-GW-102419DL1	21910261313	151	*											285	*

Client Sample ID	GCAL SampleID	EIS15	#	EIS16	#	EIS17	#	EIS18	#	EIS19	#
AOI3-12-SB-1.5-2-102419DL	21910261308										
AOI3-12-SB-7-7.5-102419	21910261309	78		75		74		92		86	
AOI3-12-SB-7-7.5-102419DL	21910261309										
AOI3-12-SB-19-19.5-102419	21910261310	86		76		84		100		91	
AOI3-8-GW-102419	21910261311	72		83		58		95		92	
AOI3-8-GW-102419DL	21910261311										
AOI3-9-SB-1.5-2-102419	21910261312	86		82		90		100		86	
AOI3-11-GW-102419	21910261313	56				52		88		75	
AOI3-11-GW-102419DL	21910261313			116							
AOI3-11-GW-102419DL1	21910261313										

EIS1: M2 4:2 FTS EIS2: M2 6:2 FTS EIS3: M2 8:2 FTS EIS4: M2PFTeDA

EIS5: M3PFBS EIS6: M3PFHxS EIS7: M4PFHpA EIS8: M5PFHxA

EIS9: M5PFPeA EIS10: M6PFDA EIS11: M7PFUdA EIS12: M8FOSA

EIS13: M8PFOA EIS14: M8PFOS EIS15: M9PFNA EIS16: MPFBA

EIS17: MPFDoA EIS18: d3-NMeFOSAA EIS19: d5-NEtFOSAA

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Client Sample ID	GCAL SampleID	EIS1	#	EIS2	#	EIS3	#	EIS4	#	EIS5	#	EIS6	#	EIS7	#
AOI3-9-SB-8.5-9-102419	21910261314	91		96		97		83		91		90		91	
AOI3-9-SB-8.5-9-102419DL	21910261314														
AOI3-9-SB-14-14.5-102419	21910261315	97		97		108		72		93		94		94	
AOI3-12-GW-102419	21910261316	113				111		29	*	96				82	
AOI3-12-GW-102419DL	21910261316			135								103			
AOI3-10-SB-1.5-2-102419	21910261317	103		105		99		97		93		89		95	
AOI3-10-SB-10.5-11-102419	21910261318	97		97		104		68		93		91		90	
AOI3-9-GW-102419	21910261319	118		101		109		57		92		83		93	
AOI3-9-GW-102419DL	21910261319														
AOI3-10-GW-102419	21910261320	125		106		113		62		102				97	

Client Sample ID	GCAL SampleID	EIS8	#	EIS9	#	EIS10	#	EIS11	#	EIS12	#	EIS13	#	EIS14	#
AOI3-9-SB-8.5-9-102419	21910261314	82		84		91		88		85		88			
AOI3-9-SB-8.5-9-102419DL	21910261314													73	
AOI3-9-SB-14-14.5-102419	21910261315	87		87		88		97		77		90		72	
AOI3-12-GW-102419	21910261316	79		85		78		70		70		81			
AOI3-12-GW-102419DL	21910261316													115	
AOI3-10-SB-1.5-2-102419	21910261317	86		87		90		103		80		95		62	
AOI3-10-SB-10.5-11-102419	21910261318	85		87		88		90		87		88		70	
AOI3-9-GW-102419	21910261319	85		82		83		81		77				68	
AOI3-9-GW-102419DL	21910261319											94			
AOI3-10-GW-102419	21910261320					89		84		85				67	

Client Sample ID	GCAL SampleID	EIS15	#	EIS16	#	EIS17	#	EIS18	#	EIS19	#
AOI3-9-SB-8.5-9-102419	21910261314	87		74		81		88		85	
AOI3-9-SB-8.5-9-102419DL	21910261314										
AOI3-9-SB-14-14.5-102419	21910261315	88		72		86		95		78	
AOI3-12-GW-102419	21910261316	76		70		51		74		73	
AOI3-12-GW-102419DL	21910261316										
AOI3-10-SB-1.5-2-102419	21910261317	88		84		95		104		103	
AOI3-10-SB-10.5-11-102419	21910261318	85		83		82		89		93	
AOI3-9-GW-102419	21910261319	84		72		73		84		94	
AOI3-9-GW-102419DL	21910261319										
AOI3-10-GW-102419	21910261320	59		90		75		90		92	

EIS1: M2 4:2 FTS EIS2: M2 6:2 FTS EIS3: M2 8:2 FTS EIS4: M2PFTeDA

EIS5: M3PFBS EIS6: M3PFHxS EIS7: M4PFHpA EIS8: M5PFHxA

EIS9: M5PFPeA EIS10: M6PFDA EIS11: M7PFUdA EIS12: M8FOSA

EIS13: M8PFOA EIS14: M8PFOS EIS15: M9PFNA EIS16: MPFBA

EIS17: MPFDoA EIS18: d3-NMeFOSAA EIS19: d5-NEtFOSAA

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Client Sample ID	GCAL SampleID	EIS1	#	EIS2	#	EIS3	#	EIS4	#	EIS5	#	EIS6	#	EIS7	#
AOI3-10-GW-102419DL	21910261320											103			
AOI3-11-SB-11-11.5-102419 (RE)	21910261321							94							
MB1976185	1976185	101		104		107		84		96		94		93	
LCS1976186	1976186	100		103		117		84		93		93		92	
LCSD1976187	1976187	108		108		117		84		98		95		97	
MB1976210	1976210	119		120		135		61		96		97		86	
LCS1976211	1976211	122		129		148		63		104		101		91	
LCSD1976212	1976212	120		124		139		40	*	103		107		87	
MB1979816	1979816							86							
LCS1979817	1979817							109							

Client Sample ID	GCAL SampleID	EIS8	#	EIS9	#	EIS10	#	EIS11	#	EIS12	#	EIS13	#	EIS14	#
AOI3-10-GW-102419DL	21910261320	105		106								101			
AOI3-11-SB-11-11.5-102419 (RE)	21910261321														
MB1976185	1976185	89		90		90		90		70		93		71	
LCS1976186	1976186	88		86		87		92		72		93		69	
LCSD1976187	1976187	90		89		87		95		65		93		69	
MB1976210	1976210	85		85		79		80		80		81		77	
LCS1976211	1976211	90		91		88		84		89		87		87	
LCSD1976212	1976212	90		91		84		79		85		91		81	
MB1979816	1979816														
LCS1979817	1979817														

Client Sample ID	GCAL SampleID	EIS15	#	EIS16	#	EIS17	#	EIS18	#	EIS19	#
AOI3-10-GW-102419DL	21910261320										
AOI3-11-SB-11-11.5-102419 (RE)	21910261321										
MB1976185	1976185	88		85		90		89		93	
LCS1976186	1976186	85		83		83		99		92	
LCSD1976187	1976187	89		86		94		92		89	
MB1976210	1976210	82		92		68		93		85	
LCS1976211	1976211	85		102		82		101		101	
LCSD1976212	1976212	82		99		67		94		98	
MB1979816	1979816										
LCS1979817	1979817										

EIS1: M2 4:2 FTS EIS2: M2 6:2 FTS EIS3: M2 8:2 FTS EIS4: M2PFTeDA

EIS5: M3PFBS EIS6: M3PFHxS EIS7: M4PFHpA EIS8: M5PFHxA

EIS9: M5PFPeA EIS10: M6PFDA EIS11: M7PFUdA EIS12: M8FOSA

EIS13: M8PFOA EIS14: M8PFOS EIS15: M9PFNA EIS16: MPFBA

EIS17: MPFDoA EIS18: d3-NMeFOSAA EIS19: d5-NEtFOSAA

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Client Sample ID	GCAL SampleID	EIS1	#	EIS2	#	EIS3	#	EIS4	#	EIS5	#	EIS6	#	EIS7	#
LCSD1979818	1979818							113							

Client Sample ID	GCAL SampleID	EIS8	#	EIS9	#	EIS10	#	EIS11	#	EIS12	#	EIS13	#	EIS14	#
LCSD1979818	1979818														

Client Sample ID	GCAL SampleID	EIS15	#	EIS16	#	EIS17	#	EIS18	#	EIS19	#
LCSD1979818	1979818										

EIS1: M2 4:2 FTS EIS2: M2 6:2 FTS EIS3: M2 8:2 FTS EIS4: M2PFTeDA

EIS5: M3PFBS EIS6: M3PFHxS EIS7: M4PFHpA EIS8: M5PFHxA

EIS9: M5PFPeA EIS10: M6PFDA EIS11: M7PFUdA EIS12: M8FOSA

EIS13: M8PFOA EIS14: M8PFOS EIS15: M9PFNA EIS16: MPFBA

EIS17: MPFDoA EIS18: d3-NMeFOSAA EIS19: d5-NEtFOSAA

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EXTRACTED INTERNAL STANDARD RECOVERY

Report No: 219102717 Recovery Limits: 50 - 150

Client Sample ID	GCAL SampleID	EIS1	#	EIS2	#	EIS3	#	EIS4	#	EIS5	#	EIS6	#	EIS7	#
AOI3-1-SB-1.5-2-102519	21910271701	105		101		94		92		112		115		109	
AOI3-1-SB-1.5-2-102519DL	21910271701														
AOI3-2-SB-1.5-2-102519	21910271702	95				92		90						98	
AOI3-2-SB-1.5-2-102519DL	21910271702			651	*					132		126			
AOI3-2-SB-1.5-2-102519DL1	21910271702														
AOI3-2-SB-1.5-2-102519-D	21910271703	98				91		88						100	
AOI3-2-SB-1.5-2-102519-DDL	21910271703			525	*					133		122			
AOI3-2-SB-1.5-2-102519-DDL1	21910271703														
JFTBLA-EB-HA-102519	21910271704	113		107		115		39	*	99		97		90	
AOI3-5-SB-1.5-2-102519	21910271705	95		80		91		87						88	

Client Sample ID	GCAL SampleID	EIS8	#	EIS9	#	EIS10	#	EIS11	#	EIS12	#	EIS13	#	EIS14	#
AOI3-1-SB-1.5-2-102519	21910271701	105		108		106		102		113		101			
AOI3-1-SB-1.5-2-102519DL	21910271701													174	*
AOI3-2-SB-1.5-2-102519	21910271702					101		97		108		76			
AOI3-2-SB-1.5-2-102519DL	21910271702	115		110											
AOI3-2-SB-1.5-2-102519DL1	21910271702													180	*
AOI3-2-SB-1.5-2-102519-D	21910271703					102		95		111		76			
AOI3-2-SB-1.5-2-102519-DDL	21910271703	104		116											
AOI3-2-SB-1.5-2-102519-DDL1	21910271703													229	*
JFTBLA-EB-HA-102519	21910271704	91		89		83		85		78		82		80	
AOI3-5-SB-1.5-2-102519	21910271705			101		104		97		104					

Client Sample ID	GCAL SampleID	EIS15	#	EIS16	#	EIS17	#	EIS18	#	EIS19	#
AOI3-1-SB-1.5-2-102519	21910271701	85		109		102		96		113	
AOI3-1-SB-1.5-2-102519DL	21910271701										
AOI3-2-SB-1.5-2-102519	21910271702			103		95		99		97	
AOI3-2-SB-1.5-2-102519DL	21910271702	97									
AOI3-2-SB-1.5-2-102519DL1	21910271702										
AOI3-2-SB-1.5-2-102519-D	21910271703	14	*	101		93		96		99	
AOI3-2-SB-1.5-2-102519-DDL	21910271703										
AOI3-2-SB-1.5-2-102519-DDL1	21910271703										
JFTBLA-EB-HA-102519	21910271704	89		94		72		98		87	
AOI3-5-SB-1.5-2-102519	21910271705	83		100		90		92		102	

EIS1: M2 4:2 FTS EIS2: M2 6:2 FTS EIS3: M2 8:2 FTS EIS4: M2PFTeDA

EIS5: M3PFBS EIS6: M3PFHxS EIS7: M4PFHpA EIS8: M5PFHxA

EIS9: M5PFPeA EIS10: M6PFDA EIS11: M7PFUdA EIS12: M8FOSA

EIS13: M8PFOA EIS14: M8PFOS EIS15: M9PFNA EIS16: MPFBA

EIS17: MPFDoA EIS18: d3-NMeFOSAA EIS19: d5-NEtFOSAA

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Client Sample ID	GCAL SampleID	EIS1	#	EIS2	#	EIS3	#	EIS4	#	EIS5	#	EIS6	#	EIS7	#
AOI3-5-SB-1.5-2-102519DL	21910271705									123		139			
AOI3-3-SB-1.5-2-102519	21910271706	93				94		85		102					
AOI3-3-SB-1.5-2-102519DL	21910271706			1540	*							123		100	
AOI3-6-SB-1.5-2-102519	21910271707	94				69		88		105		105		99	
AOI3-6-SB-1.5-2-102519DL	21910271707														
AOI3-6-SB-1.5-2-102519RE	21910271707			196	*										
AOI3-4-SB-1.5-2-102519	21910271708	94						82		98		103		96	
AOI3-4-SB-1.5-2-102519DL	21910271708			190	*	377	*								
AOI3-4-SB-1.5-2-102519-D	21910271709	96						86		100		100		94	
AOI3-4-SB-1.5-2-102519-DDL	21910271709			178	*	175	*								

Client Sample ID	GCAL SampleID	EIS8	#	EIS9	#	EIS10	#	EIS11	#	EIS12	#	EIS13	#	EIS14	#
AOI3-5-SB-1.5-2-102519DL	21910271705	116										90		109	
AOI3-3-SB-1.5-2-102519	21910271706					98		92		103				94	
AOI3-3-SB-1.5-2-102519DL	21910271706	103		102								92			
AOI3-6-SB-1.5-2-102519	21910271707	96		96		93		100		103		95			
AOI3-6-SB-1.5-2-102519DL	21910271707													230	*
AOI3-6-SB-1.5-2-102519RE	21910271707														
AOI3-4-SB-1.5-2-102519	21910271708	91		92		75		84		100		88			
AOI3-4-SB-1.5-2-102519DL	21910271708													138	
AOI3-4-SB-1.5-2-102519-D	21910271709	96		96		84		95		100		96			
AOI3-4-SB-1.5-2-102519-DDL	21910271709													140	

Client Sample ID	GCAL SampleID	EIS15	#	EIS16	#	EIS17	#	EIS18	#	EIS19	#
AOI3-5-SB-1.5-2-102519DL	21910271705										
AOI3-3-SB-1.5-2-102519	21910271706	91				86		92		101	
AOI3-3-SB-1.5-2-102519DL	21910271706			127							
AOI3-6-SB-1.5-2-102519	21910271707	52		100		91		93		92	
AOI3-6-SB-1.5-2-102519DL	21910271707										
AOI3-6-SB-1.5-2-102519RE	21910271707										
AOI3-4-SB-1.5-2-102519	21910271708	61		96		86		88		102	
AOI3-4-SB-1.5-2-102519DL	21910271708										
AOI3-4-SB-1.5-2-102519-D	21910271709	68		98		89		96		105	
AOI3-4-SB-1.5-2-102519-DDL	21910271709										

EIS1: M2 4:2 FTS EIS2: M2 6:2 FTS EIS3: M2 8:2 FTS EIS4: M2PFTeDA

EIS5: M3PFBS EIS6: M3PFHxS EIS7: M4PFHpA EIS8: M5PFHxA

EIS9: M5PFPeA EIS10: M6PFDA EIS11: M7PFUdA EIS12: M8FOSA

EIS13: M8PFOA EIS14: M8PFOS EIS15: M9PFNA EIS16: MPFBA

EIS17: MPFDoA EIS18: d3-NMeFOSAA EIS19: d5-NEtFOSAA

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Client Sample ID	GCAL SampleID	EIS1	#	EIS2	#	EIS3	#	EIS4	#	EIS5	#	EIS6	#	EIS7	#
AOI4-1-SB-0-0.5-102519	21910271710	96		95		93		86		102		90		97	
AOI4-1-SB-5.5-6-102519	21910271711	101		95		95		32	*	106		103		97	
AOI4-1-SB-9.5-10-102519	21910271712	100		98		102		78		106		93		102	
AOI4-1-GW-102519	21910271713	112		106		111		60		99		95		91	
AOI3-7-SB-1.5-2-102519	21910271714	100		97		106		91		106		108		104	
AOI3-7-SB-1.5-2-102519DL	21910271714														
AOI3-7-SB-1.5-2-102519-D	21910271715	97		95		97		89		108		109		99	
AOI3-7-SB-1.5-2-102519-DDL	21910271715														
AOI2-5-SB-4.5-5-102519	21910271716	91				95		93						91	
AOI2-5-SB-4.5-5-102519DL	21910271716			162	*					126		134			

Client Sample ID	GCAL SampleID	EIS8	#	EIS9	#	EIS10	#	EIS11	#	EIS12	#	EIS13	#	EIS14	#
AOI4-1-SB-0-0.5-102519	21910271710	97		99		99		93		102		99		94	
AOI4-1-SB-5.5-6-102519	21910271711	101		103		102		102		103		101		95	
AOI4-1-SB-9.5-10-102519	21910271712	102		106		100		95		107		98		91	
AOI4-1-GW-102519	21910271713	85		87		80		85		83		86		71	
AOI3-7-SB-1.5-2-102519	21910271714	102		103		108		98		105		102			
AOI3-7-SB-1.5-2-102519DL	21910271714													138	
AOI3-7-SB-1.5-2-102519-D	21910271715	101		103		99		98		105		99			
AOI3-7-SB-1.5-2-102519-DDL	21910271715													130	
AOI2-5-SB-4.5-5-102519	21910271716					102		93		105		91			
AOI2-5-SB-4.5-5-102519DL	21910271716	109		105										130	

Client Sample ID	GCAL SampleID	EIS15	#	EIS16	#	EIS17	#	EIS18	#	EIS19	#
AOI4-1-SB-0-0.5-102519	21910271710	92		99		91		111		90	
AOI4-1-SB-5.5-6-102519	21910271711	94		101		90		101		90	
AOI4-1-SB-9.5-10-102519	21910271712	92		104		90		95		92	
AOI4-1-GW-102519	21910271713	87		83		70		100		90	
AOI3-7-SB-1.5-2-102519	21910271714	87		105		87		92		105	
AOI3-7-SB-1.5-2-102519DL	21910271714										
AOI3-7-SB-1.5-2-102519-D	21910271715	84		103		98		92		93	
AOI3-7-SB-1.5-2-102519-DDL	21910271715										
AOI2-5-SB-4.5-5-102519	21910271716	87		95		88		96		103	
AOI2-5-SB-4.5-5-102519DL	21910271716										

EIS1: M2 4:2 FTS EIS2: M2 6:2 FTS EIS3: M2 8:2 FTS EIS4: M2PFTeDA

EIS5: M3PFBS EIS6: M3PFHxS EIS7: M4PFHpA EIS8: M5PFHxA

EIS9: M5PFPeA EIS10: M6PFDA EIS11: M7PFUdA EIS12: M8FOSA

EIS13: M8PFOA EIS14: M8PFOS EIS15: M9PFNA EIS16: MPFBA

EIS17: MPFDoA EIS18: d3-NMeFOSAA EIS19: d5-NEtFOSAA

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EXTRACTED INTERNAL STANDARD RECOVERY

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Client Sample ID	GCAL SampleID	EIS1	#	EIS2	#	EIS3	#	EIS4	#	EIS5	#	EIS6	#	EIS7	#
AOI2-5-SB-9.5-10-102519	21910271717	95		98		91		62		98				96	
AOI2-5-SB-9.5-10-102519DL	21910271717											118			
AOI2-5-SB-13-13.5-102519	21910271718	94		98		102		83		101		102		95	
AOI2-5-GW-102519	21910271719	147		76		111		62							
AOI2-5-GW-102519DL	21910271719									113		104		109	
AOI2-5-GW-102519DL1	21910271719														
AOI2-4-SB-4.5-5-102519	21910271720	107		106		81		92		102		103		98	
AOI2-4-SB-4.5-5-102519DL	21910271720														
AOI2-1-SB-4.5-5-102519	21910271721	95				105		86		100		101		93	
AOI2-1-SB-4.5-5-102519DL	21910271721			137											

Client Sample ID	GCAL SampleID	EIS8	#	EIS9	#	EIS10	#	EIS11	#	EIS12	#	EIS13	#	EIS14	#
AOI2-5-SB-9.5-10-102519	21910271717			95		94		91		99		101		82	
AOI2-5-SB-9.5-10-102519DL	21910271717	103													
AOI2-5-SB-13-13.5-102519	21910271718	92		96		91		88		94		95		96	
AOI2-5-GW-102519	21910271719					83		84		78					
AOI2-5-GW-102519DL	21910271719			101										124	
AOI2-5-GW-102519DL1	21910271719	130										120			
AOI2-4-SB-4.5-5-102519	21910271720	98		100		101		94		100		100			
AOI2-4-SB-4.5-5-102519DL	21910271720													164	*
AOI2-1-SB-4.5-5-102519	21910271721					88		96		96		98		92	
AOI2-1-SB-4.5-5-102519DL	21910271721	97		98											

Client Sample ID	GCAL SampleID	EIS15	#	EIS16	#	EIS17	#	EIS18	#	EIS19	#
AOI2-5-SB-9.5-10-102519	21910271717	78		94		81		95		90	
AOI2-5-SB-9.5-10-102519DL	21910271717										
AOI2-5-SB-13-13.5-102519	21910271718	93		97		83		81		101	
AOI2-5-GW-102519	21910271719	80				68		85		80	
AOI2-5-GW-102519DL	21910271719			120							
AOI2-5-GW-102519DL1	21910271719										
AOI2-4-SB-4.5-5-102519	21910271720	64		98		89		96		99	
AOI2-4-SB-4.5-5-102519DL	21910271720										
AOI2-1-SB-4.5-5-102519	21910271721	94		92		94		103		99	
AOI2-1-SB-4.5-5-102519DL	21910271721										

EIS1: M2 4:2 FTS EIS2: M2 6:2 FTS EIS3: M2 8:2 FTS EIS4: M2PFTeDA

EIS5: M3PFBS EIS6: M3PFHxS EIS7: M4PFHpA EIS8: M5PFHxA

EIS9: M5PFPeA EIS10: M6PFDA EIS11: M7PFUdA EIS12: M8FOSA

EIS13: M8PFOA EIS14: M8PFOS EIS15: M9PFNA EIS16: MPFBA

EIS17: MPFDoA EIS18: d3-NMeFOSAA EIS19: d5-NEtFOSAA

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Report No: 219102717 Recovery Limits: 50 - 150

Client Sample ID	GCAL SampleID	EIS1	#	EIS2	#	EIS3	#	EIS4	#	EIS5	#	EIS6	#	EIS7	#
JFTBLA-EB-HA-102519 (RE)	21910271722							77							
AOI4-1-SB-5.5-6-102519 (RE)	21910271723							93							
MB1976203	1976203	101		98		101		65		104		103		100	
LCS1976204	1976204	102		98		95		92		110		112		103	
LCSD1976205	1976205	102		102		94		76		106		107		104	
MB1976210	1976210	119		120		135		61		96		97		86	
LCS1976211	1976211	122		129		148		63		104		101		91	
LCSD1976212	1976212	120		124		139		40	*	103		107		87	
MB1981225	1981225							102							
LCS1981226	1981226							99							

Client Sample ID	GCAL SampleID	EIS8	#	EIS9	#	EIS10	#	EIS11	#	EIS12	#	EIS13	#	EIS14	#
JFTBLA-EB-HA-102519 (RE)	21910271722														
AOI4-1-SB-5.5-6-102519 (RE)	21910271723														
MB1976203	1976203	98		98		98		97		96		105		96	
LCS1976204	1976204	105		104		105		98		82		105		92	
LCSD1976205	1976205	103		104		102		99		66		105		103	
MB1976210	1976210	85		85		79		80		80		81		77	
LCS1976211	1976211	90		91		88		84		89		87		87	
LCSD1976212	1976212	90		91		84		79		85		91		81	
MB1981225	1981225														
LCS1981226	1981226														

Client Sample ID	GCAL SampleID	EIS15	#	EIS16	#	EIS17	#	EIS18	#	EIS19	#
JFTBLA-EB-HA-102519 (RE)	21910271722										
AOI4-1-SB-5.5-6-102519 (RE)	21910271723										
MB1976203	1976203	98		98		90		99		100	
LCS1976204	1976204	100		104		100		97		100	
LCSD1976205	1976205	101		104		88		96		104	
MB1976210	1976210	82		92		68		93		85	
LCS1976211	1976211	85		102		82		101		101	
LCSD1976212	1976212	82		99		67		94		98	
MB1981225	1981225										
LCS1981226	1981226										

EIS1: M2 4:2 FTS EIS2: M2 6:2 FTS EIS3: M2 8:2 FTS EIS4: M2PFTeDA

EIS5: M3PFBS EIS6: M3PFHxS EIS7: M4PFHpA EIS8: M5PFHxA

EIS9: M5PFPeA EIS10: M6PFDA EIS11: M7PFUdA EIS12: M8FOSA

EIS13: M8PFOA EIS14: M8PFOS EIS15: M9PFNA EIS16: MPFBA

EIS17: MPFDoA EIS18: d3-NMeFOSAA EIS19: d5-NEtFOSAA

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Report No: 219102717 Recovery Limits: 50 - 150

Client Sample ID	GCAL SampleID	EIS1	#	EIS2	#	EIS3	#	EIS4	#	EIS5	#	EIS6	#	EIS7	#
LCSD1981227	1981227							84							
MB1983598	1983598							98							
LCS1983599	1983599							98							
LCSD1983600	1983600							97							

Client Sample ID	GCAL SampleID	EIS8	#	EIS9	#	EIS10	#	EIS11	#	EIS12	#	EIS13	#	EIS14	#
LCSD1981227	1981227														
MB1983598	1983598														
LCS1983599	1983599														
LCSD1983600	1983600														

Client Sample ID	GCAL SampleID	EIS15	#	EIS16	#	EIS17	#	EIS18	#	EIS19	#
LCSD1981227	1981227										
MB1983598	1983598										
LCS1983599	1983599										
LCSD1983600	1983600										

EIS1: M2 4:2 FTS EIS2: M2 6:2 FTS EIS3: M2 8:2 FTS EIS4: M2PFTeDA

EIS5: M3PFBS EIS6: M3PFHxS EIS7: M4PFHpA EIS8: M5PFHxA

EIS9: M5PFPeA EIS10: M6PFDA EIS11: M7PFUdA EIS12: M8FOSA

EIS13: M8PFOA EIS14: M8PFOS EIS15: M9PFNA EIS16: MPFBA

EIS17: MPFDoA EIS18: d3-NMeFOSAA EIS19: d5-NEtFOSAA

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EXTRACTED INTERNAL STANDARD RECOVERY

Report No: 219103085 Recovery Limits: 50 - 150

Client Sample ID	GCAL SampleID	EIS1	#	EIS2	#	EIS3	#	EIS4	#	EIS5	#	EIS6	#	EIS7	#
AOI 8-X3-1-102919	21910308501	83				58		10	*	6	*	93		83	
AOI 8-X3-1-102919DL	21910308501			149											
AOI 8-X3-1-102919-D	21910308502	87				56		27	*	20	*	91		83	
AOI 8-X3-1-102919-DDL	21910308502			168	*										
AOI 8-5-SW-102919	21910308503	79		68		53		11	*	64		91		86	
AOI 8-5-SW-102919-MS	21910308504	85		76		56		32	*	30	*	96		94	
AOI 8-5-SW-102919-MSD	21910308505	74		71		64		36	*	4	*	89		90	
AOI 8-6-SW-102919	21910308506	78		68		73		67		24	*	94		91	
AOI 8-6-SW-102919-MS	21910308507	75		64		42	*	0.80	*	55		90		84	
AOI 8-6-SW-102919-MSD	21910308508	78		70		62		22	*	74		91		88	

Client Sample ID	GCAL SampleID	EIS8	#	EIS9	#	EIS10	#	EIS11	#	EIS12	#	EIS13	#	EIS14	#
AOI 8-X3-1-102919	21910308501	90						70		58		59			
AOI 8-X3-1-102919DL	21910308501			122		118								111	
AOI 8-X3-1-102919-D	21910308502	94						76		69		72			
AOI 8-X3-1-102919-DDL	21910308502			108		112								100	
AOI 8-5-SW-102919	21910308503	90		90		90		66		54		56		88	
AOI 8-5-SW-102919-MS	21910308504	96		95		95		74		73		63		94	
AOI 8-5-SW-102919-MSD	21910308505	94		90		89		83		75		72		92	
AOI 8-6-SW-102919	21910308506	95		94		96		87		85		90		94	
AOI 8-6-SW-102919-MS	21910308507	91		90		88		53		38	*	39	*	85	
AOI 8-6-SW-102919-MSD	21910308508	95		93		93		75		66		77		91	

Client Sample ID	GCAL SampleID	EIS15	#	EIS16	#	EIS17	#	EIS18	#	EIS19	#	EIS20	#
AOI 8-X3-1-102919	21910308501			71		86		33	*	70		61	
AOI 8-X3-1-102919DL	21910308501	116											
AOI 8-X3-1-102919-D	21910308502			74		85		56		74		69	
AOI 8-X3-1-102919-DDL	21910308502	128											
AOI 8-5-SW-102919	21910308503	59		76		88		36	*	63		51	
AOI 8-5-SW-102919-MS	21910308504	67		83		92		59		76		67	
AOI 8-5-SW-102919-MSD	21910308505	69		80		89		63		80		70	
AOI 8-6-SW-102919	21910308506	68		91		89		77		91		89	
AOI 8-6-SW-102919-MS	21910308507	53		72		88		15	*	53		36	*
AOI 8-6-SW-102919-MSD	21910308508	69		84		90		51		79		71	

EIS1: M2 4:2 FTS EIS2: M2 6:2 FTS EIS3: M2 8:2 FTS EIS4: M2PFTeDA

EIS5: M3HFPODA EIS6: M3PFBS EIS7: M3PFHxS EIS8: M4PFHpA

EIS9: M5PFHxA EIS10: M5PFPeA EIS11: M6PFDA EIS12: M7PFUdA

EIS13: M8FOSA EIS14: M8PFOA EIS15: M8PFOS EIS16: M9PFNA

EIS17: MPFBA EIS18: MPFDoA EIS19: d3-NMeFOSAA EIS20: d5-NEtFOSAA

*M3HPFODA is not associated with any target analytes

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Report No: 219103085 Recovery Limits: 50 - 150

Client Sample ID	GCAL SampleID	EIS1	#	EIS2	#	EIS3	#	EIS4	#	EIS5	#	EIS6	#	EIS7	#
AOI 8-7-SW-102919	21910308509	79		71		63		31	*	69		94		91	
AOI 8-7-SW-102919-D	21910308510	75		68		56		22	*	66		93		89	
AOI 8-4-SW-102919	21910308511	75		70		56		32	*	12	*	92		89	
AOI 8-3-SW-102919	21910308512	66		59		44	*	6	*	22	*	81		77	
AOI 8-2-SB-0-0.5-102919	21910308513	94		102		97		84		2	*	97		98	
AOI 8-1-SB-0-0.5-102919	21910308514	116		112		110		94		4	*	106		110	
AOI 5-N19-3-102919	21910308515	81				54		36	*	16	*	92			
AOI 5-N19-3-102919DL	21910308515			322	*									131	
AOI 5-N19-3-102919-D	21910308516	92				51		31	*	40	*	91			
AOI 5-N19-3-102919-DDL	21910308516			340	*									126	

Client Sample ID	GCAL SampleID	EIS8	#	EIS9	#	EIS10	#	EIS11	#	EIS12	#	EIS13	#	EIS14	#
AOI 8-7-SW-102919	21910308509	96		97		94		86		76		86		96	
AOI 8-7-SW-102919-D	21910308510	94		90		93		77		73		83		89	
AOI 8-4-SW-102919	21910308511	99		93		94		72		64		53		88	
AOI 8-3-SW-102919	21910308512	85		84		83		59		47	*	60		77	
AOI 8-2-SB-0-0.5-102919	21910308513	85		83		83		93		91		74		89	
AOI 8-1-SB-0-0.5-102919	21910308514	100		97		98		97		101		64		106	
AOI 5-N19-3-102919	21910308515	93						81		79		81			
AOI 5-N19-3-102919DL	21910308515			112		114								87	
AOI 5-N19-3-102919-D	21910308516	91						84		76		83			
AOI 5-N19-3-102919-DDL	21910308516			111		106								97	

Client Sample ID	GCAL SampleID	EIS15	#	EIS16	#	EIS17	#	EIS18	#	EIS19	#	EIS20	#
AOI 8-7-SW-102919	21910308509	74		88		90		61		81		68			
AOI 8-7-SW-102919-D	21910308510	64		85		85		43	*	73		45	*		
AOI 8-4-SW-102919	21910308511	64		80		83		42	*	75		66			
AOI 8-3-SW-102919	21910308512	57		66		74		23	*	58		44	*		
AOI 8-2-SB-0-0.5-102919	21910308513	88		87		81		84		84		99			
AOI 8-1-SB-0-0.5-102919	21910308514	96		99		93		94		97		93			
AOI 5-N19-3-102919	21910308515			85		95		62		73		74			
AOI 5-N19-3-102919DL	21910308515	130													
AOI 5-N19-3-102919-D	21910308516			77				66		64		72			
AOI 5-N19-3-102919-DDL	21910308516	132				135									

EIS1: M2 4:2 FTS EIS2: M2 6:2 FTS EIS3: M2 8:2 FTS EIS4: M2PFTeDA

EIS5: M3HFPODA EIS6: M3PFBS EIS7: M3PFHxS EIS8: M4PFHpA

EIS9: M5PFHxA EIS10: M5PFPeA EIS11: M6PFDA EIS12: M7PFUdA

EIS13: M8FOSA EIS14: M8PFOA EIS15: M8PFOS EIS16: M9PFNA

EIS17: MPFBA EIS18: MPFDoA EIS19: d3-NMeFOSAA EIS20: d5-NEtFOSAA

*M3HPFODA is not associated with any target analytes

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EXTRACTED INTERNAL STANDARD RECOVERY

Report No: 219103085 Recovery Limits: 50 - 150

Client Sample ID	GCAL SampleID	EIS1	#	EIS2	#	EIS3	#	EIS4	#	EIS5	#	EIS6	#	EIS7	#
JFTBLA-EB-102919	21910308517	104		109		103		86		4	*	109		109	
AOI 8-X3-1-102919 (RE)	21910308518														
AOI 8-5-SW-102919 (RE)	21910308519														
AOI 8-5-SW-102919-MS (RE)	21910308520														
AOI 8-5-SW-102919-MSD (RE)	21910308521														
AOI 8-6-SW-102919 (RE)	21910308522					75									
AOI 8-6-SW-102919 (RE)RE	21910308522					58									
AOI 8-6-SW-102919-MS (RE)	21910308523					72									
AOI 8-6-SW-102919-MS (RE)RE	21910308523					91									
AOI 8-6-SW-102919-MSD (RE)	21910308524					71									

Client Sample ID	GCAL SampleID	EIS8	#	EIS9	#	EIS10	#	EIS11	#	EIS12	#	EIS13	#	EIS14	#
JFTBLA-EB-102919	21910308517	101		99		106		95		95		97		96	
AOI 8-X3-1-102919 (RE)	21910308518														
AOI 8-5-SW-102919 (RE)	21910308519														
AOI 8-5-SW-102919-MS (RE)	21910308520														
AOI 8-5-SW-102919-MSD (RE)	21910308521														
AOI 8-6-SW-102919 (RE)	21910308522									80					
AOI 8-6-SW-102919 (RE)RE	21910308522														
AOI 8-6-SW-102919-MS (RE)	21910308523									72					
AOI 8-6-SW-102919-MS (RE)RE	21910308523														
AOI 8-6-SW-102919-MSD (RE)	21910308524									74					

Client Sample ID	GCAL SampleID	EIS15	#	EIS16	#	EIS17	#	EIS18	#	EIS19	#	EIS20	#
JFTBLA-EB-102919	21910308517	97		96		114		85		107		109	
AOI 8-X3-1-102919 (RE)	21910308518							57					
AOI 8-5-SW-102919 (RE)	21910308519							54					
AOI 8-5-SW-102919-MS (RE)	21910308520							74					
AOI 8-5-SW-102919-MSD (RE)	21910308521							74					
AOI 8-6-SW-102919 (RE)	21910308522							65				75	
AOI 8-6-SW-102919 (RE)RE	21910308522												
AOI 8-6-SW-102919-MS (RE)	21910308523							63				74	
AOI 8-6-SW-102919-MS (RE)RE	21910308523												
AOI 8-6-SW-102919-MSD (RE)	21910308524							53				71	

EIS1: M2 4:2 FTS EIS2: M2 6:2 FTS EIS3: M2 8:2 FTS EIS4: M2PFTeDA

EIS5: M3HFPODA EIS6: M3PFBS EIS7: M3PFHxS EIS8: M4PFHpA

EIS9: M5PFHxA EIS10: M5PFPeA EIS11: M6PFDA EIS12: M7PFUdA

EIS13: M8FOSA EIS14: M8PFOA EIS15: M8PFOS EIS16: M9PFNA

EIS17: MPFBA EIS18: MPFDoA EIS19: d3-NMeFOSAA EIS20: d5-NEtFOSAA

*M3HPFODA is not associated with any target analytes

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EXTRACTED INTERNAL STANDARD RECOVERY

Report No: 219103085 Recovery Limits: 50 - 150

Client Sample ID	GCAL SampleID	EIS1	#	EIS2	#	EIS3	#	EIS4	#	EIS5	#	EIS6	#	EIS7	#
AOI 8-6-SW-102919-MSD (RE)RE	21910308524					105									
AOI 8-7-SW-102919-D (RE)	21910308525														
AOI 8-4-SW-102919 (RE)	21910308526							58							
AOI 8-3-SW-102919 (RE)	21910308527					79									
AOI 5-N19-3-102919 (RE)	21910308528							73							
AOI 5-N19-3-102919-D (RE)	21910308529							69							
MB1976203	1976203	101		98		101		65		25	*	104		103	
LCS1976204	1976204	102		98		95		92		2	*	110		112	
LCSD1976205	1976205	102		102		94		76		7	*	106		107	
MB1977429	1977429	98		90		98		92		53		92		96	

Client Sample ID	GCAL SampleID	EIS8	#	EIS9	#	EIS10	#	EIS11	#	EIS12	#	EIS13	#	EIS14	#
AOI 8-6-SW-102919-MSD (RE)RE	21910308524														
AOI 8-7-SW-102919-D (RE)	21910308525														
AOI 8-4-SW-102919 (RE)	21910308526														
AOI 8-3-SW-102919 (RE)	21910308527									69					
AOI 5-N19-3-102919 (RE)	21910308528														
AOI 5-N19-3-102919-D (RE)	21910308529														
MB1976203	1976203	100		98		98		98		97		96		105	
LCS1976204	1976204	103		105		104		105		98		82		105	
LCSD1976205	1976205	104		103		104		102		99		66		105	
MB1977429	1977429	98		94		96		98		101		91		97	

Client Sample ID	GCAL SampleID	EIS15	#	EIS16	#	EIS17	#	EIS18	#	EIS19	#	EIS20	#		
AOI 8-6-SW-102919-MSD (RE)RE	21910308524														
AOI 8-7-SW-102919-D (RE)	21910308525							60				77			
AOI 8-4-SW-102919 (RE)	21910308526							70							
AOI 8-3-SW-102919 (RE)	21910308527							56				71			
AOI 5-N19-3-102919 (RE)	21910308528														
AOI 5-N19-3-102919-D (RE)	21910308529														
MB1976203	1976203	96		98		98		90		99		100			
LCS1976204	1976204	92		100		104		100		97		100			
LCSD1976205	1976205	103		101		104		88		96		104			
MB1977429	1977429	82		97		105		96		84		102			

EIS1: M2 4:2 FTS EIS2: M2 6:2 FTS EIS3: M2 8:2 FTS EIS4: M2PFTeDA

EIS5: M3HFPODA EIS6: M3PFBS EIS7: M3PFHxS EIS8: M4PFHpA

EIS9: M5PFHxA EIS10: M5PFPeA EIS11: M6PFDA EIS12: M7PFUdA

EIS13: M8FOSA EIS14: M8PFOA EIS15: M8PFOS EIS16: M9PFNA

*M3HPFODA is not associated with any target analytes

EIS17: MPFBA EIS18: MPFDoA EIS19: d3-NMeFOSAA EIS20: d5-NEtFOSAA

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EXTRACTED INTERNAL STANDARD RECOVERY

Report No: 219103085 Recovery Limits: 50 - 150

Client Sample ID	GCAL SampleID	EIS1	#	EIS2	#	EIS3	#	EIS4	#	EIS5	#	EIS6	#	EIS7	#
LCS1977430	1977430	89		89		86		89		20	*	92		88	
LCSD1977431	1977431	91		87		90		87		9	*	93		93	
MB1977961	1977961	98		105		112		89				103		103	
LCS1977962	1977962	96		104		105		83				101		104	
LCSD1977963	1977963	102		105		117		91				105		110	
MB1982674	1982674					132		83							
LCS1982675	1982675					123		78							
LCSD1982676	1982676					124		85							

Client Sample ID	GCAL SampleID	EIS8	#	EIS9	#	EIS10	#	EIS11	#	EIS12	#	EIS13	#	EIS14	#
LCS1977430	1977430	93		89		93		89		91		85		97	
LCSD1977431	1977431	94		93		93		86		93		87		96	
MB1977961	1977961	97		100		101		101		94		95		99	
LCS1977962	1977962	95		97		98		94		91		93		96	
LCSD1977963	1977963	99		85		101		94		95		102		101	
MB1982674	1982674									82					
LCS1982675	1982675									88					
LCSD1982676	1982676									88					

Client Sample ID	GCAL SampleID	EIS15	#	EIS16	#	EIS17	#	EIS18	#	EIS19	#	EIS20	#
LCS1977430	1977430	80		88		100		91		94		93	
LCSD1977431	1977431	72		84		100		90		100		103	
MB1977961	1977961	95		99		111		89		102		102	
LCS1977962	1977962	98		92		109		82		93		95	
LCSD1977963	1977963	101		95		110		92		95		104	
MB1982674	1982674							84				96	
LCS1982675	1982675							85				85	
LCSD1982676	1982676							89				93	

EIS1: M2 4:2 FTS EIS2: M2 6:2 FTS EIS3: M2 8:2 FTS EIS4: M2PFTeDA

EIS5: M3HFPODA EIS6: M3PFBS EIS7: M3PFHxS EIS8: M4PFHpA

EIS9: M5PFHxA EIS10: M5PFPeA EIS11: M6PFDA EIS12: M7PFUdA

EIS13: M8FOSA EIS14: M8PFOA EIS15: M8PFOS EIS16: M9PFNA

EIS17: MPFBA EIS18: MPFDoA EIS19: d3-NMeFOSAA EIS20: d5-NEtFOSAA

*M3HPFODA is not associated with any target analytes

4B

SEMIVOLATILE METHOD BLANK SUMMARY

Report No:	219091838	Method Blank ID:	1961980
Matrix:	Water	Instrument ID:	QQQ1
Sample Amt:	125 mL	Lab File ID:	2190922A_25.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	09/18/19	Analysis Date:	09/22/19 Time: 2123
Prep Batch:	667464	Analytical Batch:	667837
Prep Method:	537 Mod Prep	Analytical Method:	EPA 537 Modified

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.	LCS1961981	1961981	2190922A_26.d	09/22/19	2134
2.	LCSD1961982	1961982	2190922A_27.d	09/22/19	2145
3.	JFTBLA-DW-FieldBlank-091719	21909183802	2190922A_40.d	09/23/19	0013
4.	JFTBLA-Decon-091719	21909183801	2190922A_43.d	09/23/19	0047

FORM IV SV

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219091838	Client Sample ID:	MB1961980
Collect Date:	NA Time: NA	GCAL Sample ID:	1961980
Matrix:	Water % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	125 mL	Lab File ID:	2190922A_25.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	09/18/19	Analysis Date:	09/22/19 Time: 2123
Prep Batch:	667464	Analytical Batch:	667837
Prep Method:	537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ng/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	4.00	U	1.79	4.00	10.0
39108-34-4	8:2 Fluorotelomer sulfonate	4.00	U	1.63	4.00	10.0
2991-50-6	NEtFOSAA	8.00	U	5.38	8.00	10.0
2355-31-9	NMeFOSAA	8.00	U	4.60	8.00	10.0
375-73-5	Perfluorobutanesulfonic acid	4.00	U	1.47	4.00	10.0
375-22-4	Perfluorobutanoic acid	4.00	U	2.13	4.00	10.0
335-76-2	Perfluorodecanoic acid	4.00	U	1.65	4.00	10.0
307-55-1	Perfluorododecanoic acid	4.00	U	2.45	4.00	10.0
375-85-9	Perfluoroheptanoic acid	4.00	U	1.85	4.00	10.0
355-46-4	Perfluorohexanesulfonic acid	4.00	U	1.64	4.00	10.0
307-24-4	Perfluorohexanoic acid	4.00	U	1.94	4.00	10.0
375-95-1	Perfluorononanoic acid	4.00	U	1.68	4.00	10.0
1763-23-1	Perfluorooctane Sulfonate	4.00	U	1.70	4.00	10.0
335-67-1	Perfluorooctanoic acid	4.00	U	1.80	4.00	10.0
2706-90-3	Perfluoropentanoic acid	4.00	U	2.35	4.00	10.0
376-06-7	Perfluorotetradecanoic acid	4.00	U	2.76	4.00	10.0
72629-94-8	Perfluorotridecanoic acid	4.00	U	2.56	4.00	10.0
2058-94-8	Perfluoroundecanoic acid	4.00	U	1.86	4.00	10.0

FORM I SV-1

3C

WATER SEMIVOLATILE LCS/LCSD RECOVERY

Report No: 219091838

Prep Method: 537 Mod Prep

Prep Batch: 667464

Analytical Method: EPA 537 Modified

Analytical Batch: 667837

GCAL QC ID: 1961981

ANALYTE	*UNITS*	*SPIKE ADDED*	*SAMPLE RESULT*	*LCS RESULT*	*LCS % REC*	#	*QC LIMITS*
6:2 Fluorotelomer sulfonate	ng/L	76	0	69.7	92		70 - 130
8:2 Fluorotelomer sulfonate	ng/L	76.8	0	68.1	89		70 - 130
NEtFOSAA	ng/L	80	0	67.8	85		70 - 130
NMeFOSAA	ng/L	80	0	67.7	85		70 - 130
Perfluorobutanesulfonic acid	ng/L	70.8	0	57.8	82		70 - 130
Perfluorobutanoic acid	ng/L	80	0	63.6	79		70 - 130
Perfluorodecanoic acid	ng/L	80	0	67.4	84		70 - 130
Perfluorododecanoic acid	ng/L	80	0	70.7	88		70 - 130
Perfluoroheptanoic acid	ng/L	80	0	68,2	85		70 - 130
Perfluorohexanesulfonic acid	ng/L	73	0	59.3	81		70 - 130
Perfluorohexanoic acid	ng/L	80	0	69.4	87		70 - 130
Perfluorononanoic acid	ng/L	80	0	69.1	86		70 - 130
Perfluorooctane Sulfonate	ng/L	74	0	64.6	87		70 - 130
Perfluorooctanoic acid	ng/L	80	0	66.3	83		70 - 130
Perfluoropentanoic acid	ng/L	80	0	61.6	77		70 - 130
Perfluorotetradecanoic acid	ng/L	80	0	67.7	85		70 - 130
Perfluorotridecanoic acid	ng/L	80	0	73.9	92		70 - 130
Perfluoroundecanoic acid	ng/L	80	0	71.8	90		70 - 130

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-1

3C

WATER SEMIVOLATILE LCS/LCSD RECOVERY

Report No: 219091838

Prep Method: 537 Mod Prep

Prep Batch: 667464

Analytical Method: EPA 537 Modified

Analytical Batch: 667837

GCAL QC ID: 1961982

ANALYTE	*UNITS*	*SPIKE ADDED*	*LCSD RESULT*	*LCSD % REC*	#	*% RPD*	#	*QC LIMITS REC*	*QC LIMITS RPD*
6:2 Fluorotelomer sulfonate	ng/L	76	65.6	86		6		70 - 130	0 - 30
8:2 Fluorotelomer sulfonate	ng/L	76.8	65.7	85		4		70 - 130	0 - 30
NEtFOSAA	ng/L	80	63.4	79		7		70 - 130	0 - 30
NMeFOSAA	ng/L	80	66.9	84		1		70 - 130	0 - 30
Perfluorobutanesulfonic acid	ng/L	70.8	57.1	81		1		70 - 130	0 - 30
Perfluorobutanoic acid	ng/L	80	62.6	78		1		70 - 130	0 - 30
Perfluorodecanoic acid	ng/L	80	68.7	86		2		70 - 130	0 - 30
Perfluorododecanoic acid	ng/L	80	67.3	84		5		70 - 130	0 - 30
Perfluoroheptanoic acid	ng/L	80	65.6	82		4		70 - 130	0 - 30
Perfluorohexanesulfonic acid	ng/L	73	58.6	80		1		70 - 130	0 - 30
Perfluorohexanoic acid	ng/L	80	66.3	83		5		70 - 130	0 - 30
Perfluorononanoic acid	ng/L	80	64.5	81		7		70 - 130	0 - 30
Perfluorooctane Sulfonate	ng/L	74	65	88		.6		70 - 130	0 - 30
Perfluorooctanoic acid	ng/L	80	63.3	79		5		70 - 130	0 - 30
Perfluoropentanoic acid	ng/L	80	60.8	76		1		70 - 130	0 - 30
Perfluorotetradecanoic acid	ng/L	80	65.5	82		3		70 - 130	0 - 30
Perfluorotridecanoic acid	ng/L	80	76.1	95		3		70 - 130	0 - 30
Perfluoroundecanoic acid	ng/L	80	62.7	78		13		70 - 130	0 - 30

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-1

4B

SEMIVOLATILE METHOD BLANK SUMMARY

Report No:	219102326	Method Blank ID:	1974706
Matrix:	Solid	Instrument ID:	QQQ1
Sample Amt:	5 g	Lab File ID:	2191028A_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: BMH
Prep Date:	10/24/19	Analysis Date:	10/28/19 Time: 1209
Prep Batch:	669968	Analytical Batch:	670389
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

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.	LCS1974707	1974707	2191028A_19.d	10/28/19	1220
2.	LCSD1974708	1974708	2191028A_21.d	10/28/19	1353
3.	AOI6-1-SB-1.5-2-102219	21910232602	2191028A_39.d	10/28/19	1800
4.	AOI6-1-SB-1.5-2-102219-MS	21910232603	2191028A_40.d	10/28/19	1811
5.	AOI6-1-SB-1.5-2-102219-MSD	21910232604	2191028A_41.d	10/28/19	1822
6.	AOI6-1-SB-7-7.5-102219	21910232605	2191028A_42.d	10/28/19	1834
7.	AOI6-1-SB-18.5-19-102219	21910232606	2191028A_43.d	10/28/19	1845
8.	AOI6-1-SB-1.5-2-102219DL	21910232602DL	2191031A_43.d	10/31/19	1931
9.	AOI6-1-SB-1.5-2-102219-MSDL	21910232603DL	2191031A_44.d	10/31/19	1943
10.	AOI6-1-SB-1.5-2-102219-MSDDL	21910232604DL	2191031A_45.d	10/31/19	1954

FORM IV SV

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102326	Client Sample ID:	MB1974706
Collect Date:	NA Time: NA	GCAL Sample ID:	1974706
Matrix:	Solid % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	5 g	Lab File ID:	2191028A_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: BMH
Prep Date:	10/24/19	Analysis Date:	10/28/19 Time: 1209
Prep Batch:	669968	Analytical Batch:	670389
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	0.400	U	0.170	0.400	1.00
39108-34-4	8:2 Fluorotelomer sulfonate	0.400	U	0.260	0.400	1.00
2991-50-6	NEtFOSAA	0.400	U	0.190	0.400	1.00
2355-31-9	NMeFOSAA	0.400	U	0.280	0.400	1.00
375-73-5	Perfluorobutanesulfonic acid	0.400	U	0.120	0.400	1.00
375-22-4	Perfluorobutanoic acid	0.400	U	0.130	0.400	1.00
335-76-2	Perfluorodecanoic acid	0.400	U	0.120	0.400	1.00
307-55-1	Perfluorododecanoic acid	0.400	U	0.200	0.400	1.00
375-85-9	Perfluoroheptanoic acid	0.400	U	0.130	0.400	1.00
355-46-4	Perfluorohexanesulfonic acid	0.400	U	0.140	0.400	1.00
307-24-4	Perfluorohexanoic acid	0.400	U	0.150	0.400	1.00
375-95-1	Perfluorononanoic acid	0.400	U	0.090	0.400	1.00
1763-23-1	Perfluorooctane Sulfonate	0.400	U	0.180	0.400	1.00
335-67-1	Perfluorooctanoic acid	0.400	U	0.150	0.400	1.00
2706-90-3	Perfluoropentanoic acid	0.400	U	0.150	0.400	1.00
376-06-7	Perfluorotetradecanoic acid	0.400	U	0.160	0.400	1.00
72629-94-8	Perfluorotridecanoic acid	0.400	U	0.220	0.400	1.00
2058-94-8	Perfluoroundecanoic acid	0.400	U	0.140	0.400	1.00

FORM I SV-1

3D

SOIL SEMIVOLATILE LCS/LCSD RECOVERY

Report No: 219102326

Prep Method: EPA 537 Mod Prep

Prep Batch: 669968

Analytical Method: EPA 537 Modified

Analytical Batch: 670389

GCAL QC ID: 1974707 ANALYTE	UNITS	SPIKE ADDED	SAMPLE RESULT	LCS RESULT	LCS % REC	#	QC LIMITS
6:2 Fluorotelomer sulfonate	ug/kg	1.9	0	1.49	78		70 - 130
8:2 Fluorotelomer sulfonate	ug/kg	1.92	0	1.59	83		70 - 130
NEtFOSAA	ug/kg	2	0	1.93	97		70 - 130
NMeFOSAA	ug/kg	2	0	1.85	92		70 - 130
Perfluorobutanesulfonic acid	ug/kg	1.77	0	1.39	78		70 - 130
Perfluorobutanoic acid	ug/kg	2	0	1.6	80		70 - 130
Perfluorodecanoic acid	ug/kg	2	0	1.58	79		70 - 130
Perfluorododecanoic acid	ug/kg	2	0	1.65	83		70 - 130
Perfluoroheptanoic acid	ug/kg	2	0	1.52	76		70 - 130
Perfluorohexanesulfonic acid	ug/kg	1.82	0	1.83	100		70 - 130
Perfluorohexanoic acid	ug/kg	2	0	1.69	84		70 - 130
Perfluorononanoic acid	ug/kg	2	0	1.64	82		70 - 130
Perfluorooctane Sulfonate	ug/kg	1.85	0	1.67	90		70 - 130
Perfluorooctanoic acid	ug/kg	2	0	1.65	82		70 - 130
Perfluoropentanoic acid	ug/kg	2	0	1.48	74		70 - 130
Perfluorotetradecanoic acid	ug/kg	2	0	1.73	86		70 - 130
Perfluorotridecanoic acid	ug/kg	2	0	1.65	83		70 - 130
Perfluoroundecanoic acid	ug/kg	2	0	1.65	83		70 - 130

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:	219102326		
Prep Method:	EPA 537 Mod Prep	Prep Batch:	669968
Analytical Method:	EPA 537 Modified	Analytical Batch:	670389

			1974708							
			LCSD RESULT	***LCSD % REC***						
6:2 Fluorotelomer sulfonate	ug/kg	1.9	1.63	86		9		70 - 130	0 - 30
8:2 Fluorotelomer sulfonate	ug/kg	1.92	1.74	91		9		70 - 130	0 - 30
NEtFOSAA	ug/kg	2	2.06	103		6		70 - 130	0 - 30
NMeFOSAA	ug/kg	2	1.99	100		8		70 - 130	0 - 30
Perfluorobutanesulfonic acid	ug/kg	1.77	1.53	86		10		70 - 130	0 - 30
Perfluorobutanoic acid	ug/kg	2	1.75	88		9		70 - 130	0 - 30
Perfluorodecanoic acid	ug/kg	2	1.78	89		12		70 - 130	0 - 30
Perfluorododecanoic acid	ug/kg	2	2.1	105		24		70 - 130	0 - 30
Perfluoroheptanoic acid	ug/kg	2	1.68	84		10		70 - 130	0 - 30
Perfluorohexanesulfonic acid	ug/kg	1.82	1.86	102		1		70 - 130	0 - 30
Perfluorohexanoic acid	ug/kg	2	1.86	93		9		70 - 130	0 - 30
Perfluorononanoic acid	ug/kg	2	1.78	89		9		70 - 130	0 - 30
Perfluorooctane Sulfonate	ug/kg	1.85	1.95	106		16		70 - 130	0 - 30
Perfluorooctanoic acid	ug/kg	2	1.85	92		11		70 - 130	0 - 30
Perfluoropentanoic acid	ug/kg	2	1.64	82		10		70 - 130	0 - 30
Perfluorotetradecanoic acid	ug/kg	2	1.87	94		8		70 - 130	0 - 30
Perfluorotridecanoic acid	ug/kg	2	1.79	90		8		70 - 130	0 - 30
Perfluoroundecanoic acid	ug/kg	2	1.75	87		6		70 - 130	0 - 30

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 MS/MSD RECOVERY

Report No:	219102326	Parent Sample ID:	AOI6-1-SB-1.5-2-102219
Prep Method:	EPA 537 Mod Prep	Prep Batch:	669968
Analytical Method:	EPA 537 Modified	Analytical Batch:	670389

GCAL QC ID: 21910232603

ANALYTE	UNITS	SPIKE ADDED	SAMPLE RESULT	MS RESULT	MS % REC	#	QC LIMITS
8:2 Fluorotelomer sulfonate	ug/kg	2.4	0	2.08	86		70 - 130
NEtFOSAA	ug/kg	2.5	0	2.79	112		70 - 130
NMeFOSAA	ug/kg	2.5	0	2.13	85		70 - 130
Perfluorobutanesulfonic acid	ug/kg	2.21	.01	1.89	85		70 - 130
Perfluorobutanoic acid	ug/kg	2.5	2.49	4.8	92		70 - 130
Perfluorodecanoic acid	ug/kg	2.5	0	2.3	92		70 - 130
Perfluorododecanoic acid	ug/kg	2.5	0	2.46	98		70 - 130
Perfluoroheptanoic acid	ug/kg	2.5	4.63	7.16	101		70 - 130
Perfluorohexanesulfonic acid	ug/kg	2.28	.324	2.55	98		70 - 130
Perfluorohexanoic acid	ug/kg	2.5	5.63	8.21	103		70 - 130
Perfluorononanoic acid	ug/kg	2.5	0	2.25	90		70 - 130
Perfluorooctane Sulfonate	ug/kg	2.31	0	2.49	108		70 - 130
Perfluorooctanoic acid	ug/kg	2.5	2.31	4.74	97		70 - 130
Perfluoropentanoic acid	ug/kg	2.5	7.44	10.1	104		70 - 130
Perfluoroundecanoic acid	ug/kg	2.5	0	2.04	81		70 - 130

GCAL QC ID: 21910232604

ANALYTE	UNITS	SPIKE ADDED	MSD RESULT	MSD % REC	#	% RPD	#	QC LIMITS REC	QC LIMITS RPD
8:2 Fluorotelomer sulfonate	ug/kg	2.35	1.94	82		6		70 - 130	0 - 30
NEtFOSAA	ug/kg	2.45	2.56	104		9		70 - 130	0 - 30
NMeFOSAA	ug/kg	2.45	2.28	93		7		70 - 130	0 - 30
Perfluorobutanesulfonic acid	ug/kg	2.18	1.73	79		9		70 - 130	0 - 30
Perfluorobutanoic acid	ug/kg	2.45	4.49	81		7		70 - 130	0 - 30
Perfluorodecanoic acid	ug/kg	2.45	2.05	84		12		70 - 130	0 - 30
Perfluorododecanoic acid	ug/kg	2.45	2.15	88		13		70 - 130	0 - 30
Perfluoroheptanoic acid	ug/kg	2.45	6.47	75		10		70 - 130	0 - 30
Perfluorohexanesulfonic acid	ug/kg	2.24	2.5	98		2		70 - 130	0 - 30
Perfluorohexanoic acid	ug/kg	2.45	7.57	79		8		70 - 130	0 - 30
Perfluorononanoic acid	ug/kg	2.45	2.13	87		5		70 - 130	0 - 30
Perfluorooctane Sulfonate	ug/kg	2.26	2.23	98		11		70 - 130	0 - 30
Perfluorooctanoic acid	ug/kg	2.45	4.77	100		.5		70 - 130	0 - 30
Perfluoropentanoic acid	ug/kg	2.45	9.48	83		6		70 - 130	0 - 30
Perfluoroundecanoic acid	ug/kg	2.45	1.99	81		3		70 - 130	0 - 30

RPD : 0 out of 15 outside limits

Spike Recovery: 0 out of 30 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:	219102326	Parent Sample ID:	AOI6-1-SB-1.5-2-102219DL
Prep Method:	EPA 537 Mod Prep	Prep Batch:	669968
Analytical Method:	EPA 537 Modified	Analytical Batch:	670526

GCAL QC ID: 21910232603 ANALYTE	UNITS	SPIKE ADDED	SAMPLE RESULT	MS RESULT	MS % REC	#	QC LIMITS
6:2 Fluorotelomer sulfonate	ug/kg	2.38	104	92.5	-488	*	70 - 130

GCAL QC ID: 21910232604 ANALYTE	UNITS	SPIKE ADDED	MSD RESULT	MSD % REC	#	% RPD	#	QC LIMITS REC	QC LIMITS RPD
6:2 Fluorotelomer sulfonate	ug/kg	2.33	94.7	-398	*	2		70 - 130	0 - 30

RPD : 0 out of 1 outside limits

Spike Recovery: 2 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

4B

SEMIVOLATILE METHOD BLANK SUMMARY

Report No:	219102326	Method Blank ID:	1974709
Matrix:	Solid	Instrument ID:	QQQ1
Sample Amt:	5 g	Lab File ID:	2191105A_30.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	10/30/19	Analysis Date:	11/05/19 Time: 1728
Prep Batch:	669969	Analytical Batch:	670959
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

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.	LCS1974711	1974711	2191105A_32.d	11/05/19	1751
2.	AOI6-3-SB-1.5-2-102219	21910232608	2191105A_33.d	11/05/19	1802
3.	AOI6-3-SB-1.5-2-102219-MS	21910232609	2191105A_34.d	11/05/19	1813
4.	AOI6-3-SB-1.5-2-102219-MSD	21910232610	2191105A_35.d	11/05/19	1825
5.	AOI6-2-SB-1.5-2-102219	21910232611	2191105A_36.d	11/05/19	1836
6.	AOI6-2-SB-1.5-2-102219-MS	21910232612	2191105A_37.d	11/05/19	1848
7.	AOI6-2-SB-1.5-2-102219-MSD	21910232613	2191105A_38.d	11/05/19	1859
8.	AOI6-4-SB-1.5-2-102219	21910232614	2191105A_39.d	11/05/19	1910
9.	AOI6-4-SB-1.5-2-102219-MS	21910232615	2191105A_40.d	11/05/19	1922
10.	AOI6-4-SB-1.5-2-102219-MSD	21910232616	2191105A_41.d	11/05/19	1933
11.	AOI5-1-SB-1.5-2-102219	21910232617	2191105A_42.d	11/05/19	1944
12.	AOI5-1-SB-1.5-2-102219-D	21910232618	2191105A_43.d	11/05/19	1955
13.	AOI5-1-SB-8-8.5-102219	21910232619	2191105A_44.d	11/05/19	2007
14.	AOI5-1-SB-19-19.5-102219	21910232620	2191105A_45.d	11/05/19	2018
15.	AOI1-3-SB-4.5-5-102219	21910232622	2191105A_46.d	11/05/19	2030
16.	AOI1-3-SB-9.5-10-102219	21910232623	2191105A_47.d	11/05/19	2041
17.	AOI1-3-SB-16-16.5-102219	21910232624	2191105A_48.d	11/05/19	2052
18.	AOI1-1-SB-4.5-5-102219	21910232625	2191105A_50.d	11/05/19	2115
19.	AOI1-1-SB-10-10.5-102219	21910232627	2191105A_51.d	11/05/19	2126
20.	AOI1-1-SB-17-17.5-102219	21910232628	2191105A_52.d	11/05/19	2138
21.	AOI5-1-SB-8-8.5-102219DL	21910232619DL	2191117A_71.d	11/18/19	0629
22.	AOI6-3-SB-1.5-2-102219DL	21910232608DL	2191117A_72.d	11/18/19	0640
23.	AOI6-3-SB-1.5-2-102219-MSDL	21910232609DL	2191117A_73.d	11/18/19	0651
24.	AOI6-3-SB-1.5-2-102219-MSDDL	21910232610DL	2191117A_74.d	11/18/19	0703
25.	AOI6-2-SB-1.5-2-102219DL	21910232611DL	2191117A_75.d	11/18/19	0714
26.	AOI6-2-SB-1.5-2-102219-MSDL	21910232612DL	2191117A_76.d	11/18/19	0725
27.	AOI6-2-SB-1.5-2-102219-MSDDL	21910232613DL	2191117A_77.d	11/18/19	0737
28.	AOI5-1-SB-1.5-2-102219DL	21910232617DL	2191117A_78.d	11/18/19	0748
29.	AOI5-1-SB-1.5-2-102219-DDL	21910232618DL	2191117A_79.d	11/18/19	0800

FORM IV SV

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102326	Client Sample ID:	MB1974709
Collect Date:	NA Time: NA	GCAL Sample ID:	1974709
Matrix:	Solid % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	5 g	Lab File ID:	2191105A_30.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	10/30/19	Analysis Date:	11/05/19 Time: 1728
Prep Batch:	669969	Analytical Batch:	670959
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	0.400	U	0.170	0.400	1.00
39108-34-4	8:2 Fluorotelomer sulfonate	0.400	U	0.260	0.400	1.00
2991-50-6	NEtFOSAA	0.400	U	0.190	0.400	1.00
2355-31-9	NMeFOSAA	0.400	U	0.280	0.400	1.00
375-73-5	Perfluorobutanesulfonic acid	0.400	U	0.120	0.400	1.00
375-22-4	Perfluorobutanoic acid	0.400	U	0.130	0.400	1.00
335-76-2	Perfluorodecanoic acid	0.400	U	0.120	0.400	1.00
307-55-1	Perfluorododecanoic acid	0.400	U	0.200	0.400	1.00
375-85-9	Perfluoroheptanoic acid	0.400	U	0.130	0.400	1.00
355-46-4	Perfluorohexanesulfonic acid	0.400	U	0.140	0.400	1.00
307-24-4	Perfluorohexanoic acid	0.400	U	0.150	0.400	1.00
375-95-1	Perfluorononanoic acid	0.400	U	0.090	0.400	1.00
1763-23-1	Perfluorooctane Sulfonate	0.400	U	0.180	0.400	1.00
335-67-1	Perfluorooctanoic acid	0.400	U	0.150	0.400	1.00
2706-90-3	Perfluoropentanoic acid	0.400	U	0.150	0.400	1.00
376-06-7	Perfluorotetradecanoic acid	0.400	U	0.160	0.400	1.00
72629-94-8	Perfluorotridecanoic acid	0.400	U	0.220	0.400	1.00
2058-94-8	Perfluoroundecanoic acid	0.400	U	0.140	0.400	1.00

FORM I SV-1

3D

SOIL SEMIVOLATILE LCS/LCSD RECOVERY

Report No: 219102326

Prep Method: EPA 537 Mod Prep

Prep Batch: 669969

Analytical Method: EPA 537 Modified

Analytical Batch: 670959

GCAL QC ID: 1974711 ANALYTE	UNITS	SPIKE ADDED	SAMPLE RESULT	LCS RESULT	LCS % REC	#	QC LIMITS
6:2 Fluorotelomer sulfonate	ug/kg	1.9	0	2.44	128		70 - 130
8:2 Fluorotelomer sulfonate	ug/kg	1.92	0	2.45	127		70 - 130
NEtFOSAA	ug/kg	2	0	2.21	110		70 - 130
NMeFOSAA	ug/kg	2	0	2.71	135	*	70 - 130
Perfluorobutanesulfonic acid	ug/kg	1.77	0	1.81	102		70 - 130
Perfluorobutanoic acid	ug/kg	2	0	2.13	107		70 - 130
Perfluorodecanoic acid	ug/kg	2	0	2.01	101		70 - 130
Perfluorododecanoic acid	ug/kg	2	0	2.3	115		70 - 130
Perfluoroheptanoic acid	ug/kg	2	0	2.41	121		70 - 130
Perfluorohexanesulfonic acid	ug/kg	1.82	0	2.06	113		70 - 130
Perfluorohexanoic acid	ug/kg	2	0	2.14	107		70 - 130
Perfluorononanoic acid	ug/kg	2	0	2.16	108		70 - 130
Perfluorooctane Sulfonate	ug/kg	1.85	0	2.26	122		70 - 130
Perfluorooctanoic acid	ug/kg	2	0	2.02	101		70 - 130
Perfluoropentanoic acid	ug/kg	2	0	2.01	101		70 - 130
Perfluorotetradecanoic acid	ug/kg	2	0	2.32	116		70 - 130
Perfluorotridecanoic acid	ug/kg	2	0	2.4	120		70 - 130
Perfluoroundecanoic acid	ug/kg	2	0	1.97	98		70 - 130

RPD : 0 out of 0 outside limits

Spike Recovery: 1 out of 18 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:	219102326	Parent Sample ID:	AOI6-4-SB-1.5-2-102219
Prep Method:	EPA 537 Mod Prep	Prep Batch:	669969
Analytical Method:	EPA 537 Modified	Analytical Batch:	670959

GCAL QC ID: 21910232615

ANALYTE	*UNITS*	*SPIKE ADDED*	*SAMPLE RESULT*	*MS RESULT*	*MS % REC*	#	*QC LIMITS*
6:2 Fluorotelomer sulfonate	ug/kg	2.18	.31	2.43	97		70 - 130
8:2 Fluorotelomer sulfonate	ug/kg	2.2	.029	2.44	109		70 - 130
NEtFOSAA	ug/kg	2.29	0	2.43	105		70 - 130
NMeFOSAA	ug/kg	2.29	0	2.56	112		70 - 130
Perfluorobutanesulfonic acid	ug/kg	2.03	.013	2	97		70 - 130
Perfluorobutanoic acid	ug/kg	2.29	.611	3.12	109		70 - 130
Perfluorodecanoic acid	ug/kg	2.29	.064	2.27	96		70 - 130
Perfluorododecanoic acid	ug/kg	2.29	0	2.37	103		70 - 130
Perfluoroheptanoic acid	ug/kg	2.29	1.11	3.85	119		70 - 130
Perfluorohexanesulfonic acid	ug/kg	2.09	.07	2.31	107		70 - 130
Perfluorohexanoic acid	ug/kg	2.29	1.43	3.91	108		70 - 130
Perfluorononanoic acid	ug/kg	2.29	0	2.27	99		70 - 130
Perfluorooctane Sulfonate	ug/kg	2.13	.026	2.16	100		70 - 130
Perfluorooctanoic acid	ug/kg	2.29	.213	2.57	103		70 - 130
Perfluoropentanoic acid	ug/kg	2.29	2.06	4.74	117		70 - 130
Perfluorotetradecanoic acid	ug/kg	2.29	0	2.47	108		70 - 130
Perfluorotridecanoic acid	ug/kg	2.29	0	2.84	124		70 - 130
Perfluoroundecanoic acid	ug/kg	2.29	0	2.13	93		70 - 130

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 MS/MSD RECOVERY

Report No:	219102326	Parent Sample ID:	AOI6-4-SB-1.5-2-102219
Prep Method:	EPA 537 Mod Prep	Prep Batch:	669969
Analytical Method:	EPA 537 Modified	Analytical Batch:	670959

GCAL QC ID: 21910232616 ANALYTE	UNITS	SPIKE ADDED	MSD RESULT	MSD % REC	#	% RPD	#	QC LIMITS REC	QC LIMITS RPD
6:2 Fluorotelomer sulfonate	ug/kg	2.12	2.39	99		1		70 - 130	0 - 30
8:2 Fluorotelomer sulfonate	ug/kg	2.13	2.2	102		10		70 - 130	0 - 30
NEtFOSAA	ug/kg	2.22	2.56	115		5		70 - 130	0 - 30
NMeFOSAA	ug/kg	2.22	2.78	125		8		70 - 130	0 - 30
Perfluorobutanesulfonic acid	ug/kg	1.96	1.94	98		3		70 - 130	0 - 30
Perfluorobutanoic acid	ug/kg	2.22	3.08	111		1		70 - 130	0 - 30
Perfluorodecanoic acid	ug/kg	2.22	2.26	99		.4		70 - 130	0 - 30
Perfluorododecanoic acid	ug/kg	2.22	2.43	109		2		70 - 130	0 - 30
Perfluoroheptanoic acid	ug/kg	2.22	3.85	124		.2		70 - 130	0 - 30
Perfluorohexanesulfonic acid	ug/kg	2.02	2.22	106		4		70 - 130	0 - 30
Perfluorohexanoic acid	ug/kg	2.22	4	116		2		70 - 130	0 - 30
Perfluorononanoic acid	ug/kg	2.22	2.28	103		.2		70 - 130	0 - 30
Perfluorooctane Sulfonate	ug/kg	2.06	2.13	102		1		70 - 130	0 - 30
Perfluorooctanoic acid	ug/kg	2.22	2.52	104		2		70 - 130	0 - 30
Perfluoropentanoic acid	ug/kg	2.22	4.83	125		2		70 - 130	0 - 30
Perfluorotetradecanoic acid	ug/kg	2.22	2.4	108		3		70 - 130	0 - 30
Perfluorotridecanoic acid	ug/kg	2.22	2.58	116		9		70 - 130	0 - 30
Perfluoroundecanoic acid	ug/kg	2.22	2.2	99		3		70 - 130	0 - 30

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 MS/MSD RECOVERY

Report No:	219102326	Parent Sample ID:	AOI6-2-SB-1.5-2-102219
Prep Method:	EPA 537 Mod Prep	Prep Batch:	669969
Analytical Method:	EPA 537 Modified	Analytical Batch:	670959

GCAL QC ID: 21910232612

ANALYTE	*UNITS*	*SPIKE ADDED*	*SAMPLE RESULT*	*MS RESULT*	*MS % REC*	*#*	*QC LIMITS*
8:2 Fluorotelomer sulfonate	ug/kg	2.01	.386	2.7	115		70 - 130
NEtFOSAA	ug/kg	2.1	0	2.27	108		70 - 130
NMeFOSAA	ug/kg	2.1	0	2.23	107		70 - 130
Perfluorobutanesulfonic acid	ug/kg	1.85	.023	1.76	94		70 - 130
Perfluorobutanoic acid	ug/kg	2.1	13.5	13.6	9	*	70 - 130
Perfluorodecanoic acid	ug/kg	2.1	.069	2.03	94		70 - 130
Perfluorododecanoic acid	ug/kg	2.1	.035	2.23	105		70 - 130
Perfluoroheptanoic acid	ug/kg	2.1	5.27	7.75	119		70 - 130
Perfluorohexanesulfonic acid	ug/kg	1.91	.319	2.32	105		70 - 130
Perfluorohexanoic acid	ug/kg	2.1	33.3	32.6	-30	*	70 - 130
Perfluorononanoic acid	ug/kg	2.1	.172	2.31	102		70 - 130
Perfluorooctane Sulfonate	ug/kg	1.94	1.06	3.11	106		70 - 130
Perfluorooctanoic acid	ug/kg	2.1	5.36	8.4	145	*	70 - 130
Perfluorotetradecanoic acid	ug/kg	2.1	.023	2.3	108		70 - 130
Perfluorotridecanoic acid	ug/kg	2.1	0	2.39	114		70 - 130
Perfluoroundecanoic acid	ug/kg	2.1	.032	2.14	101		70 - 130

RPD : 0 out of 16 outside limits

Spike Recovery: 5 out of 32 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:	219102326	Parent Sample ID:	AOI6-2-SB-1.5-2-102219
Prep Method:	EPA 537 Mod Prep	Prep Batch:	669969
Analytical Method:	EPA 537 Modified	Analytical Batch:	670959

GCAL QC ID: 21910232613 ANALYTE	UNITS	SPIKE ADDED	MSD RESULT	MSD % REC	#	% RPD	#	QC LIMITS REC	QC LIMITS RPD
8:2 Fluorotelomer sulfonate	ug/kg	2.13	3.05	125		12		70 - 130	0 - 30
NEtFOSAA	ug/kg	2.22	2.67	120		16		70 - 130	0 - 30
NMeFOSAA	ug/kg	2.22	2.61	117		16		70 - 130	0 - 30
Perfluorobutanesulfonic acid	ug/kg	1.96	1.89	95		7		70 - 130	0 - 30
Perfluorobutanoic acid	ug/kg	2.22	15.4	86		12		70 - 130	0 - 30
Perfluorodecanoic acid	ug/kg	2.22	2.43	106		18		70 - 130	0 - 30
Perfluorododecanoic acid	ug/kg	2.22	2.49	111		11		70 - 130	0 - 30
Perfluoroheptanoic acid	ug/kg	2.22	8.71	155	*	12		70 - 130	0 - 30
Perfluorohexanesulfonic acid	ug/kg	2.03	2.43	104		5		70 - 130	0 - 30
Perfluorohexanoic acid	ug/kg	2.22	36.2	130		10		70 - 130	0 - 30
Perfluorononanoic acid	ug/kg	2.22	2.47	103		7		70 - 130	0 - 30
Perfluorooctane Sulfonate	ug/kg	2.05	3.25	106		4		70 - 130	0 - 30
Perfluorooctanoic acid	ug/kg	2.22	8.6	146	*	2		70 - 130	0 - 30
Perfluorotetradecanoic acid	ug/kg	2.22	2.31	103		.9		70 - 130	0 - 30
Perfluorotridecanoic acid	ug/kg	2.22	2.3	104		3		70 - 130	0 - 30
Perfluoroundecanoic acid	ug/kg	2.22	2.27	100		6		70 - 130	0 - 30

RPD : 0 out of 16 outside limits

Spike Recovery: 5 out of 32 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:	219102326	Parent Sample ID:	AOI6-3-SB-1.5-2-102219
Prep Method:	EPA 537 Mod Prep	Prep Batch:	669969
Analytical Method:	EPA 537 Modified	Analytical Batch:	670959

GCAL QC ID: 21910232609 ANALYTE	UNITS	SPIKE ADDED	SAMPLE RESULT	MS RESULT	MS % REC	#	QC LIMITS
8:2 Fluorotelomer sulfonate	ug/kg	2.14	1.04	3.34	108		70 - 130
NEtFOSAA	ug/kg	2.22	0	2.62	118		70 - 130
NMeFOSAA	ug/kg	2.22	0	2.58	115		70 - 130
Perfluorobutanesulfonic acid	ug/kg	1.98	.032	1.95	98		70 - 130
Perfluorobutanoic acid	ug/kg	2.22	15.1	15.8	32	*	70 - 130
Perfluorodecanoic acid	ug/kg	2.22	.039	2.15	95		70 - 130
Perfluorododecanoic acid	ug/kg	2.22	0	2.32	104		70 - 130
Perfluoroheptanoic acid	ug/kg	2.22	34.7	33	-80	*	70 - 130
Perfluorohexanesulfonic acid	ug/kg	2.04	10.5	11.6	55	*	70 - 130
Perfluorononanoic acid	ug/kg	2.22	.048	2.21	97		70 - 130
Perfluorooctane Sulfonate	ug/kg	2.06	1.37	3.6	108		70 - 130
Perfluorooctanoic acid	ug/kg	2.22	6.24	8.41	98		70 - 130
Perfluorotetradecanoic acid	ug/kg	2.22	.031	2.42	107		70 - 130
Perfluorotridecanoic acid	ug/kg	2.22	.011	2.57	114		70 - 130
Perfluoroundecanoic acid	ug/kg	2.22	.011	2.15	96		70 - 130

GCAL QC ID: 21910232610 ANALYTE	UNITS	SPIKE ADDED	MSD RESULT	MSD % REC	#	% RPD	#	QC LIMITS REC	QC LIMITS RPD
8:2 Fluorotelomer sulfonate	ug/kg	2.17	3.08	94		8		70 - 130	0 - 30
NEtFOSAA	ug/kg	2.26	2.54	113		3		70 - 130	0 - 30
NMeFOSAA	ug/kg	2.26	2.26	100		13		70 - 130	0 - 30
Perfluorobutanesulfonic acid	ug/kg	2	2.04	100		4		70 - 130	0 - 30
Perfluorobutanoic acid	ug/kg	2.26	16.4	58	*	4		70 - 130	0 - 30
Perfluorodecanoic acid	ug/kg	2.26	2.25	98		4		70 - 130	0 - 30
Perfluorododecanoic acid	ug/kg	2.26	2.62	116		12		70 - 130	0 - 30
Perfluoroheptanoic acid	ug/kg	2.26	34.6	-6	*	5		70 - 130	0 - 30
Perfluorohexanesulfonic acid	ug/kg	2.06	11.7	57	*	.4		70 - 130	0 - 30
Perfluorononanoic acid	ug/kg	2.26	2.34	102		6		70 - 130	0 - 30
Perfluorooctane Sulfonate	ug/kg	2.09	3.2	87		12		70 - 130	0 - 30
Perfluorooctanoic acid	ug/kg	2.26	8.48	100		.9		70 - 130	0 - 30
Perfluorotetradecanoic acid	ug/kg	2.26	2.48	109		3		70 - 130	0 - 30
Perfluorotridecanoic acid	ug/kg	2.26	4.62	204	*	57	*	70 - 130	0 - 30
Perfluoroundecanoic acid	ug/kg	2.26	2.15	95		.4		70 - 130	0 - 30

RPD : 1 out of 15 outside limits

Spike Recovery: 7 out of 30 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:	219102326	Parent Sample ID:	AOI6-2-SB-1.5-2-102219DL
Prep Method:	EPA 537 Mod Prep	Prep Batch:	669969
Analytical Method:	EPA 537 Modified	Analytical Batch:	671600

GCAL QC ID: 21910232612

ANALYTE	*UNITS*	*SPIKE ADDED*	*SAMPLE RESULT*	*MS RESULT*	*MS % REC*	*#*	*QC LIMITS*
6:2 Fluorotelomer sulfonate	ug/kg	1.99	194	224	1510	*	70 - 130
Perfluoropentanoic acid	ug/kg	2.1	57.7	52.6	-243	*	70 - 130

GCAL QC ID: 21910232613

ANALYTE	*UNITS*	*SPIKE ADDED*	*MSD RESULT*	*MSD % REC*	*#*	*% RPD*	*#*	*QC LIMITS REC*	*QC LIMITS RPD*
6:2 Fluorotelomer sulfonate	ug/kg	2.11	200	280	*	11		70 - 130	0 - 30
Perfluoropentanoic acid	ug/kg	2.22	58.5	39	*	11		70 - 130	0 - 30

RPD : 0 out of 2 outside limits

Spike Recovery: 4 out of 4 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:	219102326	Parent Sample ID:	AOI6-3-SB-1.5-2-102219DL
Prep Method:	EPA 537 Mod Prep	Prep Batch:	669969
Analytical Method:	EPA 537 Modified	Analytical Batch:	671600

GCAL QC ID: 21910232609

ANALYTE	*UNITS*	*SPIKE ADDED*	*SAMPLE RESULT*	*MS RESULT*	*MS % REC*	*#*	*QC LIMITS*
6:2 Fluorotelomer sulfonate	ug/kg	2.12	229	212	-797	*	70 - 130
Perfluorohexanoic acid	ug/kg	2.22	71.8	69.1	-117	*	70 - 130
Perfluoropentanoic acid	ug/kg	2.22	57.8	56.1	-71	*	70 - 130

GCAL QC ID: 21910232610

ANALYTE	*UNITS*	*SPIKE ADDED*	*MSD RESULT*	*MSD % REC*	*#*	*% RPD*	*#*	*QC LIMITS REC*	*QC LIMITS RPD*
6:2 Fluorotelomer sulfonate	ug/kg	2.14	219	-460	*	3		70 - 130	0 - 30
Perfluorohexanoic acid	ug/kg	2.26	67.8	-173	*	2		70 - 130	0 - 30
Perfluoropentanoic acid	ug/kg	2.26	57.9	8	*	3		70 - 130	0 - 30

RPD : 0 out of 3 outside limits

Spike Recovery: 6 out of 6 outside limits

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

FORM III SV-2

4B

SEMIVOLATILE METHOD BLANK SUMMARY

Report No:	219102333	Method Blank ID:	1974712
Matrix:	Solid	Instrument ID:	QQQ1
Sample Amt:	5 g	Lab File ID:	2191105A_100.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	10/29/19	Analysis Date:	11/06/19 Time: 0643
Prep Batch:	669971	Analytical Batch:	670959
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

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.	LCS1974713	1974713	2191105A_101.d	11/06/19	0654
2.	LCSD1974714	1974714	2191105A_102.d	11/06/19	0706
3.	AOI7-10-SB-1.5-2-102119	21910233301	2191105A_103.d	11/06/19	0717
4.	AOI7-10-SB-7.5-8-102119	21910233302	2191105A_104.d	11/06/19	0728
5.	AOI7-5-SB-1.5-2-102119	21910233303	2191105A_105.d	11/06/19	0740
6.	AOI7-10-SB-17-17.5-102119	21910233304	2191105A_106.d	11/06/19	0751
7.	AOI7-6-SB-1.5-2-102119	21910233306	2191105A_107.d	11/06/19	0803
8.	AOI7-7-SB-1.5-2-102119	21910233307	2191105A_108.d	11/06/19	0814
9.	AOI7-11-SB-1.5-2-102119	21910233309	2191105A_109.d	11/06/19	0825
10.	AOI7-8-SB-1.5-2-102119	21910233311	2191105A_112.d	11/06/19	0859
11.	AOI7-11-SB-18-18.5-102119	21910233312	2191105A_113.d	11/06/19	0910
12.	AOI7-9-SB-1.5-2-102119	21910233313	2191105A_114.d	11/06/19	0921
13.	AOI7-9-SB-7.5-8-102119	21910233315	2191105A_115.d	11/06/19	0933
14.	AOI7-1-SB-1.5-2-102119	21910233317	2191105A_116.d	11/06/19	0944
15.	AOI7-9-SB-17-17.5-102119	21910233318	2191105A_117.d	11/06/19	0956
16.	AOI7-2-SB-1.5-2-102119	21910233319	2191105A_118.d	11/06/19	1007
17.	AOI7-3-SB-1.5-2-102119	21910233320	2191105A_119.d	11/06/19	1018
18.	AOI7-4-1.5-2-102119	21910233322	2191105A_120.d	11/06/19	1029
19.	LCS1974713RE	1974713RE	2191112B_75.d	11/13/19	0408
20.	LCSD1974714RE	1974714RE	2191112B_76.d	11/13/19	0419
21.	AOI7-11-SB-7.5-8-102119	21910233310	2191112B_80.d	11/13/19	0504

FORM IV SV

4B

SEMIVOLATILE METHOD BLANK SUMMARY

Report No:	219102333	Method Blank ID:	1974712
Matrix:	Solid	Instrument ID:	QQQ1
Sample Amt:	5 g	Lab File ID:	2191112B_74.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	10/29/19	Analysis Date:	11/13/19 Time: 0357
Prep Batch:	669971	Analytical Batch:	671184
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

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.	LCS1974713	1974713	2191105A_101.d	11/06/19	0654
2.	LCSD1974714	1974714	2191105A_102.d	11/06/19	0706
3.	AOI7-10-SB-1.5-2-102119	21910233301	2191105A_103.d	11/06/19	0717
4.	AOI7-10-SB-7.5-8-102119	21910233302	2191105A_104.d	11/06/19	0728
5.	AOI7-5-SB-1.5-2-102119	21910233303	2191105A_105.d	11/06/19	0740
6.	AOI7-10-SB-17-17.5-102119	21910233304	2191105A_106.d	11/06/19	0751
7.	AOI7-6-SB-1.5-2-102119	21910233306	2191105A_107.d	11/06/19	0803
8.	AOI7-7-SB-1.5-2-102119	21910233307	2191105A_108.d	11/06/19	0814
9.	AOI7-11-SB-1.5-2-102119	21910233309	2191105A_109.d	11/06/19	0825
10.	AOI7-8-SB-1.5-2-102119	21910233311	2191105A_112.d	11/06/19	0859
11.	AOI7-11-SB-18-18.5-102119	21910233312	2191105A_113.d	11/06/19	0910
12.	AOI7-9-SB-1.5-2-102119	21910233313	2191105A_114.d	11/06/19	0921
13.	AOI7-9-SB-7.5-8-102119	21910233315	2191105A_115.d	11/06/19	0933
14.	AOI7-1-SB-1.5-2-102119	21910233317	2191105A_116.d	11/06/19	0944
15.	AOI7-9-SB-17-17.5-102119	21910233318	2191105A_117.d	11/06/19	0956
16.	AOI7-2-SB-1.5-2-102119	21910233319	2191105A_118.d	11/06/19	1007
17.	AOI7-3-SB-1.5-2-102119	21910233320	2191105A_119.d	11/06/19	1018
18.	AOI7-4-1.5-2-102119	21910233322	2191105A_120.d	11/06/19	1029
19.	LCS1974713RE	1974713RE	2191112B_75.d	11/13/19	0408
20.	LCSD1974714RE	1974714RE	2191112B_76.d	11/13/19	0419
21.	AOI7-11-SB-7.5-8-102119	21910233310	2191112B_80.d	11/13/19	0504

FORM IV SV

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102333	Client Sample ID:	MB1974712
Collect Date:	NA Time: NA	GCAL Sample ID:	1974712
Matrix:	Solid % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	5 g	Lab File ID:	2191105A_100.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	10/29/19	Analysis Date:	11/06/19 Time: 0643
Prep Batch:	669971	Analytical Batch:	670959
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ug/kg*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	0.400	U	0.170	0.400	1.00
39108-34-4	8:2 Fluorotelomer sulfonate	0.400	U	0.260	0.400	1.00
2991-50-6	NEtFOSAA	0.400	U	0.190	0.400	1.00
2355-31-9	NMeFOSAA	0.400	U	0.280	0.400	1.00
375-73-5	Perfluorobutanesulfonic acid	0.400	U	0.120	0.400	1.00
375-22-4	Perfluorobutanoic acid	0.400	U	0.130	0.400	1.00
335-76-2	Perfluorodecanoic acid	0.400	U	0.120	0.400	1.00
307-55-1	Perfluorododecanoic acid	0.400	U	0.200	0.400	1.00
375-85-9	Perfluoroheptanoic acid	0.400	U	0.130	0.400	1.00
355-46-4	Perfluorohexanesulfonic acid	0.400	U	0.140	0.400	1.00
307-24-4	Perfluorohexanoic acid	0.400	U	0.150	0.400	1.00
375-95-1	Perfluorononanoic acid	0.400	U	0.090	0.400	1.00
1763-23-1	Perfluorooctane Sulfonate	0.400	U	0.180	0.400	1.00
335-67-1	Perfluorooctanoic acid	0.400	U	0.150	0.400	1.00
2706-90-3	Perfluoropentanoic acid	0.400	U	0.150	0.400	1.00
2058-94-8	Perfluoroundecanoic acid	0.400	U	0.140	0.400	1.00

FORM I SV-1

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102333	Client Sample ID:	MB1974712RE
Collect Date:	NA Time: NA	GCAL Sample ID:	1974712RE
Matrix:	Solid % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	5 g	Lab File ID:	2191112B_74.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	10/29/19	Analysis Date:	11/13/19 Time: 0357
Prep Batch:	669971	Analytical Batch:	671184
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ug/kg*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
376-06-7	Perfluorotetradecanoic acid	0.400	U	0.160	0.400	1.00
72629-94-8	Perfluorotridecanoic acid	0.400	U	0.220	0.400	1.00

FORM I SV-1

3D

SOIL SEMIVOLATILE LCS/LCSD RECOVERY

Report No: 219102333

Prep Method: EPA 537 Mod Prep

Prep Batch: 669971

Analytical Method: EPA 537 Modified

Analytical Batch: 670959

GCAL QC ID: 1974713

ANALYTE	*UNITS*	*SPIKE ADDED*	*SAMPLE RESULT*	*LCS RESULT*	*LCS % REC*	#	*QC LIMITS*
6:2 Fluorotelomer sulfonate	ug/kg	1.9	0	1.99	105		70 - 130
8:2 Fluorotelomer sulfonate	ug/kg	1.92	0	2.01	105		70 - 130
NEtFOSAA	ug/kg	2	0	2.17	108		70 - 130
NMeFOSAA	ug/kg	2	0	1.92	96		70 - 130
Perfluorobutanesulfonic acid	ug/kg	1.77	0	1.69	95		70 - 130
Perfluorobutanoic acid	ug/kg	2	0	1.93	97		70 - 130
Perfluorodecanoic acid	ug/kg	2	0	1.93	96		70 - 130
Perfluorododecanoic acid	ug/kg	2	0	2.08	104		70 - 130
Perfluoroheptanoic acid	ug/kg	2	0	2.3	115		70 - 130
Perfluorohexanesulfonic acid	ug/kg	1.82	0	1.81	99		70 - 130
Perfluorohexanoic acid	ug/kg	2	0	1.91	95		70 - 130
Perfluorononanoic acid	ug/kg	2	0	1.89	95		70 - 130
Perfluorooctane Sulfonate	ug/kg	1.85	0	1.85	100		70 - 130
Perfluorooctanoic acid	ug/kg	2	0	1.89	94		70 - 130
Perfluoropentanoic acid	ug/kg	2	0	1.88	94		70 - 130
Perfluoroundecanoic acid	ug/kg	2	0	1.9	95		70 - 130

RPD : 0 out of 16 outside limits

Spike Recovery: 1 out of 32 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: 219102333

Prep Method: EPA 537 Mod Prep

Prep Batch: 669971

Analytical Method: EPA 537 Modified

Analytical Batch: 670959

GCAL QC ID: 1974714

ANALYTE	UNITS	SPIKE ADDED	LCSD RESULT	LCSD % REC	#	% RPD	#	QC LIMITS REC	QC LIMITS RPD
6:2 Fluorotelomer sulfonate	ug/kg	1.9	2.08	109		4		70 - 130	0 - 30
8:2 Fluorotelomer sulfonate	ug/kg	1.92	2.06	107		2		70 - 130	0 - 30
NEtFOSAA	ug/kg	2	2.7	135	*	22		70 - 130	0 - 30
NMeFOSAA	ug/kg	2	2.05	102		6		70 - 130	0 - 30
Perfluorobutanesulfonic acid	ug/kg	1.77	1.68	95		.2		70 - 130	0 - 30
Perfluorobutanoic acid	ug/kg	2	1.94	97		.6		70 - 130	0 - 30
Perfluorodecanoic acid	ug/kg	2	1.96	98		2		70 - 130	0 - 30
Perfluorododecanoic acid	ug/kg	2	2	100		4		70 - 130	0 - 30
Perfluoroheptanoic acid	ug/kg	2	2.21	111		4		70 - 130	0 - 30
Perfluorohexanesulfonic acid	ug/kg	1.82	1.84	101		2		70 - 130	0 - 30
Perfluorohexanoic acid	ug/kg	2	1.9	95		.06		70 - 130	0 - 30
Perfluorononanoic acid	ug/kg	2	2.02	101		7		70 - 130	0 - 30
Perfluorooctane Sulfonate	ug/kg	1.85	2.02	109		9		70 - 130	0 - 30
Perfluorooctanoic acid	ug/kg	2	2.02	101		7		70 - 130	0 - 30
Perfluoropentanoic acid	ug/kg	2	1.85	92		2		70 - 130	0 - 30
Perfluoroundecanoic acid	ug/kg	2	1.85	92		3		70 - 130	0 - 30

RPD : 0 out of 16 outside limits

Spike Recovery: 1 out of 32 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: 219102333

Prep Method: EPA 537 Mod Prep

Prep Batch: 669971

Analytical Method: EPA 537 Modified

Analytical Batch: 671184

GCAL QC ID: 1974713

ANALYTE	*UNITS*	*SPIKE ADDED*	*SAMPLE RESULT*	*LCS RESULT*	*LCS % REC*	#	*QC LIMITS*
Perfluorotetradecanoic acid	ug/kg	2	0	1.93	96		70 - 130
Perfluorotridecanoic acid	ug/kg	2	0	1.91	96		70 - 130

GCAL QC ID: 1974714

ANALYTE	*UNITS*	*SPIKE ADDED*	*LCSD RESULT*	*LCSD % REC*	#	*% RPD*	#	*QC LIMITS REC*	*QC LIMITS RPD*
Perfluorotetradecanoic acid	ug/kg	2	1.75	88		10		70 - 130	0 - 30
Perfluorotridecanoic acid	ug/kg	2	3.55	178	*	60	*	70 - 130	0 - 30

RPD : 1 out of 2 outside limits

Spike Recovery: 1 out of 4 outside limits

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

FORM III SV-2

4B

SEMIVOLATILE METHOD BLANK SUMMARY

Report No:	219102326	Method Blank ID:	1974715
Matrix:	Water	Instrument ID:	QQQ1
Sample Amt:	125 mL	Lab File ID:	2191104A_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: BMH
Prep Date:	11/02/19	Analysis Date:	11/05/19 Time: 0310
Prep Batch:	669972	Analytical Batch:	670675
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

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.	LCS1974716	1974716	2191104A_39.d	11/05/19	0321
2.	LCSD1974717	1974717	2191104A_40.d	11/05/19	0333
3.	JFTBLA-EB-PW-102219	21910232601	2191104A_43.d	11/05/19	0407
4.	AOI6-1-GW-102219	21910232607	2191104A_44.d	11/05/19	0418
5.	AOI5-1-GW-102219	21910232621	2191104A_45.d	11/05/19	0429
6.	AOI1-3-GW-102219	21910232626	2191104A_46.d	11/05/19	0441
7.	AOI1-1-GW-102219	21910232629	2191104A_47.d	11/05/19	0452
8.	AOI5-1-GW-102219DL	21910232621DL	2191106A_61.d	11/07/19	0307
9.	AOI1-3-GW-102219DL	21910232626DL	2191106A_63.d	11/07/19	0329
10.	AOI1-1-GW-102219DL	21910232629DL	2191106A_66.d	11/07/19	0404

FORM IV SV

4B

SEMIVOLATILE METHOD BLANK SUMMARY

Report No:	219102333	Method Blank ID:	1974715
Matrix:	Water	Instrument ID:	QQQ1
Sample Amt:	125 mL	Lab File ID:	2191104A_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: BMH
Prep Date:	11/02/19	Analysis Date:	11/05/19 Time: 0310
Prep Batch:	669972	Analytical Batch:	670675
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

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.	LCS1974716	1974716	2191104A_39.d	11/05/19	0321
2.	LCSD1974717	1974717	2191104A_40.d	11/05/19	0333
3.	JFTBLA-EB-HA-102119	21910233305	2191104A_42.d	11/05/19	0355
4.	AOI7-10-GW-102119	21910233308	2191104A_48.d	11/05/19	0503
5.	AOI7-7-11-GW-102119	21910233314	2191104A_49.d	11/05/19	0515
6.	JFTBLA-FRB-102119	21910233316	2191104A_50.d	11/05/19	0526
7.	AOI7-9-GW-102119	21910233321	2191104A_52.d	11/05/19	0549

FORM IV SV

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102326	Client Sample ID:	MB1974715
Collect Date:	NA Time: NA	GCAL Sample ID:	1974715
Matrix:	Water % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	125 mL	Lab File ID:	2191104A_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: BMH
Prep Date:	11/02/19	Analysis Date:	11/05/19 Time: 0310
Prep Batch:	669972	Analytical Batch:	670675
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ng/L*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	6.30	J	1.79	4.00	10.0
39108-34-4	8:2 Fluorotelomer sulfonate	4.00	U	1.63	4.00	10.0
2991-50-6	NEtFOSAA	8.00	U	5.38	8.00	10.0
2355-31-9	NMeFOSAA	8.00	U	4.60	8.00	10.0
375-73-5	Perfluorobutanesulfonic acid	4.00	U	1.47	4.00	10.0
375-22-4	Perfluorobutanoic acid	4.00	U	2.13	4.00	10.0
335-76-2	Perfluorodecanoic acid	4.00	U	1.65	4.00	10.0
307-55-1	Perfluorododecanoic acid	4.00	U	2.45	4.00	10.0
375-85-9	Perfluoroheptanoic acid	4.00	U	1.85	4.00	10.0
355-46-4	Perfluorohexanesulfonic acid	4.00	U	1.64	4.00	10.0
307-24-4	Perfluorohexanoic acid	4.00	U	1.94	4.00	10.0
375-95-1	Perfluorononanoic acid	4.00	U	1.68	4.00	10.0
1763-23-1	Perfluorooctane Sulfonate	4.00	U	1.70	4.00	10.0
335-67-1	Perfluorooctanoic acid	4.00	U	1.80	4.00	10.0
2706-90-3	Perfluoropentanoic acid	4.00	U	2.35	4.00	10.0
376-06-7	Perfluorotetradecanoic acid	4.00	U	2.76	4.00	10.0
72629-94-8	Perfluorotridecanoic acid	4.00	U	2.56	4.00	10.0
2058-94-8	Perfluoroundecanoic acid	4.00	U	1.86	4.00	10.0

FORM I SV-1

3C

WATER SEMIVOLATILE LCS/LCSD RECOVERY

Report No: 219102326

Prep Method: EPA 537 Mod Prep

Prep Batch: 669972

Analytical Method: EPA 537 Modified

Analytical Batch: 670675

GCAL QC ID: 1974716

ANALYTE	*UNITS*	*SPIKE ADDED*	*SAMPLE RESULT*	*LCS RESULT*	*LCS % REC*	*#*	*QC LIMITS*
6:2 Fluorotelomer sulfonate	ng/L	76	0	94.8	125		70 - 130
8:2 Fluorotelomer sulfonate	ng/L	76.8	0	97.3	127		70 - 130
NEtFOSAA	ng/L	80	0	79	99		70 - 130
NMeFOSAA	ng/L	80	0	83.9	105		70 - 130
Perfluorobutanesulfonic acid	ng/L	70.8	0	74.9	106		70 - 130
Perfluorobutanoic acid	ng/L	80	0	85.5	107		70 - 130
Perfluorodecanoic acid	ng/L	80	0	90.6	113		70 - 130
Perfluorododecanoic acid	ng/L	80	0	90.9	114		70 - 130
Perfluoroheptanoic acid	ng/L	80	0	88.3	110		70 - 130
Perfluorohexanesulfonic acid	ng/L	73	0	85	116		70 - 130
Perfluorohexanoic acid	ng/L	80	0	90.3	113		70 - 130
Perfluorononanoic acid	ng/L	80	0	84.9	106		70 - 130
Perfluorooctane Sulfonate	ng/L	74	0	95.5	129		70 - 130
Perfluorooctanoic acid	ng/L	80	0	88.3	110		70 - 130
Perfluoropentanoic acid	ng/L	80	0	83.1	104		70 - 130
Perfluorotetradecanoic acid	ng/L	80	0	91.7	115		70 - 130
Perfluorotridecanoic acid	ng/L	80	0	90.8	114		70 - 130
Perfluoroundecanoic acid	ng/L	80	0	89.1	111		70 - 130

RPD : 0 out of 18 outside limits

Spike Recovery: 4 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-1

3C

WATER SEMIVOLATILE LCS/LCSD RECOVERY

Report No: 219102326

Prep Method: EPA 537 Mod Prep

Prep Batch: 669972

Analytical Method: EPA 537 Modified

Analytical Batch: 670675

GCAL QC ID: 1974717

ANALYTE	UNITS	SPIKE ADDED	LCSD RESULT	LCSD % REC	#	% RPD	#	QC LIMITS REC	QC LIMITS RPD
6:2 Fluorotelomer sulfonate	ng/L	76	88.4	116		7		70 - 130	0 - 30
8:2 Fluorotelomer sulfonate	ng/L	76.8	103	134	*	6		70 - 130	0 - 30
NEtFOSAA	ng/L	80	98.9	124		22		70 - 130	0 - 30
NMeFOSAA	ng/L	80	107	134	*	24		70 - 130	0 - 30
Perfluorobutanesulfonic acid	ng/L	70.8	79.6	112		6		70 - 130	0 - 30
Perfluorobutanoic acid	ng/L	80	89.4	112		5		70 - 130	0 - 30
Perfluorodecanoic acid	ng/L	80	99.3	124		9		70 - 130	0 - 30
Perfluorododecanoic acid	ng/L	80	103	129		12		70 - 130	0 - 30
Perfluoroheptanoic acid	ng/L	80	93.5	117		6		70 - 130	0 - 30
Perfluorohexanesulfonic acid	ng/L	73	87.9	120		3		70 - 130	0 - 30
Perfluorohexanoic acid	ng/L	80	92	115		2		70 - 130	0 - 30
Perfluorononanoic acid	ng/L	80	93.9	117		10		70 - 130	0 - 30
Perfluorooctane Sulfonate	ng/L	74	108	146	*	12		70 - 130	0 - 30
Perfluorooctanoic acid	ng/L	80	90.5	113		3		70 - 130	0 - 30
Perfluoropentanoic acid	ng/L	80	86.8	108		4		70 - 130	0 - 30
Perfluorotetradecanoic acid	ng/L	80	96.6	121		5		70 - 130	0 - 30
Perfluorotridecanoic acid	ng/L	80	120	150	*	28		70 - 130	0 - 30
Perfluoroundecanoic acid	ng/L	80	87.7	110		2		70 - 130	0 - 30

RPD : 0 out of 18 outside limits

Spike Recovery: 4 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-1

4B

SEMIVOLATILE METHOD BLANK SUMMARY

Report No:	219102541	Method Blank ID:	1975542
Matrix:	Solid	Instrument ID:	QQQ1
Sample Amt:	5 g	Lab File ID:	2191107A_26.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/05/19	Analysis Date:	11/07/19 Time: 2134
Prep Batch:	670126	Analytical Batch:	671082
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

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.	LCS1975543	1975543	2191107A_27.d	11/07/19	2146
2.	LCSD1975546	1975546	2191107A_28.d	11/07/19	2157
3.	AOI1-5-SB-4.5-5-102319	21910254101	2191107A_29.d	11/07/19	2208
4.	AOI1-5-SB-4.5-5-102319-D	21910254102	2191107A_30.d	11/07/19	2219
5.	AOI1-4-SB-4.5-5-102319-D	21910254103	2191107A_31.d	11/07/19	2231
6.	AOI1-4-SB-4.5-5-102319	21910254104	2191107A_32.d	11/07/19	2242
7.	AOI1-6-SB-4.5-5-102319	21910254107	2191107A_33.d	11/07/19	2254
8.	AOI1-5-SB-7-7.5-102319	21910254109	2191107A_34.d	11/07/19	2305
9.	AOI1-5-SB-17.5-18-102319	21910254110	2191107A_35.d	11/07/19	2316
10.	AOI1-6-SB-9-9.5-102319	21910254113	2191107A_36.d	11/07/19	2328
11.	AOI1-6-SB-12.5-13-102319	21910254114	2191107A_37.d	11/07/19	2339
12.	AOI1-4-SB-9.5-10-102319	21910254116	2191107A_38.d	11/07/19	2350
13.	AOI1-2-SB-4.5-5-102319	21910254118	2191107A_40.d	11/08/19	0013
14.	AOI1-2-SB-9.5-10-102319	21910254119	2191107A_41.d	11/08/19	0024
15.	AOI1-2-SB-12.5-13-102319	21910254120	2191107A_42.d	11/08/19	0036
16.	AOI2-3-SB-4.5-5-102319	21910254122	2191107A_43.d	11/08/19	0047
17.	AOI2-3-SB-4.5-5-102319-D	21910254123	2191107A_44.d	11/08/19	0058
18.	AOI2-2-SB-4.5-5-102319	21910254124	2191107A_45.d	11/08/19	0110
19.	AOI2-2-SB-4.5-5-102319-D	21910254125	2191107A_46.d	11/08/19	0121
20.	AOI1-4-SB-4.5-5-102319-DDL	21910254103DL	2191117A_90.d	11/18/19	1053
21.	AOI1-4-SB-4.5-5-102319DL	21910254104DL	2191117A_91.d	11/18/19	1104
22.	AOI1-6-SB-4.5-5-102319DL	21910254107DL	2191117A_92.d	11/18/19	1116
23.	AOI1-5-SB-4.5-5-102319DL	21910254101DL	2191117A_93.d	11/18/19	1127
24.	AOI1-5-SB-4.5-5-102319-DDL	21910254102DL	2191117A_94.d	11/18/19	1138
25.	AOI2-3-SB-4.5-5-102319DL	21910254122DL	2191117A_95.d	11/18/19	1150
26.	AOI2-3-SB-4.5-5-102319RE	21910254122RE	2191117A_96.d	11/18/19	1201
27.	AOI2-3-SB-4.5-5-102319-DDL	21910254123DL	2191117A_97.d	11/18/19	1212
28.	AOI2-2-SB-4.5-5-102319DL	21910254124DL	2191117A_98.d	11/18/19	1223
29.	AOI2-3-SB-4.5-5-102319-DRE	21910254123RE	2191117A_101.d	11/18/19	1257
30.	AOI1-6-SB-9-9.5-102319DL	21910254113DL	2191117A_102.d	11/18/19	1308
31.	AOI1-2-SB-4.5-5-102319DL	21910254118DL	2191117A_103.d	11/18/19	1320

FORM IV SV

4B

SEMIVOLATILE METHOD BLANK SUMMARY

Report No:	219102541	Method Blank ID:	1975542
Matrix:	Solid	Instrument ID:	QQQ1
Sample Amt:	5 g	Lab File ID:	2191107A_26.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/05/19	Analysis Date:	11/07/19 Time: 2134
Prep Batch:	670126	Analytical Batch:	671082
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

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.	AOI1-2-SB-4.5-5-102319RE	21910254118RE	2191117A_104.d	11/18/19	1331
33.	AOI1-2-SB-9.5-10-102319RE	21910254119RE	2191117A_105.d	11/18/19	1343
34.	AOI1-2-SB-12.5-13-102319RE	21910254120RE	2191117A_106.d	11/18/19	1354
35.	AOI2-2-SB-4.5-5-102319-DDL	21910254125DL	2191117A_107.d	11/18/19	1405
36.	AOI1-5-SB-7-7.5-102319DL	21910254109DL	2191127A_88.d	11/28/19	0528
37.	AOI2-2-SB-4.5-5-102319DL1	21910254124DL1	2191129A_28.d	11/29/19	1943
38.	AOI2-2-SB-4.5-5-102319-DDL1	21910254125DL1	2191129A_29.d	11/29/19	1954

FORM IV SV

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102541	Client Sample ID:	MB1975542
Collect Date:	NA Time: NA	GCAL Sample ID:	1975542
Matrix:	Solid % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	5 g	Lab File ID:	2191107A_26.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/05/19	Analysis Date:	11/07/19 Time: 2134
Prep Batch:	670126	Analytical Batch:	671082
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	0.400	U	0.170	0.400	1.00
39108-34-4	8:2 Fluorotelomer sulfonate	0.400	U	0.260	0.400	1.00
2991-50-6	NEtFOSAA	0.400	U	0.190	0.400	1.00
2355-31-9	NMeFOSAA	0.400	U	0.280	0.400	1.00
375-73-5	Perfluorobutanesulfonic acid	0.400	U	0.120	0.400	1.00
375-22-4	Perfluorobutanoic acid	0.400	U	0.130	0.400	1.00
335-76-2	Perfluorodecanoic acid	0.400	U	0.120	0.400	1.00
307-55-1	Perfluorododecanoic acid	0.400	U	0.200	0.400	1.00
375-85-9	Perfluoroheptanoic acid	0.400	U	0.130	0.400	1.00
355-46-4	Perfluorohexanesulfonic acid	0.400	U	0.140	0.400	1.00
307-24-4	Perfluorohexanoic acid	0.400	U	0.150	0.400	1.00
375-95-1	Perfluorononanoic acid	0.400	U	0.090	0.400	1.00
1763-23-1	Perfluorooctane Sulfonate	0.400	U	0.180	0.400	1.00
335-67-1	Perfluorooctanoic acid	0.400	U	0.150	0.400	1.00
2706-90-3	Perfluoropentanoic acid	0.400	U	0.150	0.400	1.00
376-06-7	Perfluorotetradecanoic acid	0.400	U	0.160	0.400	1.00
72629-94-8	Perfluorotridecanoic acid	0.400	U	0.220	0.400	1.00
2058-94-8	Perfluoroundecanoic acid	0.400	U	0.140	0.400	1.00

FORM I SV-1

3D

SOIL SEMIVOLATILE LCS/LCSD RECOVERY

Report No: 219102541

Prep Method: EPA 537 Mod Prep

Prep Batch: 670126

Analytical Method: EPA 537 Modified

Analytical Batch: 671082

GCAL QC ID: 1975543

ANALYTE	*UNITS*	*SPIKE ADDED*	*SAMPLE RESULT*	*LCS RESULT*	*LCS % REC*	#	*QC LIMITS*
6:2 Fluorotelomer sulfonate	ug/kg	1.9	0	1.76	93		70 - 130
8:2 Fluorotelomer sulfonate	ug/kg	1.92	0	2.01	104		70 - 130
NEtFOSAA	ug/kg	2	0	2.06	103		70 - 130
NMeFOSAA	ug/kg	2	0	1.64	82		70 - 130
Perfluorobutanesulfonic acid	ug/kg	1.77	0	1.45	82		70 - 130
Perfluorobutanoic acid	ug/kg	2	0	1.64	82		70 - 130
Perfluorodecanoic acid	ug/kg	2	0	1.59	80		70 - 130
Perfluorododecanoic acid	ug/kg	2	0	1.77	88		70 - 130
Perfluoroheptanoic acid	ug/kg	2	0	1.91	96		70 - 130
Perfluorohexanesulfonic acid	ug/kg	1.82	0	1.65	91		70 - 130
Perfluorohexanoic acid	ug/kg	2	0	1.67	84		70 - 130
Perfluorononanoic acid	ug/kg	2	0	1.7	85		70 - 130
Perfluorooctane Sulfonate	ug/kg	1.85	0	1.96	106		70 - 130
Perfluorooctanoic acid	ug/kg	2	0	1.79	90		70 - 130
Perfluoropentanoic acid	ug/kg	2	0	1.57	79		70 - 130
Perfluorotetradecanoic acid	ug/kg	2	0	1.83	91		70 - 130
Perfluorotridecanoic acid	ug/kg	2	0	1.82	91		70 - 130
Perfluoroundecanoic acid	ug/kg	2	0	1.66	83		70 - 130

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: 219102541

Prep Method: EPA 537 Mod Prep

Prep Batch: 670126

Analytical Method: EPA 537 Modified

Analytical Batch: 671082

GCAL QC ID: 1975546

ANALYTE	UNITS	SPIKE ADDED	LCSD RESULT	LCSD % REC	#	% RPD	#	QC LIMITS REC	QC LIMITS RPD
6:2 Fluorotelomer sulfonate	ug/kg	1.9	2.06	109		16		70 - 130	0 - 30
8:2 Fluorotelomer sulfonate	ug/kg	1.92	1.92	100		4		70 - 130	0 - 30
NEtFOSAA	ug/kg	2	2.21	111		7		70 - 130	0 - 30
NMeFOSAA	ug/kg	2	1.96	98		18		70 - 130	0 - 30
Perfluorobutanesulfonic acid	ug/kg	1.77	1.48	83		2		70 - 130	0 - 30
Perfluorobutanoic acid	ug/kg	2	1.69	85		3		70 - 130	0 - 30
Perfluorodecanoic acid	ug/kg	2	1.72	86		8		70 - 130	0 - 30
Perfluorododecanoic acid	ug/kg	2	1.86	93		5		70 - 130	0 - 30
Perfluoroheptanoic acid	ug/kg	2	1.87	94		2		70 - 130	0 - 30
Perfluorohexanesulfonic acid	ug/kg	1.82	1.6	88		3		70 - 130	0 - 30
Perfluorohexanoic acid	ug/kg	2	1.67	84		.0008		70 - 130	0 - 30
Perfluorononanoic acid	ug/kg	2	1.66	83		2		70 - 130	0 - 30
Perfluorooctane Sulfonate	ug/kg	1.85	2.08	112		6		70 - 130	0 - 30
Perfluorooctanoic acid	ug/kg	2	1.78	89		1		70 - 130	0 - 30
Perfluoropentanoic acid	ug/kg	2	1.6	80		2		70 - 130	0 - 30
Perfluorotetradecanoic acid	ug/kg	2	1.84	92		.5		70 - 130	0 - 30
Perfluorotridecanoic acid	ug/kg	2	1.84	92		1		70 - 130	0 - 30
Perfluoroundecanoic acid	ug/kg	2	1.6	80		4		70 - 130	0 - 30

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

4B

SEMIVOLATILE METHOD BLANK SUMMARY

Report No:	219102541	Method Blank ID:	1975549
Matrix:	Water	Instrument ID:	QQQ1
Sample Amt:	125 mL	Lab File ID:	2191028A_45.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	10/25/19	Analysis Date:	10/28/19 Time: 1908
Prep Batch:	670127	Analytical Batch:	670389
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

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.	LCS1975550	1975550	2191028A_46.d	10/28/19	1919
2.	LCSD1975551	1975551	2191028A_47.d	10/28/19	1930
3.	JFTBLA-EB-B-102319	21910254105	2191028A_55.d	10/28/19	2101
4.	JFTBLA-EB-HA-02319	21910254106	2191028A_56.d	10/28/19	2112
5.	JFTBLA-EB-WM-102319	21910254108	2191028A_57.d	10/28/19	2124
6.	AOI1-5-GW-102319	21910254111	2191028A_59.d	10/28/19	2147
7.	AOI1-SA-GW-102319	21910254112	2191028A_60.d	10/28/19	2158
8.	AOI1-6-GW-102319	21910254115	2191028A_61.d	10/28/19	2209
9.	AOI1-4-GW-102319	21910254117	2191028A_62.d	10/28/19	2221
10.	AOI1-2-GW-102319	21910254121	2191028A_63.d	10/28/19	2232
11.	AOI1-SA-GW-102319DL	21910254112DL	2191031A_30.d	10/31/19	1705
12.	AOI1-6-GW-102319DL	21910254115DL	2191031A_31.d	10/31/19	1716
13.	AOI1-2-GW-102319DL1	21910254121DL1	2191031A_32.d	10/31/19	1728
14.	AOI1-5-GW-102319DL	21910254111DL	2191031A_40.d	10/31/19	1858
15.	AOI1-4-GW-102319DL	21910254117DL	2191031A_41.d	10/31/19	1909
16.	AOI1-5-GW-102319RE1	21910254111RE1	2191206A_41.d	12/07/19	0045

FORM IV SV

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102541	Client Sample ID:	MB1975549
Collect Date:	NA Time: NA	GCAL Sample ID:	1975549
Matrix:	Water % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	125 mL	Lab File ID:	2191028A_45.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	10/25/19	Analysis Date:	10/28/19 Time: 1908
Prep Batch:	670127	Analytical Batch:	670389
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ng/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	4.00	U	1.79	4.00	10.0
39108-34-4	8:2 Fluorotelomer sulfonate	4.00	U	1.63	4.00	10.0
2991-50-6	NEtFOSAA	8.00	U	5.38	8.00	10.0
2355-31-9	NMeFOSAA	8.00	U	4.60	8.00	10.0
375-73-5	Perfluorobutanesulfonic acid	4.00	U	1.47	4.00	10.0
375-22-4	Perfluorobutanoic acid	4.00	U	2.13	4.00	10.0
335-76-2	Perfluorodecanoic acid	4.00	U	1.65	4.00	10.0
307-55-1	Perfluorododecanoic acid	4.00	U	2.45	4.00	10.0
375-85-9	Perfluoroheptanoic acid	4.00	U	1.85	4.00	10.0
355-46-4	Perfluorohexanesulfonic acid	4.00	U	1.64	4.00	10.0
307-24-4	Perfluorohexanoic acid	4.00	U	1.94	4.00	10.0
375-95-1	Perfluorononanoic acid	4.00	U	1.68	4.00	10.0
1763-23-1	Perfluorooctane Sulfonate	4.00	U	1.70	4.00	10.0
335-67-1	Perfluorooctanoic acid	4.00	U	1.80	4.00	10.0
2706-90-3	Perfluoropentanoic acid	4.00	U	2.35	4.00	10.0
376-06-7	Perfluorotetradecanoic acid	4.00	U	2.76	4.00	10.0
72629-94-8	Perfluorotridecanoic acid	4.00	U	2.56	4.00	10.0
2058-94-8	Perfluoroundecanoic acid	4.00	U	1.86	4.00	10.0

FORM I SV-1

3C

WATER SEMIVOLATILE LCS/LCSD RECOVERY

Report No: 219102541

Prep Method: EPA 537 Mod Prep

Prep Batch: 670127

Analytical Method: EPA 537 Modified

Analytical Batch: 670389

GCAL QC ID: 1975550

ANALYTE	*UNITS*	*SPIKE ADDED*	*SAMPLE RESULT*	*LCS RESULT*	*LCS % REC*	*#*	*QC LIMITS*
6:2 Fluorotelomer sulfonate	ng/L	76	0	61.3	81		70 - 130
8:2 Fluorotelomer sulfonate	ng/L	76.8	0	58.1	76		70 - 130
NEtFOSAA	ng/L	80	0	91.7	115		70 - 130
NMeFOSAA	ng/L	80	0	72	90		70 - 130
Perfluorobutanesulfonic acid	ng/L	70.8	0	55.7	79		70 - 130
Perfluorobutanoic acid	ng/L	80	0	64	80		70 - 130
Perfluorodecanoic acid	ng/L	80	0	67.4	84		70 - 130
Perfluorododecanoic acid	ng/L	80	0	72.9	91		70 - 130
Perfluoroheptanoic acid	ng/L	80	0	63.2	79		70 - 130
Perfluorohexanesulfonic acid	ng/L	73	0	66.7	91		70 - 130
Perfluorohexanoic acid	ng/L	80	0	67.7	85		70 - 130
Perfluorononanoic acid	ng/L	80	0	70	87		70 - 130
Perfluorooctane Sulfonate	ng/L	74	0	74.5	101		70 - 130
Perfluorooctanoic acid	ng/L	80	0	65.9	82		70 - 130
Perfluoropentanoic acid	ng/L	80	0	61.3	77		70 - 130
Perfluorotetradecanoic acid	ng/L	80	0	77.6	97		70 - 130
Perfluorotridecanoic acid	ng/L	80	0	107	134	*	70 - 130
Perfluoroundecanoic acid	ng/L	80	0	64.5	81		70 - 130

RPD : 0 out of 18 outside limits

Spike Recovery: 2 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-1

3C

WATER SEMIVOLATILE LCS/LCSD RECOVERY

Report No: 219102541

Prep Method: EPA 537 Mod Prep | Prep Batch: 670127

Analytical Method: EPA 537 Modified | Analytical Batch: 670389

GCAL QC ID: 1975551

ANALYTE	UNITS	SPIKE ADDED	LCSD RESULT	LCSD % REC	#	% RPD	#	QC LIMITS REC	QC LIMITS RPD
6:2 Fluorotelomer sulfonate	ng/L	76	60.4	79		2		70 - 130	0 - 30
8:2 Fluorotelomer sulfonate	ng/L	76.8	61.2	80		5		70 - 130	0 - 30
NEtFOSAA	ng/L	80	96.9	121		6		70 - 130	0 - 30
NMeFOSAA	ng/L	80	76.2	95		6		70 - 130	0 - 30
Perfluorobutanesulfonic acid	ng/L	70.8	55.7	79		.02		70 - 130	0 - 30
Perfluorobutanoic acid	ng/L	80	65.2	82		2		70 - 130	0 - 30
Perfluorodecanoic acid	ng/L	80	68	85		.9		70 - 130	0 - 30
Perfluorododecanoic acid	ng/L	80	73.2	91		.4		70 - 130	0 - 30
Perfluoroheptanoic acid	ng/L	80	63.1	79		.2		70 - 130	0 - 30
Perfluorohexanesulfonic acid	ng/L	73	68	93		2		70 - 130	0 - 30
Perfluorohexanoic acid	ng/L	80	67.7	85		.07		70 - 130	0 - 30
Perfluorononanoic acid	ng/L	80	68.8	86		2		70 - 130	0 - 30
Perfluorooctane Sulfonate	ng/L	74	73.6	99		1		70 - 130	0 - 30
Perfluorooctanoic acid	ng/L	80	68	85		3		70 - 130	0 - 30
Perfluoropentanoic acid	ng/L	80	61.1	76		.5		70 - 130	0 - 30
Perfluorotetradecanoic acid	ng/L	80	71.9	90		8		70 - 130	0 - 30
Perfluorotridecanoic acid	ng/L	80	133	167	*	22		70 - 130	0 - 30
Perfluoroundecanoic acid	ng/L	80	62.2	78		4		70 - 130	0 - 30

RPD : 0 out of 18 outside limits

Spike Recovery: 2 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-1

4B

SEMIVOLATILE METHOD BLANK SUMMARY

Report No:	219102326	Method Blank ID:	1976185
Matrix:	Solid	Instrument ID:	QQQ1
Sample Amt:	5 g	Lab File ID:	2191106A_30.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/04/19	Analysis Date:	11/06/19 Time: 2115
Prep Batch:	670205	Analytical Batch:	671080
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

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.	LCS1976186	1976186	2191106A_31.d	11/06/19	2126
2.	LCSD1976187	1976187	2191106A_32.d	11/06/19	2137
3.	AOI6-1-SB-1.5-2-102219RE	21910232602RE	2191106A_49.d	11/07/19	0050
4.	AOI6-1-SB-1.5-2-102219-MSRE	21910232603RE	2191106A_50.d	11/07/19	0102
5.	AOI6-1-SB-1.5-2-102219-MSDRE	21910232604RE	2191106A_51.d	11/07/19	0113

FORM IV SV

4B

SEMIVOLATILE METHOD BLANK SUMMARY

Report No:	219102613	Method Blank ID:	1976185
Matrix:	Solid	Instrument ID:	QQQ1
Sample Amt:	5 g	Lab File ID:	2191106A_30.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/04/19	Analysis Date:	11/06/19 Time: 2115
Prep Batch:	670205	Analytical Batch:	671080
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

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.	LCS1976186	1976186	2191106A_31.d	11/06/19	2126
2.	LCSD1976187	1976187	2191106A_32.d	11/06/19	2137
3.	AOI3-8-SB-1.5-2-102419	21910261301	2191106A_33.d	11/06/19	2149
4.	AOI3-8-SB-1.5-2-102419-D	21910261302	2191106A_34.d	11/06/19	2200
5.	AOI3-8-SB-9-9.5-102419	21910261303	2191106A_35.d	11/06/19	2211
6.	AOI3-8-SB-13-13.5-102419	21910261304	2191106A_36.d	11/06/19	2223
7.	AOI3-11-SB-1.5-2-102419	21910261305	2191106A_37.d	11/06/19	2234
8.	AOI3-11-SB-8.5-9-102419	21910261306	2191106A_38.d	11/06/19	2245
9.	AOI3-11-SB-11-11.5-102419	21910261307	2191106A_39.d	11/06/19	2257
10.	AOI3-12-SB-1.5-2-102419	21910261308	2191106A_40.d	11/06/19	2308
11.	AOI3-12-SB-7-7.5-102419	21910261309	2191106A_41.d	11/06/19	2319
12.	AOI3-12-SB-19-19.5-102419	21910261310	2191106A_42.d	11/06/19	2331
13.	AOI3-9-SB-1.5-2-102419	21910261312	2191106A_44.d	11/06/19	2354
14.	AOI3-9-SB-8.5-9-102419	21910261314	2191106A_45.d	11/07/19	0005
15.	AOI3-9-SB-14-14.5-102419	21910261315	2191106A_46.d	11/07/19	0016
16.	AOI3-10-SB-1.5-2-102419	21910261317	2191106A_47.d	11/07/19	0028
17.	AOI3-10-SB-10.5-11-102419	21910261318	2191106A_48.d	11/07/19	0039
18.	AOI3-12-SB-7-7.5-102419DL	21910261309DL	2191117A_82.d	11/18/19	0833
19.	AOI3-9-SB-8.5-9-102419DL	21910261314DL	2191117A_83.d	11/18/19	0845
20.	AOI3-11-SB-8.5-9-102419DL	21910261306DL	2191117A_84.d	11/18/19	0856
21.	AOI3-12-SB-1.5-2-102419DL	21910261308DL	2191117A_86.d	11/18/19	0918
22.	AOI3-11-SB-1.5-2-102419DL	21910261305DL	2191129A_27.d	11/29/19	1931

FORM IV SV

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102613	Client Sample ID:	MB1976185
Collect Date:	NA Time: NA	GCAL Sample ID:	1976185
Matrix:	Solid % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	5 g	Lab File ID:	2191106A_30.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/04/19	Analysis Date:	11/06/19 Time: 2115
Prep Batch:	670205	Analytical Batch:	671080
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	0.400	U	0.170	0.400	1.00
39108-34-4	8:2 Fluorotelomer sulfonate	0.400	U	0.260	0.400	1.00
2991-50-6	NEtFOSAA	0.400	U	0.190	0.400	1.00
2355-31-9	NMeFOSAA	0.400	U	0.280	0.400	1.00
375-73-5	Perfluorobutanesulfonic acid	0.400	U	0.120	0.400	1.00
375-22-4	Perfluorobutanoic acid	0.400	U	0.130	0.400	1.00
335-76-2	Perfluorodecanoic acid	0.400	U	0.120	0.400	1.00
307-55-1	Perfluorododecanoic acid	0.400	U	0.200	0.400	1.00
375-85-9	Perfluoroheptanoic acid	0.400	U	0.130	0.400	1.00
355-46-4	Perfluorohexanesulfonic acid	0.400	U	0.140	0.400	1.00
307-24-4	Perfluorohexanoic acid	0.400	U	0.150	0.400	1.00
375-95-1	Perfluorononanoic acid	0.400	U	0.090	0.400	1.00
1763-23-1	Perfluorooctane Sulfonate	0.400	U	0.180	0.400	1.00
335-67-1	Perfluorooctanoic acid	0.400	U	0.150	0.400	1.00
2706-90-3	Perfluoropentanoic acid	0.400	U	0.150	0.400	1.00
376-06-7	Perfluorotetradecanoic acid	0.400	U	0.160	0.400	1.00
72629-94-8	Perfluorotridecanoic acid	0.400	U	0.220	0.400	1.00
2058-94-8	Perfluoroundecanoic acid	0.400	U	0.140	0.400	1.00

FORM I SV-1

3D

SOIL SEMIVOLATILE LCS/LCSD RECOVERY

Report No: 219102613

Prep Method: EPA 537 Mod Prep

Prep Batch: 670205

Analytical Method: EPA 537 Modified

Analytical Batch: 671080

GCAL QC ID: 1976186

ANALYTE	*UNITS*	*SPIKE ADDED*	*SAMPLE RESULT*	*LCS RESULT*	*LCS % REC*	#	*QC LIMITS*
6:2 Fluorotelomer sulfonate	ug/kg	1.9	0	1.9	100		70 - 130
8:2 Fluorotelomer sulfonate	ug/kg	1.92	0	1.71	89		70 - 130
NEtFOSAA	ug/kg	2	0	2.07	104		70 - 130
NMeFOSAA	ug/kg	2	0	1.71	85		70 - 130
Perfluorobutanesulfonic acid	ug/kg	1.77	0	1.5	85		70 - 130
Perfluorobutanoic acid	ug/kg	2	0	1.76	88		70 - 130
Perfluorodecanoic acid	ug/kg	2	0	1.81	90		70 - 130
Perfluorododecanoic acid	ug/kg	2	0	1.91	96		70 - 130
Perfluoroheptanoic acid	ug/kg	2	0	2	100		70 - 130
Perfluorohexanesulfonic acid	ug/kg	1.82	0	1.64	90		70 - 130
Perfluorohexanoic acid	ug/kg	2	0	1.72	86		70 - 130
Perfluorononanoic acid	ug/kg	2	0	1.85	92		70 - 130
Perfluorooctane Sulfonate	ug/kg	1.85	0	2.16	117		70 - 130
Perfluorooctanoic acid	ug/kg	2	0	1.76	88		70 - 130
Perfluoropentanoic acid	ug/kg	2	0	1.63	82		70 - 130
Perfluorotetradecanoic acid	ug/kg	2	0	1.83	92		70 - 130
Perfluorotridecanoic acid	ug/kg	2	0	1.9	95		70 - 130
Perfluoroundecanoic acid	ug/kg	2	0	1.75	88		70 - 130

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:	219102613		
Prep Method:	EPA 537 Mod Prep	Prep Batch:	670205
Analytical Method:	EPA 537 Modified	Analytical Batch:	671080

GCAL QC ID: 1976187

ANALYTE	*UNITS*	*SPIKE ADDED*	*LCSD RESULT*	*LCSD % REC*	#	*% RPD*	#	*QC LIMITS REC*	*QC LIMITS RPD*
6:2 Fluorotelomer sulfonate	ug/kg	1.9	1.92	101		.9		70 - 130	0 - 30
8:2 Fluorotelomer sulfonate	ug/kg	1.92	1.84	96		7		70 - 130	0 - 30
NEtFOSAA	ug/kg	2	2.4	120		14		70 - 130	0 - 30
NMeFOSAA	ug/kg	2	2.18	109		24		70 - 130	0 - 30
Perfluorobutanesulfonic acid	ug/kg	1.77	1.57	89		5		70 - 130	0 - 30
Perfluorobutanoic acid	ug/kg	2	1.84	92		5		70 - 130	0 - 30
Perfluorodecanoic acid	ug/kg	2	1.92	96		6		70 - 130	0 - 30
Perfluorododecanoic acid	ug/kg	2	1.9	95		.5		70 - 130	0 - 30
Perfluoroheptanoic acid	ug/kg	2	2.11	106		5		70 - 130	0 - 30
Perfluorohexanesulfonic acid	ug/kg	1.82	1.75	96		6		70 - 130	0 - 30
Perfluorohexanoic acid	ug/kg	2	1.78	89		4		70 - 130	0 - 30
Perfluorononanoic acid	ug/kg	2	1.9	95		3		70 - 130	0 - 30
Perfluorooctane Sulfonate	ug/kg	1.85	2.31	125		6		70 - 130	0 - 30
Perfluorooctanoic acid	ug/kg	2	1.91	95		8		70 - 130	0 - 30
Perfluoropentanoic acid	ug/kg	2	1.72	86		5		70 - 130	0 - 30
Perfluorotetradecanoic acid	ug/kg	2	2.02	101		9		70 - 130	0 - 30
Perfluorotridecanoic acid	ug/kg	2	2.14	107		12		70 - 130	0 - 30
Perfluoroundecanoic acid	ug/kg	2	1.8	90		3		70 - 130	0 - 30

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 MS/MSD RECOVERY

Report No:	219102326	Parent Sample ID:	AOI6-1-SB-1.5-2-102219RE
Prep Method:	EPA 537 Mod Prep	Prep Batch:	670205
Analytical Method:	EPA 537 Modified	Analytical Batch:	671080

GCAL QC ID: 21910232603 ANALYTE	UNITS	SPIKE ADDED	SAMPLE RESULT	MS RESULT	MS % REC	#	QC LIMITS
Perfluorotetradecanoic acid	ug/kg	2.45	.033	2.43	98		70 - 130
Perfluorotridecanoic acid	ug/kg	2.45	0	2.72	111		70 - 130

GCAL QC ID: 21910232604 ANALYTE	UNITS	SPIKE ADDED	MSD RESULT	MSD % REC	#	% RPD	#	QC LIMITS REC	QC LIMITS RPD
Perfluorotetradecanoic acid	ug/kg	2.5	2.48	97		2		70 - 130	0 - 30
Perfluorotridecanoic acid	ug/kg	2.5	2.56	102		6		70 - 130	0 - 30

RPD : 0 out of 2 outside limits

Spike Recovery: 0 out of 4 outside limits

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

FORM III SV-2

4B

SEMIVOLATILE METHOD BLANK SUMMARY

Report No:	219102717	Method Blank ID:	1976203
Matrix:	Solid	Instrument ID:	QQQ1
Sample Amt:	5 g	Lab File ID:	2191112B_22.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/08/19	Analysis Date:	11/12/19 Time: 1809
Prep Batch:	670210	Analytical Batch:	671184
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

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.	LCS1976204	1976204	2191112B_23.d	11/12/19	1820
2.	LCSD1976205	1976205	2191112B_24.d	11/12/19	1831
3.	AOI3-1-SB-1.5-2-102519	21910271701	2191112B_25.d	11/12/19	1843
4.	AOI3-2-SB-1.5-2-102519	21910271702	2191112B_26.d	11/12/19	1854
5.	AOI3-2-SB-1.5-2-102519-D	21910271703	2191112B_27.d	11/12/19	1905
6.	AOI3-5-SB-1.5-2-102519	21910271705	2191112B_28.d	11/12/19	1916
7.	AOI3-3-SB-1.5-2-102519	21910271706	2191112B_29.d	11/12/19	1928
8.	AOI3-6-SB-1.5-2-102519	21910271707	2191112B_30.d	11/12/19	1939
9.	AOI3-4-SB-1.5-2-102519	21910271708	2191112B_31.d	11/12/19	1951
10.	AOI3-4-SB-1.5-2-102519-D	21910271709	2191112B_32.d	11/12/19	2002
11.	AOI4-1-SB-0-0.5-102519	21910271710	2191112B_33.d	11/12/19	2013
12.	AOI4-1-SB-5.5-6-102519	21910271711	2191112B_34.d	11/12/19	2025
13.	AOI4-1-SB-9.5-10-102519	21910271712	2191112B_36.d	11/12/19	2047
14.	AOI3-7-SB-1.5-2-102519	21910271714	2191112B_37.d	11/12/19	2059
15.	AOI3-7-SB-1.5-2-102519-D	21910271715	2191112B_38.d	11/12/19	2110
16.	AOI2-5-SB-4.5-5-102519	21910271716	2191112B_39.d	11/12/19	2121
17.	AOI2-5-SB-9.5-10-102519	21910271717	2191112B_40.d	11/12/19	2132
18.	AOI2-5-SB-13-13.5-102519	21910271718	2191112B_41.d	11/12/19	2144
19.	AOI2-4-SB-4.5-5-102519	21910271720	2191112B_42.d	11/12/19	2155
20.	AOI2-1-SB-4.5-5-102519	21910271721	2191112B_43.d	11/12/19	2206
21.	AOI3-5-SB-1.5-2-102519DL	21910271705DL	2191119A_95.d	11/20/19	0806
22.	AOI3-4-SB-1.5-2-102519DL	21910271708DL	2191119A_97.d	11/20/19	0829
23.	AOI3-1-SB-1.5-2-102519DL	21910271701DL	2191119A_98.d	11/20/19	0840
24.	AOI2-5-SB-4.5-5-102519DL	21910271716DL	2191119A_101.d	11/20/19	0914
25.	AOI3-4-SB-1.5-2-102519-DDL	21910271709DL	2191119A_102.d	11/20/19	0925
26.	AOI3-7-SB-1.5-2-102519DL	21910271714DL	2191119A_103.d	11/20/19	0937
27.	AOI3-7-SB-1.5-2-102519-DDL	21910271715DL	2191119A_104.d	11/20/19	0948
28.	AOI3-3-SB-1.5-2-102519DL	21910271706DL	2191119A_105.d	11/20/19	0959
29.	AOI2-5-SB-9.5-10-102519DL	21910271717DL	2191119A_106.d	11/20/19	1011
30.	AOI2-1-SB-4.5-5-102519DL	21910271721DL	2191119A_107.d	11/20/19	1022
31.	AOI3-2-SB-1.5-2-102519DL	21910271702DL	2191119A_108.d	11/20/19	1033

FORM IV SV

4B

SEMIVOLATILE METHOD BLANK SUMMARY

Report No:	219102717	Method Blank ID:	1976203
Matrix:	Solid	Instrument ID:	QQQ1
Sample Amt:	5 g	Lab File ID:	2191112B_22.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/08/19	Analysis Date:	11/12/19 Time: 1809
Prep Batch:	670210	Analytical Batch:	671184
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

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.	AOI3-2-SB-1.5-2-102519-DDL	21910271703DL	2191119A_109.d	11/20/19	1045
33.	AOI3-2-SB-1.5-2-102519DL1	21910271702DL1	2191205A_38.d	12/05/19	1350
34.	AOI3-2-SB-1.5-2-102519-DDL1	21910271703DL1	2191205A_39.d	12/05/19	1401
35.	AOI3-6-SB-1.5-2-102519DL	21910271707DL	2191205A_40.d	12/05/19	1412
36.	AOI2-4-SB-4.5-5-102519DL	21910271720DL	2191205A_41.d	12/05/19	1424
37.	AOI3-6-SB-1.5-2-102519RE	21910271707RE	2191206A_40.d	12/07/19	0033

FORM IV SV

4B

SEMIVOLATILE METHOD BLANK SUMMARY

Report No:	219103085	Method Blank ID:	1976203
Matrix:	Solid	Instrument ID:	QQQ1
Sample Amt:	5 g	Lab File ID:	2191112B_22.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/08/19	Analysis Date:	11/12/19 Time: 1809
Prep Batch:	670210	Analytical Batch:	671184
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

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.	LCS1976204	1976204	2191112B_23.d	11/12/19	1820
2.	LCSD1976205	1976205	2191112B_24.d	11/12/19	1831
3.	AOI 8-2-SB-0-0.5-102919	21910308513	2191112B_44.d	11/12/19	2218
4.	AOI 8-1-SB-0-0.5-102919	21910308514	2191112B_45.d	11/12/19	2229

FORM IV SV

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219103085	Client Sample ID:	MB1976203
Collect Date:	NA Time: NA	GCAL Sample ID:	1976203
Matrix:	Solid % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	5 g	Lab File ID:	2191112B_22.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/08/19	Analysis Date:	11/12/19 Time: 1809
Prep Batch:	670210	Analytical Batch:	671184
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ug/kg

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	0.400	U	0.170	0.400	1.00
39108-34-4	8:2 Fluorotelomer sulfonate	0.400	U	0.260	0.400	1.00
2991-50-6	NEtFOSAA	0.400	U	0.190	0.400	1.00
2355-31-9	NMeFOSAA	0.400	U	0.280	0.400	1.00
375-73-5	Perfluorobutanesulfonic acid	0.400	U	0.120	0.400	1.00
375-22-4	Perfluorobutanoic acid	0.400	U	0.130	0.400	1.00
335-76-2	Perfluorodecanoic acid	0.400	U	0.120	0.400	1.00
307-55-1	Perfluorododecanoic acid	0.400	U	0.200	0.400	1.00
375-85-9	Perfluoroheptanoic acid	0.400	U	0.130	0.400	1.00
355-46-4	Perfluorohexanesulfonic acid	0.400	U	0.140	0.400	1.00
307-24-4	Perfluorohexanoic acid	0.400	U	0.150	0.400	1.00
375-95-1	Perfluorononanoic acid	0.400	U	0.090	0.400	1.00
1763-23-1	Perfluorooctane Sulfonate	0.400	U	0.180	0.400	1.00
335-67-1	Perfluorooctanoic acid	0.400	U	0.150	0.400	1.00
2706-90-3	Perfluoropentanoic acid	0.400	U	0.150	0.400	1.00
376-06-7	Perfluorotetradecanoic acid	0.400	U	0.160	0.400	1.00
72629-94-8	Perfluorotridecanoic acid	0.400	U	0.220	0.400	1.00
2058-94-8	Perfluoroundecanoic acid	0.400	U	0.140	0.400	1.00

FORM I SV-1

3D

SOIL SEMIVOLATILE LCS/LCSD RECOVERY

Report No: 219103085

Prep Method: EPA 537 Mod Prep | Prep Batch: 670210

Analytical Method: EPA 537 Modified | Analytical Batch: 671184

GCAL QC ID: 1976204

ANALYTE	*UNITS*	*SPIKE ADDED*	*SAMPLE RESULT*	*LCS RESULT*	*LCS % REC*	*#*	*QC LIMITS*
6:2 Fluorotelomer sulfonate	ug/kg	1.9	0	1.99	105		70 - 130
8:2 Fluorotelomer sulfonate	ug/kg	1.92	0	2.13	111		70 - 130
NEtFOSAA	ug/kg	2	0	1.65	83		70 - 130
NMeFOSAA	ug/kg	2	0	1.64	82		70 - 130
Perfluorobutanesulfonic acid	ug/kg	1.77	0	1.48	83		70 - 130
Perfluorobutanoic acid	ug/kg	2	0	1.72	86		70 - 130
Perfluorodecanoic acid	ug/kg	2	0	1.54	77		70 - 130
Perfluorododecanoic acid	ug/kg	2	0	1.67	84		70 - 130
Perfluoroheptanoic acid	ug/kg	2	0	1.74	87		70 - 130
Perfluorohexanesulfonic acid	ug/kg	1.82	0	1.6	88		70 - 130
Perfluorohexanoic acid	ug/kg	2	0	1.74	87		70 - 130
Perfluorononanoic acid	ug/kg	2	0	1.71	86		70 - 130
Perfluorooctane Sulfonate	ug/kg	1.85	0	2.23	120		70 - 130
Perfluorooctanoic acid	ug/kg	2	0	1.85	93		70 - 130
Perfluoropentanoic acid	ug/kg	2	0	1.55	77		70 - 130
Perfluorotetradecanoic acid	ug/kg	2	0	1.8	90		70 - 130
Perfluorotridecanoic acid	ug/kg	2	0	2.03	101		70 - 130
Perfluoroundecanoic acid	ug/kg	2	0	1.71	85		70 - 130

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: 219103085

Prep Method: EPA 537 Mod Prep | Prep Batch: 670210

Analytical Method: EPA 537 Modified | Analytical Batch: 671184

GCAL QC ID: 1976205

ANALYTE	*UNITS*	*SPIKE ADDED*	*LCSD RESULT*	*LCSD % REC*	#	*% RPD*	#	*QC LIMITS REC*	*QC LIMITS RPD*
6:2 Fluorotelomer sulfonate	ug/kg	1.9	1.64	86		20		70 - 130	0 - 30
8:2 Fluorotelomer sulfonate	ug/kg	1.92	2.02	105		5		70 - 130	0 - 30
NEtFOSAA	ug/kg	2	1.55	78		6		70 - 130	0 - 30
NMeFOSAA	ug/kg	2	1.61	80		2		70 - 130	0 - 30
Perfluorobutanesulfonic acid	ug/kg	1.77	1.43	81		3		70 - 130	0 - 30
Perfluorobutanoic acid	ug/kg	2	1.64	82		5		70 - 130	0 - 30
Perfluorodecanoic acid	ug/kg	2	1.55	78		.8		70 - 130	0 - 30
Perfluorododecanoic acid	ug/kg	2	1.82	91		8		70 - 130	0 - 30
Perfluoroheptanoic acid	ug/kg	2	1.6	80		9		70 - 130	0 - 30
Perfluorohexanesulfonic acid	ug/kg	1.82	1.62	89		.7		70 - 130	0 - 30
Perfluorohexanoic acid	ug/kg	2	1.65	83		5		70 - 130	0 - 30
Perfluorononanoic acid	ug/kg	2	1.59	80		7		70 - 130	0 - 30
Perfluorooctane Sulfonate	ug/kg	1.85	1.8	97		21		70 - 130	0 - 30
Perfluorooctanoic acid	ug/kg	2	1.8	90		3		70 - 130	0 - 30
Perfluoropentanoic acid	ug/kg	2	1.46	73		6		70 - 130	0 - 30
Perfluorotetradecanoic acid	ug/kg	2	1.76	88		3		70 - 130	0 - 30
Perfluorotridecanoic acid	ug/kg	2	2.13	107		5		70 - 130	0 - 30
Perfluoroundecanoic acid	ug/kg	2	1.57	79		8		70 - 130	0 - 30

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

4B

SEMIVOLATILE METHOD BLANK SUMMARY

Report No:	219102541	Method Blank ID:	1976210
Matrix:	Water	Instrument ID:	QQQ1
Sample Amt:	125 mL	Lab File ID:	2191106A_86.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/05/19	Analysis Date:	11/07/19 Time: 1408
Prep Batch:	670213	Analytical Batch:	671080
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

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.	LCS1976211	1976211	2191106A_78.d	11/07/19	1236
2.	LCSD1976212	1976212	2191106A_79.d	11/07/19	1247
3.	JFTBLA-EB-B-102319RE	21910254105RE	2191107A_17.d	11/07/19	1952
4.	JFTBLA-EB-HA-02319RE	21910254106RE	2191107A_18.d	11/07/19	2003
5.	JFTBLA-EB-WM-102319RE	21910254108RE	2191107A_19.d	11/07/19	2015
6.	AOI1-5-GW-102319RE	21910254111RE	2191107A_20.d	11/07/19	2026
7.	AOI1-6-GW-102319RE	21910254115RE	2191107A_22.d	11/07/19	2049
8.	AOI1-4-GW-102319RE	21910254117RE	2191107A_23.d	11/07/19	2100
9.	AOI1-2-GW-102319RE	21910254121RE	2191107A_24.d	11/07/19	2112
10.	AOI1-2-GW-102319DL	21910254121DL	2191119A_26.d	11/19/19	1903

FORM IV SV

4B

SEMIVOLATILE METHOD BLANK SUMMARY

Report No:	219102613	Method Blank ID:	1976210
Matrix:	Water	Instrument ID:	QQQ1
Sample Amt:	125 mL	Lab File ID:	2191106A_86.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/05/19	Analysis Date:	11/07/19 Time: 1408
Prep Batch:	670213	Analytical Batch:	671080
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

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.	LCS1976211	1976211	2191106A_78.d	11/07/19	1236
2.	LCSD1976212	1976212	2191106A_79.d	11/07/19	1247
3.	AOI3-8-GW-102419	21910261311	2191107A_08.d	11/07/19	1810
4.	AOI3-11-GW-102419	21910261313	2191107A_09.d	11/07/19	1821
5.	AOI3-12-GW-102419	21910261316	2191107A_10.d	11/07/19	1833
6.	AOI3-9-GW-102419	21910261319	2191107A_11.d	11/07/19	1844
7.	AOI3-10-GW-102419	21910261320	2191107A_12.d	11/07/19	1855
8.	AOI3-8-GW-102419DL	21910261311DL	2191119A_16.d	11/19/19	1709
9.	AOI3-11-GW-102419DL1	21910261313DL1	2191119A_17.d	11/19/19	1720
10.	AOI3-11-GW-102419DL	21910261313DL	2191119A_18.d	11/19/19	1732
11.	AOI3-12-GW-102419DL	21910261316DL	2191119A_19.d	11/19/19	1743
12.	AOI3-9-GW-102419DL	21910261319DL	2191119A_20.d	11/19/19	1754
13.	AOI3-10-GW-102419DL	21910261320DL	2191119A_21.d	11/19/19	1806

FORM IV SV

4B

SEMIVOLATILE METHOD BLANK SUMMARY

Report No:	219102717	Method Blank ID:	1976210
Matrix:	Water	Instrument ID:	QQQ1
Sample Amt:	125 mL	Lab File ID:	2191106A_86.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/05/19	Analysis Date:	11/07/19 Time: 1408
Prep Batch:	670213	Analytical Batch:	671080
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

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.	LCS1976211	1976211	2191106A_78.d	11/07/19	1236
2.	LCSD1976212	1976212	2191106A_79.d	11/07/19	1247
3.	JFTBLA-EB-HA-102519	21910271704	2191107A_13.d	11/07/19	1907
4.	AOI4-1-GW-102519	21910271713	2191107A_14.d	11/07/19	1918
5.	AOI2-5-GW-102519	21910271719	2191107A_15.d	11/07/19	1929
6.	AOI2-5-GW-102519DL1	21910271719DL1	2191119A_22.d	11/19/19	1817
7.	AOI2-5-GW-102519DL	21910271719DL	2191119A_23.d	11/19/19	1829

FORM IV SV

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102613	Client Sample ID:	MB1976210
Collect Date:	NA Time: NA	GCAL Sample ID:	1976210
Matrix:	Water % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	125 mL	Lab File ID:	2191106A_86.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/05/19	Analysis Date:	11/07/19 Time: 1408
Prep Batch:	670213	Analytical Batch:	671080
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ng/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	4.83	J	1.79	4.00	10.0
39108-34-4	8:2 Fluorotelomer sulfonate	4.00	U	1.63	4.00	10.0
2991-50-6	NEtFOSAA	8.00	U	5.38	8.00	10.0
2355-31-9	NMeFOSAA	8.00	U	4.60	8.00	10.0
375-73-5	Perfluorobutanesulfonic acid	4.00	U	1.47	4.00	10.0
375-22-4	Perfluorobutanoic acid	4.00	U	2.13	4.00	10.0
335-76-2	Perfluorodecanoic acid	4.00	U	1.65	4.00	10.0
307-55-1	Perfluorododecanoic acid	4.00	U	2.45	4.00	10.0
375-85-9	Perfluoroheptanoic acid	4.00	U	1.85	4.00	10.0
355-46-4	Perfluorohexanesulfonic acid	4.00	U	1.64	4.00	10.0
307-24-4	Perfluorohexanoic acid	1.96	J	1.94	4.00	10.0
375-95-1	Perfluorononanoic acid	4.00	U	1.68	4.00	10.0
1763-23-1	Perfluorooctane Sulfonate	2.28	J	1.70	4.00	10.0
335-67-1	Perfluorooctanoic acid	4.00	U	1.80	4.00	10.0
2706-90-3	Perfluoropentanoic acid	4.00	U	2.35	4.00	10.0
376-06-7	Perfluorotetradecanoic acid	4.00	U	2.76	4.00	10.0
72629-94-8	Perfluorotridecanoic acid	4.00	U	2.56	4.00	10.0
2058-94-8	Perfluoroundecanoic acid	4.00	U	1.86	4.00	10.0

FORM I SV-1

3C

WATER SEMIVOLATILE LCS/LCSD RECOVERY

Report No: 219102613

Prep Method: EPA 537 Mod Prep | Prep Batch: 670213

Analytical Method: EPA 537 Modified | Analytical Batch: 671080

GCAL QC ID: 1976211 ANALYTE	UNITS	SPIKE ADDED	SAMPLE RESULT	LCS RESULT	LCS % REC	#	QC LIMITS
6:2 Fluorotelomer sulfonate	ng/L	76	0	69.1	91		70 - 130
8:2 Fluorotelomer sulfonate	ng/L	76.8	0	64.9	84		70 - 130
NEtFOSAA	ng/L	80	0	74.2	93		70 - 130
NMeFOSAA	ng/L	80	0	69.7	87		70 - 130
Perfluorobutanesulfonic acid	ng/L	70.8	0	57.4	81		70 - 130
Perfluorobutanoic acid	ng/L	80	0	67.5	84		70 - 130
Perfluorodecanoic acid	ng/L	80	0	64	80		70 - 130
Perfluorododecanoic acid	ng/L	80	0	65.6	82		70 - 130
Perfluoroheptanoic acid	ng/L	80	0	77.7	97		70 - 130
Perfluorohexanesulfonic acid	ng/L	73	0	57.2	78		70 - 130
Perfluorohexanoic acid	ng/L	80	0	66.2	83		70 - 130
Perfluorononanoic acid	ng/L	80	0	69.6	87		70 - 130
Perfluorooctane Sulfonate	ng/L	74	0	72.2	98		70 - 130
Perfluorooctanoic acid	ng/L	80	0	71.1	89		70 - 130
Perfluoropentanoic acid	ng/L	80	0	64.4	80		70 - 130
Perfluorotetradecanoic acid	ng/L	80	0	74.1	93		70 - 130
Perfluorotridecanoic acid	ng/L	80	0	82.5	103		70 - 130
Perfluoroundecanoic acid	ng/L	80	0	63.7	80		70 - 130

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-1

3C

WATER SEMIVOLATILE LCS/LCSD RECOVERY

Report No: 219102613

Prep Method: EPA 537 Mod Prep

Prep Batch: 670213

Analytical Method: EPA 537 Modified

Analytical Batch: 671080

GCAL QC ID: 1976212

ANALYTE	*UNITS*	*SPIKE ADDED*	*LCSD RESULT*	*LCSD % REC*	#	*% RPD*	#	*QC LIMITS REC*	*QC LIMITS RPD*
6:2 Fluorotelomer sulfonate	ng/L	76	77.6	102		12		70 - 130	0 - 30
8:2 Fluorotelomer sulfonate	ng/L	76.8	70.8	92		9		70 - 130	0 - 30
NEtFOSAA	ng/L	80	72.8	91		2		70 - 130	0 - 30
NMeFOSAA	ng/L	80	73.4	92		5		70 - 130	0 - 30
Perfluorobutanesulfonic acid	ng/L	70.8	59.3	84		3		70 - 130	0 - 30
Perfluorobutanoic acid	ng/L	80	69.5	87		3		70 - 130	0 - 30
Perfluorodecanoic acid	ng/L	80	67.8	85		6		70 - 130	0 - 30
Perfluorododecanoic acid	ng/L	80	70.6	88		7		70 - 130	0 - 30
Perfluoroheptanoic acid	ng/L	80	81.7	102		5		70 - 130	0 - 30
Perfluorohexanesulfonic acid	ng/L	73	61.8	85		8		70 - 130	0 - 30
Perfluorohexanoic acid	ng/L	80	68.2	85		3		70 - 130	0 - 30
Perfluorononanoic acid	ng/L	80	71.3	89		2		70 - 130	0 - 30
Perfluorooctane Sulfonate	ng/L	74	77.4	105		7		70 - 130	0 - 30
Perfluorooctanoic acid	ng/L	80	68.8	86		3		70 - 130	0 - 30
Perfluoropentanoic acid	ng/L	80	66.3	83		3		70 - 130	0 - 30
Perfluorotetradecanoic acid	ng/L	80	73.3	92		1		70 - 130	0 - 30
Perfluorotridecanoic acid	ng/L	80	101	126		20		70 - 130	0 - 30
Perfluoroundecanoic acid	ng/L	80	65.4	82		3		70 - 130	0 - 30

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-1

4B

SEMIVOLATILE METHOD BLANK SUMMARY

Report No:	219103085	Method Blank ID:	1977961
Matrix:	Water	Instrument ID:	QQQ1
Sample Amt:	125 mL	Lab File ID:	2191112B_48.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/10/19	Analysis Date:	11/12/19 Time: 2302
Prep Batch:	670574	Analytical Batch:	671184
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

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.	LCS1977962	1977962	2191112B_49.d	11/12/19	2314
2.	LCSD1977963	1977963	2191112B_50.d	11/12/19	2325
3.	JFTBLA-EB-102919	21910308517	2191112B_60.d	11/13/19	0118

FORM IV SV

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219103085	Client Sample ID:	MB1977961
Collect Date:	NA Time: NA	GCAL Sample ID:	1977961
Matrix:	Water % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	125 mL	Lab File ID:	2191112B_48.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/10/19	Analysis Date:	11/12/19 Time: 2302
Prep Batch:	670574	Analytical Batch:	671184
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ng/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	4.00	U	1.79	4.00	10.0
39108-34-4	8:2 Fluorotelomer sulfonate	4.00	U	1.63	4.00	10.0
2991-50-6	NEtFOSAA	8.00	U	5.38	8.00	10.0
2355-31-9	NMeFOSAA	8.00	U	4.60	8.00	10.0
375-73-5	Perfluorobutanesulfonic acid	4.00	U	1.47	4.00	10.0
375-22-4	Perfluorobutanoic acid	4.00	U	2.13	4.00	10.0
335-76-2	Perfluorodecanoic acid	4.00	U	1.65	4.00	10.0
307-55-1	Perfluorododecanoic acid	4.00	U	2.45	4.00	10.0
375-85-9	Perfluoroheptanoic acid	4.00	U	1.85	4.00	10.0
355-46-4	Perfluorohexanesulfonic acid	4.00	U	1.64	4.00	10.0
307-24-4	Perfluorohexanoic acid	4.00	U	1.94	4.00	10.0
375-95-1	Perfluorononanoic acid	4.00	U	1.68	4.00	10.0
1763-23-1	Perfluorooctane Sulfonate	4.00	U	1.70	4.00	10.0
335-67-1	Perfluorooctanoic acid	4.00	U	1.80	4.00	10.0
2706-90-3	Perfluoropentanoic acid	4.00	U	2.35	4.00	10.0
376-06-7	Perfluorotetradecanoic acid	4.00	U	2.76	4.00	10.0
72629-94-8	Perfluorotridecanoic acid	4.00	U	2.56	4.00	10.0
2058-94-8	Perfluoroundecanoic acid	4.00	U	1.86	4.00	10.0

FORM I SV-1

3C

WATER SEMIVOLATILE LCS/LCSD RECOVERY

Report No: 219103085

Prep Method: EPA 537 Mod Prep

Prep Batch: 670574

Analytical Method: EPA 537 Modified

Analytical Batch: 671184

GCAL QC ID: 1977962

ANALYTE	*UNITS*	*SPIKE ADDED*	*SAMPLE RESULT*	*LCS RESULT*	*LCS % REC*	*#*	*QC LIMITS*
6:2 Fluorotelomer sulfonate	ng/L	76	0	80.7	106		70 - 130
8:2 Fluorotelomer sulfonate	ng/L	76.8	0	94.7	123		70 - 130
NEtFOSAA	ng/L	80	0	79.9	100		70 - 130
NMeFOSAA	ng/L	80	0	77.6	97		70 - 130
Perfluorobutanesulfonic acid	ng/L	70.8	0	69.3	98		70 - 130
Perfluorobutanoic acid	ng/L	80	0	78.4	98		70 - 130
Perfluorodecanoic acid	ng/L	80	0	72.8	91		70 - 130
Perfluorododecanoic acid	ng/L	80	0	87.1	109		70 - 130
Perfluoroheptanoic acid	ng/L	80	0	81	101		70 - 130
Perfluorohexanesulfonic acid	ng/L	73	0	74.6	102		70 - 130
Perfluorohexanoic acid	ng/L	80	0	81.2	101		70 - 130
Perfluorononanoic acid	ng/L	80	0	79.6	99		70 - 130
Perfluorooctane Sulfonate	ng/L	74	0	88.1	119		70 - 130
Perfluorooctanoic acid	ng/L	80	0	84.9	106		70 - 130
Perfluoropentanoic acid	ng/L	80	0	72.4	90		70 - 130
Perfluorotetradecanoic acid	ng/L	80	0	86.3	108		70 - 130
Perfluorotridecanoic acid	ng/L	80	0	89.7	112		70 - 130
Perfluoroundecanoic acid	ng/L	80	0	75.6	94		70 - 130

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-1

3C

WATER SEMIVOLATILE LCS/LCSD RECOVERY

Report No: 219103085

Prep Method: EPA 537 Mod Prep | Prep Batch: 670574

Analytical Method: EPA 537 Modified | Analytical Batch: 671184

GCAL QC ID: 1977963

ANALYTE	UNITS	SPIKE ADDED	LCSD RESULT	LCSD % REC	#	% RPD	#	QC LIMITS REC	QC LIMITS RPD
6:2 Fluorotelomer sulfonate	ng/L	76	80.7	106		.0008		70 - 130	0 - 30
8:2 Fluorotelomer sulfonate	ng/L	76.8	84.2	110		12		70 - 130	0 - 30
NEtFOSAA	ng/L	80	82.1	103		3		70 - 130	0 - 30
NMeFOSAA	ng/L	80	76.2	95		2		70 - 130	0 - 30
Perfluorobutanesulfonic acid	ng/L	70.8	70.4	99		2		70 - 130	0 - 30
Perfluorobutanoic acid	ng/L	80	80	100		2		70 - 130	0 - 30
Perfluorodecanoic acid	ng/L	80	78.8	99		8		70 - 130	0 - 30
Perfluorododecanoic acid	ng/L	80	80.7	101		8		70 - 130	0 - 30
Perfluoroheptanoic acid	ng/L	80	82.4	103		2		70 - 130	0 - 30
Perfluorohexanesulfonic acid	ng/L	73	72.9	100		2		70 - 130	0 - 30
Perfluorohexanoic acid	ng/L	80	94.2	118		15		70 - 130	0 - 30
Perfluorononanoic acid	ng/L	80	81.4	102		2		70 - 130	0 - 30
Perfluorooctane Sulfonate	ng/L	74	87.2	118		1		70 - 130	0 - 30
Perfluorooctanoic acid	ng/L	80	83.5	104		2		70 - 130	0 - 30
Perfluoropentanoic acid	ng/L	80	74.3	93		3		70 - 130	0 - 30
Perfluorotetradecanoic acid	ng/L	80	88.5	111		2		70 - 130	0 - 30
Perfluorotridecanoic acid	ng/L	80	87.9	110		2		70 - 130	0 - 30
Perfluoroundecanoic acid	ng/L	80	76.3	95		1		70 - 130	0 - 30

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-1

4B

SEMIVOLATILE METHOD BLANK SUMMARY

Report No:	219103085	Method Blank ID:	1977429
Matrix:	Water	Instrument ID:	QQQ1
Sample Amt:	125 mL	Lab File ID:	2191111A_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: BMH
Prep Date:	11/07/19	Analysis Date:	11/11/19 Time: 1249
Prep Batch:	670458	Analytical Batch:	671157
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

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.	LCS1977430	1977430	2191111A_19.d	11/11/19	1300
2.	LCSD1977431	1977431	2191111A_20.d	11/11/19	1312
3.	AOI 8-X3-1-102919	21910308501	2191111A_38.d	11/11/19	1651
4.	AOI 8-X3-1-102919-D	21910308502	2191111A_39.d	11/11/19	1702
5.	AOI 8-5-SW-102919	21910308503	2191111A_40.d	11/11/19	1714
6.	AOI 8-5-SW-102919-MS	21910308504	2191111A_41.d	11/11/19	1725
7.	AOI 8-5-SW-102919-MSD	21910308505	2191111A_42.d	11/11/19	1736
8.	AOI 8-6-SW-102919	21910308506	2191111A_44.d	11/11/19	1759
9.	AOI 8-6-SW-102919-MS	21910308507	2191111A_45.d	11/11/19	1810
10.	AOI 8-6-SW-102919-MSD	21910308508	2191111A_46.d	11/11/19	1821
11.	AOI 8-7-SW-102919	21910308509	2191111A_47.d	11/11/19	1833
12.	AOI 8-7-SW-102919-D	21910308510	2191111A_48.d	11/11/19	1844
13.	AOI 8-4-SW-102919	21910308511	2191111A_49.d	11/11/19	1856
14.	AOI 8-3-SW-102919	21910308512	2191111A_50.d	11/11/19	1907
15.	AOI 5-N19-3-102919	21910308515	2191111A_51.d	11/11/19	1918
16.	AOI 5-N19-3-102919-D	21910308516	2191111A_52.d	11/11/19	1930
17.	AOI 8-X3-1-102919DL	21910308501DL	2191119A_89.d	11/20/19	0658
18.	AOI 8-X3-1-102919-DDL	21910308502DL	2191119A_90.d	11/20/19	0709
19.	AOI 5-N19-3-102919DL	21910308515DL	2191119A_91.d	11/20/19	0721
20.	AOI 5-N19-3-102919-DDL	21910308516DL	2191119A_92.d	11/20/19	0732

FORM IV SV

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219103085	Client Sample ID:	MB1977429
Collect Date:	NA Time: NA	GCAL Sample ID:	1977429
Matrix:	Water % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	125 mL	Lab File ID:	2191111A_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: BMH
Prep Date:	11/07/19	Analysis Date:	11/11/19 Time: 1249
Prep Batch:	670458	Analytical Batch:	671157
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: ng/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
27619-97-2	6:2 Fluorotelomer sulfonate	4.00	U	1.79	4.00	10.0
39108-34-4	8:2 Fluorotelomer sulfonate	4.00	U	1.63	4.00	10.0
2991-50-6	NEtFOSAA	8.00	U	5.38	8.00	10.0
2355-31-9	NMeFOSAA	8.00	U	4.60	8.00	10.0
375-73-5	Perfluorobutanesulfonic acid	4.00	U	1.47	4.00	10.0
375-22-4	Perfluorobutanoic acid	4.00	U	2.13	4.00	10.0
335-76-2	Perfluorodecanoic acid	4.00	U	1.65	4.00	10.0
307-55-1	Perfluorododecanoic acid	4.00	U	2.45	4.00	10.0
375-85-9	Perfluoroheptanoic acid	4.00	U	1.85	4.00	10.0
355-46-4	Perfluorohexanesulfonic acid	4.00	U	1.64	4.00	10.0
307-24-4	Perfluorohexanoic acid	4.00	U	1.94	4.00	10.0
375-95-1	Perfluorononanoic acid	4.00	U	1.68	4.00	10.0
1763-23-1	Perfluorooctane Sulfonate	4.00	U	1.70	4.00	10.0
335-67-1	Perfluorooctanoic acid	4.00	U	1.80	4.00	10.0
2706-90-3	Perfluoropentanoic acid	4.00	U	2.35	4.00	10.0
376-06-7	Perfluorotetradecanoic acid	4.00	U	2.76	4.00	10.0
72629-94-8	Perfluorotridecanoic acid	4.00	U	2.56	4.00	10.0
2058-94-8	Perfluoroundecanoic acid	4.00	U	1.86	4.00	10.0

FORM I SV-1

3C

WATER SEMIVOLATILE LCS/LCSD RECOVERY

Report No: 219103085

Prep Method: EPA 537 Mod Prep

Prep Batch: 670458

Analytical Method: EPA 537 Modified

Analytical Batch: 671157

GCAL QC ID: 1977430

ANALYTE	*UNITS*	*SPIKE ADDED*	*SAMPLE RESULT*	*LCS RESULT*	*LCS % REC*	#	*QC LIMITS*
6:2 Fluorotelomer sulfonate	ng/L	76	0	86	113		70 - 130
8:2 Fluorotelomer sulfonate	ng/L	76.8	0	92.6	121		70 - 130
NEtFOSAA	ng/L	80	0	71.9	90		70 - 130
NMeFOSAA	ng/L	80	0	74.5	93		70 - 130
Perfluorobutanesulfonic acid	ng/L	70.8	0	68.7	97		70 - 130
Perfluorobutanoic acid	ng/L	80	0	80.5	101		70 - 130
Perfluorodecanoic acid	ng/L	80	0	80.2	100		70 - 130
Perfluorododecanoic acid	ng/L	80	0	78.9	99		70 - 130
Perfluoroheptanoic acid	ng/L	80	0	80.6	101		70 - 130
Perfluorohexanesulfonic acid	ng/L	73	0	76.1	104		70 - 130
Perfluorohexanoic acid	ng/L	80	0	82.5	103		70 - 130
Perfluorononanoic acid	ng/L	80	0	83.5	104		70 - 130
Perfluorooctane Sulfonate	ng/L	74	0	93.3	126		70 - 130
Perfluorooctanoic acid	ng/L	80	0	75.6	94		70 - 130
Perfluoropentanoic acid	ng/L	80	0	74.3	93		70 - 130
Perfluorotetradecanoic acid	ng/L	80	0	82.7	103		70 - 130
Perfluorotridecanoic acid	ng/L	80	0	78.8	98		70 - 130
Perfluoroundecanoic acid	ng/L	80	0	80.7	101		70 - 130

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-1

3C

WATER SEMIVOLATILE LCS/LCSD RECOVERY

Report No: 219103085

Prep Method: EPA 537 Mod Prep | Prep Batch: 670458

Analytical Method: EPA 537 Modified | Analytical Batch: 671157

GCAL QC ID: 1977431

ANALYTE	*UNITS*	*SPIKE ADDED*	*LCSD RESULT*	*LCSD % REC*	#	*% RPD*	#	*QC LIMITS REC*	*QC LIMITS RPD*
6:2 Fluorotelomer sulfonate	ng/L	76	89	117		3		70 - 130	0 - 30
8:2 Fluorotelomer sulfonate	ng/L	76.8	88.7	115		4		70 - 130	0 - 30
NEtFOSAA	ng/L	80	66.9	84		7		70 - 130	0 - 30
NMeFOSAA	ng/L	80	74.6	93		.07		70 - 130	0 - 30
Perfluorobutanesulfonic acid	ng/L	70.8	69.1	98		.5		70 - 130	0 - 30
Perfluorobutanoic acid	ng/L	80	81.8	102		2		70 - 130	0 - 30
Perfluorodecanoic acid	ng/L	80	82	102		2		70 - 130	0 - 30
Perfluorododecanoic acid	ng/L	80	84.6	106		7		70 - 130	0 - 30
Perfluoroheptanoic acid	ng/L	80	80.7	101		.2		70 - 130	0 - 30
Perfluorohexanesulfonic acid	ng/L	73	74.3	102		2		70 - 130	0 - 30
Perfluorohexanoic acid	ng/L	80	81.9	102		.7		70 - 130	0 - 30
Perfluorononanoic acid	ng/L	80	85.9	107		3		70 - 130	0 - 30
Perfluorooctane Sulfonate	ng/L	74	73	99		24		70 - 130	0 - 30
Perfluorooctanoic acid	ng/L	80	76.1	95		.6		70 - 130	0 - 30
Perfluoropentanoic acid	ng/L	80	75.9	95		2		70 - 130	0 - 30
Perfluorotetradecanoic acid	ng/L	80	89.1	111		7		70 - 130	0 - 30
Perfluorotridecanoic acid	ng/L	80	92.2	115		16		70 - 130	0 - 30
Perfluoroundecanoic acid	ng/L	80	81.1	101		.5		70 - 130	0 - 30

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-1

3C

WATER SEMIVOLATILE MS/MSD RECOVERY

Report No:	219103085	Parent Sample ID:	AOI 8-6-SW-102919
Prep Method:	EPA 537 Mod Prep	Prep Batch:	670458
Analytical Method:	EPA 537 Modified	Analytical Batch:	671157

GCAL QC ID: 21910308507

ANALYTE	*UNITS*	*SPIKE ADDED*	*SAMPLE RESULT*	*MS RESULT*	*MS % REC*	*#*	*QC LIMITS*
6:2 Fluorotelomer sulfonate	ng/L	63.3	306	378	113		70 - 130
8:2 Fluorotelomer sulfonate	ng/L	64	7.69	77.7	109		70 - 130
NEtFOSAA	ng/L	66.7	0	57.5	86		70 - 130
NMeFOSAA	ng/L	66.7	.706	53.1	79		70 - 130
Perfluorobutanesulfonic acid	ng/L	59	6.43	57.1	86		70 - 130
Perfluorobutanoic acid	ng/L	66.7	19.3	82.1	94		70 - 130
Perfluorodecanoic acid	ng/L	66.7	2.35	56.7	82		70 - 130
Perfluorododecanoic acid	ng/L	66.7	.913	66.7	99		70 - 130
Perfluoroheptanoic acid	ng/L	66.7	15.8	74.3	88		70 - 130
Perfluorohexanesulfonic acid	ng/L	60.8	36.6	96.1	98		70 - 130
Perfluorohexanoic acid	ng/L	66.7	74.1	141	100		70 - 130
Perfluorononanoic acid	ng/L	66.7	6.02	64.4	88		70 - 130
Perfluorooctane Sulfonate	ng/L	61.7	71.2	152	131	*	70 - 130
Perfluorooctanoic acid	ng/L	66.7	29.2	89.2	90		70 - 130
Perfluoropentanoic acid	ng/L	66.7	80.2	147	100		70 - 130
Perfluorotetradecanoic acid	ng/L	66.7	1.18	52	76		70 - 130
Perfluorotridecanoic acid	ng/L	66.7	0	319	478	*	70 - 130
Perfluoroundecanoic acid	ng/L	66.7	0	56.2	84		70 - 130

RPD : 1 out of 18 outside limits

Spike Recovery: 3 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-1

3C

WATER SEMIVOLATILE MS/MSD RECOVERY

Report No:	219103085	Parent Sample ID:	AOI 8-6-SW-102919
Prep Method:	EPA 537 Mod Prep	Prep Batch:	670458
Analytical Method:	EPA 537 Modified	Analytical Batch:	671157

GCAL QC ID: 21910308508

ANALYTE	*UNITS*	*SPIKE ADDED*	*MSD RESULT*	*MSD % REC*	*#*	*% RPD*	*#*	*QC LIMITS REC*	*QC LIMITS RPD*
6:2 Fluorotelomer sulfonate	ng/L	63.3	341	56	*	10		70 - 130	0 - 30
8:2 Fluorotelomer sulfonate	ng/L	64	71.3	99		9		70 - 130	0 - 30
NEtFOSAA	ng/L	66.7	53.8	81		7		70 - 130	0 - 30
NMeFOSAA	ng/L	66.7	54.9	81		3		70 - 130	0 - 30
Perfluorobutanesulfonic acid	ng/L	59	54	81		6		70 - 130	0 - 30
Perfluorobutanoic acid	ng/L	66.7	78.4	89		5		70 - 130	0 - 30
Perfluorodecanoic acid	ng/L	66.7	57.3	82		1		70 - 130	0 - 30
Perfluorododecanoic acid	ng/L	66.7	55.9	82		18		70 - 130	0 - 30
Perfluoroheptanoic acid	ng/L	66.7	71.4	83		4		70 - 130	0 - 30
Perfluorohexanesulfonic acid	ng/L	60.8	90.4	89		6		70 - 130	0 - 30
Perfluorohexanoic acid	ng/L	66.7	130	83		8		70 - 130	0 - 30
Perfluorononanoic acid	ng/L	66.7	62	84		4		70 - 130	0 - 30
Perfluorooctane Sulfonate	ng/L	61.7	142	115		7		70 - 130	0 - 30
Perfluorooctanoic acid	ng/L	66.7	85.6	85		4		70 - 130	0 - 30
Perfluoropentanoic acid	ng/L	66.7	134	81		9		70 - 130	0 - 30
Perfluorotetradecanoic acid	ng/L	66.7	56	82		7		70 - 130	0 - 30
Perfluorotridecanoic acid	ng/L	66.7	86.5	130		115	*	70 - 130	0 - 30
Perfluoroundecanoic acid	ng/L	66.7	54	81		4		70 - 130	0 - 30

RPD : 1 out of 18 outside limits

Spike Recovery: 3 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-1

3C

WATER SEMIVOLATILE MS/MSD RECOVERY

Report No:	219103085	Parent Sample ID:	AOI 8-5-SW-102919
Prep Method:	EPA 537 Mod Prep	Prep Batch:	670458
Analytical Method:	EPA 537 Modified	Analytical Batch:	671157

GCAL QC ID: 21910308504

ANALYTE	*UNITS*	*SPIKE ADDED*	*SAMPLE RESULT*	*MS RESULT*	*MS % REC*	*#*	*QC LIMITS*
6:2 Fluorotelomer sulfonate	ng/L	63.3	275	322	73		70 - 130
8:2 Fluorotelomer sulfonate	ng/L	64	13.5	93.2	124		70 - 130
NEtFOSAA	ng/L	66.7	0	56.4	85		70 - 130
NMeFOSAA	ng/L	66.7	0	58.4	88		70 - 130
Perfluorobutanesulfonic acid	ng/L	59	5.9	53.7	81		70 - 130
Perfluorobutanoic acid	ng/L	66.7	18.6	74.6	84		70 - 130
Perfluorodecanoic acid	ng/L	66.7	3.16	61.4	87		70 - 130
Perfluorododecanoic acid	ng/L	66.7	0	56.2	84		70 - 130
Perfluoroheptanoic acid	ng/L	66.7	14	72.1	87		70 - 130
Perfluorohexanesulfonic acid	ng/L	60.8	33.5	87.8	89		70 - 130
Perfluorohexanoic acid	ng/L	66.7	65.4	126	90		70 - 130
Perfluorononanoic acid	ng/L	66.7	6.68	66.3	89		70 - 130
Perfluorooctane Sulfonate	ng/L	61.7	104	191	142	*	70 - 130
Perfluorooctanoic acid	ng/L	66.7	26.7	84.9	87		70 - 130
Perfluoropentanoic acid	ng/L	66.7	74.1	130	84		70 - 130
Perfluorotetradecanoic acid	ng/L	66.7	0	57.8	87		70 - 130
Perfluorotridecanoic acid	ng/L	66.7	1.35	83.9	124		70 - 130
Perfluoroundecanoic acid	ng/L	66.7	1.52	54.6	80		70 - 130

RPD : 0 out of 18 outside limits

Spike Recovery: 2 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-1

3C

WATER SEMIVOLATILE MS/MSD RECOVERY

Report No:	219103085	Parent Sample ID:	AOI 8-5-SW-102919
Prep Method:	EPA 537 Mod Prep	Prep Batch:	670458
Analytical Method:	EPA 537 Modified	Analytical Batch:	671157

GCAL QC ID: 21910308505

ANALYTE	UNITS	SPIKE ADDED	MSD RESULT	MSD % REC	#	% RPD	#	QC LIMITS REC	QC LIMITS RPD
6:2 Fluorotelomer sulfonate	ng/L	63.3	288	20	*	11		70 - 130	0 - 30
8:2 Fluorotelomer sulfonate	ng/L	64	80.1	104		15		70 - 130	0 - 30
NEtFOSAA	ng/L	66.7	58.7	88		4		70 - 130	0 - 30
NMeFOSAA	ng/L	66.7	58.4	88		.06		70 - 130	0 - 30
Perfluorobutanesulfonic acid	ng/L	59	55.6	84		3		70 - 130	0 - 30
Perfluorobutanoic acid	ng/L	66.7	73.1	82		2		70 - 130	0 - 30
Perfluorodecanoic acid	ng/L	66.7	58.8	83		4		70 - 130	0 - 30
Perfluorododecanoic acid	ng/L	66.7	64.1	96		13		70 - 130	0 - 30
Perfluoroheptanoic acid	ng/L	66.7	68.7	82		5		70 - 130	0 - 30
Perfluorohexanesulfonic acid	ng/L	60.8	82.1	80		7		70 - 130	0 - 30
Perfluorohexanoic acid	ng/L	66.7	119	80		6		70 - 130	0 - 30
Perfluorononanoic acid	ng/L	66.7	65.2	88		2		70 - 130	0 - 30
Perfluorooctane Sulfonate	ng/L	61.7	162	95		16		70 - 130	0 - 30
Perfluorooctanoic acid	ng/L	66.7	79.3	79		7		70 - 130	0 - 30
Perfluoropentanoic acid	ng/L	66.7	124	74		5		70 - 130	0 - 30
Perfluorotetradecanoic acid	ng/L	66.7	59.6	89		3		70 - 130	0 - 30
Perfluorotridecanoic acid	ng/L	66.7	84.5	125		.7		70 - 130	0 - 30
Perfluoroundecanoic acid	ng/L	66.7	62.5	91		14		70 - 130	0 - 30

RPD : 0 out of 18 outside limits

Spike Recovery: 2 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-1

4B

SEMIVOLATILE METHOD BLANK SUMMARY

Report No:	219102541	Method Blank ID:	1979816
Matrix:	Solid	Instrument ID:	QQQ1
Sample Amt:	5 g	Lab File ID:	2191119A_27.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/15/19	Analysis Date:	11/19/19 Time: 1914
Prep Batch:	670918	Analytical Batch:	671741
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

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.	LCS1979817	1979817	2191119A_28.d	11/19/19	1925
2.	LCSD1979818	1979818	2191119A_29.d	11/19/19	1936
3.	AOI1-6-SB-4.5-5-102319 (RE)	21910254127	2191119A_47.d	11/19/19	2301
4.	AOI1-2-SB-12.5-13-102319 (RE)	21910254128	2191119A_48.d	11/19/19	2312

FORM IV SV

4B

SEMIVOLATILE METHOD BLANK SUMMARY

Report No:	219102613	Method Blank ID:	1979816
Matrix:	Solid	Instrument ID:	QQQ1
Sample Amt:	5 g	Lab File ID:	2191119A_27.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/15/19	Analysis Date:	11/19/19 Time: 1914
Prep Batch:	670918	Analytical Batch:	671741
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

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.	LCS1979817	1979817	2191119A_28.d	11/19/19	1925
2.	LCSD1979818	1979818	2191119A_29.d	11/19/19	1936
3.	AOI3-11-SB-11-11.5-102419 (RE)	21910261321	2191119A_49.d	11/19/19	2324

FORM IV SV

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102541	Client Sample ID:	MB1979816
Collect Date:	NA Time: NA	GCAL Sample ID:	1979816
Matrix:	Solid % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	5 g	Lab File ID:	2191119A_27.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/15/19	Analysis Date:	11/19/19 Time: 1914
Prep Batch:	670918	Analytical Batch:	671741
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ug/kg*

CAS	*ANALYTE*	*RESULT*	*Q*	*DL*	*LOD*	*LOQ*
307-55-1	Perfluorododecanoic acid	0.400	U	0.200	0.400	1.00
376-06-7	Perfluorotetradecanoic acid	0.400	U	0.160	0.400	1.00
72629-94-8	Perfluorotridecanoic acid	0.400	U	0.220	0.400	1.00

FORM I SV-1

3D

SOIL SEMIVOLATILE LCS/LCSD RECOVERY

Report No: 219102541

Prep Method: EPA 537 Mod Prep | Prep Batch: 670918

Analytical Method: EPA 537 Modified | Analytical Batch: 671741

GCAL QC ID: 1979817 ANALYTE	UNITS	SPIKE ADDED	SAMPLE RESULT	LCS RESULT	LCS % REC	#	QC LIMITS
Perfluorododecanoic acid	ug/kg	2	0	1.69	84		70 - 130
Perfluorotetradecanoic acid	ug/kg	2	0	1.66	83		70 - 130
Perfluorotridecanoic acid	ug/kg	2	0	1.69	84		70 - 130

GCAL QC ID: 1979818 ANALYTE	UNITS	SPIKE ADDED	LCSD RESULT	LCSD % REC	#	% RPD	#	QC LIMITS REC	QC LIMITS RPD
Perfluorododecanoic acid	ug/kg	2	1.56	78		8		70 - 130	0 - 30
Perfluorotetradecanoic acid	ug/kg	2	1.57	78		6		70 - 130	0 - 30
Perfluorotridecanoic acid	ug/kg	2	1.61	80		5		70 - 130	0 - 30

RPD : 0 out of 3 outside limits

Spike Recovery: 0 out of 6 outside limits

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

FORM III SV-2

4B

SEMIVOLATILE METHOD BLANK SUMMARY

Report No:	219102333	Method Blank ID:	1981225
Matrix:	Water	Instrument ID:	QQQ1
Sample Amt:	125 mL	Lab File ID:	2191117A_13.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/16/19	Analysis Date:	11/17/19 Time: 1932
Prep Batch:	671164	Analytical Batch:	671600
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

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.	LCS1981226	1981226	2191117A_14.d	11/17/19	1943
2.	LCSD1981227	1981227	2191117A_15.d	11/17/19	1954
3.	JFTBLA-EB-HA-102119 (RE)	21910233323	2191117A_18.d	11/17/19	2028
4.	AOI7-10-GW-102119 (RE)	21910233324	2191117A_21.d	11/17/19	2102
5.	AOI7-7-11-GW-102119 (RE)	21910233325	2191117A_22.d	11/17/19	2113
6.	AOI7-9-GW-102119 (RE)	21910233326	2191117A_23.d	11/17/19	2124

FORM IV SV

4B

SEMIVOLATILE METHOD BLANK SUMMARY

Report No:	219102717	Method Blank ID:	1981225
Matrix:	Water	Instrument ID:	QQQ1
Sample Amt:	125 mL	Lab File ID:	2191117A_13.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/16/19	Analysis Date:	11/17/19 Time: 1932
Prep Batch:	671164	Analytical Batch:	671600
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

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.	LCS1981226	1981226	2191117A_14.d	11/17/19	1943
2.	LCSD1981227	1981227	2191117A_15.d	11/17/19	1954
3.	JFTBLA-EB-HA-102519 (RE)	21910271722	2191117A_24.d	11/17/19	2136

FORM IV SV

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102717	Client Sample ID:	MB1981225
Collect Date:	NA Time: NA	GCAL Sample ID:	1981225
Matrix:	Water % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	125 mL	Lab File ID:	2191117A_13.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/16/19	Analysis Date:	11/17/19 Time: 1932
Prep Batch:	671164	Analytical Batch:	671600
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ng/L*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
376-06-7	Perfluorotetradecanoic acid	4.00	U	2.76	4.00	10.0
72629-94-8	Perfluorotridecanoic acid	4.00	U	2.56	4.00	10.0

FORM I SV-1

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102333	Client Sample ID:	MB1981225
Collect Date:	NA Time: NA	GCAL Sample ID:	1981225
Matrix:	Water % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	125 mL	Lab File ID:	2191117A_13.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/16/19	Analysis Date:	11/17/19 Time: 1932
Prep Batch:	671164	Analytical Batch:	671600
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ng/L*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
39108-34-4	8:2 Fluorotelomer sulfonate	4.00	U	1.63	4.00	10.0
2355-31-9	NMeFOSAA	8.00	U	4.60	8.00	10.0
1763-23-1	Perfluorooctane Sulfonate	4.00	U	1.70	4.00	10.0
72629-94-8	Perfluorotridecanoic acid	4.00	U	2.56	4.00	10.0

FORM I SV-1

3C

WATER SEMIVOLATILE LCS/LCSD RECOVERY

Report No: 219102333

Prep Method: EPA 537 Mod Prep

Prep Batch: 671164

Analytical Method: EPA 537 Modified

Analytical Batch: 671600

GCAL QC ID: 1981226

ANALYTE	UNITS	SPIKE ADDED	SAMPLE RESULT	LCS RESULT	LCS % REC	#	QC LIMITS
8:2 Fluorotelomer sulfonate	ng/L	76.8	0	82.4	107		70 - 130
NMeFOSAA	ng/L	80	0	77.3	97		70 - 130
Perfluorooctane Sulfonate	ng/L	74	0	71.8	97		70 - 130
Perfluorotridecanoic acid	ng/L	80	0	82.8	103		70 - 130

GCAL QC ID: 1981227

ANALYTE	UNITS	SPIKE ADDED	LCSD RESULT	LCSD % REC	#	% RPD	#	QC LIMITS REC	QC LIMITS RPD
8:2 Fluorotelomer sulfonate	ng/L	76.8	81.1	106		2		70 - 130	0 - 30
NMeFOSAA	ng/L	80	85.7	107		10		70 - 130	0 - 30
Perfluorooctane Sulfonate	ng/L	74	73.4	99		2		70 - 130	0 - 30
Perfluorotridecanoic acid	ng/L	80	97.6	122		16		70 - 130	0 - 30

RPD : 0 out of 4 outside limits

Spike Recovery: 0 out of 8 outside limits

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

FORM III SV-1

3C

WATER SEMIVOLATILE LCS/LCSD RECOVERY

Report No: 219102717

Prep Method: EPA 537 Mod Prep

Prep Batch: 671164

Analytical Method: EPA 537 Modified

Analytical Batch: 671600

GCAL QC ID: 1981226

ANALYTE	UNITS	SPIKE ADDED	SAMPLE RESULT	LCS RESULT	LCS % REC	#	QC LIMITS
Perfluorotetradecanoic acid	ng/L	80	0	78.4	98		70 - 130
Perfluorotridecanoic acid	ng/L	80	0	82.8	103		70 - 130

GCAL QC ID: 1981227

ANALYTE	UNITS	SPIKE ADDED	LCSD RESULT	LCSD % REC	#	% RPD	#	QC LIMITS REC	QC LIMITS RPD
Perfluorotetradecanoic acid	ng/L	80	79.9	100		2		70 - 130	0 - 30
Perfluorotridecanoic acid	ng/L	80	97.6	122		16		70 - 130	0 - 30

RPD : 0 out of 2 outside limits

Spike Recovery: 0 out of 4 outside limits

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

FORM III SV-1

4B

SEMIVOLATILE METHOD BLANK SUMMARY

Report No:	219102326	Method Blank ID:	1981644
Matrix:	Water	Instrument ID:	QQQ1
Sample Amt:	125 mL	Lab File ID:	2191119A_78.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/16/19	Analysis Date:	11/20/19 Time: 0453
Prep Batch:	671259	Analytical Batch:	671741
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

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.	JFTBLA-EB-PW-102219 (RE)	21910232630	2191118A_68.d	11/19/19	0637
2.	AOI6-1-GW-102219 (RE)	21910232631	2191118A_69.d	11/19/19	0649
3.	AOI5-1-GW-102219 (RE)	21910232632	2191118A_70.d	11/19/19	0700
4.	AOI1-3-GW-102219 (RE)	21910232633	2191118A_71.d	11/19/19	0711
5.	AOI1-1-GW-102219 (RE)	21910232634	2191118A_72.d	11/19/19	0723
6.	LCS1981645	1981645	2191119A_79.d	11/20/19	0505
7.	LCSD1981646	1981646	2191119A_80.d	11/20/19	0516
8.	AOI5-1-GW-102219 (RE)DL	21910232632DL	2191220A_59.d	12/20/19	2000
9.	AOI1-3-GW-102219 (RE)DL	21910232633DL	2191220A_60.d	12/20/19	2012
10.	AOI1-1-GW-102219 (RE)DL	21910232634DL	2191220A_61.d	12/20/19	2023

FORM IV SV

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102326	Client Sample ID:	MB1981644
Collect Date:	NA Time: NA	GCAL Sample ID:	1981644
Matrix:	Water % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	125 mL	Lab File ID:	2191119A_78.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/16/19	Analysis Date:	11/20/19 Time: 0453
Prep Batch:	671259	Analytical Batch:	671741
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ng/L*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
39108-34-4	8:2 Fluorotelomer sulfonate	4.00	U	1.63	4.00	10.0
2355-31-9	NMeFOSAA	8.00	U	4.60	8.00	10.0
1763-23-1	Perfluorooctane Sulfonate	4.00	U	1.70	4.00	10.0
72629-94-8	Perfluorotridecanoic acid	4.00	U	2.56	4.00	10.0

FORM I SV-1

3C

WATER SEMIVOLATILE LCS/LCSD RECOVERY

Report No: 219102326

Prep Method: EPA 537 Mod Prep

Prep Batch: 671259

Analytical Method: EPA 537 Modified

Analytical Batch: 671741

GCAL QC ID: 1981645

ANALYTE	*UNITS*	*SPIKE ADDED*	*SAMPLE RESULT*	*LCS RESULT*	*LCS % REC*	#	*QC LIMITS*
8:2 Fluorotelomer sulfonate	ng/L	76.8	0	73.7	96		70 - 130
NMeFOSAA	ng/L	80	0	82.7	103		70 - 130
Perfluorooctane Sulfonate	ng/L	74	0	74.1	100		70 - 130
Perfluorotridecanoic acid	ng/L	80	0	95.1	119		70 - 130

GCAL QC ID: 1981646

ANALYTE	*UNITS*	*SPIKE ADDED*	*LCSD RESULT*	*LCSD % REC*	#	*% RPD*	#	*QC LIMITS REC*	*QC LIMITS RPD*
8:2 Fluorotelomer sulfonate	ng/L	76.8	73.7	96		.008		70 - 130	0 - 30
NMeFOSAA	ng/L	80	84.9	106		3		70 - 130	0 - 30
Perfluorooctane Sulfonate	ng/L	74	68.9	93		7		70 - 130	0 - 30
Perfluorotridecanoic acid	ng/L	80	78.2	98		20		70 - 130	0 - 30

RPD : 0 out of 4 outside limits

Spike Recovery: 0 out of 8 outside limits

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

FORM III SV-1

4B
SEMIVOLATILE METHOD BLANK SUMMARY

Report No:	219103085	Method Blank ID:	1982674
Matrix:	Water	Instrument ID:	QQQ1
Sample Amt:	125 mL	Lab File ID:	2191122A_04.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/20/19	Analysis Date:	11/22/19 Time: 1218
Prep Batch:	671428	Analytical Batch:	671987
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

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.	LCS1982675	1982675	2191122A_05.d	11/22/19	1229
2.	LCSD1982676	1982676	2191122A_06.d	11/22/19	1241
3.	AOI 8-X3-1-102919 (RE)	21910308518	2191122B_52.d	11/23/19	0129
4.	AOI 8-5-SW-102919 (RE)	21910308519	2191122B_54.d	11/23/19	0151
5.	AOI 8-5-SW-102919-MS (RE)	21910308520	2191122B_55.d	11/23/19	0203
6.	AOI 8-5-SW-102919-MSD (RE)	21910308521	2191122B_56.d	11/23/19	0214
7.	AOI 8-6-SW-102919 (RE)	21910308522	2191122B_57.d	11/23/19	0225
8.	AOI 8-6-SW-102919-MS (RE)	21910308523	2191122B_58.d	11/23/19	0237
9.	AOI 8-6-SW-102919-MSD (RE)	21910308524	2191122B_59.d	11/23/19	0248
10.	AOI 8-7-SW-102919-D (RE)	21910308525	2191122B_61.d	11/23/19	0311
11.	AOI 8-4-SW-102919 (RE)	21910308526	2191122B_63.d	11/23/19	0333
12.	AOI 8-3-SW-102919 (RE)	21910308527	2191122B_64.d	11/23/19	0345
13.	AOI 5-N19-3-102919 (RE)	21910308528	2191122B_65.d	11/23/19	0356
14.	AOI 5-N19-3-102919-D (RE)	21910308529	2191122B_66.d	11/23/19	0407
15.	AOI 8-6-SW-102919 (RE)RE	21910308522RE	2191127A_79.d	11/28/19	0345
16.	AOI 8-6-SW-102919-MS (RE)RE	21910308523RE	2191127A_80.d	11/28/19	0357
17.	AOI 8-6-SW-102919-MSD (RE)RE	21910308524RE	2191127A_81.d	11/28/19	0408

FORM IV SV

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219103085	Client Sample ID:	MB1982674
Collect Date:	NA Time: NA	GCAL Sample ID:	1982674
Matrix:	Water % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	125 mL	Lab File ID:	2191122A_04.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/20/19	Analysis Date:	11/22/19 Time: 1218
Prep Batch:	671428	Analytical Batch:	671987
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ng/L*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
39108-34-4	8:2 Fluorotelomer sulfonate	4.00	U	1.63	4.00	10.0
2991-50-6	NEtFOSAA	8.00	U	5.38	8.00	10.0
307-55-1	Perfluorododecanoic acid	4.00	U	2.45	4.00	10.0
376-06-7	Perfluorotetradecanoic acid	4.00	U	2.76	4.00	10.0
72629-94-8	Perfluorotridecanoic acid	4.00	U	2.56	4.00	10.0
2058-94-8	Perfluoroundecanoic acid	4.00	U	1.86	4.00	10.0

FORM I SV-1

3C

WATER SEMIVOLATILE LCS/LCSD RECOVERY

Report No: 219103085

Prep Method: EPA 537 Mod Prep Prep Batch: 671428

Analytical Method: EPA 537 Modified Analytical Batch: 671987

GCAL QC ID: 1982675

ANALYTE	*UNITS*	*SPIKE ADDED*	*SAMPLE RESULT*	*LCS RESULT*	*LCS % REC*	#	*QC LIMITS*
8:2 Fluorotelomer sulfonate	ng/L	76.8	0	81.1	106		70 - 130
NEtFOSAA	ng/L	80	0	68.1	85		70 - 130
Perfluorododecanoic acid	ng/L	80	0	73.1	91		70 - 130
Perfluorotetradecanoic acid	ng/L	80	0	68.4	86		70 - 130
Perfluorotridecanoic acid	ng/L	80	0	74.5	93		70 - 130
Perfluoroundecanoic acid	ng/L	80	0	67.6	84		70 - 130

GCAL QC ID: 1982676

ANALYTE	*UNITS*	*SPIKE ADDED*	*LCSD RESULT*	*LCSD % REC*	#	*% RPD*	#	*QC LIMITS REC*	*QC LIMITS RPD*
8:2 Fluorotelomer sulfonate	ng/L	76.8	88.4	115		9		70 - 130	0 - 30
NEtFOSAA	ng/L	80	70.9	89		4		70 - 130	0 - 30
Perfluorododecanoic acid	ng/L	80	71.3	89		2		70 - 130	0 - 30
Perfluorotetradecanoic acid	ng/L	80	77.5	97		12		70 - 130	0 - 30
Perfluorotridecanoic acid	ng/L	80	80.8	101		8		70 - 130	0 - 30
Perfluoroundecanoic acid	ng/L	80	71.8	90		6		70 - 130	0 - 30

RPD : 0 out of 6 outside limits

Spike Recovery: 0 out of 12 outside limits

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

FORM III SV-1

3C

WATER SEMIVOLATILE MS/MSD RECOVERY

Report No:	219103085	Parent Sample ID:	AOI 8-6-SW-102919 (RE)RE
Prep Method:	EPA 537 Mod Prep	Prep Batch:	671428
Analytical Method:	EPA 537 Modified	Analytical Batch:	672386

GCAL QC ID: 21910308523

ANALYTE	*UNITS*	*SPIKE ADDED*	*SAMPLE RESULT*	*MS RESULT*	*MS % REC*	*#*	*QC LIMITS*
8:2 Fluorotelomer sulfonate	ng/L	64	6.07	78.8	114		70 - 130

GCAL QC ID: 21910308524

ANALYTE	*UNITS*	*SPIKE ADDED*	*MSD RESULT*	*MSD % REC*	*#*	*% RPD*	*#*	*QC LIMITS REC*	*QC LIMITS RPD*
8:2 Fluorotelomer sulfonate	ng/L	64	66.8	95		17		70 - 130	0 - 30

RPD : 0 out of 1 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-1

3C

WATER SEMIVOLATILE MS/MSD RECOVERY

Report No:	219103085	Parent Sample ID:	AOI 8-6-SW-102919 (RE)
Prep Method:	EPA 537 Mod Prep	Prep Batch:	671428
Analytical Method:	EPA 537 Modified	Analytical Batch:	671888

GCAL QC ID: 21910308523

ANALYTE	*UNITS*	*SPIKE ADDED*	*SAMPLE RESULT*	*MS RESULT*	*MS % REC*	*#*	*QC LIMITS*
NEtFOSAA	ng/L	66.7	0	58.7	88		70 - 130
Perfluorododecanoic acid	ng/L	66.7	0	65.8	99		70 - 130
Perfluoroundecanoic acid	ng/L	66.7	1.26	63.5	93		70 - 130

GCAL QC ID: 21910308524

ANALYTE	*UNITS*	*SPIKE ADDED*	*MSD RESULT*	*MSD % REC*	*#*	*% RPD*	*#*	*QC LIMITS REC*	*QC LIMITS RPD*
NEtFOSAA	ng/L	66.7	55.8	84		5		70 - 130	0 - 30
Perfluorododecanoic acid	ng/L	66.7	62.7	94		5		70 - 130	0 - 30
Perfluoroundecanoic acid	ng/L	66.7	55.4	81		14		70 - 130	0 - 30

RPD : 0 out of 3 outside limits

Spike Recovery: 0 out of 6 outside limits

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

FORM III SV-1

3C

WATER SEMIVOLATILE MS/MSD RECOVERY

Report No:	219103085	Parent Sample ID:	AOI 8-5-SW-102919 (RE)
Prep Method:	EPA 537 Mod Prep	Prep Batch:	671428
Analytical Method:	EPA 537 Modified	Analytical Batch:	671888

GCAL QC ID: 21910308520

ANALYTE	UNITS	SPIKE ADDED	SAMPLE RESULT	MS RESULT	MS % REC	#	QC LIMITS
Perfluorododecanoic acid	ng/L	66.7	.754	62.1	92		70 - 130

GCAL QC ID: 21910308521

ANALYTE	UNITS	SPIKE ADDED	MSD RESULT	MSD % REC	#	% RPD	#	QC LIMITS REC	QC LIMITS RPD
Perfluorododecanoic acid	ng/L	71.4	65.2	90		5		70 - 130	0 - 30

RPD : 0 out of 1 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-1

4B

SEMIVOLATILE METHOD BLANK SUMMARY

Report No:	219102326	Method Blank ID:	1983598
Matrix:	Solid	Instrument ID:	QQQ1
Sample Amt:	5 g	Lab File ID:	2191125A_22.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/22/19	Analysis Date:	11/25/19 Time: 1621
Prep Batch:	671638	Analytical Batch:	672385
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

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.	LCS1983599	1983599	2191125A_23.d	11/25/19	1632
2.	LCSD1983600	1983600	2191125A_24.d	11/25/19	1643
3.	AOI6-3-SB-1.5-2-102219 (RE)	21910232635	2191125A_77.d	11/26/19	0244
4.	AOI6-3-SB-1.5-2-102219-MS (RE)	21910232636	2191125A_78.d	11/26/19	0256
5.	AOI6-3-SB-1.5-2-102219-MSD(RE)	21910232637	2191125A_79.d	11/26/19	0307

FORM IV SV

4B

SEMIVOLATILE METHOD BLANK SUMMARY

Report No:	219102333	Method Blank ID:	1983598
Matrix:	Solid	Instrument ID:	QQQ1
Sample Amt:	5 g	Lab File ID:	2191125A_22.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/22/19	Analysis Date:	11/25/19 Time: 1621
Prep Batch:	671638	Analytical Batch:	672385
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

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.	LCS1983599	1983599	2191125A_23.d	11/25/19	1632
2.	LCSD1983600	1983600	2191125A_24.d	11/25/19	1643
3.	AOI7-10-SB-7.5-8-102119 (RE)	21910233327	2191125A_69.d	11/26/19	0113
4.	AOI7-5-SB-1.5-2-102119 (RE)	21910233328	2191125A_70.d	11/26/19	0125
5.	AOI7-7-SB-1.5-2-102119 (RE)	21910233329	2191125A_71.d	11/26/19	0136
6.	AOI7-11-SB-18-18.5-102119 (RE)	21910233330	2191125A_72.d	11/26/19	0147
7.	AOI7-9-SB-17-17.5-102119 (RE)	21910233331	2191125A_73.d	11/26/19	0159

FORM IV SV

4B

SEMIVOLATILE METHOD BLANK SUMMARY

Report No:	219102717	Method Blank ID:	1983598
Matrix:	Solid	Instrument ID:	QQQ1
Sample Amt:	5 g	Lab File ID:	2191125A_22.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/22/19	Analysis Date:	11/25/19 Time: 1621
Prep Batch:	671638	Analytical Batch:	672385
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

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.	LCS1983599	1983599	2191125A_23.d	11/25/19	1632
2.	LCSD1983600	1983600	2191125A_24.d	11/25/19	1643
3.	AOI4-1-SB-5.5-6-102519 (RE)	21910271723	2191125A_76.d	11/26/19	0233

FORM IV SV

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Report No:	219102326	Client Sample ID:	MB1983598
Collect Date:	NA Time: NA	GCAL Sample ID:	1983598
Matrix:	Solid % Moisture: NA	Instrument ID:	QQQ1
Sample Amt:	5 g	Lab File ID:	2191125A_22.d
Injection Vol.:	1.0 (µL)	GC Column:	ACC-C18-30M ID 2.1 (mm)
Prep Final Vol.:	1000 (µL)	Dilution Factor:	1 Analyst: BMH
Prep Date:	11/22/19	Analysis Date:	11/25/19 Time: 1621
Prep Batch:	671638	Analytical Batch:	672385
Prep Method:	EPA 537 Mod Prep	Analytical Method:	EPA 537 Modified

CONCENTRATION UNITS: *ug/kg*

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
376-06-7	Perfluorotetradecanoic acid	0.400	U	0.160	0.400	1.00
72629-94-8	Perfluorotridecanoic acid	0.400	U	0.220	0.400	1.00

FORM I SV-1

3D

SOIL SEMIVOLATILE LCS/LCSD RECOVERY

Report No: 219102326

Prep Method: EPA 537 Mod Prep

Prep Batch: 671638

Analytical Method: EPA 537 Modified

Analytical Batch: 672385

GCAL QC ID: 1983599

ANALYTE	*UNITS*	*SPIKE ADDED*	*SAMPLE RESULT*	*LCS RESULT*	*LCS % REC*	*#*	*QC LIMITS*
Perfluorotetradecanoic acid	ug/kg	2	0	1.79	89		70 - 130
Perfluorotridecanoic acid	ug/kg	2	0	1.77	89		70 - 130

GCAL QC ID: 1983600

ANALYTE	*UNITS*	*SPIKE ADDED*	*LCSD RESULT*	*LCSD % REC*	*#*	*% RPD*	*#*	*QC LIMITS REC*	*QC LIMITS RPD*
Perfluorotetradecanoic acid	ug/kg	2	1.77	89		.7		70 - 130	0 - 30
Perfluorotridecanoic acid	ug/kg	2	1.87	93		5		70 - 130	0 - 30

RPD : 0 out of 2 outside limits

Spike Recovery: 0 out of 4 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:	219102326	Parent Sample ID:	AOI6-3-SB-1.5-2-102219 (RE)
Prep Method:	EPA 537 Mod Prep	Prep Batch:	671638
Analytical Method:	EPA 537 Modified	Analytical Batch:	672385

GCAL QC ID: 21910232636

ANALYTE	UNITS	SPIKE ADDED	SAMPLE RESULT	MS RESULT	MS % REC	#	QC LIMITS
Perfluorotetradecanoic acid	ug/kg	2.35	.031	2.13	89		70 - 130
Perfluorotridecanoic acid	ug/kg	2.35	0	2.39	102		70 - 130

GCAL QC ID: 21910232637

ANALYTE	UNITS	SPIKE ADDED	MSD RESULT	MSD % REC	#	% RPD	#	QC LIMITS REC	QC LIMITS RPD
Perfluorotetradecanoic acid	ug/kg	2.35	2.2	92		3		70 - 130	0 - 30
Perfluorotridecanoic acid	ug/kg	2.35	2.48	105		4		70 - 130	0 - 30

RPD : 0 out of 2 outside limits

Spike Recovery: 0 out of 4 outside limits

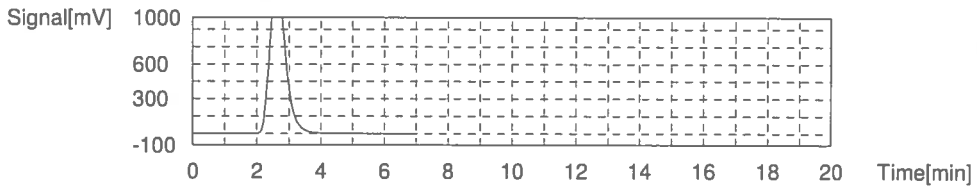
Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

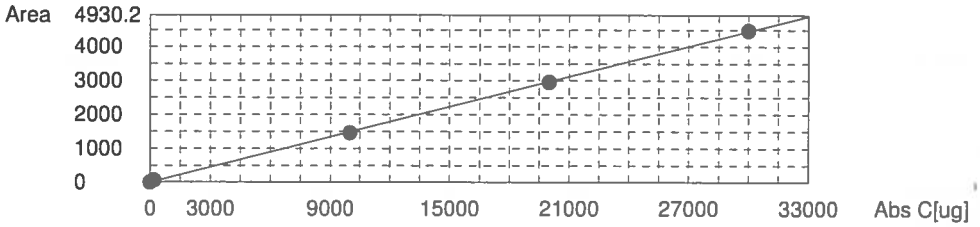
FORM III SV-2

No.	Area	CNV	Abs C	Weight	Rem.	Ex.	Date / Time
1	4482	4482	30000ug	1000mg	*H*****		5/8/2019 1:00:25 PM

Mean Area 4482
Mean CNV 4482



Slope 0.1487
Intercept -0.4483
r^2 0.9998
r 0.9999
Zero Shift No



XIV

ANALYSIS RUN LOG

Report No:	219102326	Analytical Batch:	670208	Start Date:	10/28/19
Instrument ID:	TOC6	Analytical Method:	EPA 9060A	End Date:	10/29/19

CLIENT SAMPLE ID	GCAL SAMPLE ID	DILUTION	TIME	ANALYTES TOC
CCV	1800	1	1124	X
MB1976195	1976195	1	1133	X
LCS1976196	1976196	1	1144	X
CCV	1800	1	1553	X
CCB	1900	1	1604	X
AOI6-1-SB-1.5-2-102219	21910232602	1	1018	X
AOI6-1-SB-1.5-2-102219-MS	21910232603	1	1030	X
AOI6-1-SB-1.5-2-102219-MSD	21910232604	1	1043	X
AOI6-1-SB-7-7.5-102219	21910232605	1	1054	X
AOI6-1-SB-18.5-19-102219	21910232606	1	1117	X
AOI6-3-SB-1.5-2-102219	21910232608	1	1141	X
AOI6-3-SB-1.5-2-102219-MS	21910232609	1	1155	X
AOI6-3-SB-1.5-2-102219-MSD	21910232610	1	1209	X
CCV	1800	1	1218	X
CCB	1900	1	1226	X

II

CONTINUING CALIBRATION VERIFICATION

Report No:	219102326	Instrument ID:	TOC6
Analysis Date:	10/28/19 1124	Lab File ID:	8052
Analytical Method:	EPA 9060A	Analytical Batch:	670208

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
Total Organic Carbon	mg/kg	10000	9840	98	90	110	

III

METHOD BLANK

Report No:	219102326	Blank ID:	MB1976195
Matrix:	Solid	Instrument ID:	TOC6
Analysis Date:	10/28/19 1133	Lab File ID:	8052
Analytical Method:	EPA 9060A	Analytical Batch:	670208

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

VII

LABORATORY CONTROL SPIKE

Report No:	219102326	GCAL ID:	LCS1976196
Matrix:	Solid	Instrument ID:	TOC6
Analyst:	PLH	Lab File ID:	8052
Prep Date:	NA	Analysis Date:	10/28/19 1144
Prep Batch:	NA	Analytical Batch:	670208
Prep Method:	NA	Analytical Method:	EPA 9060A

ANALYTE	UNITS	TRUE	FOUND	%REC	Q	% REC LIMITS
Total Organic Carbon	mg/kg	2000	2030	102		69 - 128

FORM VII - GENCHEM

II

CONTINUING CALIBRATION VERIFICATION

Report No:	219102326	Instrument ID:	TOC6
Analysis Date:	10/28/19 1553	Lab File ID:	8052
Analytical Method:	EPA 9060A	Analytical Batch:	670208

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
Total Organic Carbon	mg/kg	10000	9780	98	90	110	

III

CONTINUING CALIBRATION BLANK

Report No:	219102326	Blank ID:	CCB for HBN 670208
Matrix:	Solid	Instrument ID:	TOC6
Analysis Date:	10/28/19 1604	Lab File ID:	8052
Analytical Method:	EPA 9060A	Analytical Batch:	670208

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

II

CONTINUING CALIBRATION VERIFICATION

Report No:	219102326	Instrument ID:	TOC6
Analysis Date:	10/29/19 1218	Lab File ID:	8052
Analytical Method:	EPA 9060A	Analytical Batch:	670208

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
Total Organic Carbon	mg/kg	10000	9970	100	90	110	

III

CONTINUING CALIBRATION BLANK

Report No:	219102326	Blank ID:	CCB for HBN 670208
Matrix:	Solid	Instrument ID:	TOC6
Analysis Date:	10/29/19 1226	Lab File ID:	8052
Analytical Method:	EPA 9060A	Analytical Batch:	670208

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

FORM III - GENCHEM

XIV

ANALYSIS RUN LOG

Report No:	219102326	Analytical Batch:	670305	Start Date:	10/29/19
Instrument ID:	TOC6	Analytical Method:	EPA 9060A	End Date:	10/30/19

CLIENT SAMPLE ID	GCAL SAMPLE ID	DILUTION	TIME	ANALYTES TOC
CCV	1800	1	1242	X
MB1976619	1976619	1	1252	X
LCS1976620	1976620	1	1317	X
AOI6-2-SB-1.5-2-102219	21910232611	1	1327	X
AOI6-2-SB-1.5-2-102219-MSD	21910232613	1	1433	X
AOI6-4-SB-1.5-2-102219	21910232614	1	1446	X
AOI6-4-SB-1.5-2-102219-MS	21910232615	1	1500	X
AOI6-4-SB-1.5-2-102219-MSD	21910232616	1	1513	X
AOI5-1-SB-1.5-2-102219	21910232617	1	1532	X
AOI5-1-SB-1.5-2...DUP	1976621	1	1545	X
AOI5-1-SB-1.5-2...DUP	1976623	1	1620	X
CCV	1800	1	1629	X
CCB	1900	1	1640	X
AOI5-1-SB-1.5-2-102219-D	21910232618	1	1654	X
AOI5-1-SB-8-8.5-102219	21910232619	1	1705	X
AOI5-1-SB-19-19.5-102219	21910232620	1	1721	X
AOI1-3-SB-4.5-5-102219	21910232622	1	1733	X
AOI1-3-SB-9.5-10-102219	21910232623	1	1743	X
CCV	1800	1	1758	X
CCB	1900	1	1806	X
AOI1-3-SB-16-16.5-102219	21910232624	1	0903	X
AOI1-1-SB-4.5-5-102219	21910232625	1	0912	X
AOI1-1-SB-10-10.5-102219	21910232627	1	0924	X
AOI6-2-SB-1.5-2-102219-MS	21910232612	1	0952	X
CCV	1800	1	1025	X
CCB	1900	1	1040	X

II

CONTINUING CALIBRATION VERIFICATION

Report No:	219102326	Instrument ID:	TOC6
Analysis Date:	10/29/19 1242	Lab File ID:	8055
Analytical Method:	EPA 9060A	Analytical Batch:	670305

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
Total Organic Carbon	mg/kg	10000	9830	98	90	110	

FORM II - GENCHEM

V

MS/MSD RECOVERY

Report No:	219102326	Parent Sample ID:	AOI6-1-SB-1.5-2-102219
Prep Date:	NA	Parent GCAL ID:	21910232602
Prep Batch:	NA	Analytical Batch:	670208
Prep Method:	NA	Analytical Method:	EPA 9060A

GCAL QC ID:	**21910232603 MS**	Instrument ID:	TOC6
Analyst:	PLH	Lab File ID:	8052
Analysis Date:	10/29/19 1030	Dilution:	1

ANALYTE	UNITS	SPIKE ADDED	SAMPLE RESULT	MS RESULT	MS % REC	#	QC LIMITS
Total Organic Carbon	mg/kg	25000	2530	20900	95		69 - 128

GCAL QC ID:	**21910232604 MSD**	Instrument ID:	TOC6
Analyst:	PLH	Lab File ID:	8052
Analysis Date:	10/29/19 1043	Dilution:	1

ANALYTE	UNITS	SPIKE ADDED	MSD RESULT	MSD % REC	#	% RPD	#	%REC LIMITS	RPD LIMITS
Total Organic Carbon	mg/kg	25000	22300	101		6		69 - 128	0 - 20

FORM V - GENCHEM

V

MS/MSD RECOVERY

Report No:	219102326	Parent Sample ID:	AOI6-3-SB-1.5-2-102219
Prep Date:	NA	Parent GCAL ID:	21910232608
Prep Batch:	NA	Analytical Batch:	670208
Prep Method:	NA	Analytical Method:	EPA 9060A

GCAL QC ID:	**21910232609 MS**	Instrument ID:	TOC6
Analyst:	PLH	Lab File ID:	8052
Analysis Date:	10/29/19 1155	Dilution:	1

ANALYTE	UNITS	SPIKE ADDED	SAMPLE RESULT	MS RESULT	MS % REC	#	QC LIMITS
Total Organic Carbon	mg/kg	23500	2060	21500	99		69 - 128

GCAL QC ID:	**21910232610 MSD**	Instrument ID:	TOC6
Analyst:	PLH	Lab File ID:	8052
Analysis Date:	10/29/19 1209	Dilution:	1

ANALYTE	UNITS	SPIKE ADDED	MSD RESULT	MSD % REC	#	% RPD	#	%REC LIMITS	RPD LIMITS
Total Organic Carbon	mg/kg	23500	22100	102		3		69 - 128	0 - 20

FORM V - GENCHEM

V

MS/MSD RECOVERY

Report No:	219102326	Parent Sample ID:	AOI6-2-SB-1.5-2-102219
Prep Date:	NA	Parent GCAL ID:	21910232611
Prep Batch:	NA	Analytical Batch:	670305
Prep Method:	NA	Analytical Method:	EPA 9060A

GCAL QC ID:	**21910232612 MS**	Instrument ID:	TOC6
Analyst:	PLH	Lab File ID:	8055
Analysis Date:	10/30/19 0952	Dilution:	1

ANALYTE	*UNITS*	*SPIKE ADDED*	*SAMPLE RESULT*	*MS RESULT*	*MS % REC*	*#*	*QC LIMITS*
Total Organic Carbon	mg/kg	22300	3840	21500	90		69 - 128

GCAL QC ID:	**21910232613 MSD**	Instrument ID:	TOC6
Analyst:	PLH	Lab File ID:	8055
Analysis Date:	10/29/19 1433	Dilution:	1

ANALYTE	*UNITS*	*SPIKE ADDED*	*MSD RESULT*	*MSD % REC*	*#*	*% RPD*	*#*	*%REC LIMITS*	*RPD LIMITS*
Total Organic Carbon	mg/kg	22300	23900	102		10		69 - 128	0 - 20

FORM V - GENCHEM

III

METHOD BLANK

Report No:	219102326	Blank ID:	MB1976619
Matrix:	Solid	Instrument ID:	TOC6
Analysis Date:	10/29/19 1252	Lab File ID:	8055
Analytical Method:	EPA 9060A	Analytical Batch:	670305

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

VII

LABORATORY CONTROL SPIKE

Report No:	219102326	GCAL ID:	LCS1976620
Matrix:	Solid	Instrument ID:	TOC6
Analyst:	PLH	Lab File ID:	8055
Prep Date:	NA	Analysis Date:	10/29/19 1317
Prep Batch:	NA	Analytical Batch:	670305
Prep Method:	NA	Analytical Method:	EPA 9060A

ANALYTE	UNITS	TRUE	FOUND	%REC	Q	% REC LIMITS
Total Organic Carbon	mg/kg	2000	2000	100		69 - 128

FORM VII - GENCHEM

V

MS/MSD RECOVERY

Report No:	219102326	Parent Sample ID:	AOI6-4-SB-1.5-2-102219
Prep Date:	NA	Parent GCAL ID:	21910232614
Prep Batch:	NA	Analytical Batch:	670305
Prep Method:	NA	Analytical Method:	EPA 9060A

GCAL QC ID:	21910232615 MS	Instrument ID:	TOC6
Analyst:	PLH	Lab File ID:	8055
Analysis Date:	10/29/19 1500	Dilution:	1

ANALYTE	UNITS	SPIKE ADDED	SAMPLE RESULT	MS RESULT	MS % REC	#	QC LIMITS
Total Organic Carbon	mg/kg	23800	3450	23500	103		69 - 128

GCAL QC ID:	21910232616 MSD	Instrument ID:	TOC6
Analyst:	PLH	Lab File ID:	8055
Analysis Date:	10/29/19 1513	Dilution:	1

ANALYTE	UNITS	SPIKE ADDED	MSD RESULT	MSD % REC	#	% RPD	#	%REC LIMITS	RPD LIMITS
Total Organic Carbon	mg/kg	23800	22600	99		4		69 - 128	0 - 20

FORM V - GENCHEM

VI

DUPLICATES

Report No:	219102326	Parent Sample ID:	AOI5-1-SB-1.5-2-102219
Prep Method:	NA	Parent GCAL ID:	21910232617
Prep Date:	NA	Prep Batch:	NA
Analytical Method:	EPA 9060A	Analytical Batch:	670305

GCAL QC ID:	**1976621 DUP**	Instrument ID:	TOC6
Analyst:	PLH	Lab File ID:	NA
Analysis Date:	10/29/19 1545	Dilution:	1

ANALYTE	***UNITS***	***SAMPLE RESULT***	***Q***	***DUP RESULT***	***Q***	***RPD***	***#***	***RPD LIMITS***
Total Organic Carbon	mg/kg	3220		3740		15		0 - 25

FORM VI - GENCHEM

VI
DUPLICATES

Report No:	219102326	Parent Sample ID:	AOI5-1-SB-1.5-2-102219
Prep Method:	NA	Parent GCAL ID:	21910232617
Prep Date:	NA	Prep Batch:	NA
Analytical Method:	EPA 9060A	Analytical Batch:	670305

GCAL QC ID:	1976623 DUP	Instrument ID:	TOC6
Analyst:	PLH	Lab File ID:	NA
Analysis Date:	10/29/19 1620	Dilution:	1

ANALYTE	UNITS	SAMPLE RESULT	Q	DUP RESULT	Q	RPD	#	RPD LIMITS
Total Organic Carbon	mg/kg	3220		2790		14		0 - 25

FORM VI - GENCHEM

II

CONTINUING CALIBRATION VERIFICATION

Report No:	219102326	Instrument ID:	TOC6
Analysis Date:	10/29/19 1629	Lab File ID:	8055
Analytical Method:	EPA 9060A	Analytical Batch:	670305

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
Total Organic Carbon	mg/kg	10000	9830	98	90	110	

III

CONTINUING CALIBRATION BLANK

Report No:	219102326	Blank ID:	CCB for HBN 670305
Matrix:	Solid	Instrument ID:	TOC6
Analysis Date:	10/29/19 1640	Lab File ID:	8055
Analytical Method:	EPA 9060A	Analytical Batch:	670305

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

II

CONTINUING CALIBRATION VERIFICATION

Report No:	219102326	Instrument ID:	TOC6
Analysis Date:	10/29/19 1758	Lab File ID:	8055
Analytical Method:	EPA 9060A	Analytical Batch:	670305

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
Total Organic Carbon	mg/kg	10000	9740	97	90	110	

III

CONTINUING CALIBRATION BLANK

Report No:	219102326	Blank ID:	CCB for HBN 670305
Matrix:	Solid	Instrument ID:	TOC6
Analysis Date:	10/29/19 1806	Lab File ID:	8055
Analytical Method:	EPA 9060A	Analytical Batch:	670305

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

II

CONTINUING CALIBRATION VERIFICATION

Report No:	219102326	Instrument ID:	TOC6
Analysis Date:	10/30/19 1025	Lab File ID:	8055
Analytical Method:	EPA 9060A	Analytical Batch:	670305

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
Total Organic Carbon	mg/kg	10000	9930	99	90	110	

FORM II - GENCHEM

III

CONTINUING CALIBRATION BLANK

Report No:	219102326	Blank ID:	CCB for HBN 670305
Matrix:	Solid	Instrument ID:	TOC6
Analysis Date:	10/30/19 1040	Lab File ID:	8055
Analytical Method:	EPA 9060A	Analytical Batch:	670305

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

XIV

ANALYSIS RUN LOG

Report No: 219102333 Analytical Batch: 670520 Start Date: 11/01/19

Instrument ID: TOC6 Analytical Method: EPA 9060A End Date: 11/01/19

CLIENT SAMPLE ID	GCAL SAMPLE ID	DILUTION	TIME	ANALYTES TOC
CCV	1800	1	0913	X
MB1977677	1977677	1	0923	X
LCS1977678	1977678	1	0944	X
AOI7-10-SB-1.5-2-102119	21910233301	1	1005	X
AOI7-10-SB-1.5-...DUP	1977679	1	1017	X
AOI7-10-SB-1.5-...DUP	1977681	1	1041	X
AOI7-10-SB-7.5-8-102119	21910233302	1	1056	X
AOI7-5-SB-1.5-2-102119	21910233303	1	1106	X
AOI7-10-SB-17-17.5-102119	21910233304	1	1119	X
AOI7-6-SB-1.5-2-102119	21910233306	1	1129	X
AOI7-7-SB-1.5-2-102119	21910233307	1	1141	X
CCV	1800	1	1151	X
CCB	1900	1	1200	X
AOI7-11-SB-1.5-2-102119	21910233309	1	1216	X
AOI7-11-SB-7.5-8-102119	21910233310	1	1239	X
AOI7-8-SB-1.5-2-102119	21910233311	1	1419	X
AOI7-11-SB-18-18.5-102119	21910233312	1	1427	X
AOI7-9-SB-1.5-2-102119	21910233313	1	1437	X
AOI7-9-SB-7.5-8-102119	21910233315	1	1445	X
AOI7-1-SB-1.5-2-102119	21910233317	1	1456	X
AOI7-9-SB-17-17.5-102119	21910233318	1	1510	X
AOI7-2-SB-1.5-2-102119	21910233319	1	1524	X
AOI7-3-SB-1.5-2-102119	21910233320	1	1536	X
CCV	1800	1	1548	X
CCB	1900	1	1557	X
AOI7-4-1.5-2-102119	21910233322	1	1607	X
CCV	1800	1	1636	X
CCB	1900	1	1646	X

FORM XIV - GENCHEM

XIV
ANALYSIS RUN LOG

Report No:	219102326	Analytical Batch:	670520	Start Date:	11/01/19
Instrument ID:	TOC6	Analytical Method:	EPA 9060A	End Date:	11/01/19

	GCAL			ANALYTES
CLIENT SAMPLE ID	***SAMPLE ID***	***DILUTION***	***TIME***	TOC
CCV	1800	1	0913	X
MB1977677	1977677	1	0923	X
LCS1977678	1977678	1	0944	X
AOI1-1-SB-17-17.5-102219	21910232628	1	0954	X
CCV	1800	1	1151	X
CCB	1900	1	1200	X

XIV
ANALYSIS RUN LOG

Report No: 219102541 Analytical Batch: 670520 Start Date: 11/01/19
Instrument ID: TOC6 Analytical Method: EPA 9060A End Date: 11/01/19

CLIENT SAMPLE ID	GCAL SAMPLE ID	DILUTION	TIME	ANALYTES TOC
CCV	1800	1	0913	X
MB1977677	1977677	1	0923	X
LCS1977678	1977678	1	0944	X
CCV	1800	1	1151	X
CCB	1900	1	1200	X
CCV	1800	1	1548	X
CCB	1900	1	1557	X
AOI1-5-SB-4.5-5-102319	21910254101	1	1617	X
AOI1-5-SB-4.5-5-102319-D	21910254102	1	1628	X
CCV	1800	1	1636	X
CCB	1900	1	1646	X

II

CONTINUING CALIBRATION VERIFICATION

Report No:	219102326	Instrument ID:	TOC6
Analysis Date:	11/01/19 0913	Lab File ID:	8061
Analytical Method:	EPA 9060A	Analytical Batch:	670520

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
Total Organic Carbon	mg/kg	10000	10100	101	90	110	

III

METHOD BLANK

Report No:	219102326	Blank ID:	MB1977677
Matrix:	Solid	Instrument ID:	TOC6
Analysis Date:	11/01/19 0923	Lab File ID:	8061
Analytical Method:	EPA 9060A	Analytical Batch:	670520

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

VII

LABORATORY CONTROL SPIKE

Report No:	219102326	GCAL ID:	LCS1977678
Matrix:	Solid	Instrument ID:	TOC6
Analyst:	PLH	Lab File ID:	8061
Prep Date:	NA	Analysis Date:	11/01/19 0944
Prep Batch:	NA	Analytical Batch:	670520
Prep Method:	NA	Analytical Method:	EPA 9060A

ANALYTE	UNITS	TRUE	FOUND	%REC	Q	% REC LIMITS
Total Organic Carbon	mg/kg	2000	2100	105		69 - 128

FORM VII - GENCHEM

VI
DUPLICATES

Report No:	219102333	Parent Sample ID:	AOI7-10-SB-1.5-2-102119
Prep Method:	NA	Parent GCAL ID:	21910233301
Prep Date:	NA	Prep Batch:	NA
Analytical Method:	EPA 9060A	Analytical Batch:	670520

GCAL QC ID:	**1977679 DUP**	Instrument ID:	TOC6
Analyst:	PLH	Lab File ID:	NA
Analysis Date:	11/01/19 1017	Dilution:	1

ANALYTE	*UNITS*	*SAMPLE RESULT*	*Q*	*DUP RESULT*	*Q*	*RPD*	*#*	*RPD LIMITS*
Total Organic Carbon	mg/kg	3210		3380		5		0 - 25

FORM VI - GENCHEM

VI
DUPLICATES

Report No:	219102333	Parent Sample ID:	AOI7-10-SB-1.5-2-102119
Prep Method:	NA	Parent GCAL ID:	21910233301
Prep Date:	NA	Prep Batch:	NA
Analytical Method:	EPA 9060A	Analytical Batch:	670520

GCAL QC ID:	**1977681 DUP**	Instrument ID:	TOC6
Analyst:	PLH	Lab File ID:	NA
Analysis Date:	11/01/19 1041	Dilution:	1

ANALYTE	*UNITS*	*SAMPLE RESULT*	*Q*	*DUP RESULT*	*Q*	*RPD*	*#*	*RPD LIMITS*
Total Organic Carbon	mg/kg	3210		3300		3		0 - 25

FORM VI - GENCHEM

II

CONTINUING CALIBRATION VERIFICATION

Report No:	219102326	Instrument ID:	TOC6
Analysis Date:	11/01/19 1151	Lab File ID:	8061
Analytical Method:	EPA 9060A	Analytical Batch:	670520

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
Total Organic Carbon	mg/kg	10000	9550	95	90	110	

III

CONTINUING CALIBRATION BLANK

Report No:	219102326	Blank ID:	CCB for HBN 670520
Matrix:	Solid	Instrument ID:	TOC6
Analysis Date:	11/01/19 1200	Lab File ID:	8061
Analytical Method:	EPA 9060A	Analytical Batch:	670520

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

FORM III - GENCHEM

II

CONTINUING CALIBRATION VERIFICATION

Report No:	219102333	Instrument ID:	TOC6
Analysis Date:	11/01/19 1548	Lab File ID:	8061
Analytical Method:	EPA 9060A	Analytical Batch:	670520

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
Total Organic Carbon	mg/kg	10000	9440	94	90	110	

FORM II - GENCHEM

III

CONTINUING CALIBRATION BLANK

Report No:	219102333	Blank ID:	CCB for HBN 670520
Matrix:	Solid	Instrument ID:	TOC6
Analysis Date:	11/01/19 1557	Lab File ID:	8061
Analytical Method:	EPA 9060A	Analytical Batch:	670520

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

II

CONTINUING CALIBRATION VERIFICATION

Report No:	219102333	Instrument ID:	TOC6
Analysis Date:	11/01/19 1636	Lab File ID:	8061
Analytical Method:	EPA 9060A	Analytical Batch:	670520

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
Total Organic Carbon	mg/kg	10000	9520	95	90	110	

III

CONTINUING CALIBRATION BLANK

Report No:	219102333	Blank ID:	CCB for HBN 670520
Matrix:	Solid	Instrument ID:	TOC6
Analysis Date:	11/01/19 1646	Lab File ID:	8061
Analytical Method:	EPA 9060A	Analytical Batch:	670520

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

FORM III - GENCHEM

XIV

ANALYSIS RUN LOG

Report No:	219102613	Analytical Batch:	670683	Start Date:	11/05/19
Instrument ID:	TOC6	Analytical Method:	EPA 9060A	End Date:	11/05/19

CLIENT SAMPLE ID	GCAL SAMPLE ID	DILUTION	TIME	ANALYTES TOC
CCV	1800	1	0934	X
MB1978478	1978478	1	0944	X
LCS1978479	1978479	1	0954	X
CCV	1800	1	1230	X
CCB	1900	1	1243	X
CCV	1800	1	1442	X
CCB	1900	1	1451	X
AOI3-8-SB-1.5-2-102419	21910261301	1	1534	X
AOI3-8-SB-1.5-2-102419-D	21910261302	1	1545	X
AOI3-8-SB-9-9.5-102419	21910261303	1	1556	X
AOI3-8-SB-13-13.5-102419	21910261304	1	1606	X
AOI3-11-SB-1.5-2-102419	21910261305	1	1616	X
CCV	1800	1	1631	X
CCB	1900	1	1639	X

FORM XIV - GENCHEM

II

CONTINUING CALIBRATION VERIFICATION

Report No:	219102541	Instrument ID:	TOC6
Analysis Date:	11/05/19 0934	Lab File ID:	8067
Analytical Method:	EPA 9060A	Analytical Batch:	670683

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
Total Organic Carbon	mg/kg	10000	10100	101	90	110	

FORM II - GENCHEM

III

METHOD BLANK

Report No:	219102541	Blank ID:	MB1978478
Matrix:	Solid	Instrument ID:	TOC6
Analysis Date:	11/05/19 0944	Lab File ID:	8067
Analytical Method:	EPA 9060A	Analytical Batch:	670683

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

VII

LABORATORY CONTROL SPIKE

Report No:	219102541	GCAL ID:	LCS1978479
Matrix:	Solid	Instrument ID:	TOC6
Analyst:	PLH	Lab File ID:	8067
Prep Date:	NA	Analysis Date:	11/05/19 0954
Prep Batch:	NA	Analytical Batch:	670683
Prep Method:	NA	Analytical Method:	EPA 9060A

ANALYTE	UNITS	TRUE	FOUND	%REC	Q	% REC LIMITS
Total Organic Carbon	mg/kg	2000	2160	108		69 - 128

FORM VII - GENCHEM

II

CONTINUING CALIBRATION VERIFICATION

Report No:	219102541	Instrument ID:	TOC6
Analysis Date:	11/05/19 1230	Lab File ID:	8067
Analytical Method:	EPA 9060A	Analytical Batch:	670683

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
Total Organic Carbon	mg/kg	10000	9950	99	90	110	

FORM II - GENCHEM

III

CONTINUING CALIBRATION BLANK

Report No:	219102541	Blank ID:	CCB for HBN 670683
Matrix:	Solid	Instrument ID:	TOC6
Analysis Date:	11/05/19 1243	Lab File ID:	8067
Analytical Method:	EPA 9060A	Analytical Batch:	670683

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

VI
DUPLICATES

Report No:	219102541	Parent Sample ID:	AOI1-2-SB-9.5-10-102319
Prep Method:	NA	Parent GCAL ID:	21910254119
Prep Date:	NA	Prep Batch:	NA
Analytical Method:	EPA 9060A	Analytical Batch:	670683

GCAL QC ID:	**1978480 DUP**	Instrument ID:	TOC6
Analyst:	PLH	Lab File ID:	NA
Analysis Date:	11/05/19 1326	Dilution:	1

ANALYTE	*UNITS*	*SAMPLE RESULT*	*Q*	*DUP RESULT*	*Q*	*RPD*	*#*	*RPD LIMITS*
Total Organic Carbon	mg/kg	547		631		14		0 - 25

FORM VI - GENCHEM

VI
DUPLICATES

Report No:	219102541	Parent Sample ID:	AOI1-2-SB-9.5-10-102319
Prep Method:	NA	Parent GCAL ID:	21910254119
Prep Date:	NA	Prep Batch:	NA
Analytical Method:	EPA 9060A	Analytical Batch:	670683

GCAL QC ID:	**1978482 DUP**	Instrument ID:	TOC6
Analyst:	PLH	Lab File ID:	NA
Analysis Date:	11/05/19 1349	Dilution:	1

ANALYTE	*UNITS*	*SAMPLE RESULT*	*Q*	*DUP RESULT*	*Q*	*RPD*	*#*	*RPD LIMITS*
Total Organic Carbon	mg/kg	547		526		4		0 - 25

FORM VI - GENCHEM

II

CONTINUING CALIBRATION VERIFICATION

Report No:	219102541	Instrument ID:	TOC6
Analysis Date:	11/05/19 1442	Lab File ID:	8067
Analytical Method:	EPA 9060A	Analytical Batch:	670683

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
Total Organic Carbon	mg/kg	10000	9910	99	90	110	

FORM II - GENCHEM

III

CONTINUING CALIBRATION BLANK

Report No:	219102541	Blank ID:	CCB for HBN 670683
Matrix:	Solid	Instrument ID:	TOC6
Analysis Date:	11/05/19 1451	Lab File ID:	8067
Analytical Method:	EPA 9060A	Analytical Batch:	670683

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

II

CONTINUING CALIBRATION VERIFICATION

Report No:	219102541	Instrument ID:	TOC6
Analysis Date:	11/05/19 1631	Lab File ID:	8067
Analytical Method:	EPA 9060A	Analytical Batch:	670683

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
Total Organic Carbon	mg/kg	10000	9790	98	90	110	

III

CONTINUING CALIBRATION BLANK

Report No:	219102613	Blank ID:	CCB for HBN 670683
Matrix:	Solid	Instrument ID:	TOC6
Analysis Date:	11/05/19 1639	Lab File ID:	8067
Analytical Method:	EPA 9060A	Analytical Batch:	670683

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

XIV
ANALYSIS RUN LOG

Report No: 219102613 Analytical Batch: 670742 Start Date: 11/06/19
Instrument ID: TOC6 Analytical Method: EPA 9060A End Date: 11/06/19

CLIENT SAMPLE ID	GCAL SAMPLE ID	DILUTION	TIME	ANALYTES TOC
CCV	1800	1	0954	X
MB1978935	1978935	1	1003	X
LCS1978936	1978936	1	1012	X
AOI3-11-SB-8.5-9-102419	21910261306	1	1022	X
AOI3-11-SB-8.5-...DUP	1978937	1	1033	X
AOI3-11-SB-8.5-...DUP	1978939	1	1054	X
AOI3-11-SB-11-11.5-102419	21910261307	1	1106	X
AOI3-12-SB-1.5-2-102419	21910261308	1	1121	X
AOI3-12-SB-7-7.5-102419	21910261309	1	1135	X
AOI3-12-SB-19-19.5-102419	21910261310	1	1158	X
AOI3-9-SB-1.5-2-102419	21910261312	1	1208	X
AOI3-9-SB-8.5-9-102419	21910261314	1	1231	X
CCV	1800	1	1242	X
CCB	1900	1	1255	X
AOI3-9-SB-14-14.5-102419	21910261315	1	1313	X
AOI3-10-SB-1.5-2-102419	21910261317	1	1326	X
AOI3-10-SB-10.5-11-102419	21910261318	1	1337	X
CCV	1800	1	1609	X
CCB	1900	1	1620	X

XIV
ANALYSIS RUN LOG

Report No:	219102717	Analytical Batch:	670742	Start Date:	11/06/19
Instrument ID:	TOC6	Analytical Method:	EPA 9060A	End Date:	11/06/19

CLIENT SAMPLE ID	GCAL SAMPLE ID	DILUTION	TIME	ANALYTES TOC
CCV	1800	1	0954	X
MB1978935	1978935	1	1003	X
LCS1978936	1978936	1	1012	X
CCV	1800	1	1242	X
CCB	1900	1	1255	X
AOI3-1-SB-1.5-2-102519	21910271701	1	1350	X
AOI3-2-SB-1.5-2-102519	21910271702	1	1500	X
AOI3-2-SB-1.5-2-102519-D	21910271703	1	1512	X
AOI3-5-SB-1.5-2-102519	21910271705	1	1523	X
AOI3-3-SB-1.5-2-102519	21910271706	1	1536	X
AOI3-6-SB-1.5-2-102519	21910271707	1	1548	X
AOI3-4-SB-1.5-2-102519	21910271708	1	1559	X
CCV	1800	1	1609	X
CCB	1900	1	1620	X

II

CONTINUING CALIBRATION VERIFICATION

Report No:	219102613	Instrument ID:	TOC6
Analysis Date:	11/06/19 0954	Lab File ID:	8069
Analytical Method:	EPA 9060A	Analytical Batch:	670742

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
Total Organic Carbon	mg/kg	10000	10100	101	90	110	

III

METHOD BLANK

Report No:	219102613	Blank ID:	MB1978935
Matrix:	Solid	Instrument ID:	TOC6
Analysis Date:	11/06/19 1003	Lab File ID:	8069
Analytical Method:	EPA 9060A	Analytical Batch:	670742

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

VII

LABORATORY CONTROL SPIKE

Report No:	219102613	GCAL ID:	LCS1978936
Matrix:	Solid	Instrument ID:	TOC6
Analyst:	PLH	Lab File ID:	8069
Prep Date:	NA	Analysis Date:	11/06/19 1012
Prep Batch:	NA	Analytical Batch:	670742
Prep Method:	NA	Analytical Method:	EPA 9060A

ANALYTE	UNITS	TRUE	FOUND	%REC	Q	% REC LIMITS
Total Organic Carbon	mg/kg	2000	2120	106		69 - 128

FORM VII - GENCHEM

VI
DUPLICATES

Report No:	219102613	Parent Sample ID:	AOI3-11-SB-8.5-9-102419
Prep Method:	NA	Parent GCAL ID:	21910261306
Prep Date:	NA	Prep Batch:	NA
Analytical Method:	EPA 9060A	Analytical Batch:	670742

GCAL QC ID:	**1978937 DUP**	Instrument ID:	TOC6
Analyst:	PLH	Lab File ID:	NA
Analysis Date:	11/06/19 1033	Dilution:	1

ANALYTE	*UNITS*	*SAMPLE RESULT*	*Q*	*DUP RESULT*	*Q*	*RPD*	*#*	*RPD LIMITS*
Total Organic Carbon	mg/kg	968		1070		10		0 - 25

FORM VI - GENCHEM

VI
DUPLICATES

Report No:	219102613	Parent Sample ID:	AOI3-11-SB-8.5-9-102419
Prep Method:	NA	Parent GCAL ID:	21910261306
Prep Date:	NA	Prep Batch:	NA
Analytical Method:	EPA 9060A	Analytical Batch:	670742

GCAL QC ID:	**1978939 DUP**	Instrument ID:	TOC6
Analyst:	PLH	Lab File ID:	NA
Analysis Date:	11/06/19 1054	Dilution:	1

ANALYTE	*UNITS*	*SAMPLE RESULT*	*Q*	*DUP RESULT*	*Q*	*RPD*	*#*	*RPD LIMITS*
Total Organic Carbon	mg/kg	968		1010		4		0 - 25

FORM VI - GENCHEM

II

CONTINUING CALIBRATION VERIFICATION

Report No:	219102613	Instrument ID:	TOC6
Analysis Date:	11/06/19 1242	Lab File ID:	8069
Analytical Method:	EPA 9060A	Analytical Batch:	670742

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
Total Organic Carbon	mg/kg	10000	10300	103	90	110	

FORM II - GENCHEM

III

CONTINUING CALIBRATION BLANK

Report No:	219102613	Blank ID:	CCB for HBN 670742
Matrix:	Solid	Instrument ID:	TOC6
Analysis Date:	11/06/19 1255	Lab File ID:	8069
Analytical Method:	EPA 9060A	Analytical Batch:	670742

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

II

CONTINUING CALIBRATION VERIFICATION

Report No:	219102717	Instrument ID:	TOC6
Analysis Date:	11/06/19 1609	Lab File ID:	8069
Analytical Method:	EPA 9060A	Analytical Batch:	670742

ANALYTE	*UNITS*	*TRUE*	*FOUND*	*% REC*	*LCL*	*UCL*	*Q*
Total Organic Carbon	mg/kg	10000	10200	102	90	110	

FORM II - GENCHEM

III

CONTINUING CALIBRATION BLANK

Report No:	219102613	Blank ID:	CCB for HBN 670742
Matrix:	Solid	Instrument ID:	TOC6
Analysis Date:	11/06/19 1620	Lab File ID:	8069
Analytical Method:	EPA 9060A	Analytical Batch:	670742

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

XIV
ANALYSIS RUN LOG

Report No: 219102717 Analytical Batch: 670848 Start Date: 11/07/19

Instrument ID: TOC6 Analytical Method: EPA 9060A End Date: 11/08/19

CLIENT SAMPLE ID	GCAL SAMPLE ID	DILUTION	TIME	ANALYTES TOC
CCV	1800	1	1242	X
MB1979318	1979318	1	1250	X
LCS1979319	1979319	1	1314	X
AOI3-4-SB-1.5-2-102519-D	21910271709	1	1326	X
AOI4-1-SB-0-0.5-102519	21910271710	1	1337	X
AOI4-1-SB-5.5-6-102519	21910271711	1	1347	X
AOI4-1-SB-9.5-10-102519	21910271712	1	1358	X
AOI3-7-SB-1.5-2-102519	21910271714	1	1412	X
AOI3-7-SB-1.5-2-102519-D	21910271715	1	1425	X
AOI2-5-SB-4.5-5-102519	21910271716	1	1436	X
AOI2-5-SB-9.5-10-102519	21910271717	1	1445	X
AOI2-5-SB-13-13.5-102519	21910271718	1	1456	X
AOI2-4-SB-4.5-5-102519	21910271720	1	1509	X
CCV	1800	1	1530	X
CCB	1900	1	1554	X
AOI2-1-SB-4.5-5-102519	21910271721	1	1606	X
CCV	1800	1	1857	X
CCB	1900	1	1905	X

II

CONTINUING CALIBRATION VERIFICATION

Report No:	219102717	Instrument ID:	TOC6
Analysis Date:	11/07/19 1242	Lab File ID:	8072
Analytical Method:	EPA 9060A	Analytical Batch:	670848

ANALYTE	*UNITS*	*TRUE*	*FOUND*	*% REC*	*LCL*	*UCL*	*Q*
Total Organic Carbon	mg/kg	10000	9690	97	90	110	

FORM II - GENCHEM

III

METHOD BLANK

Report No:	219102717	Blank ID:	MB1979318
Matrix:	Solid	Instrument ID:	TOC6
Analysis Date:	11/07/19 1250	Lab File ID:	8072
Analytical Method:	EPA 9060A	Analytical Batch:	670848

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

VII

LABORATORY CONTROL SPIKE

Report No:	219102717	GCAL ID:	LCS1979319
Matrix:	Solid	Instrument ID:	TOC6
Analyst:	PLH	Lab File ID:	8072
Prep Date:	NA	Analysis Date:	11/07/19 1314
Prep Batch:	NA	Analytical Batch:	670848
Prep Method:	NA	Analytical Method:	EPA 9060A

ANALYTE	*UNITS*	*TRUE*	*FOUND*	*%REC*	*Q*	*% REC LIMITS*
Total Organic Carbon	mg/kg	2000	1920	96		69 - 128

FORM VII - GENCHEM

II

CONTINUING CALIBRATION VERIFICATION

Report No:	219102717	Instrument ID:	TOC6
Analysis Date:	11/07/19 1530	Lab File ID:	8072
Analytical Method:	EPA 9060A	Analytical Batch:	670848

ANALYTE	*UNITS*	*TRUE*	*FOUND*	*% REC*	*LCL*	*UCL*	*Q*
Total Organic Carbon	mg/kg	10000	9940	99	90	110	

FORM II - GENCHEM

III

CONTINUING CALIBRATION BLANK

Report No:	219102717	Blank ID:	CCB for HBN 670848
Matrix:	Solid	Instrument ID:	TOC6
Analysis Date:	11/07/19 1554	Lab File ID:	8072
Analytical Method:	EPA 9060A	Analytical Batch:	670848

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

FORM III - GENCHEM

II

CONTINUING CALIBRATION VERIFICATION

Report No:	219102717	Instrument ID:	TOC6
Analysis Date:	11/07/19 1857	Lab File ID:	8072
Analytical Method:	EPA 9060A	Analytical Batch:	670848

ANALYTE	*UNITS*	*TRUE*	*FOUND*	*% REC*	*LCL*	*UCL*	*Q*
Total Organic Carbon	mg/kg	10000	9830	98	90	110	

III

CONTINUING CALIBRATION BLANK

Report No:	219102717	Blank ID:	CCB for HBN 670848
Matrix:	Solid	Instrument ID:	TOC6
Analysis Date:	11/07/19 1905	Lab File ID:	8072
Analytical Method:	EPA 9060A	Analytical Batch:	670848

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

FORM III - GENCHEM

XIV
ANALYSIS RUN LOG

Report No:	219103085	Analytical Batch:	671278	Start Date:	11/13/19
Instrument ID:	TOC6	Analytical Method:	EPA 9060A	End Date:	11/13/19

CLIENT SAMPLE ID	GCAL SAMPLE ID	DILUTION	TIME	ANALYTES TOC
CCV	1800	1	0729	X
MB1981701	1981701	1	0744	X
LCS1981702	1981702	1	0753	X
CCV	1800	1	1031	X
CCB	1900	1	1040	X
AOI 8-2-SB-0-0.5-102919	21910308513	1	1234	X
AOI 8-1-SB-0-0.5-102919	21910308514	1	1249	X
CCV	1800	1	1312	X
CCB	1900	1	1320	X

II

CONTINUING CALIBRATION VERIFICATION

Report No:	219103085	Instrument ID:	TOC6
Analysis Date:	11/13/19 0729	Lab File ID:	8082
Analytical Method:	EPA 9060A	Analytical Batch:	671278

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
Total Organic Carbon	mg/kg	10000	10100	101	90	110	

III

METHOD BLANK

Report No:	219103085	Blank ID:	MB1981701
Matrix:	Solid	Instrument ID:	TOC6
Analysis Date:	11/13/19 0744	Lab File ID:	8082
Analytical Method:	EPA 9060A	Analytical Batch:	671278

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

VII

LABORATORY CONTROL SPIKE

Report No:	219103085	GCAL ID:	LCS1981702
Matrix:	Solid	Instrument ID:	TOC6
Analyst:	PLH	Lab File ID:	8082
Prep Date:	NA	Analysis Date:	11/13/19 0753
Prep Batch:	NA	Analytical Batch:	671278
Prep Method:	NA	Analytical Method:	EPA 9060A

ANALYTE	UNITS	TRUE	FOUND	%REC	Q	% REC LIMITS
Total Organic Carbon	mg/kg	2000	2070	104		69 - 128

FORM VII - GENCHEM

II

CONTINUING CALIBRATION VERIFICATION

Report No:	219103085	Instrument ID:	TOC6
Analysis Date:	11/13/19 1031	Lab File ID:	8082
Analytical Method:	EPA 9060A	Analytical Batch:	671278

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
Total Organic Carbon	mg/kg	10000	9870	99	90	110	

III

CONTINUING CALIBRATION BLANK

Report No:	219103085	Blank ID:	CCB for HBN 671278
Matrix:	Solid	Instrument ID:	TOC6
Analysis Date:	11/13/19 1040	Lab File ID:	8082
Analytical Method:	EPA 9060A	Analytical Batch:	671278

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

FORM III - GENCHEM

II

CONTINUING CALIBRATION VERIFICATION

Report No:	219103085	Instrument ID:	TOC6
Analysis Date:	11/13/19 1312	Lab File ID:	8082
Analytical Method:	EPA 9060A	Analytical Batch:	671278

ANALYTE	UNITS	TRUE	FOUND	% REC	LCL	UCL	Q
Total Organic Carbon	mg/kg	10000	9890	99	90	110	

III

CONTINUING CALIBRATION BLANK

Report No:	219103085	Blank ID:	CCB for HBN 671278
Matrix:	Solid	Instrument ID:	TOC6
Analysis Date:	11/13/19 1320	Lab File ID:	8082
Analytical Method:	EPA 9060A	Analytical Batch:	671278

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

Pace Analytical

PH Analysis Soil

ANALYST/ TECH	SLL2	START DATE/TIME	10/25/2019 09:30	END DATE/TIME	10/25/2019 12:30	BATCH	670066

#	CLIENT	TYPE	GCAL ID	Weight (20±0.1g)	DI Volume (20 mL)	Shaking Start	Shaking End	Settling Start	Settling End	Result (pH units)	Sample Temp (°C)	Result Time	STANDARDS\ REAGENTS
1	QC	ICV	1600	20.0	20	09:43	09:48	09:48	10:48	7.98	19.9	10:49	Buffer 1 Lot
2	5006	SAMP	21910222701	20.0	20	09:43	09:48	09:48	10:48	7.75	20.8	10:52	2128172
3	QC	DUP	1975308	20.1	20	09:43	09:48	09:48	10:48	7.76	20.7	10:53	Buffer 1 Exp
4	5006	SAMP	21910222702	20.1	20	09:43	09:48	09:48	10:48	7.85	20.8	10:56	04/30/20
5	4838	SAMP	21910232602	20.0	20	09:43	09:48	09:48	10:48	8.36	20.8	11:45	Buffer 4 Lot
6	4838	MS	21910232603	20.1	20	09:43	09:48	09:48	10:48	8.50	20.9	11:46	2128218
7	4838	MSD	21910232604	19.9	20	09:43	09:48	09:48	10:48	8.51	21.0	11:48	Buffer 4 Exp
8	4838	SAMP	21910232605	20.1	20	09:43	09:48	09:48	10:48	9.07	20.6	11:57	06/30/21
9	4838	SAMP	21910232606	20.0	20	09:43	09:48	09:48	10:48	8.87	21.0	11:58	Buffer 7 Lot
10	4838	SAMP	21910232608	20.0	20	09:43	09:48	09:48	10:48	8.52	21.1	12:00	2127777
11	4838	MS	21910232609	20.0	20	09:43	09:48	09:48	10:48	8.56	21.0	12:02	Buffer 7 Exp
12	QC	CCV	1800	20.0	20	09:43	09:48	09:48	10:48	7.97	20.0	12:04	09/30/20
13	4838	MSD	21910232610	20.0	20	09:43	09:48	09:48	10:48	8.52	21.0	12:06	Buffer 10 Lot
14	4838	SAMP	21910232611	20.0	20	09:43	09:48	09:48	10:48	8.48	22.6	12:09	2128302
15	4838	MS	21910232612	20.1	20	09:43	09:48	09:48	10:48	8.52	21.5	12:13	Buffer 10 Exp
16	4838	MSD	21910232613	20.1	20	09:43	09:48	09:48	10:48	8.46	21.6	12:16	04/22/20
17	4838	SAMP	21910232614	20.1	20	09:43	09:48	09:48	10:48	9.01	22.6	12:18	Buffer 13 Lot
18	4838	MS	21910232615	20.0	20	09:43	09:48	09:48	10:48	9.05	21.4	12:19	2128173
19	4838	MSD	21910232616	20.1	20	09:43	09:48	09:48	10:48	9.18	22.0	12:21	Buffer 13 Exp
20	4838	SAMP	21910232617	20.0	20	09:43	09:48	09:48	10:48	8.84	21.4	12:23	2/29/20
21	4838	FD	21910232618	19.9	20	09:43	09:48	09:48	10:48	8.80	21.3	12:25	Buffer 8 (QC) Lot
22	4838	SAMP	21910232619	20.1	20	09:43	09:48	09:48	10:48	8.48	21.6	12:26	2128127
23	4838	SAMP	21910232620	19.9	20	09:43	09:48	09:48	10:48	8.24	21.3	12:28	Buffer 8 (QC) Exp
24	QC	CCV	1800	20.0	20	09:43	09:48	09:48	10:48	7.97	20.0	12:30	06/30/20
25													
26													
27													
28													
29													
30													

EQUIPMENT\CONDITIONS

pH Meter ID	Calibration Slope	Balance ID
PH01	98.5	BAL11

NOTES

Pace Analytical

PH Analysis Soil

ANALYST/ TECH	SLL2	START DATE/TIME	10/25/2019 14:00	END DATE/TIME	10/25/2019 16:00	BATCH	670067

#	CLIENT	TYPE	GCAL ID	Weight (20±0.1g)	DI Volume (20 mL)	Shaking Start	Shaking End	Settling Start	Settling End	Result (pH units)	Sample Temp (°C)	Result Time	STANDARDS\ REAGENTS
1	QC	ICV	1600	20.0	20	14:01	14:06	14:06	15:06	7.97	20.1	15:07	Buffer 1 Lot
2	4838	SAMP	21910232622	20.0	20	14:01	14:06	14:06	15:06	9.01	20.6	15:09	2128172
3	QC	DUP	1975309	20.1	20	14:01	14:06	14:06	15:06	9.02	20.6	15:10	Buffer 1 Exp
4	4838	SAMP	21910232623	20.0	20	14:01	14:06	14:06	15:06	8.27	20.7	15:13	04/30/20
5	4838	SAMP	21910232624	20.0	20	14:01	14:06	14:06	15:06	8.98	20.3	15:16	Buffer 4 Lot
6	4838	SAMP	21910232625	20.0	20	14:01	14:06	14:06	15:06	8.64	21.0	15:22	2128218
7	4838	SAMP	21910232627	20.0	20	14:01	14:06	14:06	15:06	8.30	20.8	15:24	Buffer 4 Exp
8	4838	SAMP	21910232628	20.0	20	14:01	14:06	14:06	15:06	8.22	20.9	15:25	06/30/21
9	4838	SAMP	21910233301	20.1	20	14:01	14:06	14:06	15:06	8.76	21.1	15:26	Buffer 7 Lot
10	4838	SAMP	21910233302	20.1	20	14:01	14:06	14:06	15:06	8.94	21.2	15:28	2127777
11	4838	SAMP	21910233303	20.0	20	14:01	14:06	14:06	15:06	8.53	22.5	15:29	Buffer 7 Exp
12	QC	CCV	1800	20.0	20	14:01	14:06	14:06	15:06	7.96	20.2	15:32	09/30/20
13	4838	SAMP	21910233304	20.1	20	14:01	14:06	14:06	15:06	8.35	20.9	15:33	Buffer 10 Lot
14	4838	SAMP	21910233306	20.0	20	14:01	14:06	14:06	15:06	8.77	21.7	15:35	2128302
15	4838	SAMP	21910233307	20.1	20	14:01	14:06	14:06	15:06	8.53	22.4	15:36	Buffer 10 Exp
16	4838	SAMP	21910233309	20.1	20	14:01	14:06	14:06	15:06	9.39	21.2	15:38	04/22/20
17	4838	SAMP	21910233310	20.0	20	14:01	14:06	14:06	15:06	8.95	21.5	15:43	Buffer 13 Lot
18	4838	SAMP	21910233311	19.9	20	14:01	14:06	14:06	15:06	8.43	22.6	15:45	2128173
19	4838	SAMP	21910233312	20.0	20	14:01	14:06	14:06	15:06	8.34	21.1	15:46	Buffer 13 Exp
20	4838	SAMP	21910233313	20.0	20	14:01	14:06	14:06	15:06	8.88	21.2	15:49	2/29/20
21	4838	SAMP	21910233315	19.9	20	14:01	14:06	14:06	15:06	8.79	21.4	15:50	Buffer 8 (QC) Lot
22	4838	SAMP	21910233317	20.0	20	14:01	14:06	14:06	15:06	7.93	21.3	15:52	2128127
23	4838	SAMP	21910233318	20.1	20	14:01	14:06	14:06	15:06	8.24	21.4	15:53	Buffer 8 (QC) Exp
24	QC	CCV	1800	20.0	20	14:01	14:06	14:06	15:06	7.96	20.1	15:55	06/30/20
25													
26													
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30													

EQUIPMENT\CONDITIONS

pH Meter ID	Calibration Slope	Balance ID
PH01	98.5	BAL11

NOTES

Pace Analytical

PH Analysis Soil

ANALYST/ TECH	SLL2	START DATE/TIME	10/25/2019 14:00	END DATE/TIME	10/25/2019 16:00	BATCH	670067

#	CLIENT	TYPE	GCAL ID	Weight (20±0.1g)	DI Volume (20 mL)	Shaking Start	Shaking End	Settling Start	Settling End	Result (pH units)	Sample Temp (°C)	Result Time	STANDARDS\ REAGENTS
1	QC	ICV	1600	20.0	20	14:01	14:06	14:06	15:06	7.97	20.1	15:07	Buffer 1 Lot
2	4838	SAMP	21910232622	20.0	20	14:01	14:06	14:06	15:06	9.01	20.6	15:09	2128172
3	QC	DUP	1975309	20.1	20	14:01	14:06	14:06	15:06	9.02	20.6	15:10	Buffer 1 Exp
4	4838	SAMP	21910232623	20.0	20	14:01	14:06	14:06	15:06	8.27	20.7	15:13	04/30/20
5	4838	SAMP	21910232624	20.0	20	14:01	14:06	14:06	15:06	8.98	20.3	15:16	Buffer 4 Lot
6	4838	SAMP	21910232625	20.0	20	14:01	14:06	14:06	15:06	8.64	21.0	15:22	2128218
7	4838	SAMP	21910232627	20.0	20	14:01	14:06	14:06	15:06	8.30	20.8	15:24	Buffer 4 Exp
8	4838	SAMP	21910232628	20.0	20	14:01	14:06	14:06	15:06	8.22	20.9	15:25	06/30/21
9	4838	SAMP	21910233301	20.1	20	14:01	14:06	14:06	15:06	8.76	21.1	15:26	Buffer 7 Lot
10	4838	SAMP	21910233302	20.1	20	14:01	14:06	14:06	15:06	8.94	21.2	15:28	2127777
11	4838	SAMP	21910233303	20.0	20	14:01	14:06	14:06	15:06	8.53	22.5	15:29	Buffer 7 Exp
12	QC	CCV	1800	20.0	20	14:01	14:06	14:06	15:06	7.96	20.2	15:32	09/30/20
13	4838	SAMP	21910233304	20.1	20	14:01	14:06	14:06	15:06	8.35	20.9	15:33	Buffer 10 Lot
14	4838	SAMP	21910233306	20.0	20	14:01	14:06	14:06	15:06	8.77	21.7	15:35	2128302
15	4838	SAMP	21910233307	20.1	20	14:01	14:06	14:06	15:06	8.53	22.4	15:36	Buffer 10 Exp
16	4838	SAMP	21910233309	20.1	20	14:01	14:06	14:06	15:06	9.39	21.2	15:38	04/22/20
17	4838	SAMP	21910233310	20.0	20	14:01	14:06	14:06	15:06	8.95	21.5	15:43	Buffer 13 Lot
18	4838	SAMP	21910233311	19.9	20	14:01	14:06	14:06	15:06	8.43	22.6	15:45	2128173
19	4838	SAMP	21910233312	20.0	20	14:01	14:06	14:06	15:06	8.34	21.1	15:46	Buffer 13 Exp
20	4838	SAMP	21910233313	20.0	20	14:01	14:06	14:06	15:06	8.88	21.2	15:49	2/29/20
21	4838	SAMP	21910233315	19.9	20	14:01	14:06	14:06	15:06	8.79	21.4	15:50	Buffer 8 (QC) Lot
22	4838	SAMP	21910233317	20.0	20	14:01	14:06	14:06	15:06	7.93	21.3	15:52	2128127
23	4838	SAMP	21910233318	20.1	20	14:01	14:06	14:06	15:06	8.24	21.4	15:53	Buffer 8 (QC) Exp
24	QC	CCV	1800	20.0	20	14:01	14:06	14:06	15:06	7.96	20.1	15:55	06/30/20
25													
26													
27													
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EQUIPMENT\CONDITIONS

pH Meter ID	Calibration Slope	Balance ID
PH01	98.5	BAL11

NOTES

VI
DUPLICATES

Report No:	219102326	Parent Sample ID:	AOI1-3-SB-4.5-5-102219
Prep Method:	NA	Parent GCAL ID:	21910232622
Prep Date:	NA	Prep Batch:	NA
Analytical Method:	EPA 9045D	Analytical Batch:	670067

GCAL QC ID:	**1975309 DUP**	Instrument ID:	PH01
Analyst:	SLL2	Lab File ID:	NA
Analysis Date:	10/25/19 1510	Dilution:	1

ANALYTE	*UNITS*	*SAMPLE RESULT*	*Q*	*DUP RESULT*	*Q*	*RPD*	*#*	*RPD LIMITS*
pH	pH UNITS	9.01		9.02		0		0 - 6

FORM VI - GENCHEM

Pace Analytical

PH Analysis Soil

ANALYST/ TECH	SLL2	START DATE/TIME	10/26/2019 09:00	END DATE/TIME	10/26/2019 11:15	BATCH	670068

#	CLIENT	TYPE	GCAL ID	Weight (20±0.1g)	DI Volume (20 mL)	Shaking Start	Shaking End	Settling Start	Settling End	Result (pH units)	Sample Temp (°C)	Result Time	STANDARDS\ REAGENTS
1	QC	ICV	1600	20.0	20	09:01	09:06	09:06	10:06	7.98	19.3	10:07	Buffer 1 Lot
2	4838	SAMP	21910233319	20.0	20	09:01	09:06	09:06	10:06	8.63	19.2	10:09	2128172
3	QC	DUP	1975311	20.1	20	09:01	09:06	09:06	10:06	8.64	19.2	10:10	Buffer 1 Exp
4	4838	SAMP	21910233320	20.0	20	09:01	09:06	09:06	10:06	8.63	19.4	10:11	04/30/20
5	4838	SAMP	21910233322	20.1	20	09:01	09:06	09:06	10:06	8.52	19.4	10:13	Buffer 4 Lot
6	0176	SAMP	21910241901	20.1	20	09:01	09:06	09:06	10:06	6.81	18.5	10:19	2128218
7	0042	SAMP	21910251501	20.0	20	09:01	09:06	09:06	10:06	8.53	20.1	10:22	Buffer 4 Exp
8	QC	CCV	1800	20.0	20	09:01	09:06	09:06	10:06	7.98	19.1	10:25	06/30/21
9	0042	SAMP	21910251601	19.9	20	09:01	09:06	09:06	10:06	8.98	22.3	10:29	Buffer 7 Lot
10	0176	SAMP	21910252401	20.1	20	09:01	09:06	09:06	10:06	8.91	18.5	10:32	2127777
11	0176	SAMP	21910252501	20.1	20	09:01	09:06	09:06	10:06	7.32	19.2	10:34	Buffer 7 Exp
12	4838	SAMP	21910254101	20.0	20	09:01	09:06	09:06	10:06	9.13	19.5	10:37	09/30/20
13	4838	SAMP	21910254102	19.9	20	09:01	09:06	09:06	10:06	9.01	18.7	10:38	Buffer 10 Lot
14	4838	SAMP	21910254103	20.0	20	09:01	09:06	09:06	10:06	9.10	19.3	10:40	2128302
15	4838	SAMP	21910254104	20.1	20	09:01	09:06	09:06	10:06	9.70	19.6	10:42	Buffer 10 Exp
16	4838	SAMP	21910254107	20.1	20	09:01	09:06	09:06	10:06	9.83	19.8	10:44	04/22/20
17	4838	SAMP	21910254109	20.1	20	09:01	09:06	09:06	10:06	8.79	18.9	10:46	Buffer 13 Lot
18	4838	SAMP	21910254110	20.1	20	09:01	09:06	09:06	10:06	8.56	19.5	10:48	2128173
19	0080	CCV	1800	20.0	20	09:01	09:06	09:06	10:06	7.99	18.9	10:50	Buffer 13 Exp
20	4838	SAMP	21910254113	20.0	20	09:01	09:06	09:06	10:06	8.96	19.7	10:52	2/29/20
21	4838	SAMP	21910254114	20.0	20	09:01	09:06	09:06	10:06	8.14	20.3	10:55	Buffer 8 (QC) Lot
22	4838	SAMP	21910254116	20.0	20	09:01	09:06	09:06	10:06	8.88	19.2	10:57	2128127
23	4838	SAMP	21910254118	19.9	20	09:01	09:06	09:06	10:06	9.99	19.3	10:59	Buffer 8 (QC) Exp
24	4838	SAMP	21910254119	20.0	20	09:01	09:06	09:06	10:06	8.22	19.1	11:01	06/30/20
25	0080	CCV	1800	20.0	20	09:01	09:06	09:06	10:06	7.99	19.0	11:04	
26													
27													
28													
29													
30													

EQUIPMENT\CONDITIONS

pH Meter ID	Calibration Slope	Balance ID
PH01	97.8	BAL11

NOTES

Pace Analytical

PH Analysis Soil

ANALYST/ TECH	SLL2	START DATE/TIME	10/26/2019 09:00	END DATE/TIME	10/26/2019 11:15	BATCH	670068

#	CLIENT	TYPE	GCAL ID	Weight (20±0.1g)	DI Volume (20 mL)	Shaking Start	Shaking End	Settling Start	Settling End	Result (pH units)	Sample Temp (°C)	Result Time	STANDARDS\ REAGENTS
1	QC	ICV	1600	20.0	20	09:01	09:06	09:06	10:06	7.98	19.3	10:07	Buffer 1 Lot
2	4838	SAMP	21910233319	20.0	20	09:01	09:06	09:06	10:06	8.63	19.2	10:09	2128172
3	QC	DUP	1975311	20.1	20	09:01	09:06	09:06	10:06	8.64	19.2	10:10	Buffer 1 Exp
4	4838	SAMP	21910233320	20.0	20	09:01	09:06	09:06	10:06	8.63	19.4	10:11	04/30/20
5	4838	SAMP	21910233322	20.1	20	09:01	09:06	09:06	10:06	8.52	19.4	10:13	Buffer 4 Lot
6	0176	SAMP	21910241901	20.1	20	09:01	09:06	09:06	10:06	6.81	18.5	10:19	2128218
7	0042	SAMP	21910251501	20.0	20	09:01	09:06	09:06	10:06	8.53	20.1	10:22	Buffer 4 Exp
8	QC	CCV	1800	20.0	20	09:01	09:06	09:06	10:06	7.98	19.1	10:25	06/30/21
9	0042	SAMP	21910251601	19.9	20	09:01	09:06	09:06	10:06	8.98	22.3	10:29	Buffer 7 Lot
10	0176	SAMP	21910252401	20.1	20	09:01	09:06	09:06	10:06	8.91	18.5	10:32	2127777
11	0176	SAMP	21910252501	20.1	20	09:01	09:06	09:06	10:06	7.32	19.2	10:34	Buffer 7 Exp
12	4838	SAMP	21910254101	20.0	20	09:01	09:06	09:06	10:06	9.13	19.5	10:37	09/30/20
13	4838	SAMP	21910254102	19.9	20	09:01	09:06	09:06	10:06	9.01	18.7	10:38	Buffer 10 Lot
14	4838	SAMP	21910254103	20.0	20	09:01	09:06	09:06	10:06	9.10	19.3	10:40	2128302
15	4838	SAMP	21910254104	20.1	20	09:01	09:06	09:06	10:06	9.70	19.6	10:42	Buffer 10 Exp
16	4838	SAMP	21910254107	20.1	20	09:01	09:06	09:06	10:06	9.83	19.8	10:44	04/22/20
17	4838	SAMP	21910254109	20.1	20	09:01	09:06	09:06	10:06	8.79	18.9	10:46	Buffer 13 Lot
18	4838	SAMP	21910254110	20.1	20	09:01	09:06	09:06	10:06	8.56	19.5	10:48	2128173
19	0080	CCV	1800	20.0	20	09:01	09:06	09:06	10:06	7.99	18.9	10:50	Buffer 13 Exp
20	4838	SAMP	21910254113	20.0	20	09:01	09:06	09:06	10:06	8.96	19.7	10:52	2/29/20
21	4838	SAMP	21910254114	20.0	20	09:01	09:06	09:06	10:06	8.14	20.3	10:55	Buffer 8 (QC) Lot
22	4838	SAMP	21910254116	20.0	20	09:01	09:06	09:06	10:06	8.88	19.2	10:57	2128127
23	4838	SAMP	21910254118	19.9	20	09:01	09:06	09:06	10:06	9.99	19.3	10:59	Buffer 8 (QC) Exp
24	4838	SAMP	21910254119	20.0	20	09:01	09:06	09:06	10:06	8.22	19.1	11:01	06/30/20
25	0080	CCV	1800	20.0	20	09:01	09:06	09:06	10:06	7.99	19.0	11:04	
26													
27													
28													
29													
30													

EQUIPMENT\CONDITIONS

pH Meter ID	Calibration Slope	Balance ID
PH01	97.8	BAL11

NOTES

VI
DUPLICATES

Report No:	219102333	Parent Sample ID:	AOI7-2-SB-1.5-2-102119
Prep Method:	NA	Parent GCAL ID:	21910233319
Prep Date:	NA	Prep Batch:	NA
Analytical Method:	EPA 9045D	Analytical Batch:	670068

GCAL QC ID:	**1975311 DUP**	Instrument ID:	PH01
Analyst:	SLL2	Lab File ID:	NA
Analysis Date:	10/26/19 1010	Dilution:	1

ANALYTE	*UNITS*	*SAMPLE RESULT*	*Q*	*DUP RESULT*	*Q*	*RPD*	*#*	*RPD LIMITS*
pH	pH UNITS	8.63		8.64		0		0 - 6

FORM VI - GENCHEM

Pace Analytical

PH Analysis Soil

ANALYST/ TECH	SLL2	START DATE/TIME	10/26/2019 10:00	END DATE/TIME	10/26/2019 11:30	BATCH	670144

#	CLIENT	TYPE	GCAL ID	Weight (20±0.1g)	DI Volume (20 mL)	Shaking Start	Shaking End	Settling Start	Settling End	Result (pH units)	Sample Temp (°C)	Result Time	STANDARDS\ REAGENTS
1	QC	ICV	1600	20.0	20	10:02	10:07	10:07	11:07	7.99	19.0	11:04	Buffer 1 Lot
2	4838	SAMP	21910254120	20.0	20	10:02	10:07	10:07	11:07	8.55	19.6	11:07	2128172
3	QC	DUP	1975778	19.9	20	10:02	10:07	10:07	11:07	8.56	19.7	11:08	Buffer 1 Exp
4	4838	SAMP	21910254122	20.1	20	10:02	10:07	10:07	11:07	9.08	20.3	11:09	04/30/20
5	4838	SAMP	21910254123	20.1	20	10:02	10:07	10:07	11:07	9.09	20.7	11:12	Buffer 4 Lot
6	4838	SAMP	21910254124	19.9	20	10:02	10:07	10:07	11:07	8.65	20.2	11:14	2128218
7	4838	SAMP	21910254125	20.1	20	10:02	10:07	10:07	11:07	8.66	20.3	11:16	Buffer 4 Exp
8	QC	CCV	1800	20.0	20	10:02	10:07	10:07	11:07	7.99	19.0	11:19	06/30/21
9													Buffer 7 Lot
10													2127777
11													Buffer 7 Exp
12													09/30/20
13													Buffer 10 Lot
14													2128302
15													Buffer 10 Exp
16													04/22/20
17													Buffer 13 Lot
18													2128173
19													Buffer 13 Exp
20													2/29/20
21													Buffer 8 (QC) Lot
22													2128127
23													Buffer 8 (QC) Exp
24													06/30/20
25													
26													
27													
28													
29													
30													

EQUIPMENT\CONDITIONS

pH Meter ID	Calibration Slope	Balance ID
PH01	97.8	BAL11

NOTES

VI
DUPLICATES

Report No:	219102541	Parent Sample ID:	AOI1-2-SB-12.5-13-102319
Prep Method:	NA	Parent GCAL ID:	21910254120
Prep Date:	NA	Prep Batch:	NA
Analytical Method:	EPA 9045D	Analytical Batch:	670144

GCAL QC ID:	**1975778 DUP**	Instrument ID:	PH01
Analyst:	SLL2	Lab File ID:	NA
Analysis Date:	10/26/19 1108	Dilution:	1

ANALYTE	***UNITS***	***SAMPLE RESULT***	***Q***	***DUP RESULT***	***Q***	***RPD***	***#***	***RPD LIMITS***
pH	pH UNITS	8.55		8.56		0		0 - 6

FORM VI - GENCHEM

Pace Analytical

PH Analysis Soil

670167

ANALYST/ TECH	SLL2	START DATE/TIME	10/27/2019 11:00	END DATE/TIME	10/27/2019 13:15	BATCH	670167

#	CLIENT	TYPE	GCAL ID	Weight (20±0.1g)	DI Volume (20 mL)	Shaking Start	Shaking End	Settling Start	Settling End	Result (pH units)	Sample Temp (°C)	Result Time	STANDARDS\ REAGENTS
1	QC	ICV	1600	20.0	20	11:16	11:21	11:21	12:21	7.96	19.1	12:36	Buffer 1 Lot
2	4838	SAMP	21910261301	20.1	20	11:16	11:21	11:21	12:21	8.73	19.9	12:38	2128172
3	QC	DUP	1975917	20.0	20	11:16	11:21	11:21	12:21	8.74	19.8	12:39	Buffer 1 Exp
4	4838	FD	21910261302	20.1	20	11:16	11:21	11:21	12:21	8.74	19.7	12:41	04/30/20
5	4838	SAMP	21910261303	20.1	20	11:16	11:21	11:21	12:21	8.07	20.3	12:43	Buffer 4 Lot
6	4838	SAMP	21910261304	20.0	20	11:16	11:21	11:21	12:21	7.84	19.7	12:45	2128218
7	4838	SAMP	21910261305	20.0	20	11:16	11:21	11:21	12:21	8.84	20.1	12:47	Buffer 4 Exp
8	4838	SAMP	21910261306	20.0	20	11:16	11:21	11:21	12:21	8.66	20.4	12:50	06/30/21
9	4838	SAMP	21910261307	20.0	20	11:16	11:21	11:21	12:21	8.16	19.6	12:53	Buffer 7 Lot
10	4838	SAMP	21910261308	20.1	20	11:16	11:21	11:21	12:21	9.03	21.1	12:55	2127777
11	4838	SAMP	21910261309	20.0	20	11:16	11:21	11:21	12:21	8.00	21.8	12:56	Buffer 7 Exp
12	QC	CCV	1800	20.0	20	11:16	11:21	11:21	12:21	7.97	19.1	12:58	09/30/20
13	4838	SAMP	21910261310	19.9	20	11:16	11:21	11:21	12:21	7.75	20.5	13:01	Buffer 10 Lot
14	4838	SAMP	21910261312	19.9	20	11:16	11:21	11:21	12:21	8.35	21.0	13:02	2128302
15	4838	SAMP	21910261314	20.1	20	11:16	11:21	11:21	12:21	7.72	22.0	13:05	Buffer 10 Exp
16	4838	SAMP	21910261315	20.1	20	11:16	11:21	11:21	12:21	7.65	20.7	13:07	04/22/20
17	4838	SAMP	21910261317	20.1	20	11:16	11:21	11:21	12:21	8.82	21.2	13:10	Buffer 13 Lot
18	4838	SAMP	21910261318	19.9	20	11:16	11:21	11:21	12:21	7.79	21.7	13:12	2128173
19	QC	CCV	1800	20.0	20	11:16	11:21	11:21	12:21	7.97	19.2	13:15	Buffer 13 Exp
20													2/29/20
21													Buffer 8 (QC) Lot
22													2128127
23													Buffer 8 (QC) Exp
24													06/30/20
25													
26													
27													
28													
29													
30													

EQUIPMENT\CONDITIONS

pH Meter ID	Calibration Slope	Balance ID
PH01	97.8	BAL11

NOTES

VI
DUPLICATES

Report No:	219102613	Parent Sample ID:	AOI3-8-SB-1.5-2-102419
Prep Method:	NA	Parent GCAL ID:	21910261301
Prep Date:	NA	Prep Batch:	NA
Analytical Method:	EPA 9045D	Analytical Batch:	670167

GCAL QC ID:	**1975917 DUP**	Instrument ID:	PH01
Analyst:	SLL2	Lab File ID:	NA
Analysis Date:	10/27/19 1239	Dilution:	1

ANALYTE	*UNITS*	*SAMPLE RESULT*	*Q*	*DUP RESULT*	*Q*	*RPD*	*#*	*RPD LIMITS*
pH	pH UNITS	8.73		8.74		0		0 - 6

FORM VI - GENCHEM

Pace Analytical®

PH Analysis Soil

670171

ANALYST/ TECH	SLL2	START DATE/TIME	10/27/2019 12:00	END DATE/TIME	10/27/2019 14:15	BATCH	670171

#	CLIENT	TYPE	GCAL ID	Weight (20±0.1g)	DI Volume (20 mL)	Shaking Start	Shaking End	Settling Start	Settling End	Result (pH units)	Sample Temp (°C)	Result Time	STANDARDS\ REAGENTS
1	QC	ICV	1600	20.0	20	12:06	12:11	12:11	13:11	7.97	19.2	13:16	Buffer 1 Lot
2	4838	SAMP	21910271701	20.0	20	12:06	12:11	12:11	13:11	9.17	20.1	13:19	2128172
3	QC	DUP	1976082	20.0	20	12:06	12:11	12:11	13:11	9.18	20.0	13:20	Buffer 1 Exp
4	4838	SAMP	21910271702	20.1	20	12:06	12:11	12:11	13:11	9.31	20.7	13:22	04/30/20
5	4838	SAMP	21910271703	20.0	20	12:06	12:11	12:11	13:11	9.32	20.5	13:23	Buffer 4 Lot
6	4838	SAMP	21910271705	20.0	20	12:06	12:11	12:11	13:11	9.32	20.5	13:25	2128218
7	4838	SAMP	21910271706	19.9	20	12:06	12:11	12:11	13:11	8.97	21.1	13:27	Buffer 4 Exp
8	4838	SAMP	21910271707	20.0	20	12:06	12:11	12:11	13:11	9.29	21.0	13:29	06/30/21
9	4838	SAMP	21910271708	19.9	20	12:06	12:11	12:11	13:11	8.38	20.8	13:31	Buffer 7 Lot
10	4838	SAMP	21910271709	20.1	20	12:06	12:11	12:11	13:11	8.42	20.8	13:34	2127777
11	4838	SAMP	21910271710	19.9	20	12:06	12:11	12:11	13:11	9.50	21.5	13:38	Buffer 7 Exp
12	QC	CCV	1800	20.0	20	12:06	12:11	12:11	13:11	7.98	19.2	13:40	09/30/20
13	4838	SAMP	21910271711	20.0	20	12:06	12:11	12:11	13:11	9.00	21.0	13:43	Buffer 10 Lot
14	4838	SAMP	21910271712	19.9	20	12:06	12:11	12:11	13:11	8.65	21.5	13:45	2128302
15	4838	SAMP	21910271714	20.1	20	12:06	12:11	12:11	13:11	8.89	22.0	13:48	Buffer 10 Exp
16	4838	SAMP	21910271715	20.1	20	12:06	12:11	12:11	13:11	8.78	20.1	13:50	04/22/20
17	4838	SAMP	21910271716	20.1	20	12:06	12:11	12:11	13:11	9.14	21.6	13:51	Buffer 13 Lot
18	4838	SAMP	21910271717	20.0	20	12:06	12:11	12:11	13:11	8.38	22.2	13:54	2128173
19	4838	SAMP	21910271718	20.0	20	12:06	12:11	12:11	13:11	8.79	20.2	13:56	Buffer 13 Exp
20	4838	SAMP	21910271720	20.1	20	12:06	12:11	12:11	13:11	8.88	19.9	13:58	2/29/20
21	4838	SAMP	21910271721	20.0	20	12:06	12:11	12:11	13:11	9.65	20.2	14:00	Buffer 8 (QC) Lot
22	QC	CCV	1800	20.0	20	12:06	12:11	12:11	13:11	7.98	19.1	14:02	2128127
23													Buffer 8 (QC) Exp
24													06/30/20
25													
26													
27													
28													
29													
30													

EQUIPMENT\CONDITIONS

pH Meter ID	Calibration Slope	Balance ID
PH01	97.8	BAL11

NOTES

VI
DUPLICATES

Report No:	219102717	Parent Sample ID:	AOI3-1-SB-1.5-2-102519
Prep Method:	NA	Parent GCAL ID:	21910271701
Prep Date:	NA	Prep Batch:	NA
Analytical Method:	EPA 9045D	Analytical Batch:	670171

GCAL QC ID:	**1976082 DUP**	Instrument ID:	PH01
Analyst:	SLL2	Lab File ID:	NA
Analysis Date:	10/27/19 1320	Dilution:	1

ANALYTE	*UNITS*	*SAMPLE RESULT*	*Q*	*DUP RESULT*	*Q*	*RPD*	*#*	*RPD LIMITS*
pH	pH UNITS	9.17		9.18		0		0 - 6

FORM VI - GENCHEM

Pace Analytical

PH Analysis Soil

670536

ANALYST/ TECH	SLL2	START DATE/TIME	11/1/2019 10:00	END DATE/TIME	11/1/2019 11:30	BATCH	670536

#	CLIENT	TYPE	GCAL ID	Weight (20±0.1g)	DI Volume (20 mL)	Shaking Start	Shaking End	Settling Start	Settling End	Result (pH units)	Sample Temp (°C)	Result Time	STANDARDS\ REAGENTS
1	QC	ICV	1600	20.0	20	10:02	10:07	10:07	11:07	7.96	14.9	11:07	Buffer 1 Lot
2	4380	SAMP	21910290302	20.0	20	10:02	10:07	10:07	11:07	8.66	16.2	11:10	2128172
3	QC	DUP	1977706	20.1	20	10:02	10:07	10:07	11:07	8.67	16.1	11:11	Buffer 1 Exp
4	4838	SAMP	21910308513	20.1	20	10:02	10:07	10:07	11:07	8.20	16.3	11:13	04/30/20
5	4838	SAMP	21910308514	20.0	20	10:02	10:07	10:07	11:07	7.76	16.5	11:15	Buffer 4 Lot
6	QC	CCV	1800	20.0	20	10:02	10:07	10:07	11:07	7.96	15.2	11:17	2128218
7													Buffer 4 Exp
8													06/30/21
9													Buffer 7 Lot
10													2127777
11													Buffer 7 Exp
12													09/30/20
13													Buffer 10 Lot
14													2128302
15													Buffer 10 Exp
16													04/22/20
17													Buffer 13 Lot
18													2128173
19													Buffer 13 Exp
20													2/29/20
21													Buffer 8 (QC) Lot
22													2128127
23													Buffer 8 (QC) Exp
24													06/30/20
25													
26													
27													
28													
29													
30													

EQUIPMENT\CONDITIONS

pH Meter ID	Calibration Slope	Balance ID
PH01	99.1	BAL11

NOTES

Sample Summary

LAB ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
21909183801	JFTBLA-Decon-091719	Water	09/17/2019 14:51	09/18/2019 10:35
21909183802	JFTBLA-DW-FieldBlank-091719	Water	09/17/2019 14:42	09/18/2019 10:35

Sample Summary

LAB ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
21910232601	JFTBLA-EB-PW-102219	Water	10/22/2019 08:20	10/23/2019 10:15
21910232602	AOI6-1-SB-1.5-2-102219	Solid	10/22/2019 09:05	10/23/2019 10:15
21910232603	AOI6-1-SB-1.5-2-102219-MS	Solid	10/22/2019 09:05	10/23/2019 10:15
21910232604	AOI6-1-SB-1.5-2-102219-MSD	Solid	10/22/2019 09:05	10/23/2019 10:15
21910232605	AOI6-1-SB-7-7.5-102219	Solid	10/22/2019 09:20	10/23/2019 10:15
21910232606	AOI6-1-SB-18.5-19-102219	Solid	10/22/2019 09:30	10/23/2019 10:15
21910232607	AOI6-1-GW-102219	Water	10/22/2019 10:05	10/23/2019 10:15
21910232608	AOI6-3-SB-1.5-2-102219	Solid	10/22/2019 10:15	10/23/2019 10:15
21910232609	AOI6-3-SB-1.5-2-102219-MS	Solid	10/22/2019 10:15	10/23/2019 10:15
21910232610	AOI6-3-SB-1.5-2-102219-MSD	Solid	10/22/2019 10:15	10/23/2019 10:15
21910232611	AOI6-2-SB-1.5-2-102219	Solid	10/22/2019 10:27	10/23/2019 10:15
21910232612	AOI6-2-SB-1.5-2-102219-MS	Solid	10/22/2019 10:27	10/23/2019 10:15
21910232613	AOI6-2-SB-1.5-2-102219-MSD	Solid	10/22/2019 10:27	10/23/2019 10:15
21910232614	AOI6-4-SB-1.5-2-102219	Solid	10/22/2019 10:45	10/23/2019 10:15
21910232615	AOI6-4-SB-1.5-2-102219-MS	Solid	10/22/2019 10:45	10/23/2019 10:15
21910232616	AOI6-4-SB-1.5-2-102219-MSD	Solid	10/22/2019 10:45	10/23/2019 10:15
21910232617	AOI5-1-SB-1.5-2-102219	Solid	10/22/2019 12:15	10/23/2019 10:15
21910232618	AOI5-1-SB-1.5-2-102219-D	Solid	10/22/2019 12:21	10/23/2019 10:15
21910232619	AOI5-1-SB-8-8.5-102219	Solid	10/22/2019 12:30	10/23/2019 10:15
21910232620	AOI5-1-SB-19-19.5-102219	Solid	10/22/2019 12:40	10/23/2019 10:15
21910232621	AOI5-1-GW-102219	Water	10/22/2019 13:10	10/23/2019 10:15
21910232622	AOI1-3-SB-4.5-5-102219	Solid	10/22/2019 14:17	10/23/2019 10:15
21910232623	AOI1-3-SB-9.5-10-102219	Solid	10/22/2019 14:30	10/23/2019 10:15
21910232624	AOI1-3-SB-16-16.5-102219	Solid	10/22/2019 14:35	10/23/2019 10:15
21910232625	AOI1-1-SB-4.5-5-102219	Solid	10/22/2019 15:00	10/23/2019 10:15
21910232626	AOI1-3-GW-102219	Water	10/22/2019 15:05	10/23/2019 10:15
21910232627	AOI1-1-SB-10-10.5-102219	Solid	10/22/2019 15:30	10/23/2019 10:15
21910232628	AOI1-1-SB-17-17.5-102219	Solid	10/22/2019 15:36	10/23/2019 10:15
21910232629	AOI1-1-GW-102219	Water	10/22/2019 15:45	10/23/2019 10:15
21910232630	JFTBLA-EB-PW-102219 (RE)	Water	10/22/2019 08:20	10/23/2019 10:15
21910232631	AOI6-1-GW-102219 (RE)	Water	10/22/2019 10:05	10/23/2019 10:15
21910232632	AOI5-1-GW-102219 (RE)	Water	10/22/2019 13:10	10/23/2019 10:15
21910232633	AOI1-3-GW-102219 (RE)	Water	10/22/2019 15:05	10/23/2019 10:15
21910232634	AOI1-1-GW-102219 (RE)	Water	10/22/2019 15:45	10/23/2019 10:15
21910232635	AOI6-3-SB-1.5-2-102219 (RE)	Solid	10/22/2019 10:15	10/23/2019 10:15
21910232636	AOI6-3-SB-1.5-2-102219-MS (RE)	Solid	10/22/2019 10:15	10/23/2019 10:15
21910232637	AOI6-3-SB-1.5-2-102219-MSD(RE)	Solid	10/22/2019 10:15	10/23/2019 10:15

Sample Summary

LAB ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
21910233301	AOI7-10-SB-1.5-2-102119	Solid	10/21/2019 12:25	10/23/2019 10:15
21910233302	AOI7-10-SB-7.5-8-102119	Solid	10/21/2019 12:45	10/23/2019 10:15
21910233303	AOI7-5-SB-1.5-2-102119	Solid	10/21/2019 13:00	10/23/2019 10:15
21910233304	AOI7-10-SB-17-17.5-102119	Solid	10/21/2019 13:10	10/23/2019 10:15
21910233305	JFTBLA-EB-HA-102119	Water	10/21/2019 13:20	10/23/2019 10:15
21910233306	AOI7-6-SB-1.5-2-102119	Solid	10/21/2019 13:30	10/23/2019 10:15
21910233307	AOI7-7-SB-1.5-2-102119	Solid	10/21/2019 14:05	10/23/2019 10:15
21910233308	AOI7-10-GW-102119	Water	10/21/2019 14:14	10/23/2019 10:15
21910233309	AOI7-11-SB-1.5-2-102119	Solid	10/21/2019 14:15	10/23/2019 10:15
21910233310	AOI7-11-SB-7.5-8-102119	Solid	10/21/2019 14:35	10/23/2019 10:15
21910233311	AOI7-8-SB-1.5-2-102119	Solid	10/21/2019 14:45	10/23/2019 10:15
21910233312	AOI7-11-SB-18-18.5-102119	Solid	10/21/2019 15:00	10/23/2019 10:15
21910233313	AOI7-9-SB-1.5-2-102119	Solid	10/21/2019 15:20	10/23/2019 10:15
21910233314	AOI7-7-11-GW-102119	Water	10/21/2019 15:30	10/23/2019 10:15
21910233315	AOI7-9-SB-7.5-8-102119	Solid	10/21/2019 15:50	10/23/2019 10:15
21910233316	JFTBLA-FRB-102119	Water	10/21/2019 16:00	10/23/2019 10:15
21910233317	AOI7-1-SB-1.5-2-102119	Solid	10/21/2019 16:00	10/23/2019 10:15
21910233318	AOI7-9-SB-17-17.5-102119	Solid	10/21/2019 16:05	10/23/2019 10:15
21910233319	AOI7-2-SB-1.5-2-102119	Solid	10/21/2019 16:20	10/23/2019 10:15
21910233320	AOI7-3-SB-1.5-2-102119	Solid	10/21/2019 16:35	10/23/2019 10:15
21910233321	AOI7-9-GW-102119	Water	10/21/2019 16:45	10/23/2019 10:15
21910233322	AOI7-4-1.5-2-102119	Solid	10/21/2019 16:50	10/23/2019 10:15
21910233323	JFTBLA-EB-HA-102119 (RE)	Water	10/21/2019 13:20	10/23/2019 10:15
21910233324	AOI7-10-GW-102119 (RE)	Water	10/21/2019 14:14	10/23/2019 10:15
21910233325	AOI7-7-11-GW-102119 (RE)	Water	10/21/2019 15:30	10/23/2019 10:15
21910233326	AOI7-9-GW-102119 (RE)	Water	10/21/2019 16:45	10/23/2019 10:15
21910233327	AOI7-10-SB-7.5-8-102119 (RE)	Solid	10/21/2019 12:45	10/23/2019 10:15
21910233328	AOI7-5-SB-1.5-2-102119 (RE)	Solid	10/21/2019 13:00	10/23/2019 10:15
21910233329	AOI7-7-SB-1.5-2-102119 (RE)	Solid	10/21/2019 14:05	10/23/2019 10:15
21910233330	AOI7-11-SB-18-18.5-102119 (RE)	Solid	10/21/2019 15:00	10/23/2019 10:15
21910233331	AOI7-9-SB-17-17.5-102119 (RE)	Solid	10/21/2019 16:05	10/23/2019 10:15

Sample Summary

LAB ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
21910254101	AOI1-5-SB-4.5-5-102319	Solid	10/23/2019 08:00	10/24/2019 10:10
21910254102	AOI1-5-SB-4.5-5-102319-D	Solid	10/23/2019 08:00	10/24/2019 10:10
21910254103	AOI1-4-SB-4.5-5-102319-D	Solid	10/23/2019 08:32	10/24/2019 10:10
21910254104	AOI1-4-SB-4.5-5-102319	Solid	10/23/2019 08:32	10/24/2019 10:10
21910254105	JFTBLA-EB-B-102319	Water	10/23/2019 08:15	10/24/2019 10:10
21910254106	JFTBLA-EB-HA-02319	Water	10/23/2019 08:20	10/24/2019 10:10
21910254107	AOI1-6-SB-4.5-5-102319	Solid	10/23/2019 08:30	10/24/2019 10:10
21910254108	JFTBLA-EB-WM-102319	Water	10/23/2019 08:35	10/24/2019 10:10
21910254109	AOI1-5-SB-7-7.5-102319	Solid	10/23/2019 08:45	10/24/2019 10:10
21910254110	AOI1-5-SB-17.5-18-102319	Solid	10/23/2019 09:15	10/24/2019 10:10
21910254111	AOI1-5-GW-102319	Water	10/23/2019 09:45	10/24/2019 10:10
21910254112	AOI1-SA-GW-102319	Water	10/23/2019 10:00	10/24/2019 10:10
21910254113	AOI1-6-SB-9-9.5-102319	Solid	10/23/2019 10:26	10/24/2019 10:10
21910254114	AOI1-6-SB-12.5-13-102319	Solid	10/23/2019 10:33	10/24/2019 10:10
21910254115	AOI1-6-GW-102319	Water	10/23/2019 11:15	10/24/2019 10:10
21910254116	AOI1-4-SB-9.5-10-102319	Solid	10/23/2019 11:10	10/24/2019 10:10
21910254117	AOI1-4-GW-102319	Water	10/23/2019 11:40	10/24/2019 10:10
21910254118	AOI1-2-SB-4.5-5-102319	Solid	10/23/2019 12:55	10/24/2019 10:10
21910254119	AOI1-2-SB-9.5-10-102319	Solid	10/23/2019 13:11	10/24/2019 10:10
21910254120	AOI1-2-SB-12.5-13-102319	Solid	10/23/2019 13:15	10/24/2019 10:10
21910254121	AOI1-2-GW-102319	Water	10/23/2019 13:40	10/24/2019 10:10
21910254122	AOI2-3-SB-4.5-5-102319	Solid	10/23/2019 14:55	10/24/2019 10:10
21910254123	AOI2-3-SB-4.5-5-102319-D	Solid	10/23/2019 14:55	10/24/2019 10:10
21910254124	AOI2-2-SB-4.5-5-102319	Solid	10/23/2019 15:20	10/24/2019 10:10
21910254125	AOI2-2-SB-4.5-5-102319-D	Solid	10/23/2019 15:20	10/24/2019 10:10
21910254127	AOI1-6-SB-4.5-5-102319 (RE)	Solid	10/23/2019 08:30	10/24/2019 10:10
21910254128	AOI1-2-SB-12.5-13-102319 (RE)	Solid	10/24/2019 10:10	10/24/2019 10:10

Sample Summary

LAB ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
21910261301	AOI3-8-SB-1.5-2-102419	Solid	10/24/2019 08:45	10/25/2019 09:36
21910261302	AOI3-8-SB-1.5-2-102419-D	Solid	10/24/2019 08:45	10/25/2019 09:36
21910261303	AOI3-8-SB-9-9.5-102419	Solid	10/24/2019 09:07	10/25/2019 09:36
21910261304	AOI3-8-SB-13-13.5-102419	Solid	10/24/2019 09:12	10/25/2019 09:36
21910261305	AOI3-11-SB-1.5-2-102419	Solid	10/24/2019 09:20	10/25/2019 09:36
21910261306	AOI3-11-SB-8.5-9-102419	Solid	10/24/2019 09:50	10/25/2019 09:36
21910261307	AOI3-11-SB-11-11.5-102419	Solid	10/24/2019 09:54	10/25/2019 09:36
21910261308	AOI3-12-SB-1.5-2-102419	Solid	10/24/2019 10:20	10/25/2019 09:36
21910261309	AOI3-12-SB-7-7.5-102419	Solid	10/24/2019 10:40	10/25/2019 09:36
21910261310	AOI3-12-SB-19-19.5-102419	Solid	10/24/2019 10:55	10/25/2019 09:36
21910261311	AOI3-8-GW-102419	Water	10/24/2019 11:10	10/25/2019 09:36
21910261312	AOI3-9-SB-1.5-2-102419	Solid	10/24/2019 11:25	10/25/2019 09:36
21910261313	AOI3-11-GW-102419	Water	10/24/2019 11:50	10/25/2019 09:36
21910261314	AOI3-9-SB-8.5-9-102419	Solid	10/24/2019 12:45	10/25/2019 09:36
21910261315	AOI3-9-SB-14-14.5-102419	Solid	10/24/2019 12:50	10/25/2019 09:36
21910261316	AOI3-12-GW-102419	Water	10/24/2019 13:20	10/25/2019 09:36
21910261317	AOI3-10-SB-1.5-2-102419	Solid	10/24/2019 13:30	10/25/2019 09:36
21910261318	AOI3-10-SB-10.5-11-102419	Solid	10/24/2019 13:55	10/25/2019 09:36
21910261319	AOI3-9-GW-102419	Water	10/24/2019 14:30	10/25/2019 09:36
21910261320	AOI3-10-GW-102419	Water	10/24/2019 15:50	10/25/2019 09:36
21910261321	AOI3-11-SB-11-11.5-102419 (RE)	Solid	10/24/2019 09:54	10/25/2019 09:36

Sample Summary

LAB ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
21910271701	AOI3-1-SB-1.5-2-102519	Solid	10/25/2019 08:20	10/26/2019 15:15
21910271702	AOI3-2-SB-1.5-2-102519	Solid	10/25/2019 08:45	10/26/2019 15:15
21910271703	AOI3-2-SB-1.5-2-102519-D	Solid	10/25/2019 08:45	10/26/2019 15:15
21910271704	JFTBLA-EB-HA-102519	Water	10/25/2019 08:15	10/26/2019 15:15
21910271705	AOI3-5-SB-1.5-2-102519	Solid	10/25/2019 09:21	10/26/2019 15:15
21910271706	AOI3-3-SB-1.5-2-102519	Solid	10/25/2019 09:48	10/26/2019 15:15
21910271707	AOI3-6-SB-1.5-2-102519	Solid	10/25/2019 10:05	10/26/2019 15:15
21910271708	AOI3-4-SB-1.5-2-102519	Solid	10/25/2019 10:20	10/26/2019 15:15
21910271709	AOI3-4-SB-1.5-2-102519-D	Solid	10/25/2019 10:20	10/26/2019 15:15
21910271710	AOI4-1-SB-0-0.5-102519	Solid	10/25/2019 09:57	10/26/2019 15:15
21910271711	AOI4-1-SB-5.5-6-102519	Solid	10/25/2019 10:49	10/26/2019 15:15
21910271712	AOI4-1-SB-9.5-10-102519	Solid	10/25/2019 11:00	10/26/2019 15:15
21910271713	AOI4-1-GW-102519	Water	10/25/2019 11:30	10/26/2019 15:15
21910271714	AOI3-7-SB-1.5-2-102519	Solid	10/25/2019 12:35	10/26/2019 15:15
21910271715	AOI3-7-SB-1.5-2-102519-D	Solid	10/25/2019 12:35	10/26/2019 15:15
21910271716	AOI2-5-SB-4.5-5-102519	Solid	10/25/2019 13:00	10/26/2019 15:15
21910271717	AOI2-5-SB-9.5-10-102519	Solid	10/25/2019 13:16	10/26/2019 15:15
21910271718	AOI2-5-SB-13-13.5-102519	Solid	10/25/2019 13:20	10/26/2019 15:15
21910271719	AOI2-5-GW-102519	Water	10/25/2019 14:25	10/26/2019 15:15
21910271720	AOI2-4-SB-4.5-5-102519	Solid	10/25/2019 13:45	10/26/2019 15:15
21910271721	AOI2-1-SB-4.5-5-102519	Solid	10/25/2019 14:26	10/26/2019 15:15
21910271722	JFTBLA-EB-HA-102519 (RE)	Water	10/25/2019 08:15	10/26/2019 15:15
21910271723	AOI4-1-SB-5.5-6-102519 (RE)	Solid	10/25/2019 10:49	10/26/2019 15:15

Sample Summary

LAB ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
21910308501	AOI 8-X3-1-102919	Water	10/29/2019 09:00	10/30/2019 09:35
21910308502	AOI 8-X3-1-102919-D	Water	10/29/2019 09:05	10/30/2019 09:35
21910308503	AOI 8-5-SW-102919	Water	10/29/2019 09:15	10/30/2019 09:35
21910308504	AOI 8-5-SW-102919-MS	Water	10/29/2019 09:15	10/30/2019 09:35
21910308505	AOI 8-5-SW-102919-MSD	Water	10/29/2019 09:15	10/30/2019 09:35
21910308506	AOI 8-6-SW-102919	Water	10/29/2019 09:28	10/30/2019 09:35
21910308507	AOI 8-6-SW-102919-MS	Water	10/29/2019 09:28	10/30/2019 09:35
21910308508	AOI 8-6-SW-102919-MSD	Water	10/29/2019 09:28	10/30/2019 09:35
21910308509	AOI 8-7-SW-102919	Water	10/29/2019 09:45	10/30/2019 09:35
21910308510	AOI 8-7-SW-102919-D	Water	10/29/2019 09:45	10/30/2019 09:35
21910308511	AOI 8-4-SW-102919	Water	10/29/2019 09:57	10/30/2019 09:35
21910308512	AOI 8-3-SW-102919	Water	10/29/2019 10:05	10/30/2019 09:35
21910308513	AOI 8-2-SB-0-0.5-102919	Solid	10/29/2019 10:20	10/30/2019 09:35
21910308514	AOI 8-1-SB-0-0.5-102919	Solid	10/29/2019 10:30	10/30/2019 09:35
21910308515	AOI 5-N19-3-102919	Water	10/29/2019 11:57	10/30/2019 09:35
21910308516	AOI 5-N19-3-102919-D	Water	10/29/2019 11:57	10/30/2019 09:35
21910308517	JFTBLA-EB-102919	Water	10/29/2019 12:00	10/30/2019 09:35
21910308518	AOI 8-X3-1-102919 (RE)	Water	10/29/2019 09:00	10/30/2019 09:35
21910308519	AOI 8-5-SW-102919 (RE)	Water	10/29/2019 09:15	10/30/2019 09:35
21910308520	AOI 8-5-SW-102919-MS (RE)	Water	10/29/2019 09:15	10/30/2019 09:35
21910308521	AOI 8-5-SW-102919-MSD (RE)	Water	10/29/2019 09:15	10/30/2019 09:35
21910308522	AOI 8-6-SW-102919 (RE)	Water	10/29/2019 09:28	10/30/2019 09:35
21910308523	AOI 8-6-SW-102919-MS (RE)	Water	10/29/2019 09:28	10/30/2019 09:35
21910308524	AOI 8-6-SW-102919-MSD (RE)	Water	10/29/2019 09:28	10/30/2019 09:35
21910308525	AOI 8-7-SW-102919-D (RE)	Water	10/29/2019 09:45	10/30/2019 09:35
21910308526	AOI 8-4-SW-102919 (RE)	Water	10/29/2019 09:57	10/30/2019 09:35
21910308527	AOI 8-3-SW-102919 (RE)	Water	10/29/2019 10:05	10/30/2019 09:35
21910308528	AOI 5-N19-3-102919 (RE)	Water	10/29/2019 11:57	10/30/2019 09:35
21910308529	AOI 5-N19-3-102919-D (RE)	Water	10/29/2019 11:57	10/30/2019 09:35

Case Narrative

Client: AECOM **Report:** 219091838

Gulf Coast Analytical Laboratories 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 5.1 as specified in the contract.

PROJECT MANAGER COMMENTS

Samples were received preserved with Trizma. Per Naoum Tavantzis' email on 9/18/19, samples are not to be analyzed as 537 Drinking water. (Amanda Cox 09/18/2019 13:47)

MISCELLANEOUS

PFOS Abbreviations
6:2 FTS - 6:2 Fluorotelomer sulfonate
8:2 FTS - 8:2 Fluorotelomer sulfonate
FOSA - Perfluorooctane Sulfonamide
PFBA - Perfluorobutanoic acid
PFBS - Perfluorobutanesulfonic acid
PFDA - Perfluorodecanoic acid
PFDS - Perfluorodecane Sulfonate
PFDoA - Perfluorododecanoic acid
PFHpA - Perfluoroheptanoic acid
PFHpS - Perfluoro-1-heptanesulfonate
PFHxA - Perfluorohexanoic acid
PFHxS - Perfluorohexanesulfonic acid
PFNA - Perfluorononanoic acid
PFOA - Perfluorooctanoic acid
PFOS - Perfluorooctane Sulfonate
PFOS - Perfluorooctanesulfonic acid
PFPeA - Perfluoropentanoic acid
PFTeDA - Perfluorotetradecanoic acid
PFTrDA - Perfluorotridecanoic acid
PFUdA - Perfluoroundecanoic acid

Case Narrative

Client: AECOM **Report:** 219102326

Gulf Coast Analytical Laboratories 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 5.1 as specified in the contract.

SEMI-VOLATILES MASS SPECTROMETRY

In the EPA 537 Modified analysis for prep batch 669972, the LCSD recoveries are above the upper control limits for 8:2 Fluorotelomer sulfonate , NMeFOSAA, Perfluorooctane Sulfonate, and Perfluorotetradecanoic acid. All LCS recoveries are acceptable. The associated samples, 21910232601 (JFTBLA-EB-PW-102219), 21910232607 (AOI6-1-GW-102219), 21910232621 (AOI5-1-GW-102219), 21910232626 (AOI1-3-GW-102219) and 21910232629 (AOI1-1-GW-102219) were re-extracted outside holding time in prep batch 671259 and analyzed for these analytes. All LCS/LCSD recoveries are acceptable for the second batch. The data for the second extract is reported as samples 21910232630 -21910232634 with (RE) added to the client ID. The recovery for the extracted internal standard, M2PFTeDA is outside control limits for sample 21910232630 (JFTBLA-EB-PW-102219 (RE)).

In the EPA 537 Modified analysis for prep batch 669969, two MS/MSD pairs exhibited recovery failures. One MS/MSD pair exhibited a RPD failure. The MS/MSD (21910232612 and 21910232613) recoveries are not applicable for 6:2 Fluorotelomer sulfonate, Perfluorobutanoic acid, Perfluorohexanoic acid, and Perfluoropentanoic acid due to the high concentrations of these analytes in the parent sample. The MS/MSD (21910232609 and 21910232610) recoveries are not applicable for 6:2 Fluorotelomer sulfonate, Perfluorohexanoic acid, Perfluorobutanoic acid,Perfluoroheptanoicacid, Perfluorohexanesulfonic acid, and Perfluoropentanoic acid due to the high concentrations ofthese analytes in the parent sample. The LCS recovery is above the upper control limit for NMeFOSAA. This analyte was not detected in the associated samples.

In the EPA 537 Modified analysis for prep batch 669968, the MS/MSD recoveries are not applicable for 6:2 Fluorotelomer sulfonate due to the high concentration of this analyte in the parent sample.

In the EPA 537 Modified analysis, the recoveries for the extracted internal standard, M2 6:2 FTS is outside control limits for samples 21910232608 (AOI6-3-SB-1.5-2-102219), 21910232609 (AOI6-3-SB-1.5-2-102219-MS), 21910232610 (AOI6-3-SB-1.5-2-102219-MSD). These samples were re-extracted and analyzed with similar recoveries for this EIS. The recovery for the extracted internal standard, M2PFTeDA is outside control limits for sample 21910232610 (AOI6-3-SB-1.5-2-102219-MSD). The recovery for the associated analyte, Perfluorotridecanoic acid is high for the MSD. The parent sample and MS/MSD were re-extracted outside holding time and re-analyzed with an acceptable recovery for this EIS in all three samples and acceptable MS/MSD recoveries for the associated analytes. The data for the second extract is reported as samples 21910232635 - 21910232637 with (RE) added to the client ID.

In the EPA 537 Modified analysis, the recovery for the extracted internal standard, M2 6:2 FTS is outside control limits for samples 21910232611 (AOI6-2-SB-1.5-2-102219), 21910232612 (AOI6-2-SB-1.5-2-102219-MS), 21910232613 (AOI6-2-SB-1.5-2-102219-MSD), and 21910232621 (AOI5-1-GW-102219). These samples were re-extracted and analyzed with similar recoveries for this EIS.

In the EPA 537 Modified analysis, the recovery for the extracted internal standard, M8PFOS is outside control limits for the 50X analyzed for samples 21910232626 (AOI1-3-GW-102219) ND 21910232632 (AOI5-1-GW-102219 (RE)). The recovery for this EIS is acceptable for the 1X.

MISCELLANEOUS

PFAS Abbreviations
6:2 FTS - 6:2 Fluorotelomer sulfonate
8:2 FTS - 8:2 Fluorotelomer sulfonate
FOSA - Perfluorooctane Sulfonamide
PFBA - Perfluorobutanoic acid
PFBS - Perfluorobutanesulfonic acid
PFDA - Perfluorodecanoic acid
PFDS - Perfluorodecane Sulfonate
PFDoA - Perfluorododecanoic acid
PFHpA - Perfluoroheptanoic acid

Case Narrative

Client: AECOM **Report:** 219102333

Gulf Coast Analytical Laboratories 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 5.1 as specified in the contract.

SEMI-VOLATILES MASS SPECTROMETRY

In the EPA 537 Modified analysis for prep batch 669972, the LCSD recoveries are above the upper control limits for 8:2 Fluorotelomer sulfonate , NMeFOSAA, Perfluorooctane Sulfonate, and Perfluorotridecanoic acid. All LCS recoveries are acceptable. The associated samples, 21910233305 (JFTBLA-EB-HA-102119), 21910233308 (AOI7-10-GW-102119), 21910233314 (AOI7-7-11-GW-102119), 21910233321(AOI7-9-GW-102119) were re-extracted outside holding time in prep batch 671164 and analyzed for these analytes. All LCS/LCSD recoveries are acceptable for the second batch. The data for the second extract is reported as samples 21910233323-21910233326 with (RE) added to the client ID. No sample volume was available to re-extract sample 21910233316 (JFTBLA-FRB-102119).

In the EPA Modified 537 analysis for prep batch 669971, the LCSD recovery is above the upper control limit for NEtFOSAA and Perfluorotridecanoic acid. The LCS/LCSD RPD is above the upper control limit for for Perfluorotridecanoic acid. These analytes were not detected in the associated samples.

In the EPA Modified analysis, the recovery for the extracted internal standard, M2PFTeDA is outside control limits for samples 21910233302 (AOI7-10-SB-7.5-8-102119), 21910233303 (AOI7-5-SB-1.5-2-102119), 21910233307 (AOI7-7-SB-1.5-2-102119), 21910233312 (AOI7-11-SB-18-18.5-102119), and 21910233318 (AOI7-9-SB-17-17.5-102119). These samples were re-extracted outside holding time and analyzed with acceptable recoveries for this EIS. The data for the second extract (analytes associated with M2PFTeDA) is reported as samples 21910233327-21910233331 with (RE) added to the client ID.

MISCELLANEOUS

PFAS Abbreviations
6:2 FTS - 6:2 Fluorotelomer sulfonate
8:2 FTS - 8:2 Fluorotelomer sulfonate
FOSA - Perfluorooctane Sulfonamide
PFBA - Perfluorobutanoic acid
PFBS - Perfluorobutanesulfonic acid
PFDA - Perfluorodecanoic acid
PFDS - Perfluorodecane Sulfonate
PFDoA - Perfluorododecanoic acid
PFHpA - Perfluoroheptanoic acid
PFHpS - Perfluoro-1-heptanesulfonate
PFHxA - Perfluorohexanoic acid
PFHxS - Perfluorohexanesulfonic acid
PFNA - Perfluorononanoic acid
PFOA - Perfluorooctanoic acid
PFOS - Perfluorooctane Sulfonate
PFOS - Perfluorooctanesulfonic acid
PFPeA - Perfluoropentanoic acid
PFTeDA - Perfluorotetradecanoic acid
PFTrDA - Perfluorotridecanoic acid
PFUdA - Perfluoroundecanoic acid

Case Narrative

Client: AECOM **Report:** 219102541

Gulf Coast Analytical Laboratories 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 5.1 as specified in the contract.

LCMS

In the EPA 537 Modified analysis for prep batch 670127, the LCS/LCSD recoveries are above the upper control limits for Perfluorotridecanoic acid. This analyte was detected at an estimated concentration in one associated sample. The recovery for the extracted internal standard, M2PFTeDA is outside control limits for the MB, LCS, and LCSD.

In the EPA 537 Modified analysis for prep batch 670213, the recovery for the extracted internal standard M2PFTeDA is outside control limits for the LCSD. The spike recoveries for the associated analytes are acceptable.

In the EPA 537 Modified analysis for prep batch 670213, the recovery for the extracted internal standard M2PFTeDA is outside control limits for sample 21910254104 (AOI1-4-SB-4.5-5-102319). Analytes associated with this EIS were not detected in the sample.

In the EPA 537 Modified analysis, the recoveries for extracted internal standards are outside control limits for samples 21910254107 (AOI1-6-SB-4.5-5-102319) and 21910254120 (AOI-2-SB-12.5-13-102319). These samples were re-extracted outside holding time and analyzed with acceptable recoveries for the affected EIS. Analytes associated with these EIS are reported as samples -21910254128 with (RE) added to the client ID.

In the EPA 537 Modified analysis, the recovery for the extracted internal standard M8PFOS is outside control limits for the 50X for sample 21910254124 (AO1-2-SB-4.5-5-102319). The recovery for this EIS is acceptable at 1X.

In the EPA 537 Modified analysis, the recoveries for the extracted internal standards are outside control limits for samples 21910254111 (AOI1-5-GW-102319), 21910254112 (AOI1-SA-GW-102319), and 21910254121 (AOI1-2-GW-102319). The sample was re-extracted and analyzed with similar recoveries for these EIS.

In the EPA 537 Modified analysis, there are extracted internal standard recovery failures for the 50X for sample 21910254109 (AOI1-5-SB-7-7.5-102319). All EIS recoveries are acceptable for the 1X.

In the EPA 537 Modified analysis, sample 21910254111 (AOI1-5-GW-102319) was prepped by the serial dilution technique for Perfluorooctanoic acid.

MISCELLANEOUS

PFAS Abbreviations
6:2 FTS - 6:2 Fluorotelomer sulfonate
8:2 FTS - 8:2 Fluorotelomer sulfonate
FOSA - Perfluorooctane Sulfonamide
PFBA - Perfluorobutanoic acid
PFBS - Perfluorobutanesulfonic acid
PFDA - Perfluorodecanoic acid
PFDS - Perfluorodecane Sulfonate
PFDoA - Perfluorododecanoic acid
PFHpA - Perfluoroheptanoic acid
PFHpS - Perfluoro-1-heptanesulfonate
PFHxA - Perfluorohexanoic acid
PFHxS - Perfluorohexanesulfonic acid
PFNA - Perfluorononanoic acid
PFOA - Perfluorooctanoic acid
PFOS - Perfluorooctane Sulfonate
PFOS - Perfluorooctanesulfonic acid
PFPeA - Perfluoropentanoic acid

Case Narrative

Client: AECOM **Report:** 219102613

Gulf Coast Analytical Laboratories 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 5.1 as specified in the contract.

LCMS

In the EPA 537 Modified analysis for prep batch 670213, the recovery for the extracted internal standard M2PFTeDA is below the lower control limit for the LCSD (1976212). The recoveries for the associated analytes; therefore, the data is reported.

In the EPA 537 Modified analysis, the recovery for the extracted internal standard, M2PFTeDA is are outside control limits for sample 21910261307 (AOI3-11-SB-11-11.5-102419), The sample was re-extracted outside holding time and analyzed with an acceptable recovery for this EIS. The data for analytes associated with this EIS for the second extract is reported as sample 21910261321 (AOI3-11-SB-11-11.5-102419 (RE)).

In the EPA 537 Modified analysis, the recoveries for extracted internal standards are outside control limits for samples 21910261308 (AOI3-12-SB-1.5-2-102419). 21910261311 (AOI3-8-GW-102419), and 21910261316 (AOI3-12-GW-102419). The sample was re-extracted and re-analyzed with similar recoveries for the affected EIS.

In the EPA 537 Modified analysis, the recovery for the extracted internal standard, M2PFTeDA is outside control limits for sample 21910261313 (AOI3-11-GW-102419). The sample was re-extracted and analyzed with a similar recovery for this analyte. The recoveries for several internal standards are outside control limits for the diluted analyses performed for this sample. The recoveries for these EIS are acceptable for the 1X. It is suspected these are affected by the dilutions.

MISCELLANEOUS

PFAS Abbreviations
6:2 FTS - 6:2 Fluorotelomer sulfonate
8:2 FTS - 8:2 Fluorotelomer sulfonate
FOSA - Perfluorooctane Sulfonamide
PFBA - Perfluorobutanoic acid
PFBS - Perfluorobutanesulfonic acid
PFDA - Perfluorodecanoic acid
PFDS - Perfluorodecane Sulfonate
PFDoA - Perfluorododecanoic acid
PFHpA - Perfluoroheptanoic acid
PFHpS - Perfluoro-1-heptanesulfonate
PFHxA - Perfluorohexanoic acid
PFHxS - Perfluorohexanesulfonic acid
PFNA - Perfluorononanoic acid
PFOA - Perfluorooctanoic acid
PFOS - Perfluorooctane Sulfonate
PFOS - Perfluorooctanesulfonic acid
PFPeA - Perfluoropentanoic acid
PFTeDA - Perfluorotetradecanoic acid
PFTrDA - Perfluorotridecanoic acid
PFUdA - Perfluoroundecanoic acid

Case Narrative

Client: AECOM **Report:** 219102717

Gulf Coast Analytical Laboratories 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 5.1 as specified in the contract.

SEMI-VOLATILES MASS SPECTROMETRY

In the EPA 537 Modified analysis, there are extracted internal standard failures for samples 21910271701 (AOI3-1-SB-1.5-2-102519), 21910271702 (AOI3-2-SB-1.5-2-102519), 21910271703 (AOI3-2-SB-1.5-2-102519-D), 21910271706 (AOI3-3-SB-1.5-2-102519), 21910271707 (AOI3-6-SB-1.5-2-102519), 21910271708 (AOI3-4-SB-1.5-2-102519), 21910271709 (AOI3-4-SB-1.5-2-102519-D), and 21910271716 (AOI2-5-SB-4.5-5-102519), and 21910271720 (AOI2-4-SB-4.5-5-102519)

In the EPA 537 Modified analysis, the recovery for the extracted internal standard, M2PFTeDA is outside control limits for samples 21910271704 (JFTBLA-EB-HA-102519) and 21910271711 (AOI4-1-SB-5.5-6-102519). The sample was re-extracted outside holding time and analyzed with an acceptable recovery for this EIS. The data for the second extracts for analytes associated with this EIS are reported as samples 21910271722 (JFTBLA-EB-HA-102519 (RE)) and 21910271723 (AOI4-1-SB-5.5-6-102519 (RE)).

In the EPA 537 Modified analysis for prep batch 670213, the recovery for the extracted internal standard, M2PFTeDA is outside control limits for the LCSD. The recoveries for the associated analytes are acceptable.

MISCELLANEOUS

PFAS Abbreviations
6:2 FTS - 6:2 Fluorotelomer sulfonate
8:2 FTS - 8:2 Fluorotelomer sulfonate
FOSA - Perfluorooctane Sulfonamide
PFBA - Perfluorobutanoic acid
PFBS - Perfluorobutanesulfonic acid
PFDA - Perfluorodecanoic acid
PFDS - Perfluorodecane Sulfonate
PFDoA - Perfluorododecanoic acid
PFHpA - Perfluoroheptanoic acid
PFHpS - Perfluoro-1-heptanesulfonate
PFHxA - Perfluorohexanoic acid
PFHxS - Perfluorohexanesulfonic acid
PFNA - Perfluorononanoic acid
PFOA - Perfluorooctanoic acid
PFOS - Perfluorooctane Sulfonate
PFOS - Perfluorooctanesulfonic acid
PFPeA - Perfluoropentanoic acid
PFTeDA - Perfluorotetradecanoic acid
PFTrDA - Perfluorotridecanoic acid
PFUdA - Perfluoroundecanoic acid

Case Narrative

Client: AECOM **Report:** 219103085

Gulf Coast Analytical Laboratories 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 5.1 as specified in the contract.

LCMS

In the EPA 537 Modified analysis, the LCS and/or LCSD recoveries are outside control limits for PFPeA, PFDS, and PFNS. The MS and /or MSD are outside control limits for 4:2 FTS, PFNS, PFPeA, PFUdA. Sample 21911073815 (19EIE-388-3DU03-2) is outside control limits for extracted internal standards M2 6:2 FTS and M2 8:2 FTS.

In the EPA Modified analysis for prep batch 670458, the MS/MSD exhibited recovery and RPD failures. All LCS/LCSD recoveries and RPDs are acceptable.

In the EPA 537 Modified analysis, the recoveries for extracted internal standards are outside control limits for samples 21910308502 (AOI 8-X3-1-102919-D) and 21910308509 (AOI 8-7-SW-102919). The samples were re-extracted and analyzed with similar recoveries for the affected EIS.

In the EPA 537 Modified analysis, the recoveries for extracted internal standards are outside control limits for samples 21910308501 (AOI 8-X3-1-102919), 21910308503 (AOI 8-5-SW-102919), 21910308504 (AOI 8-5-SW-102919-MS), 21910308505 (AOI 8-5-SW-102919-MSD), 21910308506 (AOI 8-6-SW-102919), 21910308507 (AOI 8-6-SW-102919-MS), 21910308508 (AOI 8-6-SW-102919-MSD), 21910308510 (AOI 8-7-SW-102919-D), 21910308511 (AOI 8-4-SW-102919), 21910308512 (AOI 8-3-SW-102919), 21910308515 (AOI 5-N19-3-102919), and 21910308516 (AOI 5-N19-3-102919-D). These samples were re-extracted outside holding time and analyzed with acceptable recoveries for some of the EIS and similar recoveries for some EIS. For those EIS that are now acceptable, associated analytes are reported as samples 21910308518 -21910308529 with (RE) added to the client ID.

MISCELLANEOUS

PFAS Abbreviations
6:2 FTS - 6:2 Fluorotelomer sulfonate
8:2 FTS - 8:2 Fluorotelomer sulfonate
FOSA - Perfluorooctane Sulfonamide
PFBA - Perfluorobutanoic acid
PFBS - Perfluorobutanesulfonic acid
PFDA - Perfluorodecanoic acid
PFDS - Perfluorodecane Sulfonate
PFDoA - Perfluorododecanoic acid
PFHpA - Perfluoroheptanoic acid
PFHpS - Perfluoro-1-heptanesulfonate
PFHxA - Perfluorohexanoic acid
PFHxS - Perfluorohexanesulfonic acid
PFNA - Perfluorononanoic acid
PFOA - Perfluorooctanoic acid
PFOS - Perfluorooctane Sulfonate
PFOS - Perfluorooctanesulfonic acid
PFPeA - Perfluoropentanoic acid
PFTeDA - Perfluorotetradecanoic acid
PFTrDA - Perfluorotridecanoic acid
PFUdA - Perfluoroundecanoic acid

Pace Analytical

SAMPLE RECEIVING CHECKLIST

219091838

SAMPLE DELIVERY GROUP 219091838	
Client PM AEC 4838 - AECOM	**Transport Method** FEDEX
Profile Number 280552	**Received By** Savage, Tiffany R
Line Item(s) 1 - Ground Water-537 Mod.	**Receive Date(s)** 09/18/19

CHECKLIST	YES	NO
Samples received with proper thermal preservation?	☑	☐
Radioactivity is <1600 cpm? If no, record cpm value in notes section.	☑	☐
COC relinquished and complete (including sampleIDs, collect times, and sampler)?	☑	☐
All containers received in good condition and within hold time?	☑	☐
All sample labels and containers received match the chain of custody?	☑	☐
Preservative added to any containers?	☐	☑
If received, was headspace for VOC water containers < 6mm?	☑	☐
Samples collected in containers provided by Pace Gulf Coast?	☑	☐

COOLERS

Airbill	Thermometer ID: E34	Temp °C
7898-7757-5638		3.7

DISCREPANCIES

None

LAB PRESERVATIONS

None

NOTES

Revision 1.6

Pace Analytical

SAMPLE RECEIVING CHECKLIST

219102326

SAMPLE DELIVERY GROUP 219102326	
Client PM AEC 4838 - AECOM	**Transport Method** FEDEX
Profile Number 280552	**Received By** McCune, Dodie N.
Line Item(s) 1 - GW-18 comp 537 Mod. 3 - S-18 comp 537	**Receive Date(s)** 10/23/19

CHECKLIST	YES	NO
Samples received with proper thermal preservation?	☑	☐
Radioactivity is <1600 cpm? If no, record cpm value in notes section.	☑	☐
COC relinquished and complete (including sampleIDs, collect times, and sampler)?	☑	☐
All containers received in good condition and within hold time?	☑	☐
All sample labels and containers received match the chain of custody?	☑	☐
Preservative added to any containers?	☐	☑
If received, was headspace for VOC water containers < 6mm?	☑	☐
Samples collected in containers provided by Pace Gulf Coast?	☑	☐

COOLERS

Airbill	Thermometer ID: E34	Temp °C
780442488301		2.2

DISCREPANCIES

None

LAB PRESERVATIONS

None

NOTES

Revision 1.6

Pace Analytical

SAMPLE RECEIVING CHECKLIST

* 2 1 9 1 0 2 3 3 3 *

SAMPLE DELIVERY GROUP 219102333	
Client PM AEC 4838 - AECOM	**Transport Method** FEDEX
Profile Number 280552	**Received By** McCune, Dodie N.
Line Item(s) 1 - GW-18 comp 537 Mod. 3 - S-18 comp 537	**Receive Date(s)** 10/23/19

CHECKLIST	YES	NO
Samples received with proper thermal preservation?	☑	☐
Radioactivity is <1600 cpm? If no, record cpm value in notes section.	☑	☐
COC relinquished and complete (including sampleIDs, collect times, and sampler)?	☑	☐
All containers received in good condition and within hold time?	☑	☐
All sample labels and containers received match the chain of custody?	☑	☐
Preservative added to any containers?	☐	☑
If received, was headspace for VOC water containers < 6mm?	☑	☐
Samples collected in containers provided by Pace Gulf Coast?	☑	☐

COOLERS

Airbill	Thermometer ID: E34	Temp °C
814851457001		1.8

DISCREPANCIES

None

LAB PRESERVATIONS

None

NOTES

Revision 1.6

Pace Analytical

SAMPLE RECEIVING CHECKLIST

219102541

SAMPLE DELIVERY GROUP 219102541	
Client PM AEC 4838 - AECOM	**Transport Method** FEDEX
Profile Number 280552	**Received By** McCune, Dodie N.
Line Item(s) 1 - GW-18 comp 537 Mod. 3 - S-18 comp 537	**Receive Date(s)** 10/24/19

CHECKLIST	YES	NO
Samples received with proper thermal preservation?	☑	☐
Radioactivity is <1600 cpm? If no, record cpm value in notes section.	☑	☐
COC relinquished and complete (including sampleIDs, collect times, and sampler)?	☑	☐
All containers received in good condition and within hold time?	☑	☐
All sample labels and containers received match the chain of custody?	☑	☐
Preservative added to any containers?	☐	☑
If received, was headspace for VOC water containers < 6mm?	☑	☐
Samples collected in containers provided by Pace Gulf Coast?	☑	☐

COOLERS

Airbill	Thermometer ID: E26	Temp °C
780470715646		

DISCREPANCIES

None

LAB PRESERVATIONS

None

NOTES

Revision 1.6

Pace Analytical

SAMPLE RECEIVING CHECKLIST

219102613

SAMPLE DELIVERY GROUP 219102613	
Client PM AEC 4838 - AECOM	**Transport Method** FEDEX
Profile Number 280552	**Received By** Savage, Tiffany R
Line Item(s) 1 - GW-18 comp 537 Mod. 3 - S-18 comp 537	**Receive Date(s)** 10/25/19

CHECKLIST	YES	NO
Samples received with proper thermal preservation?	☑	☐
Radioactivity is <1600 cpm? If no, record cpm value in notes section.	☑	☐
COC relinquished and complete (including sampleIDs, collect times, and sampler)?	☑	☐
All containers received in good condition and within hold time?	☑	☐
All sample labels and containers received match the chain of custody?	☑	☐
Preservative added to any containers?	☐	☑
If received, was headspace for VOC water containers < 6mm?	☑	☐
Samples collected in containers provided by Pace Gulf Coast?	☑	☐

COOLERS

Airbill	Thermometer ID: E34	Temp °C
7804-9800-0110		0.3

DISCREPANCIES

None

LAB PRESERVATIONS

None

NOTES

Revision 1.6

Pace Analytical

SAMPLE RECEIVING CHECKLIST

219102717

SAMPLE DELIVERY GROUP 219102717	
Client PM AEC 4838 - AECOM	**Transport Method** FEDEX
Profile Number 280552	**Received By** McCune, Dodie N.
Line Item(s) 1 - GW-18 comp 537 Mod. 3 - S-18 comp 537	**Receive Date(s)** 10/26/19

CHECKLIST	YES	NO
Samples received with proper thermal preservation?	☑	☐
Radioactivity is <1600 cpm? If no, record cpm value in notes section.	☑	☐
COC relinquished and complete (including sampleIDs, collect times, and sampler)?	☑	☐
All containers received in good condition and within hold time?	☑	☐
All sample labels and containers received match the chain of custody?	☑	☐
Preservative added to any containers?	☐	☑
If received, was headspace for VOC water containers < 6mm?	☑	☐
Samples collected in containers provided by Pace Gulf Coast?	☑	☐

COOLERS

Airbill	Thermometer ID: E34	Temp °C
780822986807		0.5

DISCREPANCIES

None

LAB PRESERVATIONS

None

NOTES

Revision 1.6

Pace Analytical

SAMPLE RECEIVING CHECKLIST

219103085

SAMPLE DELIVERY GROUP 219103085	
Client PM AEC 4838 - AECOM	**Transport Method** FEDEX
Profile Number 280552	**Received By** Savage, Tiffany R
Line Item(s) 1 - GW-18 comp 537 Mod. 3 - S-18 comp 537	**Receive Date(s)** 10/30/19

CHECKLIST	YES	NO
Samples received with proper thermal preservation?	☑	☐
Radioactivity is <1600 cpm? If no, record cpm value in notes section.	☑	☐
COC relinquished and complete (including sampleIDs, collect times, and sampler)?	☑	☐
All containers received in good condition and within hold time?	☑	☐
All sample labels and containers received match the chain of custody?	☑	☐
Preservative added to any containers?	☐	☑
If received, was headspace for VOC water containers < 6mm?	☑	☐
Samples collected in containers provided by Pace Gulf Coast?	☑	☐

COOLERS

Airbill	Thermometer ID: E26	Temp °C
7805-9494-6927		1.4

DISCREPANCIES

None

LAB PRESERVATIONS

None

NOTES

Revision 1.6

GCAL ANALYTICAL LABORATORIES, LLC

CHAIN OF CUSTODY RECORD

7979 Innovation Park Dr., Baton Rouge, LA 70820-7402
Phone: 225.769.4900 • Fax: 225.767.5717 • www.gcal.com

Client ID: 4838 - AECOM
SDG: 219091838
PM: AEC

Report to:	Bill to:
Client: AECOM	Client: AECOM
Address: 999 W. Town & Country Rd. Orange, CA 92868	Address:
Contact: Holly Hulbook, Nazanin Tavakkoli	Contact:
Phone: 714-689-7215	Phone:
E-mail: Holly.Hulbook@AECOM.com	E-mail:

P.O. Number:

Project Name/Number: 60552172-0006-SI7 - Los Alamitos

Sampled By: Natasha Bolas

Analytical Requests & Method

GCAL use only:
Custody Seal used ☑ yes ☐ no
intact ☐ yes ☐ no ESH
Temperature °C 3.7
21 CFM

☐ Dissolved Analysis Requested
☐ Field filtered
☐ Lab filtered

Matrix[1]	Date	Time (2400)	Comp	Grab	Sample Description	No Containers	PFAS (drinking water)	PFAS (GW)	Preservative
W	9/17/19	1451		X	JFTBLA-Dexon-091719	2	X		-1
~~W~~					~~JFTBLA-EB-~~				
~~W~~					~~JFTBLA-Field Blank-~~				
W	9/17/19	1442		X	JFTBLA-DW-Field Blnk-091719	1	X		-2

Air Bill No: 7898-7757-5638

Turn Around Time (Business Days): ☐ 24h* ☐ 48h* ☐ 3 days* ☐ 1 week* ☑ Standard (Per Contract/Quote)

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
	9/17/19	1615	FEDEX	9/17/19	1615
Relinquished by: (Signature) FedEx	9/18/19	1135	Received by: (Signature)	9/18/19	1135
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:

Note:

By submitting these samples, you agree to GCAL's terms and conditions contained in our most recent schedule of services.

Matrix[1]: W = water, S = solid, L = liquid, T = tissue

*Requires prior approval, rush charges may apply.

We cannot accept verbal changes. Please email written changes to your PM.

WHITE: CLIENT FINAL REPORT - CANARY: CLIENT

GCAL ANALYTICAL LABORATORIES LLC

7979 Innovation Park Dr., Baton Rouge, LA 70820-7402
Phone: 225.769.4900 • Fax: 225.767.5717 • www.gcal.com

CHAIN OF CUSTODY RECORD

Client ID: 4838 - AECOM
SDG: 219102326
PM: AEC

Report to:	Bill to:
Client: AECOM	Client: AECOM
Address: 999 W. Town & Country Rd, Orange, CA 92868	Address: 12420 Milestone Center, Germantown, MD 20376
Contact: Holly Holbrook / Nguyen T	Contact: Rosa Gwinn
Phone: 714-689-7215	Phone: 301-820-3131
E-mail: Holly.Holbrooke@aecom.com	E-mail: USAPImaging@aecom.com

P.O. Number:
Project Name/Number: 60552172-0006-SI7-Los Alamitos
Sampled By: N. Boles / H. Holbrook

GCAL use only:
Custody Seal used ☑ yes ☐ no
intact ☑ yes ☐ no E34
Temperature °C 2.2
28 CRM
☐ Dissolved Analysis Requested
☐ Field filtered
☐ Lab filtered

Analytical Requests & Method: PFAS; pH & TOC

Matrix[1]	Date	Time (2400)	Comp	Grab	Sample Description	No. Containers	PFAS	pH & TOC	Preservative
W	10/22/19	0820		x	JFTBLA-EB-PW-102219	2	x		1
S		0905		x	AOI6-1-SB-1.5-2-102219	2	x	x	2
S		0905		x	AOI6-1-SB-1.5'-2-102219-MS	2	x	x	3
S		0905		x	AOI6-1-SB-1.5-2-102219-MSD	2	x	x	4
S		0920		x	AOI6-1-SB-7-7.5-102219	2	x	x	5
S		0930		x	AOI6-1-SB-18.5-19-102219	2	x	x	6
W		1005		x	AOI6-1-GW-102219	2	x		7
S		1015		x	AOI6-3-SB-1.5-2-102219	2	x	x	8
S		1015		x	AOI6-3-SB-1.5-2-102219-MS	2	x	x	9
S		1015		x	AOI6-3-SB-1.5-2-102219-MSD	2	x	x	10
S		1027		x	AOI6-2-SB-1.5-2-102219-	2	x	x	11
S		1027		x	AOI6-2-SB-1.5-2-102219-MS	2	x	x	12
S	↓	1027		x	AOI6-2-SB-1.5-2-102219-MSD	2	x	x	13

Air Bill No: 7804-4248-8301

Turn Around Time (Business Days): ☐ 24h* ☐ 48h* ☐ 3 days* ☐ 1 week* ☑ Standard (Per Contract/Quote)

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
[signature]	10/22/19	1645	FedEx	10/22/19	1645
FedEx	10/23/19	1015	[signature]	10/23/19	1015

Note:

By submitting these samples, you agree to GCAL's terms and conditions contained in our most recent schedule of services.

Matrix[1]: W = water, S = solid, L = liquid, T = tissue

*Requires prior approval, rush charges may apply.

We cannot accept verbal changes. Please email written changes to your PM.

WHITE: CLIENT FINAL REPORT - CANARY: CLIENT

GCAL ANALYTICAL LABORATORIES, LLC

7979 Innovation Park Dr., Baton Rouge, LA 70820-7402
Phone: 225.769.4900 • Fax: 225.767.5717 • www.gcal.com

CHAIN OF CUSTODY RECORD

Client ID: 4838 - AECOM
SDG: 219102326
PM: AEC

Report to:
Client: AECOM
Address: 999 W Town & Country Rd Orange, CA 92868
Contact: Holly Holbrook, Nadura T.
Phone: 714-689-7215
E-mail: Holly.Holbrook@aecom.com

Bill to:
Client: AECOM
Address: 17420 Milestone Center Germantown, MD 20876
Contact: Rose Gwin
Phone: 301-820-3131
E-mail: US APimaging@aecom.com

P.O. Number:
Project Name/Number: 60552172-0006-SI7-Los Alamitos
Sampled By: N. Bolas / H. Holbrook

Analytical Requests & Method: PFAS, pH 6-10

GCAL use only:
Custody Seal used ☑ yes ☐ no
intact ☐ yes ☐ no E3v
Temperature °C 2.2
28 IRM

☐ Dissolved Analysis Requested
☐ Field filtered
☐ Lab filtered

Matrix[1]	Date	Time (2400)	Comp	Grab	Sample Description	No Containers	PFAS	pH 6-10	Preservative	
S	10/22/19	1045		X	AOI6-4-SB-1.5-2-102219	2	X	X		14
S	10/22/19	1045		X	AOI6-4-SB-1.5-2-102219-MS	2	X	X		15
S	10/22/19	1045		X	AOI6-4-SB-1.5-2-102219-MSD	2	X	X		16
S	10/22/19	1215		X	AOI5-1-SB-1.5-2-102219	2	X	X		17
S	10/22/19	1221		X	AOI5-1-SB-1.5-2-102219-D	2	X	X		18
S		1230		X	AOI5-1-SB-8-8.5-102219	2	X	X		19
S		1240		X	AOI5-1-SB-19-19.5-102219	2	X	X	hydrocarbon odor	20
W		1310		X	AOI5-1-GW-102219	2	X			21
S		1417		X	AOI1-3-SB-4.5-5-102219	2	X	X		22
S		1430		X	AOI1-3-SB-9.5-10-102219	2	X	X		23
S		1435		X	AOI1-3-SB-16-16.5-102219	2	X	X		24
~~S~~		1500		X	AOI1-1-SB-4.5-5-102219	2	X	X		25
W		1505		X	AOI1-3-GW-102219	2	X			26

Air Bill No: 7804-4248-8301

Turn Around Time (Business Days): ☐ 24h* ☐ 48h* ☐ 3 days* ☐ 1 week* ☒ Standard (Per Contract/Quote)

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
	10/22/19	1645	FedEx	10/22/19	1645
FedEx	10/23/19	1035		10/23/19	1035

Note:

By submitting these samples, you agree to GCAL's terms and conditions contained in our most recent schedule of services.

Matrix[1]: W = water, S = solid, L = liquid, T = tissue

*Requires prior approval, rush charges may apply.

We cannot accept verbal changes. Please email written changes to your PM.

WHITE: CLIENT FINAL REPORT - CANARY: CLIENT

GCAL ANALYTICAL LABORATORIES, LLC

7979 Innovation Park Dr., Baton Rouge, LA 70820-7402
Phone: 225.769.4900 • Fax: 225.767.5717 • www.gcal.com

CHAIN OF CUSTODY RECORD

Client ID: 4838 - AECOM
SDG: 219102326
PM: AEC

Report to:
Client: AECOM
Address: 999 W. Town & Country Rd
Orange, CA 92868
Contact: Holly Holbrook & Naomi T.
Phone: 714-689-7215
E-mail: Holly.Holbrook@aecom.com

Bill to:
Client: AECOM
Address: 12420 Milestone Center
Germantown, MD 20876
Contact: Rosa Gwinn
Phone: 301-820-3131
E-mail: USAPimaging@aecom.com

P.O. Number:
Project Name/Number: 60552172-0006-SI7-Los Atamitos

Sampled By: N. Bolas / H. Holbrook

Analytical Requests & Method: PFAS; TOC & pH

GCAL use only:
Custody Seal used ☑ yes ☐ no
intact ☑ yes ☐ no EXM
Temperature °C 2.2
2SCPM

☐ Dissolved Analysis Requested
☐ Field filtered
☐ Lab filtered

Matrix[1]	Date	Time (2400)	Comp	Grab	Sample Description	No Containers	PFAS	TOC & pH	Preservative
S	10/22/19	1530		X	ADI 1-1-SB 10-10.5-102219	2	X	X	27
S	10/22/19	1536		X	ADI 1-1-SB-17-17.5-102219	2	X	X	28
W	10/22/19	1545		X	ADI 1-1-GW-10 2219	2	X		29

Air Bill No: FedEx# 7804-4248-8301

Turn Around Time (Business Days): ☐ 24h* ☐ 48h* ☐ 3 days* ☐ 1 week* ☑ Standard (Per Contract/Quote)

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
	10/22/19	1645	Fed Ex	10/22/19	1645
FedEx	10/24/19	1015		10/23/19	1045
	Date:	Time:	Received by: (Signature)	Date:	Time:

Note:

By submitting these samples, you agree to GCAL's terms and conditions contained in our most recent schedule of services.

Matrix[1]: W = water, S = solid, L = liquid, T = tissue

*Requires prior approval, rush charges may apply.

We cannot accept verbal changes. Please email written changes to your PM.

WHITE: CLIENT FINAL REPORT - CANARY: CLIENT

GCAL ANALYTICAL LABORATORIES LLC
7979 Innovation Park Dr., Baton Rouge, LA 70820-7402
Phone: 225.769.4900 • Fax: 225.767.5717 • www.gcal.com

CHAIN OF CUSTODY RECORD

Client ID: 4838 - AECOM
SDG: 219102333
PM: AEC

Report to:
Client: AECOM
Address: 999 W Town + County Rd, Orange, CA 92868
Contact: Holly Holbrook, Naovn Tauntiz
Phone: 714-689-7215
E-mail: holly.holbrook@aecom

Bill to:
Client: AECOM
Address: 12420 Milestone Center, Germantown MD 20876
Contact: Rosa Gwinn
Phone: 301-820-3131
E-mail: VSAPimaging@aecom.com

P.O. Number:
Project Name/Number: 60552172-0006-SI7-Los Alamitos
Sampled By: N. Bolas 310 630-7280

Analytical Requests & Method: PFAS; PH + TOC

GCAL use only:
Custody Seal used ☑ yes ☐ no
intact ☑ yes ☐ no E34
Temperature °C 1.8
32CPM
☐ Dissolved Analysis Requested
☐ Field filtered
☐ Lab filtered

Matrix¹	Date	Time (2400)	Comp	Grab	Sample Description	No Containers	PFAS	PH + TOC	Preservative
S	10/21/19	1225		X	A017-10-SB-1.5-2-102119	2	X	X	1
S	↓	1245		X	~~A017~~ A017-10-SB-7.5-8-102119	2	X	X	2
S		1300		X	A017-5-SB-1.5-2-102119	2	X	X	3
S		1310		X	A017-10-SB-17-17.5-102119	2	X	X	4
W		1320		X	JFTBLA-EB-HA-102119	2	X	~~X~~ 114	5
S		1330		X	A017-6-SB-1.5-2-102119	2	X	X	6
S		1405		X	A017-7-SB-1.5-2-102119	2	X	X	7
W		1414		X	A017-10-GW-102119	2	X		8
S		1415		X	A017-11-SB-1.5-2-102119	2	X	X	9
S		1430		X	A017-11-SB-7.5-8-102119	2	X	X	10
S		1445		X	A017-8-SB-1.5-2-102119	2	X	X	11
S		1500		X	A017-11-SB-18-18.5-102119	2	X	X	12
S	↓	1520		X	A017-9-SB-1.5-2-102119	2	X	X	13

Air Bill No: 8148-5145-7001

Turn Around Time (Business Days): ☐ 24h* ☐ 48h* ☐ 3 days* ☐ 1 week* ☐ Standard (Per Contract/Quote)

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
[signature]	10/21/19	1730	FedEx	10/21/19	1730
FedEx	10/23/19	1015	[signature]	10/23/19	1015

Note:

By submitting these samples, you agree to GCAL's terms and conditions contained in our most recent schedule of services.

Matrix¹: W = water, S = solid, L = liquid, T = tissue

*Requires prior approval, rush charges may apply.

We cannot accept verbal changes. Please email written changes to your PM.

WHITE: CLIENT FINAL REPORT - CANARY: CLIENT

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7979 Innovation Park Dr., Baton Rouge, LA 70820-7402
Phone: 225.769.4900 • Fax: 225.767.5717 • www.gcal.com

CHAIN OF CUSTODY RECORD

Client ID: 4838 - AECOM
SDG: 219102333
PM: AEC

Report to:
Client: AECOM
Address: 999 W. Town & Country Rd, Orange, CA 92868
Contact: Holly Holbrook; Naoum Tawil
Phone: 714-689-7215
E-mail: holly.holbrook@aecom.com

Bill to:
Client: AECOM
Address: 12420 Milestone Center, Germantown, MD 20376
Contact: Bob Gwin
Phone: 301-820-3131
E-mail: USAPimaging@aecom.com

P.O. Number:
Project Name/Number: 60552172-0006-517-Los Alamitos
Sampled By: N. Bolas 310 631-7280

Analytical Requests & Method: PFAS; pH + TOC

GCAL use only:
Custody Seal used ☑ yes ☐ no
intact ☑ yes ☐ no E34
Temperature °C 1.8
32CRM
☐ Dissolved Analysis Requested
☐ Field filtered
☐ Lab filtered

Matrix¹	Date	Time (2400)	Comp	Grab	Sample Description	No Containers	PFAS	pH + TOC	Preservative
W	10/21/19	1530		X	A017-11-GW-102119	2	X		14
S	↓	1550		X	A017-9-SB-7.5-8-102119	2	X	X	15
W	↓	1600		X	JFTBLA-FRB-102119	1	X		16
S	↓	1600		X	A017-1-SB-1.5-2-102119	2	X	X	17
S	↓	1605		X	A017-9-SB-17-17.5-102119	2	X	X	18
S	↓	1620		X	A017-2-SB-1.5-2-102119	2	X	X	19
S	↓	1635		X	A017-3-SB-1.5-2-102119	2	X	X	20
W	↓	1645		X	A017-9-GW-102119	2	X		21
S	↓	1650		X	A017-4-1.5-2-102119	2	X	X	22

Air Bill No: 8148-5145-7001

Turn Around Time (Business Days): ☐ 24h* ☐ 48h* ☐ 3 days* ☐ 1 week* ☐ Standard (Per Contract/Quote)

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
[signature]	10/21/19	1720	FedEx	10/21/19	1720
FedEx	10/23/19	1015	[signature]	10/23/19	1015

Note:

By submitting these samples, you agree to GCAL's terms and conditions contained in our most recent schedule of services.

Matrix¹: W = water, S = solid, L = liquid, T = tissue

*Requires prior approval, rush charges may apply.

We cannot accept verbal changes. Please email written changes to your PM.

WHITE: CLIENT FINAL REPORT - CANARY: CLIENT

GCAL ANALYTICAL LABORATORIES LLC

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Phone: 225.769.4900 • Fax: 225.767.5717 • www.gcal.com

CHAIN OF CUSTODY RECORD

Client ID: 4838 - AECOM
SDG: 219102541
PM: AEC

Report to:	Bill to:
Client: AECOM	Client: AECOM
Address: 999 W. Town & Country Orange, CA 92868	Address: 12420 Milestone Center Germantown, MD 20876
Contact: Holly Holbrook, Maarn T.	Contact: Rosa Gwinn
Phone: 714-689-7215	Phone: 301-820-3131
E-mail: holly.holbrake@aecom.com	E-mail: USAPimaging@aecom.com

P.O. Number:

Project Name/Number: 60552172-0006-SI7-Los Alamitos

Sampled By: N. Bolas/H. Holbrook

GCAL use only:
Custody Seal used ☑ yes ☐ no intact ☑ yes ☐ no
Temperature °C 3.2 E26 4:34PM

☐ Dissolved Analysis Requested
☐ Field filtered
☐ Lab filtered

Matrix[1]	Date	Time (2400)	Comp	Grab	Sample Description	No Containers	PFAS	pH 1TOC	Preservative	
S	10/23/19	0800		X	AOI 1-5-SB-4.5-5-102319	2	X	X		1
S		0800		X	AOI 1-5-SB-4.5-5-102319-D	2	X	X		2
S		0852		X	AOI 1-4-SB-4.5-5-102319-D	2	X	X		3
S		0852		X	AOI 1-4-SB-4.5-5-102319	2	X	X		4
W		0815		X	JFTBLA-EB-B-102319	2	X		SS bowl	5
W		0820		X	JFTBLA-EB-HA-102319	2	X		Hand auger	6
S		0830		X	AOI 1-6-SB-4.5-5-102319	2	X	X		7
W		0835		X	JFTBLA-EB-WM-102319	2	X		water meter	8
S		0845		X	AOI 1-5-SB-9-9.5-102319	2	X	X		9
S		0915		X	AOI 1-5-SB-17.5-18-102319	2	X	X		10
W		0945		X	AOI 1-5-GW-102319	2	X			11
W		1000		X	AOI 1-5A-GW-102319	2	X			12
S	↓	1026		X	AOI 1-6-SB-9-9.5-102319	2	X	X		13

Air Bill No: 7804 7071 5644

Turn Around Time (Business Days): ☐ 24h* ☐ 48h* ☐ 3 days* ☐ 1 week* ☑ Standard (Per Contract/Quote)

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
[signature]	10/23/19	1700	FedEx	10/23/19	1700
FedEx	10-24-19	10:10	[signature]	10-24-19	10:10
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:

Note:

By submitting these samples, you agree to GCAL's terms and conditions contained in our most recent schedule of services.

Matrix[1]: W = water, S = solid, L = liquid, T = tissue

*Requires prior approval, rush charges may apply.

We cannot accept verbal changes. Please email written changes to your PM.

WHITE: CLIENT FINAL REPORT - CANARY: CLIENT

GCAL
ANALYTICAL LABORATORIES LLC
7979 Innovation Park Dr., Baton Rouge, LA 70820-7402
Phone: 225.769.4900 • Fax: 225.767.5717 • www.gcal.com

CHAIN OF CUSTODY RECORD

Client ID: 4838 - AECOM
SDG: 219102541
PM: AEC

Report to:
Client: AECom
Address: 999 W. Town & Country Rd. Orange, CA 92868
Contact: Holly Holbrook, N3WMT
Phone: 714-689-7215
E-mail: holly.holbrook@aecom.com

Bill to:
Client: AECom
Address: 12420 Milestone Center Germantown, MD 20376
Contact: Rose Gwinn
Phone: 301-820-3131
E-mail: USAPimaging@aecom.com

P.O. Number:
Project Name/Number: 60555 2172-0006-SI7-Los Alamitos
Sampled By: N Bdas / H. Holbrook

Analytical Requests & Method: PFAS; pH + TOC

GCAL use only:
Custody Seal used ☑ yes ☐ no
intact ☑ yes ☐ no
Temperature °C 3.2 E26
43UPM

☐ Dissolved Analysis Requested
☐ Field filtered
☐ Lab filtered

Matrix[1]	Date	Time (2400)	Comp	Grab	Sample Description	No Containers	PFAS	pH + TOC	Preservative
S	102319	1033		X	AOI 1-6-SB-12.5-13-102319	2	X	X	14
W	102319	1115		X	AOI 1-6-GW-102319	2	X		15
S	↓	1110		X	AOI 1-4-SB-9.5-10-102319	2	X	X	16
W		1140		X	AOI 1-4-GW-102319	2	X		17
S		1255		X	AOI 1-2-SB-4.5-5-102319	2	X	X	18
S		1311		X	AOI 1-2-SB-9.5-10-102319	2	X	X	19
S		1315		X	AOI 1-2-SB-12.5-13-102319	2	X	X	20
W		1340		X	AOI 1-2-GW-102319	2	X		21
S		1455		X	AOI 2-3-SB-4.5-5-102319	2	X	X	22
S		1455		X	AOI 2-3-SB-4.5-5-102319D	2	X	X	23
S		1520		X	AOI 2-2-SB-4.5-5-102319	2	X	X	24
S	↓	1520		X	AOI 2-2-SB-4.5-5-102319-D	2	X	X	25

Air Bill No: 7804 7071 5646

Turn Around Time (Business Days): ☐ 24h* ☐ 48h* ☐ 3 days* ☐ 1 week* ☑ Standard (Per Contract/Quote)

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
[signature]	10/23/19	1700	FedEx	10/23/19	1700
FedEx	10-24-19	10:10	[signature]	10-24-19	10:10

Note:

By submitting these samples, you agree to GCAL's terms and conditions contained in our most recent schedule of services.

Matrix[1]: W = water, S = solid, L = liquid, T = tissue

*Requires prior approval, rush charges may apply.

We cannot accept verbal changes. Please email written changes to your PM.

WHITE: CLIENT FINAL REPORT - CANARY: CLIENT

GCAL ANALYTICAL LABORATORIES, LLC

7979 Innovation Park Dr., Baton Rouge, LA 70820-7402
Phone: 225.769.4900 • Fax: 225.767.5717 • www.gcal.com

CHAIN OF CUSTODY RECORD

Client ID: 4838 - AECOM
SDG: 219102613
PM: AEC

Report to:	Bill to:
Client: AECOM	Client: AECOM
Address: 999 w Town & Country Rd Orange, CA 92868	Address: 12420 milestone Center Germantown, MD 20876
Contact: Holly Holbrook & Nadia	Contact: Bosa Gwin
Phone: 714-699-7215	Phone: 301-820-3131
E-mail: Holly.Holbrook@aecom.com	E-mail: USAPimaging@aecom.com

P.O. Number:
Project Name/Number: 60552172 - 0006 - SI7 Los Alamitos
Sampled By: H. Holbrook / B. Granger

Analytical Requests & Method: PFAS 5 | pH + TOC

GCAL use only:
Custody Seal: used ☑ yes ☐ no; intact ☑ yes ☐ no
Temperature °C 0.3 E34
19CPM

☐ Dissolved Analysis Requested
☐ Field filtered
☐ Lab filtered

Matrix[1]	Date	Time (2400)	Comp	Grab	Sample Description	No. Containers	PFAS 5	pH + TOC	Preservative
S	10/24/19	0845		X	AOI3-8-SB-1.5-2-102419	2	X	X	1
S		0845		X	AOI3-8-SB-1.5-2-102419-D	2	X	X	2
S		0907		X	AOI3-9-SB-9-9.5-102419	2	X	X	3
S		0912		X	AOI3-8-SB-13-13.5-102419	2	X	X	4
S		0920		X	AOI3-11-SB-4.5-2-102419	2	X	X	5
S		0950		X	AOI3-11-SB-8.5-9-102419	2	X	X	6
S		0954		X	AOI3-11-SB-11-11.5-102419	2	X	X	7
S		1020		X	AOI3-12-SB-1.5-2-102419	2	X	X	8
S		1040		X	AOI3-12-SB-7-7.5-102419	2	X	X	9
S		1055		X	AOI3-12-SB-19-19.5-102419	2	X	X	10
W		1110		X	AOI3-8-GW-102419	2	X		11
S		1125		X	AOI3-9-SB-1.5-2-102419	2	X	X	12
W		1150			AOI3-11-GW-102419	2	X	X	13

Air Bill No: 7804-9800-0110

Turn Around Time (Business Days): ☐ 24h* ☐ 48h* ☐ 3 days* ☐ 1 week* ☐ Standard (Per Contract/Quote)

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
	10/24/19	1700	FedEx	10/24/19	1700
FedEx	10/25/19	0931		10/25/19	0931

Note:

By submitting these samples, you agree to GCAL's terms and conditions contained in our most recent schedule of services.

Matrix[1]: W = water, S = solid, L = liquid, T = tissue

*Requires prior approval, rush charges may apply.

We cannot accept verbal changes. Please email written changes to your PM.

WHITE: CLIENT FINAL REPORT - CANARY: CLIENT

GCAL
ANALYTICAL LABORATORIES, LLC

7979 Innovation Park Dr., Baton Rouge, LA 70820-7402
Phone: 225.769.4900 • Fax: 225.767.5717 • www.gcal.com

CHAIN OF CUSTODY RECORD

Client ID: 4838 - AECOM
SDG: 219102613
PM: AEC

Report to:
Client: AECOM
Address: 999 W. Town & Country Rd, Orange, CA 92868
Contact: Holly Holbrook & Naomi T.
Phone: 714-689-7215
E-mail: holly.holbrook@aecom.com

Bill to:
Client: AECOM
Address: 12420 Milestone Center, Germantown, MD 20376
Contact: Rosa Gwinn
Phone: 301-820-3151
E-mail: rosa.gwinn@aecom.com

GCAL use only:
Custody Seal used ☒ yes ☐ no
intact ☒ yes ☐ no E34
Temperature °C 0.3
19CAL

☐ Dissolved Analysis Requested
☐ Field filtered
☐ Lab filtered

P.O. Number:
Project Name/Number: 60552172-0006-SI 7 Los Alamitos
Sampled By: H Holbrook / P. Granger

Analytical Requests & Method: PFAS; 1,4 diox

Matrix¹	Date	Time (2400)	Comp	Grab	Sample Description	No Containers	PFAS	1,4 diox	Preservative
S	10/24/19	1245		X	AOI3-9-SB-8.5-9-102419	2	X	X	14
					~~AOI3-9-SB-8.5-9-102419~~	2	X	X	~~HH~~ 10/24/19
S	10/24/19	1250		X	AOI3-9-SB-14-14.5-102419	2	X	X	15
W	10/24/19	~~1325~~ 1320		X	AOI3-12-GW-102419	2	X		16
S	10/24/19	1330		X	AOI3-10-SB-1.5-2-102419	2	X	X	17
S	10/24/19	1355		X	AOI3-10-SB-10.5-11-102419	2	X	X	18
W	10/24/19	1430		X	AOI3-9-GW-102419	2	X		19
W	10/24/19	1550			AOI3-10-GW-102419	2			20

Air Bill No: 7804-9800-0110

Turn Around Time (Business Days): ☐ 24h* ☐ 48h* ☐ 3 days* ☐ 1 week* ☐ Standard (Per Contract/Quote)

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
[signature]	10/24/19	1700	FedEx	10/24/19	1700
FedEx	10/25/19	0936	[signature]	10/25/19	0936

Note:

By submitting these samples, you agree to GCAL's terms and conditions contained in our most recent schedule of services.

Matrix¹: W = water, S = solid, L = liquid, T = tissue

*Requires prior approval, rush charges may apply.

We cannot accept verbal changes. Please email written changes to your PM.

WHITE: CLIENT FINAL REPORT - CANARY: CLIENT

GCAL ANALYTICAL LABORATORIES, LLC
7979 Innovation Park Dr., Baton Rouge, LA 70820-7402
Phone: 225.769.4900 • Fax: 225.767.5717 • www.gcal.com

CHAIN OF CUSTODY RECORD

Client ID: 4838 - AECOM
SDG: 219102717
PM: AEC

Report to:
Client: AECOM
Address: 999 W. Town & Country Rd Orange, CA 92868
Contact: Holly Holbrook + Nadim T
Phone: 714-689-7215
E-mail: Holly.Holbrook@aecom.com

Bill to:
Client: AECOM
Address: 12420 Milestone Center Germantown, MD 20376
Contact: Rosa Gwinn
Phone: ~~714-689~~ 301-820-3131
E-mail: USAP.imaging@aecom.com

P.O. Number:
Project Name/Number: 60552172-0006-SI7-Los Alamitos
Sampled By: H. Holbrook/P. Grange

Analytical Requests & Method: PFAS; pH OTRC

GCAL use only:
Custody Seal used ☑ yes ☐ no
intact ☑ yes ☐ no E34
Temperature °C 0.5
21CPM
☐ Dissolved Analysis Requested
☐ Field filtered
☐ Lab filtered

Matrix¹	Date	Time (2400)	Comp	Grab	Sample Description	No Containers	PFAS	pH OTRC	Preservative	
S	10/25/19	0820		x	AOI3-1-SB-1.5-2-102519	2	x	x		1
S	10/25/19	0845		x	AOI3-2-SB-1.5-2-~~1025~~102519	2	x	x		2
S	10/25/19	0845		x	AOI3-2-SB-1.5-2-102519-D	2	x	x		3
W		0815		x	JFTBLA-GB-HA-102519	2	x			4
S		0921		x	AOI3-5-SB-1.5-2-102519	2	x	x		5
~~S~~		~~0916~~		~~x~~	~~AOI4-1-SB-0-2.5-102519-A~~	~~2~~	~~x~~	~~x~~	HOLD 10/25/19	
S		0948		x	AOI3-3-SB-1.5-2-102519	2	x	x		6
S		1015		x	AOI3-6-SB-1.5-2-102519	2	x	x		7
S		1020		x	AOI3-4-SB-1.5-2-102519	2	x	x		8
S		1020		x	AOI3-4-SB-1.5-2-102519-D	2	x	x		9
S		0957		X	AOI4-1-SB-0-0.5-102519	2	X	X		10
S		1049		X	AOI4-1-SB-5.5-6-102519	2	X	X		11
S		1100		x	AOI4-1-SB-9.5-10-102519	2	x	x		12

Air Bill No: 7805-2298-6807

Turn Around Time (Business Days): ☐ 24h* ☐ 48h* ☐ 3 days* ☐ 1 week* ☑ Standard (Per Contract/Quote)

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
[signature]	10/25/19	1600	[signature]	10/25/19	1600
FedEx	10/26/19	1515	[signature]	10/26/19	1515

Note:

By submitting these samples, you agree to GCAL's terms and conditions contained in our most recent schedule of services.

Matrix¹: W = water, S = solid, L = liquid, T = tissue

*Requires prior approval, rush charges may apply.

We cannot accept verbal changes. Please email written changes to your PM.

WHITE: CLIENT FINAL REPORT - CANARY: CLIENT

GCAL ANALYTICAL LABORATORIES, LLC
7979 Innovation Park Dr., Baton Rouge, LA 70820-7402
Phone: 225.769.4900 • Fax: 225.767.5717 • www.gcal.com

CHAIN OF CUSTODY RECORD

Client ID: 4838 - AECOM
SDG: 219102717
PM: AEC

Report to:
Client: AECOM
Address: 999 W. Town & Country
Contact: Holly Hollbrook
Phone: 714-689-7213
E-mail: Holly.Hollbrook@aecom.com

Bill to:
Client: AECOM
Address: 12420 Milestone Center, Germantown, MD 20876
Contact: Rosa Gwinn
Phone: 301 820-3131
E-mail: USAPinaying@aecom.com

GCAL use only:
Custody Seal
used ☑ yes ☐ no
intact ☑ yes ☐ no
E34
Temperature °C 0.5
21 CPM
☐ Dissolved Analysis Requested
☐ Field filtered
☐ Lab filtered

P.O. Number:
Project Name/Number: 60552172-0006-517 - Los Alamitos
Sampled By: H. Holbrook / P. Grange

Analytical Requests & Method: PFAS; pH & TOC

Matrix¹	Date	Time (2400)	Comp	Grab	Sample Description	No Containers	PFAS	pH & TOC	Preservative
W	10/25/19	1130		X	AOI4-1-GW-102519	2	X		13
S	10/25/19	1235		X	AOI3-7-SB-1.5-2-102519	2	X	X	14
S	10/25/19	1235		X	AOI3-7-SB-1.5-2-102519-D	2	X	X	15
S	↓	1300		X	AOI2-5-SB-4.5-5-102519	2	X	X	16
S		1316		X	AOI2-5-SB-9.5-10-102519	2	X	X	17
S		1320		X	AOI2-5-SB-13-13.5-102519	2	X	X	18
W		1425		X	AOI2-5-GW-102519	2	X		19
S		1345		X	AOI2-4-SB-4.5-5-102519	2	X	X	20
S	↓	1426		X	AOI2-1-SB-4.5-5-102519	2	X	X	21

Air Bill No: 7805-2298-1080

Turn Around Time (Business Days): ☐ 24h* ☐ 48h* ☐ 3 days* ☐ 1 week* ☑ Standard (Per Contract/Quote)

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
[signature]	10/25/19	1600	FedEx	10/25/19	1600
FedEx	10/26/19	1515	[signature]	10/26/19	1515

Note:

By submitting these samples, you agree to GCAL's terms and conditions contained in our most recent schedule of services.

Matrix¹: W = water, S = solid, L = liquid, T = tissue

*Requires prior approval, rush charges may apply.

We cannot accept verbal changes. Please email written changes to your PM.

WHITE: CLIENT FINAL REPORT - CANARY: CLIENT

GCAL ANALYTICAL LABORATORIES LLC
7979 Innovation Park Dr., Baton Rouge, LA 70820-7402
Phone: 225.769.4900 • Fax: 225.767.5717 • www.gcal.com

CHAIN OF CUSTODY RECORD

Client ID: 4838 - AECOM
SDG: 219103085
PM: AEC

Report to:
Client: AECOM
Address: 999 W Town+Country Orange, CA 92868
Contact: ~~Orange, CA 92865~~
Phone: Holly Holbrook, NAOUMT.
E-mail: 714-689-7215 holly.holbrook@aecom

Bill to:
Client: AECOM
Address: 12420 Milestone Center Germantown MD 20876
Contact: Rosa Gwinn
Phone: 301-820-3131
E-mail: USAPImaging@aecom.com

P.O. Number:
Project Name/Number: 60552172-0006-SI7-LOS Alamitos
Sampled By: N. Bolas / P. Granger

Analytical Requests & Method: PFAS; TOC + pH

GCAL use only:
Custody Seal used ☒ yes ☐ no
intact ☒ yes ☐ no
Temperature °C 1.4 EDW 27LPM

☐ Dissolved Analysis Requested
☐ Field filtered
☐ Lab filtered

Matrix[1]	Date	Time (2400)	Comp	Grab	Sample Description	No Containers	PFAS	TOC + pH	Preservative
W	10/29/19	0900		X	A01 8-X3-1-102919	2	X		1
W	10/29/19	0905		X	A01 8-X3-1-102919-D	2	X		2
W	↓	0915		X	A01 8-5-SW-102919	2	X		3
W		0915		X	A01 8-5-SW-102919-MS	2	X		4
W		0915		X	A01 8-5-SW-102919-MSD	2	X		5
W		0928		X	A01 8-6-SW-102919	2	X		6
W		0928		X	A01 8-6-SW-102919-MS	2	X		7
W		0928		X	A01 8-6-SW-102919-MSD	2	X		8
W		0945		X	A01 8-7-SW-102919	2	X		9
W		0945		X	A01 8-7-SW-102919-D	2	X		10
W		0957		X	A01 8-4-SW-102919	2	X		11
W		1005		X	A01 8-3-SW-102919	2	X		12
S	↓	1020		X	A01 8-2-SB-0-0.5-102919	2	X	X	13

Air Bill No: 1805 9494 6927

Turn Around Time (Business Days): ☐ 24h* ☐ 48h* ☐ 3 days* ☐ 1 week* ☒ Standard (Per Contract/Quote)

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
[signature]	10/29/19	1300	FEDEX	10/29/19	1300
FedEX	10-30-19	9:35	[signature]	10-30-19	9:36

Note:

By submitting these samples, you agree to GCAL's terms and conditions contained in our most recent schedule of services.

Matrix[1]: W = water, S = solid, L = liquid, T = tissue
*Requires prior approval, rush charges may apply.
We cannot accept verbal changes. Please email written changes to your PM.

WHITE: CLIENT FINAL REPORT - CANARY: CLIENT

CHAIN OF CUSTODY RECORD

GCAL ANALYTICAL LABORATORIES, LLC
7979 Innovation Park Dr., Baton Rouge, LA 70820-7402
Phone: 225.769.4900 • Fax: 225.767.5717 • www.gcal.com

Client ID: 4838 - AECOM
SDG: 219103085
PM: AEC

Report to:
Client: AECOM
Address: 999 W Town + Country, Orange, CA 92868
Contact: Holly Holbrook, Naomi T.
Phone: 714-689-7215
E-mail: holly.holbrook@aecom

Bill to:
Client: AECOM
Address: 12420 Milestone Center, Germantown, MD 20876
Contact: Rosa Gwinn
Phone: 301-820-3131
E-mail: USAP imaging@aecom.com

P.O. Number:
Project Name/Number: 60552172-0006-SI7-LosAlamitos
Sampled By: N. Bolas / P. Granger

Analytical Requests & Method: PFAS; TOC & pH

Matrix[1]	Date	Time (2400)	Comp	Grab	Sample Description	No Containers	PFAS	TOC & pH	Preservative
S	10/29/19	1030		X	AO18-1-SB-0-0.5-102919	2	X	X	14
W	↓	1157		X	AO15-N19-3-102919	2	X		15
W	↓	1157		X	AO15-N19-3-102919-D	2	X		16
W	↓	1200		X	JETBLA-EB-102919	2	X		17

GCAL use only:
Custody Seal used ☒ yes ☐ no
intact ☒ yes ☐ no
Temperature °C 1.4 E26 / 27LPM
☐ Dissolved Analysis Requested
☐ Field filtered
☐ Lab filtered

Air Bill No: 7805 9494 6927

Turn Around Time (Business Days): ☐ 24h* ☐ 48h* ☐ 3 days* ☐ 1 week* ☒ Standard (Per Contract/Quote)

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
N. Bolas	10/29/19	1300	FEDEX	10/29/19	1300
FedEx	10-30-19	9:35	Dooley McCann	10-30-19	9:35

Note:

By submitting these samples, you agree to GCAL's terms and conditions contained in our most recent schedule of services.

Matrix[1]: W = water, S = solid, L = liquid, T = tissue

*Requires prior approval, rush charges may apply.

We cannot accept verbal changes. Please email written changes to your PM.

WHITE: CLIENT FINAL REPORT - CANARY: CLIENT

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 (January 2017) Data Review.

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.
U	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*
a	Tracer recovery (radiochemical data only)
be	Equipment blank contamination
bf	Field blank contamination
bl	Laboratory blank contamination
bm	Missing Blank Information
c	Calibration issue
cl	Clean-up standard recovery
cp	Insufficient in growth (radiochemical data only)
cr	Chromatographic resolution
d	Reporting limit raised due to chromatographic interference
e	Ether interference
fd	Field duplicate RPDs
g	Chromatographic pattern match issue
h	Holding times
i	Internal standard areas
ii	Injection internal standard area or retention time exceedance
k	Estimated Maximum Possible Concentrations
l	LCS recoveries
lc	Labeled compound recovery
ld	Laboratory duplicate RPDs (matrix duplicate, MSD, LCSD)
m	Matrix spike recovery
nb	Negative laboratory blank contamination
p	Chemical preservation issue
pe	Post Extraction Spike
q	Quantitation issue
r	Dual column RPD
rp	Re-extraction precision issue [PAHs only]

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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
Joint Forces Training Base, Los Alamitos, CA
ARNG PFAS Site Inspection

Date	AECOM Personnel	Weather	Summary Daily Activities	Issues	Progress to Date	Subcontractor(s)/ Visitors
10/29/2019	Natasha Bolas (SS) Philip Granger (SSHO)	Sunny, clear High 72° F, Low 52° F	'- Held a Tailgate SH&E meeting. Reviewed Scope of work, SH&E concerns, daily PFAS Sampling checklist, and JFTB specific operation protocols. Reuben Sendejas onsite for SH&E meeting. - Checked in with Base Operations to access AOI 8 and proceeded to the Western Drainage Ditch. - Located well X3-1, conducted low-flow sampling, and collected a sample. - Collected surface water samples from AOI 8-3, AOI 8-4, AOI 8-5, AOI 8-6, and AOI 8-7. -Collected surface soil samples from AOI 8-1 and AOI 8-2. - Checked in at the JFTB fire station and proceeded to well N19-3, conducted low-flow sampling and collected a sample. - Offloaded purge water and checked drums. - Shipped samples from FedEx to lab.	- None	Soil Borings: 18/18 Soil HA Locations: 22/22 Soil Samples: 76/76 Temporary Wells: 18/18 Existing Wells: 2/2 Surface Water/Sediment Samples: 7/7	Reuben Sendejas

Log of Daily Notice of Field Activity
Joint Forces Training Base, Los Alamitos, CA
ARNG PFAS Site Inspection

Date	AECOM Personnel	Weather	Summary Daily Activities	Issues	Progress to Date	Subcontractor(s)/ Visitors
10/25/2019	Holly Holbrook Natasha Bolas (SS) Philip Granger (SSHO)	Sunny, clear and windy High 93° F, Low 57° F	- Held a Tailgate SH&E meeting. Reviewed Scope of work, SH&E concerns, daily PFAS Sampling checklist, and JFTB specific operation protocols. - Decontaminated rig at the decon pad. - Checked in with Base Ops, filled water from designated hydrant and mobilized to the AOI 4 to start concrete coring. - Completed boring AOI 4-1 and set temporary well screen. Collected soil and groundwater samples. - Decontaminated rig at the decon pad. - Completed boring AOI 2-5 and set temporary well screen Collected soil and groundwater samples. - Completed shallow soil borings at AOI 2 and AOI 3. - Decontaminated drill rig at the decon pad and drillers demobed from the site.	Progress to date totals revised to show total number of borings and soil samples collected per changes documented in NCRs. Total number of soil samples shown have been corrected to omit duplicates and MS/MSDs.	Soil Borings: 18/18 Soil HA Locations: 22/22 Soil Samples: 76/76 Temporary Wells: 18/18 Existing Wells: 0/2 Surface Water/Sediment Samples: 0/7	Cascade Drilling: Kevin Ward, Adam Ung. NGB: Walt Gee Los Alamitos: Tom Tandoc

Log of Daily Notice of Field Activity
Joint Forces Training Base, Los Alamitos, CA
ARNG PFAS Site Inspection

Date	AECOM Personnel	Weather	Summary Daily Activities	Issues	Progress to Date	Subcontractor(s)/ Visitors
10/24/2019	Holly Holbrook Natasha Bolas (SS) Philip Granger (SSHO)	Sunny, clear and windy High 97° F, Low 56° F	- Held a Tailgate SH&E meeting. Reviewed Scope of work, SH&E concerns, daily PFAS Sampling checklist, and JFTB specific operation protocols. - Checked in with Base Ops, filled water from designated hydrant and mobilized to the locations of AOI 3 on the western end of the flightline. - Advanced soil borings AOI 3-8, AOI 3-11, AOI 3-12, AOI 3-9, AOI 3-10 and collected soil samples. - Completed temporary well installations with well screens AOI 3-8 (10'-15'), AOI 3-11 (10'-15'), AOI 3-12 (20'-25'), AOI 3-9 (10'-15'), AOI 3-10 (15'-20') . - Collected groundwater samples from the 5 temporary wells, pulled the temporary wells from the boreholes, and backfilled the boreholes with hydrated bentonite chips.	Screen interval for temporary wells in AOI 3 set based on observed groundwater while drilling.	Soil Borings: 16/20 Soil HA Locations: 14/22 Soil Samples: 73/104 Temporary Wells: 16/20 Surface Water/Sediment Samples: 0/7	Cascade Drilling: Kevin Ward, Adam Ung. NGB: Walt Gee RWQCB: Patricia Hannon

Log of Daily Notice of Field Activity
Joint Forces Training Base, Los Alamitos, CA
ARNG PFAS Site Inspection

Date	AECOM Personnel	Weather	Summary Daily Activities	Issues	Progress to Date	Subcontractor(s)/ Visitors
10/23/2019	Holly Holbrook (SSHO) Natasha Bolas (SS)	Sunny, Clear, High 87° F, Low 64° F	- Held a Tailgate SH&E meeting. Reviewed Scope of work, SH&E concerns, daily PFAS Sampling checklist, and JFTB specific operation protocols. - Met with Military Police escort and mobilized to the locations of AOI 1 within the Motorpool. - Advanced soil borings AOI 1-5, 1-5A, 1-4, 1-6 and completed temporary well installations from 20'-25' bgs; a step-out temp well (AOI 5-1A) was installed and screened from 10'-15' bgs. - Completed all work in the Motorpool and let the escort know our work in the area was completed. - Advanced soil boring AOI 1-2 and completed a temporary well installation. - Decontaminated Rig at the decon pad. - AECOM checked in with Base Operations and mobilized to AOI 2 and collected soil samples from AOI 2-2 and AOI 2-3.	Based on lithology observed in AOI 5-1, a step out location was advanced and a temporary well (AOI 1-5A) installed from 10'-15' bgs to judge if the water seen in this interval would be sufficient for sample collection. A sample was collected and all remaining locations within AOI 1 (AOI 1-4, AOI 1-6, and AOI 1-2) were evaluated before the screen interval was selected.	Soil Borings: 11/20 Soil HA Locations: 14/22 Soil Samples: 58/104 Temporary Wells: 11/20 Surface Water/Sediment Samples: 0/7	Cascade Drilling: Kevin Ward, Adam Ung. NGB: Walt Gee

Log of Daily Notice of Field Activity
Joint Forces Training Base, Los Alamitos, CA
ARNG PFAS Site Inspection

Date	AECOM Personnel	Weather	Summary Daily Activities	Issues	Progress to Date	Subcontractor(s)/ Visitors
10/22/2019	Holly Holbrook (SSHO) Natasha Bolas (SS)	Sunny, Clear, High 98° F, Low 63° F	'- Held a Tailgate SH&E meeting. Reviewed Scope of work, SH&E concerns, daily PFAS Sampling checklist, and JFTB specific operation protocols. - AECOM checked in with Base Operations, replaced radio battery. - Filled up decontamination water tank at designated fire hydrant. - Decontaminated Rig at the decon pad. - Mobilized to AOI 6; advanced soil boring AOI 6-1 and completed a temporary well installation. Collected soil samples from AOI 6-2, AOI 6-3 and AOI 6-4. - Returned radio to Base Operations and topped off decontamination water tank at designated fire hydrant. - Decontaminated Rig at the decon pad. - Mobilized to AOI 5; advanced soil boring AOI 5-1 and completed a temporary well installation. - Decontaminated Rig at the decon pad. - Mobilized to AOI 1; advanced soil borings AOI 1-3 and AOI 1-1 and completed temporary well installations. - Coordinated access to the Military Police Motorpool for tomorrow morning with SGT Burke.		Soil Borings: 7/20 Soil HA Locations: 12/22 Soil Samples: 44/104 Temporary Wells: 7/20 Surface Water/Sediment Samples: 0/7	Cascade Drilling: Kevin Ward, Adam Ung. NGB: Walt Gee

Log of Daily Notice of Field Activity
Joint Forces Training Base, Los Alamitos, CA
ARNG PFAS Site Inspection

Date	AECOM Personnel	Weather	Summary Daily Activities	Issues	Progress to Date	Subcontractor(s)/ Visitors
10/21/2019	Holly Holbrook Natasha Bolas (SS) Philip Granger (SSHO)	Sunny, Clear, High 93° F, Low 65° F	- Held a Tailgate SH&E meeting. Reviewed Scope of work, SH&E concerns, daily PFAS Sampling checklist, AHA(s), and JFTB specific operation protocols. - Mobilized to the designated staging area and created a decon pad and secondary containment for IDW. - AECOM Checked in with Base Operations, borrowed radios, and discussed plans to work at AOI 7, located on the Alpha-Hammerhead Taxiway. - Filled up decontamination water tank at designated fire hydrant. - Decontaminated Rig at the decon pad. - Mobilized to AOI 7 and maintained radio communication with Tower, as requested. - Advanced soil borings and completed temporary well installations at AOI 7-10, AOI 7-11, and AOI 7-9. Collected 3 soil samples per location. All borings were hand-cleared to 5' bgs prior to drilling, in accordance with AECOM SH&E protocols. -Collected soil samples from AOI 7-1, AOI 7-2, AOI 7-3, AOI 7-4, AOI 7-5, AOI 7-6, AOI 7-7, and AOI 7-8.	Based on lithology, and difficulty collecting a GW sample from AOI 7-10, approval was granted to terminate other AOI 7 borings at 25' bgs and set the temporary well screen from 20'-25', bgs moving forward.	Soil Borings: 3/20 Soil HA Locations: 8/22 Soil Samples: 32/104 Temporary Wells: 3/20 Surface Water/Sediment Samples: 0/7	Cascade Drilling: Kevin Ward, Adam Ung, and Sean Tannehill

Appendix B2
Sampling Forms

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AECOM

Monitoring Well Sample Collection Form

LOCATION	Site: JFTB	LocID: Los Alamitos	Date: 10/29/19
	Project Name: ARNG PFAS	Project Number: 60552172 - 0006 SI7	Recorded By: N.B Checked By:
EQUIPMENT	Sampling Equipment - Pump: QeoPump	Controller: —	Compressor: —
	Water Level Indicator Type/ID#: Solinst 60971	Water Quality Meter Type: U-52 Sonde ID: —	Handset ID: TBDMMKPS
	PID Type/ID#: MiniRAE 3000 592-910312	Equipment Decon: triple rinse	
WELL & SAMPLING INFO	Description: X3-1	Screen Interval (BTOC): UNK	Initial Depth to Water (BTOC): 11.82
	Historic Pump Settings: Unknown		Pump Inlet Depth (BTOC): N/A
	Condition of Well/Comments: TD: 29.95		Ambient PID (ppm): 0.0
	NOTE:		Well Head PID (ppm): 0.0

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
10/29/19	0820	11.99	0	.25	Adjusting Pump rate						N/A	N/A	adjusting Pump rate
	0826	12.25	2	0.25	18.51	3.45	3.06	7.16	-118	30.7			roots present
	lowering Pumping rate more												
	0831	12.23	2	0.20	19.49	3.63	2.75	7.26	-130	46.4			
	0837	12.23	2.25	0.20	19.96	3.60	1.34	7.29	-156	130.9			
	0842	12.23	↓	0.20	20.27	3.60	1.24	7.28	-156	142.5			
	0847	12.23		0.20	20.71	3.56	1.20	7.27	-158	177			
	0852	12.23	↓	0.20	20.92	3.55	1.18	7.28	-155	178			
	0857	12.23	2.5	0.20	20.84	3.58	1.20	7.33	-148	177			
	0900	SAMPLING WELL											

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

Sample ID Numbers and Sample Time	Container Count, Volume & Type	Preservative	Parameter(s)
A018-X3-1-102919	2 X 125mL	None	
A018-X3-1-102919-D	2X 125 mL	none	

AECOM

Monitoring Well Sample Collection Form

LOCATION	Site: JFTB	LocID: Los Alamitos	Date: 10/29/19
	Project Name: ARNG PFAS	Project Number: 60552172 - 0006 SI7	Recorded By: NB Checked By:
EQUIPMENT	Sampling Equipment - Pump: Peristaltic pump	Controller: —	Compressor: —
	Water Level Indicator Type/ID#: Solinst 60971	Water Quality Meter Type: U-52 Sonde ID: —	Handset ID: TBDMNKPS
	PID Type/ID#: Minirae 3000 592-910312	Equipment Decon: triple rinse	
WELL & SAMPLING INFO	Description: N19-3	Screen Interval (BTOC): UNK	Initial Depth to Water (BTOC): 9.35
	Historic Pump Settings: N/A		Pump Inlet Depth (BTOC): N/A
	Condition of Well/Comments: —		Ambient PID (ppm): 0.0
	NOTE: TD = 18.15		Well Head PID (ppm): 0.0

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
10/29/19	1112	9.35	0	BEGIN PURGING							N/A	N/A	Slight odor
	1114	9.56		0.25	19.24	1.64	3.13	7.82	-148	22.4			
	1119	9.60		0.20	22.19	1.52	1.92	7.59	-160	175			
	1124	9.62		0.20	23.81	1.46	1.38	7.38	-148	7.2			
	1129	9.63		0.20	24.02	1.47	2.32	7.42	-140	195			
	1134	9.63		0.20	24.01	1.39	2.79	7.84	-222	175			
	1139	9.63	2	0.20	23.93	1.29	4.08	8.04	-185	180			
	1144	9.63		0.20	24.02	1.42	3.83	8.02	-118	176			
	1149	9.63		0.20	23.97	1.48	3.92	7.97	-121	177			
	1154	9.63	3	0.20	23.91	1.49	3.89	8.01	-125	175			
	1157	WELL SAMPLED											

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

Sample ID Numbers and Sample Time	Container Count, Volume & Type	Preservative	Parameter(s)
A015-N19-3-102919	2 x 125 mL	None	
A015-N19-3-102919-D	2 x 125 mL	None	

AECOM

Monitoring Well Sample Collection Form

LOCATION	Site: JFTB Los Alamitos	LocID: ~~Los Alamitos~~ AOI7-10	Date: 10/21/19
	Project Name: ARNG PFAS	Project Number: 60552172 - 0006 SI7	Recorded By: MB Checked By: HH

EQUIPMENT	Sampling Equipment - Pump: Peripump		Controller: — Honda	Compressor: —
	Water Level Indicator Type/ID#: Solinst #60971	Water Quality Meter Type: ~~Solinst~~	Sonde ID: 60971 44553	Handset ID: 44554
	PID Type/ID#: Minirae 3000	Equipment Decon: triple rinse		

WELL & SAMPLING INFO	Description: PeriPump	Screen Interval ~~(BTOC)~~: 25-30 BGS	Initial Depth to Water (BTOC): 21.68	Ambient PID (ppm): 0.0
	Historic Pump Settings: N/A		Pump Inlet Depth (BTOC): 27.5	Well Head PID (ppm): 0.0
	Condition of Well/Comments: temp well			
	NOTE: GRAB SAMPLE - PFAS			

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
10/21/19	1505	21.68	grab	grab	28.98	1.81	8.75	6.69	185	94.1	—	—	No foam

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

Sample ID Numbers and Sample Time	Container Count, Volume & Type	Preservative	Parameter(s)
AOI7-10-GW-102119 1414	2 HDPE 125 mL	None	PFAS

AECOM

Monitoring Well Sample Collection Form

LOCATION	Site: JFTB Los Alamitos	LocID: ~~Los Alamitos~~ AOI 7 - 11	Date: 10/21/19
	Project Name: ARNG PFAS	Project Number: 60552172 - 0006 SI7	Recorded By: PG Checked By: NO

EQUIPMENT	Sampling Equipment - Pump: Peri pump	Controller: —	Compressor: —
	Water Level Indicator Type/ID#: Solinist #60971	Water Quality Meter Type: Horiba U-52 Sonde ID: 44553	Handset ID: 44554
	PID Type/ID#: MiniRae 3000	Equipment Decon: triple rinse	

WELL & SAMPLING INFO	Description: Peri pump Grab AOI7-11 Screen Interval (BTOC): 20-25	Initial Depth to Water (BTOC): 6.71	Ambient PID (ppm): 0.0
	Historic Pump Settings: NA	Pump Inlet Depth (BTOC): 27.5	Well Head PID (ppm): 0.0
	Condition of Well/Comments: temp well		
	NOTE: Grab Sample PFAS		

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
10/21/19	1530	6.71	Grab	Grab	28.42	1.52	13.21	7.55	100	495	—	—	No foam in shake test.

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

Sample ID Numbers and Sample Time	Container Count, Volume & Type	Preservative	Parameter(s)
AOI7-11-GW-102119 @ 1530	2 HDPE 125mL	None	PFAS

AECOM

Monitoring Well Sample Collection Form

LOCATION	Site: JFTB Los Alamitos	LocID: ~~Los Alamitos~~ AOI7-9	Date: 10/21/19
	Project Name: ARNG PFAS	Project Number: 60552172 - 0006 SI7	Recorded By: HH Checked By: ND

EQUIPMENT	Sampling Equipment - Pump: peri pump	Controller: —	Compressor: —
	Water Level Indicator Type/ID#: Solinst #60971	Water Quality Meter Type: Horiba Sonde ID: 44553	Handset ID: 44554
	PID Type/ID#: mini Rae 3000	Equipment Decon: triple rinse	

WELL & SAMPLING INFO	Description: ~~AOI7-9~~ peri pump	Screen Interval (BTOC): 20-25	Initial Depth to Water (BTOC): 7.78	Ambient PID (ppm): 0
	Historic Pump Settings: N/A		Pump Inlet Depth (BTOC): 22.5	Well Head PID (ppm): 0
	Condition of Well/Comments: temp well			
	NOTE: Grab sample - PFAS			

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
10/21/19	1650	7.78	Grab	Grab	31.20	1.00	—	6.44	240	626	—	—	brown, cloudy
													no foam

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

Sample ID Numbers and Sample Time	Container Count, Volume & Type	Preservative	Parameter(s)
AOI7-9-GW-102119@1645	2 HDPE 125mL	None	PFAS

AECOM

Monitoring Well Sample Collection Form

LOCATION	Site: JFTB Los Alamitos	LocID: ~~Los Alamitos~~ AOI 6-1	Date: 10/22/19
	Project Name: ARNG PFAS	Project Number: 60552172 - 0006 SI7	Recorded By: LH Checked By: NB

EQUIPMENT	Sampling Equipment - Pump: Peri pump		Controller: —	Compressor: —
	Water Level Indicator Type/ID#: Solinst #60971	Water Quality Meter Type: ~~Horiba~~	Sonde ID: 44553	Handset ID: 44554
	PID Type/ID#: Minirae 3000	Equipment Decon: triple rinse		

WELL & SAMPLING INFO	Description: ~~AOI6-1~~ Peri pump	Screen Interval (BTOC): 20-25	Initial Depth to Water (BTOC): 7.78	Ambient PID (ppm): 0
	Historic Pump Settings: —		Pump Inlet Depth (BTOC): ~22.5	Well Head PID (ppm): 0
	Condition of Well/Comments: temp well			
	NOTE: Grab Sample - PFAS			

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
10/22/19	~~1457~~	~~7.78~~	—	GRAB	24.54	12.6	8.12	7.62	118	194	—	—	No foaming when shaken
	1010												

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

Sample ID Numbers and Sample Time	Container Count, Volume & Type	Preservative	Parameter(s)
AOI6-1-GW-102219 @ 1005	2 HDPE 125 mL	None	PFAS

AECOM

Monitoring Well Sample Collection Form

LOCATION	Site: JFTB Los Alamitos	LocID: ~~Los Alamitos~~ AOI S-1	Date: 10/22/19
	Project Name: ARNG PFAS	Project Number: 60552172 - 0006 SI7	Recorded By: HH Checked By: ND

EQUIPMENT	Sampling Equipment - Pump: Peri pump	Controller: —	Compressor: —
	Water Level Indicator Type/ID#: Solinst #6097 L	Water Quality Meter Type: Horiba Sonde ID: 44553	Handset ID: 44554
	PID Type/ID#: minirae 3000	Equipment Decon: triple rinse	

WELL & SAMPLING INFO	Description: ~~AOIS-1~~ Peri pump	Screen Interval (BTOC): 20 - 25	Initial Depth to Water (BTOC): 11.08	Ambient PID (ppm): 0
	Historic Pump Settings: NA		Pump Inlet Depth (BTOC): 22.5	Well Head PID (ppm): 2.4 (max 2.4)
	Condition of Well/Comments: temp well			
	NOTE: Grab sample - PFAS			

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
10/22/19	1315	11.08	—	—	26.27	1.70	2.62	7.40	-140	~~35.5~~	—	—	Black clarity, hydrocarbon odor
													No foam

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

Sample ID Numbers and Sample Time	Container Count, Volume & Type	Preservative	Parameter(s)
AOI 5-1-GW-102219 C 1310	2 HDPE 125 mL	None	PFAS

AECOM

Monitoring Well Sample Collection Form

LOCATION			
Site: JFTB Los Alamitos	LocID: ~~Los Alamitos~~ AoI1-3	Date: 10/22/19	
Project Name: ARNG PFAS	Project Number: 60552172 - 0006 SI7	Recorded By: H Holbrook	Checked By: MD

EQUIPMENT			
Sampling Equipment - Pump: Peri	Controller: —	Compressor: —	
Water Level Indicator Type/ID#: Solinst #60971	Water Quality Meter Type: Horiba	Sonde ID: 44553	Handset ID: 44554
PID Type/ID#: Minirae 3000	Equipment Decon: triple rinse		

WELL & SAMPLING INFO			
Description: ~~AoI 1-3~~ Peri pump	Screen Interval (BTOC): 20-25	Initial Depth to Water (BTOC): 8.94	Ambient PID (ppm): 0
Historic Pump Settings: NA		Pump Inlet Depth (BTOC): 22.5	Well Head PID (ppm): 0
Condition of Well/Comments: temp well			
NOTE: Grab sample - PFAS			

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
10/22/19	1510	8.94	—	—	28.90	1.58	0.90	7.88	-47	491	—	—	no foam odorless, slightly cloudy

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

Sample ID Numbers and Sample Time	Container Count, Volume & Type	Preservative	Parameter(s)
AoI1-3-GW-102219 @ 1505	2 HDPE 125 mL	None	PFAS

AECOM

Monitoring Well Sample Collection Form

LOCATION	Site: JFTB Los Alamitos	LocID: ~~Los Alamitos~~ AOI 1 – 1	Date: 10/22/19
	Project Name: ARNG PFAS	Project Number: 60552172 - 0006 SI7	Recorded By: HH Checked By: ND

EQUIPMENT	Sampling Equipment - Pump: Peri pump		Controller: —	Compressor: —
	Water Level Indicator Type/ID#: Solinst #60971	Water Quality Meter Type: Horiba	Sonde ID: 44553	Handset ID: 44554
	PID Type/ID#: miniRae 3000	Equipment Decon: triple rinse		

WELL & SAMPLING INFO	Description: ~~AOI 1-1~~ Peri pump	Screen Interval (BTOC): 20-25	Initial Depth to Water (BTOC): 9.14	Ambient PID (ppm): 0
	Historic Pump Settings: NA		Pump Inlet Depth (BTOC): 22.5	Well Head PID (ppm): 0
	Condition of Well/Comments: temp well			
	NOTE: Grab sample - PFAS			

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
10/22/19	1550	9.14	—	—	28.16	1.952	8.45	7.97	-4	533	—	—	no foam colorless, slightly cloudy

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

Sample ID Numbers and Sample Time	Container Count, Volume & Type	Preservative	Parameter(s)
AOI 1-1-GW-102219 @ 1545	2 HDPE 125 mL	None	PFAS

AECOM

Monitoring Well Sample Collection Form

LOCATION	Site: JFTB Los Alamitos	LocID: ~~Los Alamitos~~ ADI 1-2	Date: 10/23/19
	Project Name: ARNG PFAS	Project Number: 60552172 - 0006 SI7	Recorded By: ~~HH~~ Checked By: MD

EQUIPMENT	Sampling Equipment - Pump: Peri pump		Controller: –	Compressor: –
	Water Level Indicator Type/ID#: Solinst #60971	Water Quality Meter Type: Horiba	Sonde ID: 44553	Handset ID: 44554
	PID Type/ID#: Mini rae 3000	Equipment Decon: triple rinse		

WELL & SAMPLING INFO	Description: Peri pump	Screen Interval (BTOC): 10-15	Initial Depth to Water (BTOC): 11.31	Ambient PID (ppm): 0
	Historic Pump Settings: –		Pump Inlet Depth (BTOC): ~~15~~ 14	Well Head PID (ppm): 0
	Condition of Well/Comments: temp well			
	NOTE: Grab Sample - PFAS			

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
10/23/19	1345	11.31	–	–	30.40	2.17	1.90	7.80	27	0.0	–	–	No foam

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

Sample ID Numbers and Sample Time	Container Count, Volume & Type	Preservative	Parameter(s)
ADI 1-2-GW-102319 @ 1340	2 HDPE 125 mL	None	PFAS

AECOM

Monitoring Well Sample Collection Form

LOCATION	Site: JFTB Los Alamitos	LocID: ~~Los Alamitos~~ AOI 1-4	Date: 10/23/19
	Project Name: ARNG PFAS	Project Number: 60552172 - 0006 SI7	Recorded By: HH Checked By: ND

EQUIPMENT	Sampling Equipment - Pump: Peri pump	Controller: —	Compressor: —
	Water Level Indicator Type/ID#: Solinst #60971	Water Quality Meter Type: Horiba Sonde ID: 44553	Handset ID: 44554
	PID Type/ID#: Minirae 3000	Equipment Decon: triple rinse	

WELL & SAMPLING INFO	Description: ~~AOI-6~~ Peri pump	Screen Interval (BTOC): 10-15	Initial Depth to Water (BTOC): 9.31	Ambient PID (ppm): 0
	Historic Pump Settings: NA		Pump Inlet Depth (BTOC): 12.5	Well Head PID (ppm): 0
	Condition of Well/Comments: temp well			
	NOTE: Grab sample - PFAS			

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
10/23/19		9.31	—	—	27.30	1.15	6.90	7.85	443	619	—	—	No foam

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

Sample ID Numbers and Sample Time	Container Count, Volume & Type	Preservative	Parameter(s)
AOI 1-4-GW-102319 C1140	2 HDPE 125 mL	None	PFAS

AECOM

Monitoring Well Sample Collection Form

LOCATION	Site: JFTB Los Alamitos	LocID: ~~Los Alamitos~~ ADI1 – 6	Date: 10/23/19
	Project Name: ARNG PFAS	Project Number: 60552172 - 0006 SI7	Recorded By: H. Holbrook Checked By: ND

EQUIPMENT	Sampling Equipment - Pump: Peri pump	Controller: —	Compressor: —	
	Water Level Indicator Type/ID#: Solinst #60971	Water Quality Meter Type: Horiba	Sonde ID: 44553	Handset ID: 44554
	PID Type/ID#: Minirae 3000	Equipment Decon: triple rinse		

WELL & SAMPLING INFO	Description: ~~ADI-6~~ Peri pump	Screen Interval (BTOC): 10-15	Initial Depth to Water (BTOC): 9.57	Ambient PID (ppm): 0
	Historic Pump Settings: NA		Pump Inlet Depth (BTOC): 12.5	Well Head PID (ppm): 0
	Condition of Well/Comments: temp well			
	NOTE: Grab Sample - PFAS			

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
10/23/19	1120	9.57	—	—	27.09	1.07	0.71	7.94	93	948	—	—	no foaming

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

Sample ID Numbers and Sample Time	Container Count, Volume & Type	Preservative	Parameter(s)
ADI6-6-GW-102319 @ 1115	2 HDPE 125mL	None	PFAS

AECOM

Monitoring Well Sample Collection Form

LOCATION	Site: JFTB Los Alamitos	LocID: ~~Los Alamitos~~ AOI 1-SA	Date: 10/23/19
	Project Name: ARNG PFAS	Project Number: 60552172 - 0006 SI7	Recorded By: HH Checked By: MD

EQUIPMENT	Sampling Equipment - Pump: Peri Pump	Controller: —	Compressor: —
	Water Level Indicator Type/ID#: Solinst #60971	Water Quality Meter Type: Horiba Sonde ID: 44553	Handset ID: 44554
	PID Type/ID#: mini RAE 3000	Equipment Decon: triple rinse	

WELL & SAMPLING INFO	Description: peri pump	Screen Interval (BTOC): 10-15	Initial Depth to Water (BTOC): 8.91	Ambient PID (ppm): 0
	Historic Pump Settings: NA		Pump Inlet Depth (BTOC): 12.5	Well Head PID (ppm): 0
	Condition of Well/Comments: temp well			
	NOTE: Grab Sample - PFAS			

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
10/23/19	1005	8.91	—	—	25.74	1.51	5.86	7.76	139	598	—	—	No foam

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

Sample ID Numbers and Sample Time	Container Count, Volume & Type	Preservative	Parameter(s)
AOI 1-5A-GW-10239 @ 1000	2 HDPE @ 125 mL	None	PFAS

AECOM

Monitoring Well Sample Collection Form

LOCATION	Site: JFTB Los Alamitos	LocID: ~~Los Alamitos~~ AOI 1-5	Date: 10/23/19
	Project Name: ARNG PFAS	Project Number: 60552172 - 0006 SI7	Recorded By: HH Checked By: ND

EQUIPMENT	Sampling Equipment - Pump: Peri pump		Controller: NA	Compressor: NA
	Water Level Indicator Type/ID#: Solinst # 60971	Water Quality Meter Type: Horiba	Sonde ID: 44553	Handset ID: 44554
	PID Type/ID#: minirae 3000	Equipment Decon: triple rinse		

WELL & SAMPLING INFO	Description: ~~AOI 1-5~~ Peri pump	Screen Interval (BTOC): 20-25	Initial Depth to Water (BTOC): 9.11	Ambient PID (ppm): 0
	Historic Pump Settings: NA		Pump Inlet Depth (BTOC): ~22.5	Well Head PID (ppm): 0
	Condition of Well/Comments: temp well			
	NOTE: Grab Sample - PFAS			

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
10/27/19	0950	9.11	—	—	23.95	2.32	9.5	7.18	74	770	—	—	No foam

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

Sample ID Numbers and Sample Time	Container Count, Volume & Type	Preservative	Parameter(s)
AOI 1-5-GW-102319 @ 0945	2 HDPE 125 mL	None	PFAS

AECOM

Monitoring Well Sample Collection Form

LOCATION	Site: JFTB ~~Los Alamitos~~	LocID: ~~Los Alamitos~~ ~~AOI 3-8~~	Date: 10/24/19
	Project Name: ARNG PFAS	Project Number: 60552172 - 0006 SI7	Recorded By: PG Checked By: ~~HH~~

EQUIPMENT	Sampling Equipment - Pump: peri pump	Controller: —	Compressor: —	
	Water Level Indicator Type/ID#: solinst #60971	Water Quality Meter Type: ~~Horiba~~	Sonde ID: 44553	Handset ID: 44554
	PID Type/ID#: mini rae3000	Equipment Decon: triple rinse		

WELL & SAMPLING INFO	Description: ~~AOI 3-8~~ peri pump	Screen Interval (BTOC): 10-15	Initial Depth to Water (BTOC): ~~11.72~~	Ambient PID (ppm): 0
	Historic Pump Settings: NA		Pump Inlet Depth (BTOC): ~~10-15~~ 14.5	Well Head PID (ppm): 0.5
	Condition of Well/Comments: temp well			
	NOTE: PFAS Grab Sample			

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
10/24/19	1115	—	grab	grab	26.09	4.66	6.52	7.26	43	~~>1000~~ 540	—	—	Static test no foam

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

Sample ID Numbers and Sample Time	Container Count, Volume & Type	Preservative	Parameter(s)
AOI3-8-GW-102419 @ 1110	2 HDPE 125 mL	None	PFAS

AECOM

Monitoring Well Sample Collection Form

LOCATION	Site: JFTB Los Alamitos	LocID: Los Alamitos AOI3-11	Date: 10/21/19
	Project Name: ARNG PFAS	Project Number: 60552172 - 0006 SI7	Recorded By: PG Checked By: HH

EQUIPMENT	Sampling Equipment - Pump: Peri pump	Controller: —	Compressor: —
	Water Level Indicator Type/ID#: Solinst #60971	Water Quality Meter Type: Horiba Sonde ID: 44553	Handset ID: 44554
	PID Type/ID#: mini rae 3000	Equipment Decon: triple rinse	

WELL & SAMPLING INFO	Description: peri pump	Screen Interval (BTOC): 10-15	Initial Depth to Water (BTOC): 9.32	Ambient PID (ppm): 0.0
	Historic Pump Settings: N/A		Pump Inlet Depth (BTOC): 12.5	Well Head PID (ppm): 0.1
	Condition of Well/Comments: temp well			
	NOTE: Grab Sample - PFAS			

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
10/24/19	1155	—	Grab	Grab	28.47	0.894	6.70	7.97	17	614	—	—	Shake Test no foam

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

Sample ID Numbers and Sample Time	Container Count, Volume & Type	Preservative	Parameter(s)
AOI3-11-GW-102419 @ 1150	2 HDPE 125 mL	None	PFAS

AECOM

Monitoring Well Sample Collection Form

LOCATION	Site: JFTB Los Alamitos	LocID: ~~Los Alamitos~~ AOI3-12	Date: 10/24/19
	Project Name: ARNG PFAS	Project Number: 60552172 - 0006 SI7	Recorded By: HH Checked By: ND

EQUIPMENT	Sampling Equipment - Pump: Peri pump	Controller: ~~44554~~	Compressor: —
	Water Level Indicator Type/ID#: Solinst # 60971	Water Quality Meter Type: Horiba Sonde ID: 44553	Handset ID: 44554
	PID Type/ID#: minirae 3000	Equipment Decon: wL meter decorned triple vinse	

WELL & SAMPLING INFO	Description: ~~AOI3-12~~ Peri pump	Screen Interval (BTOC): 20-25	Initial Depth to Water (BTOC): 9.35	Ambient PID (ppm): 0
	Historic Pump Settings: N/A		Pump Inlet Depth (BTOC): 22.5	Well Head PID (ppm): 0
	Condition of Well/Comments: temp well			
	NOTE: Grab Sample - PFAS			

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
10/24/19	1325	~~9.35~~	—	—	34.24	4.26	3.01	7.47	-111	498	—	—	Shaker test negative

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

Sample ID Numbers and Sample Time	Container Count, Volume & Type	Preservative	Parameter(s)
AOI3-12-GW-102419 @ 1320	2 HDPE 125 mL	None	PFAS

AECOM

Monitoring Well Sample Collection Form

LOCATION	Site: JFTB Los Alamitos	LocID: ~~Los Alamitos~~ AOI3-9	Date: 10/24/19
	Project Name: ARNG PFAS	Project Number: 60552172 - 0006 SI7	Recorded By: H. Holbrook Checked By: MD

EQUIPMENT	Sampling Equipment - Pump: Peri Pump	Controller: —	Compressor: —
	Water Level Indicator Type/ID#: Solinst #60971	Water Quality Meter Type: Horiba Sonde ID: 44553	Handset ID: 44554
	PID Type/ID#: mini rae 3000	Equipment Decon: triple rinse	

WELL & SAMPLING INFO	Description: AOI3-9	Screen Interval (BTOC): 10-15	Initial Depth to Water (BTOC): 9.80	Ambient PID (ppm): 0
	Historic Pump Settings: N/A		Pump Inlet Depth (BTOC): 12.5	Well Head PID (ppm): 0
	Condition of Well/Comments: temp well			
	NOTE: Grab sample - PFAS			

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
10/24/19	1630	-	Grab	Grab	29.00	3.48	2.93	7.41	-23	777	—	-	Shake test negative

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

Sample ID Numbers and Sample Time	Container Count, Volume & Type	Preservative	Parameter(s)
AOI3-9-GW-102419 1430	2 HDPE 125 mL	None	PFAS

AECOM

Monitoring Well Sample Collection Form

LOCATION	Site: JFTB Los Alamitos	LocID: ~~Los Alamitos~~ AOI3 - 10	Date: 10/24/19
	Project Name: ARNG PFAS	Project Number: 60552172 - 0006 SI7	Recorded By: HH Checked By: ND

EQUIPMENT	Sampling Equipment - Pump: peri pump	Controller: —	Compressor: —
	Water Level Indicator Type/ID#: solinst 18332	Water Quality Meter Type: ~~Solinst~~ Sonde ID: ~~18332~~ 44553	Handset ID: 44554
	PID Type/ID#: minirae 3000	Equipment Decon: triple rinse + DI	

WELL & SAMPLING INFO	Description: ~~AOI3-10~~ peri pump	Screen Interval (BTOC): 15-20	Initial Depth to Water (BTOC): 15.02	Ambient PID (ppm): —
	Historic Pump Settings: N/A		Pump Inlet Depth (BTOC): 19	Well Head PID (ppm): —
	Condition of Well/Comments: temp well			
	NOTE: Screen originally set 10-15, but insufficient water. Grab Sample - PFAS			

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
10/24/19	1555	—	Grab	Grab	33.90	1.10	5.01	7.79	95	773	—	—	

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

Sample ID Numbers and Sample Time	Container Count, Volume & Type	Preservative	Parameter(s)
AOI3-10-GW-102419 @ 1550	2 HDPE 125 mL	None	PFAS

AECOM

Monitoring Well Sample Collection Form

LOCATION	Site: JFTB Los Alamitos	LocID: ~~Los Alamitos~~ AOI 4-1	Date: 10/25/19
	Project Name: ARNG PFAS	Project Number: 60552172 - 0006 SI7	Recorded By: PG Checked By: ~~HL~~

EQUIPMENT	Sampling Equipment - Pump: Peri	Controller: —	Compressor: —
	Water Level Indicator Type/ID#: Solinst #60971	Water Quality Meter Type: ~~Horiba U-52~~ Sonde ID: 44553	Handset ID: 44554
	PID Type/ID#: Mini Rae 3000	Equipment Decon: Liquinox - 3 bucket	

WELL & SAMPLING INFO	Description: ~~AOI 4-1~~ Peri	Screen Interval (BTOC): 10-15'	Initial Depth to Water (BTOC): 11.82	Ambient PID (ppm): 0.0
	Historic Pump Settings: NA		Pump Inlet Depth (BTOC): 13'	Well Head PID (ppm): 0.0
	Condition of Well/Comments: temp well			
	NOTE: Grab sample - PFAS			

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
10/25/19	1136	~~0.0~~ 11.82	Grab	Grab	26.95	3.38	1.48	8.19	293	1000+	—	—	No foam in shake test

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

Sample ID Numbers and Sample Time	Container Count, Volume & Type	Preservative	Parameter(s)
AOI 4-1-WG-102519 @1130	2 HDPE 125 mL	None	PFAS

AECOM

Monitoring Well Sample Collection Form

LOCATION	Site: JFTB Los Alamitos	LocID: ~~Los Alamitos~~ AoI 2 - 5	Date: 10/25/19
	Project Name: ARNG PFAS	Project Number: 60552172 - 0006 SI7	Recorded By: HH Checked By: ND

EQUIPMENT	Sampling Equipment - Pump: Peri pump	Controller: —	Compressor: —
	Water Level Indicator Type/ID#: Solinst # 60971	Water Quality Meter Type: Horiba Sonde ID: 44553	Handset ID: 44554
	PID Type/ID#: Minirae 3000	Equipment Decon: triple rinse	

WELL & SAMPLING INFO	Description: AoI 2 - 5	Screen Interval (BTOC): 15-20	Initial Depth to Water (BTOC): ~15.00	Ambient PID (ppm): 0
	Historic Pump Settings: N/A		Pump Inlet Depth (BTOC): 19	Well Head PID (ppm): 0
	Condition of Well/Comments: temp well			
	NOTE: not enough water to sample @ 15. Drill down and set @ 20. Grab Sample - PFAS			

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
10/25/19	1430	415	—	—	32.01	2.01	3.10	7.89	37	~~7100~~ 895	—	—	no-foam fm shake test

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

Sample ID Numbers and Sample Time	Container Count, Volume & Type	Preservative	Parameter(s)
AoI2-5-GW-102519- C1425	2 HDPE 125 mL	None	PFAS

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Appendix B3
Nonconformance and Corrective Action Reports

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AECOM Technical Services Inc.
Nonconformance and Corrective Action Report

Report Number: 01 **Location:** JFTB Los Alamitos, CA

Project Title: ARNG PFAS PA/SIs **Contract Number:** W912DR-12-D-0014 DO: W912DR17F0192

Description of Nonconformance and Cause:	There are several deviations from the original UFP-QAPP work plan are proposed due to additional information becoming available and changes in facility operations.
Proposed Disposition:	Based on conversations with the Base and access issues, the number of borings at AOI 4 (Hangar 1) will be reduced from 3 points to one point located closest to the hangar and the wash rack (see revised Figure 17-4). The suspected location of the western Old Crash Fire Rescue (CFR) Training Pit in AOI1 will be shifted slightly due to recent information from the California ARNG. The UFP QAPP specifies that a sample will be collected from the JP-4 treatment system. However, in the intervening months between initial preparation of the work plan and the start of field work, the system has been taken offline, so collection of a representative sample will not be possible.

Submitted by: Holly Holbrook **Date:** 10/23/19

Approved by (Project Manager): Rosa Gwinn

Actual Disposition approved by Project Manager:	Only one sample will be collected from AOI4 (Hangar 1) The location of the western Old Crash Fire Rescue Training pit was shifted based on discussions with the California ARNG A sample will not be collected from the JP-4 treatment system.
Implementation of Disposition assigned to:	Los Alamitos team: Holly Holbrook, Natasha Bolas, Phil Granger

Completed by: Holly Holbrook **Date:** 10/25/19

Verified by
(SI Task Manager): Holly Holbrook **Date:** 10/25/19

AECOM Technical Services Inc.

Nonconformance and Corrective Action Report

Report Number: 02 **Location:** JFTB Los Alamitos, CA

Project Title: ARNG PFAS PA/SIs **Contract Number:** W912DR-12-D-0014 DO: W912DR17F0192

Description of Nonconformance and Cause:	The UFP QAPP specifies that groundwater samples will be collected from temporary wells screened between 25-30 feet below ground surface (ft bgs). However, the first boring at AOI 7 (AOI7-10) encountered lithology with low permeability in this interval, resulting in difficulty collecting groundwater samples.
Proposed Disposition:	After discussion with Joe Davis and based on similar lithology observed in the other two sampling points, borings were terminated at 25 ft bgs and temporary wells were screened from 20 ft to 25 ft bgs.

Submitted by: Holly Holbrook **Date:** 10/23/19

Approved by (Project Manager): Rosa Gwinn

Actual Disposition approved by Project Manager:	Temporary well screens were installed from 20 ft to 25 ft bgs, based on similar lithology observed in subsequent borings.
Implementation of Disposition assigned to:	Los Alamitos team: Holly Holbrook, Natasha Bolas, Phil Granger

Completed by: Holly Holbrook **Date:** 10/25/19

Holly Holbrook

Verified by (SI Task Manager): **Date:** 10/25/19

AECOM Technical Services Inc.

Nonconformance and Corrective Action Report

Report Number: 03 **Location:** JFTB Los Alamitos, CA

Project Title: ARNG PFAS PA/SIs **Contract Number:** W912DR-12-D-0014 DO: W912DR17F0192

Description of Nonconformance and Cause:	At AOI 1-5 the boring was drilled to 25 feet (') below ground surface (bgs) as planned. Three saturated zones were observed at 8'-8.5', 10-12.5', and 18'-24' bgs. The temp well was planned to be screened 20-25' bgs (refer to NCR 02).
Proposed Disposition:	After discussion with Joe Davis and Walt Gee, a step out location (AOI 1-5A) was drilled and a well screen was set at 10' – 15' bgs to see if this layer would produce enough to collect a sample. Water samples were successfully collected from both AOI 1-5 and AOI 1-5A and, based on the observed lithology, temp well screens at boring locations AOI 1-6, AOI 1-4, and AOI 1-2 were also set from 10'-15' bgs.

Submitted by: Holly Holbrook **Date:** 10/23/19

Approved by (Project Manager): Rosa Gwinn

Actual Disposition approved by Project Manager:	a step out location (AOI 1-5A) was drilled and a well screen was set at 10' – 15' bgs to see if this layer would produce enough to collect a sample. Water samples were successfully collected from both AOI 1-5 and AOI 1-5A and, based on the observed lithology, temp well screens at boring locations AOI 1-6, AOI 1-4, and AOI 1-2 were also set from 10'-15' bgs.
Implementation of Disposition assigned to:	Los Alamitos team: Holly Holbrook, Natasha Bolas, Phil Granger

Completed by: Holly Holbrook **Date:** 10/25/19

Holly Holbrook

Verified by (SI Task Manager): **Date:** 10/25/19

Appendix C
Photographic Log

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Appendix C - Photographic Log

Site Inspection for PFAS	Joint Forces Training Base	Los Alamitos, California

Photograph No. 01

Date 10/16/2019
Time 08:51

Description:
Private utility clearance at AOI6 in the vicinity of AOI6-3 and AOI6-2 facing the Alpha Hammerhead Flight Line.

Orientation:
Northeast

Photograph No. 02

Date 10/16/2019
Time 12:20

Description:
Private utility clearance at AOI3 in the vicinity of the West End of the Flightline

Orientation:
Northeast

Appendix C - Photographic Log

Site Inspection for PFAS	Joint Forces Training Base	Los Alamitos, California

Photograph No. 03

Date 10/16/2019
Time 12:06

Description:
Private utility clearance at AOI3 in the vicinity of AOI3-8.

Orientation:
West

Photograph No. 04

Date 10/16/2019
Time 11:13

Description:
Private utility clearance at AOI5 in the vicinity of AOI5-1.

Orientation:
East

Appendix C - Photographic Log

Site Inspection for PFAS	Joint Forces Training Base	Los Alamitos, California

Photograph No. 05

Date 10/16/2019
Time 9:40

Description:
Private utility clearance at AOI7 in the vicinity of the Alpha Hammerhead Flight Line.

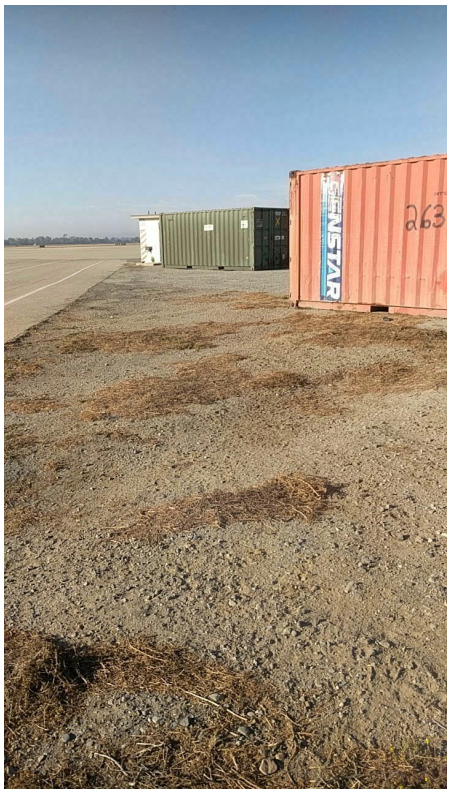
Orientation:
Northeast

Photograph No. 06

Date 10/16/2019
Time 8:51

Description:
Private utility clearance at AOI6 in the vicinity of AOI6-3 and AOI6-2.

Orientation:
Southwest



Appendix C - Photographic Log

Site Inspection for PFAS	Joint Forces Training Base	Los Alamitos, California

Photograph No. 07

Date 10/16/2019
Time 8:37

Description:
Private utility clearance at AOI4-1 in the vicinity of Hagar 1.

Orientation:
North

Photograph No. 08

Date 10/23/2019
Time 10:22

Description:
Drilling by Cascade Technical Services at AOI1-6 in the Military Police yard.

Orientation:
Southwest

Appendix C - Photographic Log

Site Inspection for PFAS	Joint Forces Training Base	Los Alamitos, California

Photograph No. 09

Date 10/23/2019
Time 10:54

Description:
Close-up of core at AOI1-6.

Orientation:
Downward

Photograph No. 10

Date 10/24/2019
Time 9:36

Description:
Close-up of core at AOI3-8.

Orientation:
Downward

Appendix C - Photographic Log

Site Inspection for PFAS	Joint Forces Training Base	Los Alamitos, California

Photograph No. 11

Date 10/25/2019
Time 10:27

Description:
Drilling by Cascade Technical Services at AOI4-1 in the vicinity of Hangar 1.

Orientation:
Southwest

Photograph No. 12

Date 10/25/2019
Time 11:07

Description:
Close-up of core at AOI4-1.

Orientation:
Not applicable

Appendix C - Photographic Log

Site Inspection for PFAS	Joint Forces Training Base	Los Alamitos, California

Photograph No. 13

Date 10/25/2019
Time 13:59

Description:
Close-up of core at AOI2-5.

Orientation:
Not applicable

Photograph No. 14

Date 10/22/2019
Time 8:51

Description:
Drilling by Cascade Technical Services at AOI1-2 near the Old CFR Training Pits.

Orientation:
Northwest

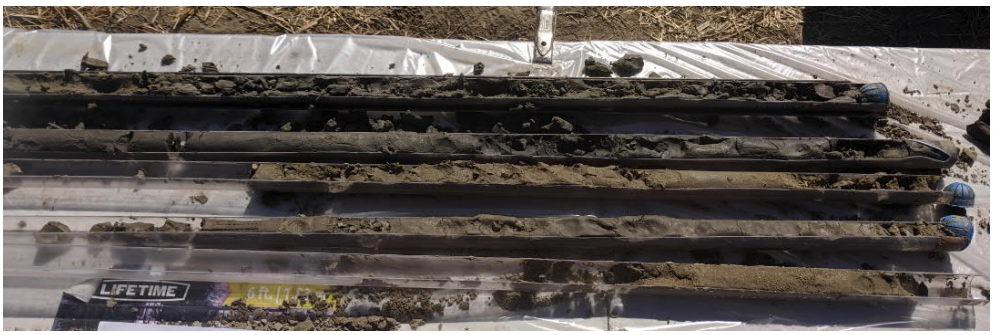
Appendix C - Photographic Log

Site Inspection for PFAS	Joint Forces Training Base	Los Alamitos, California

Photograph No. 15

Date 10/21/2019
Time 13:44

Description:
Close-up of core at AOI7-10.



Orientation:
Not applicable

Photograph No. 16

Date 10/29/2019
Time 12:42

Description:
IDW drum staging area on the south side of AOI1, as designated by the ARNG.

Orientation:
Southeast

Appendix D
TPP Meeting Minutes

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Meeting Minutes
Joint Forces Training Base-Los Alamitos (JFTB-Los Al) – Site Inspection (SI)
Technical Project Planning (TPP) – Meetings 1&2
Preliminary Assessments and Site Inspections (PA/SIs) for Perfluorooctanesulfonic Acid (PFOS) and Perfluorooctanic Acid (PFOA) Impacted Sites
Contract No.W912DR-12-D-0014, DO W912DR17F0192
Thursday, 28 February 2019
0930 to 1130 hours

Participants			
Name	**Affiliation****	**Phone**	**E-Mail**
Joe Davis	ARNG	615-791-1139	joe.b.davis36.ctr@mail.mil
Walt Gee	ARNG	703-607-7980	walter.f.gee.ctr@mail.mil
Lt. Col (ret) Reuben Sendejas	CMD-ARNG	916.361.4339	reuben.r.sendejas@us.army.mil
Jim Lukasko	USACE-SPK	916-557-5392	james.j.lukasko@usace.army.mil
Mark Jones	USACE-SPK	916-557-6948	mark.k.jones@usace.army.mil
Patricia Hannon	CRWQCB-S	951-782-4130	patricia.hannon@waterboards.ca.gov
Javier Hinojosa	CalEPA-DTSC	714-484-5484	javier.hinojosa@dtsc.ca.gov
Shukla Roy-Semmen	CalEPA-DTSC	714-484-5448	sroysemm@dtsc.ca.gov
Holly Holbrook	AECOM	714-689-7215	holly.holbrook@aecom.com
Bill Eaton	AECOM	301-820-3454	bill.eaton@aecom.com

***ARNG-Army National Guard; USACE-United States Army Corps of Engineers; CMD-California Military Department (representing the California Army National Guard [CAANG]); SPK-South Pacific Division, Sacramento District; CRWQCB-California Regional Water Quality Control Board-Santa Ana Regional Board; CalEPA-DTSC--California Environmental Protection Agency, Department of Toxic Substances Control; CAARNG-EPD—California Army National Guard, Environmental Programs Directorate*

Joe Davis (ARNG) welcomed participants and began the meeting with a role call and introductions. The meeting focused on discussion of the ARNG PA/SI program, summarizing the per- and polyfluoroalkyl substances (PFAS) preliminary assessment (PA) findings for JFTB-Los Al, and the planned PFAS site inspection (SI) scope for JFTB-Los Al.

Programmatic Discussion:

- Joe Davis (ARNG) stated that the TPP is a USACE established process with the main goal of engaging stakeholders in project planning and reporting. The ARNG has embraced a CERCLA model for the PFAS PA/SIs nationwide, within the framework of the limitations of the evolving regulatory standards for PFAS. The steps beyond the RI will depend on development of regulatory risk frameworks for PFAS. There are nearly 200 facilities on the ARNG's nationwide PA list.
- Shukla Roy-Semmen (DTSC) stated that she is aware that the Army is moving forward with investigating the potential for PFAS contamination at various facilities within California, despite toxicity data limitations.
- Group discussion identified toxicity 'knowns' to include the PFOA and PFOS health advisory values (70 ppt) published by EPA, and the California notification levels for PFOS and PFOA of 13 and 14 ppt, respectively.
- Jim Lukasko (USACE-SPK) pointed out that the EPA calculator also allows for calculating screening levels for some PFAS chemicals due to the availability of some reference doses.
- Shukla Roy-Semmen (DTSC) acknowledged this fact and mentioned the 4-carbon PFAS (Perfluorobutanesulfonic acid [PFBS]) as an example of one of the chemicals that can be run through the EPA calculator.

- James Lukasko (USACE-SPK) mentioned that the approach for managing PFAS at various installations may vary somewhat between the Army and the Army Guard due evolving procedures for dealing with PFAS.
- Javier Hinojosa (DTSC) stated that DTSC is becoming involved with PFAS contamination sites at various locations in California and DTSC appreciates the opportunity to be briefed on the ARNG's approach for investigating PFAS at JFTB Los Alamitos. Javier Hinojosa requested clarification of the ARNG's expectations regarding DTSC's oversite of the JFTB Los Alamitos PFAS site inspection (SI).
- Lt. Col (ret) Reuben Sendejas (CMD-ARNG) provided clarification by stating that all PFAS SI regulatory oversite will be provided by the Santa Ana Regional Water Quality Control Board and that DTSC will have no oversite responsibility. Javier Hinojosa (DTSC) stated that he appreciated this clarification. Patricia Hannon (CRWQCB-S) concurred with this clarification and reiterated that the Santa Ana Regional Water Quality Control Board will fulfill regulatory oversite responsibility for the JFTB Los Alamitos PFAS SI.
- Joe Davis (ARNG) continued the programmatic presentation by stating the present TPP1&2 meeting provides an opportunity to review the JFTB-Los Al PFAS PA findings and to discuss the planned JFTB-Los Al SI scope. Regulatory stakeholders were invited to formally review and comment on the SI Work Plan. A future TPP3 meeting will present the SI Report findings to all stakeholders and CRWQCB-S review and comment on the SI Report is expected.
- Joe Davis (ARNG) invited Holly Holbrook (AECOM) continue with presentation of the PA findings and planned SI scope.
- Holly Holbrook, AECOM's PFAS SI Task Manager for JFTB-Los Al, continued the TPP1&2 presentation (the presentation slides are included here as **Attachment A)** by offering a safety reminder: the SI will conform to requirements in US Army Corps of Engineers (USACE) Engineering Manual (EM) 385-1-1. Site-specific safety procedures will be planned for and followed during SI field work, including identification of project participants, training requirements, and hazard identification/mitigation. She then proceeded to summarize the JFTB-Los Al PA Findings.

JFTB-Los Al PA Findings

- Holly Holbrook (AECOM) described the fire training areas where AFFF was used and possibly released into the environment. Joe Davis (ARNG) described details about past Navy training practices and emphasized that the fire training areas were heavily utilized up to five times per week.
- Holly Holbrook (AECOM) discussed the circumstances of AFFF release from Building 34 (Fire Station): minor spillages during filling of AFFF containers on fire trucks, cleaning of equipment that had been in contact with AFFF, and leakage from fire trucks due to mechanical/maintenance issues. Walt Gee provided additional insight into a potential origin of some of the mechanical/maintenance issues that may have contributed to some of the AFFF releases: the corrosive nature of AFFF. Javier Hinojosa (DTSC) asked if only the AFFF concentrate is corrosive. Walt Gee (ARNG) and Joe Davis (ARNG) responded that both the concentrate and diluted aqueous solutions are corrosive.
- Holly Holbrook (AECOM) continued by stating the released AFFF at Building 34 (Fire Station) ultimately enters the storm drain system that discharges into the Western Drainage Ditch (WDD). Shukla Roy-Semmen (DTSC) asked where the WDD discharged. Joe Davis (ARNG) responded that, to the best of our current knowledge, the WDD discharges into ponds located near and beyond the southwestern JFTB Los Alamitos property boundary. Shukla Roy-Semmen (DTSC) then asked if the ponds discharged into another surface water body and Joe Davis (ARNG) responded that this is currently unknown and will need to be looked into. Subsequent to the meeting (during preparation of these minutes), Bill Eaton (AECOM) further evaluated the situation of storm water discharge from the Western Drainage Ditch (WDD). The WDD clarification is presented in **Attachment B** to these minutes.

- Holly Holbrook (AECOM) described the AFFF release that was contained in Hanger 3 during testing of the AFFF foam system testing. Joe Davis (ARNG) clarified that there currently are no operating hanger AFFF release systems at JFTB Los Al.
- During presentation of slide 23 concerning the Former Landfill Trench Area which is not described in the PA as a PFAS area of interest (AOI), Patricia Hannon stated that groundwater monitoring at the landfill was necessary because of the inherent uncertainty about what types of materials historically were disposed in the landfill. Walt Gee responded that groundwater near the landfill will be monitored because of its proximity to PFAS AOIs identified in the PA.
- During presentation of slide 23 Holly Holbrook (AECOM) stated: (1) seven water agencies operating in areas up gradient of JFTB Los Al reported PFOA or PFAS detections between 2013 and 2015, and (2) a deep former potable well not currently used for potable water (ARMD-5; 672 feet deep and installed in 1963) is located in the northern portion of the JFTB Los Al Navy housing area (about 75 feet from the northern and up gradient JFTB Los Al boundary) and PFOA and PFOS concentrations in a sample from this well were between 48.7 ng/L and 28.0 ng/L. Joe Davis (ARNG) stated the PA revealed no evidence of AFFF use near this up gradient portion of JFTB Los Al and that these PFOS and PFOA detections could be indicative of an up gradient source. Joe Davis (ARNG) mentioned these statistics for well ARMD-3 (located near two former fire training areas): constructed in 1913, 923 ft. deep, respective PFOA and PFOS concentrations of 87.9 and 230 ng/L. He indicated: (1) the ARMD-3 water sample was collected from a depth of about 30 feet using a hand bailer; therefore, the vertical interval(s) where these chemicals have entered the well bore is not known, and (2) in the past surface water was observed to enter the well, possibly causing or contributing to the PFOA and PFOS concentrations.
- Joe Davis (ARNG) described two additional former water supply wells, both located south of the JFTB Los Al runway. No PFOS or PFAS was detected in the first of these two wells. The second well is located approximately 200 ft. to the northeast of the GCA Hardstand Building (GCA) (the PA indicates this well is ARMD-LARA, constructed in 1944, and 115 ft. deep, respective PFOS and PFOA concentrations of 28.6 and 30.8 ng/L respectively). Joe Davis (ARNG) indicated that because this well is cross-gradient from the major PFAS AOIs, it seems odd that PFOS and PFOA were detected in this well.
- Walt Gee (ARNG) mentioned the Seal Beach public water wells. Jim Lukasko (USACE_SPK) asked if the wells had been sampled for PFAS and Walt Gee (ARNG) indicated ‘yes’ and that PFAS were not a concern.

JFTB-Los Al Planned SI:

- Holly Holbrook (AECOM) described the planned scope of the PFAS SI as per slides 31 through 41. During presentation of slide 31 which concerns AOI 1 (two former fire training areas) is was clarified that a recently available historical drawing discovered and shared by Lt. Col (ret) Reuben Sendejas on 27 February 2019 showed one of the fire training areas to be located south of the position illustrated in slide 31.
- Joe Davis (ARNG) mentioned that at various locations a contractor engaged in mulching operations had stockpiled mulch to the west of the above-reference fire training areas where surface soil sampling is planned. In such instances ‘surface soil’ occurs below the residual mulch.
- Regarding AOI 6 (AFFF release in the vicinity of Building 80, discussed on slide 37), Joe Davis (ARNG) mentioned that the building has been demolished. Walt Gee mentioned that, as a consequence, demolition debris occurs in the area.
- Shukla Roy-Semmen (DTSC) asked if a residential area is present west of the WDD that may be impacted. Joe Davis (ARNG) responded that a residential area is present just beyond the WDD and that the WDD may intercept some shallow groundwater based on visual observation of the depth to the bottom of the WDD and standing water frequently observed. Shukla Roy-Semmen (DTSC) asked if a fence is present between the residential area and the WDD; the response was ‘yes’ a fence is present. Shukla Roy-Semmen (DTSC) asked if any portion of this residential area

had prior been land owned and operated by JFTB Los Al; Joe Davis (ARNG) responded no. Walt Gee stated that the City of Los Alamitos would like to acquire JFTB Los Al property in the future.

- Lt. Col (ret) Reuben Sendejas invited the group to observe a wall map and he pointed to some small land areas that once were part of JFTB Los Al but no longer are. These small areas are not coincident with any PFAS AOI.
- Patricia Hannon (CRWQCB-S) reminded the team that data generated during the SI will need to be uploaded into the CRWQCB GeoTracker database. Holly Holbrook (AECOM) concurred and stated she has facilitated such uploads for other projects located in the region.
- Joe Davis (ARNG) asked Patricia Hannon (CRWQCB-S) about the regulatory status of PFAS from her perspective and she indicated that this is an evolving situation but currently California has established notification levels of 13 and 14 ng/L, respectively, for PFOS and PFOA.
- Attendees were invited to ask any questions.
- Javier Hinojosa stated that DTSC appreciated the opportunity to participate in the meeting and to learn more about how the ARNG is managing the evolving PFAS situation.

The meeting ended at approximately 1130 hours.

Action Items:

- AECOM to provide clarification of the WDD effluent (completed, see **Attachment B**).
- CMD-ARNG to arrange for a copy of the PA to be provided to Patricia Hannon (CRWQCB-S).

Attachment A- TPP1&2 Meeting Presentation Slides

Joint Forces Training Base (JFTB) Los Alamitos- Site Inspection
California Army National Guard

Technical Project Planning (TPP) Meeting 1 and 2
JFTB Los Alamitos

Preliminary Assessments and Site Inspections (PA/SI) for Perfluorooctanesulfonic Acid (PFOS) and Perfluorooctanoic Acid (PFOA) Impacted Sites

28 February 2019

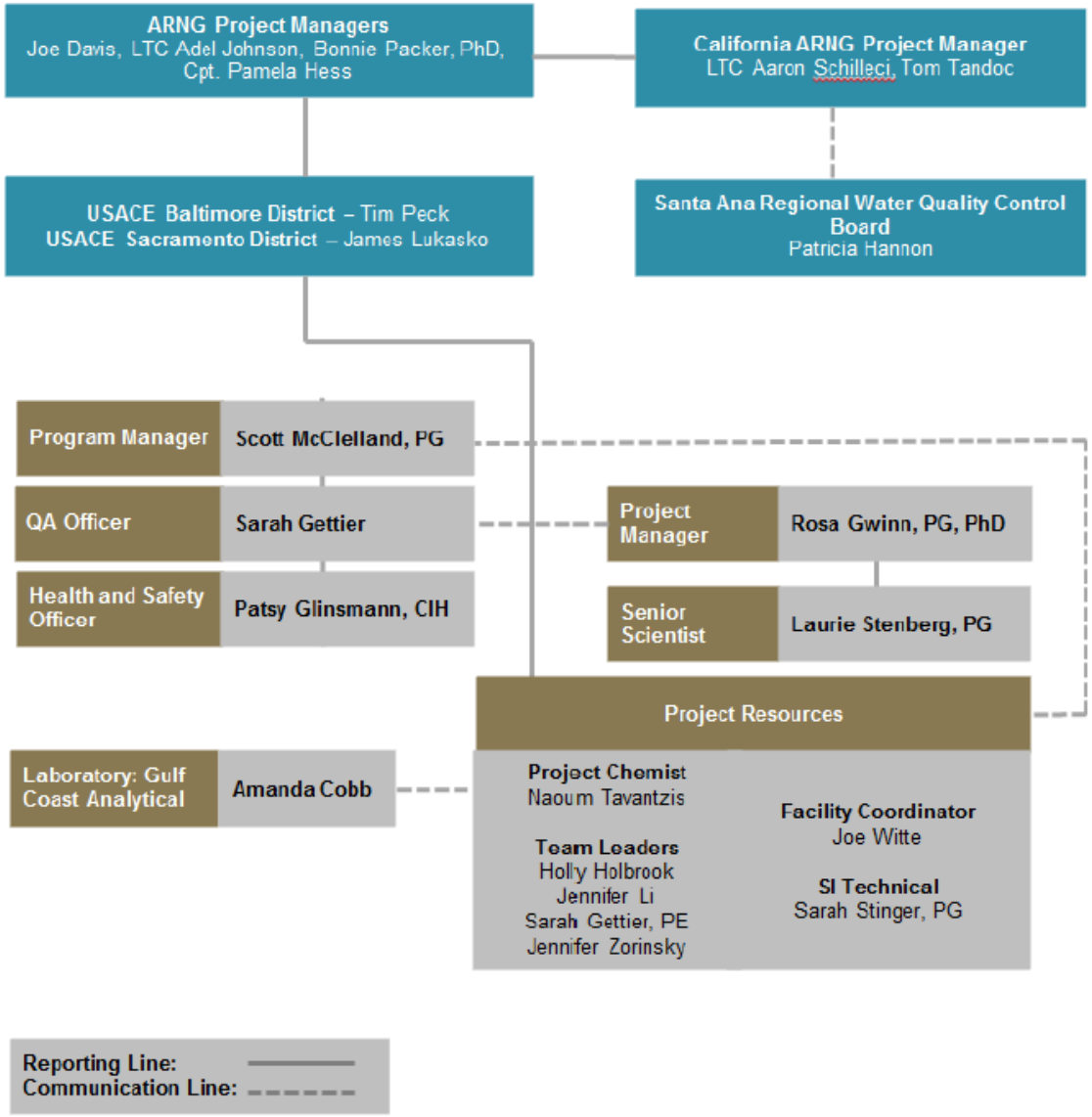
Agenda

- Introductions
- Safety Moment
- TPP Meeting Goals
- Army National Guard (ARNG) PA/SI Overview
- JFTB Los Alamitos PA Findings
- JFTB Los Alamitos SI Overview
- Stakeholder Involvement
- Sample Location Refinement
- Questions and Open Discussion

Introductions

- ARNG-Installation and Environment Directorate (IED), Cleanup & Restoration Branch
  - LTC James Crowley, Branch Chief
  - Captain Pamela Hess, Toxic Release Program Manager
  - Bonnie Packer, Nationwide Project Manager
  - Walt Gee, National Guard Bureau Project Manager
  - Joe Davis, National Guard Bureau Project Manager
  - Rueben Sendejas, California Project Manager
- United States Army Corps of Engineers (USACE)
  - Tim Peck, Program Manager (Baltimore District)
  - James Lukasko (Sacramento District)
- California Army National Guard (CAARNG)
  - Thomas Tandoc, CAARNG
  - CAARNG Environment Office representative
- Santa Ana Regional Water Quality Control Board (RWQCB)
  - Patricia Hannon
- California Department of Toxic Substances Control (DTSC)
- AECOM Technical Services, Inc.
  - Holly Holbrook, SI Task Manager
  - Bill Eaton, SI Task Support

Organizational Structure



Safety Moment

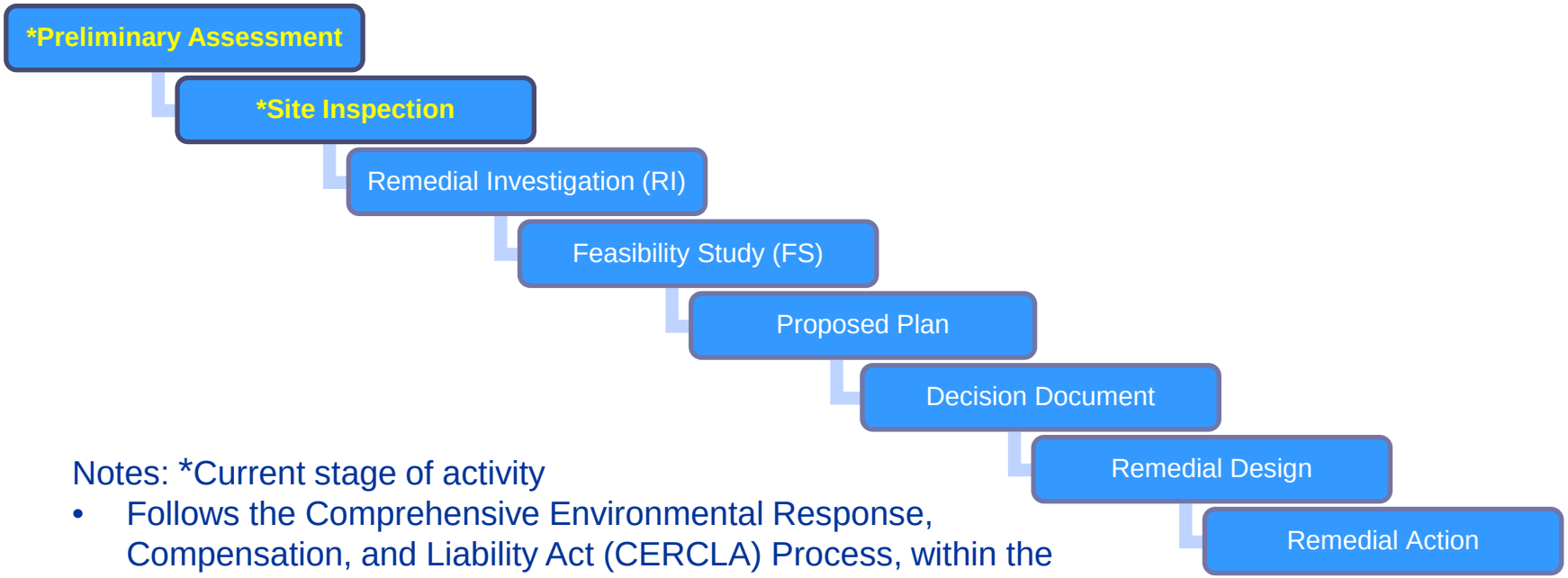
- SI will follow USACE Engineering Manual (EM) 385-1-1 requirements:
  - Accident Prevention Plan addresses all component plans for EM 385-1-1, including Construction Support during drilling operations
  - Site Specific Health and Safety Plan addresses project participants, training, and hazard identification and mitigation

TPP Meeting Goals

- TPP1: Discuss ARNG PA/SI Program
  - Provide an overview of the ARNG PA/SI Program
  - Define objectives for SI data collection
  - Encourage stakeholder involvement
  - Review project schedule
- TPP2: Discuss proposed SI approach
  - Provide an overview of PA findings
  - Present Conceptual Site Model (CSM) and Data Quality Objectives (DQOs)
  - Present SI approach
- TPP3: Discuss SI findings
- Participants:
  - TPP1 and 2: ARNG, USACE, RWQCB
  - TPP3: ARNG, USACE, RWQCB

ARNG PA/SI Overview

Work Phases



Notes: *Current stage of activity

- Follows the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Process, within the limitations of the evolving regulatory standards
- An interim removal action can be conducted or a No Further Action determination can be made at any phase
- Restoration Advisory Board is typically solicited at RI/FS Phase
- The steps beyond RI will depend on development of regulatory risk frameworks for PFAS

ARNG PA/SI Overview
ARNG Program

- Activities centrally contracted through USACE and managed by ARNG-IED
  - USACE Baltimore manages the contract, with project support from Sacramento and Omaha Districts
  - Project support: chemistry, geology, risk assessment
- PA ranking (~200 facilities) - state ARNG input
  - Likelihood of release
  - Complete pathway to drinking water receptor
- Priority assigned to facilities with highest likelihood of release near drinking water intake
- PA – facility-wide; SI – areas of interest (AOIs)

ARNG PA/SI Overview
Roles in PA/SI

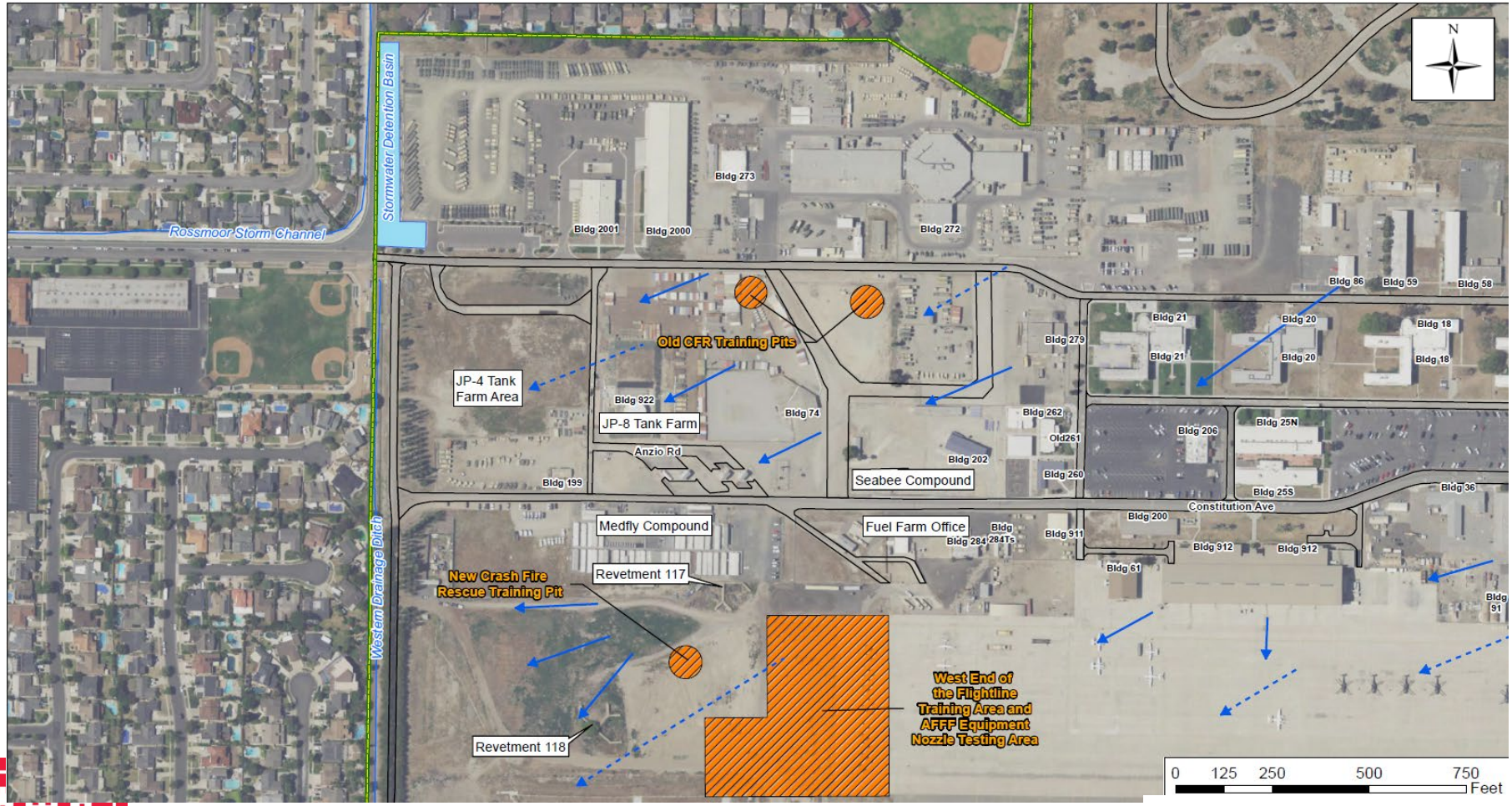
- State ARNG Role for the PA
  - Identify potential per- and polyfluorinated alkyl substances (PFAS) release locations
  - Provide ARNG personnel and facility access
  - Gather and provide appropriate documents
  - Identify/schedule personnel to interview
  - State ARNG provides final PA to the regulatory agencies
- SI Regulatory Involvement
  - CERCLA SI conducted in conjunction with the appropriate regulatory agency

JFTB Los Alamitos PA Findings

JFTB Los Alamitos PA Findings

- Reviewed data resources to obtain information relevant to suspected PFAS releases
- Conducted a 2-day site visit that included visual site inspections at known PFAS locations on 24 and 25 January 2018, and documented with photographs
- Interviewed current JFTB Los Alamitos personnel during the site visit
- Identified eight areas of interest (AOIs)

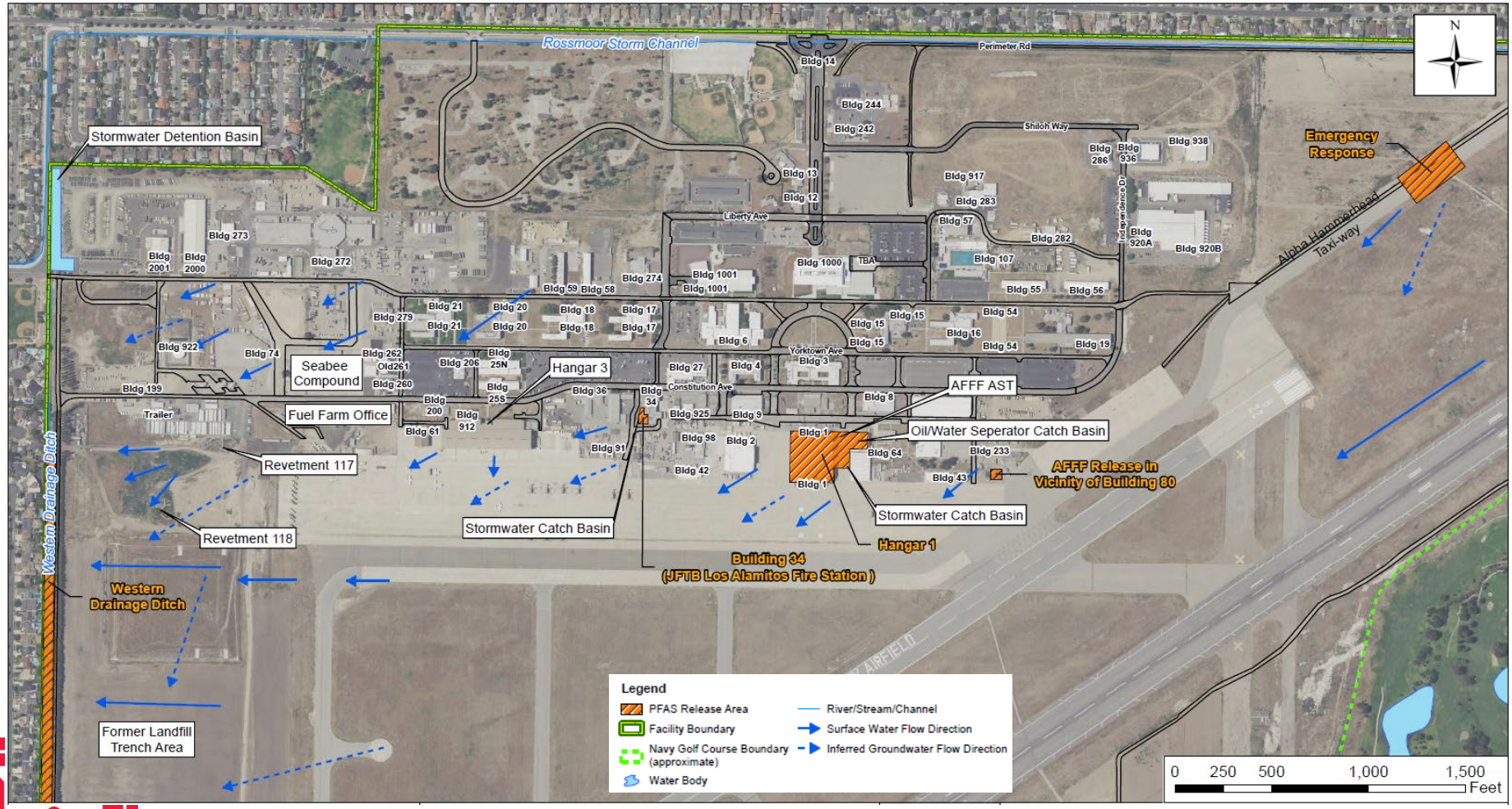
JFTB Los Alamitos PA Findings
Fire Training Areas



Aerial Image Source: Google Earth

JFTB Los Alamitos PA Findings

Non-Fire Training Areas



Aerial Image Source: Google Earth

JFTB Los Alamitos PA Findings

Old Crash Fire Rescue Training Pits

- Two pits each approximately 60 ft in diameter and surrounded by earthen berms
  - Construction date of the older pit is unknown and it was in use until 1983
  - The second pit was in use from 1977-1979; the exact location of this pit is unknown
  - Pits were flooded with JP-4, water, and/or other combustibles during training exercises
  - Aqueous film forming foam (AFFF) used to extinguish fires
- Previous remediation efforts for fuels and solvents included treatment systems, in-situ thermal, injection of Oxygen Release Compound (ORC) and ozone conducted downgradient of the presumed pit locations
  - Treatment systems may have influenced migration of PFAS
  - Chemical oxidation may have accelerated transformation of PFAS pre-cursors to PFOS and PFOA

JFTB Los Alamitos PA Findings

New Crash Fire Rescue Training Pit

- Approximately 3 ft – 5 ft deep and 60 ft in diameter and surrounded by an earthen berm
- Used between 1983 and September 1987
- Pit was flooded with water and flammable liquids
- AFFF was used to extinguish fires
- Previous remediation efforts for fuels and solvents include dual-phase vacuum extraction (DPVE) remediation system

JFTB Los Alamitos PA Findings
West End of the flight line (WEF)

- Fire training exercises performed within the last 20 years
  - Trainees sprayed AFFF at targets located on the concrete portion of the tarmac.
  - AFFF applied was pushed or sprayed off the concrete with water into the grass and soil covered areas west of the concrete tarmac
- AFFF nozzle testing performed on a monthly basis in the southwest corner of the WEF through 2017
  - Training conducted since at least 2000

JFTB Los Alamitos PA Findings Hangar 1 (including washrack)

- Hangar in use since 1943
- Discharge of AFFF during testing of fire suppression system
  - Approximately 100 gallons of AFFF released in northeast corner of hangar
  - Discharge released foam onto a helicopter being serviced, which was then towed to the washrack area and hosed off with water
  - Foam from in the hangar was pushed out the side of the hangar onto the driveway between the washrack and the hangar
  - Two catch basins in the area – one connected to the sanitary sewer and the second connected to the stormwater drainage system, which outfalls at the western drainage ditch (WDD)

JFTB Los Alamitos PA Findings Building 34 (Fire Station)

- Fire trucks are filled with AFFF on the west side of the building
- AFFF stored in southwestern portion of Building 34 on secondary storage
- Fire trucks equipped with AFFF have also been parked on the east side of the building
- Potential release from cleaning of fire equipment after AFFF use, spillage when filling AFFF on fire trucks, and leakage from trucks due to mechanical/maintenance issues
- Previous remediation efforts for fuels included injection of ORC and operation of a DPVE system

JFTB Los Alamitos PA Findings AFFF Release in Vicinity of Bldg 80

- Approximately 70 – 80 gal of AFFF was used for insect abatement of an abandoned structure infested with bees and wasps
- Structure was subsequently demolished, but was located approximately 50 ft south of Building 80

JFTB Los Alamitos PA Findings Emergency Response

- Wheel-brake fire occurred on a C-130 Hercules tanker version aircraft
- Aircraft taxied to the midpoint of Alpha Hammer-Head taxiway where fire was reported to be extinguished using AFFF

JFTB Los Alamitos PA Findings Western Drainage Ditch (WDD)

- Parallels western property boundary of JFTB Los Alamitos
- Primarily unlined and open
- Surface water from storm drains on the flight line, main roadways and other areas within the operational cantonment areas flows to an outfall structure in the WDD
- In the past, effluent from various treatment systems equipped with granular activated carbon was discharged to the WDD in accordance with a NPDES permit

JFTB Los Alamitos PA Findings Hangar 3

- Full foam test of the AFFF system performed on 31 March 2017
  - Foam was fully contained within the hangar and was then collected using a vacuum truck and disposed of offsite by a contractor.
  - No apparent openings in the building's concrete slab
- Hangar 3 is not considered an AOI

JFTB Los Alamitos PA Findings Former Landfill Trench Area

- Not considered an AOI based on the nature of disposed materials (primarily household waste)

JFTB Los Alamitos PA Findings
Adjacent Sources

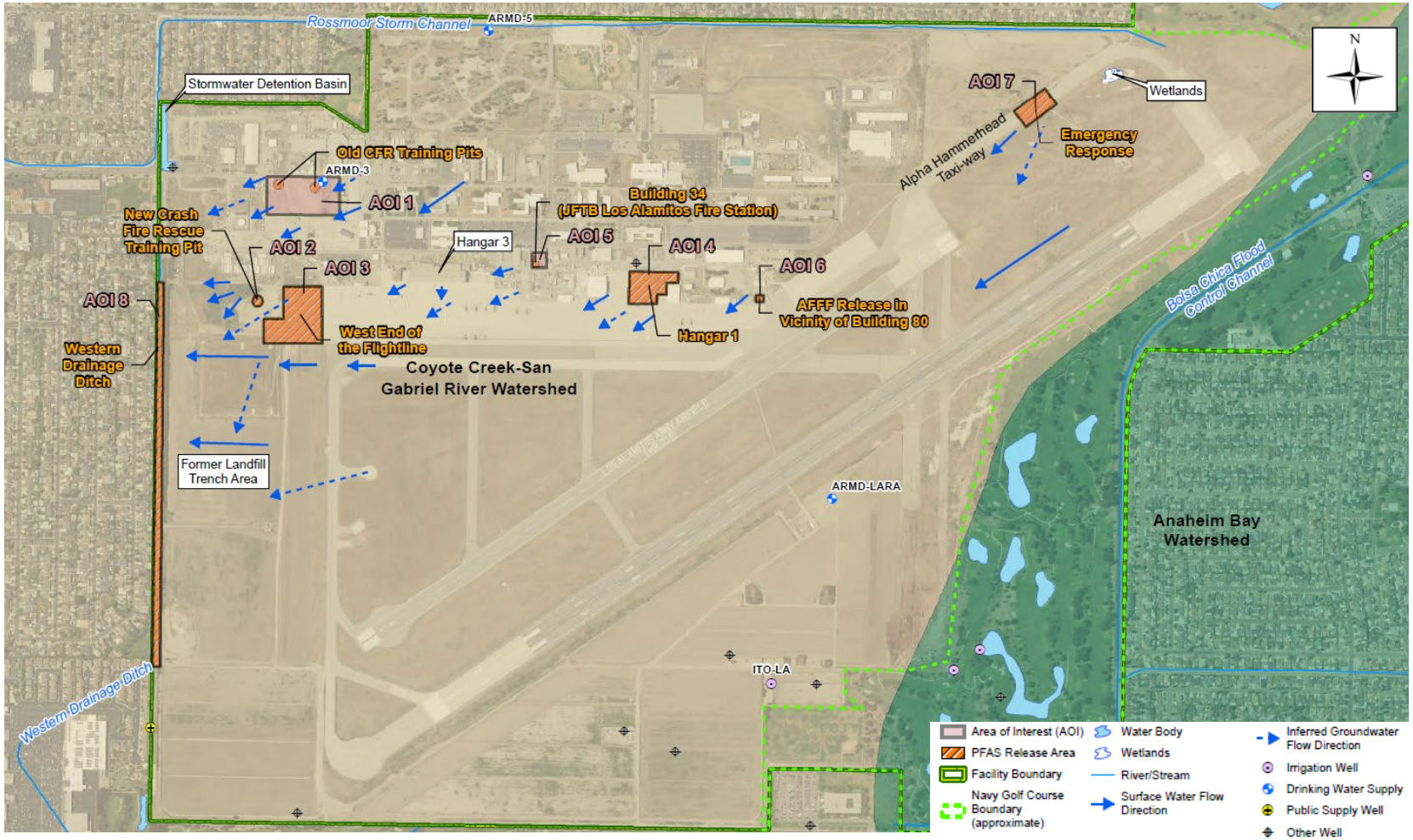
- Seven water agencies that operate in areas upgradient of JFTB Los Alamitos had detections of PFOA or PFOS between 2013 and 2015
- Non-potable well ARMD-5, located in the northern portion of the JFTB LA Navy housing area
  - Well installed in 1963 and is 672 ft deep
  - PFOS – 28.0 ng/L; PFOA 48.7 ng/L in February 2017
- One property located within 1 mile hydraulically up- and cross-gradient of the site identified as another potential source during the PA: Arrowhead Products/Federal Mogul

JFTB Los Alamitos PA Findings
Uncertainty

- Stormwater drainage system plans (as-builts) were not available for review for the PA
- The exact locations of the old crash fire rescue training pits are uncertain
- It is not known if the WEF is the only area historically used for nozzle equipment testing
- Non-hazardous waste report for the release at Hangar 1 indicates that liquids and sorbent materials were placed in drums and taken to the facility's hazardous materials storage area; final disposition of the drums is unknown
- The precise location of the Emergency Response is unknown
- The facility has been occupied since the 1970s; the completeness of historical records is uncertain

JFTB Los Alamitos PA Findings

Summary of Findings and AOIs

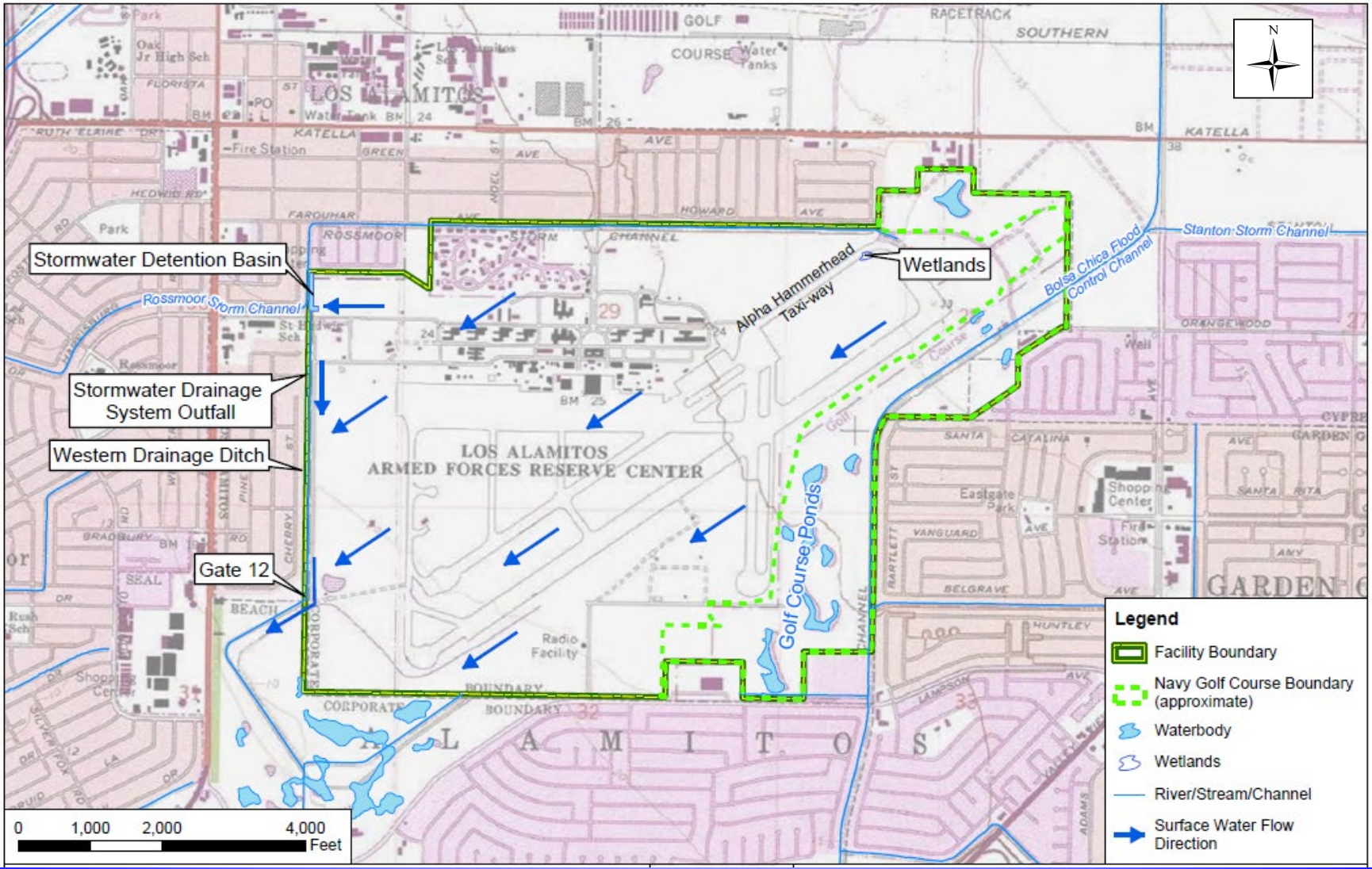


JFTB Los Alamitos SI Overview
Data Quality Objectives

- Primary SI DQOs
  - Determine the presence / absence of a PFAS release
  - Gather data for conceptual site model:
    - Source-Pathway-Receptor relationships
- Enhanced SI DQOs
  - Check for the presence / absence at facility boundary
  - Check for alternate sources, up- or downgradient

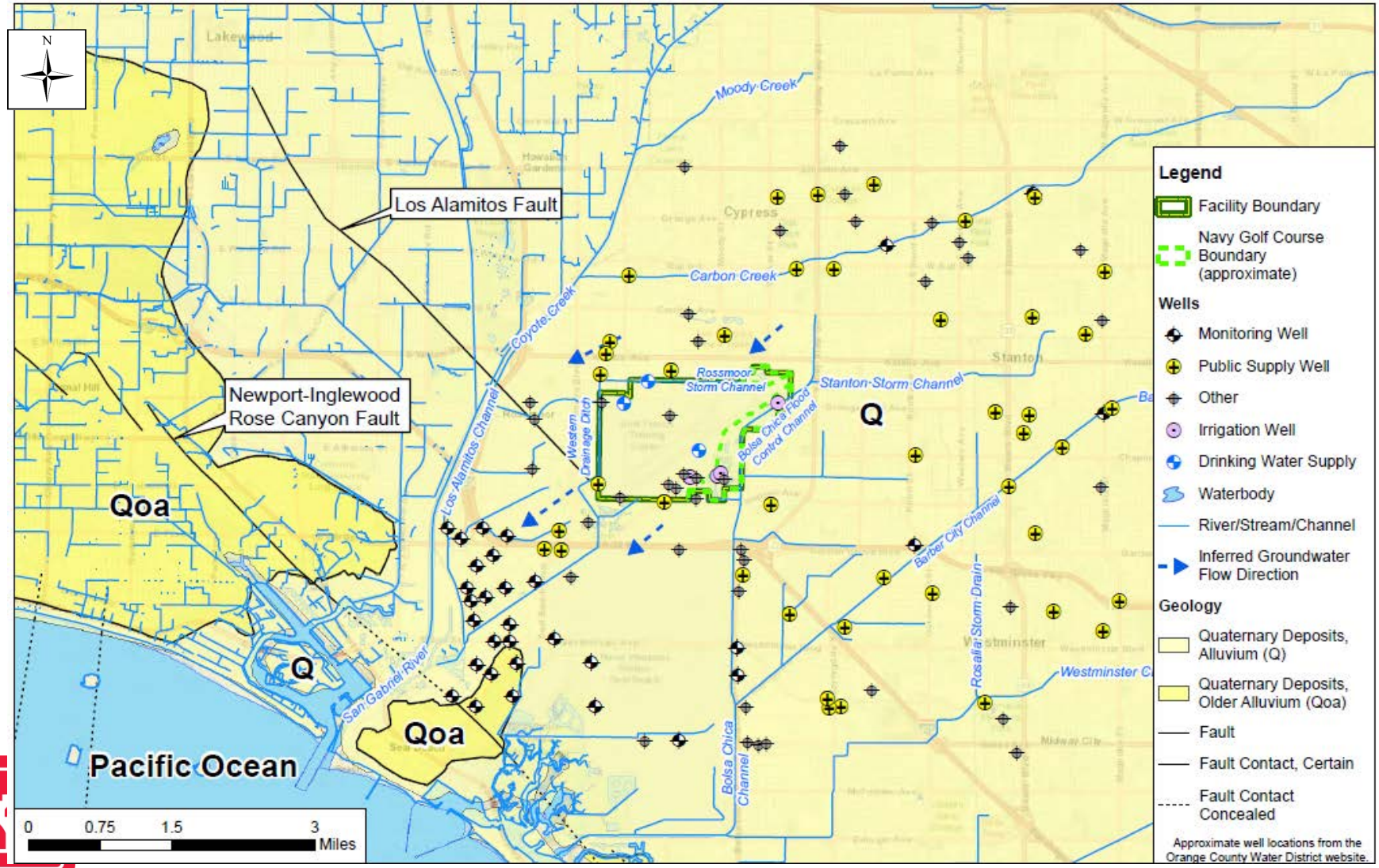
JFTB Los Alamitos SI Overview

Conceptual Site Model - Surface Water Features



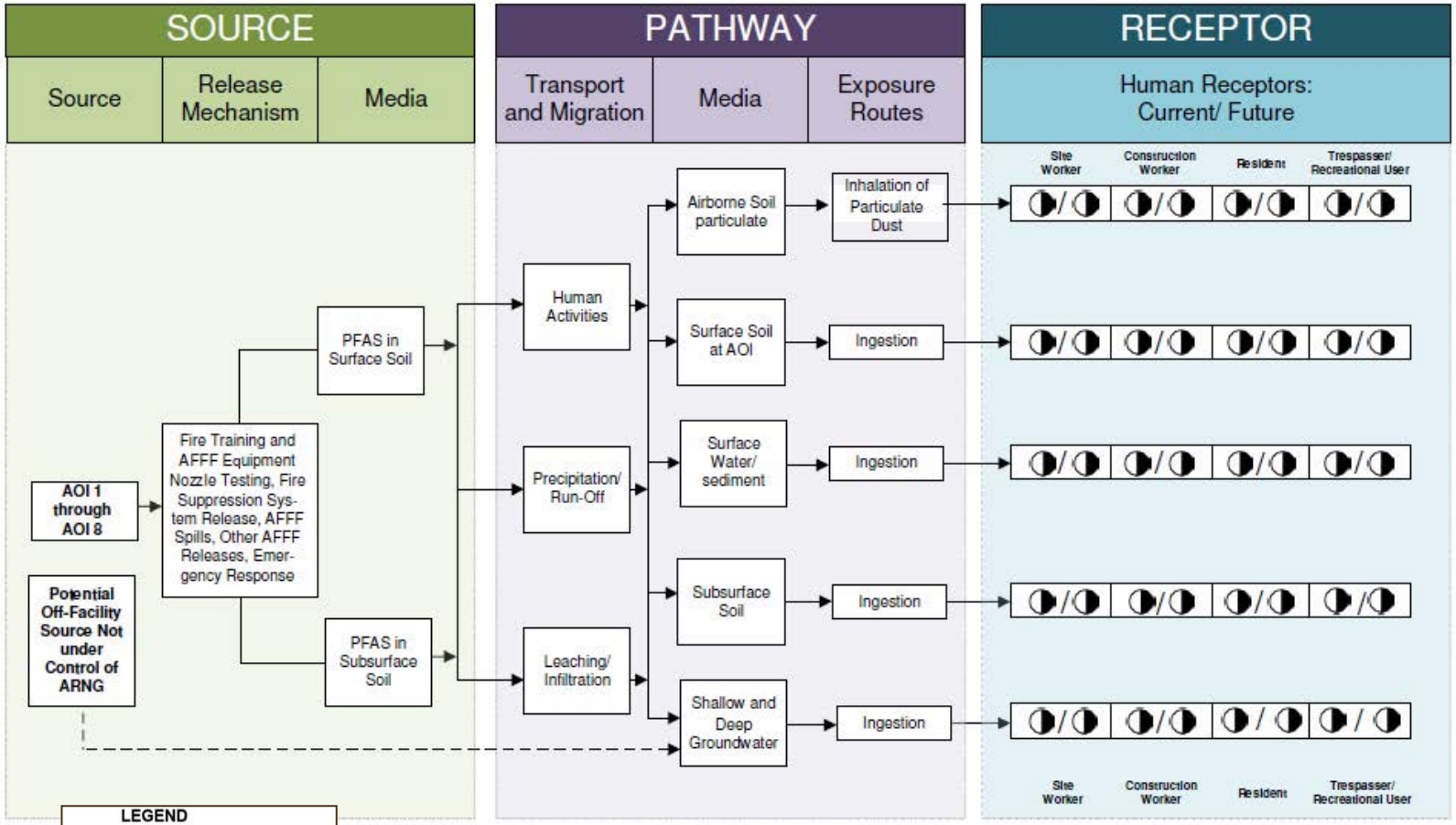
JFTB Los Alamitos SI Overview

Conceptual Site Model – Geology and Well Locations



JFTB Los Alamitos SI Overview

Conceptual Site Model



JFTB Los Alamitos SI Overview

Planning and Sampling

- Finalize Work Plan and Uniform Federal Policy-Quality Assurance Project Plan (UFP-QAPP)
- Install temporary monitoring wells within/downgradient of potential source areas
- Continuous soil cores to target depth of 30 ft bgs (soil samples collected at surface, mid point, above water table)
- Sample two existing monitoring wells
- Collect samples from the influent and effluent of the existing groundwater extraction and treatment system

JFTB Los Alamitos SI Approach

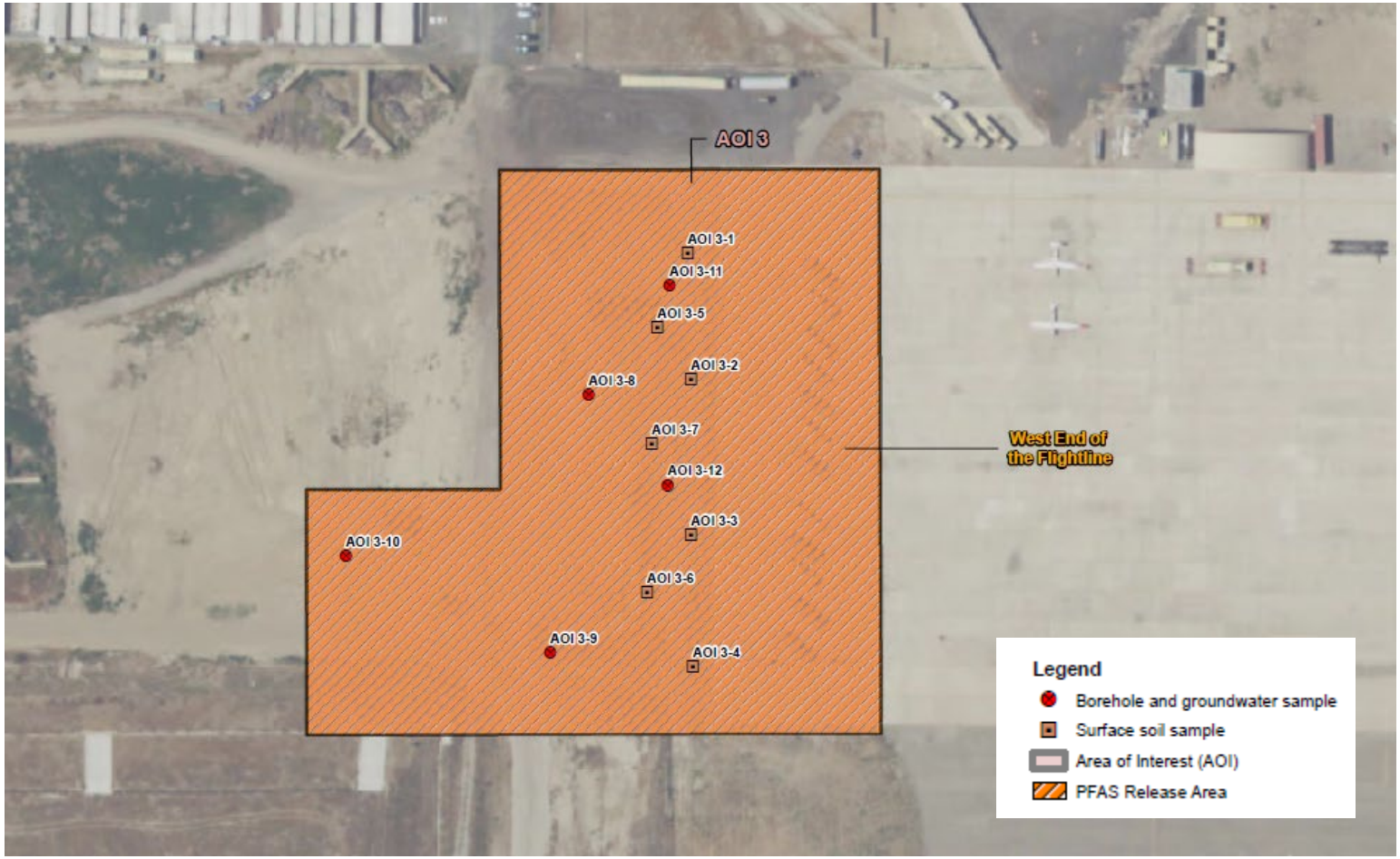
Proposed Sampling Locations – AOI 1

JFTB Los Alamitos SI Approach

Proposed Sampling Locations – AOI 2

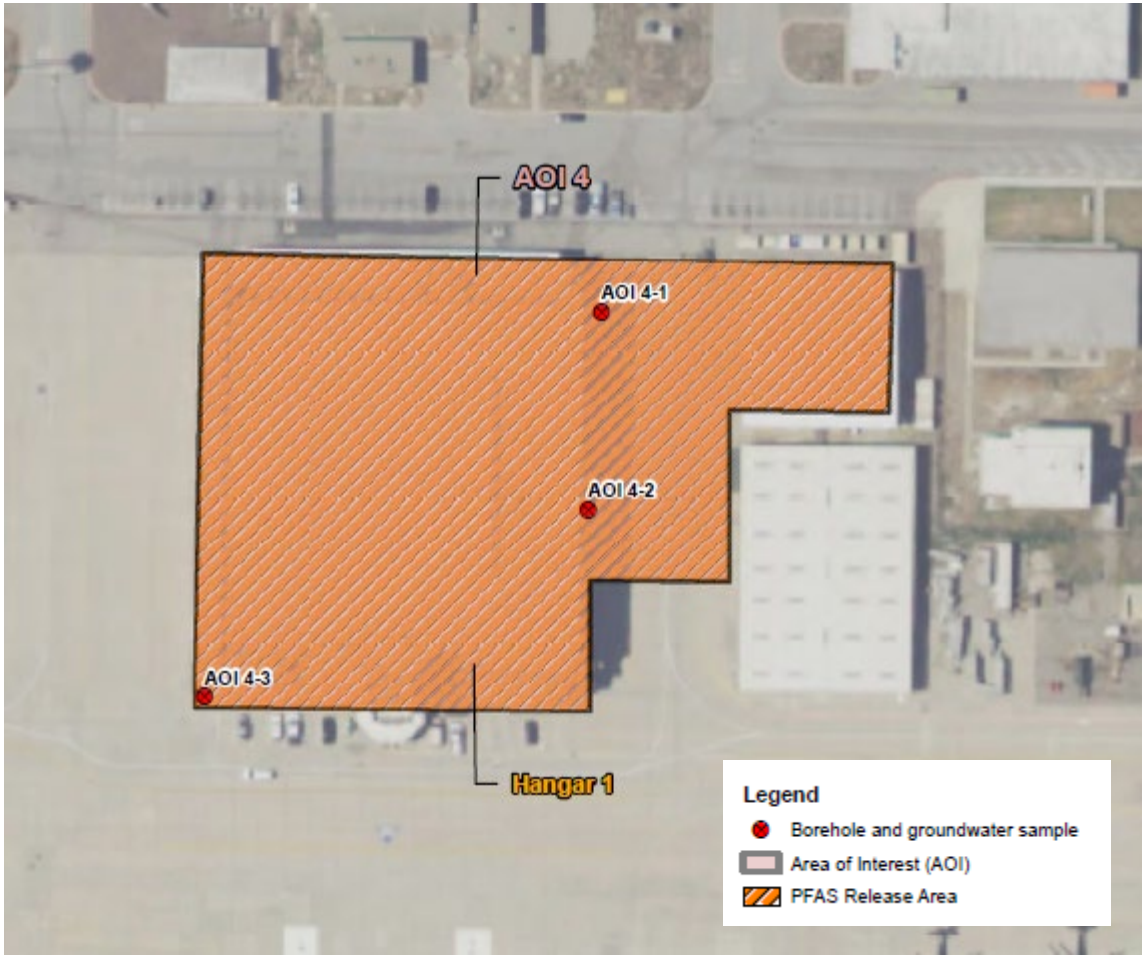
JFTB Los Alamitos SI Approach

Proposed Sampling Locations – AOI 3



JFTB Los Alamitos SI Approach

Proposed Sampling Locations – AOI 4



JFTB Los Alamitos SI Approach

Proposed Sampling Locations – AOI 5

JFTB Los Alamitos SI Approach

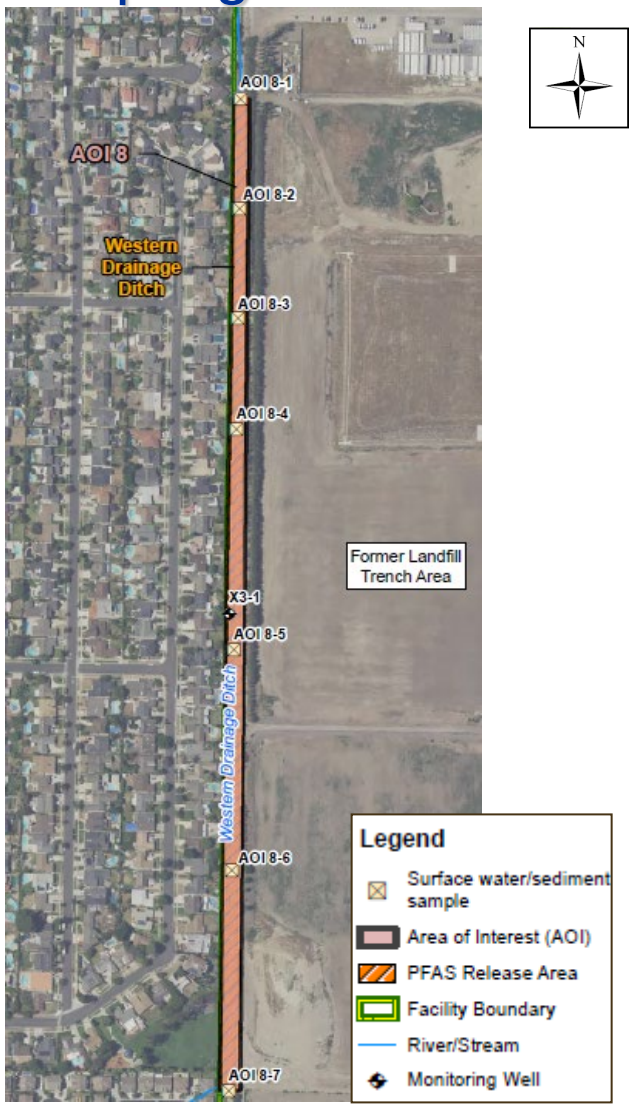
Proposed Sampling Locations – AOI 6

JFTB Los Alamitos SI Approach

Proposed Sampling Locations – AOI 7

JFTB Los Alamitos SI Approach

Proposed Sampling Locations – AOI 8



JFTB Los Alamitos SI Approach

Additional Areas Not Discussed in PA

- Tri-Max units equipped with AFFF were stationed around parked aircraft on the ramp in front of Hangar 1 and Hangar 3 since at least 2002 based on aerial photographs
  - Any potential release from these units would have occurred on the paved ramp and then drained to either the WEF area or the storm drain system, and eventually to the WDD, both of which are already AOIs
- A groundwater remediation system is in operation at the western boundary of the former JP-4 tank farm site
  - Groundwater run through the system is potentially impacted with PFAS
  - Effluent from the system is used for dust control on roads at the facility
  - Samples will be collected from the influent and effluent of the system

JFTB Los Alamitos SI Overview

Planning and Sampling

AOI	# of Boring Locations	Target Depth(s) for Borings (ft bgs)	Soil Samples	Target Interval(s) for GW samples (ft bgs)	# of Grab Groundwater Samples	Surface Soil Samples	# of Existing Monitoring Wells
1	6	30	12	25-30	6	-	-
2	1	30	6	25-30	1	-	-
3	5	30	10	25-30	5	7	-
4	3	30	6	25-30	3	-	-
5	1	30	2	25-30	1	-	1
6	1	30	2	25-30	1	3	-
7	3	30	6	25-30	3	6	-
8	-	-	-	25-30	-	7	1
System	-	-	-	-	2	-	-

JFTB Los Alamitos SI Overview
Analytical Parameters

Perfluorooctanesulfonic acid (PFOS)	Perfluoroheptanoic acid (PFHpA)
Perfluorohexanesulfonic acid (PFHxS)	Perfluorononanoic acid (PFNA)
Perfluorooctanoic acid (PFOA)	Perfluorobutanesulfonic acid (PFBS)
Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPA)
N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	N-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)
Perfluorodecanoic acid (PFDA)	Perfluorotetradecanoic acid (PFTA)
Perfluorododecanoic acid (PFDoA)	Perfluorohexanoic acid (PFHxA)
Perfluorotridecanoic acid (PFTrDA)	Perfluoroundecanoic acid (PFUnA)
6:2 Fluorotelomer sulfonate (6:2 FTS)	8:2 Fluorotelomer sulfonate (8:2 FTS)

- All data will undergo Level IV data validation

Stakeholder Involvement

- Use TPPs and open communication to encourage involvement
- Key involvement topics
  - Proposed approaches
  - Document review time for RWQCB
- Schedule:
  - UFP-QAPP: Draft-Final for regulatory review in February 2019
  - Field Investigation: April 2019

Sample Location Refinement

- Visual reconnaissance of sample locations
- Confirm placement is accessible and will meet DQOs
- Relocate if required, with ARNG, RWQCB concurrence

Questions and Open Discussion

- Coordination
  - Data transfer
  - Report distribution (paper, electronic, portable document format)
- Schedule
  - Revision and finalization of UFP-QAPP (March 2019)
  - Field execution (April 2019)
  - SI Report preparation and review
  - TPP 3: discussion of field results with stakeholders

Acronyms

- AFFF – aqueous film forming foam
- AOI – area of interest
- ARNG – Army National Guard
- ARNG-IED – ARNG Compliance & Cleanup Branch
- Bgs – below ground surface
- CERCLA – Comprehensive Environmental Response, Compensation, and Liability Act
- CSM – Conceptual Site Model
- Ft - feet
- DQO – Data Quality Objective
- EM – Engineering Manual
- JFTB – Joint Forces Training Base
- PA – Preliminary Assessment
- PFAS – Per- and Polyfluorinated Alkyl Substances
- PFOS – Perfluorooctanesulfonic Acid
- PFOA – Perfluorooctanoic Acid
- RWQCB – Regional Water Quality Control Board
- SI – Site Inspection
- TPP – Technical Project Planning
- UFP-QAPP – Uniform Federal Policy Quality Assurance Project Plan
- USACE – United States Army Corps of Engineers
- WDD – Western Drainage Ditch
- WEF – West End of flight line

Attachment B- WDD Clarification

Aerial imagery dated November 30, 2003 (available on Google Earth™) shows construction activity (**Figure 1**) at the southern end of the WDD intended to route water from the WDD to:

1) Inlet to a storm drain that receives WDD Discharge, and
2) Inlet to the pond system located at the Old Ranch Country Club Golf Course.

The elevation of the storm drain inlet in this figure is estimated to be about 4 feet below the elevation of the pond system inlet. Therefore, the preferred surface water flow direction is from the WDD and into the storm drain. The width of the storm drain inlet is about 7 feet. Under circumstances (i.e., heavy or prolonged precipitation) when the volume of water discharging from the WDD might exceed the capacity of the storm drain to receive this water, then WDD discharge will enter into the pond system inlet.

Figure 2 shows the location of the storm drain outlet south of Interstate 405. The alignment of the storm drain under the Old Ranch Country Club Golf Course is uncertain without benefit of the storm drain construction diagrams not currently in the possession of AECOM (AECOM is not planning to seek these drawing[s]).

Figure 3 shows the alignment of the surface drainage ditch that conveys storm drain discharge southwestward from Interstate 405. The terminus of this surface drainage ditch is an infiltration basin located on the ocean side of the alignment of water injection wells that comprise the Alamitos Seawater Intrusion Barrier (**Figure 4**).

Figure 1 to Attachment B

Figure 1: WDD Construction Activity

Write a description for your map.

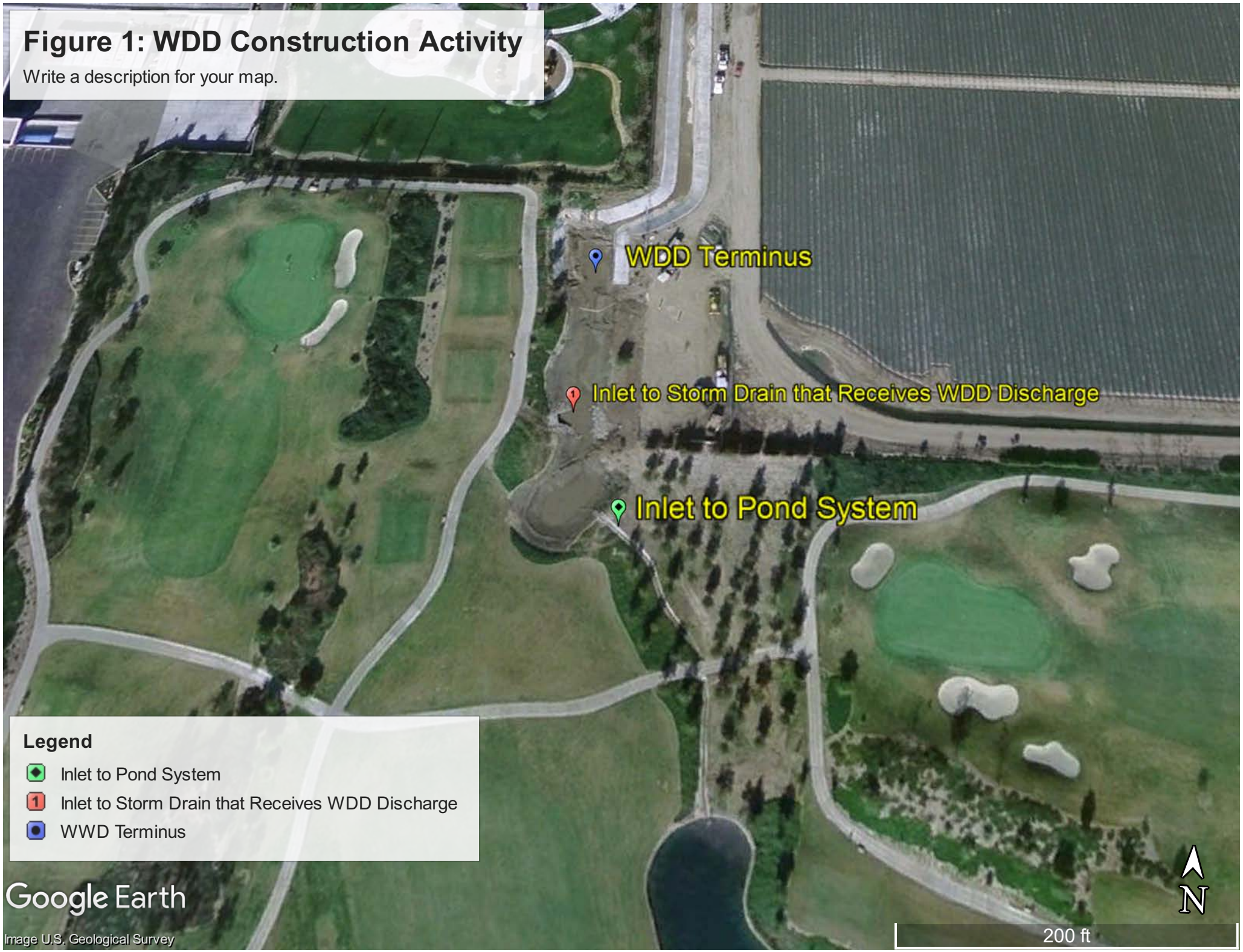


Figure 2 to Attachment B

Figure 2: Storm Drain Outlet South of Interstate 495

Figure 3 to Attachment B

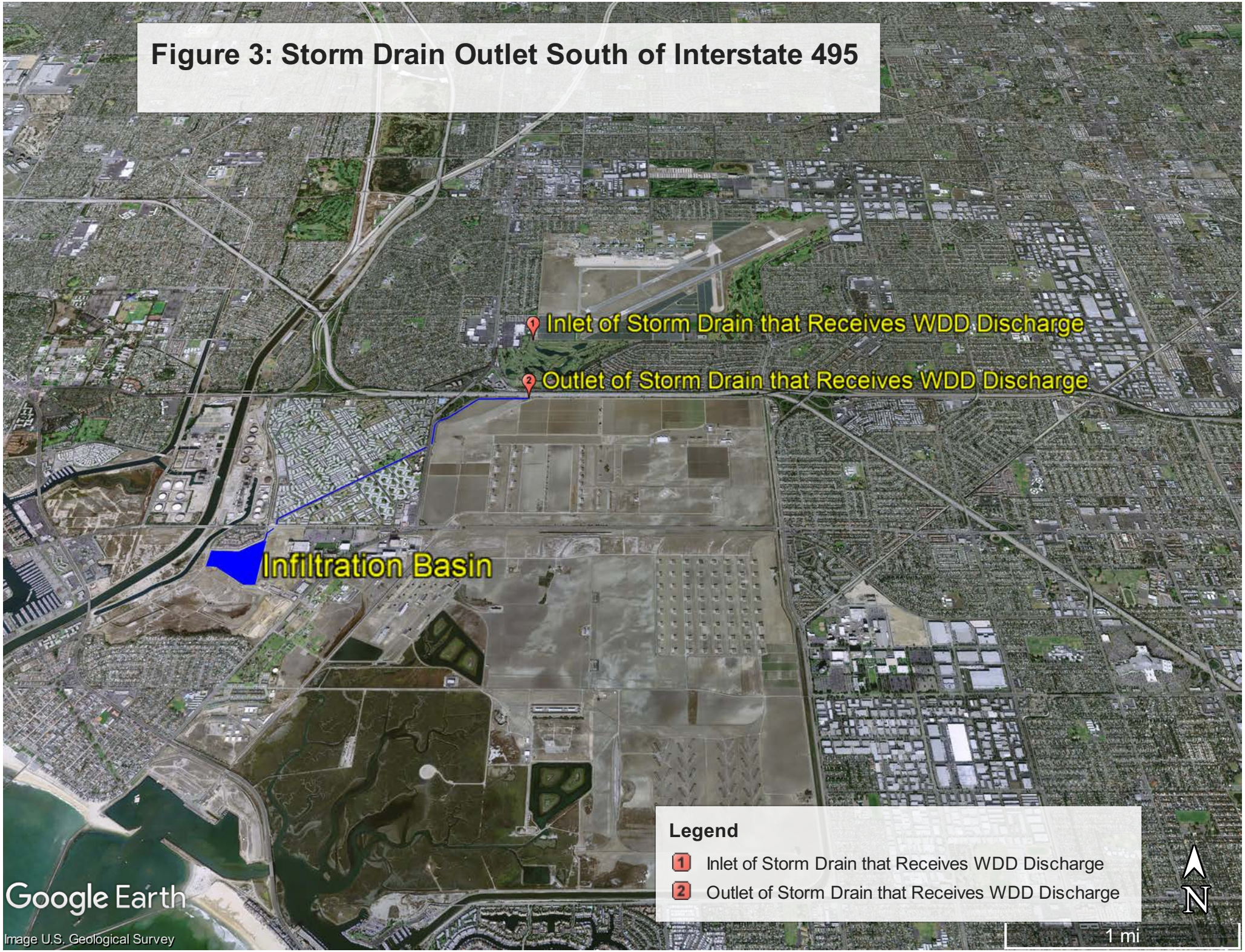
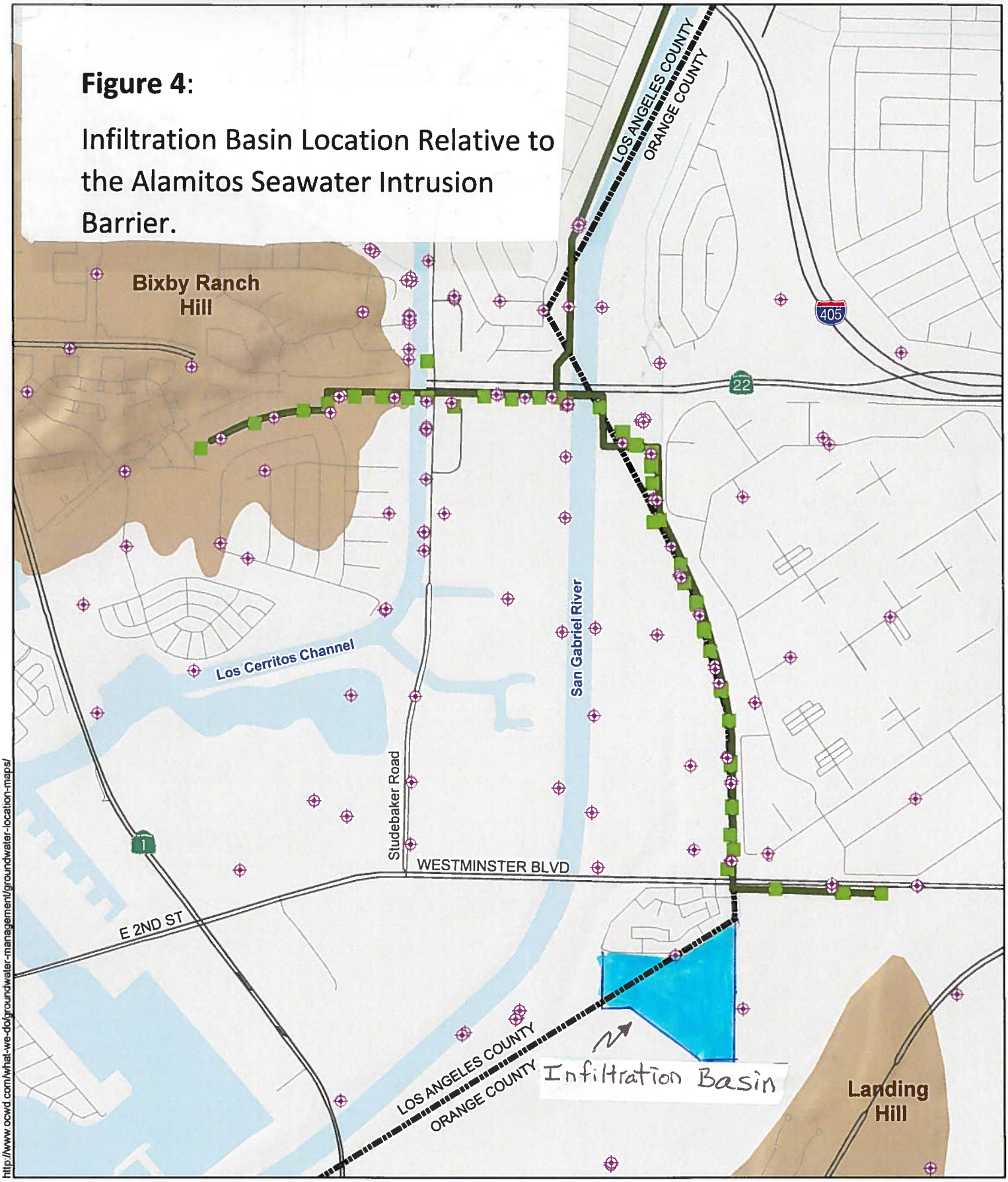


Figure 3: Storm Drain Outlet South of Interstate 495
Inlet of Storm Drain that Receives WDD Discharge
Outlet of Storm Drain that Receives WDD Discharge
Infiltration Basin
Legend
1 Inlet of Storm Drain that Receives WDD Discharge
2 Outlet of Storm Drain that Receives WDD Discharge
N
1 mi
Google Earth
Image U.S. Geological Survey

Figure 4 to Attachment B

Figure 4:

Infiltration Basin Location Relative to the Alamitos Seawater Intrusion Barrier.



http://www.ocwd.com/what-we-do/groundwater-management/groundwater-location-maps/

N W E S

Injection Well
Monitoring Well
Alamitos Barrier Water Supply Pipeline
OCWD Service Boundary

0 1,000 2,000 Feet

Orange County Water District
Alamitos Seawater Intrusion Barrier
Injection Well and Monitoring Well Locations
Date Prepared: 06/12/2018

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Appendix E
Boring Logs

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WELL NUMBER AOI1-1

AECOM AECOM

TOTAL DEPTH 25 FT BGS
PAGE 1 OF 2

CLIENT ARNG, USACE Baltimore District
PROJECT NAME ARNG PFAS Los Alamitos
PROJECT NUMBER 60552172
SITE NAME AOI 1
DATE STARTED 10/22/19 **COMPLETED** 10/22/19
EASTING N/A **NORTHING** N/A
DRILLING CONTRACTOR Cascade
GROUND ELEVATION N/A **HOLE SIZE** 2.25 inches
DRILLING EQUIPMENT Geoprobe
GROUND WATER LEVELS:
DRILLING METHOD Direct Push
AT TIME OF DRILLING 11.00 ft
LOGGED BY N. DiPietro **CHECKED BY** J. Hollingsworth
AT TIME OF SAMPLING 9.17 ft

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	ENVIRONMENTAL DATA	WELL DIAGRAM
0				0.0 No sample was logged.		
				2.0 ARTIFICIAL FILL.		
5					AOI1-1-SB-4.5-5-102219	
		ML		6.0 SANDY SILT, moist, brown, micaceous, 60% silt, 30% fine-grained sand, and 10% clay.		
		SP		9.0 POORLY GRADED SAND, moist to wet, brown, fine-grained, micaceous, 95% sand and 5% fines.		**Well Casing** Type: Schedule 40 PVC Diameter: 0.75 in Top: 0 ft bgs Bottom: 20 ft bgs
10					AOI1-1-SB-10-10.5-102219	
				11.0 ▽ Changes to wet.		
		ML		12.0 SILT, moist, brown, low to medium plasticity, micaceous, 80% silt, 10% fine-grained sand, and 10% clay.		
				13.0 Sand lenses present.		
		SM		14.0 SILTY SAND, moist, brown, fine-grained, micaceous, 75% sand and 25% fines. Ochre staining present.		
15					AOI1-1-SB-17-17.5-102219	
		SP		18.0 POORLY GRADED SAND, wet, dark yellowish brown, 90% fine-grained and 5% medium-grained, micaceous with 5% fines.		
20						

ARNG SMART LOG 8.5X11_V2 - - 4/3/20 12:29 - C:\USERS\JACK.HOLLINGSWORTH\DOCUMENTS\GINT\ARNG\LOS ALAMITOS\LOS ALAMITOS.GPJ

(Continued Next Page)

WELL NUMBER AOI1-1

AECOM AECOM

TOTAL DEPTH 25 FT BGS
PAGE 2 OF 2

CLIENT ARNG, USACE Baltimore District **PROJECT NAME** ARNG PFAS Los Alamitos

PROJECT NUMBER 60552172 **SITE NAME** AOI 1

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	ENVIRONMENTAL DATA	WELL DIAGRAM
20		SP		18.0 POORLY GRADED SAND, wet, dark yellowish brown, 90% fine-grained and 5% medium-grained, micaceous with 5% fines. *(continued)*	AOI1-1-GW-102219	**Well Screen** Top: 20 ft bgs Bottom: 25 ft bgs
25		CL		23.5 LEAN CLAY, moist, brown, medium to high plasticity, 55% silt, 35% clay, and 10% fine-grained sand.		

Bottom of borehole at 25.0 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 for vertical datum and NAD83/91 for horizontal datum in California State Plane.

WELL NUMBER AOI1-2

AECOM AECOM

TOTAL DEPTH 15 FT BGS
PAGE 1 OF 1

CLIENT ARNG, USACE Baltimore District
PROJECT NAME ARNG PFAS Los Alamitos
PROJECT NUMBER 60552172
SITE NAME AOI 1
DATE STARTED 10/23/19 **COMPLETED** 10/23/19
EASTING N/A **NORTHING** N/A
DRILLING CONTRACTOR Cascade
GROUND ELEVATION N/A **HOLE SIZE** 2.25 inches
DRILLING EQUIPMENT Geoprobe
GROUND WATER LEVELS:
DRILLING METHOD Direct Push
AT TIME OF DRILLING 10.50 ft
LOGGED BY N. DiPietro **CHECKED BY** J. Hollingsworth
AT TIME OF SAMPLING 11.31 ft

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	ENVIRONMENTAL DATA	WELL DIAGRAM
0				0.0 ARTIFICIAL FILL sampled as poorly graded sand.		
5					AOI1-2-SB-4.5-5-102319	**Well Casing** Type: Schedule 40 PVC Diameter: 0.75 in Top: 0 ft bgs Bottom: 10 ft bgs
		ML		6.0 SANDY SILT, moist, brown, low plasticity, micaceous, 50% silt, 40% fine-grained sand, and 10% clay.		
				8.5 SILT, moist, brown, micaceous, 80% silt, 10% sand, and 10% clay.		
10		SP		9.5 POORLY GRADED SAND, moist, brown, fine-grained, micaceous, 95% sand and 5% fines.	AOI1-2-SB-9.5-10-102319	
				10.5 ▽ Changes to wet.		
		ML		12.0 SILT, brown, 80% silt, 15% clay, and 5% sand present in lenses.	AOI1-2-SB-12.5-13-102319	**Well Screen** Top: 10 ft bgs Bottom: 15 ft bgs
					AOI1-2-GW-102319	
15		SM		14.5 SILTY SAND, brown, 70% silt and 30% sand.		

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 for vertical datum and NAD83/91 for horizontal datum in California State Plane.

WELL NUMBER AOI1-3

AECOM AECOM

TOTAL DEPTH 25 FT BGS

CLIENT ARNG, USACE Baltimore District
PROJECT NAME ARNG PFAS Los Alamitos
PROJECT NUMBER 60552172
SITE NAME AOI 1
DATE STARTED 10/22/19 **COMPLETED** 10/22/19
EASTING N/A **NORTHING** N/A
DRILLING CONTRACTOR Cascade
GROUND ELEVATION N/A **HOLE SIZE** 2.25 inches
DRILLING EQUIPMENT Geoprobe
GROUND WATER LEVELS:
DRILLING METHOD Direct Push
AT TIME OF DRILLING 10.00 ft
LOGGED BY N. DiPietro **CHECKED BY** J. Hollingsworth
AT TIME OF SAMPLING 8.94 ft

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	ENVIRONMENTAL DATA	WELL DIAGRAM
0				0.0 No sample was logged.		
				2.0 ARTIFICIAL FILL.		
5		SP		5.0 POORLY GRADED SAND sampled as artificial fill, dry, dark grayish brown, fine-grained, micaceous, 95% sand and 5% fines.	AOI1-3-SB-4.5-5-102219	
		ML		7.0 SANDY SILT, moist, brown, low plasticity, micaceous, 50% silt, 40% fine-grained sand, and 10% clay.		
10				9.0 SILT, moist, dark yellowish brown, low to medium plasticity, micaceous, 75% silt, 15% clay, and 10% fine-grained sand. ▽	AOI1-3-SB-9.5-10-102219	**Well Casing** Type: Schedule 40 PVC Diameter: 0.75 in Top: 0 ft bgs Bottom: 20 ft bgs
		SP		11.0 POORLY GRADED SAND, wet, brown, fine-grained, micaceous, 95% sand and 5% fines. Caliche present.		
		ML		13.0 SANDY SILT, moist, brown, low plasticity, micaceous, 50% silt, 40% fine-grained sand, and 10% clay.		
				14.0 Sand lenses present at 14 ft bgs.		
15		SM		14.5 SILTY SAND, brown, fine-grained, micaceous, 70% sand and 30% fines.		
				15.0 Caliche present.	AOI1-3-SB-16-16.5-102219	
		SP		17.0 POORLY GRADED SAND, wet, brown, fine-grained, micaceous, 95% sand and 5% fines.		
20						

(Continued Next Page)

WELL NUMBER AOI1-3

AECOM AECOM

TOTAL DEPTH 25 FT BGS

CLIENT ARNG, USACE Baltimore District **PROJECT NAME** ARNG PFAS Los Alamitos

PROJECT NUMBER 60552172 **SITE NAME** AOI 1

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	ENVIRONMENTAL DATA	WELL DIAGRAM
20		SP		17.0 POORLY GRADED SAND, wet, brown, fine-grained, micaceous, 95% sand and 5% fines. *(continued)*	AOi1-3-GW-102219	**Well Screen** Top: 20 ft bgs Bottom: 25 ft bgs
		CL		23.0 LEAN CLAY, moist, brown, high plasticity, 50% silt, 40% clay, and 10% sand.		
25				Bottom of borehole at 25.0 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 for vertical datum and NAD83/91 for horizontal datum in California State Plane.

WELL NUMBER AOI1-4

AECOM AECOM

TOTAL DEPTH 15 FT BGS
PAGE 1 OF 1

CLIENT ARNG, USACE Baltimore District
PROJECT NAME ARNG PFAS Los Alamitos
PROJECT NUMBER 60552172
SITE NAME AOI 1
DATE STARTED 10/23/19 **COMPLETED** 10/23/19
EASTING N/A **NORTHING** N/A
DRILLING CONTRACTOR Cascade
GROUND ELEVATION N/A **HOLE SIZE** 2.25 inches
DRILLING EQUIPMENT Geoprobe
GROUND WATER LEVELS:
DRILLING METHOD Direct Push
AT TIME OF DRILLING 10.00 ft
LOGGED BY N. DiPietro **CHECKED BY** J. Hollingsworth
AT TIME OF SAMPLING 9.31 ft

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	ENVIRONMENTAL DATA	WELL DIAGRAM
0				0.0 ARTIFICIAL FILL.		
5					AOI1-4-SB-4.5-5-102319	**Well Casing** Type: Schedule 40 PVC Diameter: 0.75 in Top: 0 ft bgs Bottom: 10 ft bgs
		ML		6.0 SANDY SILT, moist, brown, low plasticity, 60% silt, 25% medium-grained sand, and 15% clay.		
		SM		7.5 SILTY SAND, wet, fine-grained, micaceous, 70% sand and 30% silt.		
		ML		8.0 SILT, moist, brown, low plasticity, 80% silt, 15% clay, 5% fine-grained sand, and trace amounts of caliche.		
		SM		9.0 SILTY SAND, moist, fine-grained, micaceous, 70% sand and 30% silt.		
10					AOI1-4-SB-9.5-10-102319	
		SP		10.0 POORLY GRADED SAND, wet, grayish brown, fine-grained, micaceous, 95% sand and 5% fines.		
		ML		12.0 SILT, moist, brown, medium plasticity, 80% silt, 15% clay, and 5% sand. Sand lenses present from 12-13 ft bgs.	AOI1-4-GW-102319	**Well Screen** Top: 10 ft bgs Bottom: 15 ft bgs
15		SM		14.5 SILTY SAND, brown, fine-grained, micaceous, 75% sand and 25% fines.		
				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 for vertical datum and NAD83/91 for horizontal datum in California State Plane.

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WELL NUMBER AOI1-5

AECOM AECOM

TOTAL DEPTH 25 FT BGS

CLIENT ARNG, USACE Baltimore District
PROJECT NAME ARNG PFAS Los Alamitos
PROJECT NUMBER 60552172
SITE NAME AOI 1
DATE STARTED 10/23/19 **COMPLETED** 10/23/19
EASTING N/A **NORTHING** N/A
DRILLING CONTRACTOR Cascade
GROUND ELEVATION N/A **HOLE SIZE** 2.25 inches
DRILLING EQUIPMENT Geoprobe
GROUND WATER LEVELS:
DRILLING METHOD Direct Push
AT TIME OF DRILLING 8.00 ft
LOGGED BY N. DiPietro **CHECKED BY** J. Hollingsworth
AT TIME OF SAMPLING 9.11 ft

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	ENVIRONMENTAL DATA	WELL DIAGRAM
0				0.0 ARTIFICIAL FILL.		
5		ML		5.0 SANDY SILT, moist, brown, low plasticity, micaceous, 60% silt, 30% fine-grained sand, and 10% clay.	AOI1-5-SB-4.5-5-102319	
		SM		8.0 SILTY SAND, wet, brown, fine-grained, micaceous, 70% sand and 30% fines.	AOI1-5-SB-7-7.5-102319	
		ML		8.5 SANDY SILT, moist, brown, micaceous. 55% silt, 30% fine-grained sand, and 15% clay.		
10		SM		9.5 SILTY SAND, wet, dark yellowish brown, fine-grained, micaceous,		**Well Casing** Type: Schedule 40 PVC Diameter: 0.75 in Top: 0 ft bgs Bottom: 20 ft bgs
		SP		10.0 POORLY GRADED SAND, wet, dark grayish brown, fine-grained, 95% sand and 5% fines.		
		ML		12.5 SILT, moist, brown, medium plasticity, 80% silt, 15% clay, and 5% fine-grained sand.		
15		SM		15.0 SILTY SAND, moist, brown, micaceous, 55% sand and 45% silt.		
		ML		16.0 SANDY SILT, moist, brown, micaceous, 60% silt, 30% fine-grained sand, and 10% clay.	AOI1-5-SB-17.5-18-102319	
		SP		18.0 POORLY GRADED SAND, wet, brown, fine-grained, micaceous, 95% sand and 5% fines.		
20						

(Continued Next Page)

WELL NUMBER AOI1-5

AECOM AECOM

TOTAL DEPTH 25 FT BGS

CLIENT ARNG, USACE Baltimore District **PROJECT NAME** ARNG PFAS Los Alamitos

PROJECT NUMBER 60552172 **SITE NAME** AOI 1

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	ENVIRONMENTAL DATA	WELL DIAGRAM
20		SP		18.0 POORLY GRADED SAND, wet, brown, fine-grained, micaceous, 95% sand and 5% fines. *(continued)* 21.0 Sand coarsening with depth.	AOI1-5-GW-102319	**Well Screen** Top: 20 ft bgs Bottom: 25 ft bgs
25		ML		24.0 SANDY SILT, moist, brown, medium plasticity, micaceous, 55% silt, 30% fine-grained sand, and 15% clay.		

Bottom of borehole at 25.0 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 for vertical datum and NAD83/91 for horizontal datum in California State Plane.

WELL NUMBER AOI1-5A

AECOM AECOM

TOTAL DEPTH 15 FT BGS
PAGE 1 OF 1

CLIENT ARNG, USACE Baltimore District
PROJECT NAME ARNG PFAS Los Alamitos
PROJECT NUMBER 60552172
SITE NAME AOI 1
DATE STARTED 10/23/19 **COMPLETED** 10/23/19
EASTING N/A **NORTHING** N/A
DRILLING CONTRACTOR Cascade
GROUND ELEVATION N/A **HOLE SIZE** 2.25 inches
DRILLING EQUIPMENT Geoprobe
GROUND WATER LEVELS:
DRILLING METHOD Direct Push
AT TIME OF DRILLING 8.00 ft
LOGGED BY N. DiPietro **CHECKED BY** J. Hollingsworth
AT TIME OF SAMPLING 8.91 ft

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0				0.0 ARTIFICIAL FILL.	
5		ML		5.0 SANDY SILT, moist, brown, low plasticity, micaceous, 60% silt, 30% fine-grained sand, and 10% clay.	**Well Casing** Type: Schedule 40 PVC Diameter: 0.75 in Top: 0 ft bgs Bottom: 10 ft bgs
		SM		8.0 SILTY SAND, wet, brown, fine-grained, micaceous, 70% sand and 30% fines.	
		ML		8.5 SANDY SILT, moist, brown, micaceous. 55% silt, 30% fine-grained sand, and 15% clay.	
10		SM		9.5 SILTY SAND, wet, dark yellowish brown, fine-grained, micaceous, 70% sand and 30% fines.	
		SP		10.0 POORLY GRADED SAND, wet, dark grayish brown, fine-grained, 95% sand and 5% fines.	**Well Screen** Top: 10 ft bgs Bottom: 15 ft bgs
		ML		12.5 SILT, moist, brown, medium plasticity, 80% silt, 15% clay, and 5% fine-grained sand.	
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 for vertical datum and NAD83/91 for horizontal datum in California State Plane.

WELL NUMBER AOI1-6

AECOM AECOM

TOTAL DEPTH 15 FT BGS
PAGE 1 OF 1

CLIENT ARNG, USACE Baltimore District
PROJECT NAME ARNG PFAS Los Alamitos
PROJECT NUMBER 60552172
SITE NAME AOI 1
DATE STARTED 10/23/19 **COMPLETED** 10/23/19
EASTING N/A **NORTHING** N/A
DRILLING CONTRACTOR Cascade
GROUND ELEVATION N/A **HOLE SIZE** 2.25 inches
DRILLING EQUIPMENT Geoprobe
GROUND WATER LEVELS:
DRILLING METHOD Direct Push
AT TIME OF DRILLING 11.00 ft
LOGGED BY N. DiPietro **CHECKED BY** J. Hollingsworth
AT TIME OF SAMPLING 9.57 ft

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	ENVIRONMENTAL DATA	WELL DIAGRAM
0				0.0 ARTIFICIAL FILL sampled as poorly graded sand.		
5					AOI1-6-SB-4.5-5-102319	**Well Casing** Type: Schedule 40 PVC Diameter: 0.75 in Top: 0 ft bgs Bottom: 10 ft bgs
		ML		5.5 SANDY SILT, moist, brown, low to medium plasticity, micaceous, 60% silt, 30% fine-grained sand, and 10% clay.		
10		SM		9.0 SILTY SAND, moist, brown, fine-grained, micaceous, 55% sand, 45% fines, and trace amounts of caliche.	AOI1-6-SB-9-9.5-102319	
		SP		10.0 POORLY GRADED SAND, wet, dark grayish brown, fine-grained, micaceous, 95% sand and 5% fines. ▽		
				12.5 5-10% caliche present.	AOI1-6-GW-102319 AOI1-6-SB-12.5-13-102319	**Well Screen** Top: 10 ft bgs Bottom: 15 ft bgs
15		MH		14.5 ELASTIC SILT, moist, brown, medium to high plasticity, 80% silt, 15% clay, and 5% fine-grained sand.		
				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 for vertical datum and NAD83/91 for horizontal datum in California State Plane.

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WELL NUMBER AOI2-5

AECOM AECOM

TOTAL DEPTH 20 FT BGS

CLIENT ARNG, USACE Baltimore District
PROJECT NAME ARNG PFAS Los Alamitos
PROJECT NUMBER 60552172
SITE NAME AOI 2
DATE STARTED 10/25/19 **COMPLETED** 10/25/19
EASTING N/A **NORTHING** N/A
DRILLING CONTRACTOR Cascade
GROUND ELEVATION N/A **HOLE SIZE** 2.25 inches
DRILLING EQUIPMENT Geoprobe
GROUND WATER LEVELS:
DRILLING METHOD Direct Push
AT TIME OF DRILLING 10.50 ft
LOGGED BY N. DiPietro **CHECKED BY** J. Hollingsworth
AT TIME OF SAMPLING 15.00 ft

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	ENVIRONMENTAL DATA	WELL DIAGRAM
0				0.0 No sample was logged.		
5		ML		5.0 SANDY SILT, moist, brown, low to medium plasticity and toughness, micaceous, 50% silt, 45% fine-grained sand, and 5% clay.	AOI2-5-SB-4.5-5-102519	
10		SM		9.0 SILTY SAND, moist, dark grayish brown, fine-grained, micaceous, 65% sand and 35% fines.	AOI2-5-SB-9.5-10-102519	
				10.5 ▽ Changes to wet.	AOI2-5-SB-13-13.5-102519	
15		ML		14.0 SANDY SILT, moist, brown, low to medium plasticity, medium toughness, micaceous, 50% silt, 40% fine-grained sand, and 10% clay. Sand lenses present from 14-15 ft bgs.		
		SM		16.0 SILTY SAND, moist, dark grayish brown, fine-grained, micaceous, 65% sand and 35% fines.	AOI2-5-GW-102519	
20						

Well Casing
Type: Schedule 40 PVC
Diameter: 0.75 in
Top: 0 ft bgs
Bottom: 15 ft bgs

Well Screen
Top: 15 ft bgs
Bottom: 20 ft bgs

Bottom of borehole at 20.0 feet.

(Continued Next Page)

WELL NUMBER AOI2-5

AECOM AECOM

TOTAL DEPTH 20 FT BGS

CLIENT ARNG, USACE Baltimore District **PROJECT NAME** ARNG PFAS Los Alamitos

PROJECT NUMBER 60552172 **SITE NAME** AOI 2

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	ENVIRONMENTAL DATA	WELL DIAGRAM

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 for vertical datum and NAD83/91 for horizontal datum in California State Plane.

WELL NUMBER AOI3-10

AECOM AECOM

TOTAL DEPTH 20 FT BGS

CLIENT ARNG, USACE Baltimore District
PROJECT NAME ARNG PFAS Los Alamitos
PROJECT NUMBER 60552172
SITE NAME AOI 3
DATE STARTED 10/24/19 **COMPLETED** 10/24/19
EASTING N/A **NORTHING** N/A
DRILLING CONTRACTOR Cascade
GROUND ELEVATION N/A **HOLE SIZE** 2.25 inches
DRILLING EQUIPMENT Geoprobe
GROUND WATER LEVELS:
DRILLING METHOD Direct Push
AT TIME OF DRILLING 12.50 ft
LOGGED BY P. Granger **CHECKED BY** J. Hollingsworth
AT TIME OF SAMPLING 15.02 ft

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	ENVIRONMENTAL DATA	WELL DIAGRAM
0				0.0 No sample was logged.	AOI3-10-SB-1.5-2-102419	
5		ML		5.0 SANDY SILT, dry, dark grayish brown with >30% sand.		**Well Casing** Type: Schedule 40 PVC Diameter: 0.75 in Top: 0 ft bgs Bottom: 15 ft bgs
10		SM		10.0 SILTY SAND, moist, brown with >15% silt.	AOI3-10-SB-10.5-11-102419	
15		ML		15.0 SANDY SILT, moist, brown with >30% sand. Clay present.		**Well Screen** Top: 15 ft bgs Bottom: 20 ft bgs
20		SM		19.5 SILTY SAND, moist, brown with >15% silt.	AOI3-10-GW-102419	

Bottom of borehole at 20.0 feet.

(Continued Next Page)

WELL NUMBER AOI3-10

AECOM AECOM

TOTAL DEPTH 20 FT BGS

CLIENT ARNG, USACE Baltimore District **PROJECT NAME** ARNG PFAS Los Alamitos

PROJECT NUMBER 60552172 **SITE NAME** AOI 3

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	ENVIRONMENTAL DATA	WELL DIAGRAM

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 for vertical datum and NAD83/91 for horizontal datum in California State Plane.

WELL NUMBER AOI3-11

AECOM AECOM

TOTAL DEPTH 15 FT BGS
PAGE 1 OF 1

CLIENT ARNG, USACE Baltimore District
PROJECT NAME ARNG PFAS Los Alamitos
PROJECT NUMBER 60552172
SITE NAME AOI 3
DATE STARTED 10/24/19 **COMPLETED** 10/24/19
EASTING N/A **NORTHING** N/A
DRILLING CONTRACTOR Cascade
GROUND ELEVATION N/A **HOLE SIZE** 2.25 inches
DRILLING EQUIPMENT Geoprobe
GROUND WATER LEVELS:
DRILLING METHOD Direct Push
AT TIME OF DRILLING 9.00 ft
LOGGED BY N. DiPietro **CHECKED BY** J. Hollingsworth
AT TIME OF SAMPLING 9.32 ft

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	ENVIRONMENTAL DATA	WELL DIAGRAM
0				0.0 No sample was logged.	AOI3-11-SB-1.5-2-102419	
5		ML		5.0 SANDY SILT, moist, brown, low plasticity, low toughness, micaceous, 45% silt, 45% fine-grained sand, and 10% clay.		**Well Casing** Type: Schedule 40 PVC Diameter: 0.75 in Top: 0 ft bgs Bottom: 10 ft bgs
		SM		6.5 SILTY SAND, moist, brown, fine-grained, micaceous, 60% sand and 40% fines.		
		ML		8.0 SANDY SILT, moist, brown, low plasticity, low toughness, micaceous, 45% silt, 45% fine-grained sand, and 10% clay.	AOI3-11-SB-8.5-9-102419	
10		SM		9.0 SILTY SAND, wet, brown, fine-grained, micaceous, 65% sand and 35% fines.	AOI3-11-SB-11-11.5-102419	
		ML		11.5 SILT, moist, brown, low plasticity, low to medium toughness, 75% silt, 15% clay, and 10% fine-grained sand. 12.0 Sand lenses present from 12-14 ft bgs. 12.5 Sand component coarsening with depth.	AOI3-11-GW-102419	**Well Screen** Top: 10 ft bgs Bottom: 15 ft bgs
15		SM		14.5 SILTY SAND, wet, brown, fine-grained, micaceous, 65% sand and 35% fines.		

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 for vertical datum and NAD83/91 for horizontal datum in California State Plane.

WELL NUMBER AOI3-12

AECOM AECOM

TOTAL DEPTH 25 FT BGS

CLIENT ARNG, USACE Baltimore District
PROJECT NAME ARNG PFAS Los Alamitos
PROJECT NUMBER 60552172
SITE NAME AOI 3
DATE STARTED 10/24/19 **COMPLETED** 10/24/19
EASTING N/A **NORTHING** N/A
DRILLING CONTRACTOR Cascade
GROUND ELEVATION N/A **HOLE SIZE** 2.25 inches
DRILLING EQUIPMENT Geoprobe
GROUND WATER LEVELS:
DRILLING METHOD Direct Push
AT TIME OF DRILLING 20.00 ft
LOGGED BY N. DiPietro **CHECKED BY** J. Hollingsworth
AT TIME OF SAMPLING 9.35 ft

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	ENVIRONMENTAL DATA	WELL DIAGRAM
0				0.0 No sample was logged.	AOI3-12-SB-1.5-2-102419	
5		ML		5.0 SANDY SILT, moist, low plasticity, low toughness, micaceous, 45% silt, 45% fine-grained sand, and 10% clay.		
		SM		6.0 SILTY SAND, moist, micaceous, 60% sand and 40% silt.	AOI3-12-SB-7-7.5-102419	
		ML		7.5 SANDY SILT, moist, low plasticity, low toughness, micaceous, 45% silt, 45% fine-grained sand, and 10% clay.		
10		SM		9.0 SILTY SAND, moist, micaceous, 60% sand and 40% silt.		**Well Casing** Type: Schedule 40 PVC Diameter: 0.75 in Top: 0 ft bgs Bottom: 20 ft bgs
				10.0 Changes to containing more fines with depth.		
		ML		12.0 SILT, moist, brown, low plasticity, low to medium toughness, 75% silt, 15% clay, and 10% fine-grained sand. Ochre staining and sand lenses present from 12-13 ft bgs.		
15		SM		14.0 SILTY SAND, moist, micaceous, 60% sand and 40% silt.		
		ML		15.0 SILT, moist, brown, medium plasticity and toughness, 80% silt, 15% clay, and 5% fine-grained sand.		
				16.0 Ochre staining and sand lenses present.		
		SP		18.0 POORLY GRADED SAND, wet, dark grayish brown, fine-grained, micaceous, 95% sand and 5% fines.	AOI3-12-SB-19-19.5-102419	
20						

(Continued Next Page)

WELL NUMBER AOI3-12

AECOM AECOM

TOTAL DEPTH 25 FT BGS

CLIENT ARNG, USACE Baltimore District **PROJECT NAME** ARNG PFAS Los Alamitos

PROJECT NUMBER 60552172 **SITE NAME** AOI 3

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG		MATERIAL DESCRIPTION	ENVIRONMENTAL DATA	WELL DIAGRAM
20		SP		18.0	POORLY GRADED SAND, wet, dark grayish brown, fine-grained, micaceous, 95% sand and 5% fines. *(continued)*		
		ML		21.0	SANDY SILT, wet, brown, low plasticity and toughness, micaceous, 40% silt, 45% fine-grained sand, and 15% clay.		
		SP		22.5	POORLY GRADED SAND, wet, dark grayish brown, fine-grained, micaceous, 95% sand and 5% fines.	AOI3-12-GW-102419	**Well Screen** Top: 20 ft bgs Bottom: 25 ft bgs
25		CL		24.0	LEAN CLAY, wet, dark gray, medium plasticity, high toughness, 70% silt, 20% clay, and 10% fine-grained sand.		

Bottom of borehole at 25.0 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 for vertical datum and NAD83/91 for horizontal datum in California State Plane.

WELL NUMBER AOI3-8

AECOM AECOM

TOTAL DEPTH 15 FT BGS
PAGE 1 OF 1

CLIENT ARNG, USACE Baltimore District
PROJECT NAME ARNG PFAS Los Alamitos
PROJECT NUMBER 60552172
SITE NAME AOI 3
DATE STARTED 10/24/19 **COMPLETED** 10/24/19
EASTING N/A **NORTHING** N/A
DRILLING CONTRACTOR Cascade
GROUND ELEVATION N/A **HOLE SIZE** 2.25 inches
DRILLING EQUIPMENT Geoprobe
GROUND WATER LEVELS:
DRILLING METHOD Direct Push
AT TIME OF DRILLING 11.00 ft
LOGGED BY N. DiPietro **CHECKED BY** J. Hollingsworth
AT TIME OF SAMPLING 11.72 ft

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	ENVIRONMENTAL DATA	WELL DIAGRAM
0				0.0 No sample was logged.	AOI3-8-SB-1.5-2-102419	
5		ML		5.0 SANDY SILT, moist, dark yellowish brown, low plasticity, low toughness, micaceous, 50% silt, 40% fine-grained sand, and 10% clay. 6.0 Changes to contained trace fine-grained gravel.		**Well Casing** Type: Schedule 40 PVC Diameter: 0.75 in Top: 0 ft bgs Bottom: 10 ft bgs
10				9.0 SILT, moist, brown, low to medium plasticity, medium toughness, 75%, 15% clay, and 10% fine-grained sand.	AOI3-8-SB-9-9.5-102419	
		SM		11.0 SILTY SAND, wet, yellowish brown, fine-grained, micaceous, 80% sand and 20% fines.	AOI3-8-SB-13-13.5-102419	**Well Screen** Top: 10 ft bgs Bottom: 15 ft bgs
15		MH		14.0 ELASTIC SILT, moist, brown, medium plasticity, medium toughness, 80% silt, 15% clay and 5% fine-grained sand.	AOI3-8-GW-102419	

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 for vertical datum and NAD83/91 for horizontal datum in California State Plane.

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WELL NUMBER AOI3-9

AECOM AECOM

TOTAL DEPTH 20 FT BGS

CLIENT ARNG, USACE Baltimore District
PROJECT NAME ARNG PFAS Los Alamitos
PROJECT NUMBER 60552172
SITE NAME AOI 3
DATE STARTED 10/24/19 **COMPLETED** 10/24/19
EASTING N/A **NORTHING** N/A
DRILLING CONTRACTOR Cascade
GROUND ELEVATION N/A **HOLE SIZE** 2.25 inches
DRILLING EQUIPMENT Geoprobe
GROUND WATER LEVELS:
DRILLING METHOD Direct Push
AT TIME OF DRILLING 15.00 ft
LOGGED BY P. Granger **CHECKED BY** J. Hollingsworth
AT TIME OF SAMPLING 9.80 ft

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	ENVIRONMENTAL DATA	WELL DIAGRAM
0				0.0 No sample was logged.	AOI3-9-SB-1.5-2-102419	
5		ML		5.0 SANDY SILT, dry, dark yellowish brown with >30% sand.	AOI3-9-SB-8.5-9-102419	**Well Casing** Type: Schedule 40 PVC Diameter: 0.75 in Top: 0 ft bgs Bottom: 15 ft bgs
10		SM		10.0 SILTY SAND, moist, very dark gray with >15% silt.	AOI3-9-SB-14-14.5-102419	
15				15.0 ▽ Changes to wet, brown.	AOI3-9-GW-102419	**Well Screen** Top: 15 ft bgs Bottom: 20 ft bgs
20		SP-		19.5 POORLY GRADED SAND WITH SILT, moist, dark grayish brown,		

(Continued Next Page)

WELL NUMBER AOI3-9

AECOM AECOM

TOTAL DEPTH 20 FT BGS

CLIENT ARNG, USACE Baltimore District **PROJECT NAME** ARNG PFAS Los Alamitos

PROJECT NUMBER 60552172 **SITE NAME** AOI 3

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	ENVIRONMENTAL DATA	WELL DIAGRAM
		SM		fine-grained with 10% silt.		
				Bottom of borehole at 20.0 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 for vertical datum and NAD83/91 for horizontal datum in California State Plane.

WELL NUMBER AOI4-1

AECOM AECOM

TOTAL DEPTH 15 FT BGS
PAGE 1 OF 1

CLIENT ARNG, USACE Baltimore District
PROJECT NAME ARNG PFAS Los Alamitos
PROJECT NUMBER 60552172
SITE NAME AOI 4
DATE STARTED 10/25/19 **COMPLETED** 10/25/19
EASTING N/A **NORTHING** N/A
DRILLING CONTRACTOR Cascade
GROUND ELEVATION N/A **HOLE SIZE** 2.25 inches
DRILLING EQUIPMENT Geoprobe
GROUND WATER LEVELS:
DRILLING METHOD Direct Push
AT TIME OF DRILLING 15.00 ft
LOGGED BY N. DiPietro **CHECKED BY** J. Hollingsworth
AT TIME OF SAMPLING 11.82 ft

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	ENVIRONMENTAL DATA	WELL DIAGRAM
0				0.0 CONCRETE, removed.	AOI4-1-SB-0-0.5-102519	
				0.5 No sample was logged.		
5		ML		5.0 SANDY SILT, moist, dark grayish brown, low to medium plasticity, medium toughness, micaceous, 60% silt, 30% fine-grained sand, and 10% clay. Sand lenses present.	AOI4-1-SB-5.5-6-102519	**Well Casing** Type: Schedule 40 PVC Diameter: 0.75 in Top: 0 ft bgs Bottom: 10 ft bgs
				6.0 Changes to wet.		
		SM		7.0 SILTY SAND, wet, dark grayish brown, fine-grained, micaceous, 55% sand and 45% fines.		
		ML		9.0 SILT WITH SAND, moist, dark gray, low plasticity and toughness, micaceous, 70% silt, 20% fine-grained sand, and 10% clay.	AOI4-1-SB-9.5-10-102519	
10						
				12.5 Coarsening with depth.	AOI4-1-GW-102519	**Well Screen** Top: 10 ft bgs Bottom: 15 ft bgs
		SP		14.0 POORLY GRADED SAND, moist, dark yellowish brown, fine-grained, micaceous, 95% sand and 5% fines.		
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 for vertical datum and NAD83/91 for horizontal datum in California State Plane.

WELL NUMBER AOI5-1

AECOM AECOM

TOTAL DEPTH 25 FT BGS

CLIENT ARNG, USACE Baltimore District
PROJECT NAME ARNG PFAS Los Alamitos
PROJECT NUMBER 60552172
SITE NAME AOI 5
DATE STARTED 10/22/19 **COMPLETED** 10/22/19
EASTING N/A **NORTHING** N/A
DRILLING CONTRACTOR Cascade
GROUND ELEVATION N/A **HOLE SIZE** 2.25 inches
DRILLING EQUIPMENT Geoprobe
GROUND WATER LEVELS:
DRILLING METHOD Direct Push
AT TIME OF DRILLING 9.00 ft
LOGGED BY N. DiPietro **CHECKED BY** J. Hollingsworth
AT TIME OF SAMPLING 11.08 ft

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	ENVIRONMENTAL DATA	WELL DIAGRAM
0				0.0 No sample was logged.		
					AOI5-1-SB-1.5-2-102219	
		SM		2.0 SILTY SAND, moist, very dark grayish brown, fine-grained, micaceous, 65% sand and 35% fines.		
5		ML		5.0 SILT, dry, black, medium plasticity, 85% silt, 10% fine-grained sand, and 5% clay. Minor ochre staining from 5-6 ft bgs.		
				7.0 Caliche present from 7-8 ft bgs.		
					AOI5-1-SB-8-8.5-102219	
				9.0 ▽ SANDY SILT, moist, brown, non-plastic, micaceous, 60% silt and 40% fine-grained sand.		**Well Casing** Type: Schedule 40 PVC Diameter: 0.75 in Top: 0 ft bgs Bottom: 20 ft bgs
10				12.0 SILT, moist, brown, medium plasticity, 85% silt, 10% fine-grained sand, and 5% clay. Ochre staining and caliche present from 12-14 ft bgs.		
15		SP		16.0 POORLY GRADED SAND, wet, brown, fine-grained, micaceous, 95% sand and 5% fines.		
		ML		17.0 SILT, moist, brown, medium plasticity, 85% silt, 10% fine-grained sand, and 5% clay. Caliche present.		
		SM		18.0 SILTY SAND, moist, fine-grained, micaceous, 60% sand and 40% fines.		
					AOI5-1-SB-19-19.5-102219	
20						

(Continued Next Page)

WELL NUMBER AOI5-1

AECOM AECOM

TOTAL DEPTH 25 FT BGS

CLIENT ARNG, USACE Baltimore District **PROJECT NAME** ARNG PFAS Los Alamitos

PROJECT NUMBER 60552172 **SITE NAME** AOI 5

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	ENVIRONMENTAL DATA	WELL DIAGRAM
20		SM		18.0		
		SP		20.5 POORLY GRADED SAND, wet, dark grayish brown, micaceous, 90% fine-grained and 5% medium-grained with 5% fines.	AOI5-1-GW-102219	**Well Screen** Top: 20 ft bgs Bottom: 25 ft bgs
		ML		23.0 SILT, moist, brown, medium plasticity, 85% silt, 10% fine-grained sand, and 5% clay.		
25				Bottom of borehole at 25.0 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 for vertical datum and NAD83/91 for horizontal datum in California State Plane.

WELL NUMBER AOI6-1

AECOM AECOM

TOTAL DEPTH 25 FT BGS

CLIENT ARNG, USACE Baltimore District
PROJECT NAME ARNG PFAS Los Alamitos
PROJECT NUMBER 60552172
SITE NAME AOI 6
DATE STARTED 10/22/19 **COMPLETED** 10/22/19
EASTING N/A **NORTHING** N/A
DRILLING CONTRACTOR Cascade
GROUND ELEVATION N/A **HOLE SIZE** 2.25 inches
DRILLING EQUIPMENT Geoprobe
GROUND WATER LEVELS:
DRILLING METHOD Direct Push
AT TIME OF DRILLING 8.00 ft
LOGGED BY N. DiPietro **CHECKED BY** J. Hollingsworth
AT TIME OF SAMPLING 7.78 ft

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	ENVIRONMENTAL DATA	WELL DIAGRAM
0				0.0 No sample was logged.	AOI6-1-SB-1.5-2-102219	
		SM		2.0 SILTY SAND, moist, yellowish brown, fine-grained, micaceous, 55% sand and 45% silt.		
5					AOI6-1-SB-7-7.5-102219	
				8.0 Changes to wet.		
		CL		9.0 LEAN CLAY, moist, brown, medium to high plasticity, 70% silt, 25% clay, 5% fine-grained sand, and trace amounts of caliche.		**Well Casing** Type: Schedule 40 PVC Diameter: 0.75 in Top: 0 ft bgs Bottom: 20 ft bgs
10				9.5 Changes to dark gray.		
		ML		14.0 SANDY SILT, moist, brown, low to medium plasticity, micaceous, 65% silt, 25% fine-grained sand, and 10% clay.		
15						
		SM		17.5 SILTY SAND, moist, brown, fine-grained, micaceous, 55% sand and 45% fines.	AOI6-1-SB-18.5-19-102219	
		SP		19.0 POORLY GRADED SAND, moist, grayish brown, fine-grained, 95% sand and 5% fines.		
20						

(Continued Next Page)

WELL NUMBER AOI6-1

AECOM AECOM

TOTAL DEPTH 25 FT BGS
PAGE 2 OF 2

CLIENT ARNG, USACE Baltimore District **PROJECT NAME** ARNG PFAS Los Alamitos

PROJECT NUMBER 60552172 **SITE NAME** AOI 6

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG		MATERIAL DESCRIPTION	ENVIRONMENTAL DATA	WELL DIAGRAM
20		SP		19.0 20.0	POORLY GRADED SAND, moist, grayish brown, fine-grained, 95% sand and 5% fines. *(continued)* Changes to wet.		
		ML		22.0	SILT WITH SAND, moist, brown, micaceous, 70% silt, 15% sand, and 15% clay.	AOI6-1-GW-102219	**Well Screen** Top: 20 ft bgs Bottom: 25 ft bgs
		SM		23.5	SILTY SAND, moist, dark grayish brown, fine-grained, micaceous, 60% sand and 40% fines. Few caliche present.		
25		ML		24.5	SILT, moist, brown, 75% silt, 15% clay, and 10% sand.		

Bottom of borehole at 25.0 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 for vertical datum and NAD83/91 for horizontal datum in California State Plane.

WELL NUMBER AOI7-10

AECOM AECOM

TOTAL DEPTH 30 FT BGS

CLIENT ARNG, USACE Baltimore District
PROJECT NAME ARNG PFAS Los Alamitos
PROJECT NUMBER 60552172
SITE NAME AOI 7
DATE STARTED 10/21/19 **COMPLETED** 10/21/19
EASTING N/A **NORTHING** N/A
DRILLING CONTRACTOR Cascade
GROUND ELEVATION N/A **HOLE SIZE** 2.25 inches
DRILLING EQUIPMENT Geoprobe
GROUND WATER LEVELS:
DRILLING METHOD Direct Push
AT TIME OF DRILLING 17.00 ft
LOGGED BY N. DiPietro **CHECKED BY** J. Hollingsworth
AT TIME OF SAMPLING 21.68 ft

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	ENVIRONMENTAL DATA	WELL DIAGRAM
0				0.0 No sample was logged.	AOI7-10-SB-1.5-2-102119	
5		SM		5.0 SILTY SAND, dry, dark brown, micaceous, 70% sand and 30% fines. Roots present.	AOI7-10-SB-7.5-8-102119	
10		SP		9.0 POORLY GRADED SAND, wet, dark yellowish brown, fine-grained, micaceous, 95% sand and 5% fines.		**Well Casing** Type: Schedule 40 PVC Diameter: 0.75 in Top: 0 ft bgs Bottom: 25 ft bgs
15		ML		12.0 SANDY SILT, moist, very dark grayish brown, low plasticity, 65% silt, 25% fine-grained, micaceous sand and 10% clay. ▽	AOI7-10-SB-17-17.5-102119	
20		SP		18.0 POORLY GRADED SAND, wet, brown, fine-grained, micaceous, 95% sand and 5% fines.		

(Continued Next Page)

WELL NUMBER AOI7-10

AECOM AECOM

TOTAL DEPTH 30 FT BGS

CLIENT ARNG, USACE Baltimore District **PROJECT NAME** ARNG PFAS Los Alamitos

PROJECT NUMBER 60552172 **SITE NAME** AOI 7

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	ENVIRONMENTAL DATA	WELL DIAGRAM
20		SP		18.0 POORLY GRADED SAND, wet, brown, fine-grained, micaceous, 95% sand and 5% fines. *(continued)*		
				21.0 Changes to very dark gray.		**Well Casing** Type: Schedule 40 PVC Diameter: 0.75 in Top: 0 ft bgs Bottom: 25 ft bgs
		CL		24.0 LEAN CLAY, moist, dark gray, low plasticity, micaceous, 60% silt, 25% lean clay, and 15% fine-grained sand.		
25				25.0 Changes to containing trace amounts of gravel.		
		ML		27.0 SANDY SILT, moist, olive brown, micaceous, 60% silt, 30% fine-grained sand, 10% clay, and trace amounts of gravel.	AOI7-10-GW-102119	**Well Screen** Top: 25 ft bgs Bottom: 30 ft bgs
30						

Bottom of borehole at 30.0 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 for vertical datum and NAD83/91 for horizontal datum in California State Plane.

WELL NUMBER AOI7-11

AECOM AECOM

TOTAL DEPTH 25 FT BGS
PAGE 1 OF 2

CLIENT ARNG, USACE Baltimore District
PROJECT NAME ARNG PFAS Los Alamitos
PROJECT NUMBER 60552172
SITE NAME AOI 7
DATE STARTED 10/21/19 **COMPLETED** 10/21/19
EASTING N/A **NORTHING** N/A
DRILLING CONTRACTOR Cascade
GROUND ELEVATION N/A **HOLE SIZE** 2.25 inches
DRILLING EQUIPMENT Geoprobe
GROUND WATER LEVELS:
DRILLING METHOD Direct Push
AT TIME OF DRILLING 9.00 ft
LOGGED BY N. DiPietro **CHECKED BY** J. Hollingsworth
AT TIME OF SAMPLING 6.71 ft

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	ENVIRONMENTAL DATA	WELL DIAGRAM
0				0.0 No sample was logged.	AOI7-11-SB-1.5-2-102119	
		SM		2.0 SILTY SAND, dry, brown, fine-grained, micaceous, 80% sand annd 20% silt.		
5				5.0 Changes to moist to wet, brown (different shade), 60% sand and 40% silt.	AOI7-11-SB-7.5-8-102119	
		SP		9.0 POORLY GRADED SAND, moist, grayish brown, fine-grained sand, micaceous, 95% sand and 5% fines.		**Well Casing** Type: Schedule 40 PVC Diameter: 0.75 in Top: 0 ft bgs Bottom: 20 ft bgs
10		ML		12.0 SANDY SILT, moist, dark grayish brown, low to medium plasticity, micaceous, 60% silt, 30% fine-grained sand, 10% clay, and trace amounts of caliche.		
15		SP		17.0 POORLY GRADED SAND, moist to wet, gray, fine-grained, micaceous, 95% sand and 5% fines.	AOI7-11-SB-18-18.5-102119	
20						

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WELL NUMBER AOI7-11

AECOM AECOM

TOTAL DEPTH 25 FT BGS
PAGE 2 OF 2

CLIENT ARNG, USACE Baltimore District **PROJECT NAME** ARNG PFAS Los Alamitos

PROJECT NUMBER 60552172 **SITE NAME** AOI 7

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	ENVIRONMENTAL DATA	WELL DIAGRAM
20				20.0 Changes to dark grayish brown.	AOI7-11-GW-102119	**Well Screen** Top: 20 ft bgs Bottom: 25 ft bgs
		CL		23.0 LEAN CLAY, moist, dark grayish brown, 60% silt, 20% lean clay, and 20% fine-grained sand.		
25						

Bottom of borehole at 25.0 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 for vertical datum and NAD83/91 for horizontal datum in California State Plane.

WELL NUMBER AOI7-9

AECOM AECOM

TOTAL DEPTH 25 FT BGS

CLIENT ARNG, USACE Baltimore District
PROJECT NAME ARNG PFAS Los Alamitos
PROJECT NUMBER 60552172
SITE NAME AOI 7
DATE STARTED 10/21/19 **COMPLETED** 10/21/19
EASTING N/A **NORTHING** N/A
DRILLING CONTRACTOR Cascade
GROUND ELEVATION N/A **HOLE SIZE** 2.25 inches
DRILLING EQUIPMENT Geoprobe
GROUND WATER LEVELS:
DRILLING METHOD Direct Push
AT TIME OF DRILLING 8.00 ft
LOGGED BY N. DiPietro **CHECKED BY** J. Hollingsworth
AT TIME OF SAMPLING 7.78 ft

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	ENVIRONMENTAL DATA	WELL DIAGRAM
0				0.0 No sample was logged.	AOI7-9-SB-1.5-2-102119	
		SM		2.0 SILTY SAND, dry, brown, fine-grained, micaceous, 80% sand and 20% fines.		
5					AOI7-9-SB-7.5-8-102119	
		SP		8.0 POORLY GRADED SAND, moist, grayish brown, fine-grained, micaceous, 95% sand and 5% fines.		**Well Casing** Type: Schedule 40 PVC Diameter: 0.75 in Top: 0 ft bgs Bottom: 20 ft bgs
10		ML		11.0 SANDY SILT, moist, dark grayish brown, low plasticity, micaceous, 70% silt, 20% fine-grained sand, and 10% clay.		
				13.0 Trace amounts of caliche present.		
15		SP		17.0 POORLY GRADED SAND, moist, grayish brown, fine-grained, micaceous, 95% sand and 5% fines.	AOI7-9-SB-17-17.5-102119	
20						

(Continued Next Page)

WELL NUMBER AOI7-9

TOTAL DEPTH 25 FT BGS
PAGE 2 OF 2

AECOM AECOM

CLIENT ARNG, USACE Baltimore District **PROJECT NAME** ARNG PFAS Los Alamitos

PROJECT NUMBER 60552172 **SITE NAME** AOI 7

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	ENVIRONMENTAL DATA	WELL DIAGRAM
20		SP		17.0 20.5 Changes to wet, dark grayish brown, sand coarsening with depth.	AOI7-9-GW-102119	**Well Screen** Top: 20 ft bgs Bottom: 25 ft bgs
25		CL		24.0 SILT, moist, dark grayish brown, micaceous, 60% silt, 30% lean clay, 10% fine-grained sand and trace amounts of caliche.		

Bottom of borehole at 25.0 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 for vertical datum and NAD83/91 for horizontal datum in California State Plane.

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Appendix F
Analytical Results

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Appendix F Laboratory Data
Decontamination Water
Site Inspection Report, Joint Force Training Base, Los Alamitos

Area of Interest	DECON				QC																							
Sample ID	JFTBLA-DECON-091719				JFTBLA-DW-FIELDBLANK-091719				JFTBLA-EB-102919				JFTBLA-EB-B-102319				JFTBLA-EB-HA-102319				JFTBLA-EB-HA-102119				JFTBLA-EB-HA-102519			
Sample Date	09/17/2019				09/17/2019				10/29/2019				10/23/2019				10/23/2019				10/21/2019				10/25/2019			
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 via PFAS by LCMSMS Compliant with QSM 5.1 Table B-15 (ng/L)																												
6:2 FTS	< 3.33	3.33	8.33	U	<	3.33	8.33	U	<	3.33	8.33	U	2.11	3.33	8.33	J	<	3.33	8.33	U	9.01	3.57	8.93		1.89	3.33	8.33	J
8:2 FTS	< 3.33	3.33	8.33	U	<	3.33	8.33	U	<	3.33	8.33	U	<	3.33	8.33	U	<	3.33	8.33	U	<	3.57	8.93	U	<	3.33	8.33	U
NEtFOSAA	< 6.67	6.67	8.33	U	<	6.67	8.33	U	<	6.67	8.33	U	<	6.67	8.33	U	<	6.67	8.33	U	<	7.14	8.93	U	<	6.67	8.33	U
NMeFOSAA	< 6.67	6.67	8.33	U	<	6.67	8.33	U	<	6.67	8.33	U	<	6.67	8.33	U	<	6.67	8.33	U	<	7.14	8.93	U	<	6.67	8.33	U
PFBA	10.0	3.33	8.33		<	3.33	8.33	U	<	3.33	8.33	U	<	3.33	8.33	U	<	3.33	8.33	U	<	3.57	8.93	U	<	3.33	8.33	U
PFBS	< 3.33	3.33	8.33	U	<	3.33	8.33	U	<	3.33	8.33	U	<	3.33	8.33	U	<	3.33	8.33	U	<	3.57	8.93	U	<	3.33	8.33	U
PFDA	< 3.33	3.33	8.33	U	<	3.33	8.33	U	<	3.33	8.33	U	<	3.33	8.33	U	<	3.33	8.33	U	<	3.57	8.93	U	<	3.33	8.33	U
PFDoA	< 3.33	3.33	8.33	U	<	3.33	8.33	U	<	3.33	8.33	U	<	3.33	8.33	U	<	3.33	8.33	U	<	3.57	8.93	U	<	3.33	8.33	U
PFHpA	< 3.33	3.33	8.33	U	<	3.33	8.33	U	<	3.33	8.33	U	<	3.33	8.33	U	<	3.33	8.33	U	<	3.57	8.93	U	<	3.33	8.33	U
PFHxA	< 3.33	3.33	8.33	U	<	3.33	8.33	U	<	3.33	8.33	U	<	3.33	8.33	U	<	3.33	8.33	U	<	3.57	8.93	U	2.13	3.33	8.33	J
PFHxS	< 3.33	3.33	8.33	U	<	3.33	8.33	U	<	3.33	8.33	U	<	3.33	8.33	U	<	3.33	8.33	U	<	3.57	8.93	U	3.14	3.33	8.33	J
PFNA	< 3.33	3.33	8.33	U	<	3.33	8.33	U	<	3.33	8.33	U	<	3.33	8.33	U	<	3.33	8.33	U	<	3.57	8.93	U	<	3.33	8.33	U
PFOA	< 3.33	3.33	8.33	U	<	3.33	8.33	U	<	3.33	8.33	U	<	3.33	8.33	U	<	3.33	8.33	U	<	3.57	8.93	U	3.22	3.33	8.33	J
PFOS	1.71	3.33	8.33	J	<	3.33	8.33	U	1.76	3.33	8.33	J	<	3.33	8.33	U	<	3.33	8.33	U	2.39	3.57	8.93	J	10.0	3.33	8.33	
PFPeA	< 3.33	3.33	8.33	U	<	3.33	8.33	U	<	3.33	8.33	U	<	3.33	8.33	U	<	3.33	8.33	U	<	3.57	8.93	U	<	3.33	8.33	U
PFTeDA	< 3.33	3.33	8.33	U	<	3.33	8.33	U	<	3.33	8.33	U	<	3.33	8.33	U	<	3.33	8.33	U	<	3.57	8.93	U	<	3.33	8.33	U
PFTrDA	< 3.33	3.33	8.33	U	<	3.33	8.33	U	<	3.33	8.33	U	<	3.33	8.33	U	<	3.33	8.33	U	<	3.57	8.93	U	-	-	-	-
PFUnDA	< 3.33	3.33	8.33	U	<	3.33	8.33	U	<	3.33	8.33	U	<	3.33	8.33	U	<	3.33	8.33	U	<	3.57	8.93	U	<	3.33	8.33	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
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

LOD	Limit of Detection
LOQ	Limit of Quantitation
NA	Not applicable
QC	Quality Control
Qual	Interpreted Qualifier
RE	Re-extracted
ng/L	nanogram per liter
<	analyte not detected above the LOD
-	Not applicable

Area of Interest	QC											
Sample ID	JFTBLA-EB-PW-102219				JFTBLA-EB-WM-102319				JFTBLA-FRB-102119			
Sample Date	10/22/2019				10/23/2019				10/21/2019			
Analyte	Result	LOD	LOQ	Qual	Result	LOD	LOQ	Qual	Result	LOD	LOQ	Qual
Water, PFAS via PFAS by LCMSMS Compliant with QSM 5.1 Table B-15 (ng/L)												
6:2 FTS	8.60	3.33	8.33		<	3.33	8.33	U	<	8.33	8.33	U
8:2 FTS	<	3.33	8.33	U	<	3.33	8.33	U	<	3.33	8.33	U
NEtFOSAA	<	6.67	8.33	U	<	6.67	8.33	U	<	6.67	8.33	U
NMeFOSAA	<	6.67	8.33	U	<	6.67	8.33	U	<	6.67	8.33	U
PFBA	<	3.33	8.33	U	<	3.33	8.33	U	<	3.33	8.33	U
PFBS	<	3.33	8.33	U	<	3.33	8.33	U	<	3.33	8.33	U
PFDA	<	3.33	8.33	U	<	3.33	8.33	U	<	3.33	8.33	U
PFDoA	<	3.33	8.33	U	<	3.33	8.33	U	<	3.33	8.33	U
PFHpA	<	3.33	8.33	U	<	3.33	8.33	U	<	3.33	8.33	U
PFHxA	<	3.33	8.33	U	<	3.33	8.33	U	<	3.33	8.33	U
PFHxS	1.91	3.33	8.33	J	<	3.33	8.33	U	<	3.33	8.33	U
PFNA	<	3.33	8.33	U	<	3.33	8.33	U	<	3.33	8.33	U
PFOA	2.54	3.33	8.33	J	<	3.33	8.33	U	<	3.33	8.33	U
PFOS	4.62	3.33	8.33	J	<	3.33	8.33	U	<	8.33	8.33	U
PFPeA	<	3.33	8.33	U	<	3.33	8.33	U	<	3.33	8.33	U
PFTeDA	<	3.33	8.33	U	<	3.33	8.33	U	<	3.33	8.33	U
PFTrDA	<	3.33	8.33	U	<	3.33	8.33	U	<	3.33	8.33	U
PFUnDA	<	3.33	8.33	U	<	3.33	8.33	U	<	3.33	8.33	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
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

LOD	Limit of Detection
LOQ	Limit of Quantitation
NA	Not applicable
QC	Quality Control
Qual	Interpreted Qualifier
RE	Re-extracted
ng/L	nanogram per liter
<	analyte not detected above the LOD
-	Not applicable

Appendix F Laboratory Data
Groundwater
Site Inspection Report, Joint Force Training Base, Los Alamitos

Area of Interest		AOI1																											
Sample ID		AOI1-1-GW-102219				AOI1-2-GW-102319				AOI1-3-GW-102219				AOI1-4-GW-102319				AOI1-5-GW-102319				AOI1-5A-GW-102319				AOI1-6-GW-102319			
Sample Date		10/22/2019				10/23/2019				10/22/2019				10/23/2019				10/23/2019				10/23/2019				10/23/2019			
Analyte	OSD Screening Level [a]	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 via PFAS by LCMSMS Compliant with QSM 5.1 Table B-15 (ng/L)																													
6:2 FTS	-	<	8.33	8.33	U	<	3.33	8.33	U	<	8.33	8.33	U	<	3.33	8.33	U	<	8.93	8.93	U	<	3.33	8.33	U	<	3.33	8.33	U
8:2 FTS	-	<	3.33	8.33	U	<	3.33	8.33	U	<	3.33	8.33	U	<	3.33	8.33	U	<	3.57	8.93	U	<	3.33	8.33	U	<	3.33	8.33	U
NEtFOSAA	-	<	6.67	8.33	U	<	6.67	8.33	U	<	6.67	8.33	U	<	6.67	8.33	U	<	7.14	8.93	U	<	6.67	8.33	U	<	6.67	8.33	U
NMeFOSAA	-	<	6.67	8.33	U	<	6.67	8.33	U	<	6.67	8.33	U	<	6.67	8.33	U	<	7.14	8.93	U	<	6.67	8.33	U	<	6.67	8.33	U
PFBA	-	596	3.33	8.33		648	3.33	8.33		892	3.33	8.33		170	3.33	8.33		1740	71.4	179		571	3.33	8.33		51.7	3.33	8.33	
PFBS	40000	675	3.33	8.33		538	3.33	8.33		759	3.33	8.33		36.4	3.33	8.33		134	3.57	8.93		70.7	3.33	8.33		22.7	3.33	8.33	
PFDA	-	<	3.33	8.33	U	2.44	3.33	8.33	J	8.06	3.33	8.33	J	1.62	3.33	8.33	J	<	3.57	8.93	U	4.95	3.33	8.33	J	1.59	3.33	8.33	J
PFDoA	-	<	3.33	8.33	U	<	3.33	8.33	U	<	3.33	8.33	U	<	3.33	8.33	U	<	3.33	8.33	U	<	3.33	8.33	UJ	<	3.33	8.33	U
PFHpA	-	1060	3.33	8.33		759	3.33	8.33		1330	3.33	8.33		268	3.33	8.33		4730	71.4	179		1180	3.33	8.33		114	3.33	8.33	
PFHxA	-	4330	167	417		3260	167	417		5930	167	417		1140	3.33	8.33		14100	71.4	179	J+	4180	167	417		222	3.33	8.33	
PFHxS	-	7010	167	417		10500	167	417		8590	167	417		310	3.33	8.33		1330	3.57	8.93		635	3.33	8.33		341	3.33	8.33	
PFNA	-	9.75	3.33	8.33		28.5	3.33	8.33		26.8	3.33	8.33		5.02	3.33	8.33	J	8.10	3.57	8.93	J	11.2	3.33	8.33		4.53	3.33	8.33	J
PFOA	40	47800	167	417		34000	167	417		50700	167	417		9690	33.3	83.3		166000	35700	89300		34900	167	417		43600	167	417	
PFOS	40	3660	167	417		11100	66.7	167	J-	8810	167	417	J-	583	3.33	8.33		273	3.57	8.93		585	3.33	8.33		539	3.33	8.33	
PFPeA	-	1470	167	417		1100	3.33	8.33		2050	167	417		509	3.33	8.33		7190	71.4	179		1770	167	417		105	3.33	8.33	
PFTeDA	-	<	3.33	8.33	U	<	3.33	8.33	UJ	<	3.33	8.33	U	<	3.33	8.33	U	<	3.57	8.93	UJ	<	3.33	8.33	UJ	<	3.33	8.33	U
PFTrDA	-	<	3.33	8.33	U	<	3.33	8.33	UJ	<	3.33	8.33	U	<	3.33	8.33	U	3.37	3.57	8.93	J+	<	3.33	8.33	UJ	<	3.33	8.33	U
PFUnDA	-	<	3.33	8.33	U	<	3.33	8.33	U	<	3.33	8.33	U	<	3.33	8.33	U	<	3.57	8.93	U	<	3.33	8.33	U	<	3.33	8.33	U

Grey Fill — Detected concentration exceeded OSD Screening Levels

References

a. Assistant Secretary of Defense, 2019. Risk Based Screening Levels Calculated for PFOS, PFOA, PFBS 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.

Interpreted Qualifiers

J = Estimated concentration
J- = Estimated concentration, biased low
J+ = Estimated concentration, biased high
U = The analyte was not detected at a level greater than or equal to the adjusted detection limit (DL)
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.

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

AOI	Area of Interest
D	Duplicate
GW	Groundwater
HQ	Hazard quotient
LOD	Limit of Detection
LOQ	Limit of Quantitation
OSD	Office of the Secretary of Defense
Qual	Interpreted Qualifier
USEPA	United States Environmental Protection Agency
ng/L	nanogram per liter
-	Not applicable
<	analyte not detected above the LOD

	Area of Interest	AOI2				AOI3																				AOI4			
	Sample ID	AOI2-5-GW-102519				AOI3-8-GW-102419				AOI3-9-GW-102419				AOI3-10-GW-102419				AOI3-11-GW-102419				AOI3-12-GW-102419				AOI4-1-GW-102519			
	Sample Date	10/25/2019				10/24/2019				10/24/2019				10/24/2019				10/24/2019				10/24/2019				10/25/2019			
Analyte	OSD Screening Level [a]	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 via PFAS by LCMSMS Compliant with QSM 5.1 Table B-15 (ng/L)																													
6:2 FTS	-	861	3.33	8.33		36.5	3.33	8.33		187	3.33	8.33		866	3.57	8.93		1690	33.3	83.3		2660	16.7	41.7		481	3.57	8.93	
8:2 FTS	-	9.22	3.33	8.33		<	3.33	8.33	U	<	3.33	8.33	U	<	3.57	8.93	U	8.19	3.33	8.33	J	3.31	3.33	8.33	J	<	3.57	8.93	U
NEtFOSAA	-	<	6.67	8.33	U	<	6.67	8.33	U	<	6.67	8.33	U	<	7.14	8.93	U	<	6.67	8.33	U	<	6.67	8.33	U	<	7.14	8.93	U
NMeFOSAA	-	<	6.67	8.33	U	<	6.67	8.33	U	<	6.67	8.33	U	<	7.14	8.93	U	<	6.67	8.33	U	<	6.67	8.33	U	<	7.14	8.93	U
PFBA	-	2090	33.3	83.3		1060	3.33	8.33		83.3	3.33	8.33		507	3.57	8.93		2480	33.3	83.3		230	3.33	8.33		188	3.57	8.93	
PFBS	40000	1600	33.3	83.3		3060	66.7	167		150	3.33	8.33		454	3.57	8.93		6310	33.3	83.3	J-	330	3.33	8.33		55.9	3.57	8.93	
PFDA	-	<	3.33	8.33	U	<	3.33	8.33	U	<	3.33	8.33	U	1.55	3.57	8.93	J	5.37	3.33	8.33	J	<	3.33	8.33	U	<	3.57	8.93	U
PFDoA	-	<	3.33	8.33	U	<	3.33	8.33	U	<	3.33	8.33	U	<	3.57	8.93	U	<	3.33	8.33	U	<	3.33	8.33	U	<	3.57	8.93	U
PFHpA	-	2560	33.3	83.3		995	3.33	8.33		145	3.33	8.33		625	3.57	8.93		2130	33.3	83.3		202	3.33	8.33		265	3.57	8.93	
PFHxA	-	12700	333	833		7120	66.7	167		565	3.33	8.33		2700	17.9	44.6		16100	333	833	J-	1280	3.33	8.33		513	3.57	8.93	
PFHxS	-	7810	33.3	83.3		10900	66.7	167		727	3.33	8.33		3580	17.9	44.6		46100	333	833	J-	2430	16.7	41.7		360	3.57	8.93	
PFNA	-	14.5	3.33	8.33		3.18	3.33	8.33	J	<	3.33	8.33	U	<	3.57	8.93	U	29.0	3.33	8.33		5.72	3.33	8.33	J	5.02	3.57	8.93	J
PFOA	40	62900	333	833		817	3.33	8.33		1820	16.7	41.7		5800	17.9	44.6		6380	33.3	83.3		340	3.33	8.33		245	3.57	8.93	
PFOS	40	1620	33.3	83.3		110	3.33	8.33		<	30.4	8.33	U	486	3.57	8.93		16600	333	833	J-	1830	16.7	41.7		401	3.57	8.93	
PFPeA	-	7340	33.3	83.3		2900	66.7	167		256	3.33	8.33		1520	17.9	44.6		7560	33.3	83.3		785	3.33	8.33		637	3.57	8.93	
PFTeDA	-	<	3.33	8.33	U	<	3.33	8.33	UJ	<	3.33	8.33	U	<	3.57	8.93	U	<	3.33	8.33	UJ	<	3.33	8.33	UJ	<	3.57	8.93	U
PFTrDA	-	<	3.33	8.33	U	<	3.33	8.33	UJ	<	3.33	8.33	U	<	3.57	8.93	U	<	3.33	8.33	UJ	<	3.33	8.33	UJ	<	3.57	8.93	U
PFUnDA	-	<	3.33	8.33	U	<	3.33	8.33	U	<	3.33	8.33	U	<	3.57	8.93	U	6.83	3.33	8.33	J	<	3.33	8.33	U	<	3.57	8.93	U

Grey Fill — Detected concentration exceeded OSD Screening Levels

References

a. Assistant Secretary of Defense, 2019. Risk Based Screening Levels Calculated for PFOS, PFOA, PFBS 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.

Interpreted Qualifiers

J = Estimated concentration
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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

AOI	Area of Interest
D	Duplicate
GW	Groundwater
HQ	Hazard quotient
LOD	Limit of Detection
LOQ	Limit of Quantitation
OSD	Office of the Secretary of Defense
Qual	Interpreted Qualifier
USEPA	United States Environmental Protection Agency
ng/L	nanogram per liter
-	Not applicable
<	analyte not detected above the LOD

Area of Interest		AOI5												AOI6				AOI7											
Sample ID		AOI5-1-GW-102219				AOI 5-N19-3-102919				AOI 5-N19-3-102919-D				AOI6-1-GW-102219				AOI7-9-GW-102119				AOI7-10-GW-102119				AOI7-7-11-GW-102119			
Sample Date		10/22/2019				10/29/2019				10/29/2019				10/22/2019				10/21/2019				10/21/2019				10/21/2019			
Analyte	OSD Screening Level [a]	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 via PFAS by LCMSMS Compliant with QSM 5.1 Table B-15 (ng/L)																													
6:2 FTS	-	6140	179	446	J-	5040	33.3	83.3	J-	5270	33.3	83.3	J-	165	3.33	8.33		<	8.33	8.33	U	119	3.33	8.33		94.1	3.33	8.33	
8:2 FTS	-	20.3	3.57	8.93	J+	375	3.33	8.33		465	3.33	8.33		<	3.33	8.33	U	<	3.33	8.33	U	<	3.33	8.33	U	<	3.33	8.33	U
NEtFOSAA	-	<	7.14	8.93	U	<	6.67	8.33	U	<	6.67	8.33	U	<	6.67	8.33	U	<	6.67	8.33	U	<	6.67	8.33	U	<	6.67	8.33	U
NMeFOSAA	-	<	7.14	8.93	U	<	6.67	8.33	U	<	6.67	8.33	U	<	6.67	8.33	U	<	6.67	8.33	U	<	6.67	8.33	U	<	6.67	8.33	U
PFBA	-	3930	179	446		1280	3.33	8.33		1160	33.3	83.3		65.9	3.33	8.33		<	3.33	8.33	U	<	3.33	8.33	U	<	3.33	8.33	U
PFBS	40000	7870	179	446		795	3.33	8.33		924	3.33	8.33		21.7	3.33	8.33		<	3.33	8.33	U	<	3.33	8.33	U	<	3.33	8.33	U
PFDA	-	<	3.57	8.93	U	4.30	3.33	8.33	J	5.78	3.33	8.33	J	<	3.33	8.33	U	<	3.33	8.33	U	2.11	3.33	8.33	J	<	3.33	8.33	U
PFDoA	-	<	3.57	8.93	U	<	3.33	8.33	U	<	3.33	8.33	U	<	3.33	8.33	U	<	3.33	8.33	U	<	3.33	8.33	U	<	3.33	8.33	U
PFHpA	-	2710	179	446		988	3.33	8.33		1150	3.33	8.33		17.3	3.33	8.33		<	3.33	8.33	U	<	3.33	8.33	U	<	3.33	8.33	U
PFHxA	-	22900	179	446		6200	33.3	83.3		7020	33.3	83.3		122	3.33	8.33		<	3.33	8.33	U	7.45	3.33	8.33	J	3.77	3.33	8.33	J
PFHxS	-	50900	179	446		3020	33.3	83.3		3490	33.3	83.3		79.4	3.33	8.33		<	3.33	8.33	U	4.40	3.33	8.33	J	1.63	3.33	8.33	J
PFNA	-	11.6	3.57	8.93		10.1	3.33	8.33		12.4	3.33	8.33		<	3.33	8.33	U	<	3.33	8.33	U	<	3.33	8.33	U	<	3.33	8.33	U
PFOA	40	31300	179	446		3450	33.3	83.3		3450	33.3	83.3		<	8.33	8.33	U	<	3.33	8.33	U	4.53	3.33	8.33	J	<	3.33	8.33	U
PFOS	40	16800	179	446	J	2520	33.3	83.3		2770	33.3	83.3		<	19.4	8.33	U	<	8.33	8.33	U	<	8.33	8.33	U	<	8.33	8.33	U
PFPeA	-	14900	179	446		5770	33.3	83.3		6890	33.3	83.3		212	3.33	8.33		<	3.33	8.33	U	<	3.33	8.33	U	<	3.33	8.33	U
PFTeDA	-	<	3.57	8.93	U	<	3.33	8.33	UJ	<	3.33	8.33	UJ	<	3.33	8.33	U	<	3.33	8.33	U	<	3.33	8.33	U	<	3.33	8.33	U
PFTrDA	-	<	3.57	8.93	U	<	3.33	8.33	UJ	<	3.33	8.33	UJ	<	3.33	8.33	U	<	3.33	8.33	U	<	3.33	8.33	U	<	3.33	8.33	U
PFUnDA	-	<	3.57	8.93	U	<	3.33	8.33	U	<	3.33	8.33	U	<	3.33	8.33	U	<	3.33	8.33	U	<	3.33	8.33	U	<	3.33	8.33	U

Grey Fill — Detected concentration exceeded OSD Screening Levels

References

a. Assistant Secretary of Defense, 2019. Risk Based Screening Levels Calculated for PFOS, PFOA, PFBS 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.

Interpreted Qualifiers

J = Estimated concentration
J- = Estimated concentration, biased low
J+ = Estimated concentration, biased high
U = The analyte was not detected at a level greater than or equal to the adjusted detection limit (DL)
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.

Chemical Abbreviations

6:2 FTS	6:2 fluorotelomer sulfonate
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PFDoA	perfluorododecanoic acid
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PFHxA	perfluorohexanoic acid
PFHxS	perfluorohexanesulfonic acid
PFNA	perfluorononanoic acid
PFOA	perfluorooctanoic acid
PFOS	perfluorooctanesulfonic acid
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Acronyms and Abbreviations

AOI	Area of Interest
D	Duplicate
GW	Groundwater
HQ	Hazard quotient
LOD	Limit of Detection
LOQ	Limit of Quantitation
OSD	Office of the Secretary of Defense
Qual	Interpreted Qualifier
USEPA	United States Environmental Protection Agency
ng/L	nanogram per liter
-	Not applicable
<	analyte not detected above the LOD

Area of Interest		AOI8							
Sample ID		AOI 8-X3-1-102919				AOI 8-X3-1-102919-D			
Sample Date		10/29/2019				10/29/2019			
Analyte	OSD Screening Level [a]	Result	LOD	LOQ	Qual	Result	LOD	LOQ	Qual
Water, PFAS via PFAS by LCMSMS Compliant with QSM 5.1 Table B-15 (ng/L)									
6:2 FTS	-	1540	33.3	83.3		1530	33.3	83.3	
8:2 FTS	-	155	3.33	8.33		181	3.33	8.33	
NEtFOSAA	-	<	6.67	8.33	U	<	6.67	8.33	U
NMeFOSAA	-	<	6.67	8.33	U	<	6.67	8.33	U
PFBA	-	426	3.33	8.33		479	3.33	8.33	
PFBS	40000	118	3.33	8.33		132	3.33	8.33	
PFDA	-	26.2	3.33	8.33		28.7	3.33	8.33	
PFDoA	-	<	3.33	8.33	U	<	3.33	8.33	U
PFHpA	-	559	3.33	8.33		602	3.33	8.33	
PFHxA	-	1470	33.3	83.3		1910	33.3	83.3	
PFHxS	-	1130	3.33	8.33		1280	3.33	8.33	
PFNA	-	229	3.33	8.33		247	3.33	8.33	
PFOA	40	3040	33.3	83.3		3740	33.3	83.3	
PFOS	40	4670	33.3	83.3		4880	33.3	83.3	
PFPeA	-	1590	33.3	83.3		1940	33.3	83.3	
PFTeDA	-	<	3.33	8.33	U	<	3.33	8.33	U
PFTrDA	-	<	3.33	8.33	U	<	3.33	8.33	U
PFUnDA	-	3.31	3.33	8.33	J	3.50	3.33	8.33	J

Grey Fill — Detected concentration exceeded OSD Screening Levels

References

a. Assistant Secretary of Defense, 2019. Risk Based Screening Levels Calculated for PFOS, PFOA, PFBS 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.

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J+ = Estimated concentration, biased high
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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.

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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

AOI	Area of Interest
D	Duplicate
GW	Groundwater
HQ	Hazard quotient
LOD	Limit of Detection
LOQ	Limit of Quantitation
OSD	Office of the Secretary of Defense
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
TOC and pH
Site Inspection Report, Joint Force Training Base, Los Alamitos

Area of Interest	AOI1																											
Sample ID	AOI1-1-SB-4.5-5-102219				AOI1-1-SB-10-10.5-102219				AOI1-1-SB-17-17.5-102219				AOI1-2-SB-4.5-5-102319				AOI1-2-SB-9.5-10-102319				AOI1-2-SB-12.5-13-102319				AOI1-3-SB-4.5-5-102219			
Sample Date	10/22/2019				10/22/2019				10/22/2019				10/23/2019				10/23/2019				10/23/2019				10/22/2019			
Depth	4.5 - 5 ft				10 - 10.5 ft				17 - 17.5 ft				4.5 - 5 ft				9.5 - 10 ft				12.5 - 13 ft				4.5 - 5 ft			
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	Result	LOD	LOQ	Qual
pH	8.64	1.00	1.00	J	8.30	1.00	1.00	J	8.22	1.00	1.00	J	9.99	1.00	1.00	J	8.22	1.00	1.00	J	8.55	1.00	1.00	J	9.01	1.00	1.00	J
Total Organic Carbon (mg/kg)	858	200	250		547	200	250		623	200	250		301	200	250		547	200	250		1560	200	250		157	200	250	J

Acronyms and Abbreviations

AOI	Area of Interest
D	Duplicate
ft	feet
LOD	Limit of Detection
LOQ	Limit of Quantitation
Qual	Interpreted Qualifier
mg/kg	Milligrams per Kilogram
SB	Soil boring

Interpreted Qualifiers

J = Estimated concentration

Appendix F Laboratory Data
TOC and pH
Site Inspection Report, Joint Force Training Base, Los Alamitos

Area of Interest	AOI1																											
Sample ID	AOI1-3-SB-9.5-10-102219				AOI1-3-SB-16-16.5-102219				AOI1-4-SB-4.5-5-102319				AOI1-4-SB-4.5-5-102319-D				AOI1-4-SB-9.5-10-102319				AOI1-5-SB-4.5-5-102319				AOI1-5-SB-4.5-5-102319-D			
Sample Date	10/22/2019				10/22/2019				10/23/2019				10/23/2019				10/23/2019				10/23/2019				10/23/2019			
Depth	9.5 - 10 ft				16 - 16.5 ft				4.5 - 5 ft				4.5 - 5 ft				9.5 - 10 ft				4.5 - 5 ft				4.5 - 5 ft			
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**	**Result**	**LOD**	**LOQ**	**Qual**
pH	8.27	1.00	1.00	J	8.98	1.00	1.00	J	9.70	1.00	1.00	J	9.10	1.00	1.00	J	8.88	1.00	1.00	J	9.13	1.00	1.00	J	9.01	1.00	1.00	J
Total Organic Carbon (mg/kg)	564	200	250		529	200	250		260	200	250		438	200	250		963	200	250		1450	200	250		1610	200	250	

Acronyms and Abbreviations

AOI	Area of Interest
D	Duplicate
ft	feet
LOD	Limit of Detection
LOQ	Limit of Quantitation
Qual	Interpreted Qualifier
mg/kg	Milligrams per Kilogram
SB	Soil boring

Interpreted Qualifiers

J = Estimated concentration

Appendix F Laboratory Data
TOC and pH
Site Inspection Report, Joint Force Training Base, Los Alamitos

Area of Interest	AOI01																				AOI02							
Sample ID	AOI1-5-SB-7-7.5-102319				AOI1-5-SB-17.5-18-102319				AOI1-6-SB-4.5-5-102319				AOI1-6-SB-9-9.5-102319				AOI1-6-SB-12.5-13-102319				AOI2-1-SB-4.5-5-102519				AOI2-2-SB-4.5-5-102319			
Sample Date	10/23/2019				10/23/2019				10/23/2019				10/23/2019				10/23/2019				10/25/2019				10/23/2019			
Depth	7 - 7.5 ft				17.5 - 18 ft				4.5 - 5 ft				9 - 9.5 ft				12.5 - 13 ft				4.5 - 5 ft				4.5 - 5 ft			
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**	**Result**	**LOD**	**LOQ**	**Qual**
pH	8.79	1.00	1.00	J	8.56	1.00	1.00	J	9.83	1.00	1.00	J	8.96	1.00	1.00	J	8.14	1.00	1.00	J	9.65	1.00	1.00	J	8.65	1.00	1.00	J
Total Organic Carbon (mg/kg)	1500	200	250		687	200	250		369	200	250		898	200	250		3530	200	250		894	200	250		3200	200	250	

Acronyms and Abbreviations

AOI	Area of Interest
D	Duplicate
ft	feet
LOD	Limit of Detection
LOQ	Limit of Quantitation
Qual	Interpreted Qualifier
mg/kg	Milligrams per Kilogram
SB	Soil boring

Interpreted Qualifiers

J = Estimated concentration

Appendix F Laboratory Data
TOC and pH
Site Inspection Report, Joint Force Training Base, Los Alamitos

Area of Interest	AOI02																											
Sample ID	AOI2-2-SB-4.5-5-102319-D				AOI2-3-SB-4.5-5-102319				AOI2-3-SB-4.5-5-102319-D				AOI2-4-SB-4.5-5-102519				AOI2-5-SB-4.5-5-102519				AOI2-5-SB-9.5-10-102519				AOI2-5-SB-13-13.5-102519			
Sample Date	10/23/2019				10/23/2019				10/23/2019				10/25/2019				10/25/2019				10/25/2019				10/25/2019			
Depth	4.5 - 5 ft				4.5 - 5 ft				4.5 - 5 ft				4.5 - 5 ft				4.5 - 5 ft				9.5 - 10 ft				13 - 13.5 ft			
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	Result	LOD	LOQ	Qual
pH	8.66	1.00	1.00	J	9.08	1.00	1.00	J	9.09	1.00	1.00	J	8.88	1.00	1.00	J	9.14	1.00	1.00	J	8.38	1.00	1.00	J	8.79	1.00	1.00	J
Total Organic Carbon (mg/kg)	3070	200	250		2200	200	250		1610	200	250		8000	200	250		1000	200	250		800	200	250		1810	200	250	

Acronyms and Abbreviations

AOI	Area of Interest
D	Duplicate
ft	feet
LOD	Limit of Detection
LOQ	Limit of Quantitation
Qual	Interpreted Qualifier
mg/kg	Milligrams per Kilogram
SB	Soil boring

Interpreted Qualifiers

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Appendix F Laboratory Data
TOC and pH
Site Inspection Report, Joint Force Training Base, Los Alamitos

Area of Interest	AOI03																											
Sample ID	AOI3-1-SB-1.5-2-102519				AOI3-2-SB-1.5-2-102519				AOI3-2-SB-1.5-2-102519-D				AOI3-3-SB-1.5-2-102519				AOI3-4-SB-1.5-2-102519				AOI3-4-SB-1.5-2-102519-D				AOI3-5-SB-1.5-2-102519			
Sample Date	10/25/2019				10/25/2019				10/25/2019				10/25/2019				10/25/2019				10/25/2019				10/25/2019			
Depth	1.5 - 2 ft				1.5 - 2 ft				1.5 - 2 ft				1.5 - 2 ft				1.5 - 2 ft				1.5 - 2 ft				1.5 - 2 ft			
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	Result	LOD	LOQ	Qual
pH	9.17	1.00	1.00	J	9.31	1.00	1.00	J	9.32	1.00	1.00	J	8.97	1.00	1.00	J	8.38	1.00	1.00	J	8.42	1.00	1.00	J	9.32	1.00	1.00	J
Total Organic Carbon (mg/kg)	4570	200	250		3960	200	250		4000	200	250		7230	200	250		2770	200	250		3080	200	250		3500	200	250	

Acronyms and Abbreviations

AOI	Area of Interest
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ft	feet
LOD	Limit of Detection
LOQ	Limit of Quantitation
Qual	Interpreted Qualifier
mg/kg	Milligrams per Kilogram
SB	Soil boring

Interpreted Qualifiers

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Appendix F Laboratory Data
TOC and pH
Site Inspection Report, Joint Force Training Base, Los Alamitos

Area of Interest	AOI3																											
Sample ID	AOI3-6-SB-1.5-2-102519				AOI3-7-SB-1.5-2-102519				AOI3-7-SB-1.5-2-102519-D				AOI3-8-SB-1.5-2-102419				AOI3-8-SB-1.5-2-102419-D				AOI3-8-SB-9-9.5-102419				AOI3-8-SB-13-13.5-102419			
Sample Date	10/25/2019				10/25/2019				10/25/2019				10/24/2019				10/24/2019				10/24/2019				10/24/2019			
Depth	1.5 - 2 ft				1.5 - 2 ft				1.5 - 2 ft				1.5 - 2 ft				1.5 - 2 ft				9 - 9.5 ft				13 - 13.5 ft			
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**	**Result**	**LOD**	**LOQ**	**Qual**
pH	9.29	1.00	1.00	J	8.89	1.00	1.00	J	8.78	1.00	1.00	J	8.73	1.00	1.00	J	8.74	1.00	1.00	J	8.07	1.00	1.00	J	7.84	1.00	1.00	J
Total Organic Carbon (mg/kg)	8510	200	250		7250	200	250		6970	200	250		9420	200	250		8880	200	250		6570	200	250		2970	200	250	

Acronyms and Abbreviations

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Appendix F Laboratory Data
TOC and pH
Site Inspection Report, Joint Force Training Base, Los Alamitos

Area of Interest	AOI3																											
Sample ID	AOI3-9-SB-1.5-2-102419				AOI3-9-SB-8.5-9-102419				AOI3-9-SB-14-14.5-102419				AOI3-10-SB-1.5-2-102419				AOI3-10-SB-10.5-11-102419				AOI3-11-SB-1.5-2-102419				AOI3-11-SB-11-11.5-102419			
Sample Date	10/24/2019				10/24/2019				10/24/2019				10/24/2019				10/24/2019				10/24/2019				10/24/2019			
Depth	1.5 - 2 ft				8.5 - 9 ft				14 - 14.5 ft				1.5 - 2 ft				10.5 - 11 ft				1.5 - 2 ft				11 - 11.5 ft			
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**	**Result**	**LOD**	**LOQ**	**Qual**
pH	8.35	1.00	1.00	J	7.72	1.00	1.00	J	7.65	1.00	1.00	J	8.82	1.00	1.00	J	7.79	1.00	1.00	J	8.84	1.00	1.00	J	8.16	1.00	1.00	J
Total Organic Carbon (mg/kg)	2340	200	250		5570	200	250		202	200	250	J	13200	200	250		1680	200	250		1840	200	250		3000	200	250	

Acronyms and Abbreviations

AOI	Area of Interest
D	Duplicate
ft	feet
LOD	Limit of Detection
LOQ	Limit of Quantitation
Qual	Interpreted Qualifier
mg/kg	Milligrams per Kilogram
SB	Soil boring

Interpreted Qualifiers

J = Estimated concentration

Appendix F Laboratory Data
TOC and pH
Site Inspection Report, Joint Force Training Base, Los Alamitos

Area of Interest	AOI3																AOI04											
Sample ID	AOI3-11-SB-8.5-9-102419				AOI3-12-SB-1.5-2-102419				AOI3-12-SB-7-7.5-102419				AOI3-12-SB-19-19.5-102419				AOI4-1-SB-0-0.5-102519				AOI4-1-SB-5.5-6-102519				AOI4-1-SB-9.5-10-102519			
Sample Date	10/24/2019				10/24/2019				10/24/2019				10/24/2019				10/25/2019				10/25/2019				10/25/2019			
Depth	8.5 - 9 ft				1.5 - 2 ft				7 - 7.5 ft				19 - 19.5 ft				0 - 0.5 ft				5.5 - 6 ft				9.5 - 10 ft			
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	Result	LOD	LOQ	Qual
pH	8.66	1.00	1.00	J	9.03	1.00	1.00	J	8.00	1.00	1.00	J	7.75	1.00	1.00	J	9.50	1.00	1.00	J	9.00	1.00	1.00	J	8.65	1.00	1.00	J
Total Organic Carbon (mg/kg)	968	200	250		7260	200	250		693	200	250		726	200	250		1060	200	250		1260	200	250		3990	200	250	

Acronyms and Abbreviations

AOI	Area of Interest
D	Duplicate
ft	feet
LOD	Limit of Detection
LOQ	Limit of Quantitation
Qual	Interpreted Qualifier
mg/kg	Milligrams per Kilogram
SB	Soil boring

Interpreted Qualifiers

J = Estimated concentration

Appendix F Laboratory Data
TOC and pH
Site Inspection Report, Joint Force Training Base, Los Alamitos

Area of Interest	AOI05																AOI06											
Sample ID	AOI5-1-SB-1.5-2-102219				AOI5-1-SB-1.5-2-102219-D				AOI5-1-SB-8-8.5-102219				AOI5-1-SB-19-19.5-102219				AOI6-1-SB-1.5-2-102219				AOI6-1-SB-7-7.5-102219				AOI6-1-SB-18.5-19-102219			
Sample Date	10/22/2019				10/22/2019				10/22/2019				10/22/2019				10/22/2019				10/22/2019				10/22/2019			
Depth	1.5 - 2 ft				1.5 - 2 ft				8 - 8.5 ft				19 - 19.5 ft				1.5 - 2 ft				7 - 7.5 ft				18.5 - 19 ft			
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	Result	LOD	LOQ	Qual
pH	8.84	1.00	1.00	J	8.80	1.00	1.00	J	8.48	1.00	1.00	J	8.24	1.00	1.00	J	8.36	1.00	1.00	J	9.07	1.00	1.00	J	8.87	1.00	1.00	J
Total Organic Carbon (mg/kg)	3220	200	250		2290	200	250		1660	200	250		878	200	250		2020	200	250		2240	200	250		373	200	250	

Acronyms and Abbreviations

AOI	Area of Interest
D	Duplicate
ft	feet
LOD	Limit of Detection
LOQ	Limit of Quantitation
Qual	Interpreted Qualifier
mg/kg	Milligrams per Kilogram
SB	Soil boring

Interpreted Qualifiers

J = Estimated concentration

Appendix F Laboratory Data
TOC and pH
Site Inspection Report, Joint Force Training Base, Los Alamitos

Area of Interest	AOI06												AOI07															
Sample ID	AOI6-2-SB-1.5-2-102219				AOI6-3-SB-1.5-2-102219				AOI6-4-SB-1.5-2-102219				AOI7-1-SB-1.5-2-102119				AOI7-2-SB-1.5-2-102119				AOI7-3-SB-1.5-2-102119				AOI7-4-1.5-2-102119			
Sample Date	10/22/2019				10/22/2019				10/22/2019				10/21/2019				10/21/2019				10/21/2019				10/21/2019			
Depth	1.5 - 2 ft				1.5 - 2 ft				1.5 - 2 ft				1.5 - 2 ft				1.5 - 2 ft				1.5 - 2 ft				1.5 - 2 ft			
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**	**Result**	**LOD**	**LOQ**	**Qual**
pH	8.48	1.00	1.00	J	8.52	1.00	1.00	J	9.01	1.00	1.00	J	7.93	1.00	1.00	J	8.63	1.00	1.00	J	8.63	1.00	1.00	J	8.52	1.00	1.00	J
Total Organic Carbon (mg/kg)	3440	200	250		1750	200	250		2900	200	250		2200	200	250		2060	200	250		2850	200	250		3580	200	250	

Acronyms and Abbreviations

AOI	Area of Interest
D	Duplicate
ft	feet
LOD	Limit of Detection
LOQ	Limit of Quantitation
Qual	Interpreted Qualifier
mg/kg	Milligrams per Kilogram
SB	Soil boring

Interpreted Qualifiers

J = Estimated concentration

Appendix F Laboratory Data
TOC and pH
Site Inspection Report, Joint Force Training Base, Los Alamitos

Area of Interest	AOI07																											
Sample ID	AOI7-5-SB-1.5-2-102119				AOI7-6-SB-1.5-2-102119				AOI7-7-SB-1.5-2-102119				AOI7-8-SB-1.5-2-102119				AOI7-9-SB-1.5-2-102119				AOI7-9-SB-7.5-8-102119				AOI7-9-SB-17-17.5-102119			
Sample Date	10/21/2019				10/21/2019				10/21/2019				10/21/2019				10/21/2019				10/21/2019				10/21/2019			
Depth	1.5 - 2 ft				1.5 - 2 ft				1.5 - 2 ft				1.5 - 2 ft				1.5 - 2 ft				7.5 - 8 ft				17 - 17.5 ft			
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	Result	LOD	LOQ	Qual
pH	8.53	1.00	1.00	J	8.77	1.00	1.00	J	8.53	1.00	1.00	J	8.43	1.00	1.00	J	8.88	1.00	1.00	J	8.79	1.00	1.00	J	8.24	1.00	1.00	J
Total Organic Carbon (mg/kg)	2280	200	250		2940	200	250		2650	200	250		2020	200	250		2600	200	250		1490	200	250		1350	200	250	

Acronyms and Abbreviations

AOI	Area of Interest
D	Duplicate
ft	feet
LOD	Limit of Detection
LOQ	Limit of Quantitation
Qual	Interpreted Qualifier
mg/kg	Milligrams per Kilogram
SB	Soil boring

Interpreted Qualifiers

J = Estimated concentration

Appendix F Laboratory Data
TOC and pH
Site Inspection Report, Joint Force Training Base, Los Alamitos

Area of Interest	AOI07																								AOI08			
Sample ID	AOI7-10-SB-1.5-2-102119				AOI7-10-SB-7.5-8-102119				AOI7-10-SB-17-17.5-102119				AOI7-11-SB-1.5-2-102119				AOI7-11-SB-7.5-8-102119				AOI7-11-SB-18-18.5-102119				AOI 8-1-SB-0-0.5-102919			
Sample Date	10/21/2019				10/21/2019				10/21/2019				10/21/2019				10/21/2019				10/21/2019				10/29/2019			
Depth	1.5 - 2 ft				7.5 - 8 ft				17 - 17.5 ft				1.5 - 2 ft				7.5 - 8 ft				18 - 18.5 ft				0 - 0.5 ft			
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**	**Result**	**LOD**	**LOQ**	**Qual**
pH	8.76	1.00	1.00	J	8.94	1.00	1.00	J	8.35	1.00	1.00	J	9.39	1.00	1.00	J	8.95	1.00	1.00	J	8.34	1.00	1.00	J	7.76	1.00	1.00	J
Total Organic Carbon (mg/kg)	3210	200	250		1660	200	250		892	200	250		2720	200	250		1640	200	250		233	200	250	J	21300	200	250	

Acronyms and Abbreviations

AOI	Area of Interest
D	Duplicate
ft	feet
LOD	Limit of Detection
LOQ	Limit of Quantitation
Qual	Interpreted Qualifier
mg/kg	Milligrams per Kilogram
SB	Soil boring

Interpreted Qualifiers

J = Estimated concentration

Area of Interest	AOI08			
Sample ID	AOI 8-2-SB-0-0.5-102919			
Sample Date	10/29/2019			
Depth	0 - 0.5 ft			
Analyte	**Result**	**LOD**	**LOQ**	**Qual**
pH	8.20	1.00	1.00	J
Total Organic Carbon (mg/kg)	14600	200	250	

Acronyms and Abbreviations

AOI	Area of Interest
D	Duplicate
ft	feet
LOD	Limit of Detection
LOQ	Limit of Quantitation
Qual	Interpreted Qualifier
mg/kg	Milligrams per Kilogram
SB	Soil boring

Interpreted Qualifiers

J = Estimated concentration

Appendix F Laboratory Data
Surface Soil
Site Inspection Report, Joint Force Training Base, Los Alamitos

Area of Interest		AOI03																									
Sample ID		AOI3-1-SB-1.5-2-102519				AOI3-2-SB-1.5-2-102519				AOI3-2-SB-1.5-2-102519-D				AOI3-3-SB-1.5-2-102519				AOI3-4-SB-1.5-2-102519				AOI3-4-SB-1.5-2-102519-D				AOI3-5-SB-1.5-2-102519			
Sample Date		10/25/2019				10/25/2019				10/25/2019				10/25/2019				10/25/2019				10/25/2019				10/25/2019			
Depth		1.5 - 2 ft				1.5 - 2 ft				1.5 - 2 ft				1.5 - 2 ft				1.5 - 2 ft				1.5 - 2 ft				1.5 - 2 ft			
Analyte	OSD Screening Level [a]	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 5.1 Table B-15 (ug/Kg)																													
6:2 FTS	-	0.270	0.455	1.14	J	229	4.65	11.6	J-	230	4.60	11.5		283	4.86	12.2	J-	86.1	21.0	52.6	J-	70.5	4.38	10.9		13.6	0.433	1.08	
8:2 FTS	-	<	0.455	1.14	U	1.56	0.465	1.16		1.13	0.460	1.15	J	2.59	0.486	1.22		84.9	21.0	52.6	J-	100	4.38	10.9		<	0.433	1.08	U
NEtFOSAA	-	<	0.455	1.14	U	<	0.465	1.16	U	<	0.460	1.15	U	<	0.486	1.22	U	<	0.421	1.05	U	<	0.438	1.09	U	<	0.433	1.08	U
NMeFOSAA	-	<	0.455	1.14	U	<	0.465	1.16	U	<	0.460	1.15	U	<	0.486	1.22	U	<	0.421	1.05	U	<	0.438	1.09	U	<	0.433	1.08	U
PFBA	-	2.78	0.455	1.14		41.8	0.465	1.16		39.4	0.460	1.15		42.0	4.86	12.2		1.24	0.421	1.05		0.948	0.438	1.09	J	9.45	0.433	1.08	
PFBS	130000	1.10	0.455	1.14	J	65.4	4.65	11.6		57.7	4.60	11.5		16.1	0.486	1.22		0.225	0.421	1.05	J	0.146	0.438	1.09	J	50.9	21.7	54.2	J
PFDA	-	<	0.455	1.14	U	<	0.465	1.16	U	<	0.460	1.15	U	<	0.486	1.22	U	4.31	0.421	1.05		2.66	0.438	1.09		<	0.433	1.08	U
PFDoA	-	<	0.455	1.14	U	<	0.465	1.16	U	<	0.460	1.15	U	<	0.486	1.22	U	<	0.421	1.05	U	<	0.438	1.09	U	<	0.433	1.08	U
PFHpA	-	0.707	0.455	1.14	J	20.2	0.465	1.16		15.5	0.460	1.15		50.5	4.86	12.2		1.16	0.421	1.05		0.806	0.438	1.09	J	12.7	0.433	1.08	
PFHxA	-	3.33	0.455	1.14		305	4.65	11.6		287	4.60	11.5		293	4.86	12.2		6.04	0.421	1.05		4.15	0.438	1.09		155	21.7	54.2	
PFHxS	-	14.4	0.455	1.14		239	4.65	11.6		199	4.60	11.5		154	4.86	12.2		5.93	0.421	1.05		4.44	0.438	1.09		645	21.7	54.2	
PFNA	-	0.968	0.455	1.14	J	1.32	4.65	11.6	J	2.85	0.460	1.15	J+	0.677	0.486	1.22	J	1.44	0.421	1.05		0.983	0.438	1.09	J	0.298	0.433	1.08	J
PFOA	130	4.31	0.455	1.14		33.1	0.465	1.16		26.5	0.460	1.15		145	4.86	12.2		4.44	0.421	1.05		2.87	0.438	1.09		63.7	21.7	54.2	
PFOS	130	381	9.11	22.8	J-	1440	46.5	116	J-	1570	46.0	115		44.6	0.486	1.22		508	21.0	52.6	J-	372	4.38	10.9		396	21.7	54.2	
PFPeA	-	3.57	0.455	1.14		156	4.65	11.6		139	4.60	11.5		308	4.86	12.2		4.58	0.421	1.05		3.06	0.438	1.09		33.7	0.433	1.08	
PFTeDA	-	<	0.455	1.14	U	<	0.465	1.16	U	<	0.460	1.15	U	<	0.486	1.22	U	<	0.421	1.05	U	<	0.438	1.09	U	<	0.433	1.08	U
PFTrDA	-	<	0.455	1.14	U	<	0.465	1.16	U	<	0.460	1.15	U	<	0.486	1.22	U	<	0.421	1.05	U	<	0.438	1.09	U	<	0.433	1.08	U
PFUnDA	-	<	0.455	1.14	U	<	0.465	1.16	U	<	0.460	1.15	U	<	0.486	1.22	U	0.164	0.421	1.05	J	<	0.438	1.09	U	<	0.433	1.08	U

Grey Fill — Detected concentration exceeded OSD Screening Levels

References

a. Assistant Secretary of Defense, 2019. Risk Based Screening Levels Calculated for PFOS, PFOA, PFBS 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.

Interpreted Qualifiers

J = Estimated concentration
J- = Estimated concentration, biased low
J+ = Estimated concentration, biased high
U = The analyte was not detected at a level greater than or equal to the adjusted detection limit (DL)
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.

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

AOI	Area of Interest
D	Duplicate
ft	feet
HQ	Hazard quotient
LCMSMS	Liquid Chromatography 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

Area of Interest		AOI03																									
Sample ID		AOI3-6-SB-1.5-2-102519				AOI3-7-SB-1.5-2-102519				AOI3-7-SB-1.5-2-102519-D				AOI3-8-SB-1.5-2-102419				AOI3-8-SB-1.5-2-102419-D				AOI3-9-SB-1.5-2-102419				AOI3-10-SB-1.5-2-102419			
Sample Date		10/25/2019				10/25/2019				10/25/2019				10/24/2019				10/24/2019				10/24/2019				10/24/2019			
Depth		1.5 - 2 ft				1.5 - 2 ft				1.5 - 2 ft				1.5 - 2 ft				1.5 - 2 ft				1.5 - 2 ft				1.5 - 2 ft			
Analyte	OSD Screening Level [a]	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 5.1 Table B-15 (ug/Kg)																													
6:2 FTS	-	118	26.2	65.4	J-	5.89	0.483	1.21		6.83	0.443	1.11		<	0.410	1.03	U	<	0.375	0.938	U	14.3	0.401	1.00		0.209	0.417	1.04	J
8:2 FTS	-	38.1	0.523	1.31		0.874	0.483	1.21	J	1.24	0.443	1.11		<	0.410	1.03	U	<	0.375	0.938	U	0.482	0.401	1.00	J	<	0.417	1.04	U
NEtFOSAA	-	<	0.523	1.31	U	<	0.483	1.21	U	<	0.443	1.11	U	<	0.410	1.03	U	<	0.375	0.938	U	<	0.401	1.00	U	<	0.417	1.04	U
NMeFOSAA	-	<	0.523	1.31	U	<	0.483	1.21	U	<	0.443	1.11	U	<	0.410	1.03	U	<	0.375	0.938	U	<	0.401	1.00	U	<	0.417	1.04	U
PFBA	-	9.05	0.523	1.31		3.83	0.483	1.21		3.03	0.443	1.11		<	0.410	1.03	U	<	0.375	0.938	U	4.52	0.401	1.00		<	0.417	1.04	U
PFBS	130000	4.60	0.523	1.31		0.281	0.483	1.21	J	0.226	0.443	1.11	J	<	0.410	1.03	U	<	0.375	0.938	U	0.325	0.401	1.00	J	<	0.417	1.04	U
PFDA	-	1.23	0.523	1.31	J	0.363	0.483	1.21	J	0.480	0.443	1.11	J	<	0.410	1.03	U	<	0.375	0.938	U	<	0.401	1.00	U	<	0.417	1.04	U
PFDoA	-	<	0.523	1.31	U	<	0.483	1.21	U	<	0.443	1.11	U	<	0.410	1.03	U	<	0.375	0.938	U	<	0.401	1.00	U	<	0.417	1.04	U
PFHpA	-	3.39	0.523	1.31		4.74	0.483	1.21		4.17	0.443	1.11		<	0.410	1.03	U	<	0.375	0.938	U	8.19	0.401	1.00		<	0.417	1.04	U
PFHxA	-	20.2	0.523	1.31		5.93	0.483	1.21		5.29	0.443	1.11		<	0.410	1.03	U	<	0.375	0.938	U	9.85	0.401	1.00		<	0.417	1.04	U
PFHxS	-	26.5	0.523	1.31		9.92	0.483	1.21		8.57	0.443	1.11		<	0.410	1.03	U	<	0.375	0.938	U	26.2	0.401	1.00		<	0.417	1.04	U
PFNA	-	11.4	0.523	1.31		8.15	0.483	1.21		8.73	0.443	1.11		<	0.410	1.03	U	<	0.375	0.938	U	0.596	0.401	1.00	J	<	0.417	1.04	U
PFOA	130	14.0	0.523	1.31		8.48	0.483	1.21		8.05	0.443	1.11		<	0.410	1.03	U	<	0.375	0.938	U	7.23	0.401	1.00		<	0.417	1.04	U
PFOS	130	1120	26.2	65.4		198	4.83	12.1		223	4.43	11.1		0.251	0.410	1.03	J	0.224	0.375	0.938	J	21.6	0.401	1.00		0.304	0.417	1.04	J
PFPeA	-	33.7	0.523	1.31		7.72	0.483	1.21		6.25	0.443	1.11		<	0.410	1.03	U	<	0.375	0.938	U	9.45	0.401	1.00		<	0.417	1.04	U
PFTeDA	-	<	0.523	1.31	U	<	0.483	1.21	U	<	0.443	1.11	U	<	0.410	1.03	U	<	0.375	0.938	U	<	0.401	1.00	U	<	0.417	1.04	U
PFTrDA	-	<	0.523	1.31	U	<	0.483	1.21	U	<	0.443	1.11	U	<	0.410	1.03	U	<	0.375	0.938	U	<	0.401	1.00	U	<	0.417	1.04	U
PFUnDA	-	1.03	0.523	1.31	J	<	0.483	1.21	U	<	0.443	1.11	U	<	0.410	1.03	U	<	0.375	0.938	U	<	0.401	1.00	U	<	0.417	1.04	U

Grey Fill — Detected concentration exceeded OSD Screening Levels

References

a. Assistant Secretary of Defense, 2019. Risk Based Screening Levels Calculated for PFOS, PFOA, PFBS 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.

Interpreted Qualifiers

J = Estimated concentration
J- = Estimated concentration, biased low
J+ = Estimated concentration, biased high
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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.

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

AOI	Area of Interest
D	Duplicate
ft	feet
HQ	Hazard quotient
LCMSMS	Liquid Chromatography 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

Area of Interest		AOI03								AOI04				AOI05								AOI06							
Sample ID		AOI3-11-SB-1.5-2-102419				AOI3-12-SB-1.5-2-102419				AOI4-1-SB-0-0.5-102519				AOI5-1-SB-1.5-2-102219				AOI5-1-SB-1.5-2-102219-D				AOI6-1-SB-1.5-2-102219				AOI6-2-SB-1.5-2-102219			
Sample Date		10/24/2019				10/24/2019				10/25/2019				10/22/2019				10/22/2019				10/22/2019				10/22/2019			
Depth		1.5 - 2 ft				1.5 - 2 ft				0 - 0.5 ft				1.5 - 2 ft				1.5 - 2 ft				1.5 - 2 ft				1.5 - 2 ft			
Analyte	OSD Screening Level [a]	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 5.1 Table B-15 (ug/Kg)																													
6:2 FTS	-	0.356	0.418	1.04	J	202	21.7	54.2	J-	<	0.410	1.02	U	1.08	0.456	1.14	J	1.41	0.454	1.13		104	2.50	6.26	J-	194	4.44	11.1	J-
8:2 FTS	-	0.440	0.418	1.04	J	13.4	0.433	1.08		<	0.410	1.02	U	1.05	0.456	1.14	J	1.41	0.454	1.13		<	0.500	1.25	U	0.386	0.444	1.11	J
NEtFOSAA	-	<	0.418	1.04	U	<	0.433	1.08	U	<	0.410	1.02	U	<	0.456	1.14	U	<	0.454	1.13	U	<	0.500	1.25	U	<	0.444	1.11	U
NMeFOSAA	-	<	0.418	1.04	U	<	0.433	1.08	U	<	0.410	1.02	U	<	0.456	1.14	U	<	0.454	1.13	U	<	0.500	1.25	U	<	0.444	1.11	U
PFBA	-	0.372	0.418	1.04	J	31.3	0.433	1.08		<	0.410	1.02	U	1.66	0.456	1.14		2.22	0.454	1.13		2.49	0.500	1.25		13.5	0.444	1.11	
PFBS	130000	0.203	0.418	1.04	J	12.4	0.433	1.08		<	0.410	1.02	U	0.550	0.456	1.14	J	0.772	0.454	1.13	J	<	0.500	1.25	U	<	0.444	1.11	U
PFDA	-	0.308	0.418	1.04	J	0.581	0.433	1.08	J	0.313	0.410	1.02	J	0.967	0.456	1.14	J	1.47	0.454	1.13		<	0.500	1.25	U	<	0.444	1.11	U
PFDoA	-	<	0.418	1.04	U	<	0.433	1.08	U	<	0.410	1.02	U	<	0.456	1.14	U	<	0.454	1.13	U	<	0.500	1.25	U	<	0.444	1.11	U
PFHpA	-	0.254	0.418	1.04	J	25.2	0.433	1.08		<	0.410	1.02	U	4.57	0.456	1.14		5.40	0.454	1.13		4.63	0.500	1.25		5.27	0.444	1.11	J+
PFHxA	-	1.41	0.418	1.04		163	21.7	54.2		<	0.410	1.02	U	4.22	0.456	1.14		5.45	0.454	1.13		5.63	0.500	1.25		33.2	0.444	1.11	
PFHxS	-	7.02	0.418	1.04		110	21.7	54.2		<	0.410	1.02	U	23.6	0.456	1.14		32.0	0.454	1.13		0.324	0.500	1.25	J	0.319	0.444	1.11	J
PFNA	-	1.02	0.418	1.04	J	2.91	0.433	1.08		<	0.410	1.02	U	2.20	0.456	1.14		2.73	0.454	1.13		<	0.500	1.25	U	0.172	0.444	1.11	J
PFOA	130	0.922	0.418	1.04	J	219	21.7	54.2		<	0.410	1.02	U	112	4.56	11.4		134	4.54	11.3		2.31	0.500	1.25		5.36	0.444	1.11	J+
PFOS	130	643	20.9	52.2		739	21.7	54.2		0.440	0.410	1.02	J	252	4.56	11.4		352	4.54	11.3		<	0.500	1.25	U	1.06	0.444	1.11	J
PFPeA	-	0.505	0.418	1.04	J	128	21.7	54.2		<	0.410	1.02	U	4.05	0.456	1.14		5.49	0.454	1.13		7.45	0.500	1.25		57.7	4.44	11.1	J-
PFTeDA	-	<	0.418	1.04	U	<	0.433	1.08	U	<	0.410	1.02	U	<	0.456	1.14	U	<	0.454	1.13	U	<	0.485	1.21	U	<	0.444	1.11	U
PFTrDA	-	0.386	0.418	1.04	J	<	0.433	1.08	U	<	0.410	1.02	U	<	0.456	1.14	U	<	0.454	1.13	U	<	0.485	1.21	U	<	0.444	1.11	U
PFUnDA	-	3.45	0.418	1.04		<	0.433	1.08	U	<	0.410	1.02	U	<	0.456	1.14	U	<	0.454	1.13	U	<	0.500	1.25	U	<	0.444	1.11	U

Grey Fill — Detected concentration exceeded OSD Screening Levels

References

a. Assistant Secretary of Defense, 2019. Risk Based Screening Levels Calculated for PFOS, PFOA, PFBS 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.

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PFDA	perfluorodecanoic acid
PFDoA	perfluorododecanoic acid
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PFHxA	perfluorohexanoic acid
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PFOS	perfluorooctanesulfonic acid
PFPeA	perfluoropentanoic acid
PFTeDA	perfluorotetradecanoic acid
PFTrDA	perfluorotridecanoic acid
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Acronyms and Abbreviations

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ug/Kg	micrograms per Kilogram
-	Not applicable
<	analyte not detected above the LOD

Area of Interest		AOI06								AOI07																			
Sample ID		AOI6-3-SB-1.5-2-102219				AOI6-4-SB-1.5-2-102219				AOI7-1-SB-1.5-2-102119				AOI7-2-SB-1.5-2-102119				AOI7-3-SB-1.5-2-102119				AOI7-4-1.5-2-102119				AOI7-5-SB-1.5-2-102119			
Sample Date		10/22/2019				10/22/2019				10/21/2019				10/21/2019				10/21/2019				10/21/2019				10/21/2019			
Depth		1.5 - 2 ft				1.5 - 2 ft				1.5 - 2 ft				1.5 - 2 ft				1.5 - 2 ft				1.5 - 2 ft				1.5 - 2 ft			
Analyte	OSD Screening Level [a]	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 5.1 Table B-15 (ug/Kg)																													
6:2 FTS	-	229	4.59	11.5	J+	0.310	0.453	1.13	J	<	0.400	1.00	U	<	0.403	1.01	U	<	0.401	1.00	U	<	0.403	1.01	U	<	0.416	1.04	U
8:2 FTS	-	1.04	0.459	1.15	J	<	0.453	1.13	U	<	0.400	1.00	U	<	0.403	1.01	U	<	0.401	1.00	U	<	0.403	1.01	U	<	0.416	1.04	U
NEtFOSAA	-	<	0.459	1.15	U	<	0.453	1.13	U	<	0.400	1.00	U	<	0.403	1.01	U	<	0.401	1.00	U	<	0.403	1.01	U	<	0.416	1.04	U
NMeFOSAA	-	<	0.459	1.15	U	<	0.453	1.13	U	<	0.400	1.00	U	<	0.403	1.01	U	<	0.401	1.00	U	<	0.403	1.01	U	<	0.416	1.04	U
PFBA	-	15.1	0.459	1.15		0.611	0.453	1.13	J	<	0.400	1.00	U	<	0.403	1.01	U	<	0.401	1.00	U	<	0.403	1.01	U	<	0.416	1.04	U
PFBS	130000	<	0.459	1.15	U	<	0.453	1.13	U	<	0.400	1.00	U	<	0.403	1.01	U	<	0.401	1.00	U	<	0.403	1.01	U	<	0.416	1.04	U
PFDA	-	<	0.459	1.15	U	<	0.453	1.13	U	<	0.400	1.00	U	<	0.403	1.01	U	<	0.401	1.00	U	<	0.403	1.01	U	<	0.416	1.04	U
PFDoA	-	<	0.459	1.15	U	<	0.453	1.13	U	<	0.400	1.00	U	<	0.403	1.01	U	<	0.401	1.00	U	<	0.403	1.01	U	<	0.416	1.04	U
PFHpA	-	34.8	0.459	1.15		1.11	0.453	1.13	J	<	0.400	1.00	U	<	0.403	1.01	U	<	0.401	1.00	U	<	0.403	1.01	U	<	0.416	1.04	U
PFHxA	-	71.7	4.59	11.5	J-	1.42	0.453	1.13		<	0.400	1.00	U	<	0.403	1.01	U	<	0.401	1.00	U	<	0.403	1.01	U	<	0.416	1.04	U
PFHxS	-	10.5	0.459	1.15		<	0.453	1.13	U	<	0.400	1.00	U	<	0.403	1.01	U	<	0.401	1.00	U	<	0.403	1.01	U	<	0.416	1.04	U
PFNA	-	<	0.459	1.15	U	<	0.453	1.13	U	<	0.400	1.00	U	<	0.403	1.01	U	<	0.401	1.00	U	<	0.403	1.01	U	<	0.416	1.04	U
PFOA	130	6.24	0.459	1.15		0.213	0.453	1.13	J	0.649	0.400	1.00	J	0.245	0.403	1.01	J	<	0.401	1.00	U	0.183	0.403	1.01	J	0.395	0.416	1.04	J
PFOS	130	1.37	0.459	1.15		<	0.453	1.13	U	<	0.400	1.00	U	0.286	0.403	1.01	J	0.207	0.401	1.00	J	0.259	0.403	1.01	J	<	0.416	1.04	U
PFPeA	-	57.7	4.59	11.5	J-	2.06	0.453	1.13		0.156	0.400	1.00	J	<	0.403	1.01	U	<	0.401	1.00	U	<	0.403	1.01	U	<	0.416	1.04	U
PFTeDA	-	<	0.459	1.15	U	<	0.453	1.13	U	<	0.400	1.00	U	<	0.403	1.01	U	<	0.401	1.00	U	<	0.403	1.01	U	<	0.416	1.04	UJ
PFTrDA	-	<	0.459	1.15	U	<	0.453	1.13	U	<	0.400	1.00	U	<	0.403	1.01	U	<	0.401	1.00	U	<	0.403	1.01	U	<	0.416	1.04	UJ
PFUnDA	-	<	0.459	1.15	U	<	0.453	1.13	U	<	0.400	1.00	U	<	0.403	1.01	U	<	0.401	1.00	U	<	0.403	1.01	U	<	0.416	1.04	U

Grey Fill — Detected concentration exceeded OSD Screening Levels

References

a. Assistant Secretary of Defense, 2019. Risk Based Screening Levels Calculated for PFOS, PFOA, PFBS 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.

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J- = Estimated concentration, biased low
J+ = Estimated concentration, biased high
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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
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PFOS	perfluorooctanesulfonic acid
PFPeA	perfluoropentanoic acid
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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

Area of Interest		AOI07																								AOI08			
Sample ID		AOI7-6-SB-1.5-2-102119				AOI7-7-SB-1.5-2-102119				AOI7-8-SB-1.5-2-102119				AOI7-9-SB-1.5-2-102119				AOI7-10-SB-1.5-2-102119				AOI7-11-SB-1.5-2-102119				AOI 8-1-SB-0-0.5-102919			
Sample Date		10/21/2019				10/21/2019				10/21/2019				10/21/2019				10/21/2019				10/21/2019				10/29/2019			
Depth		1.5 - 2 ft				1.5 - 2 ft				1.5 - 2 ft				1.5 - 2 ft				1.5 - 2 ft				1.5 - 2 ft				0 - 0.5 ft			
Analyte	OSD Screening Level [a]	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 5.1 Table B-15 (ug/Kg)																													
6:2 FTS	-	<	0.402	1.01	U	<	0.403	1.01	U	<	0.409	1.02	U	<	0.395	0.988	U	<	0.410	1.02	U	<	0.489	1.22	U	<	0.406	1.01	U
8:2 FTS	-	<	0.402	1.01	U	<	0.403	1.01	U	<	0.409	1.02	U	<	0.395	0.988	U	<	0.410	1.02	U	<	0.489	1.22	U	<	0.406	1.01	U
NEtFOSAA	-	<	0.402	1.01	U	<	0.403	1.01	U	<	0.409	1.02	U	<	0.395	0.988	U	<	0.410	1.02	U	<	0.489	1.22	U	<	0.406	1.01	U
NMeFOSAA	-	<	0.402	1.01	U	<	0.403	1.01	U	<	0.409	1.02	U	<	0.395	0.988	U	<	0.410	1.02	U	<	0.489	1.22	U	<	0.406	1.01	U
PFBA	-	<	0.402	1.01	U	<	0.403	1.01	U	<	0.409	1.02	U	<	0.395	0.988	U	<	0.410	1.02	U	<	0.489	1.22	U	<	0.406	1.01	U
PFBS	130000	<	0.402	1.01	U	<	0.403	1.01	U	<	0.409	1.02	U	<	0.395	0.988	U	<	0.410	1.02	U	<	0.489	1.22	U	<	0.406	1.01	U
PFDA	-	<	0.402	1.01	U	<	0.403	1.01	U	<	0.409	1.02	U	<	0.395	0.988	U	<	0.410	1.02	U	<	0.489	1.22	U	0.426	0.406	1.01	J
PFDoA	-	<	0.402	1.01	U	<	0.403	1.01	U	<	0.409	1.02	U	<	0.395	0.988	U	<	0.410	1.02	U	<	0.489	1.22	U	0.213	0.406	1.01	J
PFHpA	-	<	0.402	1.01	U	<	0.403	1.01	U	<	0.409	1.02	U	<	0.395	0.988	U	<	0.410	1.02	U	<	0.489	1.22	U	<	0.406	1.01	U
PFHxA	-	<	0.402	1.01	U	<	0.403	1.01	U	<	0.409	1.02	U	<	0.395	0.988	U	<	0.410	1.02	U	<	0.489	1.22	U	<	0.406	1.01	U
PFHxS	-	<	0.402	1.01	U	<	0.403	1.01	U	<	0.409	1.02	U	<	0.395	0.988	U	<	0.410	1.02	U	<	0.489	1.22	U	0.169	0.406	1.01	J
PFNA	-	<	0.402	1.01	U	<	0.403	1.01	U	<	0.409	1.02	U	<	0.395	0.988	U	<	0.410	1.02	U	<	0.489	1.22	U	0.156	0.406	1.01	J
PFOA	130	0.496	0.402	1.01	J	0.600	0.403	1.01	J	0.563	0.409	1.02	J	<	0.395	0.988	U	<	0.410	1.02	U	<	0.489	1.22	U	0.255	0.406	1.01	J
PFOS	130	<	0.402	1.01	U	<	0.403	1.01	U	0.455	0.409	1.02	J	<	0.395	0.988	U	<	0.410	1.02	U	<	0.489	1.22	U	3.02	0.406	1.01	
PFPeA	-	<	0.402	1.01	U	<	0.403	1.01	U	<	0.409	1.02	U	<	0.395	0.988	U	<	0.410	1.02	U	<	0.489	1.22	U	<	0.406	1.01	U
PFTeDA	-	<	0.402	1.01	U	<	0.403	1.01	U	<	0.409	1.02	U	<	0.395	0.988	U	<	0.410	1.02	UJ	<	0.489	1.22	U	<	0.406	1.01	U
PFTrDA	-	<	0.402	1.01	U	<	0.403	1.01	U	<	0.409	1.02	U	<	0.395	0.988	U	<	0.410	1.02	UJ	<	0.489	1.22	U	<	0.406	1.01	U
PFUnDA	-	<	0.402	1.01	U	<	0.403	1.01	U	<	0.409	1.02	U	<	0.395	0.988	U	<	0.410	1.02	U	<	0.489	1.22	U	0.168	0.406	1.01	J

Grey Fill — Detected concentration exceeded OSD Screening Levels

References

a. Assistant Secretary of Defense, 2019. Risk Based Screening Levels Calculated for PFOS, PFOA, PFBS 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.

Interpreted Qualifiers

J = Estimated concentration
J- = Estimated concentration, biased low
J+ = Estimated concentration, biased high
U = The analyte was not detected at a level greater than or equal to the adjusted detection limit (DL)
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.

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

AOI	Area of Interest
D	Duplicate
ft	feet
HQ	Hazard quotient
LCMSMS	Liquid Chromatography 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

	Area of Interest	AOI08			
	Sample ID	AOI 8-2-SB-0-0.5-102919			
	Sample Date	10/29/2019			
	Depth	0 - 0.5 ft			
Analyte	OSD Screening Level [a]	Result	LOD	LOQ	Qual
Soil, PFAS by LCMSMS Compliant with QSM 5.1 Table B-15 (ug/Kg)					
6:2 FTS	-	<	0.408	1.02	U
8:2 FTS	-	<	0.408	1.02	U
NEtFOSAA	-	<	0.408	1.02	U
NMeFOSAA	-	<	0.408	1.02	U
PFBA	-	<	0.408	1.02	U
PFBS	130000	<	0.408	1.02	U
PFDA	-	0.369	0.408	1.02	J
PFDoA	-	0.261	0.408	1.02	J
PFHpA	-	<	0.408	1.02	U
PFHxA	-	<	0.408	1.02	U
PFHxS	-	<	0.408	1.02	U
PFNA	-	0.147	0.408	1.02	J
PFOA	130	0.211	0.408	1.02	J
PFOS	130	2.42	0.408	1.02	
PFPeA	-	<	0.408	1.02	U
PFTeDA	-	<	0.408	1.02	U
PFTrDA	-	<	0.408	1.02	U
PFUnDA	-	<	0.408	1.02	U

Grey Fill — Detected concentration exceeded OSD Screening Levels

References

a. Assistant Secretary of Defense, 2019. Risk Based Screening Levels Calculated for PFOS, PFOA, PFBS 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.

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J = Estimated concentration

J- = Estimated concentration, biased low

J+ = Estimated concentration, biased high

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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

AOI	Area of Interest
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ft	feet
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LCMSMS	Liquid Chromatography 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
Shallow Subsurface Soil
Site Inspection Report, Joint Force Training Base, Los Alamitos

Area of Interest		AOI01																									
Sample ID		AOI1-1-SB-4.5-5-102219				AOI1-1-SB-10-10.5-102219				AOI1-2-SB-4.5-5-102319				AOI1-2-SB-9.5-10-102319				AOI1-2-SB-12.5-13-102319				AOI1-3-SB-4.5-5-102219				AOI1-3-SB-9.5-10-102219			
Sample Date		10/22/2019				10/22/2019				10/23/2019				10/23/2019				10/23/2019				10/22/2019				10/22/2019			
Depth		4.5 - 5 ft				10 - 10.5 ft				4.5 - 5 ft				9.5 - 10 ft				12.5 - 13 ft				4.5 - 5 ft				9.5 - 10 ft			
Analyte	OSD Screening Level [a]	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 5.1 Table B-15 (ug/Kg)																													
6:2 FTS	-	<	0.481	1.20	U	<	0.502	1.25	U	<	0.412	1.03	U	<	0.571	1.43	U	<	0.477	1.19	U	<	0.403	1.01	U	<	0.493	1.23	U
8:2 FTS	-	<	0.481	1.20	U	<	0.502	1.25	U	<	0.412	1.03	U	<	0.571	1.43	U	<	0.477	1.19	U	<	0.403	1.01	U	<	0.493	1.23	U
NEtFOSAA	-	<	0.481	1.20	U	<	0.502	1.25	U	<	0.412	1.03	U	<	0.571	1.43	U	<	0.477	1.19	U	<	0.403	1.01	U	<	0.493	1.23	U
NMeFOSAA	-	<	0.481	1.20	U	<	0.502	1.25	U	<	0.412	1.03	U	<	0.571	1.43	U	<	0.477	1.19	U	<	0.403	1.01	U	<	0.493	1.23	U
PFBA	-	0.261	0.481	1.20	J	<	0.502	1.25	U	0.298	0.412	1.03	J	1.12	0.571	1.43	J	<	0.477	1.19	U	<	0.403	1.01	U	0.340	0.493	1.23	J
PFBS	1600000	0.284	0.481	1.20	J	0.239	0.502	1.25	J	0.431	0.412	1.03	J	0.815	0.571	1.43	J	<	0.477	1.19	U	<	0.403	1.01	U	0.290	0.493	1.23	J
PFDA	-	<	0.481	1.20	U	<	0.502	1.25	U	<	0.412	1.03	U	<	0.571	1.43	U	<	0.477	1.19	U	<	0.403	1.01	U	<	0.493	1.23	U
PFDoA	-	<	0.481	1.20	U	<	0.502	1.25	U	<	0.412	1.03	U	<	0.571	1.43	U	<	0.477	1.19	UJ	<	0.403	1.01	U	<	0.493	1.23	U
PFHpA	-	0.668	0.481	1.20	J	<	0.502	1.25	U	5.07	0.412	1.03		1.11	0.571	1.43	J	<	0.477	1.19	U	0.207	0.403	1.01	J	0.395	0.493	1.23	J
PFHxA	-	1.78	0.481	1.20		0.924	0.502	1.25	J	7.82	0.412	1.03		7.35	0.571	1.43		0.620	0.477	1.19	J	0.826	0.403	1.01	J	2.01	0.493	1.23	
PFHxS	-	6.15	0.481	1.20		1.36	0.502	1.25		22.7	0.412	1.03		4.96	0.571	1.43		2.36	0.477	1.19		0.672	0.403	1.01	J	3.87	0.493	1.23	
PFNA	-	<	0.481	1.20	U	<	0.502	1.25	U	<	0.412	1.03	U	<	0.571	1.43	U	<	0.477	1.19	U	<	0.403	1.01	U	<	0.493	1.23	U
PFOA	1600	24.0	0.481	1.20		3.25	0.502	1.25		332	4.12	10.3		31.9	0.571	1.43		8.83	0.477	1.19		3.38	0.403	1.01		23.0	0.493	1.23	
PFOS	1600	<	0.481	1.20	U	0.262	0.502	1.25	J	9.85	0.412	1.03		13.0	0.571	1.43		31.8	0.477	1.19		0.304	0.403	1.01	J	2.63	0.493	1.23	
PFPeA	-	0.487	0.481	1.20	J	0.293	0.502	1.25	J	1.02	0.412	1.03	J	3.68	0.571	1.43		0.231	0.477	1.19	J	0.198	0.403	1.01	J	0.831	0.493	1.23	J
PFTeDA	-	<	0.481	1.20	U	<	0.502	1.25	U	<	0.412	1.03	U	<	0.571	1.43	U	<	0.477	1.19	UJ	<	0.403	1.01	U	<	0.493	1.23	U
PFTrDA	-	<	0.481	1.20	U	<	0.502	1.25	U	<	0.412	1.03	U	<	0.571	1.43	U	<	0.477	1.19	UJ	<	0.403	1.01	U	<	0.493	1.23	U
PFUnDA	-	<	0.481	1.20	U	<	0.502	1.25	U	<	0.412	1.03	U	<	0.571	1.43	U	<	0.477	1.19	U	<	0.403	1.01	U	<	0.493	1.23	U

Grey Fill — Detected concentration exceeded OSD Screening Levels

References

a. Assistant Secretary of Defense, 2019. Risk Based Screening Levels Calculated for PFOS, PFOA, PFBS 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.

Interpreted Qualifiers

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J- = Estimated concentration, biased low

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

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NMeFOSAA	N-methyl perfluorooctanesulfonamidoacetic acid
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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

AOI	Area of Interest
DUP	Duplicate
ft	feet
HQ	Hazard quotient
LCMSMS	Liquid Chromatography 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

Area of Interest		AOI01																									
Sample ID		AOI1-4-SB-4.5-5-102319				AOI1-4-SB-4.5-5-102319-D				AOI1-4-SB-9.5-10-102319				AOI1-5-SB-4.5-5-102319				AOI1-5-SB-4.5-5-102319-D				AOI1-5-SB-7-7.5-102319				AOI1-6-SB-4.5-5-102319			
Sample Date		10/23/2019				10/23/2019				10/23/2019				10/23/2019				10/23/2019				10/23/2019				10/23/2019			
Depth		4.5 - 5 ft				4.5 - 5 ft				9.5 - 10 ft				4.5 - 5 ft				4.5 - 5 ft				7 - 7.5 ft				4.5 - 5 ft			
Analyte	OSD Screening Level [a]	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 5.1 Table B-15 (ug/Kg)																													
6:2 FTS	-	<	0.401	1.00	U	<	0.492	1.23	U	<	0.477	1.19	U	<	0.592	1.48	U	<	0.612	1.53	U	<	0.572	1.43	U	<	0.407	1.02	U
8:2 FTS	-	<	0.401	1.00	U	<	0.492	1.23	U	<	0.477	1.19	U	<	0.592	1.48	U	<	0.612	1.53	U	<	0.572	1.43	U	<	0.407	1.02	U
NEtFOSAA	-	<	0.401	1.00	U	<	0.492	1.23	U	<	0.477	1.19	U	<	0.592	1.48	U	<	0.612	1.53	U	<	0.572	1.43	U	<	0.407	1.02	U
NMeFOSAA	-	<	0.401	1.00	U	<	0.492	1.23	U	<	0.477	1.19	U	<	0.592	1.48	U	<	0.612	1.53	U	<	0.572	1.43	U	<	0.407	1.02	U
PFBA	-	0.200	0.401	1.00	J	0.199	0.492	1.23	J	0.334	0.477	1.19	J	1.96	0.592	1.48		3.93	0.612	1.53		8.17	0.572	1.43		<	0.407	1.02	U
PFBS	1600000	0.169	0.401	1.00	J	0.173	0.492	1.23	J	<	0.477	1.19	U	0.601	0.592	1.48	J	0.956	0.612	1.53	J	1.66	0.572	1.43		<	0.407	1.02	U
PFDA	-	0.224	0.401	1.00	J	0.231	0.492	1.23	J	<	0.477	1.19	U	<	0.592	1.48	U	<	0.612	1.53	U	<	0.572	1.43	U	<	0.407	1.02	U
PFDoA	-	<	0.401	1.00	U	<	0.492	1.23	U	<	0.477	1.19	U	<	0.592	1.48	U	<	0.612	1.53	U	<	0.572	1.43	U	<	0.407	1.02	U
PFHpA	-	2.62	0.401	1.00		2.87	0.492	1.23		0.723	0.477	1.19	J	16.8	0.592	1.48		18.4	0.612	1.53		24.7	0.572	1.43		1.35	0.407	1.02	
PFHxA	-	3.78	0.401	1.00		3.99	0.492	1.23		2.15	0.477	1.19		27.8	0.592	1.48		39.4	0.612	1.53		56.4	28.6	71.5	J-	0.750	0.407	1.02	J
PFHxS	-	4.25	0.401	1.00		4.44	0.492	1.23		0.804	0.477	1.19	J	18.6	0.592	1.48		19.5	0.612	1.53		14.7	0.572	1.43		0.803	0.407	1.02	J
PFNA	-	<	0.401	1.00	U	<	0.492	1.23	U	<	0.477	1.19	U	<	0.592	1.48	U	<	0.612	1.53	U	<	0.572	1.43	U	<	0.407	1.02	U
PFOA	1600	109	2.01	5.02		123	2.46	6.15		28.4	0.477	1.19		1010	29.6	74.1		1040	30.6	76.5		481	28.6	71.5		191	2.03	5.08	
PFOS	1600	12.0	0.401	1.00		13.7	0.492	1.23		2.19	0.477	1.19		1.69	0.592	1.48		1.88	0.612	1.53		0.841	0.572	1.43	J	0.615	0.407	1.02	J
PFPeA	-	0.809	0.401	1.00	J	0.787	0.492	1.23	J	1.01	0.477	1.19	J	7.74	0.592	1.48	J	14.6	0.612	1.53	J	32.1	0.572	1.43		0.159	0.407	1.02	J
PFTeDA	-	<	0.401	1.00	UJ	<	0.492	1.23	U	<	0.477	1.19	U	<	0.592	1.48	U	<	0.612	1.53	U	<	0.572	1.43	U	<	0.407	1.02	UJ
PFTrDA	-	<	0.401	1.00	UJ	<	0.492	1.23	U	<	0.477	1.19	U	<	0.592	1.48	U	<	0.612	1.53	U	<	0.572	1.43	U	<	0.407	1.02	UJ
PFUnDA	-	<	0.401	1.00	U	<	0.492	1.23	U	<	0.477	1.19	U	<	0.592	1.48	U	<	0.612	1.53	U	<	0.572	1.43	U	<	0.407	1.02	U

Grey Fill — Detected concentration exceeded OSD Screening Levels

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-	Not applicable
<	analyte not detected above the LOD

Area of Interest		AOI01								AOI02																			
Sample ID		AOI1-6-SB-9-9.5-102319				AOI1-6-SB-12.5-13-102319				AOI2-1-SB-4.5-5-102519				AOI2-2-SB-4.5-5-102319				AOI2-2-SB-4.5-5-102319-D				AOI2-3-SB-4.5-5-102319				AOI2-3-SB-4.5-5-102319-D			
Sample Date		10/23/2019				10/23/2019				10/25/2019				10/23/2019				10/23/2019				10/23/2019				10/23/2019			
Depth		9 - 9.5 ft				12.5 - 13 ft				4.5 - 5 ft				4.5 - 5 ft				4.5 - 5 ft				4.5 - 5 ft				4.5 - 5 ft			
Analyte	OSD Screening Level [a]	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 5.1 Table B-15 (ug/Kg)																													
6:2 FTS	-	<	0.491	1.23	U	<	0.492	1.23	U	60.9	2.20	5.51		12.2	0.446	1.11		17.4	0.449	1.12		0.495	0.429	1.07	J	0.487	0.444	1.11	J
8:2 FTS	-	<	0.491	1.23	U	<	0.492	1.23	U	<	0.441	1.10	U	21.8	0.446	1.11		32.7	0.449	1.12		<	0.429	1.07	U	<	0.444	1.11	U
NEtFOSAA	-	<	0.491	1.23	U	<	0.492	1.23	U	<	0.441	1.10	U	<	0.446	1.11	U	0.247	0.449	1.12	J	<	0.429	1.07	U	<	0.444	1.11	U
NMeFOSAA	-	<	0.491	1.23	U	<	0.492	1.23	U	<	0.441	1.10	U	<	0.446	1.11	U	<	0.449	1.12	U	<	0.429	1.07	U	<	0.444	1.11	U
PFBA	-	<	0.491	1.23	U	<	0.492	1.23	U	12.9	0.441	1.10		5.71	0.446	1.11		8.26	0.449	1.12		9.99	0.429	1.07		9.89	0.444	1.11	
PFBS	1600000	<	0.491	1.23	U	<	0.492	1.23	U	3.50	0.441	1.10		7.24	0.446	1.11		10.7	0.449	1.12		32.4	0.429	1.07		32.9	0.444	1.11	
PFDA	-	<	0.491	1.23	U	<	0.492	1.23	U	<	0.441	1.10	U	0.869	0.446	1.11	J	1.32	0.449	1.12		<	0.429	1.07	U	<	0.444	1.11	U
PFDoA	-	<	0.491	1.23	U	<	0.492	1.23	U	<	0.441	1.10	U	<	0.446	1.11	U	<	0.449	1.12	U	<	0.429	1.07	U	<	0.444	1.11	U
PFHpA	-	0.891	0.491	1.23	J	<	0.492	1.23	U	13.3	0.441	1.10		8.73	0.446	1.11		12.3	0.449	1.12		6.88	0.429	1.07		7.59	0.444	1.11	
PFHxA	-	1.01	0.491	1.23	J	<	0.492	1.23	U	58.0	2.20	5.51		23.7	0.446	1.11		34.4	0.449	1.12		73.9	2.14	5.36		69.9	2.22	5.55	
PFHxS	-	0.406	0.491	1.23	J	<	0.492	1.23	U	20.4	0.441	1.10		54.7	2.23	5.57	J	108	2.25	5.61	J	132	2.14	5.36		147	2.22	5.55	
PFNA	-	<	0.491	1.23	U	<	0.492	1.23	U	<	0.441	1.10	U	2.06	0.446	1.11		3.24	0.449	1.12		<	0.429	1.07	U	<	0.444	1.11	U
PFOA	1600	69.3	2.45	6.13		5.71	0.492	1.23		4.21	0.441	1.10		15.6	0.446	1.11		25.5	0.449	1.12		2.45	0.429	1.07		2.86	0.444	1.11	
PFOS	1600	<	0.491	1.23	U	1.84	0.492	1.23		0.650	0.441	1.10	J	904	22.3	55.7	J-	1120	22.5	56.1		25.6	0.429	1.07		26.1	0.444	1.11	
PFPeA	-	0.308	0.491	1.23	J	<	0.492	1.23	U	67.3	2.20	5.51		19.1	0.446	1.11		27.2	0.449	1.12		27.7	0.429	1.07		28.2	0.444	1.11	
PFTeDA	-	<	0.491	1.23	U	<	0.492	1.23	U	<	0.441	1.10	U	<	0.446	1.11	U	<	0.449	1.12	U	<	0.429	1.07	U	<	0.444	1.11	U
PFTrDA	-	<	0.491	1.23	U	<	0.492	1.23	U	<	0.441	1.10	U	<	0.446	1.11	U	<	0.449	1.12	U	<	0.429	1.07	U	<	0.444	1.11	U
PFUnDA	-	<	0.491	1.23	U	<	0.492	1.23	U	<	0.441	1.10	U	<	0.446	1.11	U	0.182	0.449	1.12	J	<	0.429	1.07	U	<	0.444	1.11	U

Grey Fill — Detected concentration exceeded OSD Screening Levels

References

a. Assistant Secretary of Defense, 2019. Risk Based Screening Levels Calculated for PFOS, PFOA, PFBS 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.

Interpreted Qualifiers

J = Estimated concentration

J- = Estimated concentration, biased low

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

AOI	Area of Interest
DUP	Duplicate
ft	feet
HQ	Hazard quotient
LCMSMS	Liquid Chromatography 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
Shallow Subsurface Soil
Site Inspection Report, Joint Force Training Base, Los Alamitos

Area of Interest		AOI02																AOI03											
Sample ID		AOI2-4-SB-4.5-5-102519				AOI2-5-SB-4.5-5-102519				AOI2-5-SB-9.5-10-102519				AOI2-5-SB-13-13.5-102519				AOI3-8-SB-9-9.5-102419				AOI3-8-SB-13-13.5-102419				AOI3-9-SB-8.5-9-102419			
Sample Date		10/25/2019				10/25/2019				10/25/2019				10/25/2019				10/24/2019				10/24/2019				10/24/2019			
Depth		4.5 - 5 ft				4.5 - 5 ft				9.5 - 10 ft				13 - 13.5 ft				9 - 9.5 ft				13 - 13.5 ft				8.5 - 9 ft			
Analyte	OSD Screening Level [a]	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 5.1 Table B-15 (ug/Kg)																													
6:2 FTS	-	1.06	0.442	1.10	J	72.7	8.12	20.3		2.86	0.488	1.22		<	0.494	1.23	U	0.197	0.439	1.10	J	0.289	0.486	1.21	J	0.229	0.490	1.23	J
8:2 FTS	-	6.87	0.442	1.10		2.18	0.406	1.01		0.365	0.488	1.22	J	<	0.494	1.23	U	<	0.439	1.10	U	<	0.486	1.21	U	<	0.490	1.23	U
NEtFOSAA	-	<	0.442	1.10	U	<	0.406	1.01	U	<	0.488	1.22	U	<	0.494	1.23	U	<	0.439	1.10	U	<	0.486	1.21	U	<	0.490	1.23	U
NMeFOSAA	-	<	0.442	1.10	U	<	0.406	1.01	U	<	0.488	1.22	U	<	0.494	1.23	U	<	0.439	1.10	U	<	0.486	1.21	U	<	0.490	1.23	U
PFBA	-	1.64	0.442	1.10		13.9	0.406	1.01		9.25	0.488	1.22		0.163	0.494	1.23	J	0.736	0.439	1.10	J	0.200	0.486	1.21	J	5.33	0.490	1.23	
PFBS	1600000	3.47	0.442	1.10		50.0	8.12	20.3		26.0	0.488	1.22		<	0.494	1.23	U	1.17	0.439	1.10		0.778	0.486	1.21	J	4.41	0.490	1.23	
PFDA	-	0.256	0.442	1.10	J	<	0.406	1.01	U	<	0.488	1.22	U	<	0.494	1.23	U	<	0.439	1.10	U	<	0.486	1.21	U	0.420	0.490	1.23	J
PFDoA	-	<	0.442	1.10	U	<	0.406	1.01	U	<	0.488	1.22	U	<	0.494	1.23	U	<	0.439	1.10	U	<	0.486	1.21	U	<	0.490	1.23	U
PFHpA	-	2.11	0.442	1.10		22.0	0.406	1.01		4.59	0.488	1.22		<	0.494	1.23	U	0.513	0.439	1.10	J	0.225	0.486	1.21	J	7.75	0.490	1.23	
PFHxA	-	5.85	0.442	1.10		133	8.12	20.3		66.9	2.44	6.10		0.817	0.494	1.23	J	3.51	0.439	1.10		1.65	0.486	1.21		29.1	0.490	1.23	
PFHxS	-	27.3	0.442	1.10		350	8.12	20.3		54.8	2.44	6.10		0.511	0.494	1.23	J	5.25	0.439	1.10		4.89	0.486	1.21		18.2	0.490	1.23	
PFNA	-	2.28	0.442	1.10		0.197	0.406	1.01	J	<	0.488	1.22	U	<	0.494	1.23	U	0.219	0.439	1.10	J	<	0.486	1.21	U	3.01	0.490	1.23	
PFOA	1600	6.88	0.442	1.10		25.9	0.406	1.01		3.06	0.488	1.22		2.02	0.494	1.23		0.780	0.439	1.10	J	0.459	0.486	1.21	J	5.44	0.490	1.23	
PFOS	1600	456	22.1	55.2		118	8.12	20.3		20.2	0.488	1.22		0.884	0.494	1.23	J	16.7	0.439	1.10		<	0.486	1.21	U	77.7	2.45	6.13	
PFPeA	-	4.78	0.442	1.10		41.4	8.12	20.3		29.8	0.488	1.22		0.433	0.494	1.23	J	2.20	0.439	1.10		0.529	0.486	1.21	J	21.7	0.490	1.23	
PFTeDA	-	<	0.442	1.10	U	<	0.406	1.01	U	<	0.488	1.22	U	<	0.494	1.23	U	<	0.439	1.10	U	<	0.486	1.21	U	<	0.490	1.23	U
PFTrDA	-	<	0.442	1.10	U	<	0.406	1.01	U	<	0.488	1.22	U	<	0.494	1.23	U	<	0.439	1.10	U	<	0.486	1.21	U	<	0.490	1.23	U
PFUnDA	-	<	0.442	1.10	U	<	0.406	1.01	U	<	0.488	1.22	U	<	0.494	1.23	U	<	0.439	1.10	U	<	0.486	1.21	U	0.303	0.490	1.23	J

Grey Fill — Detected concentration exceeded OSD Screening Levels

References

a. Assistant Secretary of Defense, 2019. Risk Based Screening Levels Calculated for PFOS, PFOA, PFBS 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.

Interpreted Qualifiers

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J- = Estimated concentration, biased low

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

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8:2 FTS	8:2 fluorotelomer sulfonate
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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

AOI	Area of Interest
DUP	Duplicate
ft	feet
HQ	Hazard quotient
LCMSMS	Liquid Chromatography 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
Shallow Subsurface Soil
Site Inspection Report, Joint Force Training Base, Los Alamitos

Area of Interest		AOI03																				AOI04							
Sample ID		AOI3-9-SB-14-14.5-102419				AOI3-10-SB-10.5-11-102419				AOI3-11-SB-8.5-9-102419				AOI3-11-SB-11-11.5-102419				AOI3-12-SB-7-7.5-102419				AOI4-1-SB-5.5-6-102519				AOI4-1-SB-9.5-10-102519			
Sample Date		10/24/2019				10/24/2019				10/24/2019				10/24/2019				10/24/2019				10/25/2019				10/25/2019			
Depth		14 - 14.5 ft				10.5 - 11 ft				8.5 - 9 ft				11 - 11.5 ft				7 - 7.5 ft				5.5 - 6 ft				9.5 - 10 ft			
Analyte	OSD Screening Level [a]	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 5.1 Table B-15 (ug/Kg)																													
6:2 FTS	-	0.299	0.491	1.23	J	0.201	0.472	1.18	J	1.29	0.481	1.20		1.48	0.499	1.25		115	2.25	5.62		<	0.497	1.24	U	<	0.469	1.17	U
8:2 FTS	-	<	0.491	1.23	U	<	0.472	1.18	U	<	0.481	1.20	U	<	0.499	1.25	U	0.858	0.450	1.12	J	<	0.497	1.24	U	<	0.469	1.17	U
NEtFOSAA	-	<	0.491	1.23	U	<	0.472	1.18	U	<	0.481	1.20	U	<	0.499	1.25	U	<	0.450	1.12	U	<	0.497	1.24	U	<	0.469	1.17	U
NMeFOSAA	-	<	0.491	1.23	U	<	0.472	1.18	U	<	0.481	1.20	U	<	0.499	1.25	U	<	0.450	1.12	U	<	0.497	1.24	U	<	0.469	1.17	U
PFBA	-	<	0.491	1.23	U	0.332	0.472	1.18	J	2.37	0.481	1.20		0.612	0.499	1.25	J	16.6	0.450	1.12		0.195	0.497	1.24	J	<	0.469	1.17	U
PFBS	1600000	<	0.491	1.23	U	0.801	0.472	1.18	J	9.73	0.481	1.20		1.79	0.499	1.25		19.0	0.450	1.12		<	0.497	1.24	U	<	0.469	1.17	U
PFDA	-	<	0.491	1.23	U	<	0.472	1.18	U	<	0.481	1.20	U	<	0.499	1.25	U	<	0.450	1.12	U	<	0.497	1.24	U	<	0.469	1.17	U
PFDoA	-	<	0.491	1.23	U	<	0.472	1.18	U	<	0.481	1.20	U	<	0.499	1.25	U	<	0.450	1.12	U	<	0.497	1.24	UJ	<	0.469	1.17	U
PFHpA	-	<	0.491	1.23	U	0.719	0.472	1.18	J	1.80	0.481	1.20		0.735	0.499	1.25	J	33.1	0.450	1.12		<	0.497	1.24	U	<	0.469	1.17	U
PFHxA	-	0.344	0.491	1.23	J	2.10	0.472	1.18		23.0	0.481	1.20		5.82	0.499	1.25		152	2.25	5.62		0.419	0.497	1.24	J	<	0.469	1.17	U
PFHxS	-	0.417	0.491	1.23	J	6.56	0.472	1.18		67.6	9.62	24.1		22.3	0.499	1.25		191	2.25	5.62		<	0.497	1.24	U	<	0.469	1.17	U
PFNA	-	<	0.491	1.23	U	<	0.472	1.18	U	0.256	0.481	1.20	J	<	0.499	1.25	U	0.296	0.450	1.12	J	<	0.497	1.24	U	<	0.469	1.17	U
PFOA	1600	1.52	0.491	1.23		0.456	0.472	1.18	J	6.61	0.481	1.20		2.94	0.499	1.25		50.2	2.25	5.62		1.59	0.497	1.24		0.398	0.469	1.17	J
PFOS	1600	0.245	0.491	1.23	J	2.59	0.472	1.18		599	9.62	24.1		25.6	0.499	1.25		32.4	0.450	1.12		0.967	0.497	1.24	J	<	0.469	1.17	U
PFPeA	-	<	0.491	1.23	U	1.34	0.472	1.18		6.94	0.481	1.20		1.88	0.499	1.25		81.2	2.25	5.62		0.514	0.497	1.24	J	<	0.469	1.17	U
PFTeDA	-	<	0.491	1.23	U	<	0.472	1.18	U	<	0.481	1.20	U	<	0.499	1.25	UJ	<	0.450	1.12	U	<	0.497	1.24	UJ	<	0.469	1.17	U
PFTrDA	-	<	0.491	1.23	U	<	0.472	1.18	U	<	0.481	1.20	U	<	0.499	1.25	UJ	<	0.450	1.12	U	<	0.497	1.24	UJ	<	0.469	1.17	U
PFUnDA	-	<	0.491	1.23	U	<	0.472	1.18	U	0.478	0.481	1.20	J	<	0.499	1.25	U	<	0.450	1.12	U	<	0.497	1.24	U	<	0.469	1.17	U

Grey Fill — Detected concentration exceeded OSD Screening Levels

References

a. Assistant Secretary of Defense, 2019. Risk Based Screening Levels Calculated for PFOS, PFOA, PFBS 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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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

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Appendix F Laboratory Data
Shallow Subsurface Soil
Site Inspection Report, Joint Force Training Base, Los Alamitos

	Area of Interest	AOI05				AOI06				AOI07											
	Sample ID	AOI5-1-SB-8-8.5-102219				AOI6-1-SB-7-7.5-102219				AOI7-9-SB-7.5-8-102119				AOI7-10-SB-7.5-8-102119				AOI7-11-SB-7.5-8-102119			
	Sample Date	10/22/2019				10/22/2019				10/21/2019				10/21/2019				10/21/2019			
	Depth	8 - 8.5 ft				7 - 7.5 ft				7.5 - 8 ft				7.5 - 8 ft				7.5 - 8 ft			
Analyte	OSD Screening Level [a]	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 5.1 Table B-15 (ug/Kg)																					
6:2 FTS	-	1.61	0.475	1.19		0.833	0.488	1.22	J	<	0.420	1.05	U	<	0.465	1.16	U	<	0.502	1.26	U
8:2 FTS	-	<	0.475	1.19	U	<	0.488	1.22	U	<	0.420	1.05	U	<	0.465	1.16	U	<	0.502	1.26	U
NEtFOSAA	-	<	0.475	1.19	U	<	0.488	1.22	U	<	0.420	1.05	U	<	0.465	1.16	U	<	0.502	1.26	U
NMeFOSAA	-	<	0.475	1.19	U	<	0.488	1.22	U	<	0.420	1.05	U	<	0.465	1.16	U	<	0.502	1.26	U
PFBA	-	24.4	0.475	1.19		3.37	0.488	1.22		<	0.420	1.05	U	<	0.465	1.16	U	<	0.502	1.26	U
PFBS	1600000	38.3	0.475	1.19		<	0.488	1.22	U	<	0.420	1.05	U	<	0.465	1.16	U	<	0.502	1.26	U
PFDA	-	<	0.475	1.19	U	<	0.488	1.22	U	<	0.420	1.05	U	<	0.465	1.16	U	<	0.502	1.26	U
PFDoA	-	<	0.475	1.19	U	<	0.488	1.22	U	<	0.420	1.05	U	<	0.465	1.16	U	<	0.502	1.26	U
PFHpA	-	17.2	0.475	1.19		0.753	0.488	1.22	J	<	0.420	1.05	U	<	0.465	1.16	U	<	0.502	1.26	U
PFHxA	-	115	2.37	5.93		7.48	0.488	1.22		<	0.420	1.05	U	<	0.465	1.16	U	<	0.502	1.26	U
PFHxS	-	12.1	0.475	1.19		<	0.488	1.22	U	<	0.420	1.05	U	<	0.465	1.16	U	<	0.502	1.26	U
PFNA	-	<	0.475	1.19	U	<	0.488	1.22	U	<	0.420	1.05	U	<	0.465	1.16	U	<	0.502	1.26	U
PFOA	1600	23.4	0.475	1.19		<	0.488	1.22	U	<	0.420	1.05	U	<	0.465	1.16	U	<	0.502	1.26	U
PFOS	1600	1.67	0.475	1.19		<	0.488	1.22	U	<	0.420	1.05	U	<	0.465	1.16	U	<	0.502	1.26	U
PFPeA	-	56.3	2.37	5.93		11.8	0.488	1.22		<	0.420	1.05	U	<	0.465	1.16	U	<	0.502	1.26	U
PFTeDA	-	<	0.475	1.19	U	<	0.488	1.22	U	<	0.420	1.05	U	<	0.465	1.16	UJ	<	0.502	1.26	U
PFTrDA	-	<	0.475	1.19	U	<	0.488	1.22	U	<	0.420	1.05	U	<	0.465	1.16	UJ	<	0.502	1.26	U
PFUnDA	-	<	0.475	1.19	U	<	0.488	1.22	U	<	0.420	1.05	U	<	0.465	1.16	U	<	0.502	1.26	U

Grey Fill — Detected concentration exceeded OSD Screening Levels

References

a. Assistant Secretary of Defense, 2019. Risk Based Screening Levels Calculated for PFOS, PFOA, PFBS 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.

Interpreted Qualifiers

J = Estimated concentration

J- = Estimated concentration, biased low

U = The analyte was not detected at a level greater than or equal to the adjusted detection limit (DL)

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.

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

AOI	Area of Interest
DUP	Duplicate
ft	feet
HQ	Hazard quotient
LCMSMS	Liquid Chromatography 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
Deep Subsurface Soil
Site Inspection Report, Joint Force Training Base, Los Alamitos

Area of Interest	AOI1												AOI03				AOI5				AOI6				AOI7			
Sample ID	AOI1-1-SB-17-17.5-102219				AOI1-3-SB-16-16.5-102219				AOI1-5-SB-17.5-18-102319				AOI3-12-SB-19-19.5-102419				AOI5-1-SB-19-19.5-102219				AOI6-1-SB-18.5-19-102219				AOI7-9-SB-17-17.5-102119			
Sample Date	10/22/2019				10/22/2019				10/23/2019				10/24/2019				10/22/2019				10/22/2019				10/21/2019			
Depth	17 - 17.5 ft				16 - 16.5 ft				17.5 - 18 ft				19 - 19.5 ft				19 - 19.5 ft				18.5 - 19 ft				17 - 17.5 ft			
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
Soil, PFAS via PFAS by LCMSMS Compliant with QSM 5.1 Table B-15 (ug/Kg)																												
6:2 FTS	<	0.469	1.17	U	<	0.474	1.18	U	<	0.475	1.19	U	1.27	0.466	1.17		8.22	0.465	1.16		<	0.491	1.23	U	<	0.469	1.17	U
8:2 FTS	<	0.469	1.17	U	<	0.474	1.18	U	<	0.475	1.19	U	<	0.466	1.17	U	<	0.465	1.16	U	<	0.491	1.23	U	<	0.469	1.17	U
NEtFOSAA	<	0.469	1.17	U	<	0.474	1.18	U	<	0.475	1.19	U	<	0.466	1.17	U	<	0.465	1.16	U	<	0.491	1.23	U	<	0.469	1.17	U
NMeFOSAA	<	0.469	1.17	U	<	0.474	1.18	U	<	0.475	1.19	U	<	0.466	1.17	U	<	0.465	1.16	U	<	0.491	1.23	U	<	0.469	1.17	U
PFBA	<	0.469	1.17	U	0.261	0.474	1.18	J	<	0.475	1.19	U	<	0.466	1.17	U	2.09	0.465	1.16		<	0.491	1.23	U	<	0.469	1.17	U
PFBS	<	0.469	1.17	U	0.258	0.474	1.18	J	<	0.475	1.19	U	<	0.466	1.17	U	2.61	0.465	1.16		<	0.491	1.23	U	<	0.469	1.17	U
PFDA	<	0.469	1.17	U	<	0.474	1.18	U	<	0.475	1.19	U	<	0.466	1.17	U	<	0.465	1.16	U	<	0.491	1.23	U	<	0.469	1.17	U
PFDoA	<	0.469	1.17	U	<	0.474	1.18	U	<	0.475	1.19	U	<	0.466	1.17	U	<	0.465	1.16	U	<	0.491	1.23	U	<	0.469	1.17	U
PFHpA	<	0.469	1.17	U	0.337	0.474	1.18	J	<	0.475	1.19	U	<	0.466	1.17	U	1.52	0.465	1.16		<	0.491	1.23	U	<	0.469	1.17	U
PFHxA	0.357	0.469	1.17	J	1.54	0.474	1.18		0.546	0.475	1.19	J	0.371	0.466	1.17	J	8.08	0.465	1.16		<	0.491	1.23	U	<	0.469	1.17	U
PFHxS	0.665	0.469	1.17	J	3.52	0.474	1.18		<	0.475	1.19	U	0.982	0.466	1.17	J	22.4	0.465	1.16		<	0.491	1.23	U	<	0.469	1.17	U
PFNA	<	0.469	1.17	U	<	0.474	1.18	U	<	0.475	1.19	U	<	0.466	1.17	U	<	0.465	1.16	U	<	0.491	1.23	U	<	0.469	1.17	U
PFOA	1.49	0.469	1.17		21.5	0.474	1.18		3.25	0.475	1.19		0.176	0.466	1.17	J	15.7	0.465	1.16		<	0.491	1.23	U	<	0.469	1.17	U
PFOS	0.466	0.469	1.17	J	4.34	0.474	1.18		0.293	0.475	1.19	J	2.88	0.466	1.17		29.4	0.465	1.16		<	0.491	1.23	U	<	0.469	1.17	U
PFPeA	<	0.469	1.17	U	0.621	0.474	1.18	J	0.230	0.475	1.19	J	<	0.466	1.17	U	4.13	0.465	1.16		0.205	0.491	1.23	J	<	0.469	1.17	U
PFTeDA	<	0.469	1.17	U	<	0.474	1.18	U	<	0.475	1.19	U	<	0.466	1.17	U	<	0.465	1.16	U	<	0.491	1.23	U	<	0.469	1.17	UJ
PFTrDA	<	0.469	1.17	U	<	0.474	1.18	U	<	0.475	1.19	U	<	0.466	1.17	U	<	0.465	1.16	U	<	0.491	1.23	U	<	0.469	1.17	UJ
PFUnDA	<	0.469	1.17	U	<	0.474	1.18	U	<	0.475	1.19	U	<	0.466	1.17	U	<	0.465	1.16	U	<	0.491	1.23	U	<	0.469	1.17	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)

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.

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

AOI	Area of Interest
ft	feet
LOD	Limit of Detection
LOQ	Limit of Quantitation
Qual	Interpreted Qualifier
SB	soil boring
µg/Kg	micrograms per Kilogram
<	analyte not detected above the LOD

Area of Interest	AOI7							
Sample ID	AOI7-10-SB-17-17.5-102119				AOI7-11-SB-18-18.5-102119			
Sample Date	10/21/2019				10/21/2019			
Depth	17 - 17.5 ft				18 - 18.5 ft			
Analyte	Result	LOD	LOQ	Qual	Result	LOD	LOQ	Qual
Soil, PFAS via PFAS by LCMSMS Compliant with QSM 5.1 Table B-15 (ug/Kg)								
6:2 FTS	<	0.471	1.18	U	<	0.484	1.21	U
8:2 FTS	<	0.471	1.18	U	<	0.484	1.21	U
NEtFOSAA	<	0.471	1.18	U	<	0.484	1.21	U
NMeFOSAA	<	0.471	1.18	U	<	0.484	1.21	U
PFBA	<	0.471	1.18	U	<	0.484	1.21	U
PFBS	<	0.471	1.18	U	<	0.484	1.21	U
PFDA	<	0.471	1.18	U	<	0.484	1.21	U
PFDoA	<	0.471	1.18	U	<	0.484	1.21	U
PFHpA	<	0.471	1.18	U	<	0.484	1.21	U
PFHxA	<	0.471	1.18	U	<	0.484	1.21	U
PFHxS	<	0.471	1.18	U	<	0.484	1.21	U
PFNA	<	0.471	1.18	U	<	0.484	1.21	U
PFOA	<	0.471	1.18	U	<	0.484	1.21	U
PFOS	<	0.471	1.18	U	<	0.484	1.21	U
PFPeA	<	0.471	1.18	U	<	0.484	1.21	U
PFTeDA	<	0.471	1.18	U	<	0.484	1.21	UJ
PFTrDA	<	0.471	1.18	U	<	0.484	1.21	UJ
PFUnDA	<	0.471	1.18	U	<	0.484	1.21	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)

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.

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

AOI	Area of Interest
ft	feet
LOD	Limit of Detection
LOQ	Limit of Quantitation
Qual	Interpreted Qualifier
SB	soil boring
µg/Kg	micrograms per Kilogram
<	analyte not detected above the LOD

Appendix F Laboratory Data
Surface Water
Site Inspection Report, Joint Force Training Base, Los Alamitos

Area of Interest	AOI8																							
Sample ID	AOI 8-3-SW-102919				AOI 8-4-SW-102919				AOI 8-5-SW-102919				AOI 8-6-SW-102919				AOI 8-7-SW-102919				AOI 8-7-SW-102919-D			
Sample Date	10/29/2019				10/29/2019				10/29/2019				10/29/2019				10/29/2019				10/29/2019			
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 via PFAS by LCMSMS Compliant with QSM 5.1 Table B-15 (ng/L)																								
6:2 FTS	122	3.33	8.33		233	3.33	8.33		275	3.33	8.33	J-	306	3.33	8.33	J-	271	3.33	8.33		250	3.33	8.33	
8:2 FTS	4.97	3.33	8.33	J+	7.93	3.33	8.33	J	13.5	3.33	8.33		7.69	3.33	8.33	J	8.20	3.33	8.33	J	9.13	3.33	8.33	
NEtFOSAA	<	6.67	8.33	UJ	<	6.67	8.33	U	<	6.67	8.33	U	<	6.67	8.33	U	<	6.67	8.33	U	<	6.67	8.33	UJ
NMeFOSAA	<	6.67	8.33	U	<	6.67	8.33	U	<	6.67	8.33	U	<	6.67	8.33	U	<	6.67	8.33	U	<	6.67	8.33	U
PFBA	8.61	3.33	8.33		15.7	3.33	8.33		18.6	3.33	8.33		19.3	3.33	8.33		19.6	3.33	8.33		18.0	3.33	8.33	
PFBS	3.89	3.33	8.33	J	5.42	3.33	8.33	J	5.90	3.33	8.33	J	6.43	3.33	8.33	J	5.68	3.33	8.33	J	5.19	3.33	8.33	J
PFDA	<	3.33	8.33	U	1.89	3.33	8.33	J	3.16	3.33	8.33	J	2.35	3.33	8.33	J	2.44	3.33	8.33	J	1.97	3.33	8.33	J
PFDoA	<	3.33	8.33	UJ	<	3.33	8.33	UJ	<	3.33	8.33	U	<	3.33	8.33	U	<	3.33	8.33	U	<	3.33	8.33	UJ
PFHpA	6.63	3.33	8.33	J	11.6	3.33	8.33		14.0	3.33	8.33		15.8	3.33	8.33		15.5	3.33	8.33		13.3	3.33	8.33	
PFHxA	30.4	3.33	8.33		59.2	3.33	8.33		65.4	3.33	8.33		74.1	3.33	8.33		69.3	3.33	8.33		68.9	3.33	8.33	
PFHxS	16.5	3.33	8.33		28.8	3.33	8.33		33.5	3.33	8.33		36.6	3.33	8.33		33.4	3.33	8.33		30.3	3.33	8.33	
PFNA	2.86	3.33	8.33	J	5.01	3.33	8.33	J	6.68	3.33	8.33	J	6.02	3.33	8.33	J	4.41	3.33	8.33	J	4.22	3.33	8.33	J
PFOA	14.5	3.33	8.33		25.4	3.33	8.33		26.7	3.33	8.33		29.2	3.33	8.33		25.8	3.33	8.33		24.7	3.33	8.33	
PFOS	34.5	3.33	8.33		54.4	3.33	8.33		104	3.33	8.33	J+	71.2	3.33	8.33	J+	57.6	3.33	8.33		58.8	3.33	8.33	
PFPeA	33.7	3.33	8.33		63.8	3.33	8.33		74.1	3.33	8.33		80.2	3.33	8.33		76.2	3.33	8.33		70.8	3.33	8.33	
PFTeDA	<	3.33	8.33	UJ	<	3.33	8.33	UJ	<	3.33	8.33	U	<	3.33	8.33	U	<	3.33	8.33	UJ	<	3.33	8.33	UJ
PFTrDA	3.12	3.33	8.33	J+	<	3.33	8.33	UJ	<	3.33	8.33	U	<	3.33	8.33	U	<	3.33	8.33	UJ	<	3.33	8.33	UJ
PFUnDA	<	3.33	8.33	UJ	<	3.33	8.33	U	<	3.33	8.33	U	<	3.33	8.33	U	<	3.33	8.33	U	1.73	3.33	8.33	J

Interpreted Qualifiers

J = Estimated concentration

J- = Estimated concentration, biased low

J+ = Estimated concentration, biased high

U = The analyte was not detected at a level greater than or equal to the adjusted detection limit (DL)

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.

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

AOI	Area of Interest
D	Duplicate
LOD	Limit of Detection
LOQ	Limit of Quantitation
Qual	Interpreted Qualifier
ng/L	nanogram per liter
SW	Surface water
<	analyte not detected above the LOD

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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Appendix H
Responses to Regulatory Comments

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Los Alamitos JFTB, draft final PFAS SI, response

Hannon, Patricia@Waterboards <Patricia.Hannon@waterboards.ca.gov>

Tue 3/9/2021 9:02 AM

To: Gee, Walter F (Walt) II CTR (US) <walter.f.gee.ctr@mail.mil>
Cc: Reuben R Sendejas <reuben.r.sendejas.ctr@mail.mil>

Dear Mr. Gee:

We have completed our review of the *Draft Final Site Inspection Report on for Perfluorooctanesulfonic Acid (PFOS) and Perfluorooctanoic Acid (PFOA) Impacted Sites,* dated October 2020.

Eight areas of interest (AOI) were investigated for per- and polyfluoroalkyl substances. The eight areas are: AOI 1 – Old Crash Fire Rescue Training Pits, AOI 2 – New Crash Fire Rescue Training Pit, AOI 3 – West End of the Flightline, AOI 4 – Hangar 1, AOI 5 – Building 34 (JFTB LA Fire Station), AOI 6 – AFFF Release in the Vicinity of Building 80, AOI 7 – Emergency Response, and AOI 8 – Western Drainage Ditch.

Soil and groundwater samples were collected in October 2019. PFOA and PFOS were detected in the soil at all eight AOIs, and concentrations exceeded Department of Defense's (DoD) screening level of 130 microgram/kilogram (ug/kg) were detected at five of the eight AOIs. The highest concentrations detected were 1570 ug/kg for PFOA and 1120 ug/kg for PFOS. In the groundwater, PFOA and PFOS were detected at seven of the eight AOIs and the concentrations detected at six of the AOIs exceeded both the Water Board screening levels (PFOA 5.1 nanograms/liter (ng/L) and PFOS 6.5 ng/L) the DoD's screening level (40 ng/L for both PFOA and PFOS). The highest concentrations of PFOA and PFOS detected in the groundwater were 166,000 ng/L and 16,800 ng/L, respectively.

We concur with the recommendations in the report for proceeding to a Remedial Investigation at sites AOI 1, 2, 3, 4, 5, and 8. We also agree with the recommendation for no further action at site AOI 7. However, we do not agree with the recommendation for no further action at site AOI 6. The detection levels and reporting limits for PFOA and PFOS in groundwater exceeded our screening levels of 5.1 ng/L and 6.5 ng/L, respectively. Therefore, we request additional groundwater sampling at site AOI 6, with reporting limits less that the screen levels.

If you have any questions regarding this email, please contact me by email.

Sincerely,

Patricia Hannon, PG
Engineering Geologist
Land Disposal & DoD Section
California Regional Water Quality Control Board, Santa Ana Region
3737 Main Street, Suite 500
Riverside CA 92501-3348
Direct: 951-782-4498
Office reception: 951-782-4130
patricia.hannon@waterboards.ca.gov

Due to COVID-19 the best way to contact me is by email.

From:	Hannon, Patricia@Waterboards
To:	Gee, Walter F (Walt) II CTR (US)
Cc:	reuben.r.sendejas.civ@mail.mil; Thomas Tandoc ; Holbrook, Holly; brian.a.pierskalla.nfg@mail.mil
Subject:	[EXTERNAL] Subject: Los Alamitos JFTB, Response to the RTCs and Final SI for PFAS, GeoTracker ID: T0605969865
Date:	Thursday, July 15, 2021 11:41:39 AM

Walter Gee:

We concur with the response to our comment on the D*raft Final Site Inspection Report for Perfluorooctanesulfonic Acid (PFOS) and Perfluorooctanoic Acid (PFOA) Impacted Sites* (SI). Please add to the Final SI in an appropriate location, that "additional groundwater sampling and analysis (using methods which can achieve detection limits of less than 5 nanograms/liter) will be conducted at AOI 6 during the Remedial Investigation, as part of the site-wide OU1 groundwater investigation."

We request that a copy of our comment (sent via email) dated March 9, 2021, and the response to our comment be included in the Final SI, and that the Final SI be signed by a California Professional Engineer or Professional Geologist.

Please submit an updated Final SI to State Water Resources Control Board's website at https://geotracker.waterboards.ca.gov. For information on uploading to GeoTracker and obtaining a password click on this link UST Electronic Submittal of Information (ESI) | California State Water Resources Control Board .

If you have any questions regarding this email, please contact me by email.

Sincerely

Patricia Hannon, PG

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Responses to Comments for the							
Draft Final SI Report, Joint Forces Training Base Los Alamitos, Los Alamitos, CA							
Response Code: A = Agree with comment D = Disagree with comment C = Comment requires clarification							
Comment Number	**Commenter**	**Page(s)**	**Section**	**Line(s)**	**Comment**	**Response Code**	**Response**
TECHNICAL COMMENTS							
1	PH				We concur with the recommendations in the report for proceeding to a Remedial Investigationat sites AOI 1, 2, 3, 4, 5, and 8. We also agree with the recommendation for no further action at site AOI 7. However, we do not agree with the recommendation for no further action at site AOI6. The detection levels and reporting limits for PFOA and PFOS in groundwater exceeded ourscreening levels of 5.1 ng/L and 6.5 ng/L, respectively. Therefore, we request additionalgroundwater sampling at site AOI 6, with reporting limits less that the screen levels.	**C**	We acknowledge the observation that the detection levels and reporting limits for PFOA and PFOS in groundwater at AOI 6 exceeded the screening levels set forth by the California Water Board. Although AOI 6 is not listed as an individual site in the RI because PFOA and PFOS concentrations detected at this site did not exceed DoD screening levels, additional groundwater sampling and analysis (using methods with lowered detection limits) will be conducted at AOI 6 during the RI, as part of the site-wide OU 1 groundwater investigation.
2	PH				We concur with the response to our comment on the Draft Final Site Inspection Report for Perfluorooctanesulfonic Acid (PFOS) and Perfluorooctanoic Acid (PFOA) Impacted Sites (SI). Please add to the Final SI in an appropriate location, that “additional groundwater sampling and analysis (using methods which can achieve detection limits of less than 5 nanograms/liter) will be conducted at AOI 6 during the Remedial Investigation, as part of the site-wide OU1 groundwater investigation.”	A	Text "Although AOI 6 is not listed as an individual site in the RI because PFOA and PFOS concentrations detected at this site did not exceed DoD screening levels, additional groundwater sampling and analysis (using methods with lowered detection limits) will be conducted at AOI 6 during the RI, as part of the site-wide OU 1 groundwater investigation." has been added to Section 8.0 Summary and Outcome of Final SI Report.
EDITORIAL COMMENTS							

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